WKE JUN 2013

PROJECT ID: 1060-33-99
WITH: N/A

COUNTY: MILWAUKEE/WAUKESHA

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 = 366





DESIGN DESIGNATION

A.A.D.T. 2015	= N/A
A.A.D.T. 2035	= N/A
D.H.V. 2035	= N/A
D.D.	= N/A
T.	= N/A
DESIGN SPEED	= N/A
ESALS	= N/A

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (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)
- OVERHEAD ELECTRIC (OH)
- 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

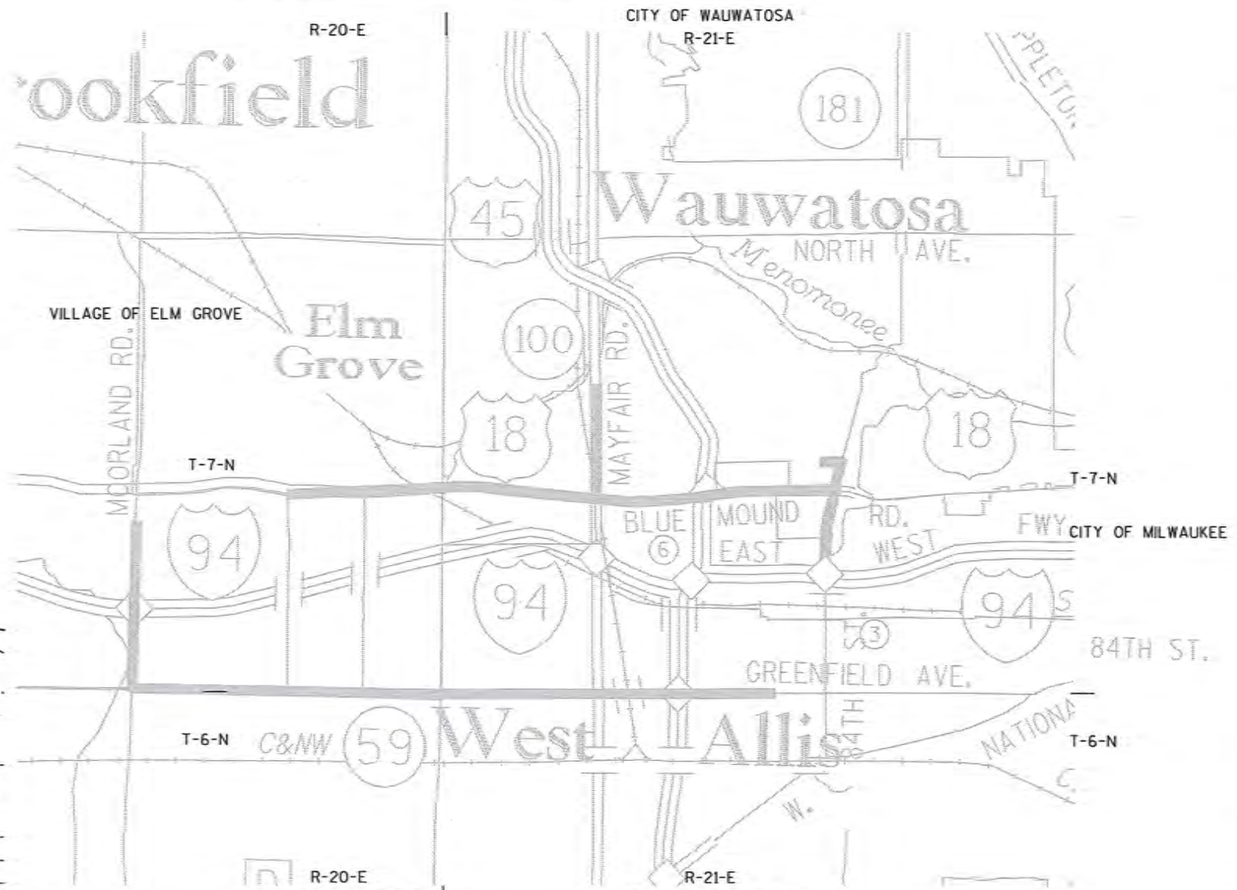
ZOO IC - INTEGRATED CORRIDORS

VARIOUS INTERSECTIONS, MILWAUKEE & WAUKESHA COUNTIES

IH 94
MILWAUKEE/WAUKESHA COUNTIES

STATE PROJECT NUMBER
1060-33-99

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1060-33-99		



LAYOUT
SCALE 0 0.5 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.0 MI.

SIGN STRUCTURES

S-40-448
S-40-450
S-40-451
S-40-452
S-40-453
S-67-414
S-67-412
S-67-415
S-67-411
S-67-416

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MILWAUKEE COUNTY ZONE, NAD 83 (2007) UNLESS OTHERWISE NOTED ON THE PLAN SHEET

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD 88 (2007)

FORWARD 45 ORIGINAL PLANS PREPARED BY MILWAUKEE, WISCONSIN

WISCONSIN JASON R. MATSON 37111 WAUKESHA, WI PROFESSIONAL ENGINEER

04/01/2013 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	FORWARD 45
Designer	FORWARD 45
Project Manager	CHRISTOPHER HAGER
Regional Examiner	
Regional Supervisor	ROBERTO GUTIERREZ
C.O. Examiner	

APPROVED FOR THE DEPARTMENT
DATE: 4/1/13 (Signature) P.E.

E

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

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

DIGGERS HOTLINE

Call 811 3 Work Days Before You Dig
Or Toll Free (800) 242-8511
Hearing Impaired TDD (800) 542-2289
www.DiggersHotline.com

GENERAL NOTES

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.

THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE AND AFFECTED UTILITIES PRIOR TO THE START OF WORK. ANY LOCAL MUNICIPAL UTILITY WHICH IS NOT A MEMBER OF THE DIGGERS HOTLINE MUST BE CONTACTED SEPARATELY.

ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES SHALL BE FILLED WITH COMPACTED BACKFILL GRANULAR UNLESS REGULATIONS REQUIRE OTHERWISE. BACKFILL GRANULAR MATERIAL IS INCIDENTAL TO THE REMOVAL ITEM

USE STANDARD DETAIL DRAWING FOR LANE CLOSURE AND SHOULDER CLOSURE FOR TRAFFIC CONTROL SIGNS AND DEVICES..

TRAFFIC CONTROL DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.

CURB AND GUTTER AND SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT, IF THE NEAREST JOINT IS 4-FEET OR LESS, IT SHALL BE RETURNED TO THE LOCATION SHOWN ON THE PLAN (SAWCUT) IF THIS NEAREST JOINT IS GREATER THAN 4-FEET

REMOVAL OF EROSION CONTROL DEVICES IS INCLUDED IN THE COST OF THEIR RESPECTIVE BID ITEMS.

THE EROSION CONTROL FEATURES AS SHOWN IN THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATIONS WILL BE DETERMINED BY THE ENGINEER IN THE FIELD.

SEED AND EROSION MAT OR SOD AND FERTILIZE ALL TOPSOILED AREAS WITHIN 10 DAYS AFTER PLACEMENT.

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

ORDER OF SECTION 2 DETAIL SHEETS

GENERAL NOTES
PLAN DETAILS
ICMS
EROSION CONTROL
SIGNING PLAN
TRAFFIC SIGNALS
COMMUNICATIONS
SECTION CORNERS

STANDARD ABBREVIATIONS

AEW	APRON END WALL
AGG	AGGREGATE
ASPH	ASPHALTIC
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
C&G	CURB AND GUTTER
C/L	CENTER OR CONSTRUCTION LINE
CMCP	CULVERT PIPE CORRUGATED METAL
CONC	CONCRETE
CP	CULVERT PIPE
CPRC	CULVERT PIPE REINFORCED CONCRETE
CSD	CONCRETE SURFACE DRAIN
CY	CUBIC YARD
D	DEGREE OF CURVE
DMS	DYNAMIC MESSAGE SIGN
Δ	DELTA
DISCH	DISCHARGE
EB	EASTBOUND
FC	FACE OF CURB
FE	FIELD ENTRANCE
FL	FLOW LINE
FTMS	FREEWAY TRAFFIC MANAGEMENT SYSTEM
HMA	HOT MIX ASPHALT
INV	INVERT
L	LENGTH OF CURVE
LHF	LEFT HAND FORWARD
LP	LOW POINT
LT	LEFT
MIN	MINIMUM
M/L	MATCHLINE
NB	NORTHBOUND
NC	NORMAL CROWN
PAVT	PAVEMENT
PC	POINT OF CURVE
PCC	POINT OF COMPOUND CURVE
PE	PRIVATE ENTRANCE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PLE	PERMANENT LIMITED EASEMENT
PRC	POINT OF REVERSE CURVE
PT	POINT OF TANGENT
R	RADIUS OF CURVE
R/L	REFERENCE LINE
R/W	RIGHT OF WAY
RC	REVERSE CROWN
RCAEW	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
REQD	REQUIRED
RHF	RIGHT HAND FORWARD
RO	RUN OFF LENGTH
RRSP	RAILROAD SPIKE
RT	RIGHT
SALV	SALVAGED
SB	SOUTHBOUND
SDD	STANDARD DETAIL DRAWING
SE	SUPER ELEVATION
SF	SQUARE FOOT
SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
STA	STATION
SY	SQUARE YARD
T	TANGENT LENGTH
TLE	TEMPORARY LIMITED EASEMENT
VCL	VERTICAL CURVE LENGTH
VPC	POINT OF VERTICAL CURVE
VPI	POINT OF VERTICAL INTERSECTION
VPT	POINT OF VERTICAL TANGENT
WB	WESTBOUND

FILE NAME : W:\Cadd\Preliminary\ICMS\Roads\cds\020201_gn.ppt PLOT DATE : 3/1/2013 3:54:19 AM PLOT BY : MSCD1S PLOT NAME : 020101_gn2 PLOT SCALE : 1:1

2

2

N

TERRACE DRIVE

W. BLUEMOUND ROAD

N. PROSPECT DRIVE

N. LENORE LANE

MGS GUARDRAIL 3
TERMINAL TYPE 2

END FULL HEIGHT
CURB HEAD

5'

DEPRESS
CURB
HEAD

160'

12.5'

MGS GUARDRAIL TERMINAL EAT

MGS GUARDRAIL 3

MGS GUARDRAIL TERMINAL EAT

12.5'

5'

160'

100'

DEPRESS CURB HEAD

END FULL HEIGHT
CURB HEAD

CURB TRANSITION

MGS GUARDRAIL 3

MGS GUARDRAIL 3
TERMINAL TYPE 2

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	PLAN DETAILS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021242_pd.dgn PLOT DATE : 01-MAR-2013 11:22 PLOT BY : MSCAMG PLOT NAME : 021242_pd PLOT SCALE : 100:1

2

LEGEND

TRAFFIC CONTROL BARRICADE TYPE II WITH LIGHTS TYPE A

TRAFFIC CONTROL BARRICADE TYPE II WITH LIGHTS TYPE A AND ATTACHED SIGN

SAW CUT

NOTE: SEE SDD TRAFFIC CONTROL SISEWALK CLOSURE FOR MORE DETAIL

N

N. 87TH STREET

W. WISCONSIN AVENUE

PLEASANT VIEW STREET

SAW CUT AND REMOVE CONCRETE SIDEWALK REPLACE WITH CONCRETE SIDEWALK 5-INCH ON BASE AGGREGATE DENSE 1 1/4-INCH, 4-INCH MATCH EXISTING SIDEWALK

SIDEWALK CLOSED USE OTHER SIDE
R9-10
24" X 12"
INSTALL ON TYPE II BARRICADE

SIDEWALK CLOSED
R9-9
24" X 12"
INSTALL ON TYPE II BARRICADE

SIDEWALK CLOSED USE OTHER SIDE
R9-10
24" X 12"
INSTALL ON TYPE II BARRICADE

REMOVE CONCRETE SIDEWALK REPLACE WITH CONCRETE SIDEWALK 5-INCH ON BASE AGGREGATE DENSE 1 1/4-INCH, 4-INCH MATCH EXISTING SIDEWALK

PKNG

FLAG

2

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	PLAN DETAILS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021275_pd.dgn PLOT DATE : 28-FEB-2013 23:19 PLOT BY : MSCD1S PLOT NAME : 021275_pd PLOT SCALE : 100:1
WISDOT/CADDS SHEET 42

2

FTMS GENERAL NOTES

1. THESE PLANS AND THE ASSOCIATED SPECIAL PROVISIONS REFLECT CONDITIONS KNOWN DURING THE DEVELOPMENT OF THE PLANS AND TECHNICAL SPECIAL PROVISIONS. ALL SCALES, DIMENSIONS AND LOCATIONS SHOWN IN THESE PLANS ARE APPROXIMATE. ACTUAL PHYSICAL FIELD CONDITIONS SHALL PROVIDE THE BASIS FOR THE APPLICATION OF WORK SHOWN IN THE PLANS. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE APPLICATION OF ALL WORK SHOWN IN THE PLANS TO THE ACTUAL PHYSICAL FIELD CONDITIONS TO PROVIDE A COMPLETE AND ACCEPTED PROJECT. IN THE EVENT THAT ACTUAL PHYSICAL FIELD CONDITIONS AFFECT OR PREVENT THE APPLICATION OR PROGRESSION OF ANY WORK SHOWN IN THE PLANS OR TECHNICAL SPECIAL PROVISIONS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY, AND PRIOR TO ANY FURTHER WORK ACTIVITY. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY LOCATION CHANGES OTHER THAN MINOR ADJUSTMENTS.
2. BE AWARE THAT ALL EXISTING UNDERGROUND AND ABOVE GROUND STRUCTURES AND FACILITIES WITHIN THE SCOPE OF THIS PROJECT MAY NOT BE LOCATED IN THE PLANS. THE CONTRACTOR IS FULLY RESPONSIBLE FOR LOCATING AND AVOIDING ALL UNDERGROUND AND ABOVE GROUND STRUCTURES AND FACILITIES.
3. BE AWARE THAT NO TEST BORINGS WERE MADE WHERE CONDUITS, PULLBOXES, POLES, CABINET FOUNDATIONS, OR OTHER EQUIPMENT IS TO BE INSTALLED. THE CONTRACTOR IS FULLY RESPONSIBLE FOR EXAMINING THE JOB SITE CONDITIONS BEFORE SUBMITTING BID PROPOSALS.
4. RESTORATION OF LANDSCAPE TO THE ORIGINAL CONDITION WITH TOPSOIL, FERTILIZER, SEED, AND EROSION MAT IS INCIDENTAL TO THE COST OF INSTALLING FTMS ITEMS.
5. THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.
6. DUE TO RAMP, LANE, SHOULDER CLOSURE RESTRICTIONS, AND WORK UNDER OTHER CONTRACTS, SOME WORK MAY BE REQUIRED TO BE PERFORMED AT NIGHT.
7. THE CONTRACTOR IS FULLY RESPONSIBLE FOR COORDINATING RAMP, LANE, SHOULDER, AND ROADWAY CLOSURES WITH OTHER CONTRACTS IN THE AREA.
8. THE CONTRACTOR SHALL CONTACT THE WISDOT STATEWIDE TRAFFIC OPERATIONS CENTER AT (414) 227-2166 FIVE (5) WORKING DAYS PRIOR TO ENTERING ANY EXISTING WISDOT FTMS OR ITS CABINET.
9. HAND DIG TRENCHES CROSSING EXISTING CONDUIT CONTAINING FIBER OPTIC CABLE.
10. VISUALLY VERIFY DEPTHS OF EXISTING CONDUITS CONTAINING FIBER OPTIC CABLE PRIOR TO CROSSING BY DIRECTIONAL BORE OR SPECIAL METHOD.
11. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

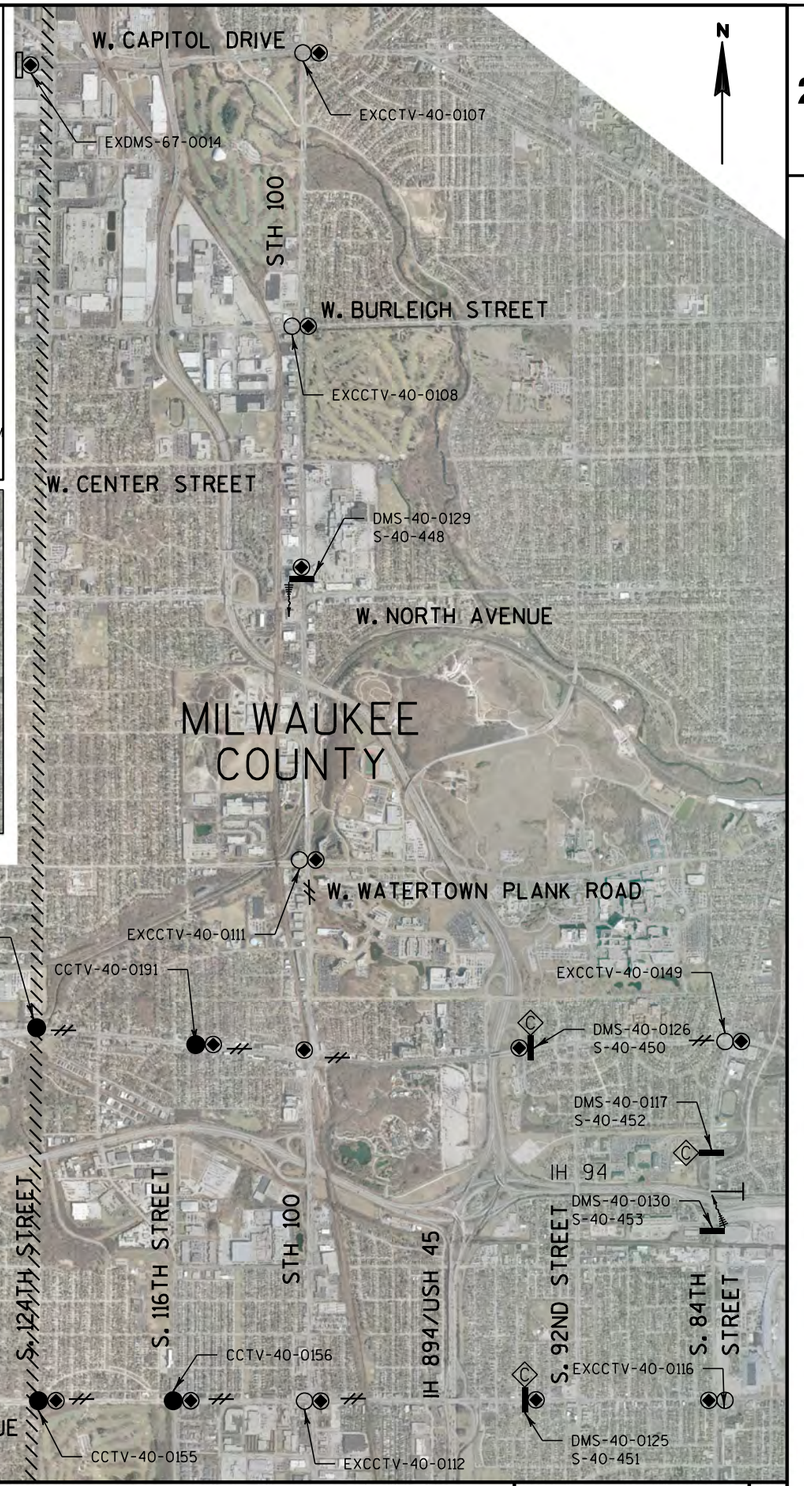
LEGEND

FTMS CONVENTIONAL SYMBOLS	EXISTING	PROPOSED
CCTV CAMERA AND POLE	◄▬●	◄▬●
FTMS FIELD CABINET AND BASE	▭	▭
POLE MOUNTED CABINET	▭	▭
METER BREAKER PEDESTAL	⊠	⊠
24"X36" STEEL PULL BOX	◑	◑
ANTENNA POLE	⫴	⫴
MANHOLE	Ⓜ	Ⓜ
FTMS (ITS) CONDUIT	— · —	— — —
BREAKER DISCONNECT BOX	⊞	⊞
COMMUNICATIONS VAULT, TYPE 1	V	V

FTMS STANDARD ABBREVIATIONS

CCTV	CLOSED CIRCUIT TELEVISION SITE
CB	CONTROLLER CABINET
PB	PULL BOX
MH	MANHOLE
CV	COMMUNICATIONS VAULT
MB	METER BREAKER
FOC	FIBER OPTIC CABLE
EX	EXISTING
DMS	DYNAMIC MESSAGES SIGN
FTMS	FREEWAY TRAFFIC MANAGEMENT SYSTEM
ICMS	INTEGRATED CORRIDOR MANAGEMENT SYSTEM



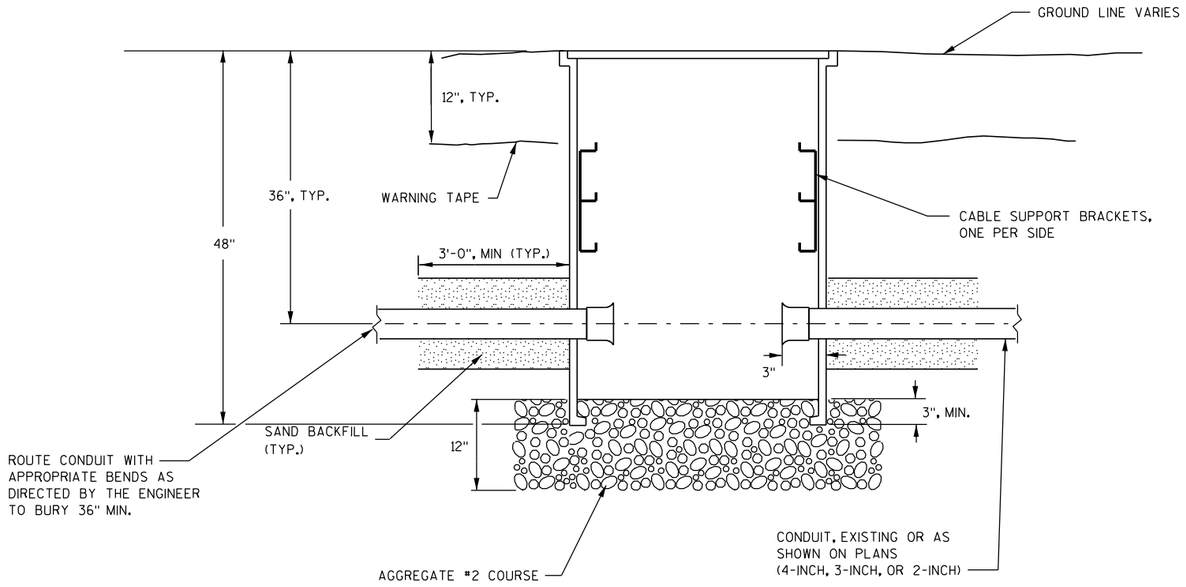




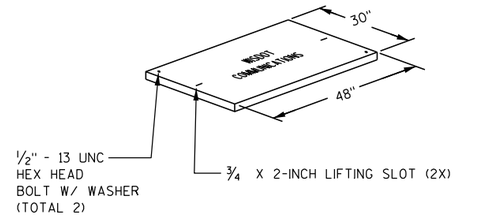
OVERVIEW LEGEND:

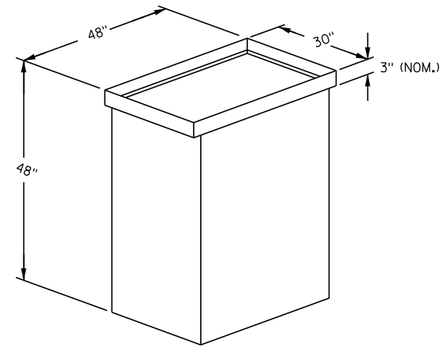
CCTV	●
EXISTING CCTV	○
DMS	▬
EXISTING DMS	▭
BLUETOOTH DETECTOR	◆
COUNTY BOUNDARY	//////
900 MHZ SERIAL RADIO WITH ANTENNA	⫴
900 MHZ OMNI ANTENNA	⊣
CELLULAR MODEM	Ⓒ
FIBER OPTIC CABLE	//
COMMUNICATION HUB	H

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS - OVERVIEW	SHEET	E

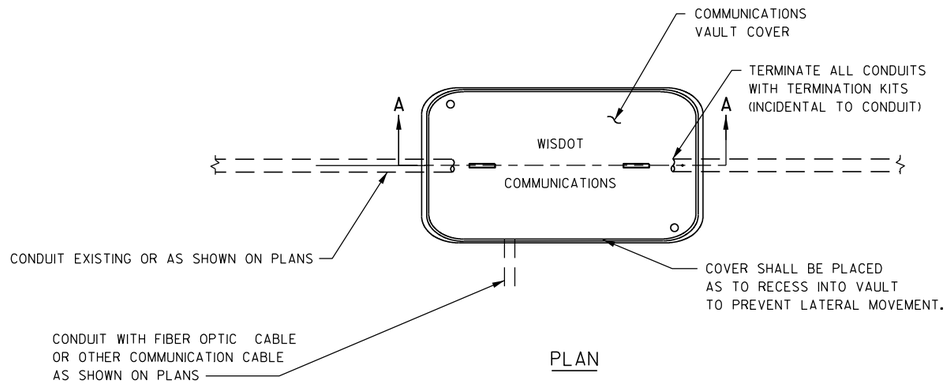


SECTION A-A





ISOMETRIC



PLAN

COMMUNICATIONS VAULT

NOTES

1) BOX SHALL HAVE AN OPEN BASE.

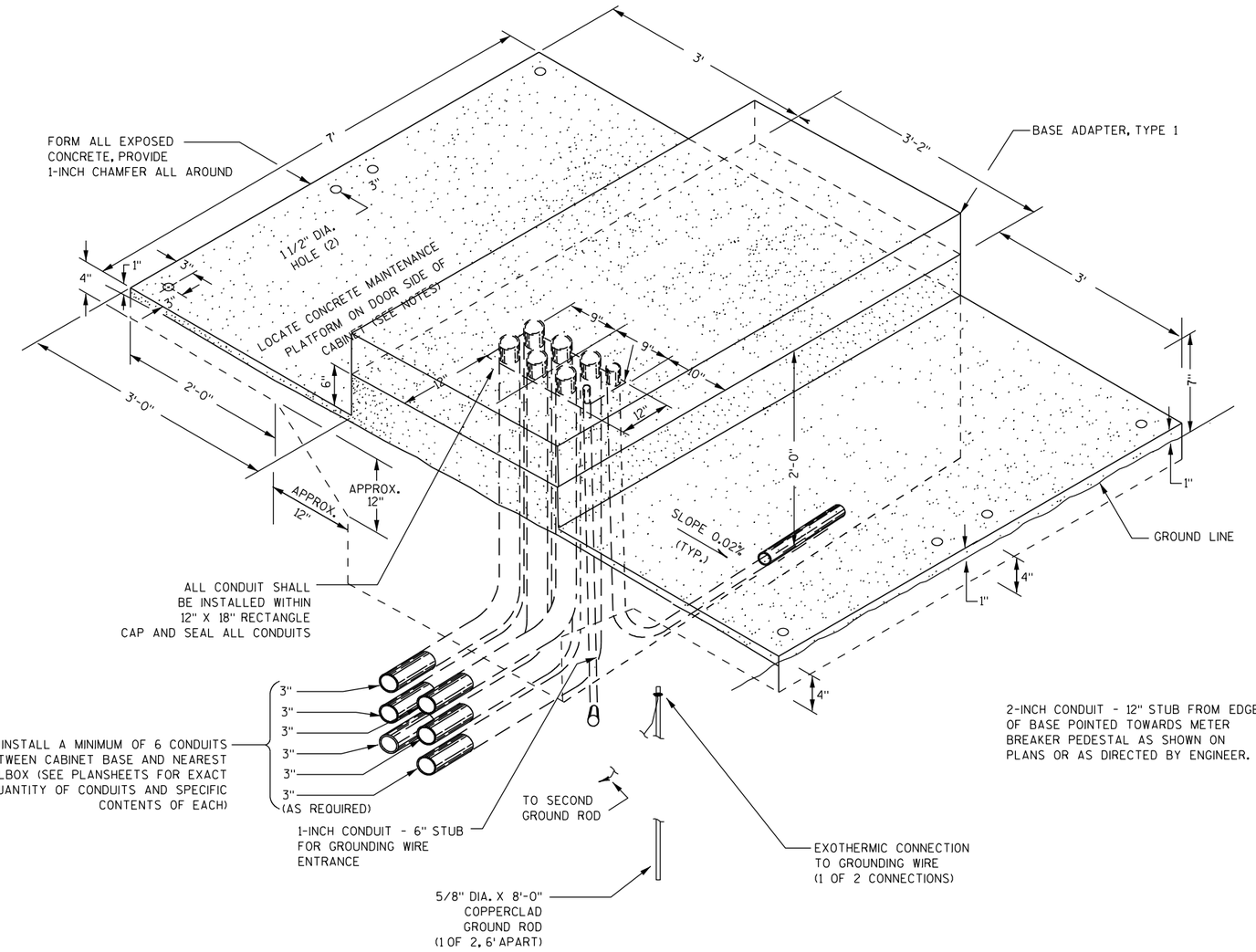
2) COVER SHALL HAVE A MINIMUM DESIGN LOAD OF 15,000 LBS AND SHALL LOCK.

3) ALL OPENINGS IN STRUCTURE MUST BE MACHINED AT TIME OF FABRICATION, OR PUNCH DRIVEN AT TIME OF PLACEMENT.

4) VAULTS SHALL BE OF ONE-PIECE CONSTRUCTION. TWO-PIECE/STACKABLE VAULTS WILL NOT BE PERMITTED.

5) FIELD PLACEMENT OF COMMUNICATIONS VAULTS SHALL BE AS DIRECTED BY THE ENGINEER.

2



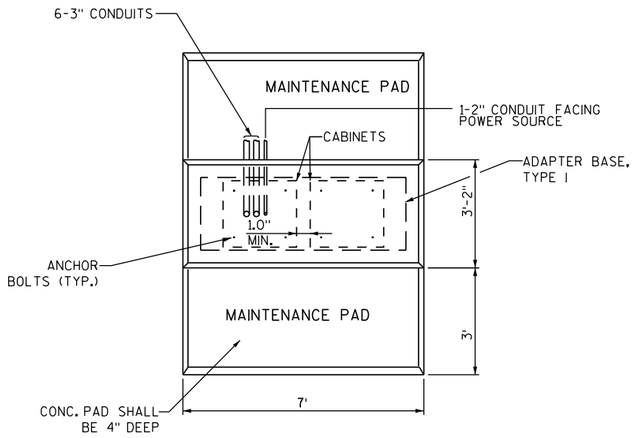
DUAL ITS CONCRETE BASE (DETAIL 1)

NOTES

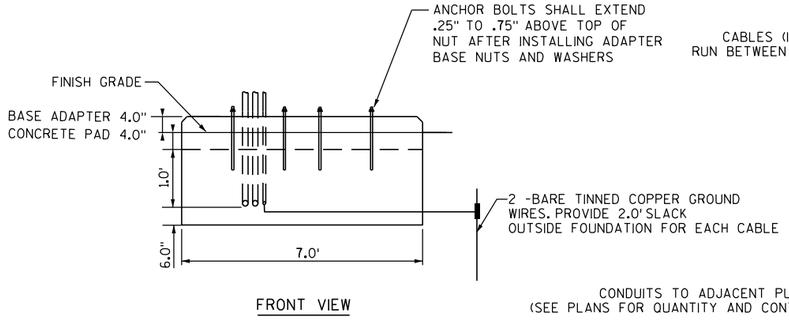
1) DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
2) WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTER FITTINGS, U.L. LISTED FOR ELECTRICAL USE, SHALL BE USED.
3) CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 3-INCHES.
4) DEPTH OF CONDUIT SHALL BE 24-INCHES MINIMUM AND 36-INCHES MAXIMUM.
5) ANY EXCEPTION TO THE MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.
6) CONTROLLER CABINET BASE TOP SURFACES SHALL BE TROWEL FINISHED AND LEVEL, PRIOR TO CABINET INSTALLATION. LEVELING OF TOP SURFACES AFTER CONCRETE BASE HAS CURED SHALL ONLY BE ACCOMPLISHED BY GRINDING.
7) MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.
8) MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.
9) ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.
10) CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.
11) PLUG ALL BELOW GRADE NONMETALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.
12) 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 PLACED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.
13) CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6-INCH MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.
14) ALL METALLIC CONDUIT ENDS AT TOP OF CONCRETE BASES SHALL HAVE BUSHINGS IF WIRE IS INSTALLED.
15) ALL NONMETALLIC CONDUIT ENDS AT TOP OF CONCRETE BASES SHALL HAVE END BELLS IF WIRE IS INSTALLED.
16) INSTALL FOUR 3/4-INCH DIAMETER x 4-INCH MINIMUM LENGTH APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET BASES. THE ANCHOR BOLTS SHALL BE STAINLESS STEEL AND LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ATTACH THE CONTROLLER CABINET TO THE BASE.

NOT TO SCALE

2



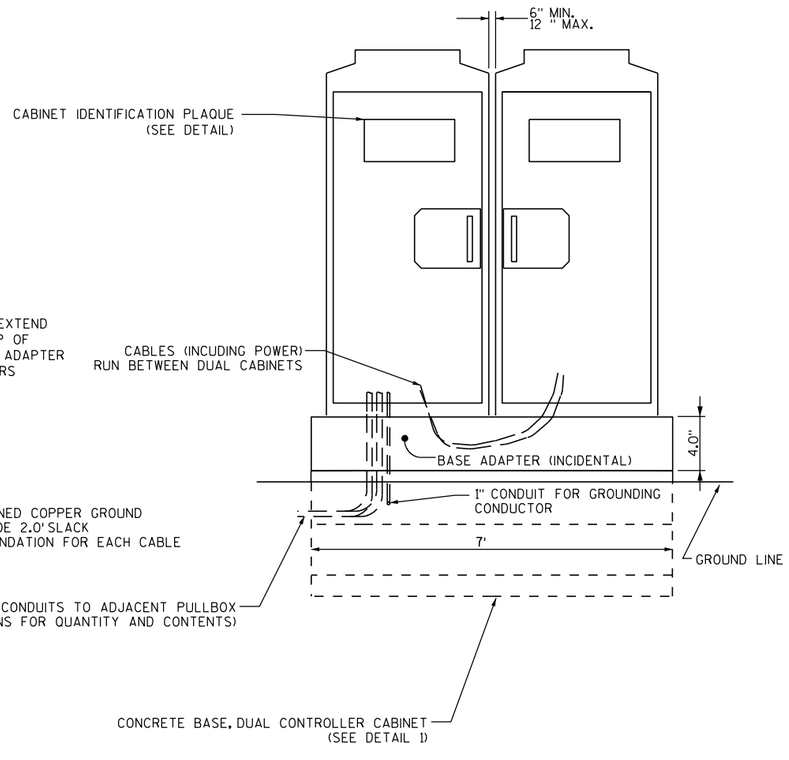
PLAN VIEW



FRONT VIEW

DUAL FTMS FIELD CABINETS

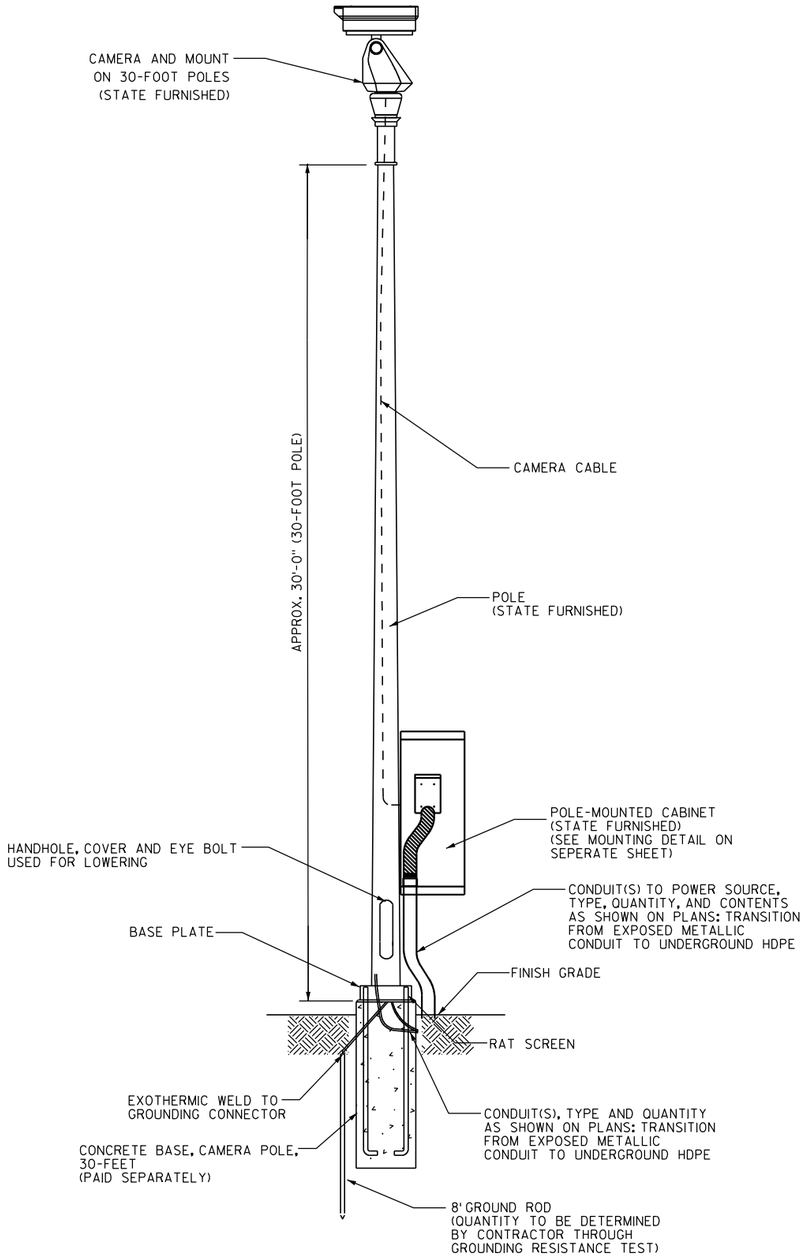
STATE-FURNISHED TYPE 334 CONTROL CABINETS



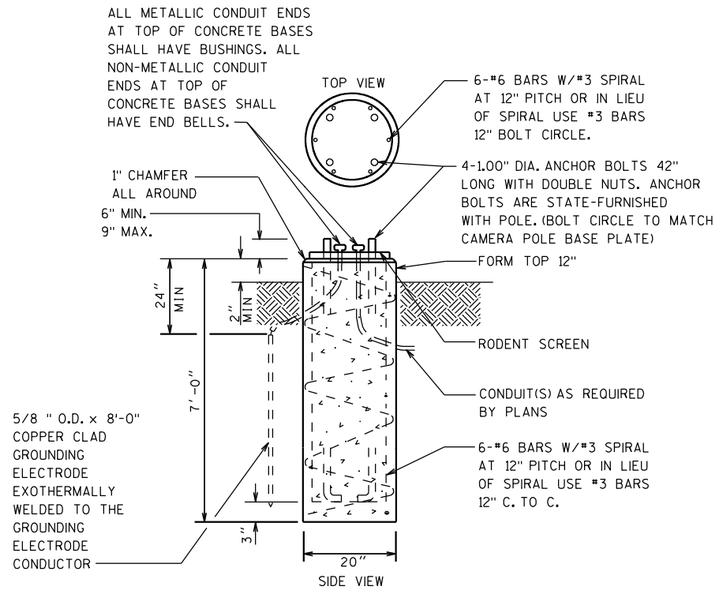
CONCRETE BASE, DUAL CONTROLLER CABINET (DETAIL 2)

NOTES

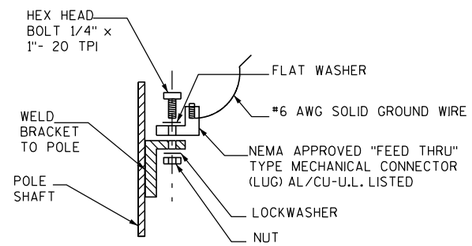
1) DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
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6) CONTROLLER CABINET BASE TOP SURFACES SHALL BE TROWEL FINISHED AND LEVEL, PRIOR TO CABINET INSTALLATION. LEVELING OF TOP SURFACES AFTER CONCRETE BASE HAS CURED SHALL ONLY BE ACCOMPLISHED BY GRINDING.
7) MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.
8) MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.
9) ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.
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13) CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6-INCH MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.
14) ALL METALLIC CONDUIT ENDS AT TOP OF CONCRETE BASES SHALL HAVE BUSHINGS IF WIRE IS INSTALLED.
15) ALL NON METALLIC CONDUIT ENDS AT TOP OF CONCRETE BASES SHALL HAVE END BELLS IF WIRE IS INSTALLED.
16) ANCHOR BOLTS TO ANCHOR THE FIELD CABINETS TO THE CABINET BASE SHALL BE STATE FURNISHED WITH THE FIELD CABINET
17) CONTRACTOR SHALL CONFIRM BOLT PATTERN OF CABINET PRIOR TO CONSTRUCTION OF CONCRETE BASE.
18) THE CABINETS AND ADAPTER BASE SHALL BE SEALED WITH A SILICONE SEALANT AT THE INSIDE AND OUTSIDE JOINTS.
19) MAINTENANCE PADS SHALL BE INSTALLED ON BOTH SIDES OF THE CABINET.



CAMERA POLE WITH CAMERA LOWERING HARDWARE



CONCRETE BASE, 30' CAMERA POLE

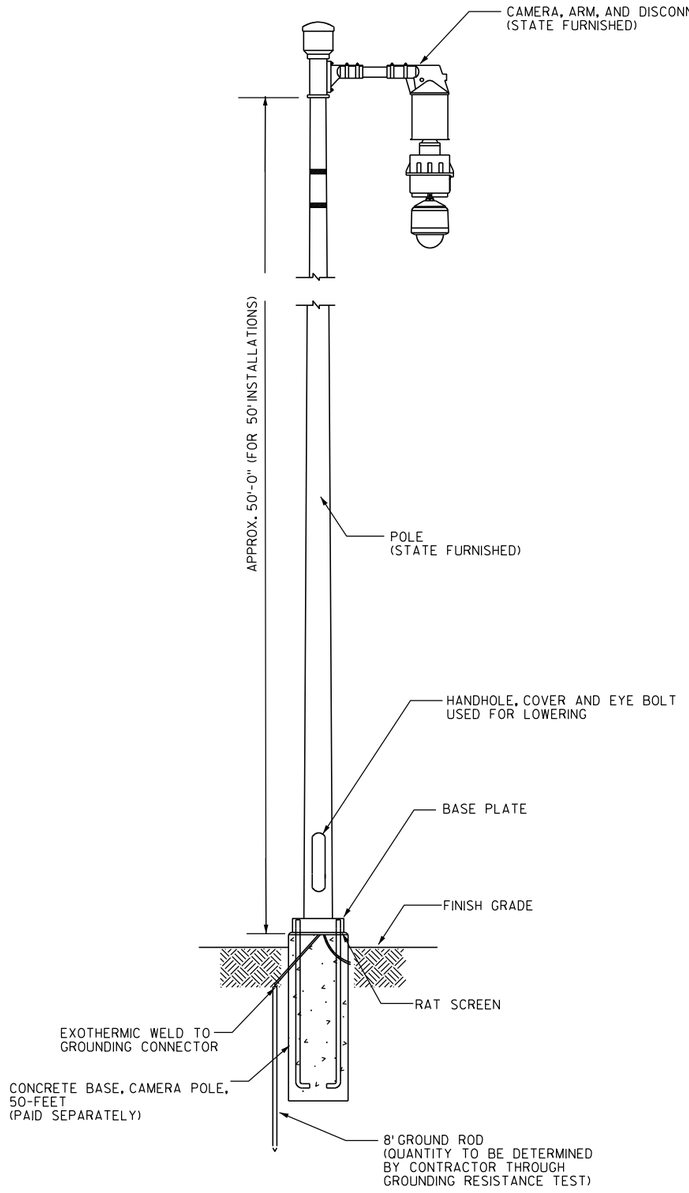


FIELD INSTALLED GROUNDING LUG

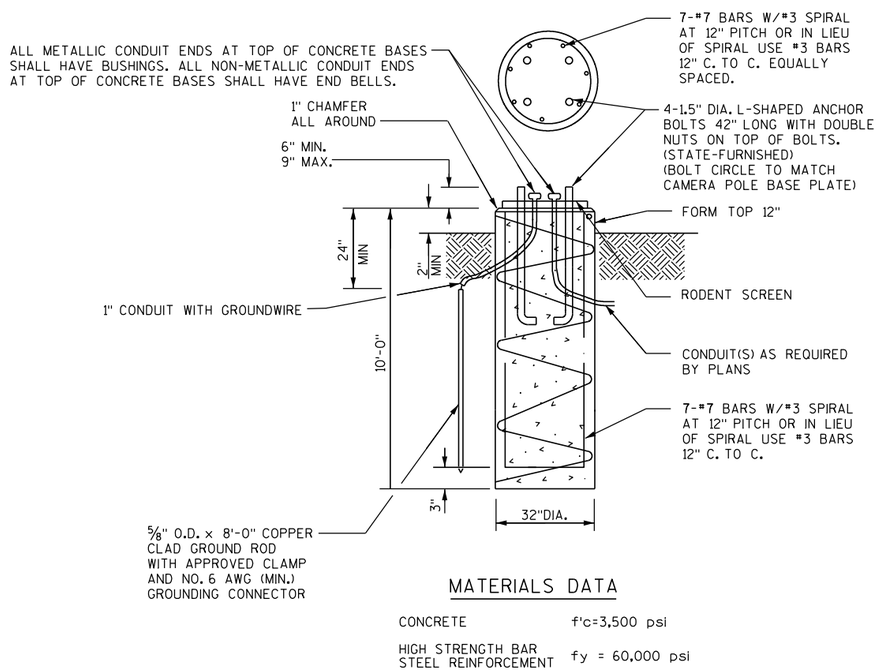
NOTES

1) ALL HARDWARE AND FASTENERS SHALL BE STAINLESS STEEL
2) POLE DRAWINGS SHOWN FOR BIDDING INFORMATION PURPOSES ONLY. POLES WILL BE STATE FURNISHED.
3) CONTRACTOR SHALL CONFIRM BOLT PATTERN OF CAMERA POLE PRIOR TO CONSTRUCTION OF CONCRETE BASE.
4) CONTRACTOR SHALL INSTALL GROUNDING LUG AS SHOWN

30-FT CAMERA POLES & FOUNDATIONS



CAMERA POLE WITH CAMERA LOWERING HARDWARE

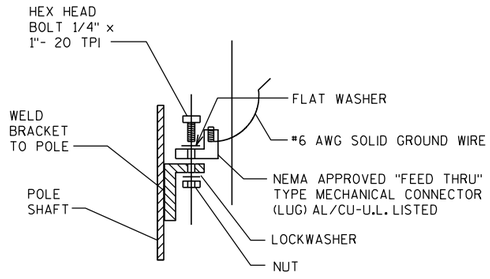


MATERIALS DATA

CONCRETE	f'c=3,500 psi
HIGH STRENGTH BAR STEEL REINFORCEMENT	fy = 60,000 psi

CONCRETE BASE, 50' CAMERA POLE

NOT TO SCALE



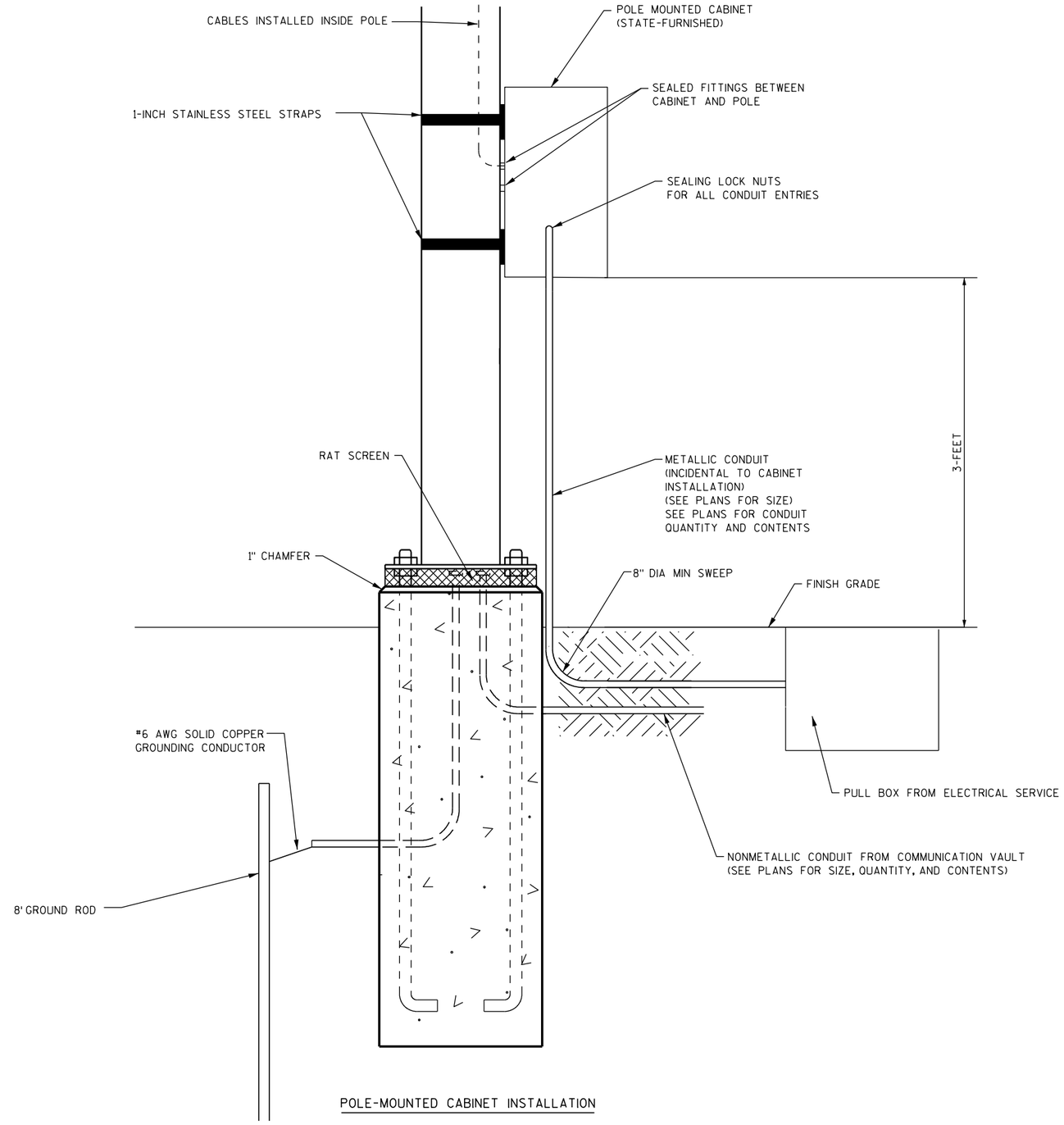
FIELD INSTALLED GROUNDING LUG

NOTES

1) ALL HARDWARE AND FASTENERS SHALL BE STAINLESS STEEL
2) POLE DRAWINGS SHOWN FOR BIDDING INFORMATION PURPOSES ONLY. POLES WILL BE STATE FURNISHED.
3) CONTRACTOR SHALL CONFIRM BOLT PATTERN OF CAMERA POLE PRIOR TO CONSTRUCTION OF CONCRETE BASE.
4) CONTRACTOR SHALL INSTALL GROUNDING LUG AS SHOWN

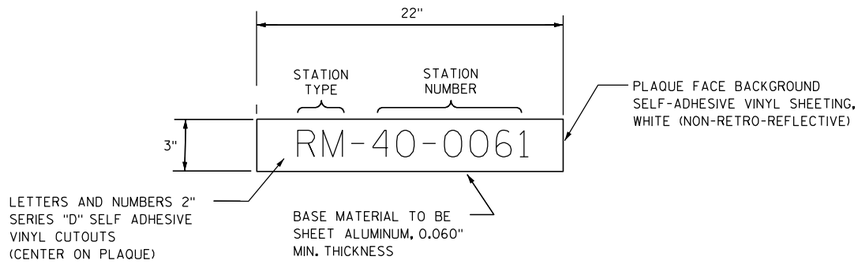
CAMERA POLES & FOUNDATIONS

2

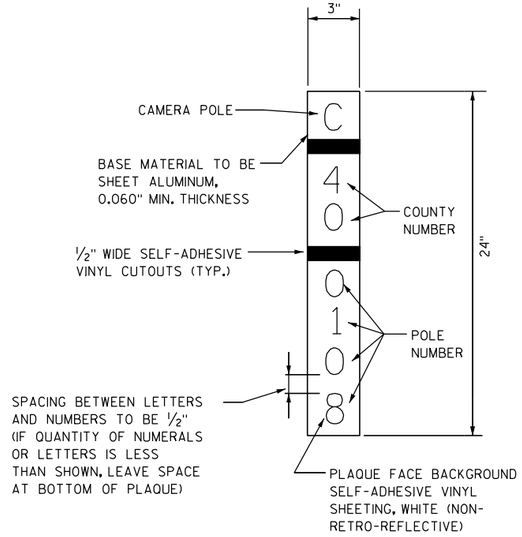


POLE-MOUNTED CABINET INSTALLATION

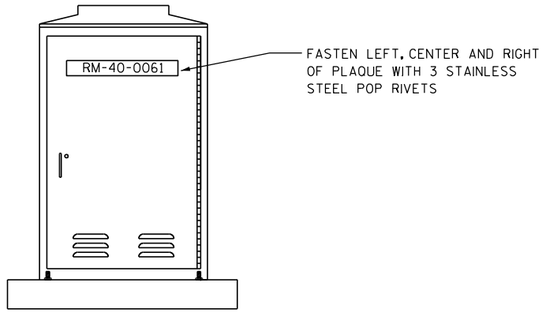
2



ITS FIELD CABINET IDENTIFICATION PLAQUE DETAIL



POLE IDENTIFICATION PLAQUE DETAIL



ITS FIELD CABINET IDENTIFICATION PLAQUE REQUIREMENTS AND PLACEMENTS

(TYPICAL ALL CONTROL CABINETS)

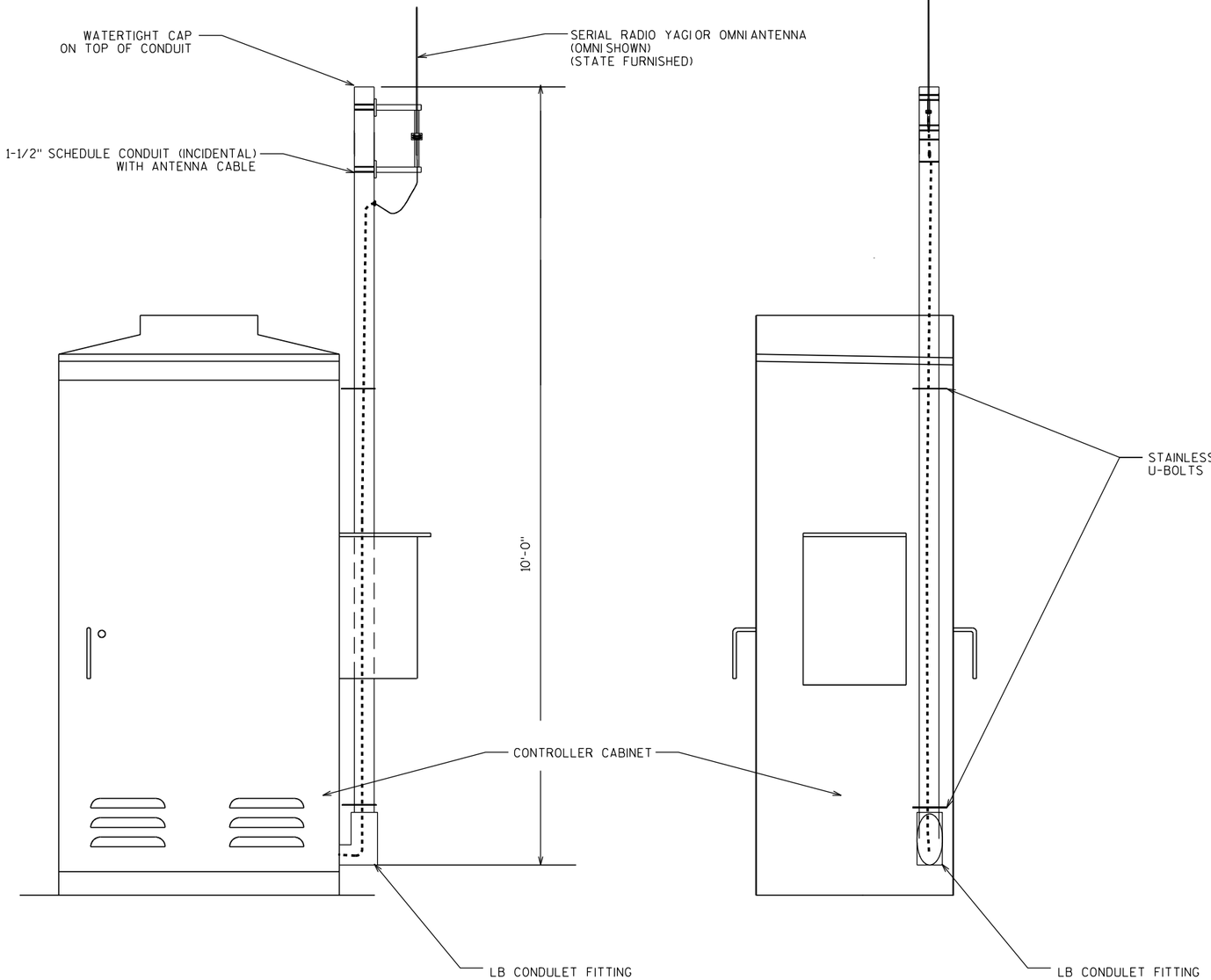
LEGEND STATION TYPE

RM - RAMP METER
CCTV - CLOSED CIRCUIT TELEVISION
ATR - AUTOMATIC TRAFFIC RECORDER
SDS - SYSTEM DETECTOR STATION
MD - MICROWAVE DETECTOR

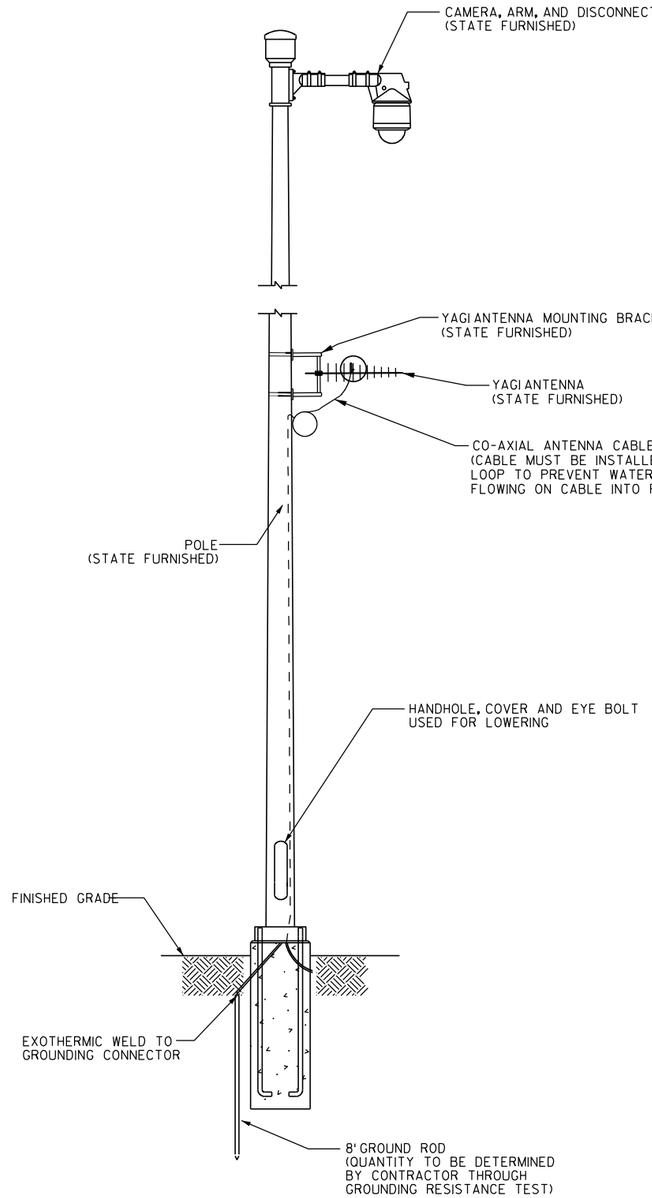
NOTES

1) TWO PLAQUES PER CABINET REQUIRED ON CONTROL CABINET.
2) FASTEN ONE PLAQUE ON FRONT DOOR, UPPER HALF.
3) FASTEN ONE PLAQUE ON SIDE FACING LOCAL STREET. IF NO LOCAL STREET NEARBY, OR IF SUCH LOCATION COINCIDES WITH LOCATION OF PLAQUE IN NOTE 2, FASTEN PLAQUE ON REAR OF CABINET, UPPER HALF.
4) COUNTY NUMBER NOT REQUIRED ON RAMP METER CABINETS.

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	FTMS DETAILS	SHEET	E

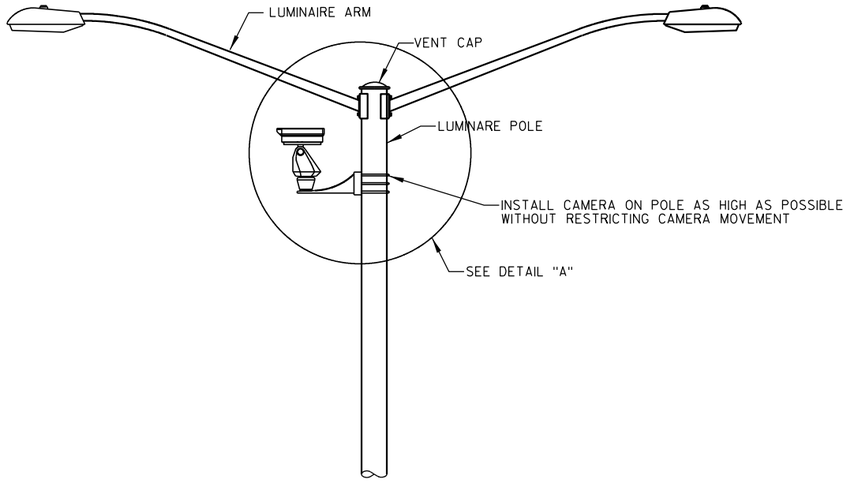


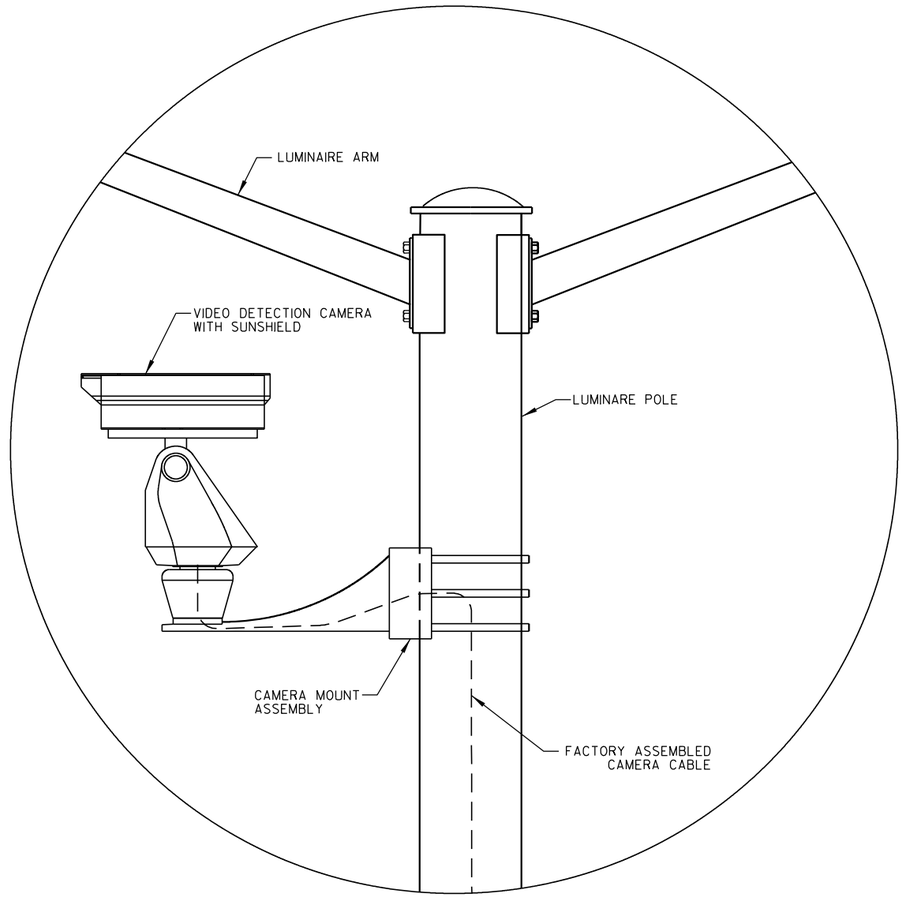
CABINET ANTENNA INSTALLATION



EXISTING CAMERA POLE YAGI ANTENNA INSTALLATION

2





DETAIL "A"

CCTV MOUNTING DETAIL
(LUMINAIRE OR SIGNAL POLE MOUNT)

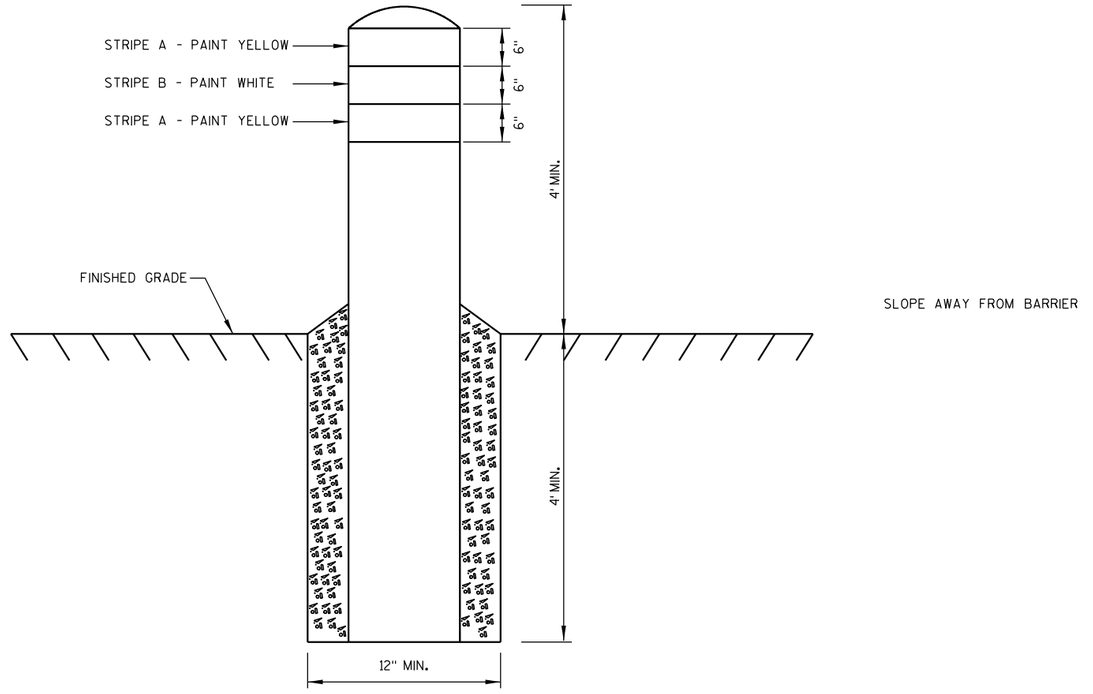
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	FTMS DETAILS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021401_fm.dgn PLOT DATE : 28-FEB-2013 23:21 PLOT BY : MSCD1S PLOT NAME : 021401_fm8 PLOT SCALE : 2:1
WISDOT/CADDS SHEET 42

NOTES:

1. GALVANIZED STEEL PIPE, SCHEDULE 40, 6" DIAMETER BY 8' MINIMUM LENGTH AND FILLED WITH CONCRETE. APPROXIMATELY 4 CU. FT. OF CONCRETE IS REQUIRED FOR THE FOUNDATION AND FILLING THE PIPE.
2. A CONCRETE FORMING TUBE IS REQUIRED FOR FOOTING TO PREVENT HEAVING DUE TO FROST.
3. FIELD LOCATION TO BE VERIFIED BY WISDOT ELECTRICAL FIELD UNIT.



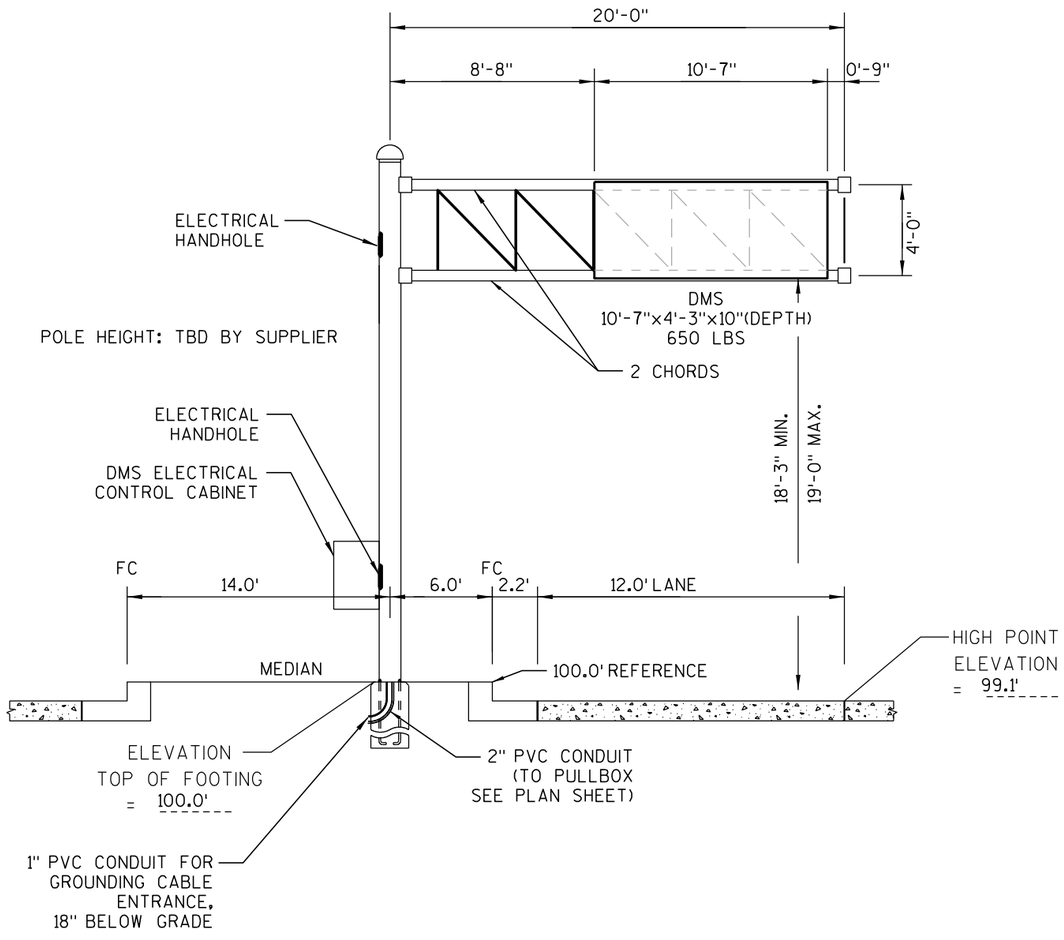
BOLLARD

NOT TO SCALE

2

NOTES, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD.



NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

I BEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

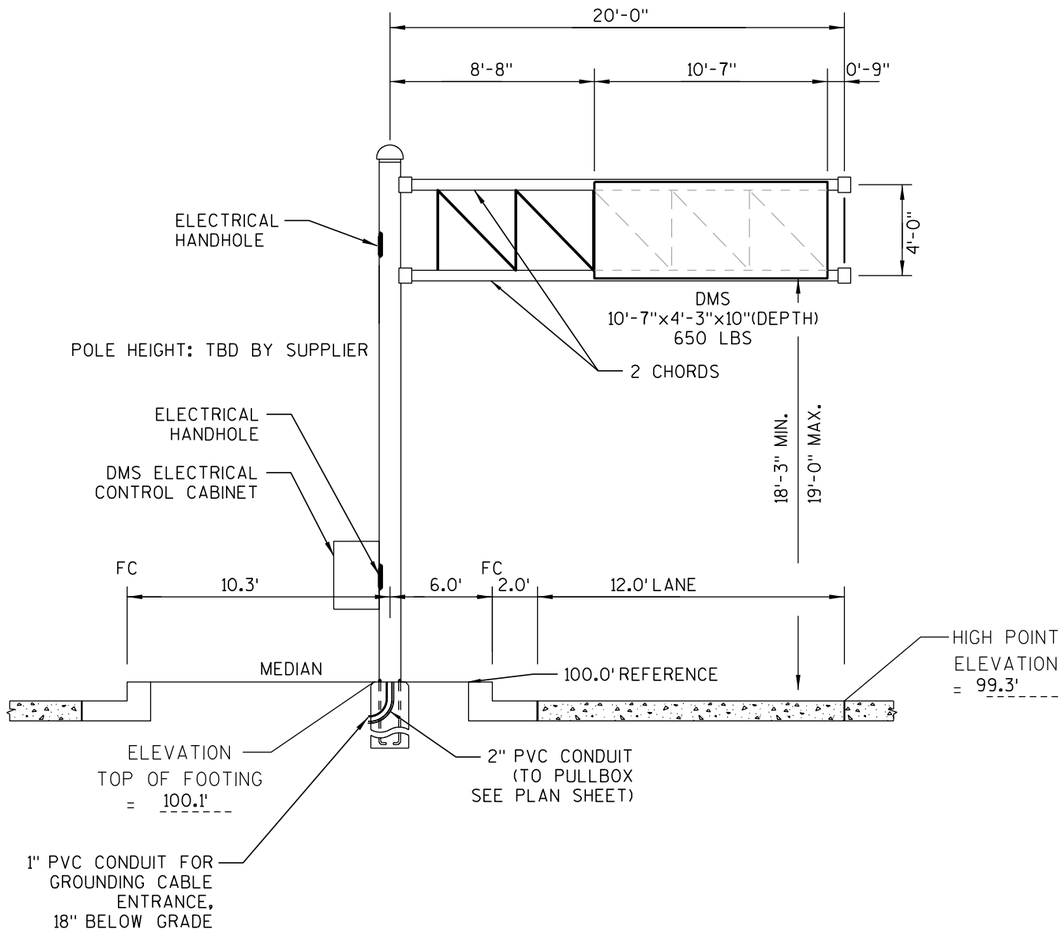
OVERHEAD SIGN SUPPORTS DETAIL
S-40-451
GREENFIELD AVENUE WESTBOUND @ IH 894
LOCATED 40-FT WEST OF 95TH STREET

SHEET 1 OF 10

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA/MILWAUKEE	OVERHEAD SIGN SUPPORT DMS S-40-451	SHEET	E

NOTES, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD.



NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

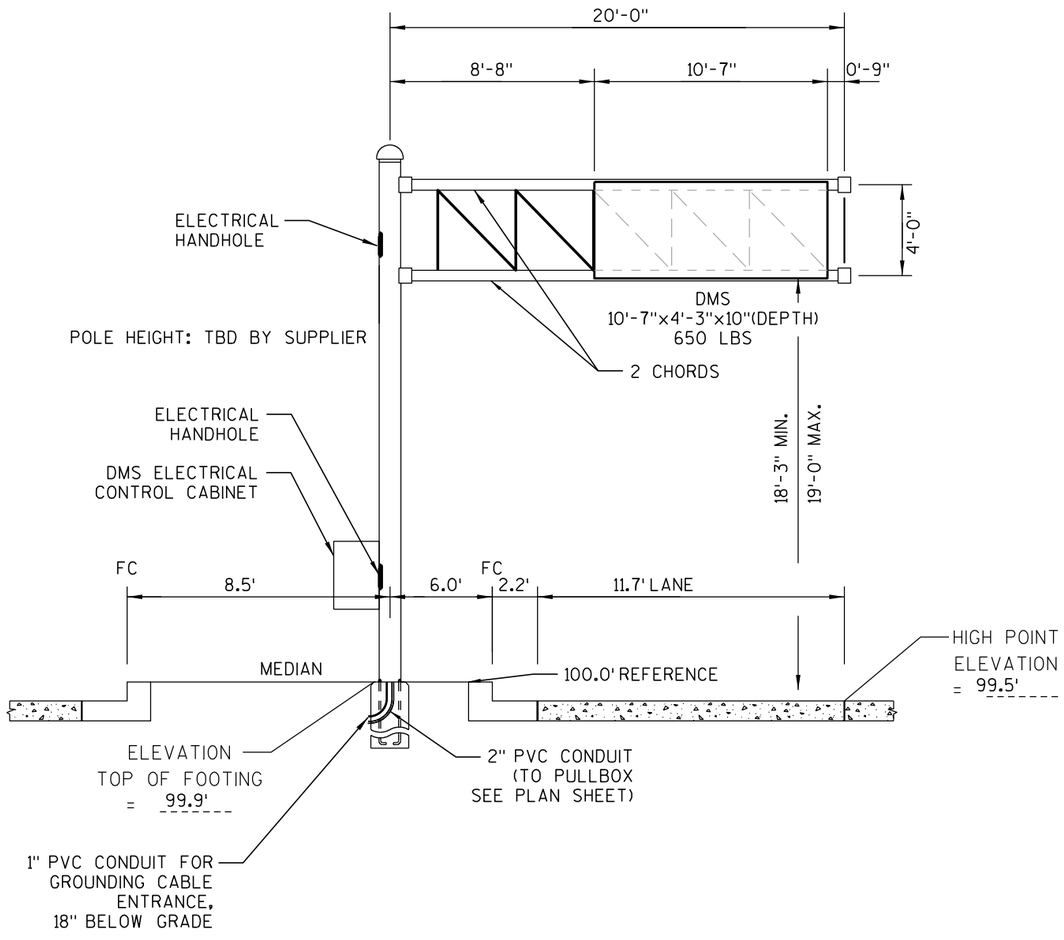
IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

OVERHEAD SIGN SUPPORTS DETAIL
S-67-414
GREENFIELD AVENUE EASTBOUND @ MOORLAND ROAD
LOCATED 100-FT WEST OF COACHLIGHT DRIVE

2

NOTES, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD.



NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

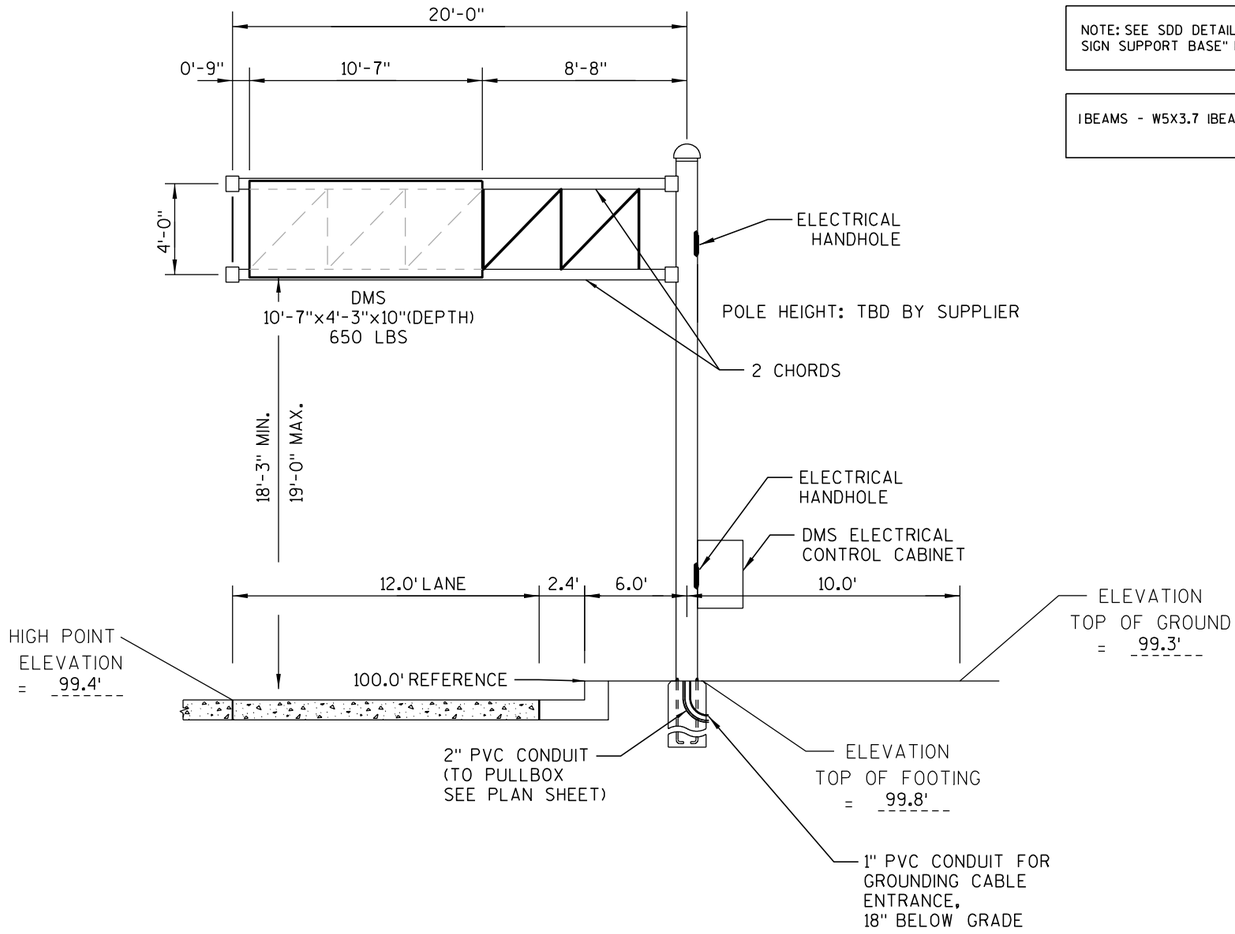
IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

OVERHEAD SIGN SUPPORTS DETAIL
S-67-412
BLUEMOUND ROAD WESTBOUND @ MOORLAND ROAD
LOCATED 150-FT WEST OF LEANORE LANE

2

NOTES, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD.



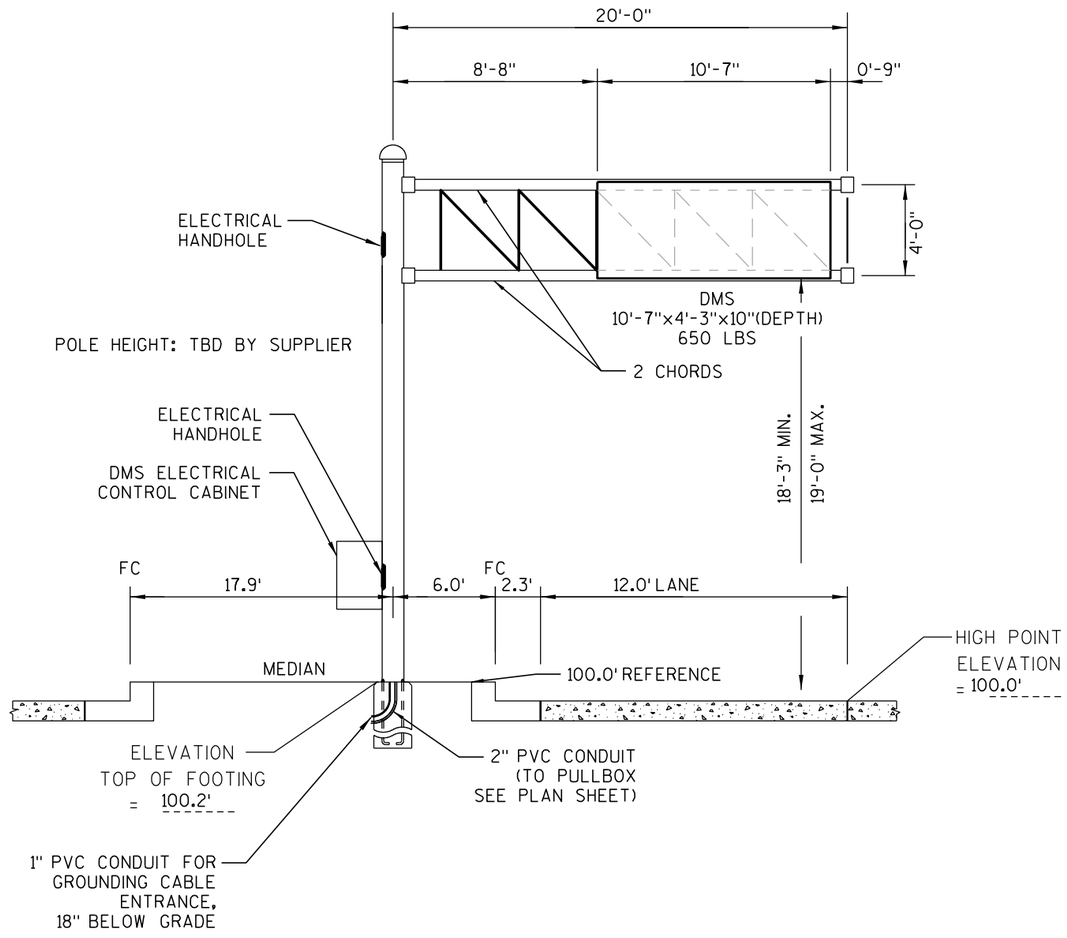
NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

OVERHEAD SIGN SUPPORTS DETAIL
S-67-415
GREENFIELD AVENUE WESTBOUND @ MOORLAND ROAD
LOCATED 150' WEST OF PICK'N SAVE MAIN ENTRANCE

NOTES, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD.



NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

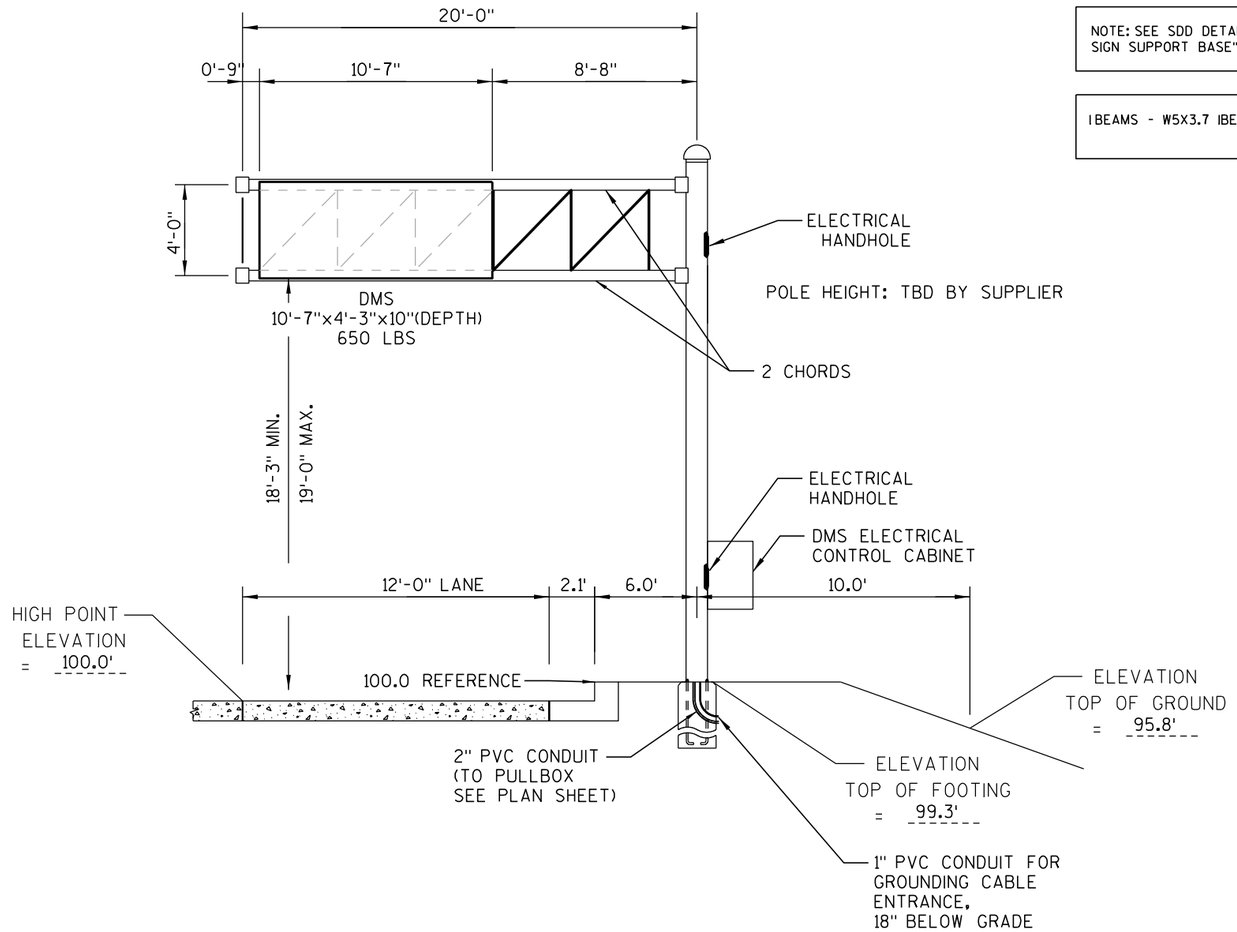
IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

OVERHEAD SIGN SUPPORTS DETAIL
S-67-411
BLUEMOUND ROAD EASTBOUND @ MOORLAND ROAD
LOCATED 290-FT WEST OF EXECUTIVE DRIVE SIGN

2

NOTES, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD.



NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

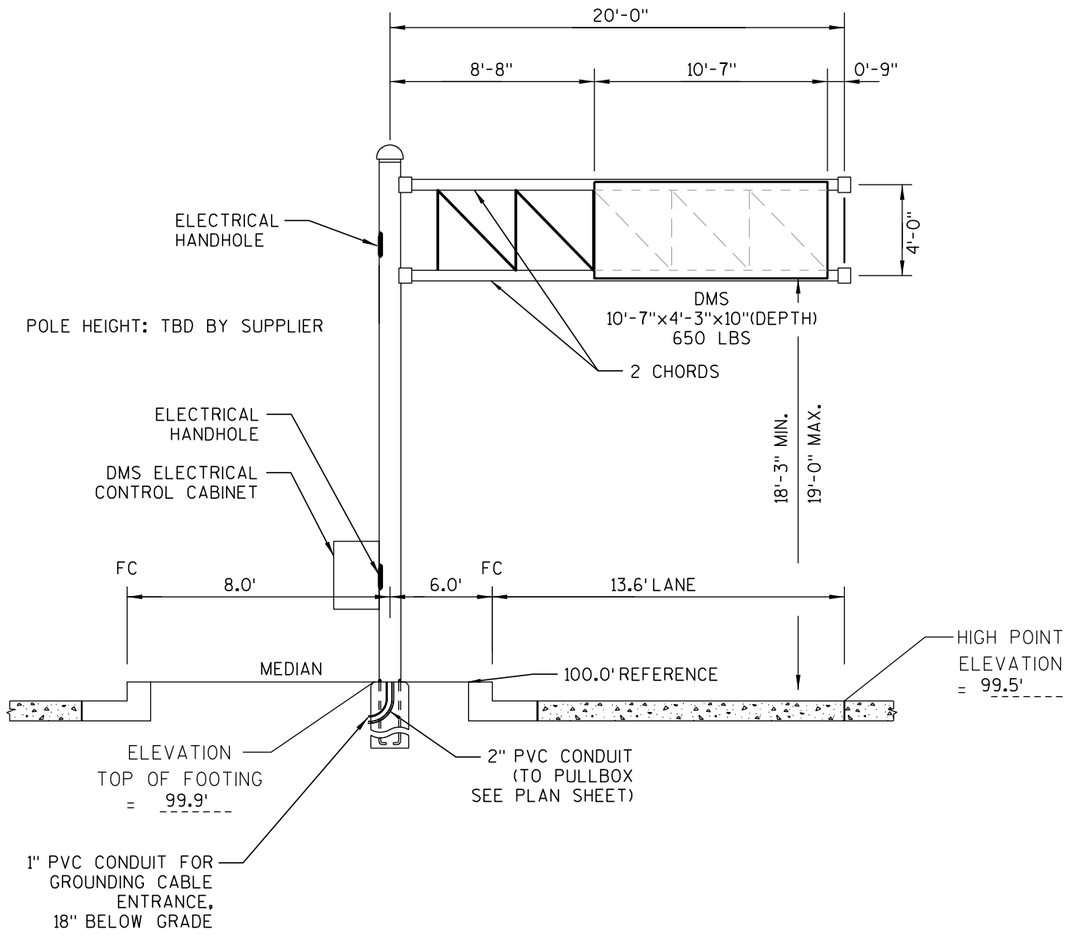
IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

OVERHEAD SIGN SUPPORTS DETAIL
S-67-416
MOORLAND ROAD SOUTHBOUND @ IH 94
LOCATED 588'FROM SOUTHERN MOST SIGNAL TO MALL

2

NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS



OVERHEAD SIGN SUPPORTS DETAIL
S-40-450
BLUEMOUND ROAD (USH 18) WESTBOUND @ USH 45
LOCATED 150-FT EAST OF 95TH STREET

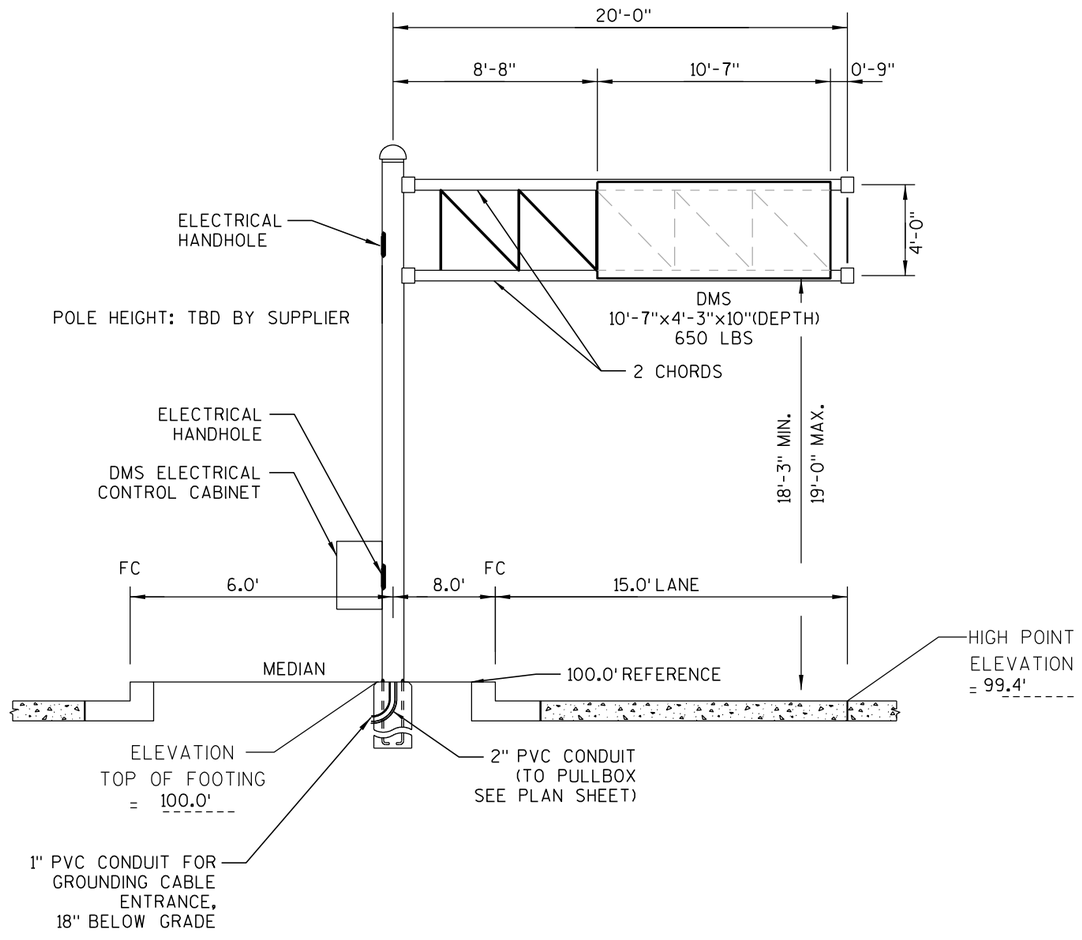
NOTES, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD.

2

NOTES, CONTRACTOR SHALL:

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2. PROVIDE DESIGN CALCULATIONS.
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NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

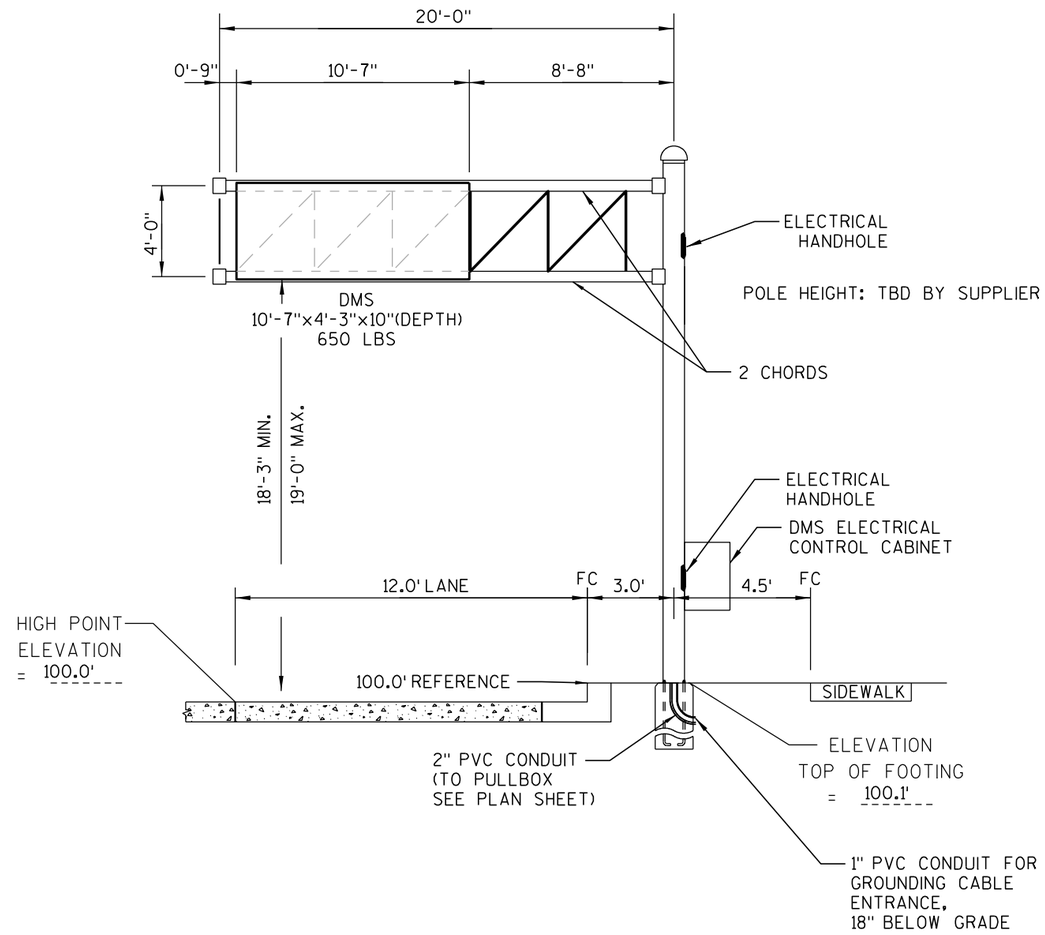
IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

OVERHEAD SIGN SUPPORTS DETAIL
S-40-453
84TH STREET NORTHBOUND @ IH 94
LOCATED 375-FT SOUTH OF KEARNEY STREET

2

NOTES, CONTRACTOR SHALL:

1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
4. I.D. PLAQUE INCIDENTAL TO OVERHEAD SIGN SUPPORT.
5. 6 ANCHOR RODS SHALL BE USED PER SDD.



NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

I BEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

OVERHEAD SIGN SUPPORTS DETAIL

S-40-452

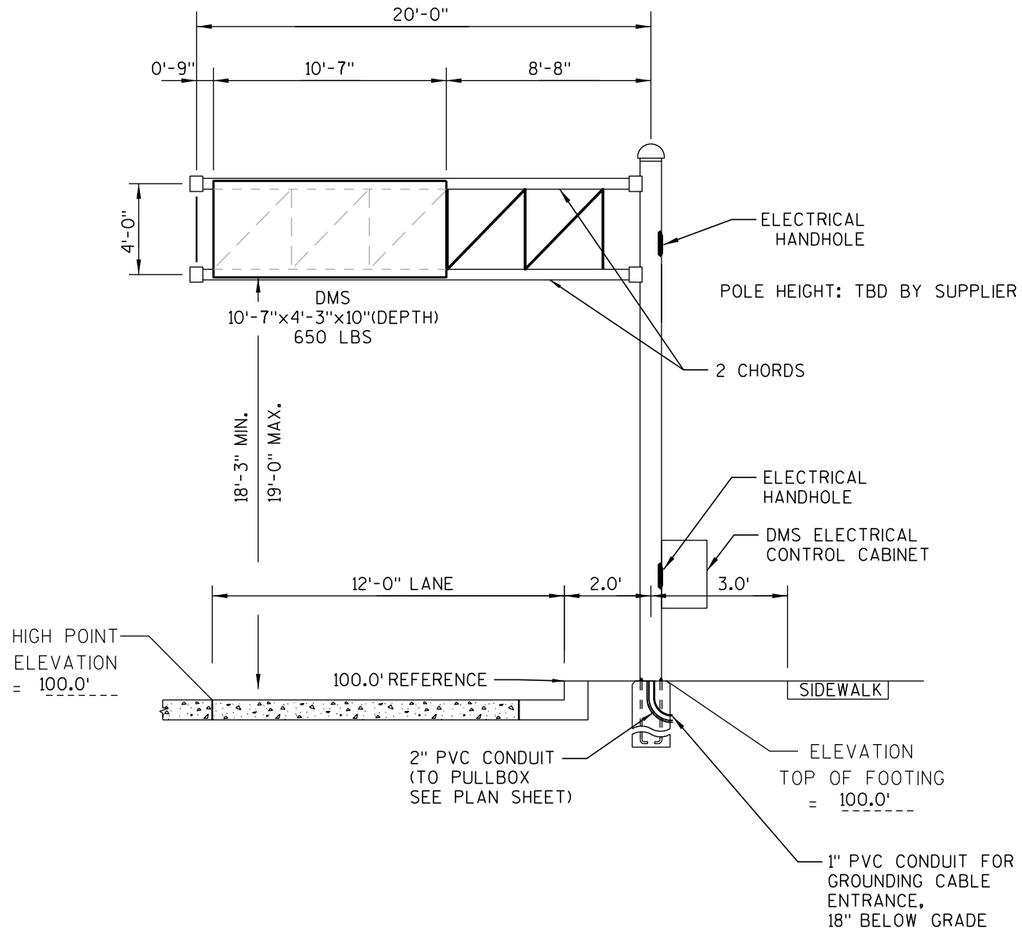
84TH STREET SOUTHBOUND @ IH 94

LOCATED 712-FT NORTH OF O'CONNER STREET

2

NOTES, CONTRACTOR SHALL:

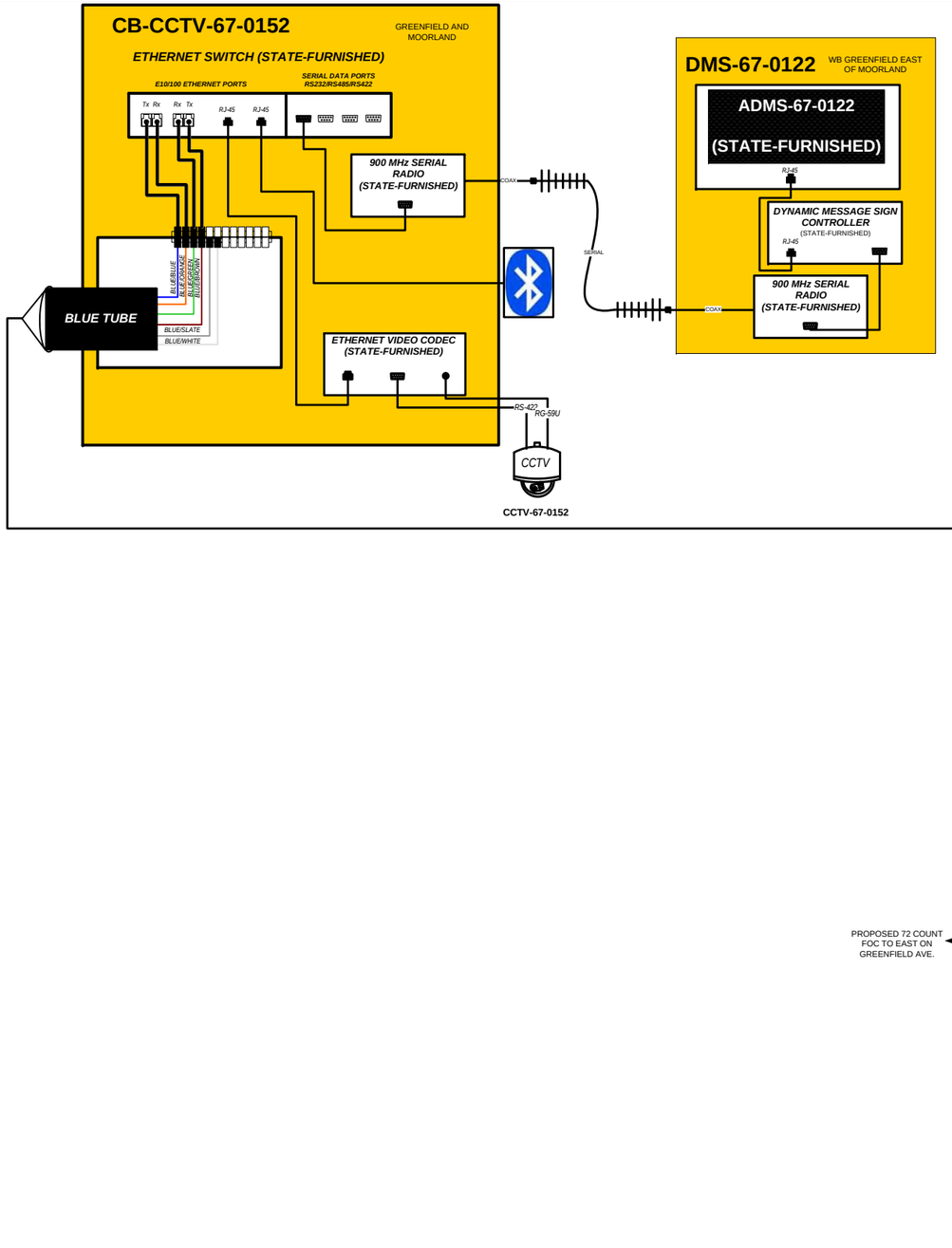
1. SUBMIT SHOP DRAWINGS OF OVERHEAD SIGN SUPPORT. FOOTING IS INCIDENTAL TO OVERHEAD SIGN SUPPORT.
2. PROVIDE DESIGN CALCULATIONS.
3. SHOW SIGN ON SHOP DRAWINGS.
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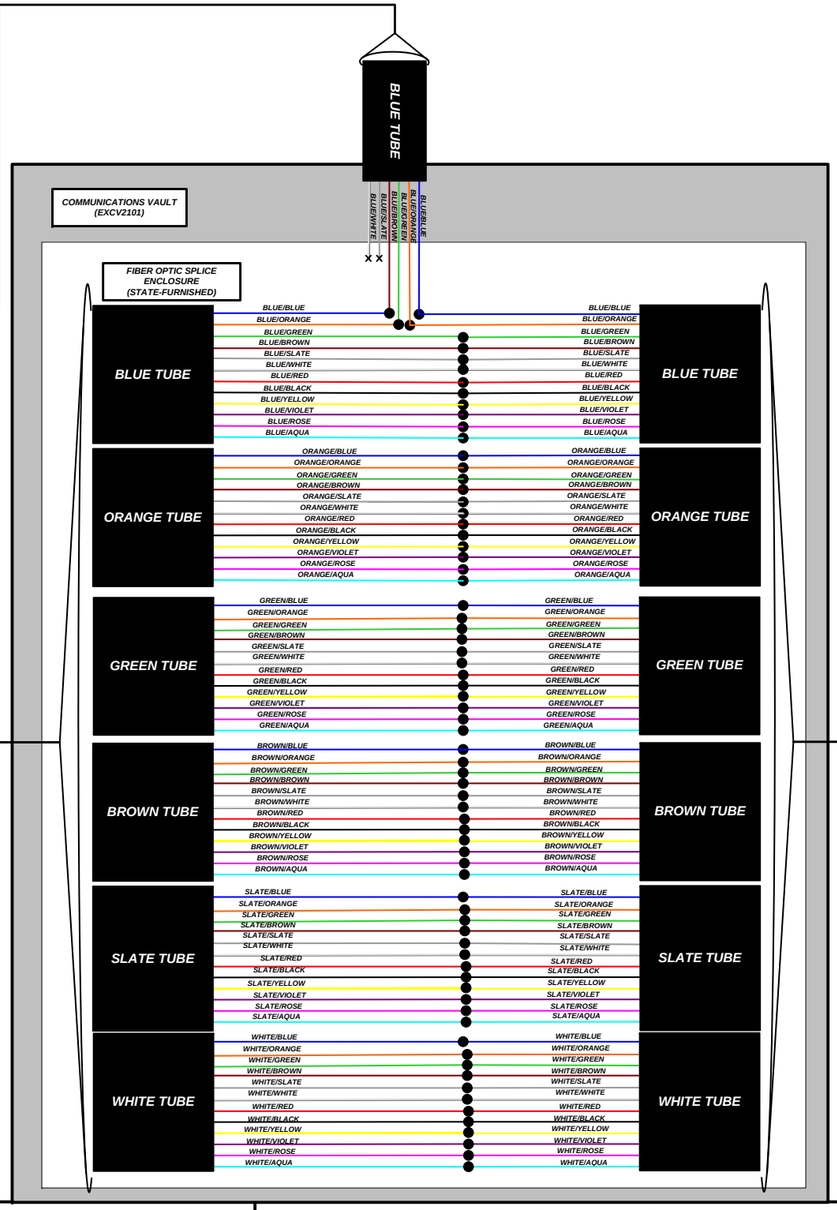


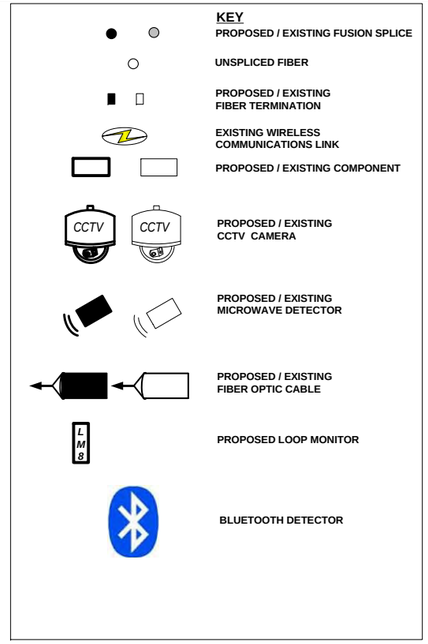
NOTE: SEE SDD DETAIL 15C24, "36-INCH DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE" FOR FOOTING DETAIL INCIDENTAL TO STRUCTURE

IBEAMS - W5X3.7 IBEAMS FOR MOUNTING SIGNS ARE INCLUDED WITH DMS

OVERHEAD SIGN SUPPORTS DETAIL
S-40-448
STH 100 SOUTHBOUND @ NORTH AVENUE
LOCATED 448' NORTH OF NORTH AVENUE;
14' FROM OLD DYNAMIC TRAILBLAZER BASE
STA 615+84.4

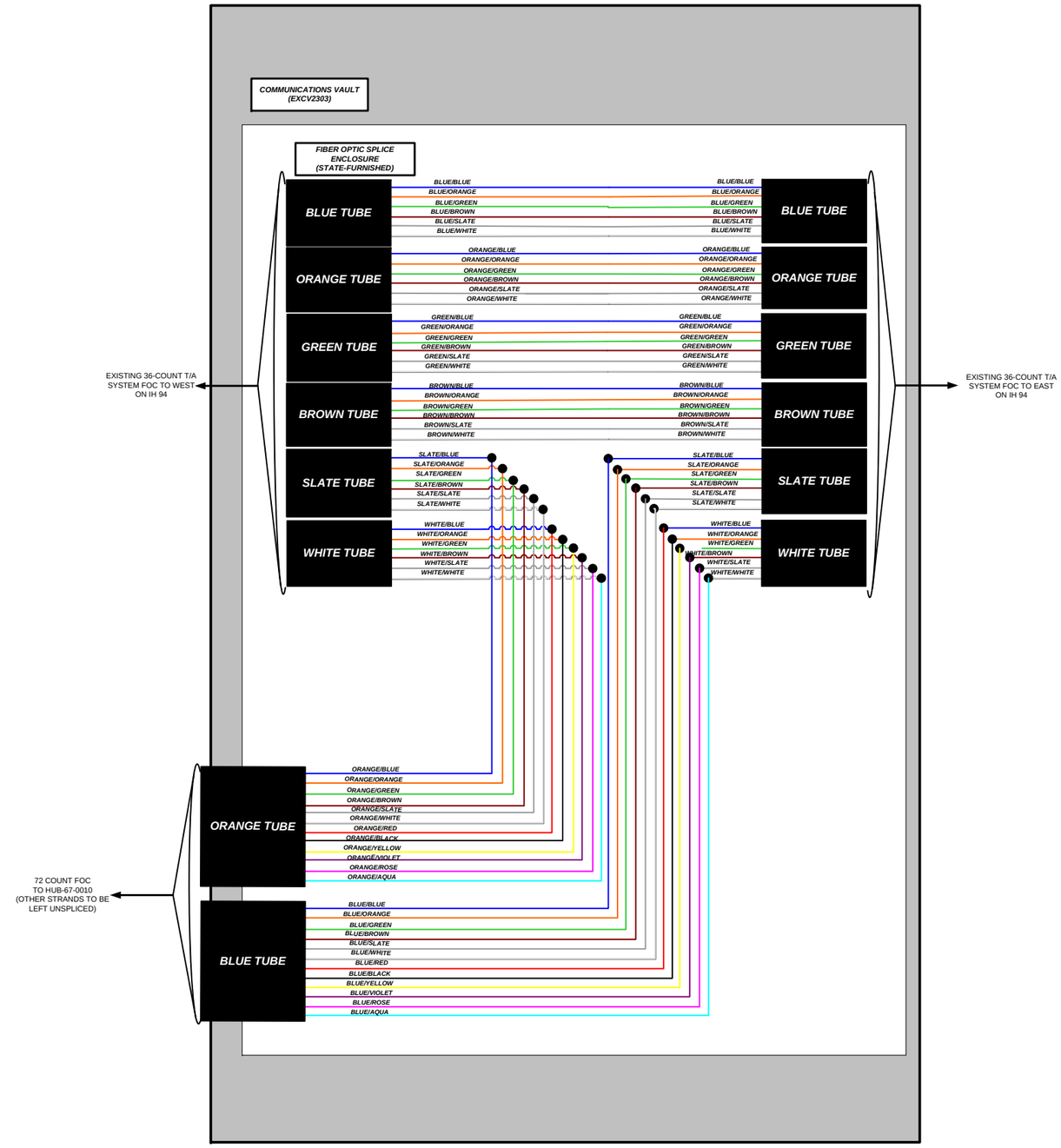






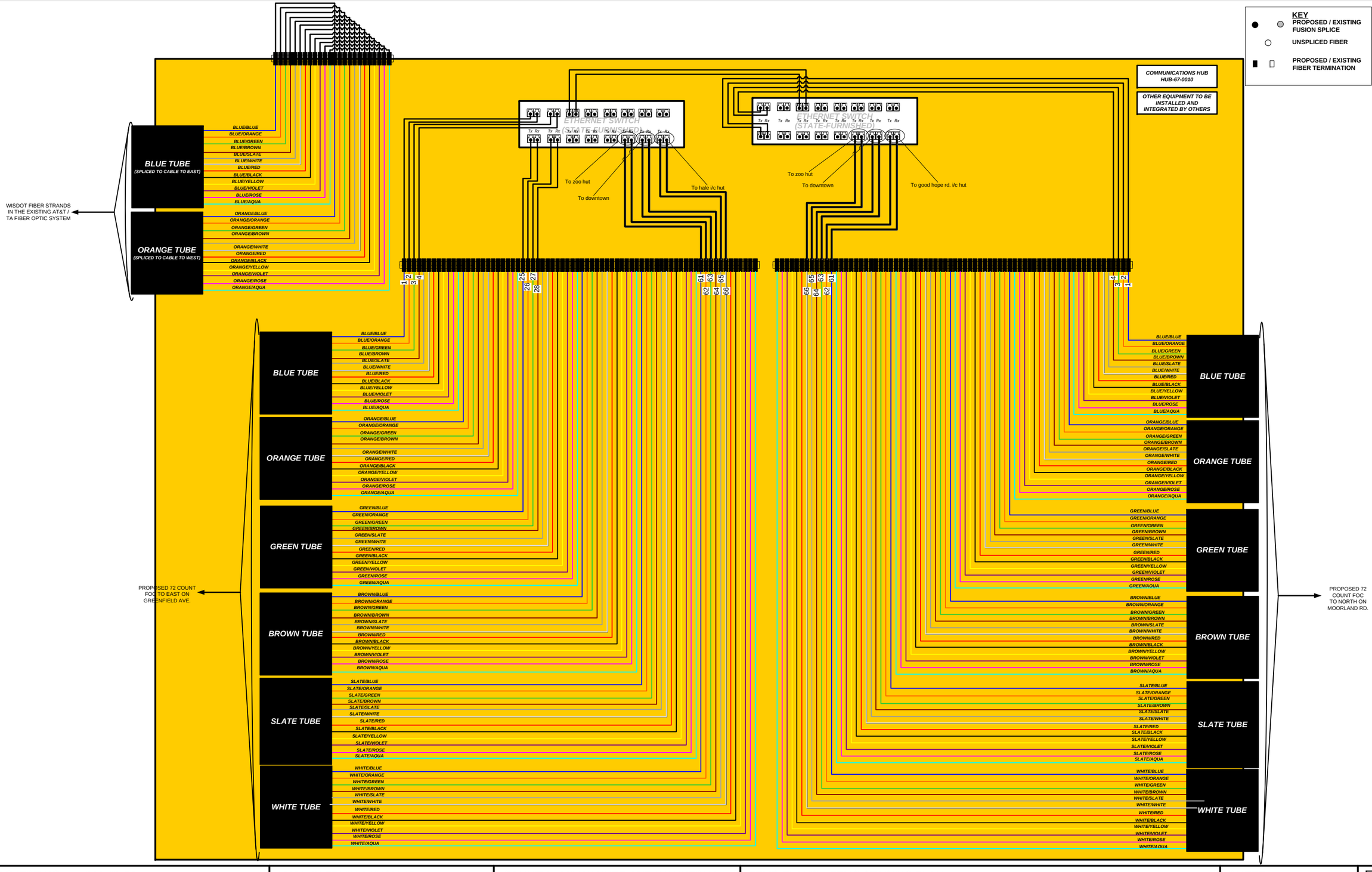
PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS - COMMUNICATIONS DETAILS	SHEET E

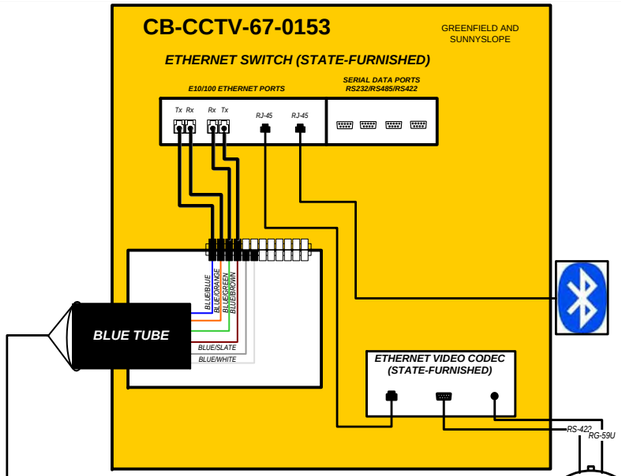
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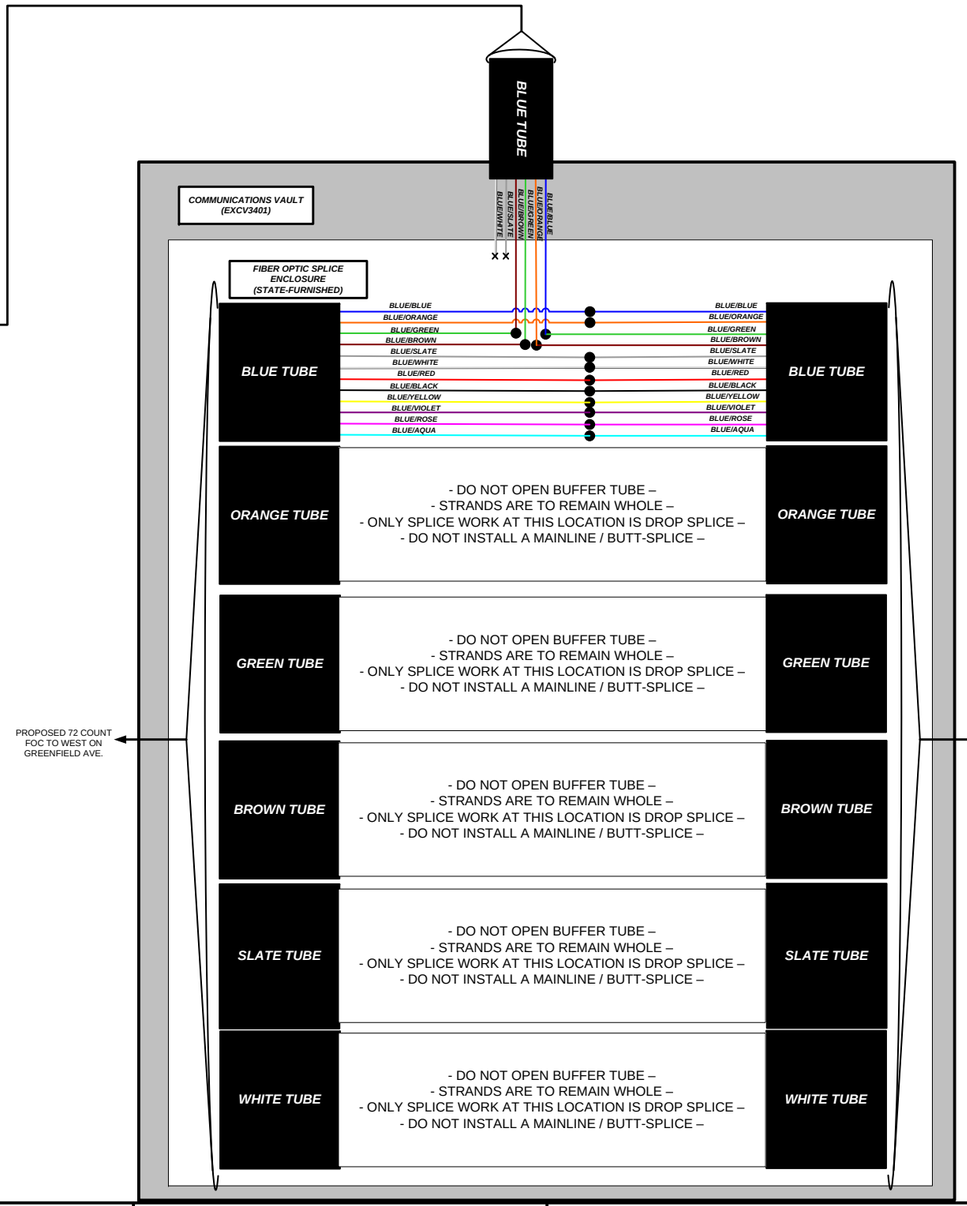


KEY

- PROPOSED / EXISTING FUSION SPLICE
- UNSPLICED FIBER
- PROPOSED / EXISTING FIBER TERMINATION
- EXISTING WIRELESS COMMUNICATIONS LINK
- PROPOSED / EXISTING COMPONENT
- PROPOSED / EXISTING CCTV CAMERA
- PROPOSED / EXISTING MICROWAVE DETECTOR
- PROPOSED / EXISTING FIBER OPTIC CABLE
- PROPOSED LOOP MONITOR
- BLUETOOTH DETECTOR


KEY
PROPOSED / EXISTING FUSION SPLICE
UNSPLICED FIBER
PROPOSED / EXISTING FIBER TERMINATION
COMMUNICATIONS HUB HUB-67-0010
OTHER EQUIPMENT TO BE INSTALLED AND INTEGRATED BY OTHERS
ETHERNET SWITCH (STATE-FURNISHED)
ETHERNET SWITCH (STATE-FURNISHED)
To zoo hut
To downtown
To hale i/c hut
To zoo hut
To downtown
To good hope rd. i/c hut
WISDOT FIBER STRANDS IN THE EXISTING AT&T / TA FIBER OPTIC SYSTEM
BLUE TUBE (SPLICED TO CABLE TO EAST)
BLUE/BLUE
BLUE/ORANGE
BLUE/GREEN
BLUE/BROWN
BLUE/SLATE
BLUE/WHITE
BLUE/RED
BLUE/BLACK
BLUE/YELLOW
BLUE/VIOLET
BLUE/ROSE
BLUE/AQUA
ORANGE TUBE (SPLICED TO CABLE TO WEST)
ORANGE/BLUE
ORANGE/ORANGE
ORANGE/GREEN
ORANGE/BROWN
ORANGE/WHITE
ORANGE/RED
ORANGE/BLACK
ORANGE/YELLOW
ORANGE/VIOLET
ORANGE/ROSE
ORANGE/AQUA
BLUE TUBE
ORANGE TUBE
GREEN TUBE
BROWN TUBE
SLATE TUBE
WHITE TUBE
GREEN/BLUE
GREEN/ORANGE
GREEN/GREEN
GREEN/BROWN
GREEN/SLATE
GREEN/WHITE
GREEN/RED
GREEN/BLACK
GREEN/YELLOW
GREEN/VIOLET
GREEN/ROSE
GREEN/AQUA
BROWN/BLUE
BROWN/ORANGE
BROWN/GREEN
BROWN/BROWN
BROWN/SLATE
BROWN/WHITE
BROWN/RED
BROWN/BLACK
BROWN/YELLOW
BROWN/VIOLET
BROWN/ROSE
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SLATE/RED
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SLATE/YELLOW
SLATE/VIOLET
SLATE/ROSE
SLATE/AQUA
WHITE/BLUE
WHITE/ORANGE
WHITE/GREEN
WHITE/BROWN
WHITE/SLATE
WHITE/WHITE
WHITE/RED
WHITE/BLACK
WHITE/YELLOW
WHITE/VIOLET
WHITE/ROSE
WHITE/AQUA
PROPOSED 72 COUNT FOC TO EAST ON GREENFIELD AVE.
PROPOSED 72 COUNT FOC TO NORTH ON MOORLAND RD.



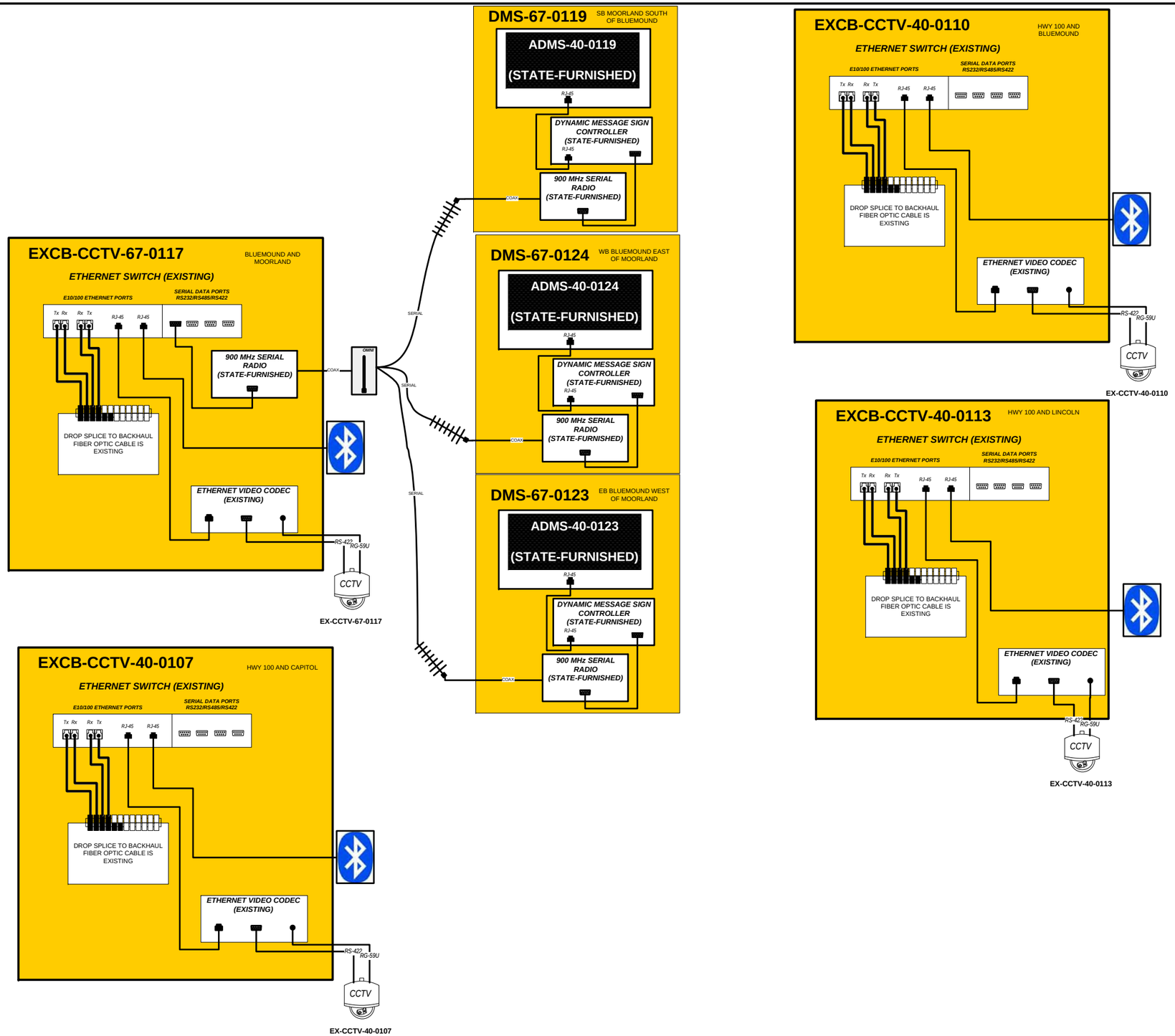


KEY

- PROPOSED / EXISTING FUSION SPLICE
- UNSPLICED FIBER
- PROPOSED / EXISTING FIBER TERMINATION
- EXISTING WIRELESS COMMUNICATIONS LINK
- PROPOSED / EXISTING COMPONENT
- PROPOSED / EXISTING CCTV CAMERA
- PROPOSED / EXISTING MICROWAVE DETECTOR
- PROPOSED / EXISTING FIBER OPTIC CABLE
- PROPOSED LOOP MONITOR
- BLUETOOTH DETECTOR

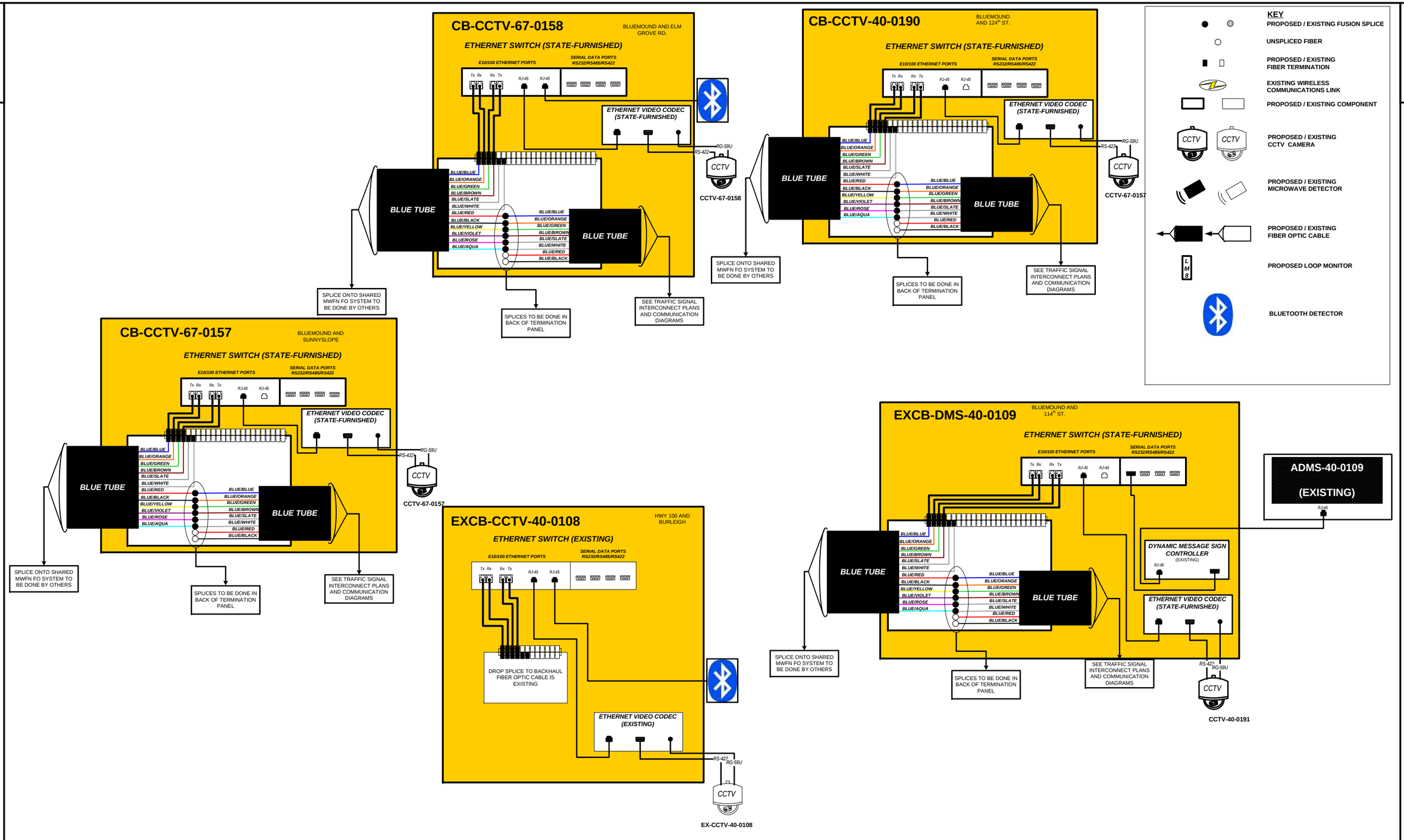
PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS - COMMUNICATIONS DETAILS	SHEET E

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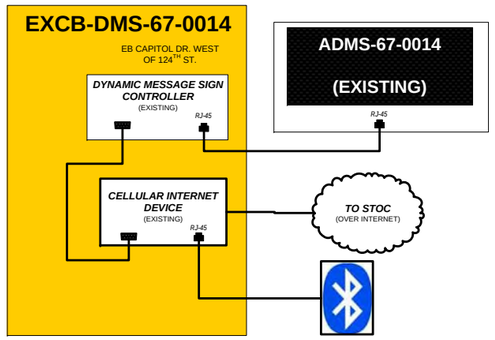
PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS - COMMUNICATIONS DETAILS	SHEET E

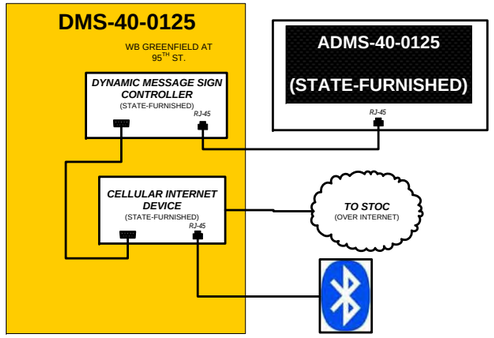
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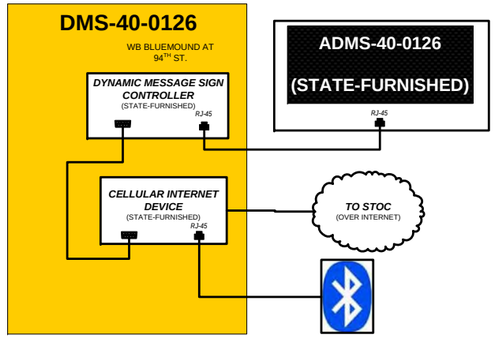


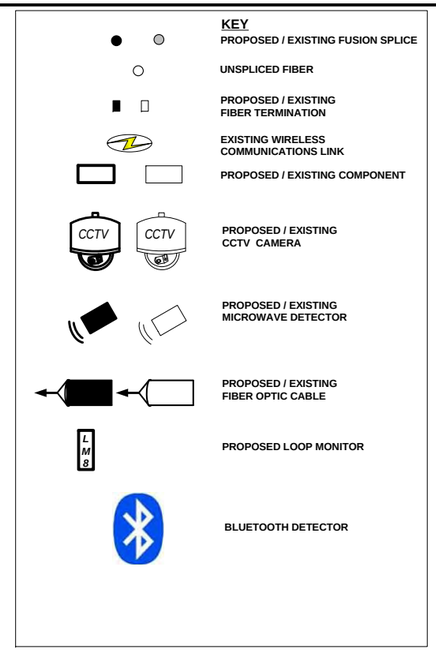
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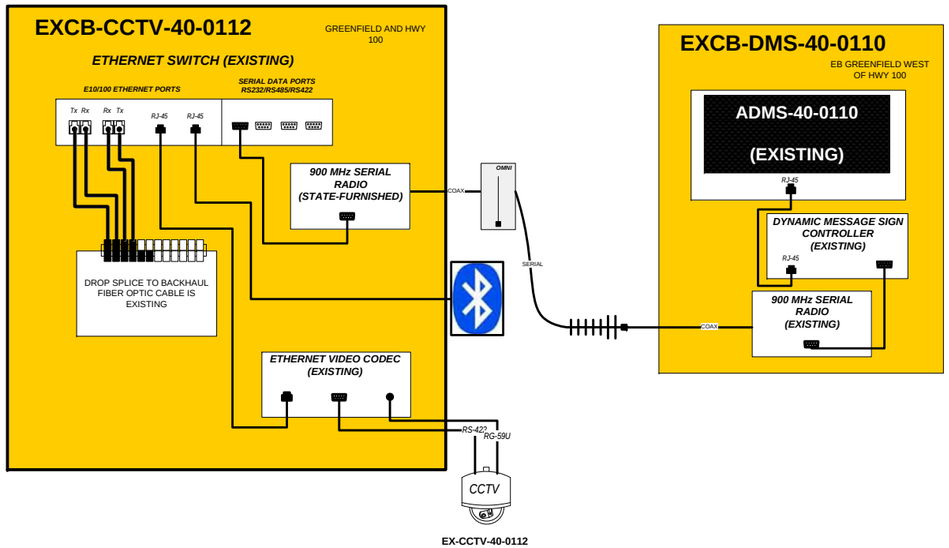
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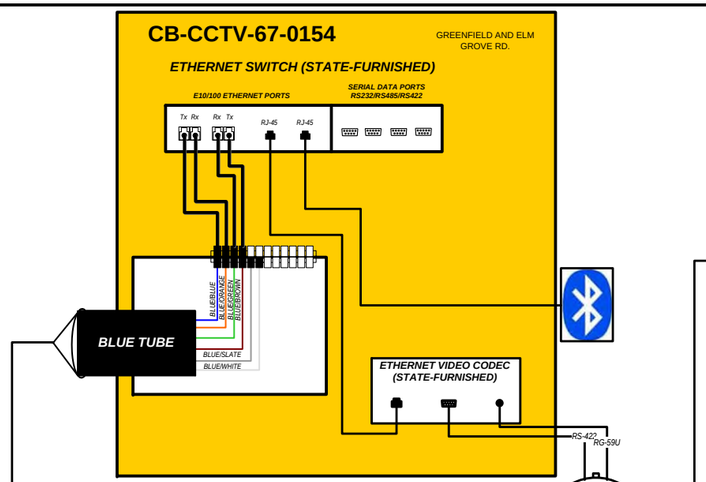


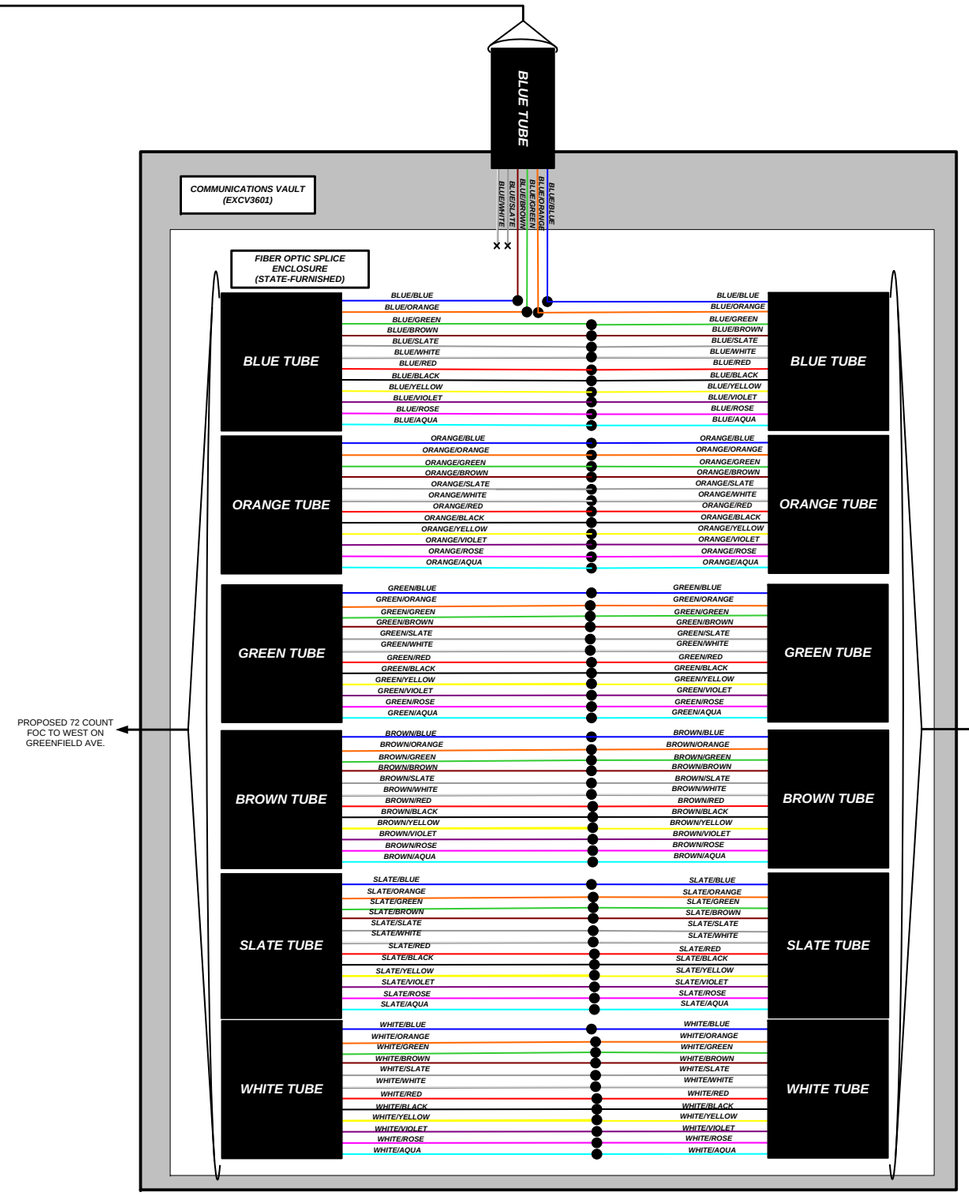


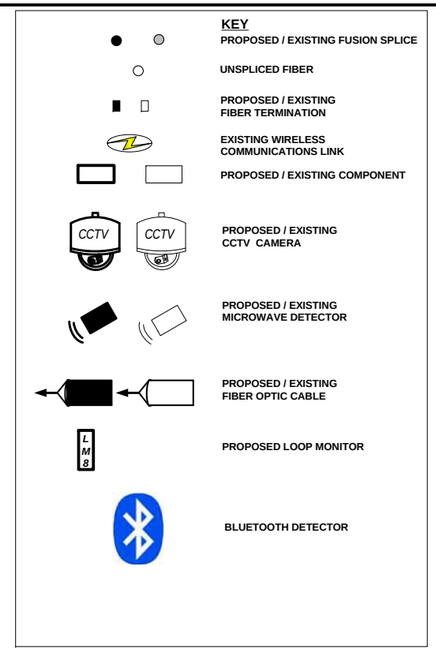




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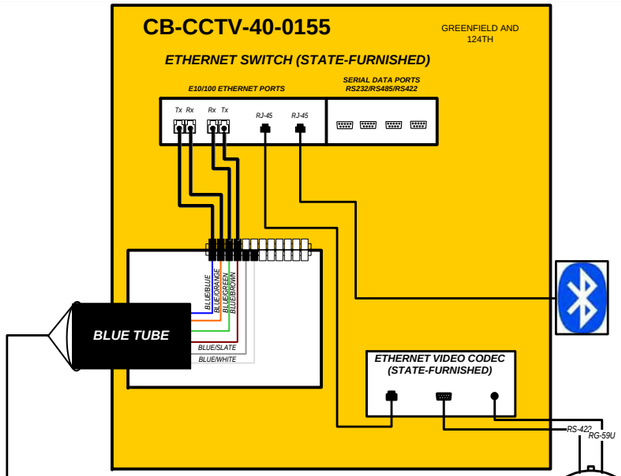


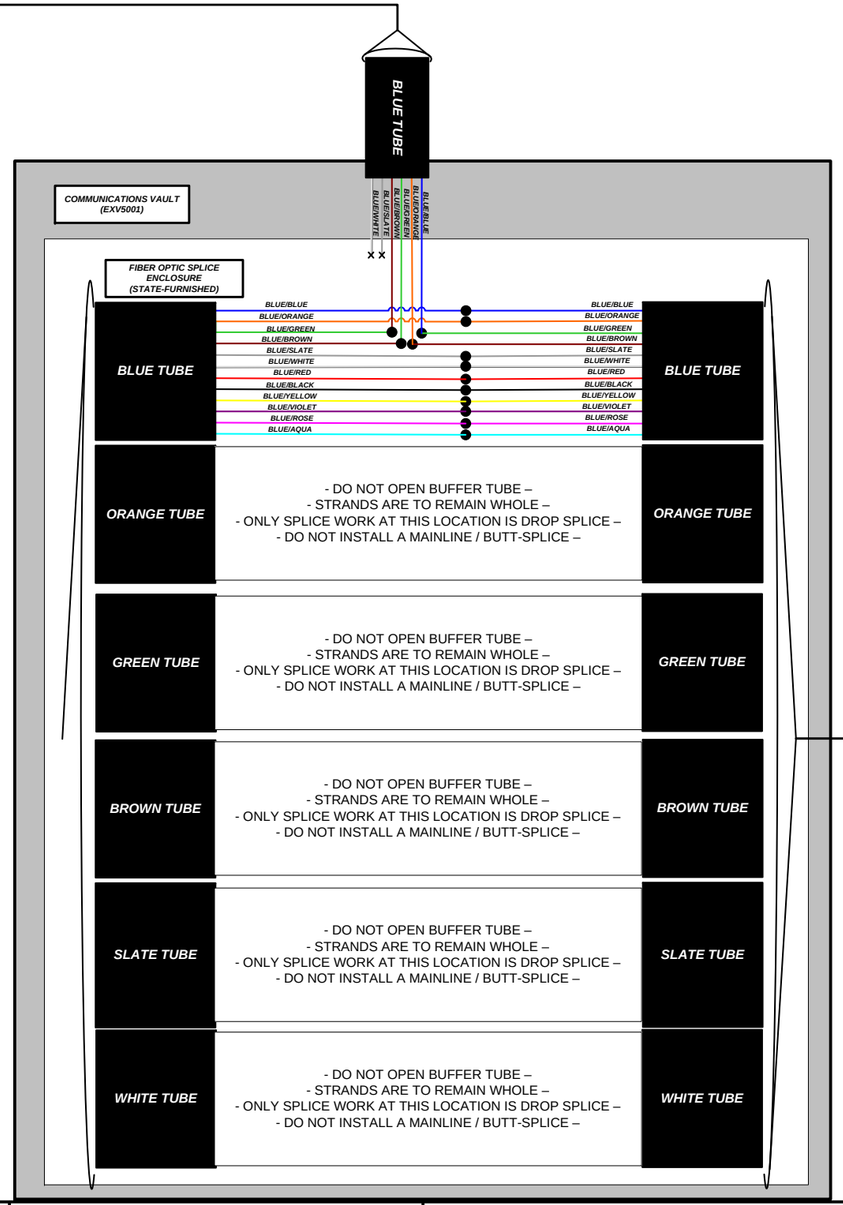


2

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS - COMMUNICATIONS DETAILS	SHEET E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : $FILE$ PLOT SCALE : $$.....plotscale.....$$





PROPOSED 72 COUNT FOC TO WEST ON GREENFIELD AVE.

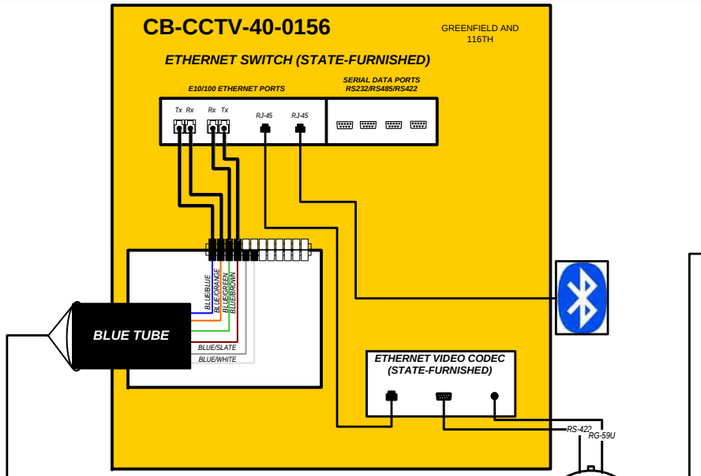
PROPOSED 72 COUNT FOC TO EAST ON GREENFIELD AVE.

KEY

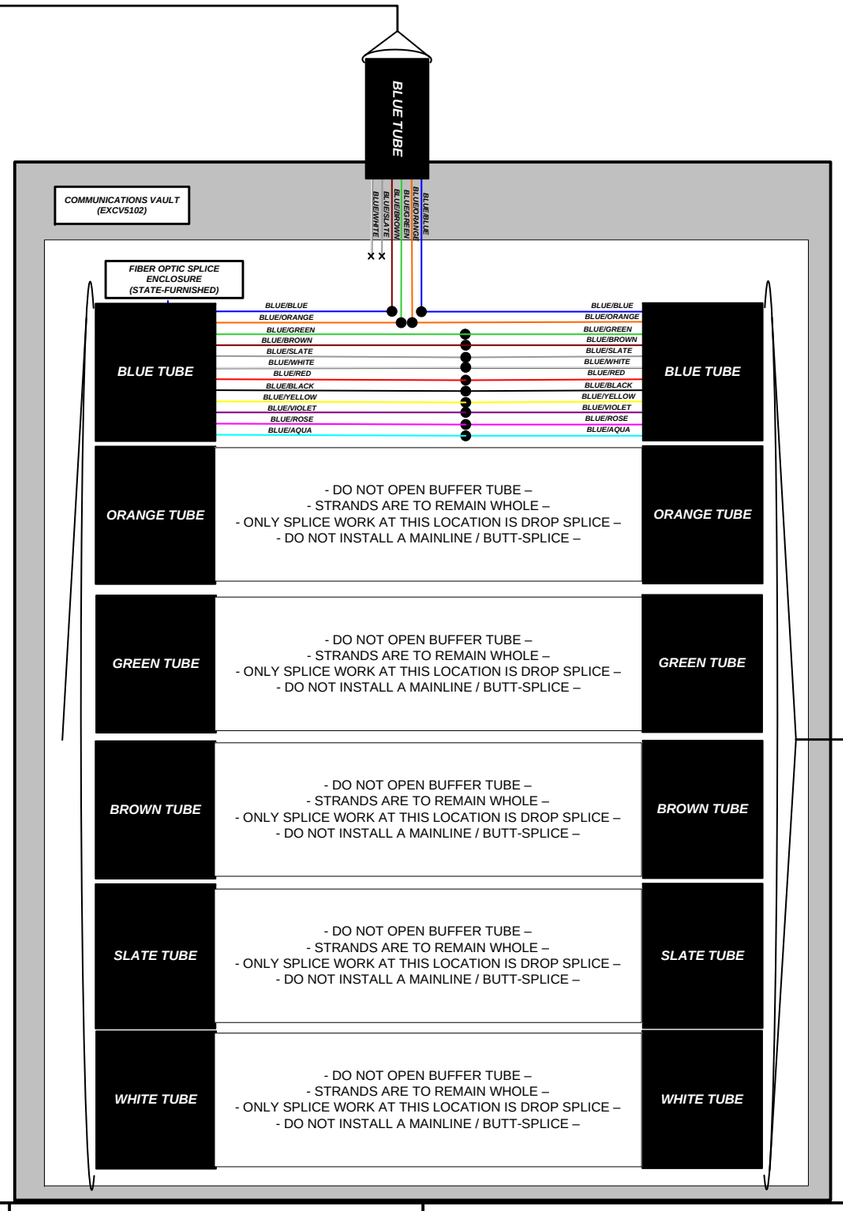
- PROPOSED / EXISTING FUSION SPLICE
- UNSPLICED FIBER
- PROPOSED / EXISTING FIBER TERMINATION
- EXISTING WIRELESS COMMUNICATIONS LINK
- PROPOSED / EXISTING COMPONENT
- PROPOSED / EXISTING CCTV CAMERA
- PROPOSED / EXISTING MICROWAVE DETECTOR
- PROPOSED / EXISTING FIBER OPTIC CABLE
- PROPOSED LOOP MONITOR
- BLUETOOTH DETECTOR

2

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS - COMMUNICATIONS DETAILS	SHEET E



PROPOSED 72 COUNT FOC TO WEST ON GREENFIELD AVE.



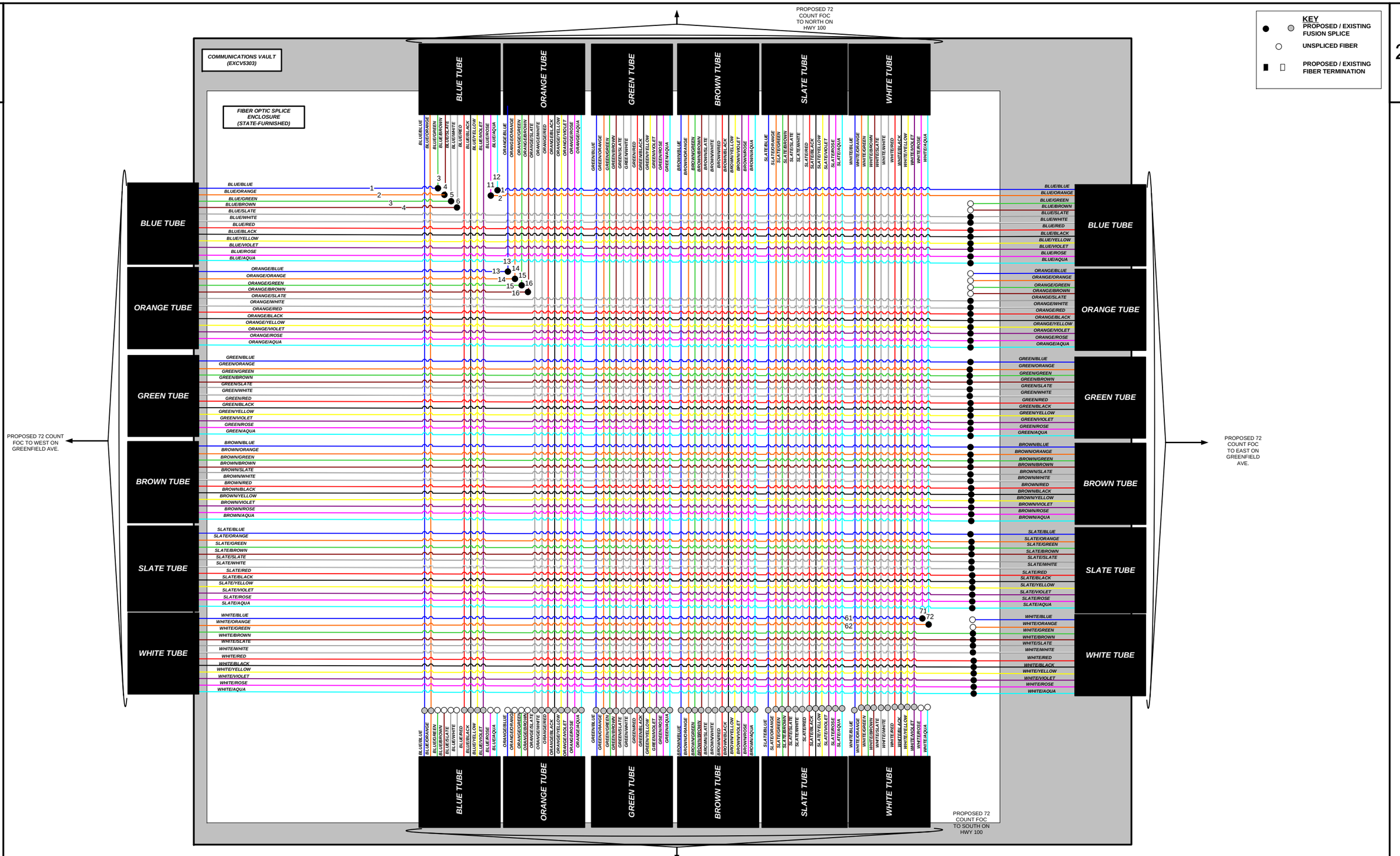
PROPOSED 72 COUNT FOC TO EAST ON GREENFIELD AVE.

KEY

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- PROPOSED / EXISTING FIBER TERMINATION
- EXISTING WIRELESS COMMUNICATIONS LINK
- PROPOSED / EXISTING COMPONENT
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- PROPOSED LOOP MONITOR
- BLUETOOTH DETECTOR

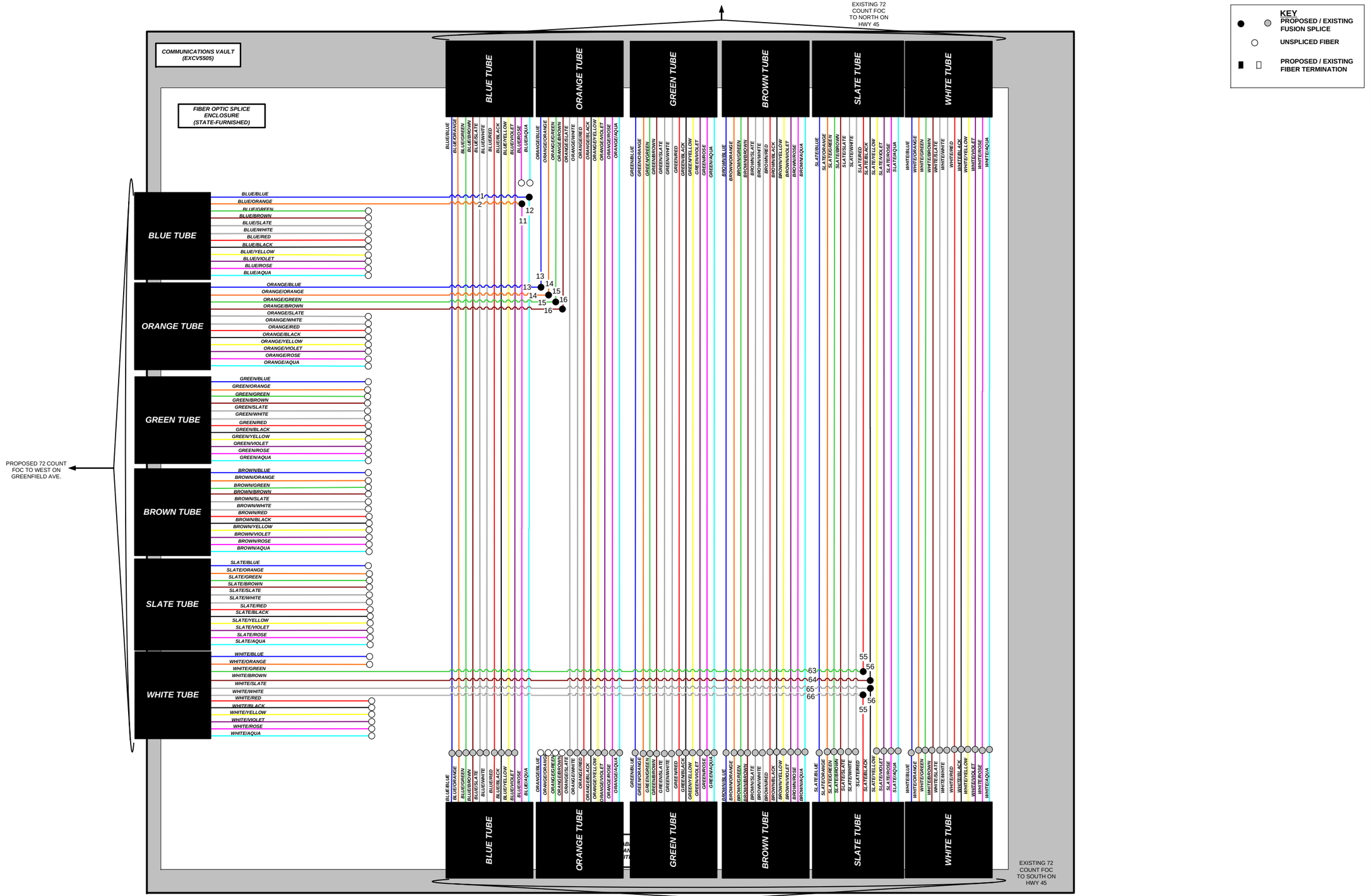
PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS - COMMUNICATIONS DETAILS	SHEET E

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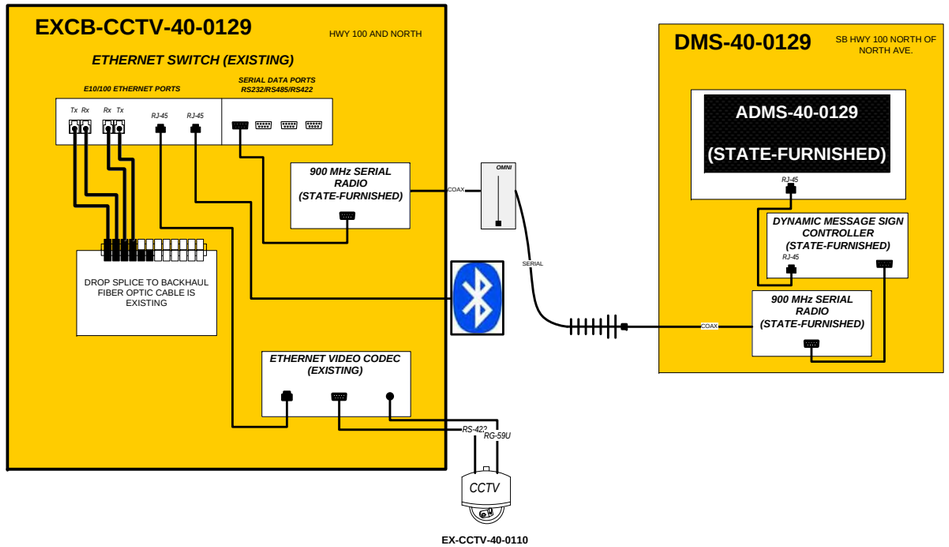
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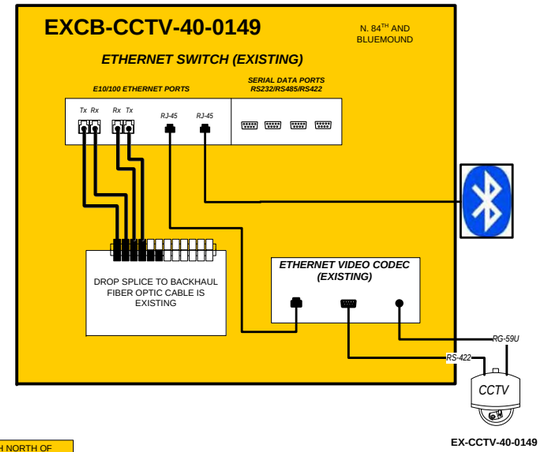
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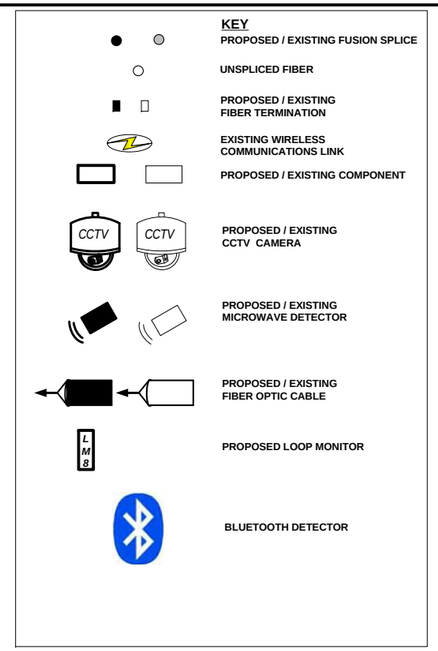


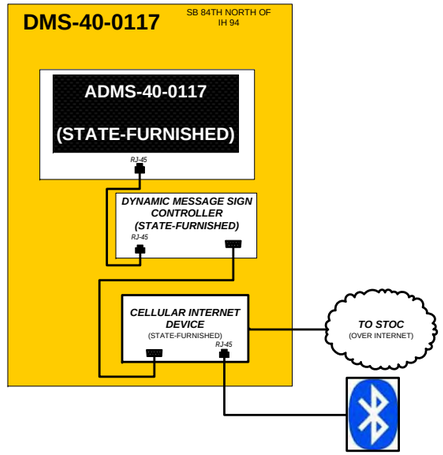
PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS – FTMS STAGING PLAN	SHEET	E

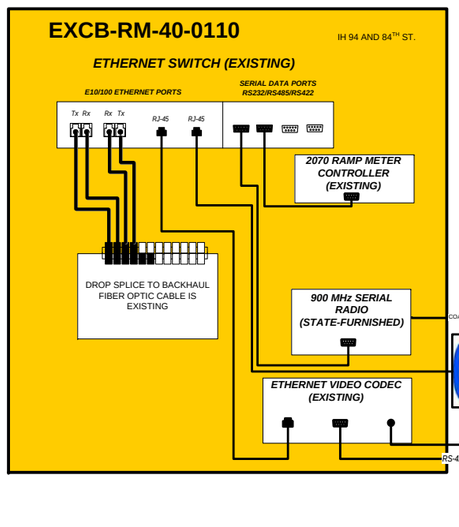
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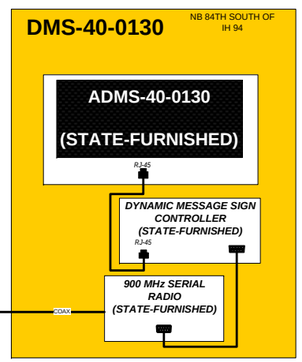


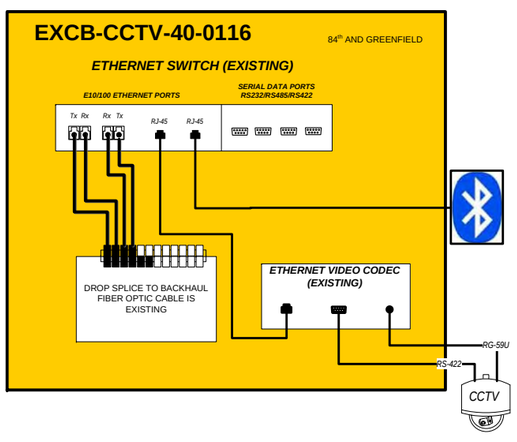












PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS - COMMUNICATIONS DETAILS	SHEET E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : $FILE$ PLOT SCALE : $$.....plotscale.....$$

TO FROEDTERT HOSPITAL

MANHOLE (EXMH9201)

EXISTING 6 COUNT FOC TO EXCB-RM-40-0024

FIBER OPTIC SPLICE ENCLOSURE (EXISTING)

PROPOSED 36-COUNT FOC ON WISCONSIN AVE.

EXISTING 72 COUNT FOC TO SOUTH

EXISTING 72 COUNT FOC TO NORTH

BLUE TUBE
BLUE/BLUE
BLUE/ORANGE
BLUE/GREEN
BLUE/BROWN
BLUE/SLATE
BLUE/WHITE

ORANGE TUBE
ORANGE/BLUE
ORANGE/ORANGE
ORANGE/GREEN
ORANGE/BROWN
ORANGE/SLATE
ORANGE/WHITE

GREEN TUBE
GREEN/BLUE
GREEN/ORANGE
GREEN/GREEN
GREEN/BROWN
GREEN/SLATE
GREEN/WHITE

BROWN TUBE
BROWN/BLUE
BROWN/ORANGE
BROWN/GREEN
BROWN/BROWN
BROWN/SLATE
BROWN/WHITE

SLATE TUBE
SLATE/BLUE
SLATE/ORANGE
SLATE/GREEN
SLATE/BROWN
SLATE/SLATE
SLATE/WHITE

WHITE TUBE
WHITE/BLUE
WHITE/ORANGE
WHITE/GREEN
WHITE/BROWN
WHITE/SLATE
WHITE/WHITE

BLUE TUBE
BLUE/BLUE
BLUE/ORANGE
BLUE/GREEN
BLUE/BROWN
BLUE/SLATE
BLUE/WHITE
BLUE/RED
BLUE/BLACK
BLUE/YELLOW
BLUE/VIOLET
BLUE/ROSE
BLUE/AQUA

ORANGE TUBE
BLUE/BLUE
BLUE/ORANGE
BLUE/GREEN
BLUE/BROWN
BLUE/SLATE
BLUE/WHITE
BLUE/RED
BLUE/BLACK
BLUE/YELLOW
BLUE/VIOLET
BLUE/ROSE
BLUE/AQUA

GREEN TUBE
GREEN/BLUE
GREEN/ORANGE
GREEN/GREEN
GREEN/BROWN
GREEN/SLATE
GREEN/WHITE
GREEN/RED
GREEN/BLACK
GREEN/YELLOW
GREEN/VIOLET
GREEN/ROSE
GREEN/AQUA

BROWN TUBE
BROWN/BLUE
BROWN/ORANGE
BROWN/GREEN
BROWN/BROWN
BROWN/SLATE
BROWN/WHITE
BROWN/RED
BROWN/BLACK
BROWN/YELLOW
BROWN/VIOLET
BROWN/ROSE
BROWN/AQUA

SLATE TUBE
SLATE/BLUE
SLATE/ORANGE
SLATE/GREEN
SLATE/BROWN
SLATE/SLATE
SLATE/WHITE
SLATE/RED
SLATE/BLACK
SLATE/YELLOW
SLATE/VIOLET
SLATE/ROSE
SLATE/AQUA

WHITE TUBE
WHITE/BLUE
WHITE/ORANGE
WHITE/GREEN
WHITE/BROWN
WHITE/SLATE
WHITE/WHITE
WHITE/RED
WHITE/BLACK
WHITE/YELLOW
WHITE/VIOLET
WHITE/ROSE
WHITE/AQUA

BLUE TUBE
BLUE TUBE

KEY

- PROPOSED / EXISTING FUSION SPLICE
- UNSPLICED FIBER
- PROPOSED / EXISTING FIBER TERMINATION
- EXISTING WIRELESS COMMUNICATIONS LINK
- PROPOSED / EXISTING COMPONENT
- PROPOSED / EXISTING CCTV CAMERA
- PROPOSED / EXISTING MICROWAVE DETECTOR
- PROPOSED / EXISTING FIBER OPTIC CABLE
- PROPOSED LOOP MONITOR
- BLUETOOTH DETECTOR

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE AND WAUKESHA	FTMS PLANS - COMMUNICATIONS DETAILS	SHEET E

FILE NAME : $$....designfile....$$ PLOT DATE : $$...plottingdate...$$ PLOT BY : $$...plotuser...$$ PLOT NAME : $FILE$ PLOT SCALE : $$.....plotscale.....$$

2

N

MATCHLINE I

W. GREENFIELD AVENUE

S. MOORLAND ROAD

S MOORLAND RD

R/W

R/W

MATCHLINE B

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

EXCV2102

SEE DETAIL "A"

CAUTION

EXCV2101

IN EXISTING COMMUNICATION VAULT
(1) F.O. SPLICE ENCLOSURE (S-F)
(75) F.O. SPLICES

EXPB2101
(1) INSTALL CONDUITS INTO EXISTING PULL BOX

IN EXISTING CONDUIT
(1) 6-COUNT FOC (S-F)

CCTV-67-0152
(1) 50-FOOT CAMERA POLE BASE
(1) 50-FOOT CAMERA POLE (S-F)
(1) BARREL CAMERA (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) BREAKER DISCONNECT BOX
(1) 12-COUNT F.O. TERMINATION PANEL (S-F)
(6) F.O. TERMINATIONS
(1) ETHERNET SWITCH W/SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)
(1) 900 MHZ SERIAL RADIO (S-F)
(1) 900 MHZ OMNI ANTENNA (S-F)
(1) BLUETOOTH DETECTOR (S-F)

(3) 2-INCH METALLIC CONDUITS
(1) WITH (1) 6-COUNT FOC (S-F)
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (1) 6-COUNT FOC

PB2101

(1) 2-INCH NONMETALLIC CONDUIT
(1) WITH (3) NO. 6 AWG
AND (1) NO. 10 AWG LIGHTING WIRES

MB2101
(1) METER BREAKER PEDESTAL

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

MATCHLINE J

A DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021421_fm.dgn PLOT DATE : 28-FEB-2013 23:24 PLOT BY : MSCD1S PLOT NAME : 021421_fm PLOT SCALE : 100:1



2

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

2

N

IH 94 EB

IH 94 WB

MATCHLINE C

MATCHLINE D

S. MOORLAND ROAD

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

EXCV2301

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

SEE DETAIL "B"

R/W

R/W

(3) 2-INCH NONMETALLIC CONDUITS, DIRECTIONAL BORE
(1) WITH (3) 72-COUNT FOC (S-F)

EXCV2302

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

CAUTION

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

R/W

EXCV2303
EXISTING AT&T COMMUNICATIONS VAULT
(24) F.O. SPLICES IN NEW F.O. SPLICE ENCLOSURE (S-F)

EXCV2302
EXISTING WISDOT COMMUNICATIONS VAULT
(2) INSTALL PROPOSED CONDUIT INTO EXISTING VAULT
(1) F.O. SPLICE ENCLOSURE (S-F)

HUB-67-0010
(1) DUAL CABINET CONCRETE BASE
(2) ITS FIELD CABINETS (S-F)
(1) BREAKER DISCONNECT BOX
(2) ETHERNET SWITCHES (S-F)
(3) 96-COUNT F.O. TERMINATION PANELS (S-F)
(2) EQUIPMENT RACK MOUNT UNINTERRUPTABLE POWER SUPPLIES
(216) F.O. TERMINATIONS

(1) 2-INCH NONMETALLIC CONDUIT WITH
(3) NO. 6 AWG AND (1) NO. 10 AWG
LIGHTING WIRES

MB2301
(1) METER BREAKER PEDESTAL

BOLLARDS
4-FT MAXIMUM SPACING

(3) 3-INCH NONMETALLIC CONDUITS
(1) WITH (3) 72-COUNT FOC (S-F)

CV2301
(1) F.O. SPLICE ENCLOSURE (S-F)

BOLLARDS
4-FT MAXIMUM SPACING

B DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

2

2

N

SHOPPING CENTER RING ROAD

S. MOORLAND ROAD

MATCHLINE D

MATCHLINE E

HIGHWAY AND UTILITY EASEMENT

588'

EXCV2401
(1) F.O. SPLICE ENCLOSURE (S-F)

EXCV2402

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

CAUTION

SEE DETAIL "C"

DMS-67-0119
(1) OVERHEAD SIGN SUPPORT S-67-416
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) 900 MHZ SERIAL RADIO (S-F)
(1) YAGI ANTENNA (S-F)
(1) BREAKER DISCONNECT BOX

MB2401
(1) METER BREAKER PEDESTAL

PB2401

(1) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

C DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021424_fm.dgn PLOT DATE : 02-APR-2013 14:44 PLOT BY : MSCKKC PLOT NAME : 021424_fm PLOT SCALE : 100:1

2

2

N

CV2501
INTERCEPT EXISTING CONDUIT
(1) COMMUNICATION VAULT OVER EXISTING FIBER
(1) F.O. SPLICE ENCLOSURE (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

HIGHWAY AND UTILITY EASEMENT

EXCV2501

S. MOORLAND ROAD

R/W

MATCHLINE E

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021425_fm.dgn PLOT DATE : 01-MAR-2013 12:37 PLOT BY : MSCKKC PLOT NAME : 021425_fm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

(2) 2-INCH NONMETALLIC CONDUITS,
DIRECTIONAL BORE
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

MB3001
(1) METER BREAKER PEDESTAL

DMS-67-0121
(1) OVERHEAD SIGN SUPPORT
S-67-414
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) BREAKER DISCONNECT BOX
(1) 900 MHZ SERIAL RADIO (S-F)
(1) YAGI ANTENNA (S-F)

PB3001

(D) DETAIL
NOT TO SCALE

N

S. BROOKFIELD HILLS COURT

MATCHLINE I

2

R/W

R/W

SEE DETAIL
"D"

W. GREENFIELD AVENUE

S. COACHLIGHT DRIVE

S. RIVER DRIVE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021430_fm.dgn PLOT DATE : 02-APR-2013 14:45 PLOT BY : MSCKKC PLOT NAME : 021430_fm PLOT SCALE : 100:1

2

2

N

MATCHLINE J

MATCHLINE K

SEE DETAIL "E"

PICK 'N SAVE MAIN ENTRANCE

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

EXCV3101

EXCV3102

W. GREENFIELD AVENUE

R/W

150'

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

(1) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

MB3101
(1) METER BREAKER PEDESTAL

PB3101

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

DMS-67-0122
(1) OVERHEAD SIGN SUPPORT
S-40-415
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) 900 MHZ SERIAL RADIO (S-F)
(1) YAGI ANTENNA (S-F)
(1) BREAKER DISCONNECT BOX

(E) DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021431_fm.dgn PLOT DATE : 02-APR-2013 14:46 PLOT BY : MSCKKC PLOT NAME : 021431_fm PLOT SCALE : 100:1

2

2

N

VISTA VIEW DRIVE

R/W

SERVICE DRIVE

W. GREENFIELD AVENUE

EXCV3201

MATCHLINE K

MATCHLINE L

GUMINA ROAD

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021432_fm.dgn PLOT DATE : 28-FEB-2013 23:32 PLOT BY : MSCD1S PLOT NAME : 021432_fm PLOT SCALE : 100:1

2

2

N

S. FAIRLANE AVENUE

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

R/W

EXCV3301

EXCV3302

EXCV3303

W. GREENFIELD AVENUE

MATCHLINE L

MATCHLINE M

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

S. RANCH ROAD

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021433_fm.dgn PLOT DATE : 28-FEB-2013 23:32 PLOT BY : MSCD1S PLOT NAME : 021433_fm PLOT SCALE : 100:1

2

2

MB3401
(1) METER BREAKER PEDESTAL

(1) 2-INCH NONMETALLIC CONDUIT
WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

(3) 2-INCH METALLIC CONDUITS
(1) WITH (1) 6-COUNT FOC

(1) 2-INCH NONMETALLIC CONDUIT
WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

EXPB3401
(1) INSTALL CONDUITS INTO
EXISTING PULL BOX

PB3401

CCTV-67-0153
(1) 30-FOOT CAMERA POLE BASE
(1) 30-FOOT CAMERA POLE (S-F)
(1) BARREL CAMERA (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) BREAKER DISCONNECT BOX
(1) 12-COUNT F.O. TERMINATION PANEL (S-F)
(6) F.O. TERMINATIONS
(1) ETHERNET SWITCH W/SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)
(1) BLUETOOTH DETECTOR (S-F)

F DETAIL
NOT TO SCALE

N

SEE DETAIL
"F"

IN EXISTING CONDUIT
(1) 6-COUNT FOC (S-F)

R/W

MATCHLINE M

EXCV3402

W. GREENFIELD AVENUE

MATCHLINE O

EXCV3401
(15) F.O. SPLICES IN NEW SPLICE ENCLOSURE (S-F)

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

S. SUNNYSLOPE ROAD

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021434_fm.dgn PLOT DATE : 28-FEB-2013 23:33 PLOT BY : MSCD1S PLOT NAME : 021434_fm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2

2

N

S. EDWARDS STREET

S. CHESTER STREET

R/W

MATCHLINE O

MATCHLINE P

EXCV3501

EXCV3502

W. GREENFIELD AVENUE

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021435_fm.dgn PLOT DATE : 28-FEB-2013 23:35 PLOT BY : MSCD1S PLOT NAME : 021435_fm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2

(3) 2-INCH METALLIC CONDUITS
(1) WITH (1) 6-COUNT FOC (S-F)

(1) 2-INCH NONMETALLIC CONDUIT
WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

MB3601
(1) METER BREAKER PEDESTAL

EXPB3601
(1) INSTALL CONDUITS INTO
EXISTING PULL BOX

CCTV-67-0154
(1) 30-FOOT CAMERA POLE BASE
(1) 30-FOOT CAMERA POLE (S-F)
(1) BARREL CAMERA (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) BREAKER DISCONNECT BOX
(1) 12-COUNT F.O. TERMINATION PANEL (S-F)
(6) F.O. TERMINATIONS
(1) ETHERNET SWITCH W/SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)
(1) BLUETOOTH DETECTOR (S-F)

G DETAIL
NOT TO SCALE

N

S. CARVENS AVENUE

SEE DETAIL
"G"

IN EXISTING CONDUIT
(1) 6-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

R/W

EXCV3601
(15) F.O. SPLICES IN NEW F.O. SPLICE ENCLOSURE (S-F)

EXCV3602

W. GREENFIELD AVENUE

MATCHLINE P

MATCHLINE Q

PB3601

EXCV3601

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

R/W

S. ELM GROVE ROAD

2

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021436_fm.dgn PLOT DATE : 28-FEB-2013 23:36 PLOT BY : MSCD1S PLOT NAME : 021436_fm PLOT SCALE : 100:1

2

2

N

S. PARKMOOR DRIVE

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

W. GREENFIELD AVENUE

EXCV3701

EXCV3702

EXCV3703

MATCHLINE Q

MATCHLINE R
(SEE MILWAUKEE COUNTY SECTION)

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021437_fm.dgn PLOT DATE : 28-FEB-2013 23:37 PLOT BY : MSCD1S PLOT NAME : 021437_fm PLOT SCALE : 100:1
WISDOT/CADDS SHEET 42

2

2

N

MB4001
(1) METER BREAKER PEDESTAL

SEE DETAIL "H"

CAUTION

R/W

R/W

EXISTING EXECUTIVE DRIVE SIGN

290'

W. BLUEMOUND ROAD

N. EXECUTIVE DRIVE

(2) 2-INCH NONMETALLIC CONDUITS, DIRECTIONAL BORE
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

(1) 2-INCH NONMETALLIC CONDUIT WITH
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

PB4001

DMS-67-0123
(1) OVERHEAD SIGN SUPPORT
S-67-411
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) 900 MHZ SERIAL RADIO (S-F)
(1) YAGI ANTENNA (S-F)
(1) BREAKER DISCONNECT BOX

H DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

2

2

N

PILGRIM PARKWAY

W. BLUEMOUND ROAD

S. MOORLAND ROAD

EXCB-CCTV-67-0117
(1) 900 MHZ SERIAL RADIO (S-F)

IN EXISTING CONDUIT
(1) 900 MHZ OMNI CABLE
(1) BLUETOOTH DETECTOR CABLE

EXCCTV-67-0117
(1) 900 MHZ OMNI ANTENNA (S-F)
(1) BLUETOOTH DETECTOR (S-F)

R/W

WALLS

FILLER CAPS

VACUUM

CANOPY

FILLER

VACUUMS

FOUND

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

2

2

N

TERRACE DRIVE

SEE DETAIL "I"

R/W

250'

W. BLUEMOUND ROAD

N. LEANORE LANE

N. PROSPECT DRIVE

R/W

MB4201
(1) METER BREAKER PEDESTAL

(2) 2-INCH NONMETALLIC CONDUITS, DIRECTIONAL BORE
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

DMS-67-0124
(1) OVERHEAD SIGN SUPPORT
S-67-412
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) 900 MHZ SERIAL RADIO (S-F)
(1) YAGI ANTENNA (S-F)
(1) BREAKER DISCONNECT BOX

PB4201

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

I DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021442_fm.dgn PLOT DATE : 02-APR-2013 14:47 PLOT BY : MSCKKC PLOT NAME : 021442_fm PLOT SCALE : 100:1

2

2

N

N. SUNNYSLOPE ROAD

W. BLUEMOUND ROAD

USH 18 / W. BLUEMOUND RD.

CCTV-67-0157
ON EXISTING LIGHT POLE
(1) BARREL CAMERA (S-F)

IN EXISTING CONDUIT
(1) CAMERA CABLE

IN EXISTING CONDUIT
(1) CAMERA CABLE

IN EXISTING CONDUIT
(1) CAMERA CABLE

SEE DETAIL
"J"

EXPB4301
(1) INSTALL CONDUITS INTO
EXISTING PULL BOX

IN EXISTING CONDUIT
(1) CAMERA CABLE

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (1) CAMERA CABLE

EXPB4302
(1) INSTALL CONDUITS INTO
EXISTING PULL BOX

CB-CCTV-67-0157
(1) CONCRETE CONTROL BASE TYPE 10
(1) PEDESTAL BASE
(1) GROUND ROD
(1) POLE-MOUNT CABINET (S-F)
(1) METER SOCKET
(1) 24-COUNT F.O. TERMINATION PANEL (S-F)
(6) F.O. TERMINATIONS
(1) ETHERNET SWITCH W/SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)

(3) 2-INCH METALLIC CONDUITS
(1) WITH (1) 12-COUNT FOC (S-F)

J DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021443_fm.dgn PLOT DATE : 28-FEB-2013 23:39 PLOT BY : MSCD1S PLOT NAME : 021443_fm PLOT SCALE : 100:1

2

(3) 2-INCH METALLIC CONDUITS
(1) WITH (1) 12-COUNT FOC (S-F)

CCTV-67-0158
(1) CONCRETE CONTROL BASE TYPE 10
(1) PEDESTAL BASE
(1) GROUND ROD
(1) POLE-MOUNT CABINET (S-F)
(1) METER SOCKET
(1) 24-COUNT F.O. TERMINATION PANEL (S-F)
(6) F.O. TERMINATIONS
(1) ETHERNET SWITCH W/SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)
(1) BLUETOOTH DETECTOR (S-F)

EXPB4402
(2) INSTALL CONDUITS INTO
EXISTING PULL BOX

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (1) CAMERA CABLE

EXPB4401
(1) INSTALL CONDUITS INTO
EXISTING PULL BOX

IN EXISTING CONDUIT
(1) CAMERA CABLE

CCTV-67-0158
ON EXISTING LIGHT POLE
(1) BARREL CAMERA (S-F)

(K) DETAIL
NOT TO SCALE

SEE DETAIL
"K"

EXCVEGR1

W. BLUEMOUND ROAD

WI-18/BLUEMOUND

ELM GROVE ROAD

R/W

IP 1/2"

N

2

2

N

W. BLUEMOUND ROAD

W UNDERWOOD PARKWAY

SEE DETAIL "L"

R/W

W1-18/W BLUEMOUND RD

EXCVUPS1

CB-CCTV-40-0190
(1) CONCRETE CONTROL BASE TYPE 10
(1) PEDESTAL BASE
(1) GROUND ROD
(1) POLE-MOUNT CABINET (S-F)
(1) METER SOCKET
(1) 24-COUNT F.O. TERMINATION PANEL (S-F)
(6) F.O. TERMINATIONS
(1) ETHERNET SWITCH W/ SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)

(3) 2-INCH METALLIC CONDUITS
(1) WITH (1) 12-COUNT FOC

EXPB4502
(1) INSTALL CONDUITS INTO EXISTING PULL BOX

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (1) CAMERA CABLE

PB4501

EXPB4501 (EXISTING SIGNAL PB15)
(1) INSTALL CONDUITS INTO EXISTING PULL BOX

IN EXISTING CONDUIT
(1) CAMERA CABLE

CCTV-40-0190
ON EXISTING LIGHT POLE
(1) DOME CAMERA (S-F)

L DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

2

N

N. 124TH STREET

W. CAPITOL DRIVE

EXCB-DMS-67-0014

IN EXISTING CONDUIT
(1) BLUETOOTH DETECTOR CABLE

EX-DMS-67-0014
S-67-404
(1) BLUETOOTH DETECTOR (S-F)

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	ICMS PLANS	SHEET	E

2

N

S. 124TH STREET

S. 121ST STREET

W. GREENFIELD AVENUE

IN EXISTING CONDUIT
(1) CAMERA CABLE

SEE DETAIL
"M"

R/W

IN EXISTING CONDUIT
(1) CAMERA CABLE

IN EXISTING CONDUIT
(1) CAMERA CABLE

EXCV5001
(15) F.O. SPLICES IN NEW SPLICE ENCLOSURE (S-F)

MATCHLINE R
(SEE WAUKESHA COUNTY SECTION)

MATCHLINE S

IN EXISTING CONDUIT
(1) CAMERA CABLE

R/W

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

CCTV-40-0155
ON EXISTING LIGHT POLE
(1) BARREL CAMERA (S-F)

PKNG

PKNG

TEE

TEE

GREEN

B

B

GREEN

GREEN

TEE

EXPB02

EXPB01

IN EXISTING CONDUIT
(1) CAMERA CABLE

IN EXISTING CONDUIT
(1) WITH (1) CAMERA CABLE
AND (1) 6-COUNT FOC

CB-CCTV-40-0155
ON EXISTING CONCRETE BASE
(1) TRANSFORMER BASE BREAKAWAY 1 1/2 INCH BOLT CIRCLE
(1) POLE MOUNTED CABINET (S-F)
(1) METER SOCKET
(1) 12-COUNT F.O. TERMINATION PANEL (S-F)
(6) F.O. TERMINATIONS
(1) ETHERNET SWITCH W/ SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)
(1) BLUETOOTH DETECTOR (S-F)

IN EXISTING CONDUIT
(1) 6-COUNT FOC

M DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

2

S. 120TH STREET

W. RAINBOW AVENUE

S. 116TH STREET

N

29-37

PARKING

PKNG

PKNG

PKNG

PKNG

PKNG

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

W. GREENFIELD AVENUE

EXCV5101

SEE DETAIL "N"

R/W

IN EXISTING CONDUIT
(1) CAMERA CABLE

EXPB5101

IN EXISTING CONDUIT
(1) CAMERA CABLE

CCTV-40-0156
ON EXISTING LIGHT POLE
(1) BARREL CAMERA

R/W

MATCHLINE S

MATCHLINE T

W

S

CB-CCTV-40-0156
ON EXISTING CONCRETE BASE
(1) TRANSFORMER BASE BREAKAWAY 111*2 INCH BOLT CIRCLE
(1) POLE MOUNTED CABINET (S-F)
(1) METER SOCKET
(1) 12-COUNT F.O. TERMINATION PANEL (S-F)
(6) F.O. TERMINATIONS
(1) ETHERNET SWITCH W/ SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)
(1) BLUETOOTH DETECTOR (S-F)

EXCV5103

EXPB5102

IN EXISTING CONDUIT
(1) 6-COUNT FOC

IN EXISTING CONDUIT
(1) CAMERA CABLE

IN EXISTING CONDUIT
(1) WITH (1) CAMERA CABLE
AND (1) 6-COUNT FOC

EXCV5102
IN EXISTING COMMUNICATION VAULT
(15) F.O. SPLICES IN
NEW SPLICE ENCLOSURE (S-F)

IN EXISTING CONDUIT
(1) 6-COUNT FOC

N DETAIL
NOT TO SCALE

TEE

GREEN

B

B

B

BUNKER

TEE

GREEN

GREENFIELD PARK

GREEN

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021451_fm.dgn PLOT DATE : 01-MAR-2013 12:39 PLOT BY : MSCKKC PLOT NAME : 021451_fm PLOT SCALE : 100:1

2

2

S. 114TH STREET

S. 112TH STREET

W. GREENFIELD AVENUE

N

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

EXCV5201

EXCV5202

MATCHLINE T

MATCHLINE U

EXISTING DMS

PKNG

EPS

PARKING

REC AREA

FP

S

W

ST

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021452_fm.dgn PLOT DATE : 28-FEB-2013 23:42 PLOT BY : MSCD1S PLOT NAME : 021452_fm PLOT SCALE : 100:1

2

2

N

IN EXISTING COMMUNICATION VAULT
(72) F.O. SPLICES IN
NEW SPLICE ENCLOSURE (S-F)

IN EXISTING CONDUIT
(2) 72-COUNT FOC (S-F)

EXCV5303

EXCV5302

S. 110TH STREET

STH 100

W. GREENFIELD AVENUE

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

EXCV5301

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) BLUETOOTH DETECTOR CABLE

EX-CCTV-40-0112
ON EXISTING POLE
(1) BLUETOOTH DETECTOR (S-F)

MATCHLINE U

MATCHLINE V

28-37

PKNG

PARKING

FP

SAN

W

S

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021453_fm.dgn PLOT DATE : 28-FEB-2013 23:43 PLOT BY : MSCD1S PLOT NAME : 021453_fm PLOT SCALE : 100:1

2

2

N

S. 104TH STREET

S. 103RD STREET

W. GREENFIELD AVENUE

MATCHLINE V

MATCHLINE W

EXPB5401

EXCV5401

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

PKNG

PARKING

PILE

27-37

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

2

2

S. 101ST STREET

W. GREENFIELD AVENUE

IH 894/USH 45

N

IN EXISTING COMMUNICATION VAULT
(72) F.O. SPLICES IN
EXISTING SPLICE ENCLOSURE

EXCV5505

IN EXISTING CONDUIT IN BRIDGE PARAPET
(1) 72-COUNT FOC (S-F)

EXPB5502

EXCV5504

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

EXCV5502

EXCV5503

IN EXISTING CONDUIT
(1) 72-COUNT FOC (S-F)

EXCV5501

EXPB5501

CONSTRUCTION BY OTHERS
UNDER PROJECT I.D. 1060-33-77

R/W

R/W

PARKING

MATCHLINE W

MATCHLINE X

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021455_fm.dgn PLOT DATE : 28-FEB-2013 23:43 PLOT BY : MSCD1S PLOT NAME : 021455_fm PLOT SCALE : 100:1

2

2

S. 96TH STREET

S. 95TH STREET

W. GREENFIELD AVENUE

MATCHLINE X

SEE DETAIL "O"

R/W

40'

R/W

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

DMS-40-0125
(1) OVERHEAD SIGN SUPPORT
S-40-451
(1) DMS ASSEMBLY (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) CELLULAR MODEM (S-F)
(1) BLUETOOTH DETECTOR (S-F)
(1) BREAKER DISCONNECT BOX

PB5601

MB5601
(1) METER BREAKER PEDESTAL

O DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021456_fm.dgn PLOT DATE : 02-APR-2013 14:48 PLOT BY : MSCKKC PLOT NAME : 021456_fm PLOT SCALE : 100:1

2

2

N

S. 84TH STREET

W. GREENFIELD AVENUE

IN EXISTING CONDUIT
(1) BLUETOOTH DETECTOR CABLE

EXCB-CCTV-40-0116

EXCCTV-40-0116
(1) BLUETOOTH DETECTOR (S-F)

PARKING

PKNG

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021457_fm.dgn PLOT DATE : 28-FEB-2013 23:44 PLOT BY : MSCD1S PLOT NAME : 021457_fm PLOT SCALE : 100:1

S. 116TH STREET

S. 115TH STREET

S. 113TH STREET

S. 112TH STREET

W. BLUEMOUND ROAD

SEE DETAIL "P"

EXPB6002

(1) 2-INCH NONMETALLIC CONDUIT
(1) WITH (1) CAMERA CABLE AND
(1) NO. 10 AWG LIGHTING WIRES

EXCB-DMS-40-0109
(1) INSTALL CONDUITS INTO EXISTING CONTROL CABINET
(1) ETHERNET SWITCH W/SERIAL PORTS (S-F)
(1) VIDEO ENCODER (S-F)
(1) BLUETOOTH DETECTOR (S-F)
(1) 24-COUNT F.O. TERMINATION PANELS (S-F)
(6) F.O. TERMINATIONS

CCTV-40-0191
(1) 30-FOOT CAMERA POLE BASE
(1) 30-FOOT CAMERA POLE (S-F)
(1) DOME CAMERA (S-F)

EXPB6001
(1) INSTALL CONDUIT INTO EXISTING PULL BOX

PB6001

CV6001
(1) F.O. SPLICE ENCLOSURE (S-F)

(3) 2-INCH NONMETALLIC CONDUITS

EXDMS-40-0109
S-40-425
(VERIFY EXISTING DMS LOCATION IN FIELD)

P DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021460_fm.dgn PLOT DATE : 28-FEB-2013 23:45 PLOT BY : MSCD1S PLOT NAME : 021460_fm PLOT SCALE : 100:1

2

MB6101
(1) METER BREAKER PEDESTAL

(2) 2-INCH NONMETALLIC CONDUITS, DIRECTIONAL BORE
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

DMS-40-0126
(1) OVERHEAD SIGN SUPPORT
S-40-450
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) WIRELESS MODEM (S-F)
(1) BLUETOOTH DETECTOR (S-F)
(1) BREAKER DISCONNECT BOX

PB6101

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

Q DETAIL
NOT TO SCALE

SEE DETAIL "Q"

USH 45 SB

USH 45 NB

N. 95TH STREET

W. BLUEMOUND ROAD

N. 93RD STREET

R/W

N

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021461_fm.dgn PLOT DATE : 03-APR-2013 14:27 PLOT BY : MSCKKC PLOT NAME : 021461_fm PLOT SCALE : 100:1

2

2

N

W. CAPITOL DRIVE

PARKING

PKNG

REC AREA

PARKING

STH 100

28-52

EX-CCTV-40-0107
ON EXISTING POLE
(1) BLUETOOTH DETECTOR (S-F)

IN EXISTING CONDUIT
(1) BLUETOOTH
DETECTOR CABLE

IN EXISTING CONDUIT
(1) BLUETOOTH
DETECTOR CABLE

EX-CB-CCTV-40-0107

IN EXISTING CONDUIT
(1) BLUETOOTH DETECTOR CABLE

PKNG

PARKING

PKNG

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021471_fm.dgn PLOT DATE : 28-FEB-2013 23:46 PLOT BY : MSCD1S PLOT NAME : 021471_fm PLOT SCALE : 100:1

2

2

N

W. LINCOLN AVENUE

W. GRANT STREET

STH 100

EX-CCTV-40-0113
ON EXISTING POLE
(1) BLUETOOTH DETECTOR (S-F)

IN EXISTING CONDUIT
(1) BLUETOOTH
DETECTOR CABLE

IN EXISTING CONDUIT
(1) BLUETOOTH
DETECTOR CABLE

IN EXISTING CONDUIT
(1) BLUETOOTH
DETECTOR CABLE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

2

2

N

W. MT. VERNON AVENUE

N. 108TH PLACE

EX-CCTV-CB-40-0110
(1) BLUETOOTH DETECTOR (S-F)

STH 100

W. BLUEMOUND ROAD

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021482_fm.dgn PLOT DATE : 28-FEB-2013 23:50 PLOT BY : MSCD1S PLOT NAME : 021482_fm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2

N

2

W. WATERTOWN PLANK ROAD

STH 100

EX-CCTV-40-0111
ON EXISTING POLE
(1) BLUETOOTH DETECTOR (S-F)

TRENCH DRAIN

CONCRETE PATIO

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021483_fm.dgn PLOT DATE : 28-FEB-2013 23:50 PLOT BY : MSCD1S PLOT NAME : 021483_fm PLOT SCALE : 100:1

2

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

(1) 2-INCH NONMETALLIC CONDUIT WITH
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

N

DMS-40-0129
(1) OVERHEAD SIGN SUPPORT
S-40-448
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) 900 MHZ SERIAL RADIO (S-F)
(1) YAGI ANTENNA (S-F)
(1) BLUETOOTH DETECTOR (S-F)
(1) BREAKER DISCONNECT BOX

MB8401
(1) METER BREAKER PEDESTAL

PB8401

(R) DETAIL
NOT TO SCALE

UNION PACIFIC RAILWAY

W. NORTH AVENUE

SEE DETAIL "R"

448'

R/W

STH 100

STH 100

STH 100

R/W

NORTH AVE.

NORTH AVE.

VENT WELL

SPRINKLER CONTROL BOX
FLOOR ELEV=717.91

FO VAULT

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021484_fm.dgn PLOT DATE : 02-APR-2013 14:48 PLOT BY : MSCKKC PLOT NAME : 021484_fm PLOT SCALE : 100:1

2

N

W. BURLEIGH STREET

BURLEIGH ST.

EX-CB-CCTV-40-0108
IN EXISTING CONDUIT
(1) BLUETOOTH
DETECTOR CABLE

IN EXISTING CONDUIT
(1) BLUETOOTH
DETECTOR CABLE

EX-CCTV-40-0108
ON EXISTING POLE
(1) BLUETOOTH DETECTOR (S-F)

STH 100

STH 100

GOLF COURSE

GOLF GREEN

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

2

2

EXCB-RM-40-0010
(1) 900 MHZ SERIAL RADIO (S-F)
(1) CABINET-MOUNTED 900 MHZ OMNI ANTENNA (S-F)

R/W

375' FROM STOP BAR

712' FROM STOP BAR

S. 84TH STREET

W. ADLER STREET

W. KEARNEY STREET

IH 94 EB

IH 94 WB

W. O'CONNOR STREET

SEE DETAIL "S"

SEE DETAIL "T"

MB9001
(1) METER BREAKER PEDESTAL

(2) 2-INCH NONMETALLIC CONDUITS, DIRECTIONAL BORE
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

DMS-40-0130
(1) OVERHEAD SIGN SUPPORT
S-40-453
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) 900 MHZ SERIAL RADIO (S-F)
(1) YAGI ANTENNA (S-F)
(1) BREAKER DISCONNECT BOX

PB9001

S DETAIL
NOT TO SCALE

MB9002
(1) METER BREAKER PEDESTAL

(2) 2-INCH NONMETALLIC CONDUIT
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

(2) 2-INCH NONMETALLIC CONDUITS
(1) WITH (3) NO. 6 AWG AND
(1) NO. 10 AWG LIGHTING WIRES

DMS-40-0117
(1) OVERHEAD SIGN SUPPORT
S-40-452
(1) ARTERIAL DMS (S-F)
(1) POLE-MOUNT CABINET (S-F)
(1) DMS CONTROLLER (S-F)
(1) CELLULAR MODEM (S-F)
(1) BREAKER DISCONNECT BOX

PB9002

T DETAIL
NOT TO SCALE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

2

N

N. GLENVIEW AVENUE

W. BLUEMOUND ROAD

EXCCTV-40-0149
(1) BLUETOOTH DETECTOR (S-F)

PARKING

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

2

2

N

USH 45 SB

USH 45 NB

W. WISCONSIN AVENUE

EXPB9202

EXPB9203

EXPB9204

EXPB9201

IN EXISTING CONDUIT
(1) WITH (1) 36-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) WITH (1) 36-COUNT FOC (S-F)

IN EXISTING CONDUIT
(1) WITH (1) 36-COUNT FOC (S-F)

EXMH9201
(36) F.O. SPLICES IN
EXISTING SPLICE ENCLOSURE (S-F)

COIL 300' 36-COUNT FOC

EXCV9201

PLAYGROUND

POST

POOL

MATCHLINE A

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021492_fm.dgn PLOT DATE : 28-FEB-2013 23:51 PLOT BY : MSCD1S PLOT NAME : 021492_fm PLOT SCALE : 100:1

2

2

N

N. 92ND STREET

EXPB9301
(1) INSTALL CONDUIT INTO
EXISTING PULL BOX

IN EXISTING CONDUIT
(1) WITH (1) 36-COUNT FOC (S-F)

(2) 2-INCH HDPE DUCTS, DIRECTIONAL BORE
(1) WITH (1) 36-COUNT FOC (S-F)

(2) 2-INCH HDPE DUCTS, DIRECTIONAL BORE
(1) WITH (1) 36-COUNT FOC (S-F)

R/W

PB9301

W. WISCONSIN AVENUE

R/W

MATCHLINE A

MATCHLINE B

PKNG

PKNG

PKNG

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021493_fm.dgn PLOT DATE : 28-FEB-2013 23:51 PLOT BY : MSCD1S PLOT NAME : 021493_fm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2

2

N

(2) 2-INCH HDPE DUCTS, DIRECTIONAL BORE
(1) WITH (1) 36-COUNT FOC (S-F)

PB9401

W. WISCONSIN AVENUE

PB9402

N. 87TH STREET

R/W

PB9403

(2) 2-INCH HDPE DUCTS, DIRECTIONAL BORE
(1) WITH (1) 36-COUNT FOC (S-F)

CV9401
(1) F.O. SPLICE ENCLOSURE

MATCHLINE B

PKNG

FP

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	ICMS PLANS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\021494_fm.dgn PLOT DATE : 28-FEB-2013 23:51 PLOT BY : MSCD1S PLOT NAME : 021494_fm PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2



PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	EROSION CONTROL	SHEET	E

2

LEGEND

- (A) INLET PROTECTION TYPE A
- (C) INLET PROTECTION TYPE C
- SILT FENCE

N

S. BROOKFIELD HILLS COURT

W. GREENFIELD AVENUE

S. COACHLIGHT DRIVE

S. RIVER DRIVE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022030_ec.dgn PLOT DATE : 01-MAR-2013 12:18 PLOT BY : MSCD1S PLOT NAME : 022030_ec PLOT SCALE : 100:1



PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022031_ec.dgn PLOT DATE : 01-MAR-2013 12:18 PLOT BY : MSCD1S PLOT NAME : 022031_ec PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2

2

N

W. BLUEMOUND ROAD

N. EXECUTIVE DRIVE

LEGEND

- (A) INLET PROTECTION TYPE A
- (C) INLET PROTECTION TYPE C
- SILT FENCE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022040_ec.dgn PLOT DATE : 01-MAR-2013 12:18 PLOT BY : MSCD1S PLOT NAME : 022040_ec PLOT SCALE : 100:1

2

2

N

TERRACE DRIVE

W. BLUEMOUND ROAD

N. LENORE LANE

C

LEGEND

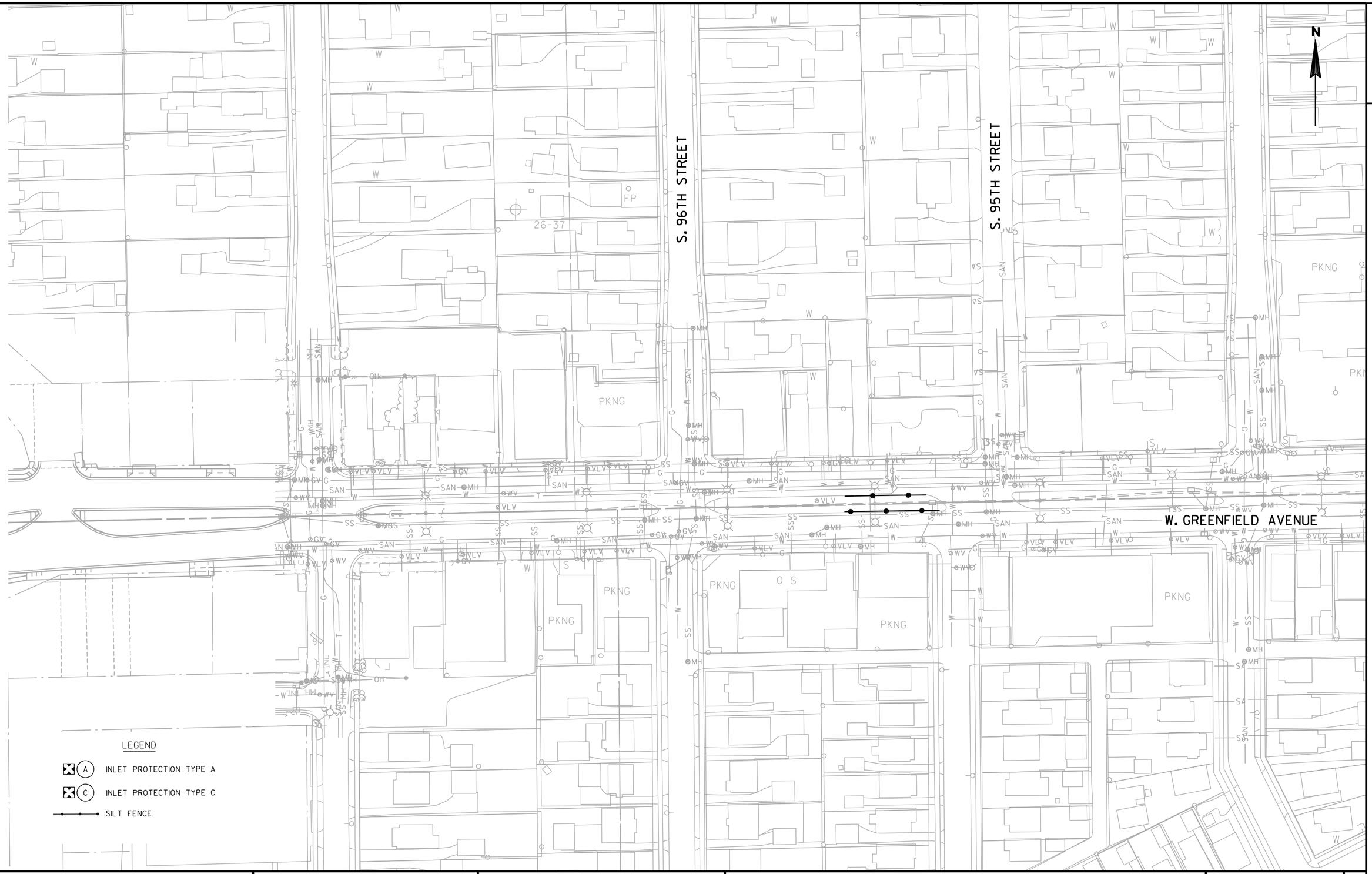
A INLET PROTECTION TYPE A

C INLET PROTECTION TYPE C

SILT FENCE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022042_ec.dgn PLOT DATE : 01-MAR-2013 12:18 PLOT BY : MSCD1S PLOT NAME : 022042_ec PLOT SCALE : 100:1



PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022056_ec.dgn PLOT DATE : 28-FEB-2013 23:55 PLOT BY : MSCD1S PLOT NAME : 022056_ec PLOT SCALE : 100:1

2

2

N

N. 95TH STREET

N. 93RD STREET

USH 45 SB

USH 45 NB

W. BLUEMOUND ROAD

LEGEND

A INLET PROTECTION TYPE A

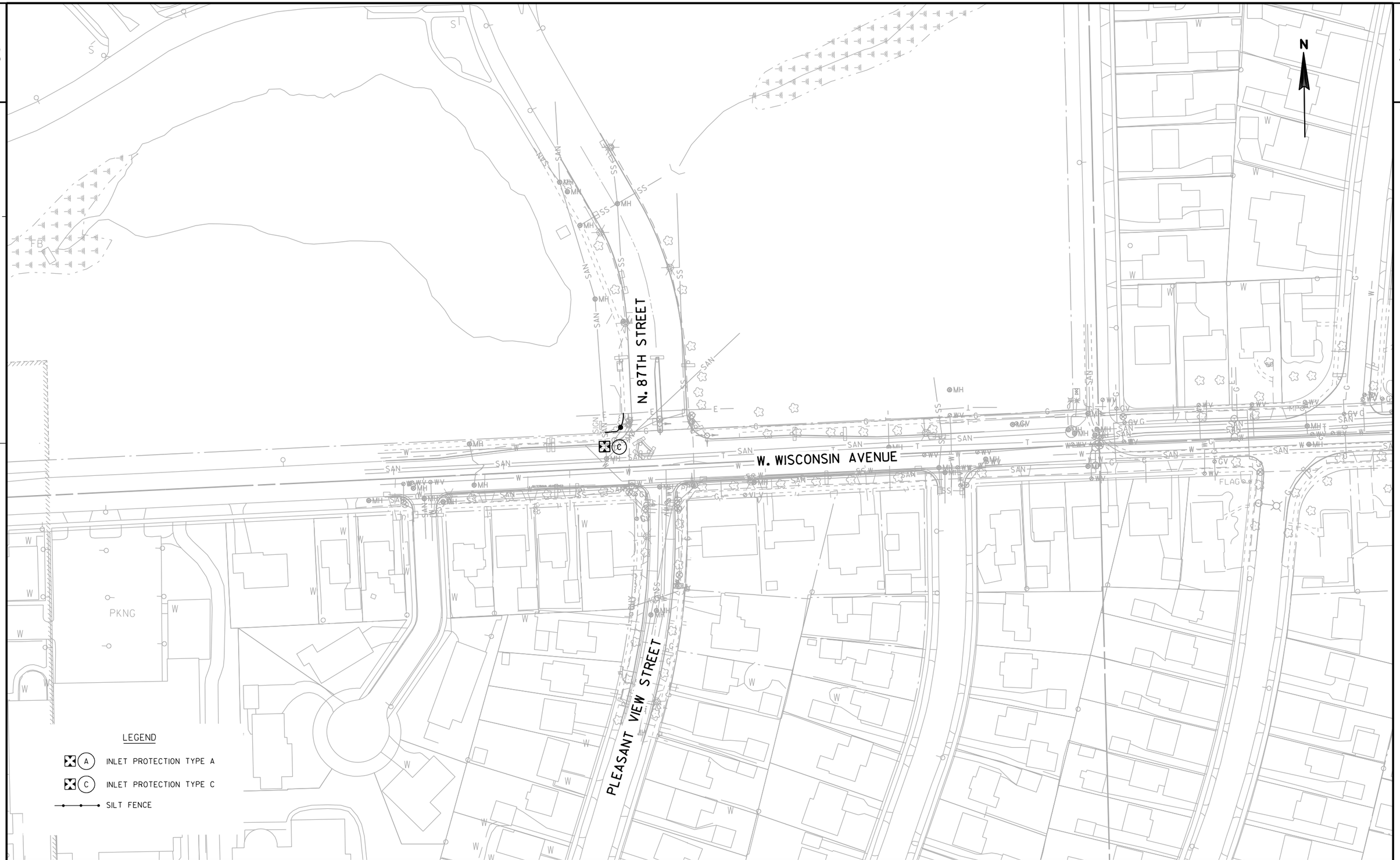
C INLET PROTECTION TYPE C

SILT FENCE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022061_ec.dgn PLOT DATE : 28-FEB-2013 23:56 PLOT BY : MSCD1S PLOT NAME : 022061_ec PLOT SCALE : 100:1

2



2

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022075_ec.dgn PLOT DATE : 28-FEB-2013 23:56 PLOT BY : MSCD1S PLOT NAME : 022075_ec PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

2

2

LEGEND

A INLET PROTECTION TYPE A

C INLET PROTECTION TYPE C

SILT FENCE

N

W. NORTH AVENUE

STH 100

UNION PACIFIC RAILWAY

RAMP

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022084_ec.dgn PLOT DATE : 28-FEB-2013 23:58 PLOT BY : MSCD1S PLOT NAME : 022084_ec PLOT SCALE : 100:1

2

2

N

S. 84TH STREET

W. ADLER STREET

W. KEARNEY STREET

IH 94 EB

IH 94 WB

W. O'CONNOR STREET

LEGEND

- (A) INLET PROTECTION TYPE A
- (C) INLET PROTECTION TYPE C
- SILT FENCE

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	EROSION CONTROL	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\022090_ec.dgn PLOT DATE : 28-FEB-2013 23:58 PLOT BY : MSCD1S PLOT NAME : 022090_ec PLOT SCALE : 100:1

WISDOT/CADDS SHEET 42

LEGEND

PROPOSED SIGN MOUNTED ON POST(S)

(XXX) DENOTES SIGN NUMBER

(X) INDICATES SIGN SIZE

N

N. 121ST STREET

USH 18 (W. BLUEMOUND ROAD)

POSTED SPEED LIMIT = 25 MPH

POSTED SPEED LIMIT = 35 MPH

1 2

LEFT TURN
YIELD
ON FLASHING
YELLOW
ARROW

R10-50
ON SIGNAL POLE UP HIGH

PROJECT NO: 1060-33-99	HWY: USH 18 & N. 121ST ST	COUNTY: MILWAUKEE	SIGNING PLAN	SHEET 92	E

SHEET 1 OF 2

FILE NAME : J:\projects\d2_10603318\99\SIGN.dgn PLOT DATE : 25-FEB-2013 10:27 PLOT BY : dotbgw PLOT NAME : PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

LEGEND

PROPOSED SIGN MOUNTED ON POST(S)

(XXX) DENOTES SIGN NUMBER

(X) INDICATES SIGN SIZE

N

N. 112TH STREET

USH 18 (W. BLUEMOUND ROAD)

POSTED SPEED LIMIT = 35 MPH

POSTED SPEED LIMIT = 25 MPH

3 4

LEFT TURN YIELD ON FLASHING YELLOW ARROW

R10-50
ON SIGNAL POLE UP HIGH

SHEET 2 OF 2

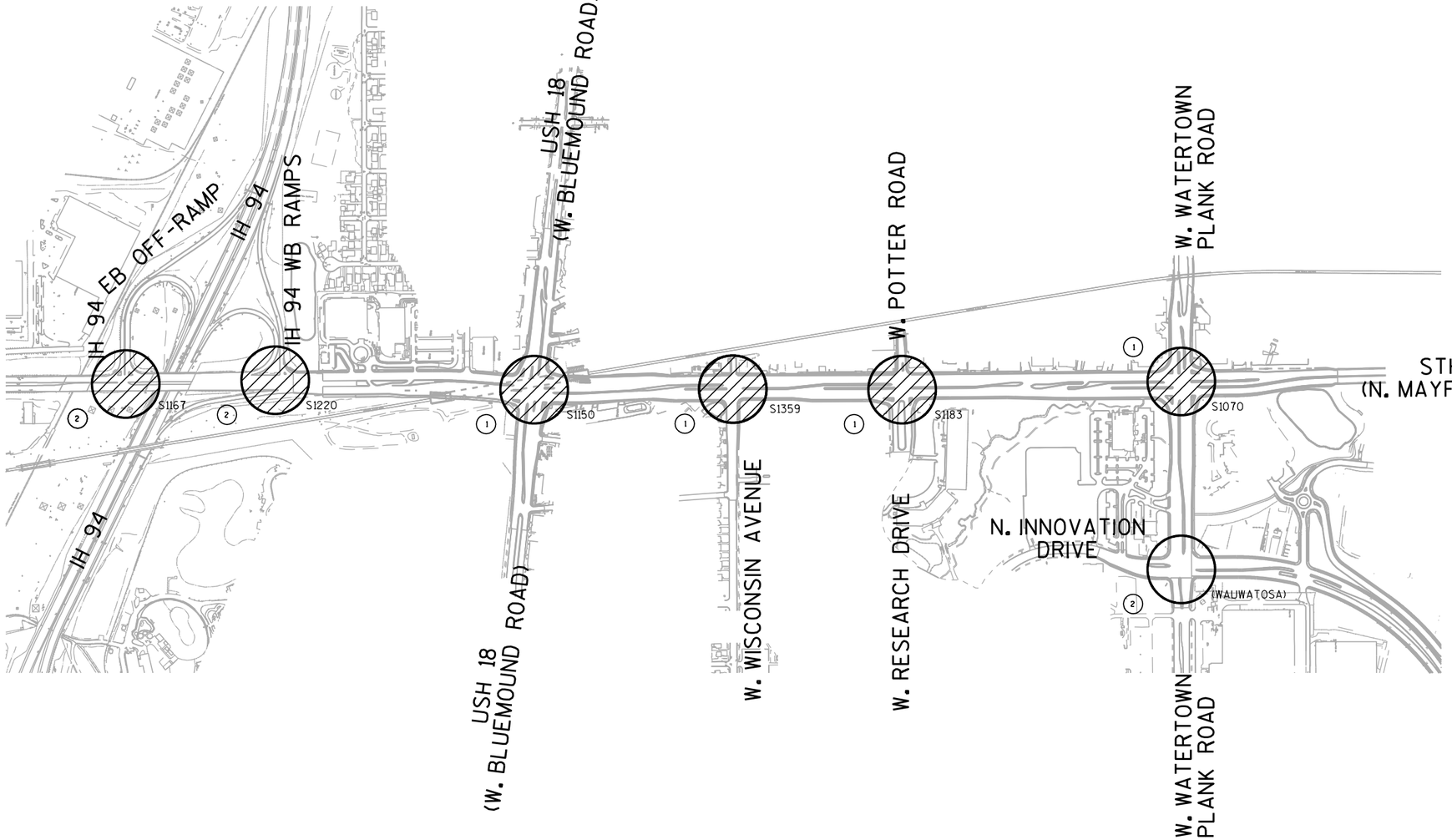
PROJECT NO: 1060-33-99	HWY: USH 18 & 112TH ST.	COUNTY: MILWAUKEE	SIGNING PLAN	SHEET 93	E

FILE NAME : J:\projects\d2_10603318\99\SIGN.dgn PLOT DATE : 25-FEB-2013 10:27 PLOT BY : dotbgw PLOT NAME : PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

N



LEGEND

WISDOT OWNED TRAFFIC SIGNAL
SXXXX

MUNICIPAL OWNED TRAFFIC SIGNAL
(MUNICIPALITY)

(1) INSTALL ADAPTABLE TRAFFIC SIGNAL EQUIPMENT

(2) INTERSECTION EQUIPMENT INCLUDED IN FUTURE ICMS PROJECT

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PROJECT OVERVIEW - STH 100	SHEET	E

LEGEND

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

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

STRUCTURE NUMBERS

SB3 = S-40-1311
SB4 = S-40-1312
SB7 = S-40-1313
SB9 = S-40-1314
SB10 = S-40-1315
SB16 = S-40-1316
SB19 = S-40-1317
SB23 = S-40-1318

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

TRAFFIC SIGNAL HEAD

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

R RED ARROW

Y YELLOW ARROW

G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

STH 100 (N. MAYFAIR ROAD)

USH 18 (W. BLUEMOUND ROAD)

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
05/15/2013

CONSTRUCTION NOTES;

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

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
STH 100 (N. MAYFAIR ROAD)
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1150 (M126)

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024111_sp.dgn PLOT DATE : 01-MAR-2013 00:02 PLOT BY : MSCD1S PLOT NAME : 024111_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

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

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

STRUCTURE NUMBERS

SB3	= S-40-1311
SB4	= S-40-1312
SB7	= S-40-1313
SB9	= S-40-1314
SB10	= S-40-1315
SB16	= S-40-1316
SB19	= S-40-1317
SB23	= S-40-1318

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

TRAFFIC SIGNAL HEAD

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

RED CIRCULAR INDICATOR

YELLOW CIRCULAR INDICATOR

GREEN CIRCULAR INDICATOR

RED ARROW

YELLOW ARROW

GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

STH 100 (N. MAYFAIR ROAD)

USH 18 (W. BLUEMOUND ROAD)

POSTED SPEED LIMIT=35 MPH

POSTED SPEED LIMIT=40 MPH

590SS 591SS 592SS 593SS 594SS 595SS

590SN 591SN 592SN 593SN 594SN 595SN

160BE 160BW 161BE 161BW 162BE 162BW 163BE 163BW

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
05/15/2013

REVISION				
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
10	Date	By	Date	By
	3/15/13	DAB	3/15/13	DJB

RECONSTRUCT INTERSECTION. UPDATE GEOMETRY INSTALL MONOTUBES. 8-12	
REPLACE LOOP #41 10-09	
INTERSECTION REHAB. 1-07	
MOVED EVP HEAD FROM SB9 TO SB5. 5-03	
EMERGENCY VEHICLE PREEMPTION INSTALLED ON ALL APPROACHES. 4-00	
CABINET AND CONTROLLER CHANGE FOR CLOSED LOOP. DATE UNKNOWN	
INSTALL SIGNAL HEADS FOR CLOSED LOOP 21 & 22 EB & WB. DATE UNKNOWN	
INSTALL SB ARROW AND DETECTION. 3-94	
INSTALLED RED ARROWS AT NBLT AND EBRT. 1-92	
INITIAL INSTALLATION 1-88	

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
STH 100 (N. MAYFAIR ROAD)
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1150 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 9/21/87 EDWARD J. FRIEDE, REGION TRAFFIC ENGINEER

APPROVED
Date 1/29/88 H. O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45 (J. MATSON)
REVISED BY: FORWARD 45

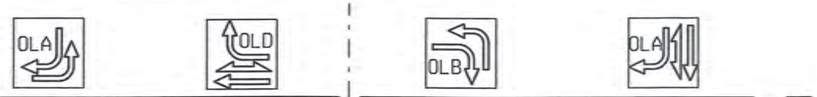
PAGE 1 OF 2

JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024115_sp.dgn PLOT DATE : 01-MAR-2013 00:03 PLOT BY : MSCD1S PLOT NAME : 024115_sp PLOT SCALE : 40:1 WISDOT/CADD SHEET 42

SEQUENCE OF OPERATION



	HEAD NUMBERS	Ø1 R/W	Ø1 **	Ø1 Ø4	Ø2 R/W	Ø2 **	Ø2 Ø7	Ø3 R/W	Ø3 **	Ø3 Ø6	Ø4 R/W	Ø4 **	Ø4 Ø1	FLASH
Ø1	7,8,9	G	Y	R	R	R	R	R	R	R	R	R	R	R
Ø2	10,11,12,13	R	R	R	G	Y	R	R	R	R	R	R	R	R
Ø3	25,26,27	R	R	R	R	R	R	G	Y	R	R	R	R	R
Ø4	28,29,30	R	R	R	R	R	R	R	R	R	G	Y	R	R
Ø5	16,17,18	R	R	R	R	R	R	R	R	R	R	R	R	R
Ø6	1,2,3,4	R	R	R	R	R	R	R	R	R	R	R	R	R
Ø7	33,34,35,36	R	R	R	R	R	R	R	R	R	R	R	R	R
Ø8	19,20,21,22	R	R	R	R	R	R	R	R	R	R	R	R	R
OLA	31,32	G	Y	R G G	R	R	R	R	R	R	G	Y	R G G	R
OLB	5,6	R	R	R	R	R	R	G	Y	R G G	R	R	R	R
OLC	23,24	R	R	R	R	R	R	R	R	R	R	R	R	R
OLD	14,15	R	R	R	G	Y	R G G	R	R	R	R	R	R	R
Ø2P	41,42,43,44	D	D	D	*	D	D	D	D	D	D	D	D	
Ø4P	37,38,39,40	D	D	D	D	D	D	D	D	D	*	D	D	
Ø6P	49,50,51,52	D	D	D	D	D	D	D	D	D	D	D	D	
Ø8P	45,46,47,48	D	D	D	D	D	D	D	D	D	D	D	D	

RING 1



	HEAD NUMBERS	Ø5 R/W	Ø5 **	Ø5 Ø8	Ø6 R/W	Ø6 **	Ø6 Ø3	Ø7 R/W	Ø7 **	Ø7 Ø2	Ø8 R/W	Ø8 **	Ø8 Ø5
Ø1	7,8,9	R	R	R	R	R	R	R	R	R	R	R	R
Ø2	10,11,12,13	R	R	R	R	R	R	R	R	R	R	R	R
Ø3	25,26,27	R	R	R	R	R	R	R	R	R	R	R	R
Ø4	28,29,30	R	R	R	R	R	R	R	R	R	R	R	R
Ø5	16,17,18	G	Y	R	R	R	R	R	R	R	R	R	R
Ø6	1,2,3,4	R	R	R	G	Y	R	R	R	R	R	R	R
Ø7	33,34,35,36	R	R	R	R	R	R	G	Y	R	R	R	R
Ø8	19,20,21,22	R	R	R	R	R	R	R	R	R	G	Y	R
OLA	31,32	R	R	R	R	R	R	R	R	R	R	R	R
OLB	5,6	R	R	R	G	Y	R G G	R	R	R	R	R	R
OLC	23,24	G	Y	R G G	R	R	R	R	R	R	G	Y	R G G
OLD	14,15	R	R	R	R	R	R	G	Y	R G G	R	R	R
Ø2P	41,42,43,44	D	D	D	D	D	D	D	D	D	D	D	D
Ø4P	37,38,39,40	D	D	D	D	D	D	D	D	D	D	D	D
Ø6P	49,50,51,52	D	D	D	*	D	D	D	D	D	D	D	D
Ø8P	45,46,47,48	D	D	D	D	D	D	D	D	D	*	D	D

RING 2

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

BARRIER

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
12		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
24		X			2	2					VIDEO
31		X			3	3					VIDEO
32		X			3	3					VIDEO
33		X			3	3					VIDEO
41		X			4	4					VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
51		X			5	5					VIDEO
52		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO
71		X			7	7					VIDEO
72		X			7	7					VIDEO
73		X			7	7					VIDEO
81		X			8	8					VIDEO
82		X			8	8					VIDEO
83		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" = 1,4
O.L. "B" = 3,6
O.L. "C" = 5,8
O.L. "D" = 2,7

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

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

Z

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,4,7,8
2	5 OR 6	1,3,4,7,8
3	7 OR 8	1,2,4,5,6
4	7 OR 8	1,2,3,5,6
5	1 OR 2	3,4,6,7,8
6	1 OR 2	3,4,5,7,8
7	3 OR 4	1,2,5,6,8
8	3 OR 4	1,2,5,6,7

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS-00-13

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	←	↱	↓↳	↰↑
PHASE	2+5	6+1	4+7	8+3

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

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

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

USH 18 (W. BLUEMOUND ROAD) &
STH 100 (N. MAYFAIR ROAD)
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1150 (M126)

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE 3/15/13 DDB

PROJECT NO: 1060-33-99 | HWY: USH 18 | COUNTY: MILWAUKEE | SEQUENCE OF OPERATIONS | SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024119_sp_ph.dgn PLOT DATE : 01-MAR-2013 00:05 PLOT BY : MSCD1S PLOT NAME : 024119_sp_ph PLOT SCALE : 40:1

WISDOT/CADDET 42

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

STH 100 (N. MAYFAIR ROAD)

601SS 602SS 603SS 604SS 605SS 606SS 607SS

601SN 602SN 603SN 604SN 605SN 606SN 607SN

W. WISCONSIN AVENUE

STRUCTURE NUMBERS

SB1 = S-40-1319
SB2 = S-40-1320
SB4 = S-40-1321
SB6 = S-40-1322
SB7 = S-40-1323
SB9 = S-40-1324

CONSTRUCTION NOTES:

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

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
04/15/2013

TRAFFIC CONTROL SIGNAL
STH 100 (N. MAYFAIR ROAD) &
W. WISCONSIN AVENUE
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1359

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45 (J. MATSON)
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024121_sp.dgn PLOT DATE : 01-MAR-2013 00:09 PLOT BY : MSCD1S PLOT NAME : 024121_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X [illegible]
- PEDESTRIAN HEAD [illegible]H PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) YELLOW ARROW
- (G) GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

STH 100 (N. MAYFAIR ROAD)

601SS 602SS 603SS 604SS 605SS 606SS 607SS

601SN 602SN 603SN 604SN 605SN 606SN 607SN

POSTED SPEED LIMIT=40MPH

POSTED SPEED LIMIT=40 MPH

POSTED SPEED LIMIT=35 MPH

W. WISCONSIN AVENUE

R/W

FTMS FOC

1¼" FO I/C

CV604SS

CB1

V1 V2 V3 V4

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8 PB9 PB10 PB11

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

STRUCTURE NUMBERS

SB1	S-40-1319
SB2	S-40-1320
SB4	S-40-1321
SB6	S-40-1322
SB7	S-40-1323
SB9	S-40-1324

WISCONSIN JASON R. MATSON 37111 WAUKESHA, WI PROFESSIONAL ENGINEER 4/2/2013

INITIAL INSTALLATION. 8-12

REVISION

Rev. No.				
	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
	Date	By	Date	By
1	3/21/13	DAB	4/2/13	GJB

TRAFFIC CONTROL SIGNAL
STH 100 (N. MAYFAIR ROAD) & W. WISCONSIN AVENUE
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1359 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 7/27/12 ELIZABETH SCHNEIDER, REGION TRAFFIC ENGINEER

APPROVED
Date 8/1/12 JOANNA L. BUSH, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45 (J. MATSON)
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRE 3/21/13

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024125_sp.dgn PLOT DATE : 20-MAR-2013 07:29 PLOT BY : mscjym PLOT NAME : 024125_sp PLOT SCALE : 40:1

WISDOT/CADLINE SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	5,6	G ←	Y ← R ←	R ←	R ← R ←	R ←	R ← R ←	R ←	R ← R ←	R ←
Ø2	7,8,9,10	R	R R	G	Y R	R	R R	R	R R	R
Ø3	16,17	R ←	R ← R ←	R ←	R ← R ←	G ←	Y ← R ←	R ←	R ← R ←	R ←
Ø4	18,19,20	R	R R	R	R R	R	R R	G	Y R	R
Ø5	11,12	R ←	R ← R ←	R ←	R ← R ←	R ←	R ← R ←	R ←	R ← R ←	R ←
Ø6	1,2,3,4	R	R R	R	R R	R	R R	R	R R	R
Ø7										
Ø8	13,14,15	R	R R	R	R R	R	R R	R	R R	R
Ø2P	21,22	D	D D	*	D D	D	D D	D	D D	
Ø4P										
Ø6P	27,28	D	D D	D	D D	D	D D	D	D D	
Ø8P	23,24,25,26	D	D D	D	D D	D	D D	D	D D	

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	5,6	R ←	R ← R ←	R ←	R ← R ←			R ←	R ← R ←
Ø2	7,8,9,10	R	R R	R	R R			R	R R
Ø3	16,17	R ←	R ← R ←	R ←	R ← R ←			R ←	R ← R ←
Ø4	18,19,20	R	R R	R	R R			R	R R
Ø5	11,12	G ←	Y ← R ←	R ←	R ← R ←			R ←	R ← R ←
Ø6	1,2,3,4	R	R R	G	Y R			R	R R
Ø7									
Ø8	13,14,15	R	R R	R	R R			G	Y R
Ø2P	21,22	D	D D	D	D D			D	D D
Ø4P									
Ø6P	27,28	D	D D	*	D D			D	D D
Ø8P	23,24,25,26	D	D D	D	D D			*	D D

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
24		X			2	2					VIDEO
31		X			3	3					VIDEO
41		X			4	4		X			VIDEO
51		X			5	5					VIDEO
52		X			5	5					VIDEO
61		X			6	6		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO
65		X			6	6					VIDEO
81		X			8	8		X			VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

Z

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS-00-13

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL D
MOVEMENT	←	→	↑
PHASE	2+5	6+1	8+3

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

AFTER PREEMPTION SEQUENCE 8+3, CONTROLLER SHALL RETURN TO PHASES 4+8.

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,4,8
2	5 OR 6	1,3,4,8
3	8	1,2,4,5,6
4	8	1,2,3,5,6
5	1 OR 2	3,4,6,8
6	1 OR 2	3,4,5,8
7		
8	3 OR 4	1,2,5,6

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

STH 100 (N. MAYFAIR ROAD) & W. WISCONSIN AVENUE
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1359

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/21/13 DAB 3/21/13 JRE

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024129_sp_ph.dgn PLOT DATE : 20-MAR-2013 07:31 PLOT BY : mscjym PLOT NAME : 024129_sp_ph PLOT SCALE : 40:1 WISDOT/CADLIBRARY SHEET 42

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- Y YIELD SIGN
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- (X) EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) YELLOW ARROW
- (G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

STH 100 (N. MAYFAIR ROAD)

W. POTTER ROAD

W. RESEARCH DRIVE

611SS 612SS 613SS 614SS 615SS 616SS

611SN 612SN 613SN 614SN 615SN 616SN

V1 V2 V3 V4 V5 V6 V7 V8

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8 PB9 PB10 PB11 PB12 PB13 PB14 PB15

CV615SS CV614SS

CB1

FTMS FOC

R/W

SAN

STRUCTURE NUMBERS

SB2 = S-40-1325
SB5 = S-40-1326
SB6 = S-40-1327
SB7 = S-40-1328
SB10 = S-40-1329
SB12 = S-40-1330

CONSTRUCTION NOTES:

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

WISCONSIN PROFESSIONAL ENGINEER
JASON R. MATSON
37111
WAUKESHA, WI
03/13/2013

TRAFFIC CONTROL SIGNAL
STH 100 (N. MAYFAIR ROAD) &
W. POTTER ROAD/W. RESEARCH DRIVE
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1183 (M159)

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024131_sp.dgn PLOT DATE : 01-MAR-2013 00:14 PLOT BY : MSCD1S PLOT NAME : 024131_sp PLOT SCALE : 40:1 WISDOT/CADDS SHEET 42

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- Y YIELD SIGN
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
02/13/2013

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) YELLOW ARROW
- (G) GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

STH 100 (N. MAYFAIR ROAD)

W. POTTER ROAD

W. RESEARCH DRIVE

POSTED SPEED LIMIT=25 MPH

POSTED SPEED LIMIT=40 MPH

611SS 612SS 613SS 614SS 615SS 616SS

611SN 612SN 613SN 614SN 615SN 616SN

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

STRUCTURE NUMBERS

SB2	S-40-1325
SB5	S-40-1326
SB6	S-40-1327
SB7	S-40-1328
SB10	S-40-1329
SB12	S-40-1330

REVISION	
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.
	APPROVAL RECOMMENDED / APPROVED
5	REGION Date 3/15/13 By DAB / CENTRAL OFFICE Date 3/15/13 By JRE

RECONSTRUCT INTERSECTION. UPDATE GEOMETRY INSTALL MONOTUBES. 8-12

ADD LEFT TURN SIGNALS & LOOPS FOR NB & SB SPPROACH. CHANGE POLES FOR SB 3 & SB9 TO 15'.

EMERGENCY VEHICLE PREEMPTION NB, SB, WB APPROACHES 3-20-00

CHANGE FLASHING YELLOW TO RED 10-4-99

TRAFFIC CONTROL SIGNAL
STH 100 (N. MAYFAIR ROAD) &
W. POTTER ROAD/W. RESEARCH DRIVE
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1183 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVAL RECOMMENDED
Date 9-13-96 GARY P. KNERR, REGION TRAFFIC ENGINEER
APPROVED
Date 9-20-96 WILLIAM C. GILDING, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45 (J. MATSON)
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024135_sp.dgn PLOT DATE : 01-MAR-2013 00:15 PLOT BY : MSCD1S PLOT NAME : 024135_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

NOT USED

		HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø1 CLEAR TO	Ø2 R/W	Ø2 CLEAR TO **	Ø2 CLEAR TO	Ø3 R/W	Ø3 CLEAR TO **	Ø3 CLEAR TO	Ø4 R/W	Ø4 CLEAR TO **	Ø4 CLEAR TO	FLASH
	Ø1	5,6,18,19	G,G	A	B	B	B	B	B	B	B				B
	Ø2	7,8,9,10	R	R	R	G	Y	R	R	R	R				R
	Ø3	13,14	R	R	R	R	R	R	G	Y	R				R
	Ø4														
RING 1	Ø5	11,12	R	R	R	R	R	R	R	R	R				R
	Ø6	1,2,3,4	R	R	R	R	R	R	R	R	R				R
	Ø7	15,16,17	R	R	R	R	R	R	R	R	R				R
	Ø8														
	Ø2P	20,21	D	D	D	*	D	D	D	D	D				
	Ø4P														
	Ø6P	24,25	D	D	D	D	D	D	D	D	D				
	Ø8P	22,23	D	D	D	D	D	D	D	D	D				

		HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø5 CLEAR TO	Ø6 R/W	Ø6 CLEAR TO **	Ø6 CLEAR TO	Ø7 R/W	Ø7 CLEAR TO **	Ø7 CLEAR TO	Ø8 R/W	Ø8 CLEAR TO **	Ø8 CLEAR TO
	Ø1	5,6,18,19	B	B	B	B	B	B	B	B	B	B	B	B
	Ø2	7,8,9,10	R	R	R	R	R	R	R	R	R	R	R	R
	Ø3	13,14	R	R	R	R	R	R	R	R	R	R	R	R
	Ø4													
RING 2	Ø5	11,12	G	Y	R	R	R	R	R	R	R	R	R	R
	Ø6	1,2,3,4	R	R	R	G	Y	R	R	R	R	R	R	R
	Ø7	15,16,17	R	R	R	R	R	R	G	Y	R	R	R	R
	Ø8													
	Ø2P	20,21	D	D	D	D	D	D	D	D	D	D	D	D
	Ø4P													
	Ø6P	24,25	D	D	D	*	D	D	D	D	D	D	D	D
	Ø8P	22,23	D	D	D	D	D	D	D	D	D	*	D	D

A = Y,Y
B = R,R

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
12		X			1	1		X			VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
24		X			2	2					VIDEO
31		X			3	3					VIDEO
32		X			3	3					VIDEO
51		X			5	5					VIDEO
52		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO
71		X			7	7					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

N

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS-00-13

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL D
MOVEMENT			
PHASE	2+5	6+1	3

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

AFTER PREEMPTION SEQUENCE 3, CONTROLLER SHALL RETURN TO PHASES 3+7.

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,7,8
2	5 OR 6	1,3,7,8
3	7 OR 8	1,2,5,6
4		
5	1 OR 2	3,6,7,8
6	1 OR 2	3,5,7,8
7	3	1,2,5,6,8
8	3	1,2,5,6,7

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

STH 100 (N. MAYFAIR ROAD) &
W. POTTER ROAD/W. RESEARCH DRIVE
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1183 (M159)

CONTROLLER TYPE: EPAC M51

DATE 02/13

PAGE NO. 2 OF 2

3/15/13 JRE

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42" PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- Y YELLOW ARROW
- G GREEN ARROW
- Y YIELD SIGN

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

STH 100 (N. MAYFAIR ROAD)

W. WATERTOWN PLANK ROAD

629SS 630SS 631SS 632SS 633SS 634SS

629SN 630SN 631SN 632SN 633SN 634SN

21WEB 21WWB 22WEB 22WWB 23WEB 23WWB 24WEB 24WWB

V1 V2 V3 V4 V5 V6 V7 V8

CV630SS CV632SS-1 CV632SS-2

FTMS FOC

OLA

PLE

R/W

CONSTRUCTION NOTES:

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

WISCONSIN JASON R. MATSON 37111 WAUKESHA, WI PROFESSIONAL ENGINEER

05/15/2013

STRUCTURE NUMBERS

SB2 = S-40-1331
SB3 = S-40-1332
SB7 = S-40-1333
SB8 = S-40-1334
SB9 = S-40-1335
SB12 = S-40-1336
SB13 = S-40-1337
SB16 = S-40-1338

TRAFFIC CONTROL SIGNAL
STH 100 (N. MAYFAIR ROAD) &
W. WATERTOWN PLANK ROAD
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1070 (M13)

REGION CONTACT: ELIZABETH SCHNEIDER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024141_sp.dgn PLOT DATE : 01-MAR-2013 00:20 PLOT BY : MSCD1S PLOT NAME : 024141_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- B PEDESTRIAN HEAD WITH PUSH BUTTON
- B PUSH BUTTON
- X EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- Y YELLOW ARROW
- G GREEN ARROW
- Y YIELD SIGN

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

STH 100 (N. MAYFAIR ROAD)

W. WATERTOWN PLANK ROAD

POSTED SPEED LIMIT=35 MPH

POSTED SPEED LIMIT=40 MPH

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

WISCONSIN JASON R. MATSON 37111 WAUKESHA, WI PROFESSIONAL ENGINEER 04/15/2013

STRUCTURE NUMBERS

SB2	S-40-1331
SB3	S-40-1332
SB7	S-40-1333
SB8	S-40-1334
SB9	S-40-1335
SB12	S-40-1336
SB13	S-40-1337
SB16	S-40-1338

RECONSTRUCT INTERSECTION. UPDATE GEOMETRY. INSTALL MONOTUBES. 8-12	PHASE 5 PLACED ON LOCKING. 8-22-05
INSTALL NEW LOOPS 41 & 72.	ADD ADVANCE LOOPS NB&SB AND MOVE LEFT TURN LANE LOOPS.
PLAN UPDATED TO REFLECT FIELD REVIEW. 7-5-07	EVP. 2000
PLAN UPDATED TO REFLECT PROPER HEAD PLACEMENT PER FIELD REVIEW. RENUMBER HEADS, UPDATE SEQUENCE SHEET. 3-1-06	INSTALL NEW LOOPS, NEW HEADS FOR DUAL SB LT LANES. 5-11-99
	INSTALLED ACTUATED PEDESTRIAN SIGNALS. 10-2-92
	CHANGED TO 80 CONTROLLER INSTALLED EB LEFT TURN ARROW. 6-14-90
	NEW CABINET. 1-19-82
	UPDATE SIGNAL. 8-16-81
	NEW CABINET. 6-15-73
	UPDATE SIGNALS. 5-21-64
	UPDATE HEADS. 10-13-60
	UPDATE SIGNALS. 11-13-57
	DATE OF INITIAL INSTALLATION 5-1-1935

REVISION

Rev. No.				
	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
17	Date	By	Date	By
	3/15/13	DAB	3/15/13	JRE

TRAFFIC CONTROL SIGNAL
STH 100 (N. MAYFAIR ROAD) & W. WATERTOWN PLANK ROAD
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1070 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 9/19/80 JOHN A. WHITE, REGION TRAFFIC ENGINEER

APPROVED
Date 12/11/84 H. O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45 (J. MATSON)
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roods\cds\024145_sp.dgn PLOT DATE : 01-MAR-2013 00:21 PLOT BY : MSCD1S PLOT NAME : 024145_sp PLOT SCALE : 40:1 WISDOT/CADD SHEET 42

SEQUENCE OF OPERATION

		01							02							03							04							FLASH
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO						
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**						
01	4,5	G	Y	R					R	R	R					R	R	R					R	R	R					R
02	6,7,8	R	R	R					G	Y	R					R	R	R					R	R	R					R
03	16,17,18,19	R	R	R					R	R	R					G	Y	R					R	R	R					R
04	20,21,22	R	R	R					R	R	R					R	R	R					G	Y	R					R
RING 1 05	9,10	R	R	R					R	R	R					R	R	R					R	R	R					R
06	1,2,3	R	R	R					R	R	R					R	R	R					R	R	R					R
07	23,24,25	R	R	R					R	R	R					R	R	R					R	R	R					R
08	11,12,13	R	R	R					R	R	R					R	R	R					R	R	R					R
OLA	14,15	R	R	R					R	R	R					R	R	R					R	R	R					R
02P	30,31	D	D	D					*	D	D					D	D	D					D	D	D					
04P	26,27,28,29	D	D	D					D	D	D					D	D	D					*	D	D					
06P	36,37	D	D	D					D	D	D					D	D	D					D	D	D					
08P	32,33,34,35	D	D	D					D	D	D					D	D	D					D	D	D					

		05							06							07							08						
			CLEAR TO		08					CLEAR TO							CLEAR TO							CLEAR TO		05				
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**						
01	4,5	R	R	R					R	R	R					R	R	R					R	R	R					
02	6,7,8	R	R	R					R	R	R					R	R	R					R	R	R					
RING 2 03	16,17,18,19	R	R	R					R	R	R					R	R	R					R	R	R					
04	20,21,22	R	R	R					R	R	R					R	R	R					R	R	R					
05	9,10	G	Y	R					R	R	R					R	R	R					R	R	R					
06	1,2,3	R	R	R					G	Y	R					R	R	R					R	R	R					
07	23,24,25	R	R	R					R	R	R					G	Y	R					R	R	R					
08	11,12,13	R	R	R					R	R	R					R	R	R					G	Y	R					
OLA	14,15	G	Y	R	G	G			R	R	R					R	R	R					G	Y	R	G	G			
02P	30,31	D	D	D					D	D	D					D	D	D					D	D	D					
04P	26,27,28,29	D	D	D					D	D	D					D	D	D					D	D	D					
06P	36,37	D	D	D					*	D	D					D	D	D					D	D	D					
08P	32,33,34,35	D	D	D					D	D	D					D	D	D					*	D	D					

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
12		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
31		X			3	3					VIDEO
32		X			3	3					VIDEO
33		X			3	3					VIDEO
41		X			4	4					VIDEO
42		X			4	4					VIDEO
51		X			5	5					VIDEO
52		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
71		X			7	7					VIDEO
72		X			7	7					VIDEO
81		X			8	8					VIDEO
82		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" = 5,8
O.L. "B" =
O.L. "C" =
O.L. "D" =

N

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS-00-13

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	←	↱	↓	↑
PHASE	2+5	6+1	4+7	8+3

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,4,7,8
2	5 OR 6	1,3,4,7,8
3	7 OR 8	1,2,4,5,6
4	7 OR 8	1,2,3,5,6
5	1 OR 2	3,4,6,7,8
6	1 OR 2	3,4,5,7,8
7	3 OR 4	1,2,5,6,8
8	3 OR 4	1,2,5,6,7

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

STH 100 (N. MAYFAIR ROAD) &
W. WATERTOWN PLANK ROAD
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1070 (M13)

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE
3/15/13 Pak

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024149_sp_ph.dgn PLOT DATE : 01-MAR-2013 00:23 PLOT BY : MSCD1S PLOT NAME : 024149_sp_ph PLOT SCALE : 40:1

WISDOT/CADD SHEET 42

2

2

N



LEGEND

WISDOT OWNED TRAFFIC SIGNAL
SXXXX

MUNICIPAL OWNED TRAFFIC SIGNAL
(MUNICIPALITY)

(1) INSTALL ADAPTABLE TRAFFIC SIGNAL EQUIPMENT

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE / WAUKESHA	TRAFFIC SIGNAL PROJECT OVERVIEW - STH 59	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024201_sp_po.dgn PLOT DATE : 01-MAR-2013 00:23 PLOT BY : MSCD1S PLOT NAME : PLOT SCALE : 750:1

WISDOT/CADDS SHEET 42

2

N

S. 124TH STREET

S. 116TH STREET

STH 100
(S. 108TH STREET)

USH 45/IH 894

STH 59
(W. GREENFIELD AVENUE)

S. 101ST STREET

A

A

S1127

S1170

S1071

S1172

S1363

S1100

LEGEND

WISDOT OWNED TRAFFIC SIGNAL
SXXXX

MUNICIPAL OWNED TRAFFIC SIGNAL
(MUNICIPALITY)

(1) INSTALL ADAPTABLE TRAFFIC SIGNAL EQUIPMENT

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE / WAUKESHA	TRAFFIC SIGNAL PROJECT OVERVIEW - STH 59	SHEET	E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 36"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- COMMUNICATIONS ANTENNA
- SIGNAL HEAD NUMBER
- DON'T WALK INDICATOR 12" WALK INDICATOR 12"
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) YELLOW ARROW
- (G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

STH 59 (W. GREENFIELD AVENUE)

CTH O (S. MOORLAND ROAD)

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
CTH O (S. MOORLAND ROAD)
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 3

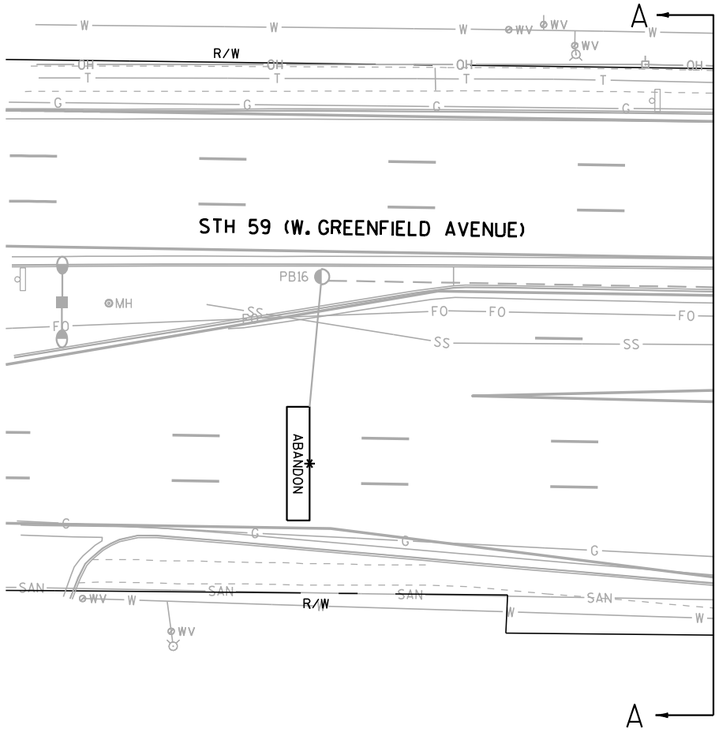
PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

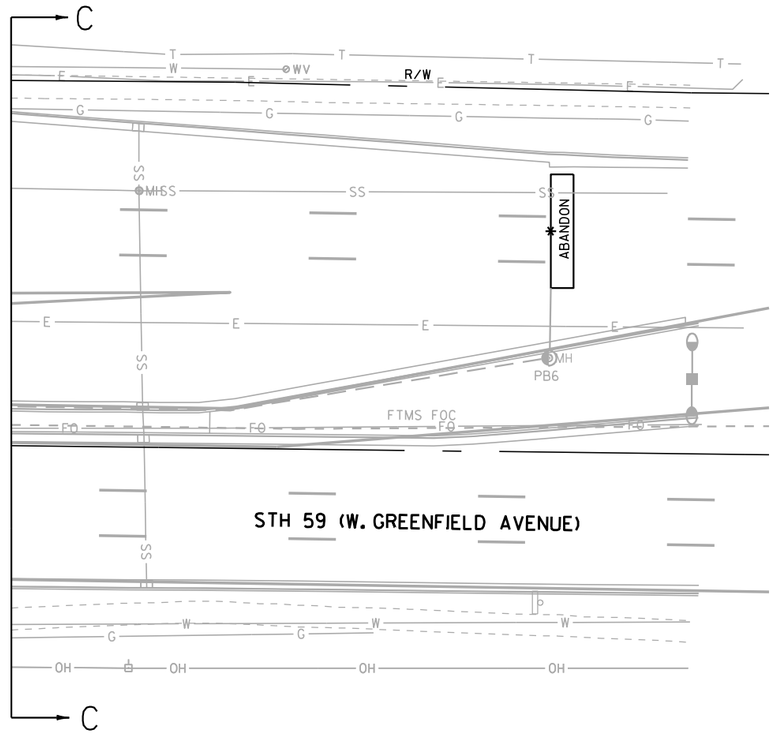
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WISDOT/CADDS SHEET 42

2

N





TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
CTH O (S. MOORLAND ROAD)
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

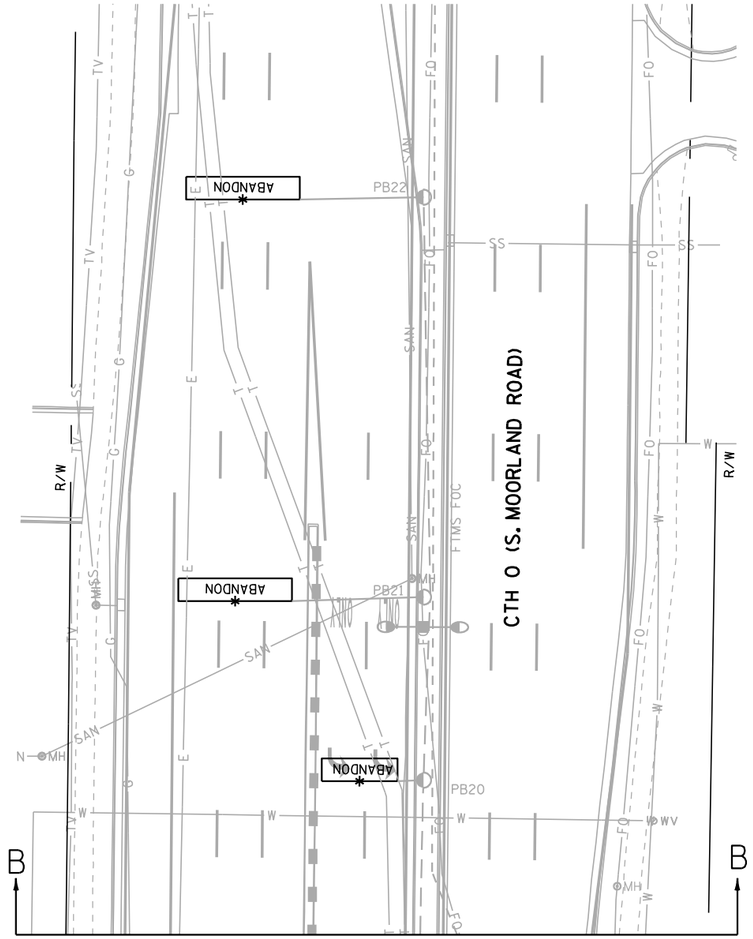
PAGE 2 OF 3

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024212_sp.dgn PLOT DATE : 01-MAR-2013 00:25 PLOT BY : MSCD1S PLOT NAME : 024212_sp PLOT SCALE : 40:1
WISDOT/CADDS SHEET 42

2

N


ABANDON
PB22
ABANDON
PB21
ABANDON
PB20
CTH O (S. MOORLAND ROAD)
R/W
R/W
SAN
SAN
SAN
FO
FO
FO
FO
FO
FO
FO
FO
FO
FO
TV
TV
TV

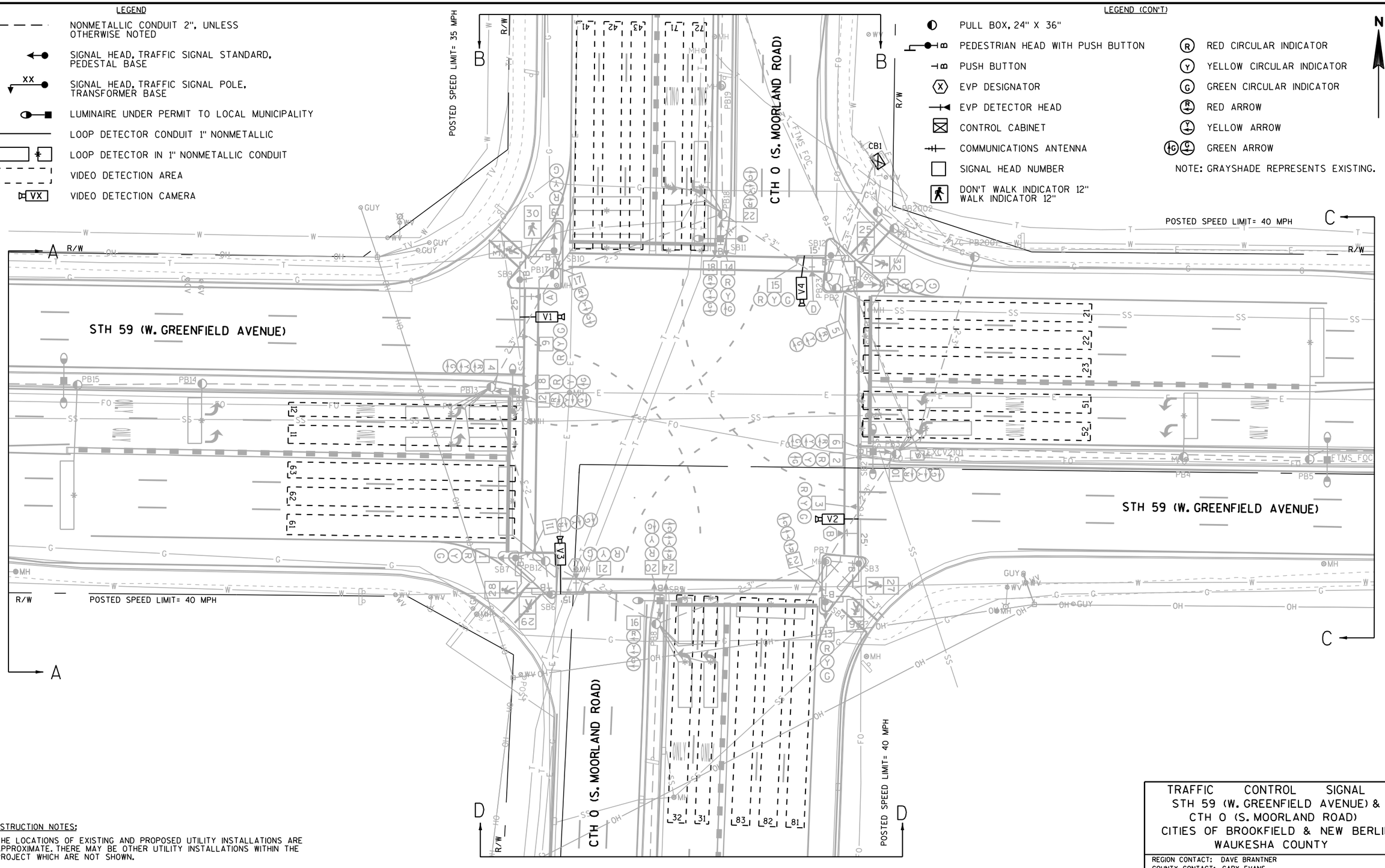
LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- XX — SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- VIDEO DETECTION AREA
- VX — VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 36"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- COMMUNICATIONS ANTENNA
- SIGNAL HEAD NUMBER
- DON'T WALK INDICATOR 12" WALK INDICATOR 12"
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
CTH O (S. MOORLAND ROAD)
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 4

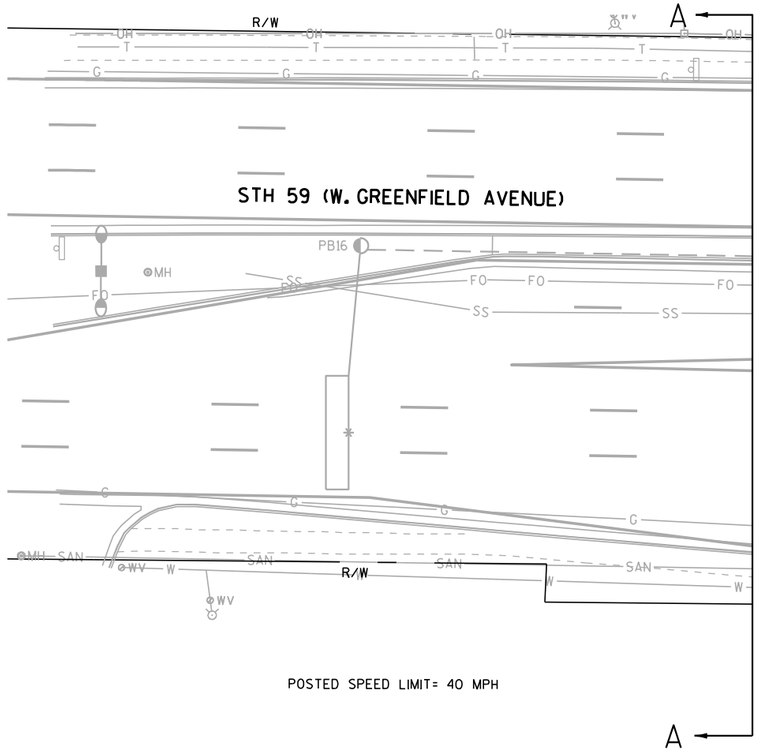
PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

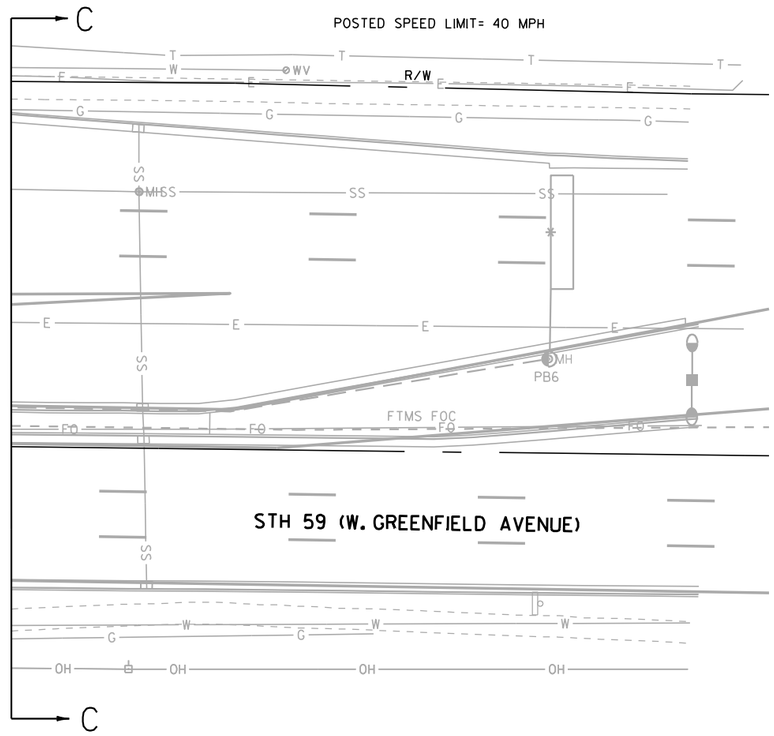
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WISDOT/CADDS SHEET 42

2

N





TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
CTH O (S. MOORLAND ROAD)
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 4

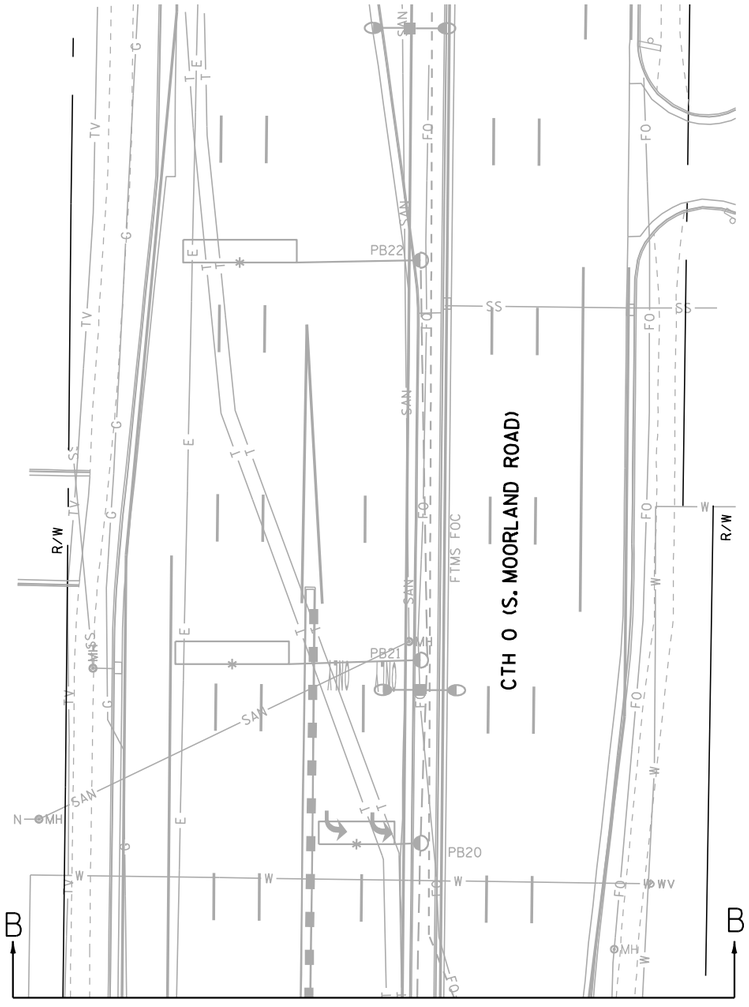
PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

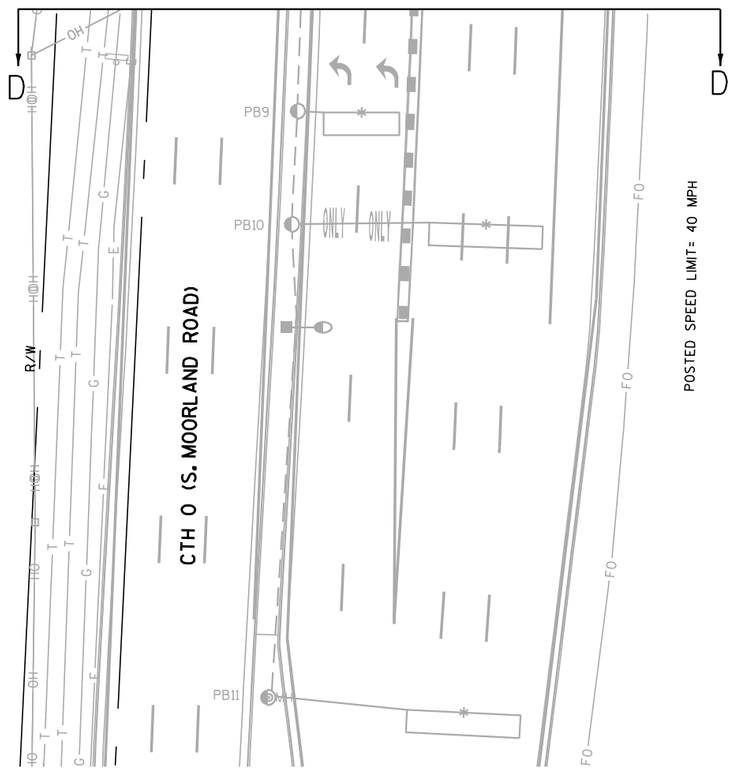
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WISDOT/CADDS SHEET 42

2

N





TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
CTH O (S. MOORLAND ROAD)
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 3 OF 4

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024217_sp.dgn PLOT DATE : 01-MAR-2013 00:27 PLOT BY : MSCD1S PLOT NAME : 024217_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	4,5,6	G	Y R	R	R R	R	R R	R	R R	R
Ø2	7,8,9	R	R R	G,G↓	Y R	R	R R	R	R R	R
Ø3	16,17,18	R	R R	R	R R	G	Y R	R	R R	R
Ø4	19,20,21	R	R R	R	R R	R	R R	G,G↓	Y R	R
Ø5	10,11,12	R	R R	R	R R	R	R R	R	R R	R
Ø6	1,2,3	R	R R	R	R R	R	R R	R	R R	R
Ø7	22,23,24	R	R R	R	R R	R	R R	R	R R	R
Ø8	13,14,15	R	R R	R	R R	R	R R	R	R R	R
Ø2P	31,32	D	D D	*	D D	D	D D	D	D D	
Ø4P	29,30	D	D D	D	D D	D	D D	*	D D	
Ø6P	27,28	D	D D	D	D D	D	D D	D	D D	
Ø8P	25,26	D	D D	D	D D	D	D D	D	D D	

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	4,5,6	R	R R	R	R R	R	R R	R	R R
Ø2	7,8,9	R	R R	R	R R	R	R R	R	R R
Ø3	16,17,18	R	R R	R	R R	R	R R	R	R R
Ø4	19,20,21	R	R R	R	R R	R	R R	R	R R
Ø5	10,11,12	G	Y R	R	R R	R	R R	R	R R
Ø6	1,2,3	R	R R	G,G↓	Y R	R	R R	R	R R
Ø7	22,23,24	R	R R	R	R R	G	Y R	R	R R
Ø8	13,14,15	R	R R	R	R R	R	R R	G,G↓	Y R
Ø2P	31,32	D	D D	D	D D	D	D D	D	D D
Ø4P	29,30	D	D D	D	D D	D	D D	D	D D
Ø6P	27,28	D	D D	*	D D	D	D D	D	D D
Ø8P	25,26	D	D D	D	D D	D	D D	*	D D

BARRIER

N

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
12		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
31		X			3	3					VIDEO
32		X			3	3					VIDEO
41		X			4	4					VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
51		X			5	5					VIDEO
52		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
71		X			7	7					VIDEO
72		X			7	7					VIDEO
81		X			8	8					VIDEO
82		X			8	8					VIDEO
83		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	←	↱	↓	↑
PHASE	2+5	6+1	4+7	8+3

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,4,7,8
2	5 OR 6	1,3,4,7,8
3	7 OR 8	1,2,4,5,6
4	7 OR 8	1,2,3,5,6
5	1 OR 2	3,4,6,7,8
6	1 OR 2	3,4,5,7,8
7	3 OR 4	1,2,5,6,8
8	3 OR 4	1,2,5,6,7

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

STH 59 (W. GREENFIELD AVENUE) & CTH O (S. MOORLAND ROAD)
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

SIGNAL NO.

CONTROLLER TYPE: EPAC M52

DATE 02/13

PAGE NO. 4 OF 4

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"

LEGEND (CON'T)

- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- DON'T WALK INDICATOR 12" WALK INDICATOR 12"
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (Y) YELLOW ARROW
- (G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

S. SUNNYSLOPE ROAD

STH 59 (W. GREENFIELD AVENUE)

ABANDON

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

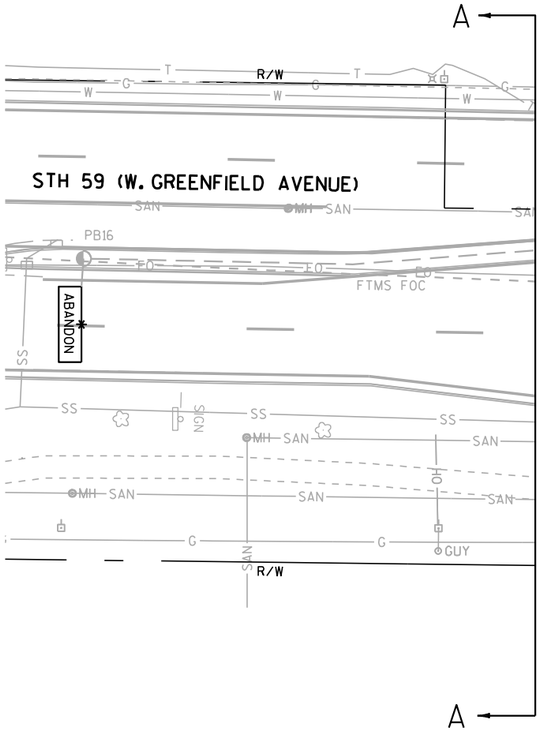
TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. SUNNYSLOPE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

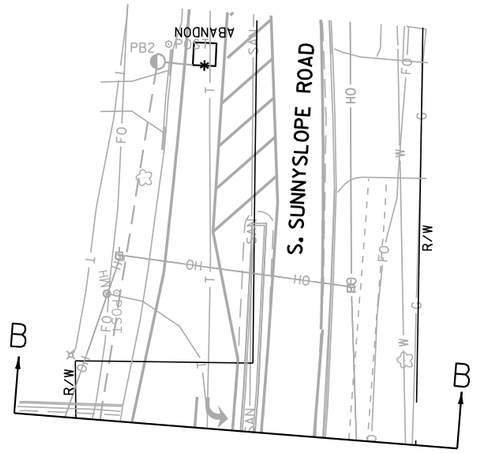
REGION CONTACT: DAVE BRANTNER
CITY CONTACT: CITY OF NEW BERLIN ENGINEERING DEPARTMENT
DESIGNED BY:
REVISED BY: FORWARD 45

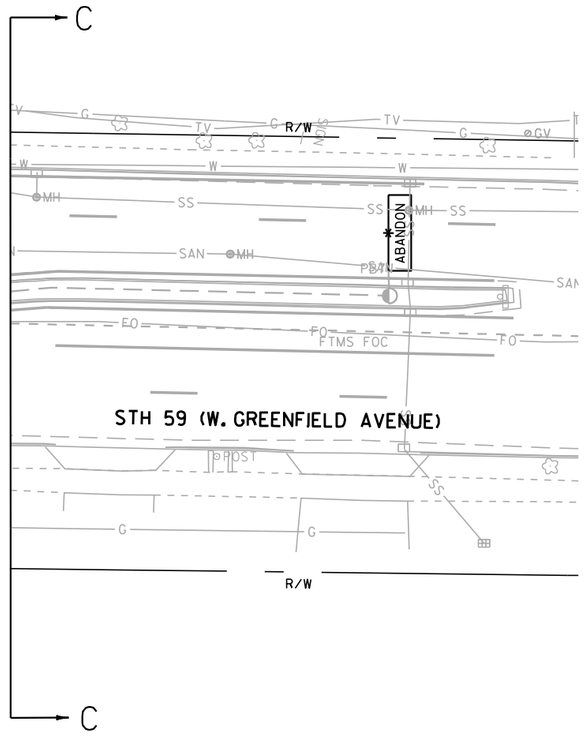
PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024221_sp.dgn PLOT DATE : 01-MAR-2013 00:28 PLOT BY : MSCD1S PLOT NAME : 024221_sp PLOT SCALE : 40:1







TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. SUNNYSLOPE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: CITY OF NEW BERLIN ENGINEERING DEPARTMENT
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LOOP DETECTOR CONDUIT 1" NONMETALLIC

LOOP DETECTOR IN 1" NONMETALLIC CONDUIT

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 36"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

DON'T WALK INDICATOR 12"
WALK INDICATOR 12"

(R) RED CIRCULAR INDICATOR

(Y) YELLOW CIRCULAR INDICATOR

(G) GREEN CIRCULAR INDICATOR

(Y) YELLOW ARROW

(G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

STH 59 (W. GREENFIELD AVENUE)

POSTED SPEED LIMIT= 40 MPH

POSTED SPEED LIMIT= 35 MPH

S. SUNNYSLOPE ROAD

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

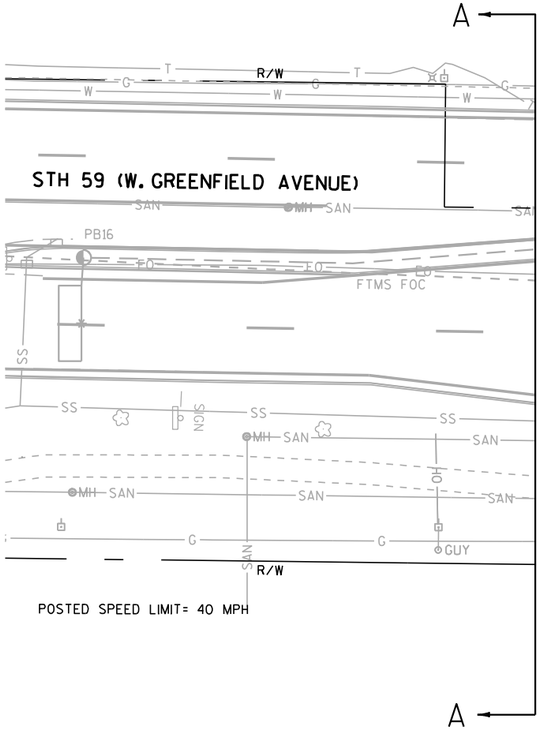
TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. SUNNYSLOPE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

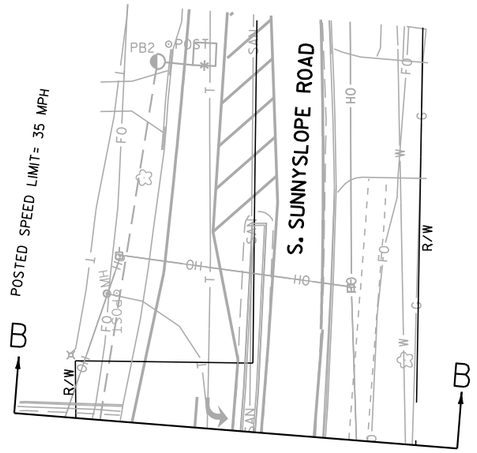
REGION CONTACT: DAVE BRANTNER
CITY CONTACT: CITY OF NEW BERLIN ENGINEERING DEPARTMENT
DESIGNED BY:
REVISED BY: FORWARD 45

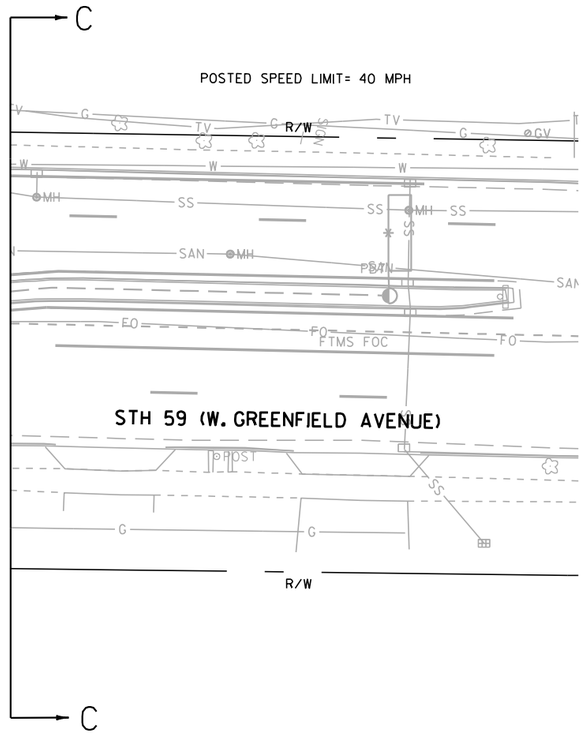
PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024225_sp.dgn PLOT DATE : 01-MAR-2013 00:29 PLOT BY : MSCD1S PLOT NAME : 024225_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42







N

2

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. SUNNYSLOPE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: CITY OF NEW BERLIN ENGINEERING DEPARTMENT
DESIGNED BY:
REVISED BY: FORWARD 45

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024226_sp.dgn PLOT DATE : 01-MAR-2013 00:30 PLOT BY : MSCD1S PLOT NAME : 024226_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	3.4	G←	Y← -	-	- -	-	- -	-	- -	-
Ø2	5,6,7,8	R	R R	G	Y R	R	R R	R	R R	R
Ø3	11,12	-	- -	-	- -	G←	Y← -	-	- -	-
Ø4	13,14,15,16	R	R R	R	R R	R	R R	G	Y R	R
Ø5	7,8	-	- -	-	- -	-	- -	-	- -	-
Ø6	1,2,3,4	R	R R	R	R R	R	R R	R	R R	R
Ø7	15,16	-	- -	-	- -	-	- -	-	- -	-
Ø8	9,10,11,12	R	R R	R	R R	R	R R	R	R R	R
Ø2P	17,18	D	D D	*	D D	D	D D	D	D D	
Ø4P	23,24	D	D D	D	D D	D	D D	*	D D	
Ø6P	21,22	D	D D	D	D D	D	D D	D	D D	
Ø8P	19,20	D	D D	D	D D	D	D D	D	D D	

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	3.4	-	- -	-	- -	-	- -	-	- -
Ø2	5,6,7,8	R	R R	R	R R	R	R R	R	R R
Ø3	11,12	-	- -	-	- -	-	- -	-	- -
Ø4	13,14,15,16	R	R R	R	R R	R	R R	R	R R
Ø5	7,8	G←	Y← -	-	- -	-	- -	-	- -
Ø6	1,2,3,4	R	R R	G	Y R	R	R R	R	R R
Ø7	15,16	-	- -	-	- -	G←	Y← -	-	- -
Ø8	9,10,11,12	R	R R	R	R R	R	R R	G	Y R
Ø2P	17,18	D	D D	D	D D	D	D D	D	D D
Ø4P	23,24	D	D D	D	D D	D	D D	D	D D
Ø6P	21,22	D	D D	*	D D	D	D D	D	D D
Ø8P	19,20	D	D D	D	D D	D	D D	*	D D

BARRIER

N

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
31		X			3	3					VIDEO
41		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
71		X			7	7					VIDEO
81		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C
MOVEMENT	← →	← →	↓ ↑
PHASE	2 AND 6	6 AND 2	4 AND 8

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8, CONTROLLER SHALL RETURN TO PHASES 4+8.

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,4,7,8
2	5 OR 6	1,3,4,7,8
3	7 OR 8	1,2,4,5,6
4	7 OR 8	1,2,3,5,6
5	1 OR 2	3,4,6,7,8
6	1 OR 2	3,4,5,7,8
7	3 OR 4	1,2,5,6,8
8	3 OR 4	1,2,5,6,7

STH 59 (W. GREENFIELD AVENUE) &
S. SUNNYSLOPE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

SIGNAL NO.

CONTROLLER TYPE: EPAC M52

DATE 02/13 PAGE NO. 3 OF 3

PROJECT NO: 1060-33-99 | HWY: STH 59 | COUNTY: WAUKESHA | TRAFFIC SIGNAL PLAN | SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024229_sp_ph.dgn PLOT DATE : 01-MAR-2013 00:31 PLOT BY : MSCD1S PLOT NAME : 024229_sp_ph PLOT SCALE : 40:1
WISDOT/CADDS SHEET 42

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LOOP DETECTOR CONDUIT 1" NONMETALLIC

LOOP DETECTOR IN 1" NONMETALLIC CONDUIT

PULL BOX, 24" X 36"

LEGEND (CON'T)

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

DON'T WALK INDICATOR 12"
WALK INDICATOR 12"

(R) RED CIRCULAR INDICATOR

(Y) YELLOW CIRCULAR INDICATOR

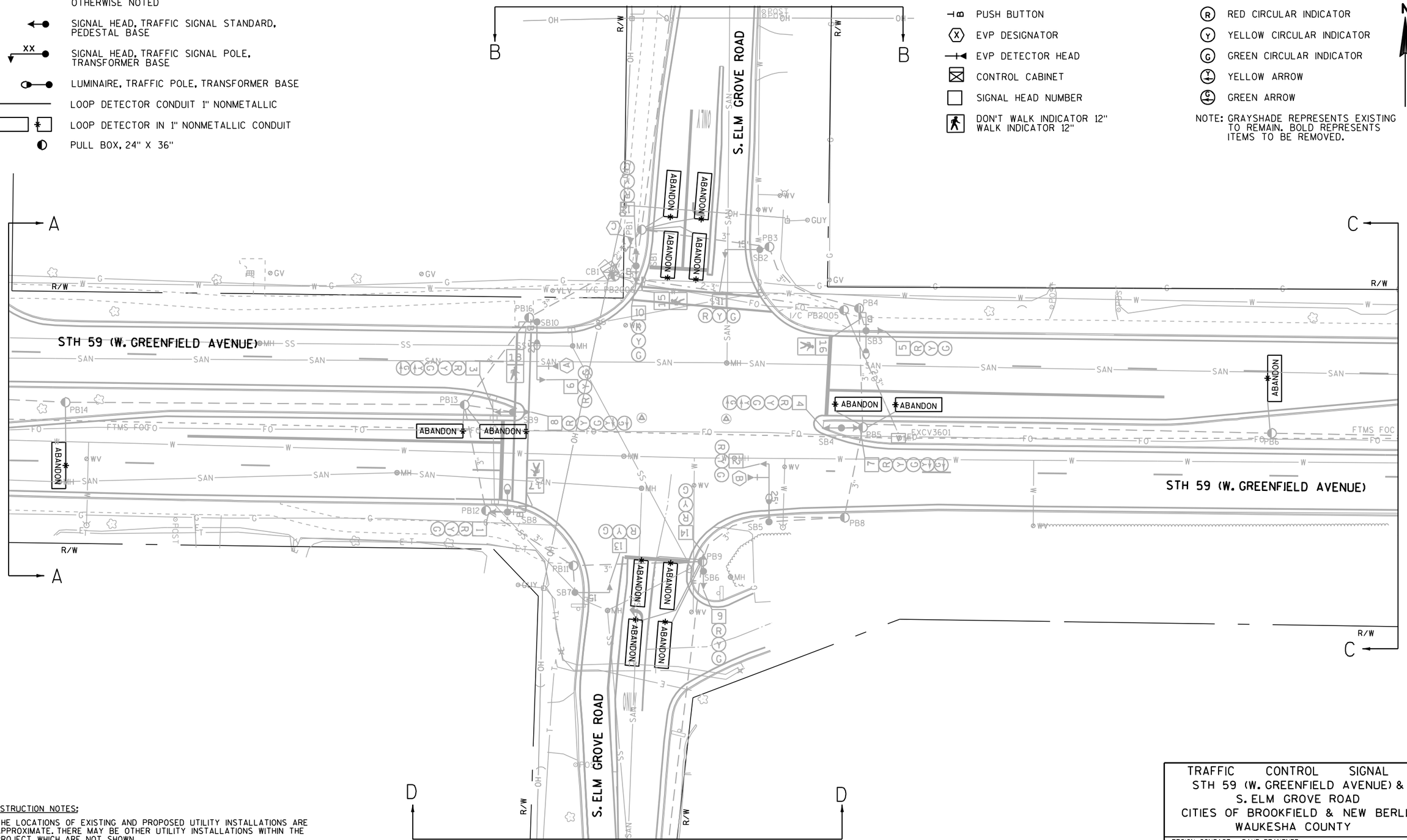
(G) GREEN CIRCULAR INDICATOR

(Y) YELLOW ARROW

(G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. ELM GROVE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

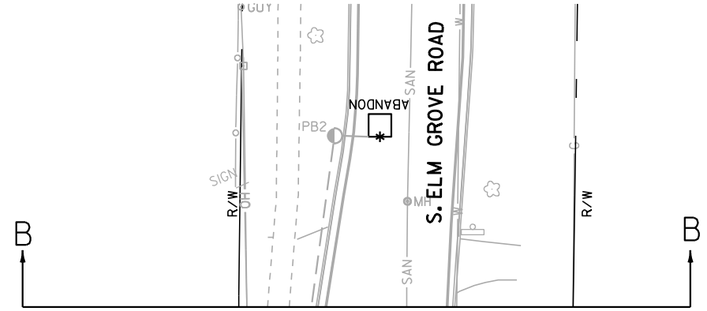
REGION CONTACT: DAVE BRANTNER
CITY CONTACT: CITY OF NEW BERLIN ENGINEERING DEPARTMENT
DESIGNED BY:
REVISED BY: FORWARD 45

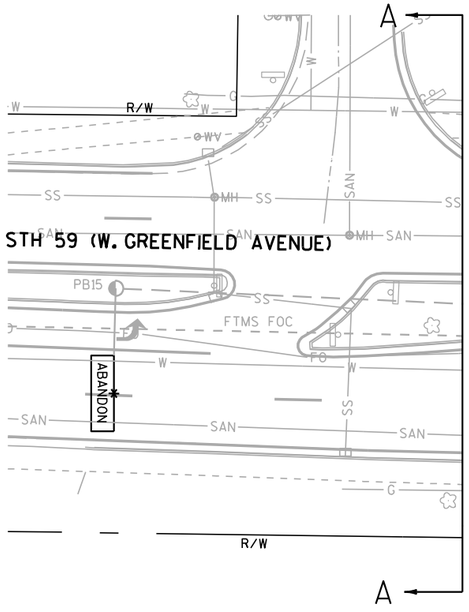
PAGE 1 OF 2

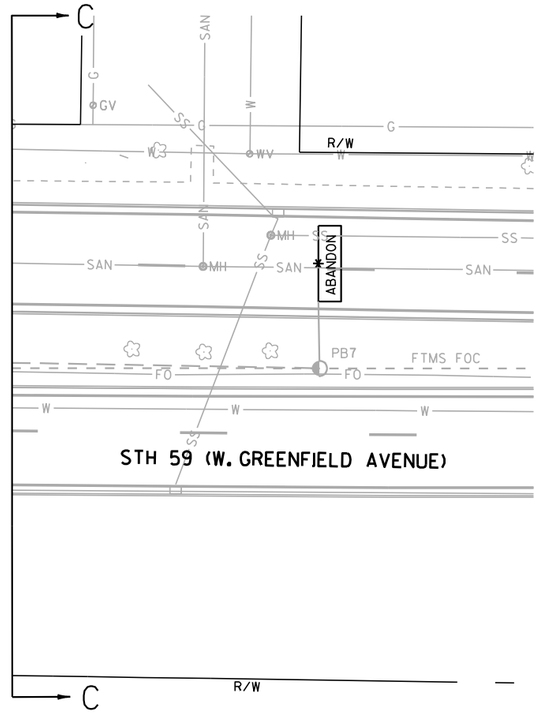
PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

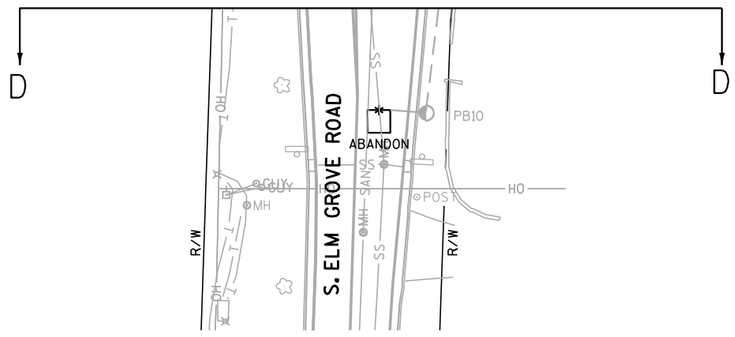
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WISDOT/CADDS SHEET 42









TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. ELM GROVE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: CITY OF NEW BERLIN ENGINEERING DEPARTMENT
DESIGNED BY:
REVISED BY: FORWARD 45

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024232_sp.dgn PLOT DATE : 01-MAR-2013 00:32 PLOT BY : MSCD1S PLOT NAME : 024232_sp PLOT SCALE : 40:1
WISDOT/CADDS SHEET 42

LEGEND

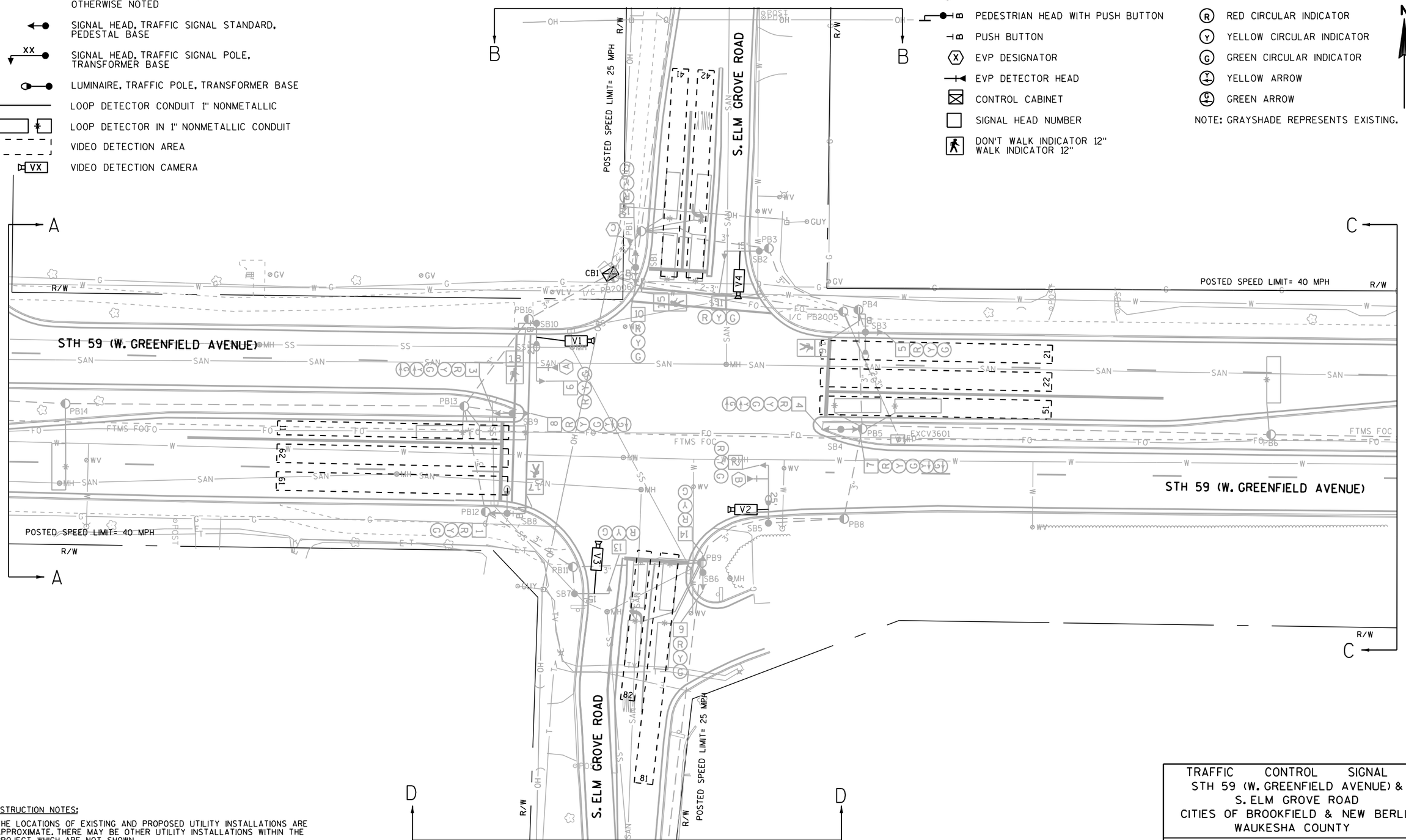
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 36"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- DON'T WALK INDICATOR 12" WALK INDICATOR 12"
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- Y YELLOW ARROW
- G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. ELM GROVE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

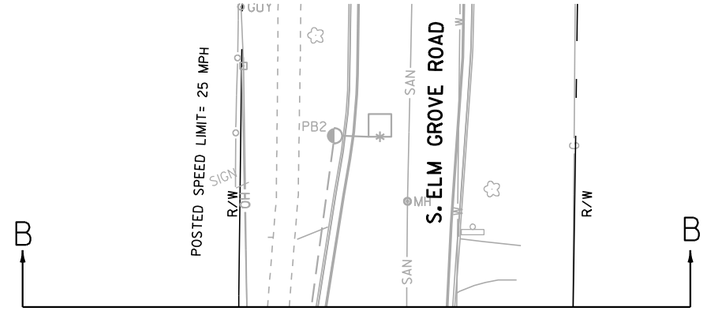
REGION CONTACT: DAVE BRANTNER
CITY CONTACT: CITY OF NEW BERLIN ENGINEERING DEPARTMNET
DESIGNED BY:
REVISED BY: FORWARD 45

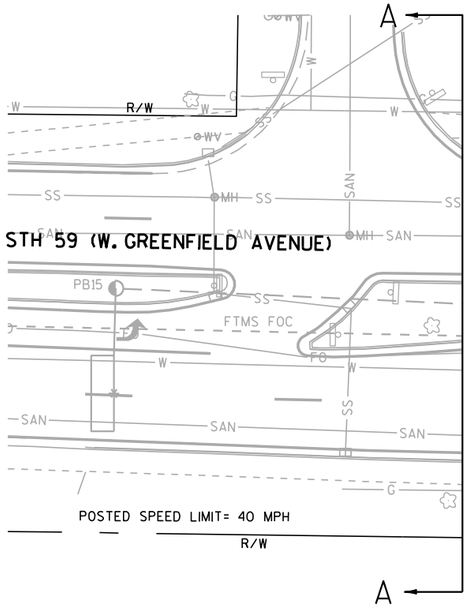
PAGE 1 OF 3

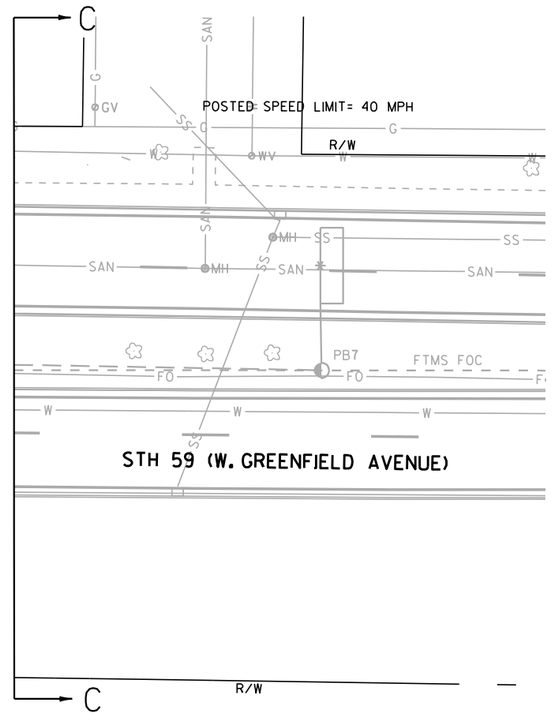
PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

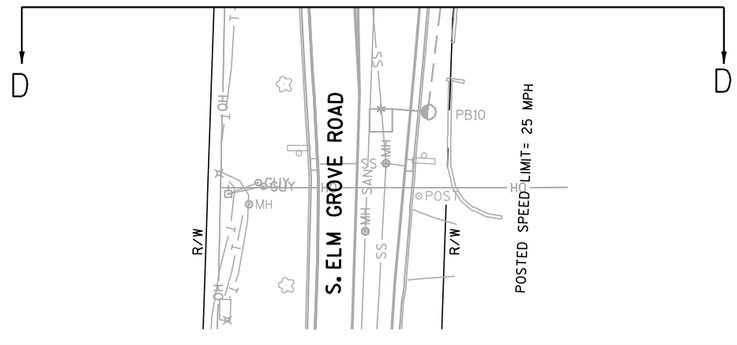
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2









TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. ELM GROVE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: CITY OF NEW BERLIN ENGINEERING DEPARTMENT
DESIGNED BY:
REVISED BY: FORWARD 45

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024236_sp.dgn
PLOT DATE : 01-MAR-2013 00:33
PLOT BY : MSCD1S
PLOT NAME : 024236_sp
PLOT SCALE : 40:1

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO ✳✳	Ø2 R/W	Ø2 CLEAR TO ✳✳	Ø3 R/W	Ø3 CLEAR TO ✳✳	Ø4 R/W	Ø4 CLEAR TO ✳✳	FLASH
Ø1	3.4	G ←	Y ← -	-	- -			-	- -	-
Ø2	5,6,7,8	R	R R	G	Y R			R	R R	R
Ø3										
Ø4	12,13,14	R	R R	R	R R			G	Y R	R
Ø5	7,8	-	- -	-	- -			-	- -	-
Ø6	1,2,3,4	R	R R	R	R R			R	R R	R
Ø7										
Ø8	9,10,11	R	R R	R	R R			R	R R	R
Ø2P	15,16	D	D D	*	D D			D	D D	
Ø4P	17,18	D	D D	D	D D			*	D D	
Ø6P										
Ø8P										

NOT USED

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO ✳✳	Ø6 R/W	Ø6 CLEAR TO ✳✳	Ø7 R/W	Ø7 CLEAR TO ✳✳	Ø8 R/W	Ø8 CLEAR TO ✳✳
Ø1	3.4	-	- -	-	- -			-	- -
Ø2	5,6,7,8	R	R R	R	R R			R	R R
Ø3									
Ø4	12,13,14	R	R R	R	R R			R	R R
Ø5	7,8	G ←	Y ← -	-	- -			-	- -
Ø6	1,2,3,4	R	R R	G	Y R			R	R R
Ø7									
Ø8	9,10,11	R	R R	R	R R			G	Y R
Ø2P	15,16	D	D D	D	D D			D	D D
Ø4P	17,18	D	D D	D	D D			D	D D
Ø6P									
Ø8P									

NOT USED

BARRIER

N

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
41		X			4	4					VIDEO
42		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
81		X			8	8					VIDEO
82		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C
MOVEMENT	← →	← →	↑ ↓
PHASE	2 AND 6	6 AND 2	4 AND 8

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8, CONTROLLER SHALL RETURN TO PHASES 4+8.

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,4,8
2	5 OR 6	1,4,8
3		
4	8	1,2,5,6
5	1 OR 2	4,6,8
6	1 OR 2	4,5,8
7		
8	4	1,2,5,6

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

STH 59 (W. GREENFIELD AVENUE) & S. ELM GROVE ROAD
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

SIGNAL NO.

CONTROLLER TYPE: EPAC M52

DATE 02/13

PAGE NO. 3 OF 3

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET	E

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

(XX) MONOTUBE BASE, POLE, 35'-55' ARM

(XX) MONOTUBE BASE, POLE, 15'-30' ARM

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 36"

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

R RED ARROW

Y YELLOW ARROW

G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

S. 124TH STREET

STH 59 (W. GREENFIELD AVENUE)

STH 59 (W. GREENFIELD AVENUE)

S. 124TH STREET

R/W

STRUCTURE NUMBERS

SB4 = S-40-1284
SB9 = S-40-1285
SB14 = S-40-1286
SB19 = S-40-1287

CONSTRUCTION NOTES;

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

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
04/4/2013

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) & S. 124TH STREET
CITIES OF WEST ALLIS, NEW BERLIN, & BROOKFIELD
MILWAUKEE COUNTY

SIGNAL NO. S1127

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024241_sp.dgn PLOT DATE : 01-MAR-2013 00:34 PLOT BY : MSCD1S PLOT NAME : 024241_sp PLOT SCALE : 40:1 WISDOT/CADDS SHEET 42

2

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

(XX) MONOTUBE BASE, POLE, 35'-55' ARM

(XX) MONOTUBE BASE, POLE, 15'-30' ARM

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

PULL BOX, 24" X 36"

WISCONSIN JASON R. MATSON 37111 WAUKESHA, WI PROFESSIONAL ENGINEER 03/05/2013

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

R RED ARROW

Y YELLOW ARROW

G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING

N

2

S. 124TH STREET

POSTED SPEED LIMIT= 25 MPH

POSTED SPEED LIMIT= 40 MPH

STH 59 (W. GREENFIELD AVENUE)

R/W

FTMS FOC

EXCV3702

EXCV3703

STRUCTURE NUMBERS
SB4 = S-40-1284
SB9 = S-40-1285
SB14 = S-40-1286
SB19 = S-40-1287

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

REVISION	
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL. ADDED EVP.
	APPROVAL RECOMMENDED / APPROVED
6	REGION Date 3/15/13 By DAB; CENTRAL OFFICE Date 3/15/13 By JRE

INTERSECTION RECONSTRUCTION. 5-12
INSTALL LT LOOPS 51 & 52, ADD 5 SECTION HEADS 6 & 13. 9-21-01
CHANGE LEFT TURN DETECTION, NEW GEOMETRICS. 7-01
INSTALLED LOOP DETECTORS 41, 42, 44, 45, 81, 82, 84, 85. 12-19-95
INSTALLED PUSH BUTTONS & PED SIGNAL HEADS, EAST & SOUTH SIDE OF INTERSECTION 12-29-89

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) & S. 124TH STREET
CITIES OF WEST ALLIS, NEW BERLIN, & BROOKFIELD
MILWAUKEE COUNTY

CABINET TYPE: TS-2

SIGNAL NO. S1127 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED Date 1/4/79 ROBERT MOE, REGION TRAFFIC ENGINEER

APPROVED Date 2/7/79 H.O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024245_sp.dgn PLOT DATE : 01-MAR-2013 00:34 PLOT BY : MSCD1S PLOT NAME : 024245_sp PLOT SCALE : 40:1 WISDOT/CADD SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 NOT USED R/W	Ø1 CLEAR TO **	Ø2 OLA R/W	Ø2 CLEAR TO **	Ø3 NOT USED R/W	Ø3 CLEAR TO **	Ø4 OLB R/W	Ø4 CLEAR TO **	FLASH
Ø1										
Ø2	6,7,8			G	Y R			R	R R	R
Ø3										
Ø4	16,17,18			R	R R			G	Y R	R
Ø5	9,10			-	- -			-	- -	-
Ø6	1,2,3			R	R R			R	R R	R
Ø7										
Ø8	11,12,13			R	R R			R	R R	R
OLA	4,5			FY	Y R			R	R R	R
OLB	14,15			R	R R			FY	Y R	R
OLC	9,10			R	R R			R	R R	R
OLD	19,20			R	R R			R	R R	R
Ø2P	21,22			*	D D			D	D D	
Ø4P	27,28			D	D D			*	D D	
Ø6P	25,26			D	D D			D	D D	
Ø8P	23,24			D	D D			D	D D	

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 OLC R/W	Ø6 CLEAR TO **	Ø7 NOT USED R/W	Ø7 CLEAR TO **	Ø8 OLD R/W	Ø8 CLEAR TO **
Ø1									
Ø2	6,7,8	R	R R	R	R R			R	R R
Ø3									
Ø4	16,17,18	R	R R	R	R R			R	R R
Ø5	9,10	G	- -	-	- -			-	- -
Ø6	1,2,3	R	R R	G	Y R			R	R R
Ø7									
Ø8	11,12,13	R	R R	R	R R			G	Y R
OLA	4,5	R	R R	R	R R			R	R R
OLB	14,15	R	R R	R	R R			R	R R
OLC	9,10	-	Y R	FY	Y R			R	R R
OLD	19,20	R	R R	R	R R			FY	Y R
Ø2P	21,22	D	D D	D	D D			D	D D
Ø4P	27,28	D	D D	D	D D			D	D D
Ø6P	25,26	D	D D	*	D D			D	D D
Ø8P	23,24	D	D D	D	D D			*	D D

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

N

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO
81		X			8	8		X			VIDEO
82		X			8	8					VIDEO
83		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"		2
OL "B"		4
OL "C"	5	6
OL "D"		8

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

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	5 OR 6	4,8
3		
4	8	2,5,6
5	2	4,6,8
6	2	4,5,8
7		
8	4	2,5,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	B	C	D
MOVEMENT	FY	FY FY	FY FY	FY FY
PHASE	2+5	6 AND 2	4 AND 8	8 AND 4

AFTER PREEMPTION SEQUENCE 2+5 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8 AND 4, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

STH 59 (W. GREENFIELD AVENUE) & S. 124TH STREET
CITIES OF WEST ALLIS, NEW BERLIN, & BROOKFIELD
MILWAUKEE COUNTY

SIGNAL NO. S1127

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE

3/15/13 RMB

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024249_sp_ph.dgn PLOT DATE : 01-MAR-2013 00:35 PLOT BY : MSCD1S PLOT NAME : 024249_sp_ph PLOT SCALE : 40:1 WISDOT/CADDS SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 35'-55' ARM
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- ACCESSIBLE PEDESTRIAN SIGNAL
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

STH 59 (W. GREENFIELD AVENUE)

S. 116TH STREET

S. 116TH STREET

STRUCTURE NUMBERS
SB6 = S-40-1280
SB11 = S-40-1281
SB16 = S-40-1282
SB4 = S-40-1283

CONSTRUCTION NOTES:

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

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
04/05/2013

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. 116TH STREET
CITY OF WEST ALLIS
MILWAUKEE COUNTY

SIGNAL NO. S1170

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024251_sp.dgn PLOT DATE : 01-MAR-2013 00:36 PLOT BY : MSCD1S PLOT NAME : 024251_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 35'-55' ARM
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
05/15/2013

LEGEND (CON'T)

- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- ACCESSIBLE PEDESTRIAN SIGNAL
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- Y YELLOW ARROW
- G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING

N

STH 59 (W. GREENFIELD AVENUE)

S. 116TH STREET

POSTED SPEED LIMIT= 25 MPH

POSTED SPEED LIMIT= 35 MPH

POSTED SPEED LIMIT= 40 MPH

POSTED SPEED LIMIT= 35 MPH

U/C

STRUCTURE NUMBERS
SB6 = S-40-1280
SB11 = S-40-1281
SB16 = S-40-1282
SB4 = S-40-1283

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

REVISION	
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL. ADDED EVP.
6	APPROVAL RECOMMENDED: REGION Date 3/15/13 By DAB; APPROVED: CENTRAL OFFICE Date 3/15/13 By JPB

SIGNAL RECONSTRUCTION. 5-12
REMOVE AND REPLACE LOOP 41. 5-27-10
RELOCATE LOOP 21. CHANGE CONTROLLER TO EPAC 11-11-03
ADD WB LT LOOPS & HEADS, LOOPS 21 & 61, EM FLASH TO R/R. 5-16-02
RECONSTRUCT SOUTH APPROACH & NEW DETECTION. 9-26-88

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. 116TH STREET
CITY OF WEST ALLIS
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1170 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVAL RECOMMENDED
Date 4/13/83 JOHN A. WHITE, REGION TRAFFIC ENGINEER
APPROVED
Date ____ STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

JPE 3/15/13

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024255_sp.dgn PLOT DATE : 01-MAR-2013 00:36 PLOT BY : MSCD1S PLOT NAME : 024255_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
		NOT USED		OLA		NOT USED		OLB		
Ø1										
Ø2	6,7,8			G Y R				R R R		R
Ø3										
Ø4	16,17,18			R R R				G Y R		R
Ø5	9,10			- - -				- - -		-
Ø6	1,2,3			R R R				R R R		R
Ø7										
Ø8	11,12,13			R R R				R R R		R
OLA	4,5			FY Y R				R R R		R
OLB	14,15			R R R				FY Y R		R
OLC	9,10			R R R				R R R		R
OLD	19,20			R R R				R R R		R
Ø2P	23,24			* D D				D D D		
Ø4P	21,22			D D D				* D D		
Ø6P	27,28			D D D				D D D		
Ø8P	25,26			D D D				D D D		

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
		OLC		NOT USED		OLD			
Ø1									
Ø2	6,7,8	R	R R	R	R R			R	R R
Ø3									
Ø4	16,17,18	R	R R	R	R R			R	R R
Ø5	9,10	G	- -	-	- -			-	- -
Ø6	1,2,3	R	R R	G	Y R			R	R R
Ø7									
Ø8	11,12,13	R	R R	R	R R			G	Y R
OLA	4,5	R	R R	R	R R			R	R R
OLB	14,15	R	R R	R	R R			R	R R
OLC	9,10	-	Y R	FY	Y R			R	R R
OLD	19,20	R	R R	R	R R			FY	Y R
Ø2P	23,24	D	D D	D	D D			D	D D
Ø4P	21,22	D	D D	D	D D			D	D D
Ø6P	27,28	D	D D	*	D D			D	D D
Ø8P	25,26	D	D D	D	D D			*	D D

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

N

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO
81		X			8	8		X			VIDEO
82		X			8	8					VIDEO
83		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"		2
OL "B"		4
OL "C"	5	6
OL "D"		8

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

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	5 OR 6	4,8
3		
4	8	2,5,6
5	2	4,6,8
6	2	4,5,8
7		
8	4	2,5,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	FY	FY FY	FY FY	FY FY
PHASE	2+5	6 AND 2	4 AND 8	8 AND 4

AFTER PREEMPTION SEQUENCE 2+5 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8 AND 4, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

STH 59 (W. GREENFIELD AVENUE) & S. 116TH STREET
CITY OF WEST ALLIS
MILWAUKEE COUNTY

SIGNAL NO. S1170

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE
3/15/13 DRM

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024259_sp_ph.dgn PLOT DATE : 01-MAR-2013 00:37 PLOT BY : MSCD1S PLOT NAME : 024259_sp_ph PLOT SCALE : 40:1 WISDOT/CADD SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 35'-55' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- ACCESSIBLE PEDESTRIAN SIGNAL
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) (Y) YELLOW ARROW
- (G) (G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING. TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

STH 100 (S. 108TH STREET)

STH 59 (W. GREENFIELD AVENUE)

STRUCTURE NUMBERS

SB8 = S-40-1276
SB10 = S-40-1277
SB1 = S-40-1278
SB3 = S-40-1279

CONSTRUCTION NOTES:

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

WISCONSIN
JASON R. MATSON
37111
W., JKESHA, WI
PROFESSIONAL ENGINEER
03/13/2013

TRAFFIC CONTROL SIGNAL
STH 100 (S. 108TH STREET) &
STH 59 (W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY

SIGNAL NO. S1071

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024261_sp.dgn PLOT DATE : 01-MAR-2013 00:38 PLOT BY : MSCD1S PLOT NAME : 024261_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

(XX) MONOTUBE BASE, POLE, 35'-55' ARM

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

ACCESSIBLE PEDESTRIAN SIGNAL

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

(R) RED CIRCULAR INDICATOR

(Y) YELLOW CIRCULAR INDICATOR

(G) GREEN CIRCULAR INDICATOR

(R) RED ARROW

(Y) YELLOW ARROW

(G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

STH 59 (W. GREENFIELD AVENUE)

STH 100 (S. 108TH STREET)

POSTED SPEED LIMIT= 35 MPH

POSTED SPEED LIMIT= 40 MPH

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
03/15/2013

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

STRUCTURE NUMBERS
SB8 = S-40-1276
SB10 = S-40-1277
SB1 = S-40-1278
SB3 = S-40-1279

INTERSECTION RECONSTRUCTION 5-12
ADD PED BUTTONS. 11-11-03
GEOMETRIC CHANGES. INSTALL LT STOPLINE LOOPS. CHANGE TO PROTECTED ONLY LEFTS. ADD PED BUTTONS.
EMERGENCY VEHICLE PREEMPTION INSTALLED ON ALL APPROACHES. 4-06-00

RECONSTRUCT PORTIONS OF INTERSECTION SIGNAL. 9-8-99
INSTALL AUDIBLE PEDESTRIAN SIGNALS ON NORTH APPROACH. 8-12-96
ADDED THIRD THROUGH LANE ON SOUTH APPROACH. 3-2-89
REVISED SEQUENCE OF OPERATIONS. 6-30-88
INSTALLED LT TURN DETECTION AND EB ARROWS. 6-22-87
UPGRADED INTERSECTION. 12-13-79
NEW CONTROLLER INSTALLED. 6-4-79
INSTALLED LT TURN ARROWS AND MAGNETIC DETECTORS ON STH 100. 5-29-70
INSTALLED 6-3 SECTION HEADS AND N/S PEDESTRIAN SIGNALS. 6-6-66
UPGRADED INTERSECTION. 6-1-64
INITIAL INSTALLATION. 1935

REVISION

Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
15	REGION		CENTRAL OFFICE	
	Date	By	Date	By
	3/15/13	DAB	3/15/13	

TRAFFIC CONTROL SIGNAL
STH 100 (S. 108TH STREET) &
STH 59 (W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1071 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVAL RECOMMENDED
Date 6/25/79 ROBERT MOE, REGION TRAFFIC ENGINEER
APPROVED
Date 12/11/84 H.O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024265_sp.dgn PLOT DATE : 01-MAR-2013 00:38 PLOT BY : MSCD1S PLOT NAME : 024265_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

SEE NOTE 3

SEE NOTE 3

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO ** Ø6	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	19,20,21,22	G	Y R	R	R R	R	R R	R	R R	R
Ø2	15,16	R	R R	G	Y R	R	R R	R	R R	R
Ø3	9,10	R	R R	R	R R	G	Y R	R	R R	R
Ø4	1,2,3	R	R R	R	R R	R	R R	G	Y R	R
Ø5	23,24	R	R R	R	R R	R	R R	R	R R	R
Ø6	11,12,13,14	R	R R	R	R R	R	R R	R	R R	R
Ø7	4,5	R	R R	R	R R	R	R R	R	R R	R
Ø8	6,7,8	R	R R	R	R R	R	R R	R	R R	R
Ø1P	29,30	* ***	D D	D	D D	D	D D	D	D D	
Ø4P	27,28	D	D D	D	D D	D	D D	* ***	D D	
Ø6P	25,26	D	D D	D	D D	D	D D	D	D D	
Ø8P	31,32	D	D D	D	D D	D	D D	D	D D	
OLA	17,18	R	R R	R	R R	G	Y R G G	R	R R	R

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO ** Ø3	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	19,20,21,22	R	R R	R	R R	R	R R	R	R R
Ø2	15,16	R	R R	R	R R	R	R R	R	R R
Ø3	9,10	R	R R	R	R R	R	R R	R	R R
Ø4	1,2,3	R	R R	R	R R	R	R R	R	R R
Ø5	23,24	G	Y R	R	R R	R	R R	R	R R
Ø6	11,12,13,14	R	R R	G	Y R	R	R R	R	R R
Ø7	4,5	R	R R	R	R R	G	Y R	R	R R
Ø8	6,7,8	R	R R	R	R R	R	R R	G	Y R
Ø1P	29,30	D	D D	D	D D	D	D D	D	D D
Ø4P	27,28	D	D D	D	D D	D	D D	D	D D
Ø6P	25,26	D	D D	*	D D	D	D D	D	D D
Ø8P	31,32	D	D D	D	D D	D	D D	* ***	D D
OLA	17,18	R	R R	G	Y R G G	R	R R	R	R R

BARRIER

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK
** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)
*** AUDIBLE PEDESTRIAN SIGNAL WHEN ACTUATED

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)
3. PHASES 2 AND 5 ARE IN CONFLICT AND NOT ALLOWED TO TIME CONCURRENTLY.

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
12		X			1	1					VIDEO
13		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
31		X			3	3					VIDEO
32		X			3	3					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
51		X			5	5					VIDEO
52		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
71		X			7	7					VIDEO
72		X			7	7					VIDEO
81		X			8	8		X			VIDEO
82		X			8	8					VIDEO
83		X			8	8					VIDEO

N

Z

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" = 3,6
O.L. "B" =
O.L. "C" =
O.L. "D" =

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

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE DETECTOR	A	B	C	D
MOVEMENT	←	↔	↓↓	↰↑
PHASE	1+5	6+2	4+7	8+3

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,4,7,8
2	6	1,3,4,5,7,8
3	7 OR 8	1,2,4,5,6
4	7 OR 8	1,2,3,5,6
5	1	2,3,4,6,7,8
6	1 OR 2	3,4,5,7,8
7	3 OR 4	1,2,5,6,8
8	3 OR 4	1,2,5,6,7

STH 100 (S. 108TH STREET) &
STH 59 (W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY

SIGNAL NO. S1071

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE
3/15/13 TDB

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 35'-55' ARM
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- ACCESSIBLE PEDESTRIAN SIGNAL
- (X) EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) YELLOW ARROW
- (G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING. TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

S. 101ST STREET

STH 59 (W. GREENFIELD AVENUE)

R/W

V1 V2 V3 V4

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
03/1/2013

STRUCTURE NUMBERS
SB4 = S-40-1297
SB8 = S-40-1298
SB13 = S-40-1299
SB2 = S-40-1300

CONSTRUCTION NOTES:

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

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE) &
S. 101ST STREET
CITY OF WEST ALLIS
MILWAUKEE COUNTY

SIGNAL NO. S1172

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024271_sp.dgn PLOT DATE : 01-MAR-2013 00:39 PLOT BY : MSCD1S PLOT NAME : 024271_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

(XX) MONOTUBE BASE, POLE, 35'-55' ARM

(XX) MONOTUBE BASE, POLE, 15'-30' ARM

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

WISCONSIN JASON R. MATSON [illegible], WI PROFESSIONAL ENGINEER 03/13/2013

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

ACCESSIBLE PEDESTRIAN SIGNAL

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

R RED ARROW

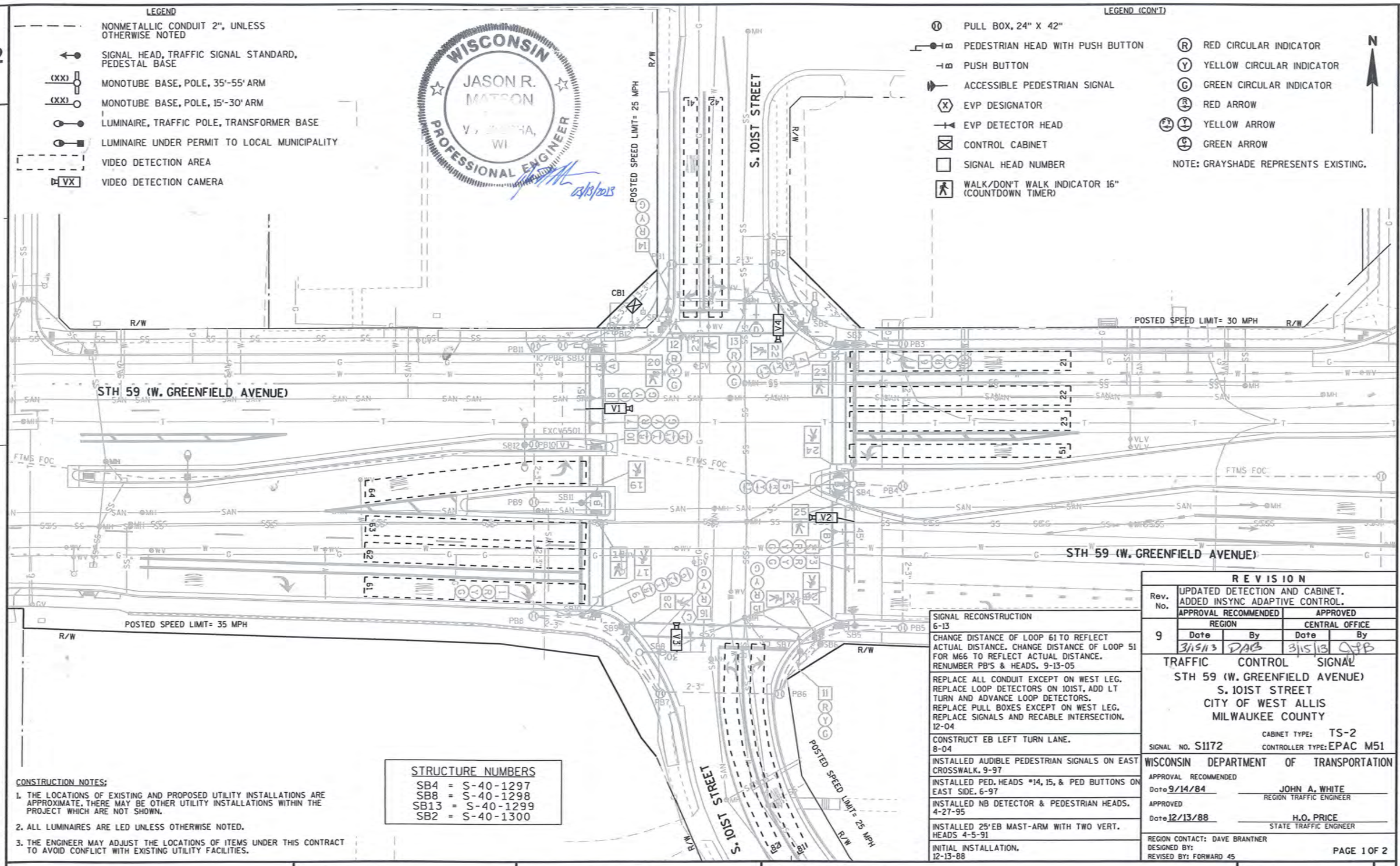
Y YELLOW ARROW

G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

2



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

STRUCTURE NUMBERS

SB4 = S-40-1297
SB8 = S-40-1298
SB13 = S-40-1299
SB2 = S-40-1300

REVISION				
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
9	Date	By	Date	By
	3/15/13	DAB	3/15/13	JRB

SIGNAL RECONSTRUCTION 6-13	
CHANGE DISTANCE OF LOOP 61 TO REFLECT ACTUAL DISTANCE. CHANGE DISTANCE OF LOOP 51 FOR M66 TO REFLECT ACTUAL DISTANCE. RENUMBER PB'S & HEADS. 9-13-05	
REPLACE ALL CONDUIT EXCEPT ON WEST LEG. REPLACE LOOP DETECTORS ON 101ST. ADD LT TURN AND ADVANCE LOOP DETECTORS. REPLACE PULL BOXES EXCEPT ON WEST LEG. REPLACE SIGNALS AND RECABLE INTERSECTION. 12-04	
CONSTRUCT EB LEFT TURN LANE. 8-04	
INSTALLED AUDIBLE PEDESTRIAN SIGNALS ON EAST CROSSWALK. 9-97	
INSTALLED PED. HEADS #14, 15, & PED BUTTONS ON EAST SIDE. 6-97	
INSTALLED NB DETECTOR & PEDESTRIAN HEADS. 4-27-95	
INSTALLED 25' EB MAST-ARM WITH TWO VERT. HEADS 4-5-91	
INITIAL INSTALLATION. 12-13-88	

TRAFFIC CONTROL SIGNAL
STH 59 (W. GREENFIELD AVENUE)
S. 101ST STREET
CITY OF WEST ALLIS
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1172 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 9/14/84 JOHN A. WHITE, REGION TRAFFIC ENGINEER

APPROVED
Date 12/13/88 H.O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRB 3/15/13

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024275_sp.dgn PLOT DATE : 01-MAR-2013 00:40 PLOT BY : MSCD1S PLOT NAME : 024275_sp PLOT SCALE : 40:1 WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
		NOT USED	OLA			NOT USED				
Ø1										
Ø2	6,7,8			G	Y R			R	R R	R
Ø3										
Ø4	14,15,16			R	R R			G	Y R	R
Ø5	9,10			-	- -			-	- -	-
Ø6	1, 2, 3			R	R R			R	R R	R
Ø7										
Ø8	11,12,13			R	R R			R	R R	R
Ø2P	21,22			*	D D			D	D D	
Ø4P	17,18,19,20			D	D D			*	D D	
Ø6P	27,28			D	D D			D	D D	
Ø8P	23,24,25,26			D	D D			D	D D	
OLA	4,5			FY	Y R			R	R R	R
OLB										
OLC	9,10			R	R R			R	R R	R
OLD										

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
			OLC	NOT USED					
Ø1									
Ø2	6,7,8	R	R R	R	R R			R	R R
Ø3									
Ø4	14,15,16	R	R R	R	R R			R	R R
Ø5	9,10	G	- -	-	- -			-	- -
Ø6	1, 2, 3	R	R R	G	Y R			R	R R
Ø7									
Ø8	11,12,13	R	R R	R	R R			G	Y R
Ø2P	21,22	D	D D	D	D D			D	D D
Ø4P	17,18,19,20	D	D D	D	D D			D	D D
Ø6P	27,28	D	D D	*	D D			D	D D
Ø8P	23,24,25,26	D	D D	D	D D			***	D D
OLA	4,5	R	R R	R	R R			R	R R
OLB									
OLC	9,10	-	Y R	FY	Y R			R	R R
OLD									

N

BARRIER

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

*** AUDIBLE PEDESTRIAN SIGNAL WHEN ACTUATED

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO
81		X			8	8		X			VIDEO
82		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS-00-11

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

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

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"		2
OL "B"		
OL "C"	5	6
OL "D"		

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	5 OR 6	4,8
3		
4	8	2,5,6
5	2	4,6,8
6	2	4,5,8
7		
8	4	2,5,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	FY	FY FY		
PHASE	2+5	2 AND 6	4 AND 8	8 AND 8

AFTER PREEMPTION SEQUENCE 2+5 OR 2 AND 6, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8 AND 4, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

STH 59 (W. GREENFIELD AVENUE) & S. 101ST STREET
CITY OF WEST ALLIS
MILWAUKEE COUNTY

SIGNAL NO. S1172
CONTROLLER TYPE: EPAC M51
DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE
3/15/13 DAB

PROJECT NO: 1060-33-99 | HWY: STH 59 | COUNTY: MILWAUKEE | SEQUENCE OF OPERATIONS | SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024279_sp_ph.dgn PLOT DATE : 01-MAR-2013 00:40 PLOT BY : MSCD1S PLOT NAME : 024279_sp_ph PLOT SCALE : 40:1 WISDOT/CADDS SHEET 42

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, CITY OF WEST ALLIS
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- CONTROL CABINET
- Y YIELD SIGN
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER
- X EVP DESIGNATOR
- EVP DETECTOR HEAD

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- Y Y YELLOW ARROW
- G G G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISITNG TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

STH 59 (W. GREENFIELD AVENUE)

IH 894 EB OFF RAMP

IH 894 EB ON RAMP

R/W IS OFF THE PAGE

R/W

FO I/C

I/C PB1001

I/C CV1001

1¼" FO I/C

2-2" (IN BRIDGE PARAPET)

512G 513G 514G 515G 516G 517G

752GC 753GC 754GD 755GD

252NS 253NS 254NS

V1 V2 V3 V4

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER

CONSTRUCTION NOTES:

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

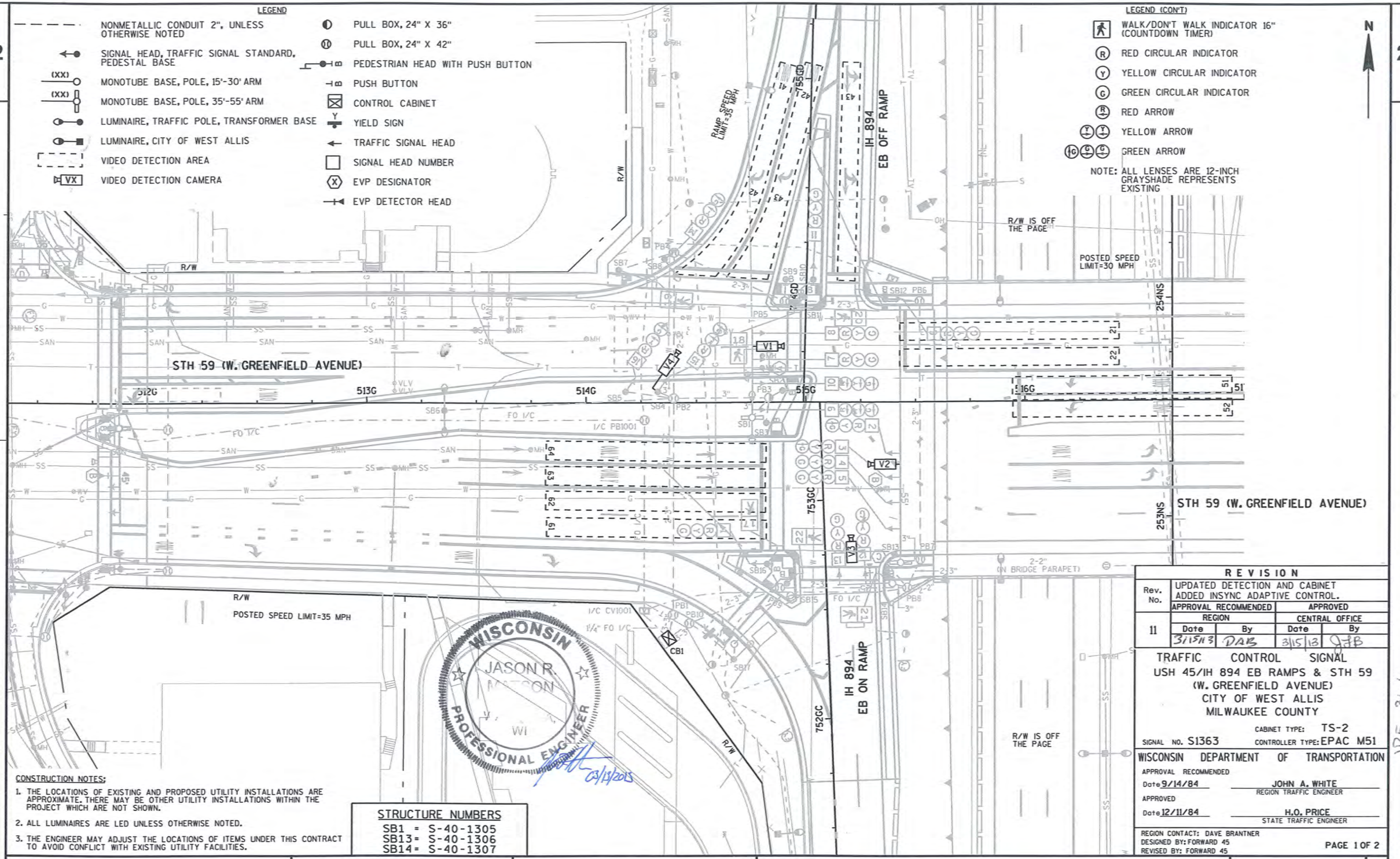
STRUCTURE NUMBERS
SB1 = S-40-1305
SB13 = S-40-1306
SB14 = S-40-1307

TRAFFIC CONTROL SIGNAL
USH 45/IH 894 EB RAMPS & STH 59 (W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY
SIGNAL NO. S1363
REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45
PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: USH 45/IH 894	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024281_sp.dgn PLOT DATE : 02-APR-2013 18:46 PLOT BY : mscjym PLOT NAME : 024281_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

STRUCTURE NUMBERS

SB1 = S-40-1305
SB13 = S-40-1306
SB14 = S-40-1307

REVISION				
Rev. No.	UPDATED DETECTION AND CABINET ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
11	REGION		CENTRAL OFFICE	
	Date	By	Date	By
	3/15/13	DAB	3/15/13	JRE

TRAFFIC CONTROL SIGNAL
USH 45/IH 894 EB RAMPS & STH 59
(W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1363 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 9/14/84 JOHN A. WHITE, REGION TRAFFIC ENGINEER

APPROVED
Date 12/11/84 H.O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: USH 45/IH 894	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024285_sp.dgn PLOT DATE : 01-MAR-2013 00:42 PLOT BY : MSCD1S PLOT NAME : 024285_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

SEQUENCE OF OPERATION

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
		NOT USED				NOT USED				
Ø1										
Ø2	6,7,8			G	Y R			R	R R	R
Ø3										
Ø4	11,12,13,14,15,16			R	R R			A	B R	R
RING 1 Ø5	9,10			R	R R			R	R R	R
Ø6	1,2,3,4,5			R	R R			R	R R	R
Ø7										
Ø8										
Ø2P	19,20			*	D D			D	D D	
Ø4P	17,18			D	D D			*	D D	
Ø6P	21,22			D	D D			D	D D	
Ø8P										

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
		NOT USED			NOT USED				
Ø1									
Ø2	6,7,8	R	R R	R	R R				
Ø3									
RING 2 Ø4	11,12,13,14,15,16	R	R R	R	R R				
Ø5	9,10	G	Y R	R	R R				
Ø6	1,2,3,4,5	R	R R	G,G	Y R				
Ø7									
Ø8									
Ø2P	19,20	D	D D	D	D D				
Ø4P	17,18	D	D D	D	D D				
Ø6P	21,22	D	D D	*	D D				
Ø8P									

A = G,G
B = Y,Y

BARRIER

N

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	5 OR 6	4
3		
4	NONE	2,5,6
5	2	4,6
6	2	4,5
7		
8		

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2					VIDEO
22		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
51		X			5	5					VIDEO
52		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS-00-11

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C
MOVEMENT	← ↙	← →	↓
PHASE	2+5	6 AND 2	4

AFTER PREEMPTION SEQUENCE 2+5 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4, CONTROLLER SHALL RETURN TO PHASE 4.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

USH 45/IH 894 EB RAMPS & STH 59
(W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY

SIGNAL NO. S1363

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE
3/15/13 DMH

PROJECT NO: 1060-33-77	HWY: USH 45/IH 894	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024289_sp_ph.dgn PLOT DATE : 01-MAR-2013 00:44 PLOT BY : MSCD1S PLOT NAME : 024289_sp_ph PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, CITY OF WEST ALLIS
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- CONTROL CABINET
- Y YIELD SIGN
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER
- X EVP DESIGNATOR
- EVP DETECTOR HEAD

STRUCTURE NUMBERS
SB5 = S-40-1308
SB6 = S-40-1309
SB10= S-40-1310

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- Y YELLOW ARROW
- G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS ITEMS TO BE REMOVED.

N

R/W IS OFF THE PAGE

IH 894 WB ON RAMP 755GA

STH 59 (W. GREENFIELD AVENUE)

518G 519G 520G 521G 522G

754GA

753GB

IH 894 WB OFF RAMP 216BT

V1 V2 V3 V4

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB10 SB11 SB12 SB13

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB11 PB13 PB14 PB15

CB1

I/C PB1002

EXCV252

2-2" ON BRIDGE PARAPET)

R/W

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
08/02/2013

CONSTRUCTION NOTES:

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

TRAFFIC CONTROL SIGNAL
USH 45/IH 894 WB RAMPS & STH 59 (W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY
SIGNAL NO. S1100

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: USH 45/IH 894	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024291_sp.dgn PLOT DATE : 02-APR-2013 18:46 PLOT BY : mscjym PLOT NAME : 024291_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, CITY OF WEST ALLIS
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- CONTROL CABINET
- Y YIELD SIGN
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER
- X EVP DESIGNATOR
- EVP DETECTOR HEAD

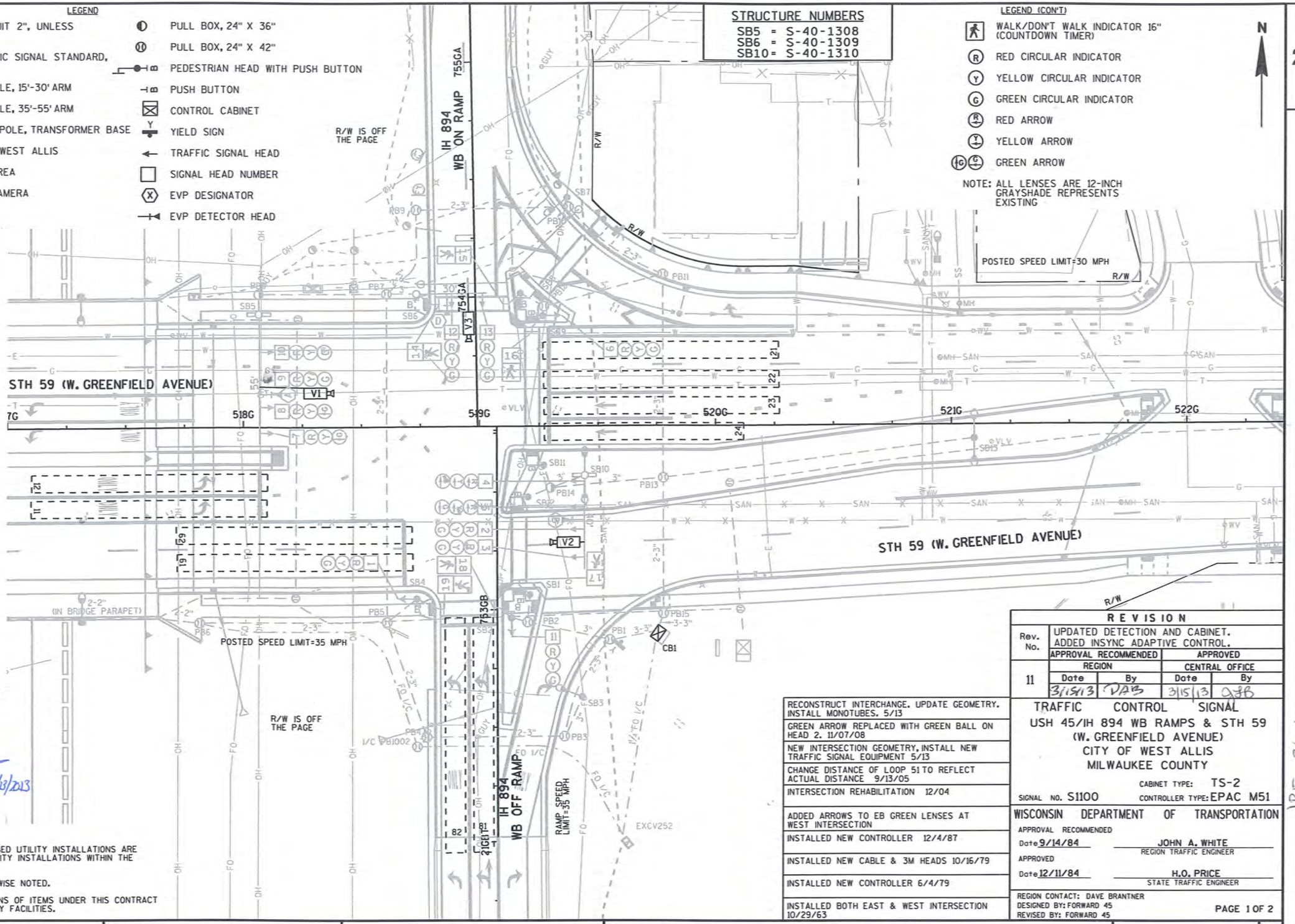
STRUCTURE NUMBERS
SB5 = S-40-1308
SB6 = S-40-1309
SB10 = S-40-1310

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- Y YELLOW ARROW
- G GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

WISCONSIN PROFESSIONAL ENGINEER
JASON R. MATSON
37111
WAUKESHA, WI
03/13/2013

RECONSTRUCT INTERCHANGE. UPDATE GEOMETRY. INSTALL MONOTUBES. 5/13
GREEN ARROW REPLACED WITH GREEN BALL ON HEAD 2. 11/07/08
NEW INTERSECTION GEOMETRY, INSTALL NEW TRAFFIC SIGNAL EQUIPMENT 5/13
CHANGE DISTANCE OF LOOP 51 TO REFLECT ACTUAL DISTANCE 9/13/05
INTERSECTION REHABILITATION 12/04
ADDED ARROWS TO EB GREEN LENSES AT WEST INTERSECTION
INSTALLED NEW CONTROLLER 12/4/87
INSTALLED NEW CABLE & 3M HEADS 10/16/79
INSTALLED NEW CONTROLLER 6/4/79
INSTALLED BOTH EAST & WEST INTERSECTION 10/29/63

REVISION

Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
11	Date	By	Date	By
	3/15/13	DAB	3/15/13	JRE

TRAFFIC CONTROL SIGNAL
USH 45/IH 894 WB RAMPS & STH 59 (W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1100 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION
APPROVAL RECOMMENDED
Date 9/14/84 JOHN A. WHITE, REGION TRAFFIC ENGINEER
APPROVED
Date 12/11/84 H.O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45
PAGE 1 OF 2

JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: USH 45/IH 894	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024295_sp.dgn PLOT DATE : 01-MAR-2013 00:45 PLOT BY : MSCD1S PLOT NAME : 024295_sp PLOT SCALE : 40:1 WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	4,5	G	Y R	R	R R					R
Ø2	6,7,8,9,10	R	R R	G,G	Y R					R
Ø3										
Ø4										
Ø5										
Ø6	1,2,3	R	R R	R	R R					R
Ø7										
Ø8	11,12,13	R	R R	R	R R					R
Ø2P	14,15	D	D D	*	D D					
Ø4P										
Ø6P	18,19	D	D D	D	D D					
Ø8P	16,17	D	D D	D	D D					

NOT USED

NOT USED

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	4,5			R	R R			R	R R
Ø2	6,7,8,9,10			R	R R			R	R R
Ø3									
Ø4									
Ø5									
Ø6	1,2,3			G	Y R			R	R R
Ø7									
Ø8	11,12,13			R	R R			G	Y R
Ø2P	14,15			D	D D			D	D D
Ø4P									
Ø6P	18,19			*	D D			D	D D
Ø8P	16,17			D	D D			*	D D

NOT USED

NOT USED

N

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	6	2,8
2	6	1,8
3		
4		
5		
6	1 OR 2	8
7		
8	NONE	1,2,6

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
12		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
24		X			2	2					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
81		X			8	8					VIDEO
82		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	X
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS-00-11

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL D
MOVEMENT	← →	↱ →	↑
PHASE	2 AND 6	6+1	8

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 8, CONTROLLER SHALL RETURN TO PHASE 8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)

USH 45/IH 894 WB RAMPS & STH 59
(W. GREENFIELD AVENUE)
CITY OF WEST ALLIS
MILWAUKEE COUNTY

SIGNAL NO. S1100

CONTROLLER TYPE: EPAC M51

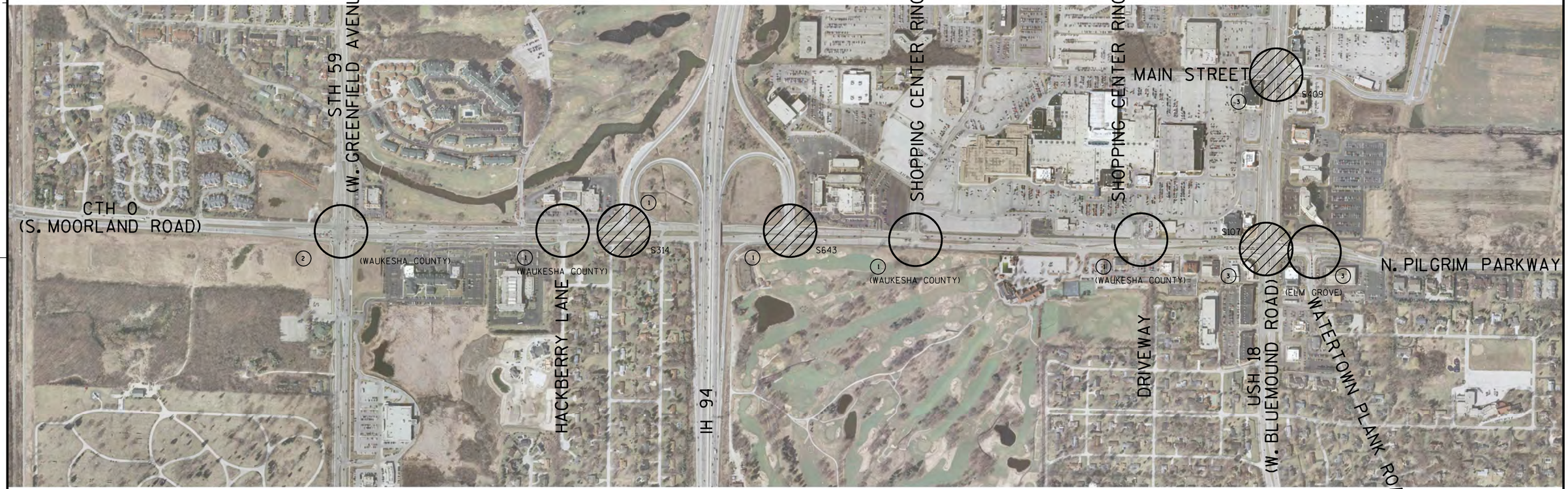
DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE
3/15/13 PMA

PROJECT NO: 1060-33-77	HWY: USH 45/IH 894	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

2

N



LEGEND

SXXXX — WISDOT OWNED TRAFFIC SIGNAL

(MUNICIPALITY) — MUNICIPAL OWNED TRAFFIC SIGNAL

(1) INSTALL ADAPTABLE TRAFFIC SIGNAL EQUIPMENT

(2) INCLUDED IN STH 59 SYSTEM

(3) INCLUDED IN STATE OWNED TRAFFIC RESPONSIVE SYSTEM

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL PROJECT OVERVIEW - CTH O	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024301_sp_po.dgn PLOT DATE : 01-MAR-2013 00:46 PLOT BY : MSCD1S PLOT NAME : PLOT SCALE : 750:1

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- MONOTUBE BASE, POLE, 35'-55' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- PULL BOX, 24" X 36"
- VIDEO DETECTION AREA

LEGEND (CON'T)

- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- DON'T WALK INDICATOR 12" WALK INDICATOR 12"
- COMMUNICATIONS ANTENNA
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW
- VIDEO DETECTION CAMERA

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

HOTEL DRIVEWAY

CTH O (S. MOORLAND ROAD)

CTH O (S. MOORLAND ROAD)

HACKBERRY LANE

R/W

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
CTH O (S. MOORLAND ROAD) &
HACKBERRY LANE
CITY OF BROOKFIELD
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024311_sp.dgn PLOT DATE : 01-MAR-2013 00:46 PLOT BY : MSCD1S PLOT NAME : 024311_sp PLOT SCALE : 40.000103:1

WISDOT/CADDS SHEET 42

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

MONOTUBE BASE POLE 35'-55' ARM LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

PULL BOX, 24" X 36"

VIDEO DETECTION AREA

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

DON'T WALK INDICATOR 12" WALK INDICATOR 12"

COMMUNICATIONS ANTENNA

RED CIRCULAR INDICATOR

YELLOW CIRCULAR INDICATOR

GREEN CIRCULAR INDICATOR

YELLOW ARROW

GREEN ARROW

VIDEO DETECTION CAMERA

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

DRIVEWAY SPEED LIMIT = 25 MPH

DRIVEWAY

POSTED SPEED LIMIT = 35 MPH

R/W

CTH O (S. MOORLAND ROAD)

HACKBERRY LANE

POSTED SPEED LIMIT = 25 MPH

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
CTH O (S. MOORLAND ROAD) &
HACKBERRY LANE
CITY OF BROOKFIELD
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024315_sp.dgn PLOT DATE : 01-MAR-2013 00:47 PLOT BY : MSCD1S PLOT NAME : 024315_sp PLOT SCALE : 40:1

SEQUENCE OF OPERATION

		Ø1							Ø2							Ø3							Ø4							FLASH
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO						
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**						
Ø1	5,6	G ←	Y ←	-					-	-	-												-	-	-					-
Ø2	7,8,9,10,11,12	R	R	R					G	Y	R												R	R	R					R
Ø3																														
Ø4	16,17,18	R	R	R					R	R	R												G	Y	R					R
RING 1 Ø5	11,12	-	-	-					-	-	-												-	-	-					-
Ø6	1,2,3,4,5,6	R	R	R					R	R	R												R	R	R					R
Ø7																														
Ø8	13,14,15	R	R	R					R	R	R												R	R	R					R
Ø2P	21,22	D	D	D					*	D	D												D	D	D					
Ø4P	19,20	D	D	D					D	D	D												*	D	D					
Ø6P	23,24	D	D	D					D	D	D												D	D	D					
Ø8P																														

		Ø5							Ø6							Ø7							Ø8						
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO					
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**					
Ø1	5,6	-	-	-					-	-	-												-	-	-				
Ø2	7,8,9,10,11,12	R	R	R					R	R	R												R	R	R				
RING 2 Ø3																													
Ø4	16,17,18	R	R	R					R	R	R												R	R	R				
Ø5	11,12	G ←	Y ←	-					-	-	-												-	-	-				
Ø6	1,2,3,4,5,6	R	R	R					G	Y	R												R	R	R				
Ø7																													
Ø8	13,14,15	R	R	R					R	R	R												G	Y	R				
Ø2P	21,22	D	D	D					D	D	D												D	D	D				
Ø4P	19,20	D	D	D					D	D	D												D	D	D				
Ø6P	23,24	D	D	D					*	D	D												D	D	D				
Ø8P																													

BARRIER

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
24		X			2	2					VIDEO
41		X			4	4		X			VIDEO
51		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
81		X			8	8		X			VIDEO

N

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B
MOVEMENT	← →	← →
PHASE	2 AND 6	6 AND 2

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,4,8
2	5 OR 6	1,4,8
3		
4	8	1,2,5,6
5	1 OR 2	4,6,8
6	1 OR 2	4,5,8
7		
8	4	1,2,5,6

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

CTH O (S. MOORLAND ROAD) &
HACKBERRY LANE
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO.

CONTROLLER TYPE: EPAC M52

DATE 02/13 PAGE NO. 2 OF 2

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET E

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

XX MONOTUBE BASE, POLE, 35'-55' ARM

VIDEO DETECTION AREA

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

PULL BOX, 24" X 36"

PULL BOX, 24" X 42"

LEGEND (CON'T)

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

RED CIRCULAR INDICATOR

YELLOW CIRCULAR INDICATOR

GREEN CIRCULAR INDICATOR

YELLOW ARROW

GREEN ARROW

VX VIDEO DETECTION CAMERA

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

R/W IS OFF THE PAGE

IH 94 EB OFF RAMP

IH 94 EB ON RAMP

CTH O (S. MOORLAND ROAD)

CTH O (S. MOORLAND ROAD)

CARPENTER ROAD

R/W

R/W

FTMS FOC

FTMS FOC

EXCV2201

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

STRUCTURE NUMBERS
SB11 = S-67-1121
SB3 = S-67-1122

WISCONSIN
JASON P. MATSC
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
03/01/2013

TRAFFIC CONTROL SIGNAL
IH 94 EB OFF RAMP &
CTH O (S. MOORLAND ROAD)
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. S0314

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024321_sp.dgn PLOT DATE : 01-MAR-2013 00:47 PLOT BY : MSCD1S PLOT NAME : 024321_sp PLOT SCALE : 40.000103:1 WISDOT/CADDS SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- XX MONOTUBE BASE, POLE, 35'-55' ARM
- VIDEO DETECTION AREA
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"

LEGEND (CON'T)

- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- (X) EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (Y) YELLOW ARROW
- (G) GREEN ARROW
- VX VIDEO DETECTION CAMERA

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

R/W IS OFF THE PAGE

IH 94 EB OFF RAMP

IH 94 EB ON RAMP

CTH O (S. MOORLAND ROAD)

POSTED SPEED LIMIT = 35 MPH

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

STRUCTURE NUMBERS
SB11 = S-67-1121
SB3 = S-67-1122

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
04/02/2013

REVISION				
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
8	REGION		CENTRAL OFFICE	
	Date	By	Date	By
	4/8/13	DAB	4/8/13	JRE

PLAN UPDATE POST CONSTRUCTION.
RECONSTRUCT SIGNALS: ADD MONOTUBES & VIDEO DETECTION. 1-15-10
FIELD REVIEW 11-07
CONSTRUCT DUAL RIGHT EB AND ADD PED HEADS 15 & 16. 9-03
ADD PEDS 10 & 11. 6-01
ADDED EMERGENCY VEHICLE PREEMPTION. 2-96
CONSTRUCTED DUAL LEFT EB. 1-89
INITIAL INSTALLATION. 8-84

TRAFFIC CONTROL SIGNAL
IH 94 EB OFF RAMP &
CTH O (S. MOORLAND ROAD)
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. S0314 CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 5/2/84 JOHN A. WHITE, REGION TRAFFIC ENGINEER

APPROVED
Date 8/21/84 H.O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRE 4/8/13

PROJECT NO: 1060-33-99	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024325_sp.dgn PLOT DATE : 01-MAR-2013 00:48 PLOT BY : MSCD1S PLOT NAME : 024325_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
		NOT USED				NOT USED				
Ø1										
Ø2	5,6,7,8			G	Y R			R	R R	R
Ø3										
Ø4	9,10,11,12,13,14			R	R R			G,G	A R	R
Ø5										
Ø6	1,2,3,4			R	R R			R	R R	R
Ø7										
Ø8										
Ø2P	15,16,17,18			*	D D			D	D D	
Ø4P										
Ø6P										
Ø8P										

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
		NOT USED				NOT USED		NOT USED	
Ø1									
Ø2	5,6,7,8			R	R R				
Ø3									
Ø4	9,10,11,12,13,14			R	R R				
Ø5									
Ø6	1,2,3,4			G	Y R				
Ø7									
Ø8									
Ø2P	15,16,17,18			D	D D				
Ø4P									
Ø6P									
Ø8P									

A=Y,Y

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	6	4
3		
4	NONE	2,6
5		
6	2	4
7		
8		

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
44		X			4	4					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B
MOVEMENT	← →	← →
PHASE	2 AND 6	6 AND 2

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

N

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

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

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

IH 94 EB OFF RAMP &
CTH O (S. MOORLAND ROAD)
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. S0314
CONTROLLER TYPE: EPAC
DATE 02/13 PAGE NO. 2 OF 2

4/8/13 JRE
4/9/13 DMB

2

LEGEND

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

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

PULL BOX, 24" X 36"

VIDEO DETECTION AREA

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
05/15/2013

R/W IS OFF THE PAGE

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

(R) RED CIRCULAR INDICATOR

(Y) YELLOW CIRCULAR INDICATOR

(G) GREEN CIRCULAR INDICATOR

(R) RED ARROW

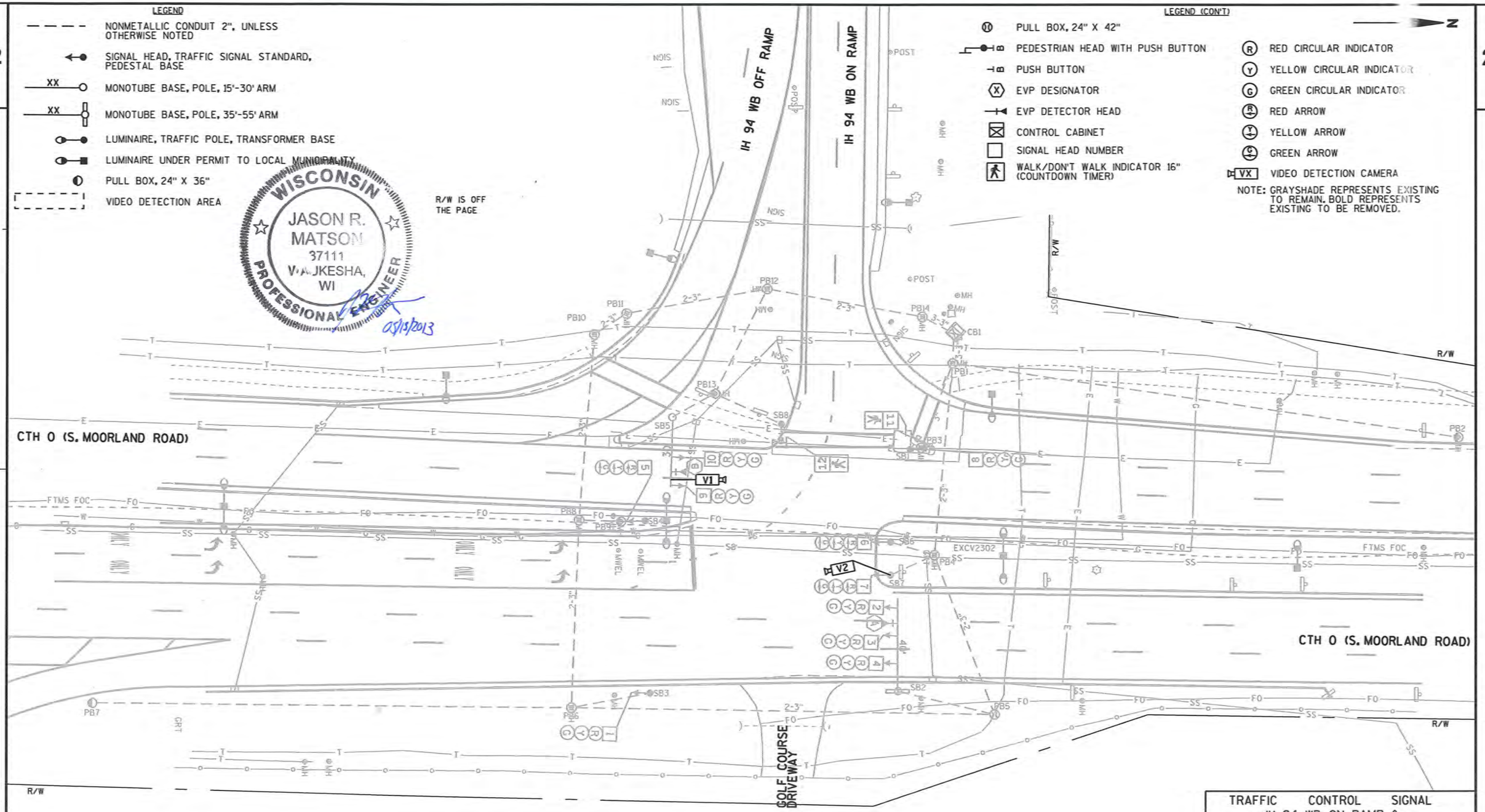
(Y) YELLOW ARROW

(G) GREEN ARROW

VX VIDEO DETECTION CAMERA

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N



CONSTRUCTION NOTES;

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

STRUCTURE NUMBERS
SB2 = S-67-1119
SB5 = S-67-1120

TRAFFIC CONTROL SIGNAL
IH 94 WB ON RAMP &
CTH O (S. MOORLAND ROAD)
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. S0643

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024331_sp.dgn PLOT DATE : 01-MAR-2013 00:48 PLOT BY : MSCD1S PLOT NAME : 024331_sp PLOT SCALE : 40.000103:1

WISDOT/CADDS SHEET 42

LEGEND

- 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
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- PULL BOX, 24" X 36"
- VIDEO DETECTION AREA

R/W IS OFF THE PAGE

WISCONSIN — JASON R. MATSON — 37111 — WAUKESHA, WI — PROFESSIONAL ENGINEER

LEGEND (CON'T)

- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (Y) YELLOW ARROW
- (G) GREEN ARROW
- VX VIDEO DETECTION CAMERA

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

IH 94 WB OFF RAMP

IH 94 WB ON RAMP

CTH O (S. MOORLAND ROAD)

POSTED SPEED LIMIT = 35 MPH

R/W

GOLF COURSE DRIVEWAY

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

STRUCTURE NUMBERS
SB2 = S-67-1119
SB5 = S-67-1120

RECONSTRUCT SIGNALS. 1-15-10
ADDED PED. HEADS AND PUSH BUTTONS. 11/18/99
INITIAL INSTALLATION. 1997

REVISION				
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
3	REGION		CENTRAL OFFICE	
	Date	By	Date	By
	4/8/13	DAB	4/8/13	JRE

TRAFFIC CONTROL SIGNAL
IH 94 WB ON RAMP &
CTH O (S. MOORLAND ROAD)
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. S0643 CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 4/18/97 — GARY P. KNERR, REGION TRAFFIC ENGINEER

APPROVED
Date 4/23/97 — WILLIAM C. GILDING, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

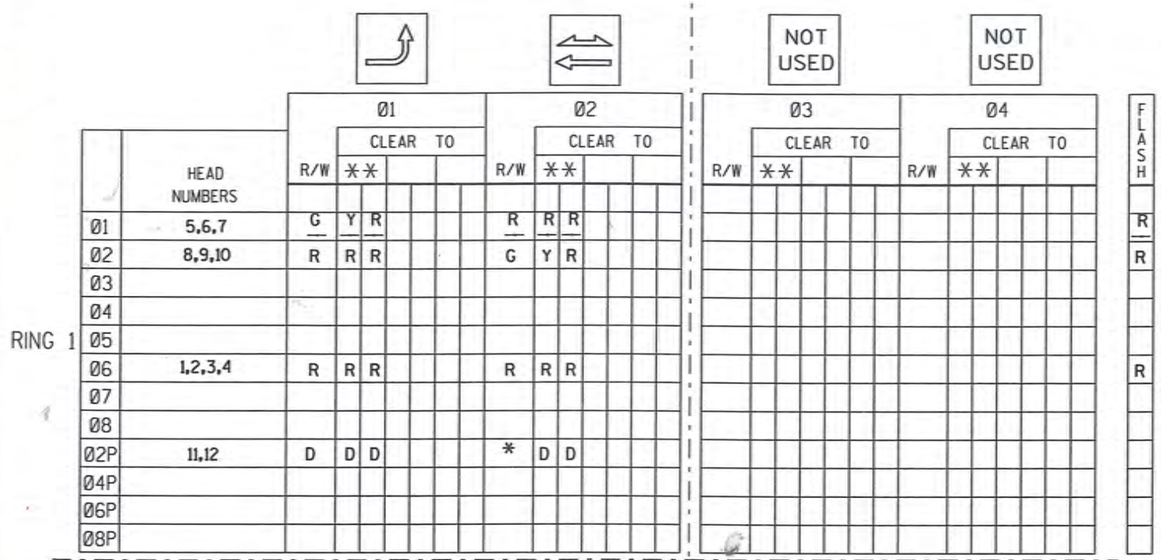
PAGE 1 OF 2

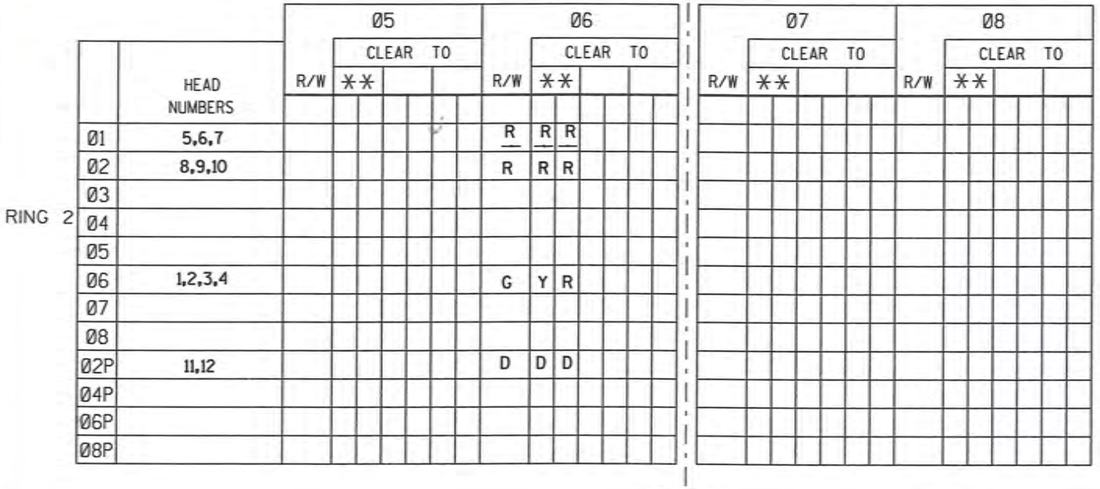
JRE 4/8/13

PROJECT NO: 1060-33-99	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024335_sp.dgn PLOT DATE : 01-MAR-2013 00:49 PLOT BY : MSCD1S PLOT NAME : 024335_sp PLOT SCALE : 40:1 WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION





** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	6	2
2	6	1
3		
4		
5		
6	1,2	NONE
7		
8		

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
12		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B
MOVEMENT	← →	↱ →
PHASE	2 AND 6	6+1

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

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

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

IH 94 WB ON RAMP &
CTH O (S. MOORLAND ROAD)
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. S0643

CONTROLLER TYPE: EPAC

DATE 02/13 PAGE NO. 2 OF 2

4/8/13 JRE
4/8/13 PMB

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

LOOP DETECTOR CONDUIT 1" NONMETALLIC

LOOP DETECTOR IN 1" NONMETALLIC CONDUIT

PULL BOX, 24" X 36"

LEGEND (CON'T)

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

DON'T WALK INDICATOR 12"
WALK INDICATOR 12"

RED CIRCULAR INDICATOR

YELLOW CIRCULAR INDICATOR

GREEN CIRCULAR INDICATOR

RED ARROW

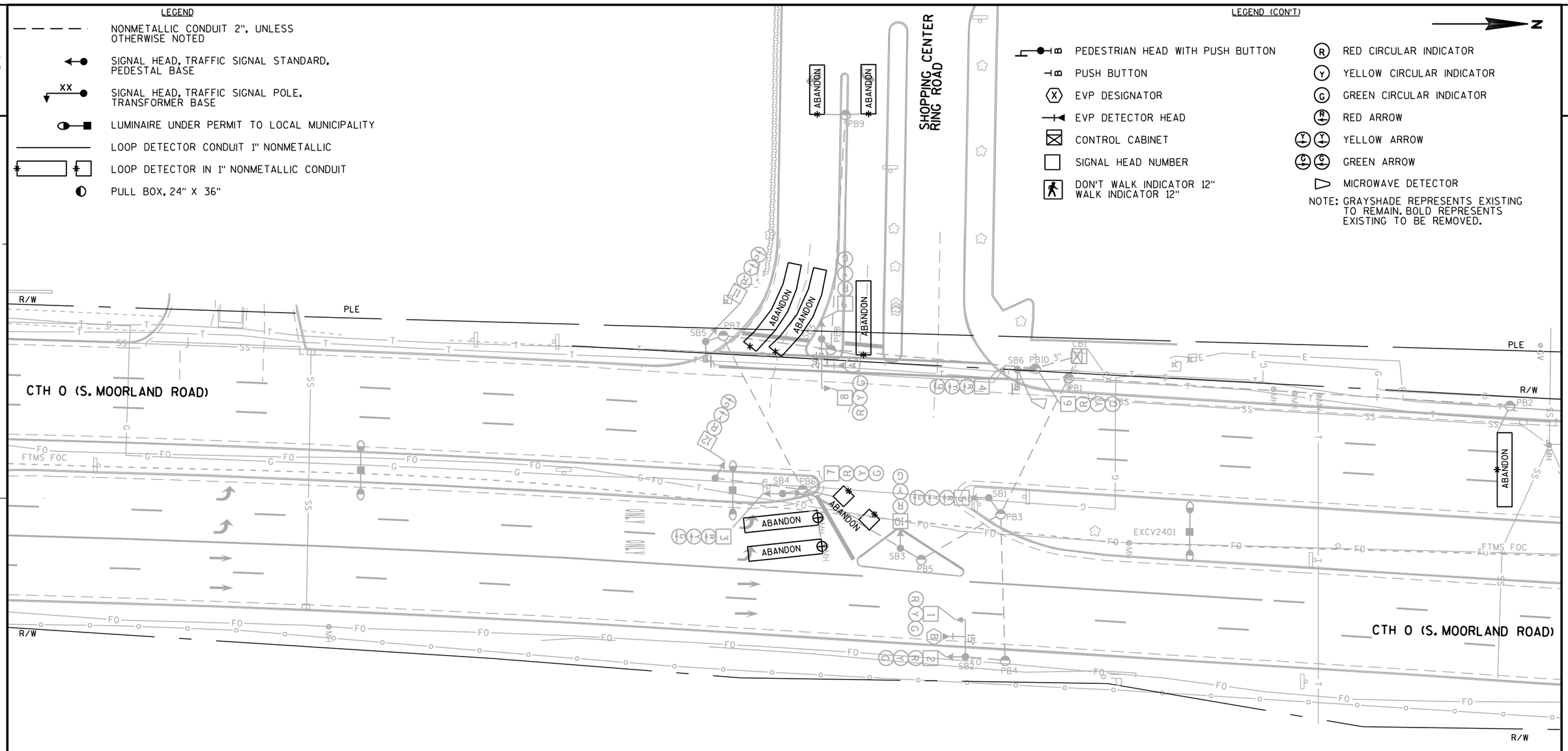
YELLOW ARROW

GREEN ARROW

MICROWAVE DETECTOR

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
CTH O (S. MOORLAND ROAD) &
SHOPPING CENTER RING ROAD
CITY OF BROOKFIELD
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024341_sp.dgn PLOT DATE : 02-APR-2013 15:43 PLOT BY : mscjym PLOT NAME : 024341_sp PLOT SCALE : 40.000103:1

WISDOT/CADDS SHEET 42

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 36"

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

R RED ARROW

Y YELLOW ARROW

G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

SHOPPING CENTER RING ROAD

RAMP SPEED LIMIT = 25 MPH

POSTED SPEED LIMIT = 35 MPH

CTH O (S. MOORLAND ROAD)

R/W

PLE

FTMS FOC

EXCV2401

CB1

V1 V2 V3

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB9

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8 PB9

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
CTH O (S. MOORLAND ROAD) &
SHOPPING CENTER RING ROAD
CITY OF BROOKFIELD
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024345_sp.dgn PLOT DATE : 02-APR-2013 15:43 PLOT BY : mscjym PLOT NAME : 024345_sp PLOT SCALE : 40:1

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	3,4,5	G	Y R	R	R R			R	R R	R
Ø2	6,7,8	R	R R	G	Y R			R	R R	R
Ø3										
Ø4	9,10,11,12,13	R	R R	R	R R			G,G	Y,Y R	R
Ø5										
Ø6	1,2	R	R R	R	R R			R	R R	R
Ø7										
Ø8										
Ø2P	14,15	D	D D	*	D D			D	D D	
Ø4P										
Ø6P										
Ø8P										

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	3,4,5			R	R R				
Ø2	6,7,8			R	R R				
Ø3									
Ø4	9,10,11,12,13			R	R R				
Ø5									
Ø6	1,2			G	Y R				
Ø7									
Ø8									
Ø2P	14,15			D	D D				
Ø4P									
Ø6P									
Ø8P									

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	6	2,4
2	6	1,4
3		
4	NONE	1,2,6
5		
6	1 OR 2	4
7		
8		

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
12		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B
MOVEMENT	← →	↱ →
PHASE	2 AND 6	6+1

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6+1, CONTROLLER SHALL RETURN TO PHASES 2+6.

N

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

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

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

CTH O (S. MOORLAND ROAD) & SHOPPING CENTER RING ROAD
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO.

CONTROLLER TYPE: EPAC M52

DATE 02/13 PAGE NO. 2 OF 2

PROJECT NO: 1060-33-99 | HWY: CTH O | COUNTY: WAUKESHA | SEQUENCE OF OPERATIONS | SHEET E

PROJECT ID:	1060-33-99
INTERSECTION:	CTH O (S. MOORLAND ROAD) & SHOPPING CENTER RING ROAD

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

CB1 TO	NO. OF CONDUCTORS	HEAD NO.	RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	D/WALK	WALK	PED BUTTON
SB5	12	11	RED	ORG	GRN						

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP *	
FROM	TO
SB4	SB5
SB5	SB6

NOTES: USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
* INSTALL EQUIPMENT GROUNDED CONDUCTORS TO REESTABLISH THE COMPLETE GROUNDING AND GROUNDED CIRCUITS FROM BASE TO BASE.

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

PULL BOX, 24" X 36"

LEGEND (CON'T)

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

DON'T WALK INDICATOR 12"
WALK INDICATOR 12"

RED CIRCULAR INDICATOR

YELLOW CIRCULAR INDICATOR

GREEN CIRCULAR INDICATOR

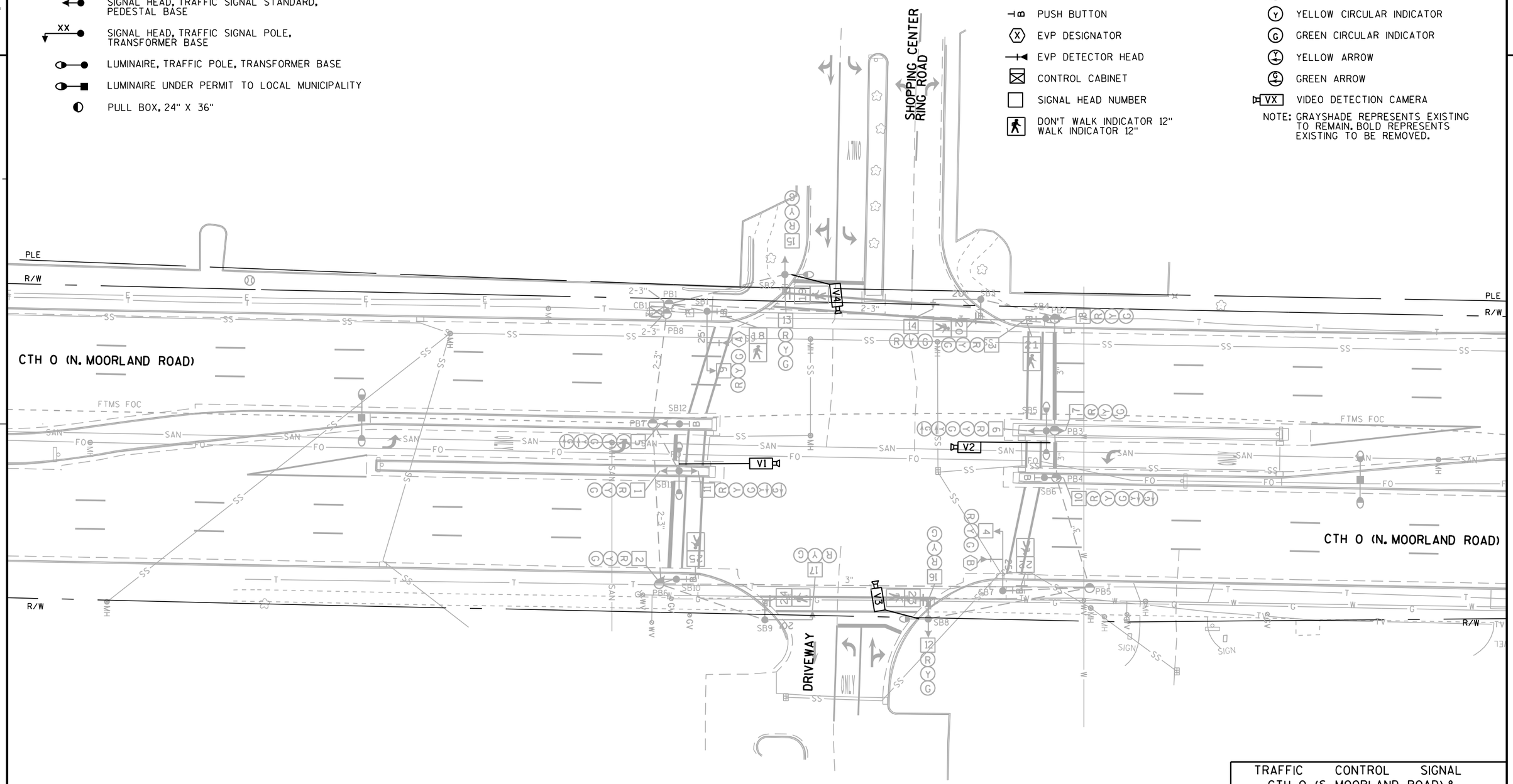
YELLOW ARROW

GREEN ARROW

VX VIDEO DETECTION CAMERA

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N



CONSTRUCTION NOTES:

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

2. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
CTH O (S. MOORLAND ROAD) &
SHOPPING CENTER RING ROAD / DRIVEWAY
CITY OF BROOKFIELD
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024351_sp.dgn PLOT DATE : 02-APR-2013 15:43 PLOT BY : mscjym PLOT NAME : 024351_sp PLOT SCALE : 40.000103:1

WISDOT/CADDS SHEET 42

2

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 36"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 12"

(R) RED CIRCULAR INDICATOR

(Y) YELLOW CIRCULAR INDICATOR

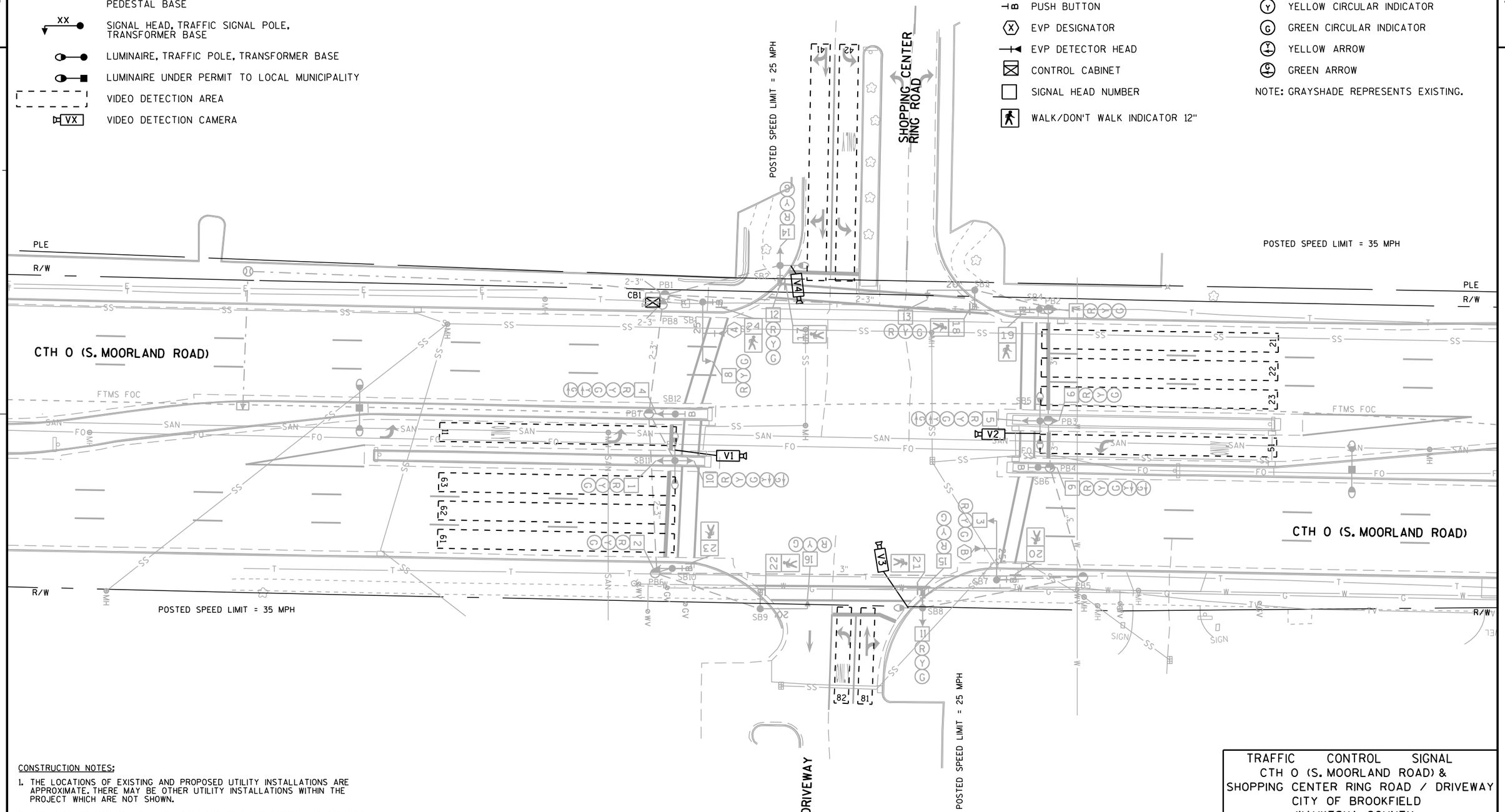
(G) GREEN CIRCULAR INDICATOR

(Y) YELLOW ARROW

(G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
3. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
CTH O (S. MOORLAND ROAD) &
SHOPPING CENTER RING ROAD / DRIVEWAY
CITY OF BROOKFIELD
WAUKESHA COUNTY

REGION CONTACT: DAVE BRANTNER
COUNTY CONTACT: GARY EVANS
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024355_sp.dgn PLOT DATE : 02-APR-2013 15:44 PLOT BY : mscjym PLOT NAME : 024355_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

		Ø1							Ø2							Ø3							Ø4							FLASH
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO						
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**						
Ø1	4,5	G	Y	-					-	-	-												-	-	-					-
Ø2	6,7,8,9,10	R	R	R					G	Y	R												R	R	R					R
Ø3																														
Ø4	14,15,16	R	R	R					R	R	R												G	Y	R					R
RING 1 Ø5	9,10	-	-	-					-	-	-												-	-	-					-
Ø6	1,2,3,4,5	R	R	R					R	R	R												R	R	R					R
Ø7																														
Ø8	11,12,13	R	R	R					R	R	R												R	R	R					R
Ø2P	17,18	D	D	D					*	D	D												D	D	D					
Ø4P	23,24	D	D	D					D	D	D												*	D	D					
Ø6P	21,22	D	D	D					D	D	D												D	D	D					
Ø8P	19,20	D	D	D					D	D	D												D	D	D					

		Ø5							Ø6							Ø7							Ø8						
			CLEAR TO							CLEAR TO							CLEAR TO							CLEAR TO					
	HEAD NUMBERS	R/W	**						R/W	**						R/W	**						R/W	**					
Ø1	5,6	-	-	-					-	-	-												-	-	-				
Ø2	6,7,8,9,10	R	R	R					R	R	R												R	R	R				
RING 2 Ø3																													
Ø4	14,15,16	R	R	R					R	R	R												R	R	R				
Ø5	9,10	G	Y	-					-	-	-												-	-	-				
Ø6	1,2,3,4,5	R	R	R					G	Y	R												R	R	R				
Ø7																													
Ø8	11,12,13	R	R	R					R	R	R												G	Y	R				
Ø2P	17,18	D	D	D					D	D	D												D	D	D				
Ø4P	23,24	D	D	D					D	D	D												D	D	D				
Ø6P	21,22	D	D	D					*	D	D												D	D	D				
Ø8P	19,20	D	D	D					D	D	D												*	D	D				

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	AMPLIFIER CHANNEL NUMBER	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
81		X			8	8		X			VIDEO
82		X			8	8					VIDEO

N

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B
MOVEMENT	← →	← →
PHASE	2 AND 6	6 AND 2

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,4,8
2	5 OR 6	1,4,8
3		
4	8	1,2,5,6
5	1 OR 2	4,6,8
6	1 OR 2	4,5,8
7		
8	4	1,2,5,6

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. VIDEO FOR INSYNC ADAPTIVE CONTROL.

CTH O (S. MOORLAND ROAD) &
SHOPPING CENTER RING ROAD/DRIVEWAY
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO.

CONTROLLER TYPE: EPAC M52

DATE 02/13 PAGE NO. 2 OF 2

2

2

N



LEGEND

SXXXX — WISDOT OWNED TRAFFIC SIGNAL

(MUNICIPALITY) — MUNICIPAL OWNED TRAFFIC SIGNAL

(1) INSTALL ADAPTABLE TRAFFIC SIGNAL EQUIPMENT

(2) INCLUDED IN CTH O SYSTEM

(3) INCLUDED IN STATE OWNED TRAFFIC RESPONSIVE SYSTEM

(4) INCLUDED IN STH 100 SYSTEM

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE / WAUKEHSA	TRAFFIC SIGNAL PROJECT OVERVIEW - USH 18-1	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024401_sp_po.dgn PLOT DATE : 01-MAR-2013 00:52 PLOT BY : MSCD1S PLOT NAME : PLOT SCALE : 750:1

WISDOT/CADDS SHEET 42

2

N



LEGEND

SXXXX — WISDOT OWNED TRAFFIC SIGNAL

(MUNICIPALITY) — MUNICIPAL OWNED TRAFFIC SIGNAL

(1) INSTALL ADAPTABLE TRAFFIC SIGNAL EQUIPMENT

(2) INCLUDED IN CTH O SYSTEM

(3) INCLUDED IN STATE OWNED TRAFFIC RESPONSIVE SYSTEM

(4) INCLUDED IN STH 100 SYSTEM

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE / WAUKESHA	TRAFFIC SIGNAL PROJECT OVERVIEW - USH 18-1	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024402_sp_po.dgn PLOT DATE : 01-MAR-2013 00:53 PLOT BY : MSCD1S PLOT NAME : PLOT SCALE : 750:1

LEGEND

- 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
- LUMINAIRE, DOT HIGHWAY LIGHTHING
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"

LEGEND (CON'T)

- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW
- YIELD SIGN
- STOP SIGN

NOTE: GRAYSHADE REPRESENTS EXISTING. TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

USH 18 (W. BLUEMOUND ROAD)

N. SUNNYSLOPE ROAD

ABANDON

EXPB4302

STRUCTURE NUMBERS
SB2 = S-67-1130
SB5 = S-67-1131
SB9 = S-67-1132
SB13 = S-67-1133

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
05/2/2013

CONSTRUCTION NOTES:

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

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
CTH YY (N. SUNNYSLOPE ROAD)
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0335

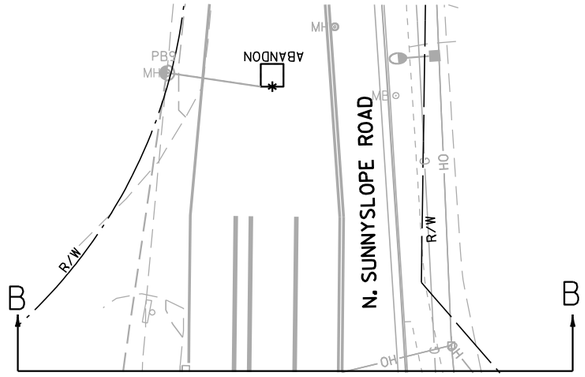
REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

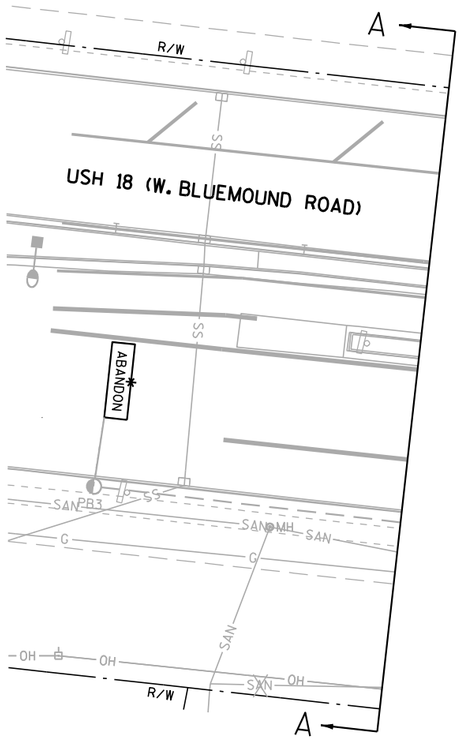
PAGE 1 OF 2

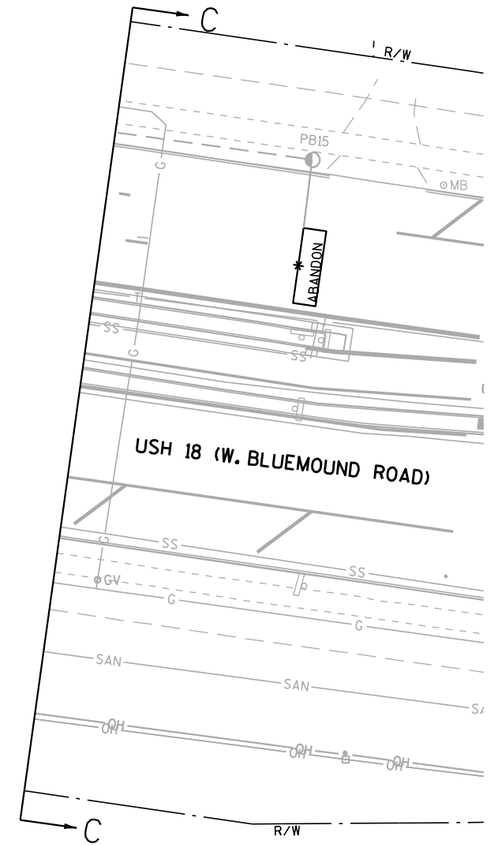
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

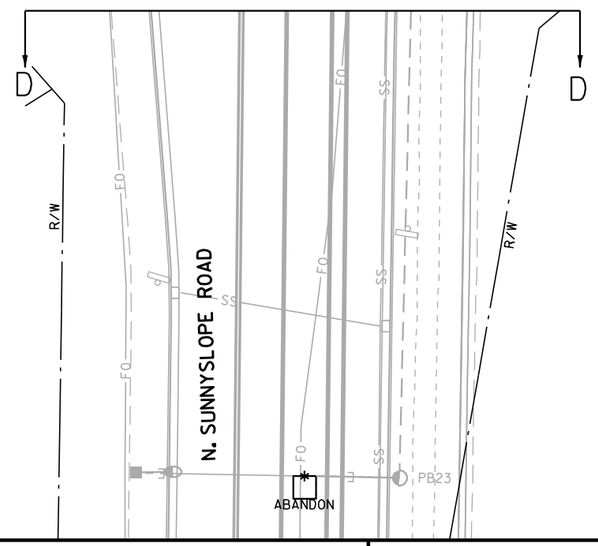
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WISDOT/CADDS SHEET 42









TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. SUNNYSLOPE ROAD
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0335

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024412_sp.dgn PLOT DATE : 20-MAR-2013 13:42 PLOT BY : mscjym PLOT NAME : 024412_sp PLOT SCALE : 40:1
WISDOT/CADDS SHEET 42

2

LEGEND

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

LUMINAIRE, DOT HIGHWAY LIGHTING

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 36"

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

R RED ARROW

FY Y YELLOW ARROW

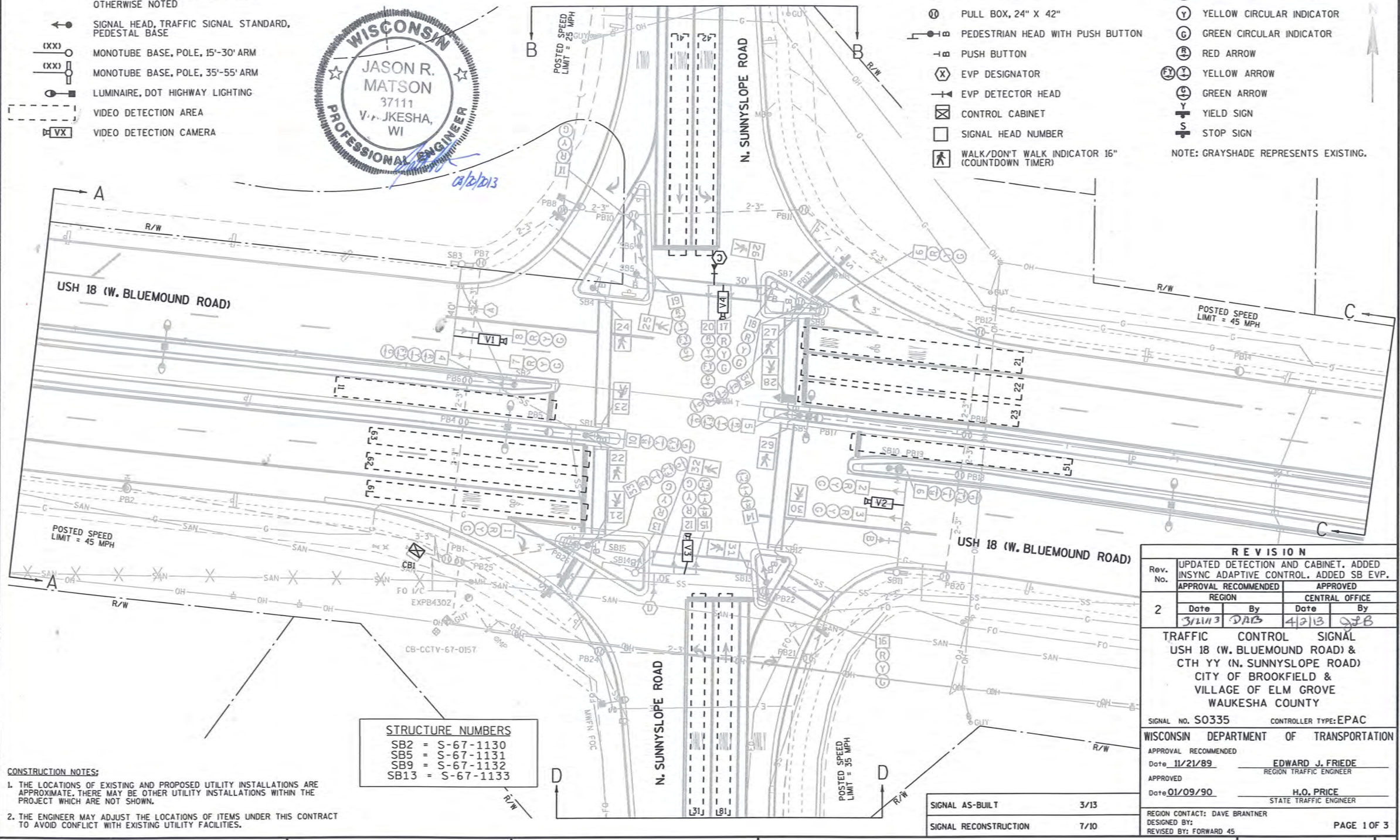
G GREEN ARROW

Y YIELD SIGN

S STOP SIGN

NOTE: GRAYSHADE REPRESENTS EXISTING.

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
03/21/2013



STRUCTURE NUMBERS

SB2 = S-67-1130
SB5 = S-67-1131
SB9 = S-67-1132
SB13 = S-67-1133

CONSTRUCTION NOTES;

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

SIGNAL AS-BUILT	3/13
SIGNAL RECONSTRUCTION	7/10

REVISION

Rev. No.				
	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL. ADDED SB EVP.			
	APPROVAL RECOMMENDED		APPROVED	
2	REGION		CENTRAL OFFICE	
	Date	By	Date	By
	3/21/13	DAB	4/2/13	JRE

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
CTH YY (N. SUNNYSLOPE ROAD)
CITY OF BROOKFIELD &
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0335 CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 11/21/89 EDWARD J. FRIEDE, REGION TRAFFIC ENGINEER

APPROVED
Date 01/09/90 H.O. PRICE, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

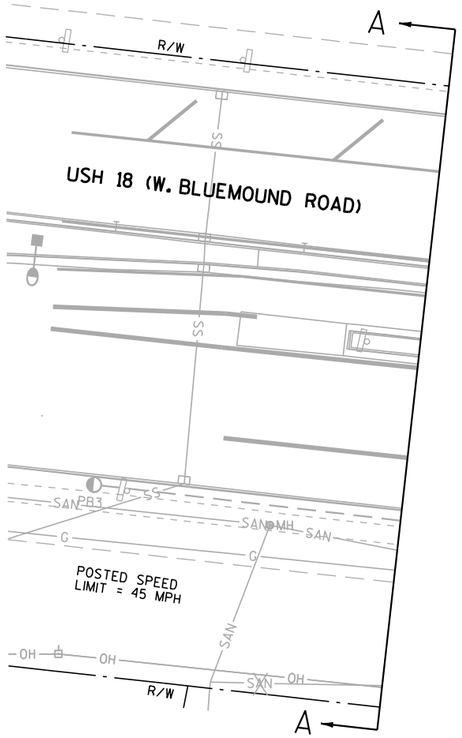
PAGE 1 OF 3

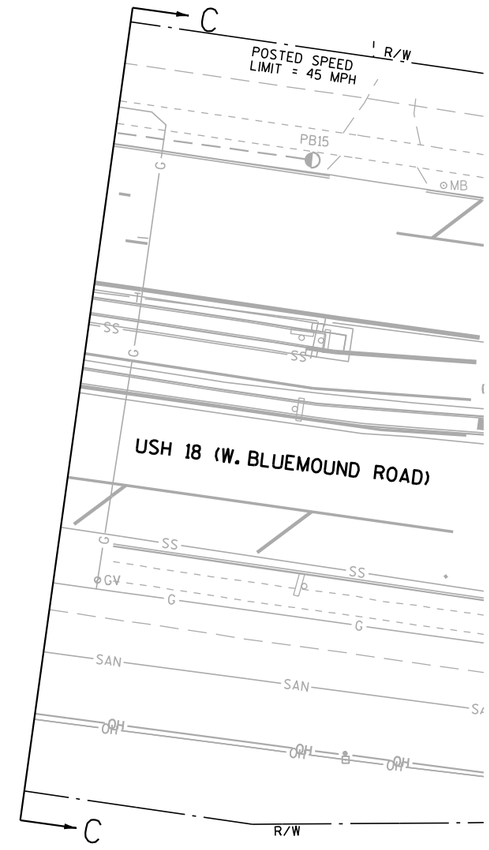
JRE 3/21/13

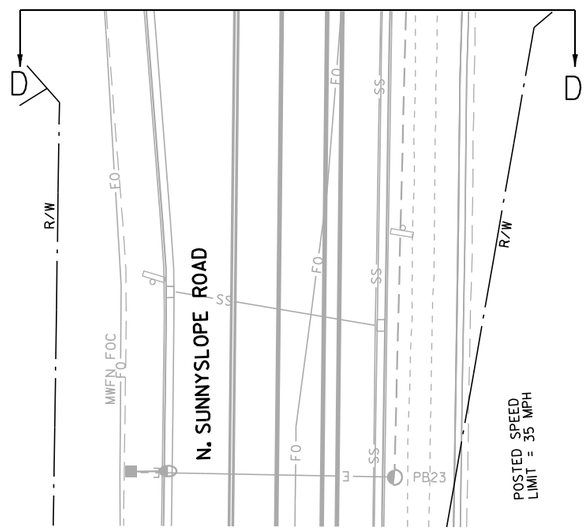
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

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TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. SUNNYSLOPE ROAD
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0335

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 3

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	4,5,34	G	- -	-	- -	-	- -	-	- -	-
Ø2	6,7,8	R	R R	G	Y R	R	R R	R	R R	R
Ø3	19,20	-	- -	-	- -	G	- -	-	- -	-
Ø4	11,12,13	R	R R	R	R R	R	R R	G	Y R	R
Ø5	9,10,33	-	- -	-	- -	-	- -	-	- -	-
Ø6	1,2,3	R	R R	R	R R	R	R R	R	R R	R
Ø7										
Ø8	16,17,18	R	R R	R	R R	R	R R	R	R R	R
OLA	4,5,34	-	Y R	FY	Y R	R	R R	R	R R	R
OLB	19,20	R	R R	R	R R	-	Y R	FY	Y R	R
OLC	9,33	R	R R	R	R R	R	R R	R	R R	R
OLD	14,15	R	R R	R	R R	R	R R	R	R R	R
Ø2P	25,26	D	D D	*	D D	D	D D	D	D D	
Ø4P	21,22,23,24	D	D D	D	D D	D	D D	*	D D	
Ø6P	31,32	D	D D	D	D D	D	D D	D	D D	
Ø8P	27,28,29,30	D	D D	D	D D	D	D D	D	D D	

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	4,5,34	-	- -	-	- -			-	- -
Ø2	6,7,8	R	R R	R	R R			R	R R
Ø3	19,20	-	- -	-	- -			-	- -
Ø4	11,12,13	R	R R	R	R R			R	R R
Ø5	9,10,33	G	- -	-	- -			-	- -
Ø6	1,2,3	R	R R	G	Y R			R	R R
Ø7									
Ø8	16,17,18	R	R R	R	R R			G	Y R
OLA	4,5,34	R	R R	R	R R			R	R R
OLB	19,20	R	R R	R	R R			R	R R
OLC	9,33	-	R R	FY	Y R			R	R R
OLD	14,15	R	R R	R	R R			FY	Y R
Ø2P	25,26	D	D D	D	D D			D	D D
Ø4P	21,22,23,24	D	D D	D	D D			D	D D
Ø6P	31,32	D	D D	*	D D			D	D D
Ø8P	27,28,29,30	D	D D	D	D D			*	D D

BARRIER

N

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
31		X			3	3					VIDEO
41		X			4	4					VIDEO
42		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
81		X			8	8					VIDEO

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

CONTROLLER LOGIC

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

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"	1	2
OL "B"	3	4
OL "C"	5	6
OL "D"		8

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,4,8
2	5 OR 6	1,3,4,8
3	8	1,2,4,5,6
4	8	1,2,3,5,6
5	1 OR 2	3,4,6,8
6	1 OR 2	3,4,5,8
7		
8	3 OR 4	1,2,5,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

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

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

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8+3, CONTROLLER SHALL RETURN TO PHASE 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. IF ANY OPPOSING THRU PHASES ARE TIMING CONCURRENTLY, THEY SHALL TERMINATE TOGETHER DUE TO PERMISSIVE LEFT TURN CONFLICT.

USH 18 (W. BLUEMOUND ROAD) &
N. SUNNYSLOPE ROAD
CITY OF BROOKFIELD/VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0335

CONTROLLER TYPE: EPAC

DATE 02/13 PAGE NO. 3 OF 3

3/21/13 JRE

3/21/13 Plot

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024419_sp_ph.dgn PLOT DATE : 20-MAR-2013 06:10 PLOT BY : mscjym PLOT NAME : 024419_sp_ph PLOT SCALE : 40:1

LEGEND

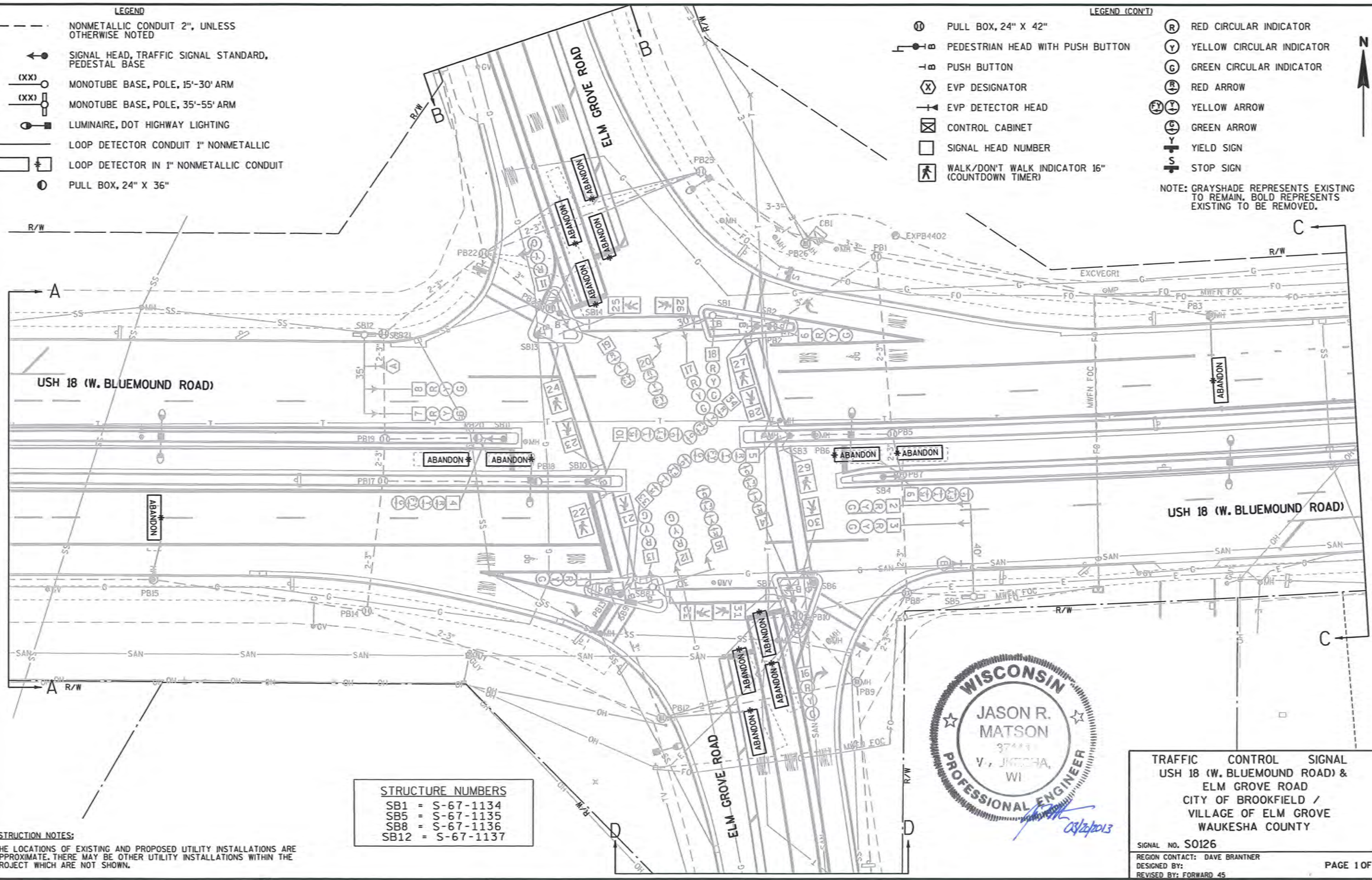
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- (XX) MONOTUBE BASE, POLE, 35'-55' ARM
- LUMINAIRE, DOT HIGHWAY LIGHTING
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"

LEGEND (CON'T)

- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW
- YIELD SIGN
- STOP SIGN

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N



STRUCTURE NUMBERS

SB1 = S-67-1134
SB5 = S-67-1135
SB8 = S-67-1136
SB12 = S-67-1137

CONSTRUCTION NOTES:

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

WISCONSIN
JASON R. MATSON
PROFESSIONAL ENGINEER
WI
08/22/2013

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) & ELM GROVE ROAD
CITY OF BROOKFIELD / VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0126

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

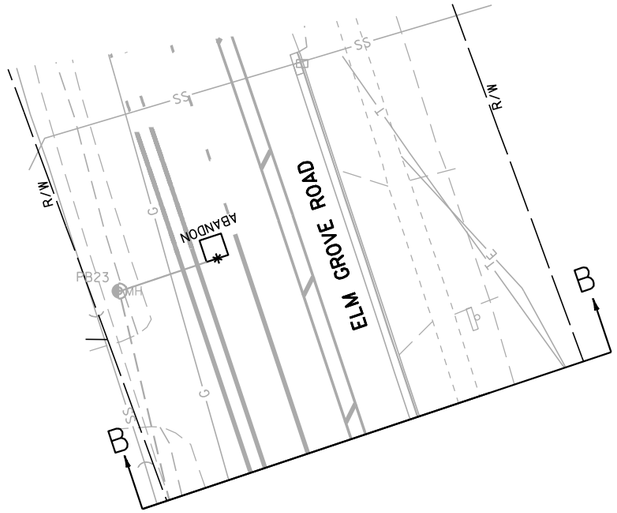
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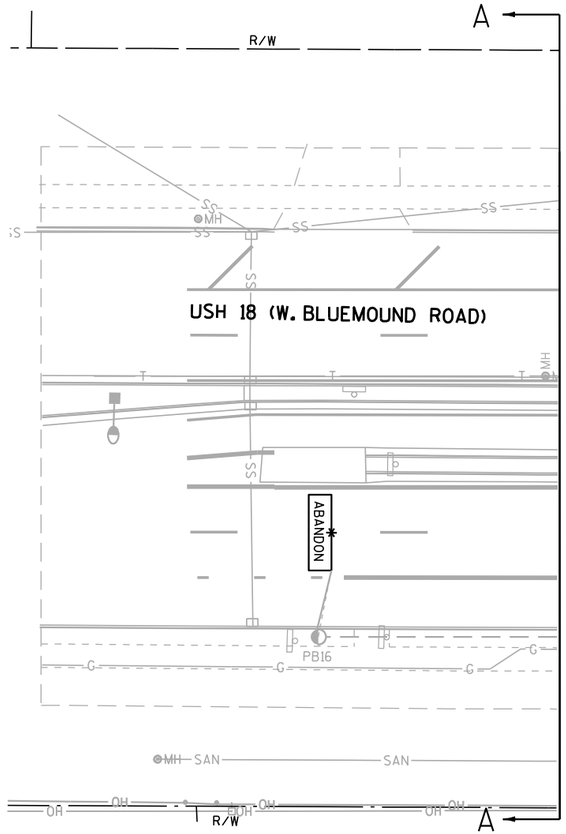
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

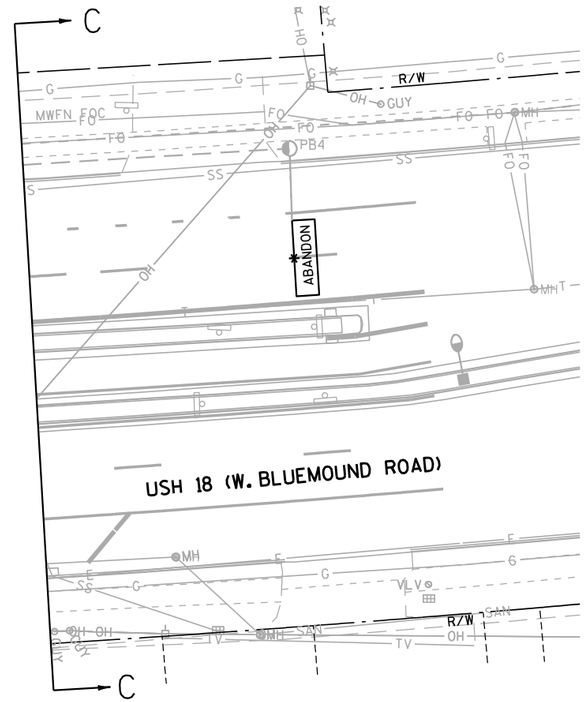
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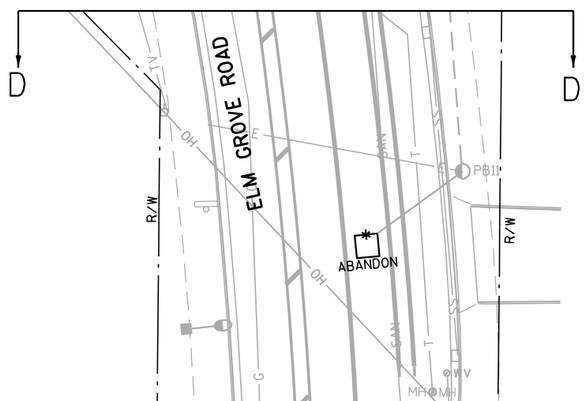
WISDOT/CADDS SHEET 42

2









TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
ELM GROVE ROAD
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0126

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

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WISDOT/CADDS SHEET 42

2

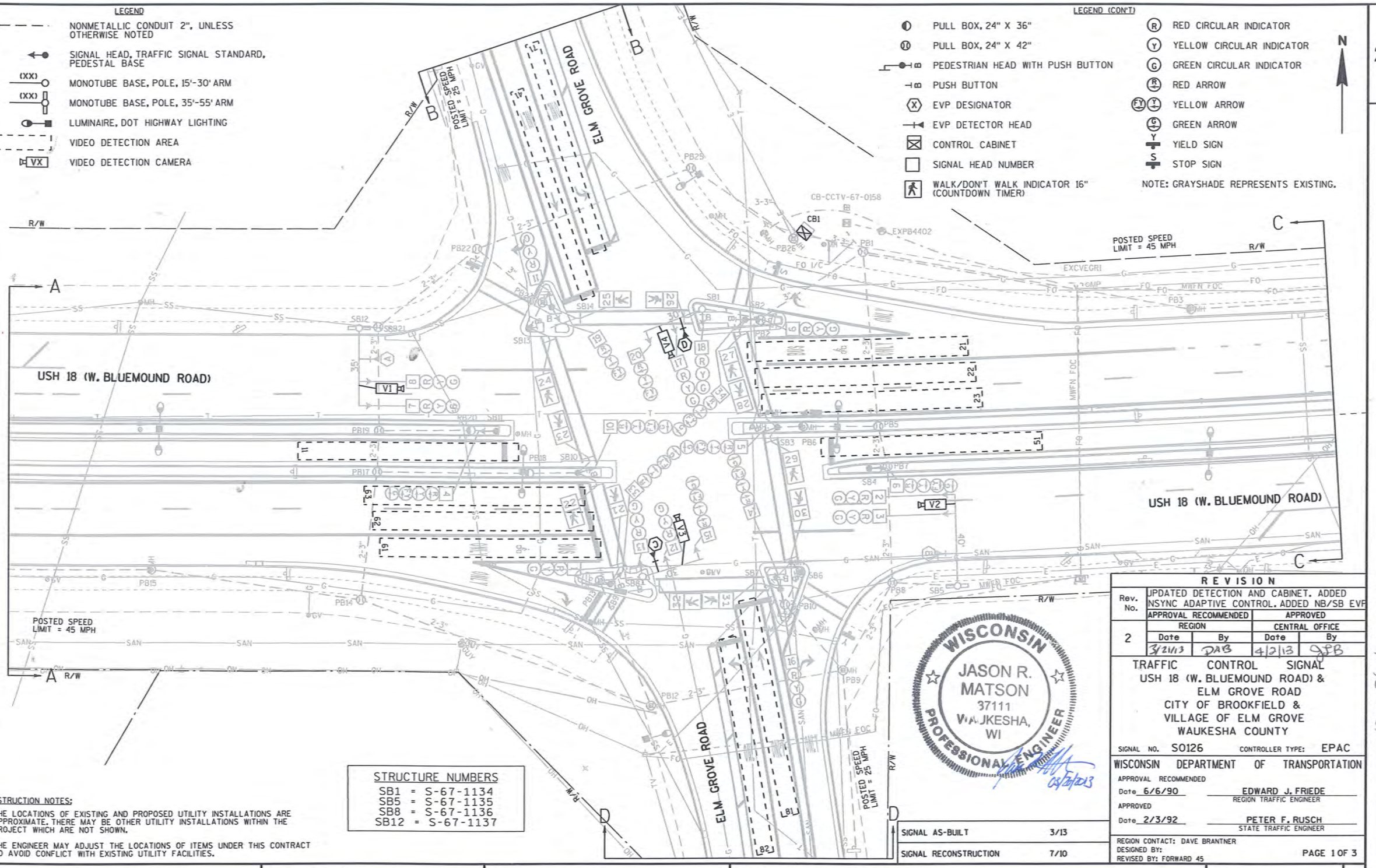
LEGEND

- 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
- LUMINAIRE, DOT HIGHWAY LIGHTING
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY Y YELLOW ARROW
- G GREEN ARROW
- Y YIELD SIGN
- S STOP SIGN

NOTE: GRAYSHADE REPRESENTS EXISTING.



REVISION

Rev. No.	UPDATED DETECTION AND CABINET. ADDED NSYNC ADAPTIVE CONTROL. ADDED NB/SB EVP			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
2	Date	By	Date	By
	3/21/13	DAB	4/2/13	JFB

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) & ELM GROVE ROAD
CITY OF BROOKFIELD & VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0126 CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 6/6/90 EDWARD J. FRIEDE, REGION TRAFFIC ENGINEER

APPROVED
Date 2/3/92 PETER F. RUSCH, STATE TRAFFIC ENGINEER

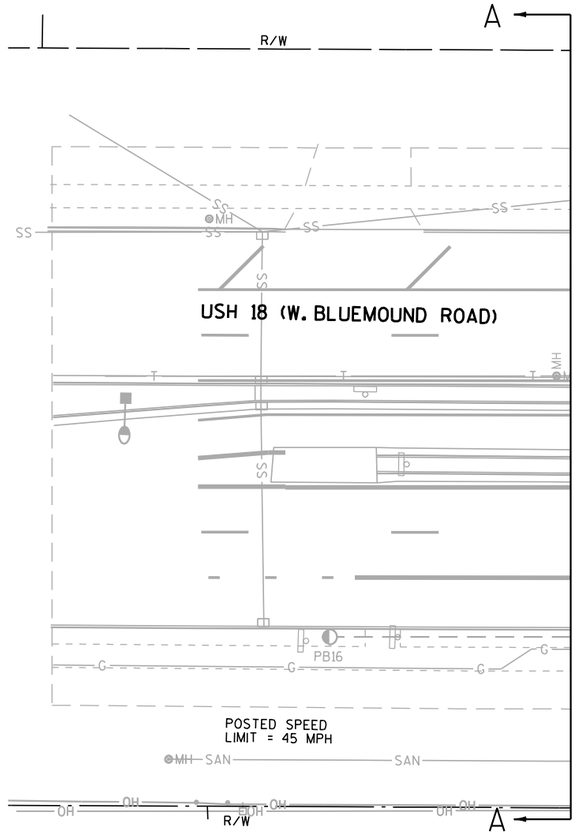
REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

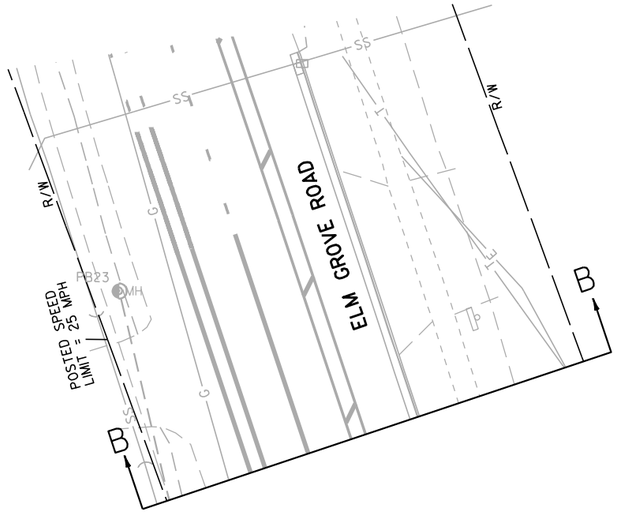
PAGE 1 OF 3

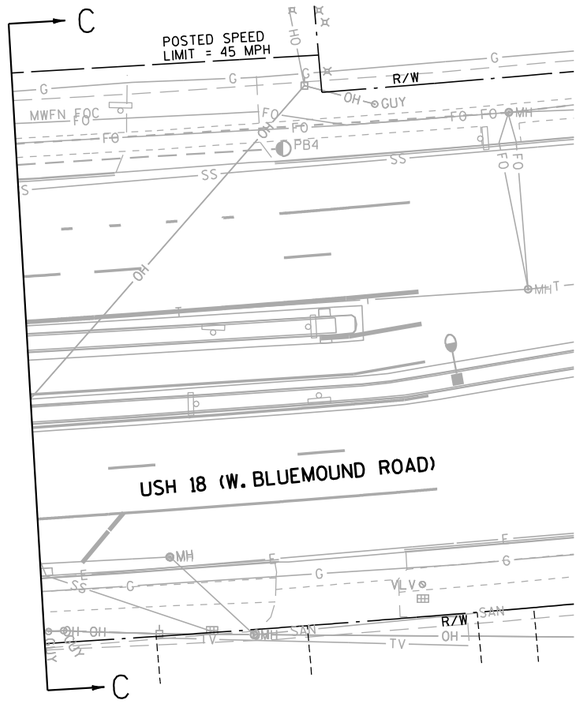
JRE 3/21/13

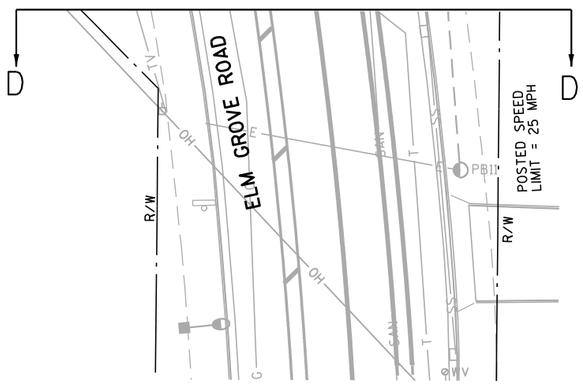
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roods\cds\024425_sp.dgn PLOT DATE : 20-MAR-2013 06:12 PLOT BY : mscjym PLOT NAME : 024425_sp PLOT SCALE : 40:1 WISDOT/CADDS SHEET 42









TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
ELM GROVE ROAD
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0126

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 3

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024426_sp.dgn PLOT DATE : 20-MAR-2013 06:13 PLOT BY : mscjym PLOT NAME : 024426_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 **	Ø1	Ø1	Ø1	Ø2 R/W	Ø2 **	Ø2	Ø2	Ø2	Ø3 R/W	Ø3 **	Ø3	Ø3	Ø3	Ø4 R/W	Ø4 **	Ø4	Ø4	Ø4	FLASH
			CLEAR TO					CLEAR TO					CLEAR TO					CLEAR TO				
Ø1	4,5,34	G ←	-	-			-	-	-								-	-	-			-
Ø2	6,7,8	R	R	R			G	Y	R								R	R	R			R
Ø3																						
Ø4	11,12,13	R	R	R			R	R	R								G	Y	R			R
Ø5	9,10,33	-	-	-			-	-	-								-	-	-			-
Ø6	1,2,3	R	R	R			R	R	R								R	R	R			R
Ø7	14,15	-	-	-			-	-	-								-	-	-			-
Ø8	16,17,18	R	R	R			R	R	R								R	R	R			R
OLA	4,5,34	-	Y →	R →			FY →	Y →	R →								R →	R →	R →			R →
OLB	19,20	R →	R →	R →			R →	R →	R →								FY →	Y →	R →			R →
OLC	9,10,33	R →	R →	R →			R →	R →	R →								R →	R →	R →			R →
OLD	14,15	R →	R →	R →			R →	R →	R →								R →	R →	R →			R →
Ø2P	25,26	D	D	D			*	D	D								D	D	D			
Ø4P	21,22,23,24	D	D	D			D	D	D								*	D	D			
Ø6P	31,32	D	D	D			D	D	D								D	D	D			
Ø8P	27,28,29,30	D	D	D			D	D	D								D	D	D			

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 **	Ø5	Ø5	Ø5	Ø6 R/W	Ø6 **	Ø6	Ø6	Ø6	Ø7 R/W	Ø7 **	Ø7	Ø7	Ø7	Ø8 R/W	Ø8 **	Ø8	Ø8	Ø8
			CLEAR TO					CLEAR TO					CLEAR TO					CLEAR TO			
Ø1	4,5,34	-	-	-			-	-	-			-	-	-			-	-	-		
Ø2	6,7,8	R	R	R			R	R	R			R	R	R			R	R	R		
Ø3																					
Ø4	11,12,13	R	R	R			R	R	R			R	R	R			R	R	R		
Ø5	9,10,33	G ←	-	-			-	-	-			-	-	-			-	-	-		
Ø6	1,2,3	R	R	R			G	Y	R			R	R	R			R	R	R		
Ø7	14,15	-	-	-			-	-	-			G ←	-	-			-	-	-		
Ø8	16,17,18	R	R	R			R	R	R			R	R	R			G	Y	R		
OLA	4,5,34	R →	R →	R →			R →	R →	R →			R →	R →	R →			R →	R →	R →		
OLB	19,20	R →	R →	R →			R →	R →	R →			R →	R →	R →			R →	R →	R →		
OLC	9,10,33	-	Y →	R →			FY →	Y →	R →			R →	R →	R →			R →	R →	R →		
OLD	14,15	R →	R →	R →			R →	R →	R →			-	Y →	R →			FY →	Y →	R →		
Ø2P	25,26	D	D	D			D	D	D			D	D	D			D	D	D		
Ø4P	21,22,23,24	D	D	D			D	D	D			D	D	D			D	D	D		
Ø6P	31,32	D	D	D			*	D	D			D	D	D			D	D	D		
Ø8P	27,28,29,30	D	D	D			D	D	D			D	D	D			*	D	D		

BARRIER

N

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
71		X			7	7					VIDEO
81		X			8	8					VIDEO
82		X			8	8					VIDEO

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

CONTROLLER LOGIC

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

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"	1	2
OL "B"		4
OL "C"	5	6
OL "D"	7	8

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,4,7,8
2	5 OR 6	1,4,7,8
3		
4	7 OR 8	1,2,5,6
5	1 OR 2	4,6,7,8
6	1 OR 2	4,5,7,8
7	4	1,2,5,6,8
8	4	1,2,5,6,7

EMERGENCY VEHICLE PREEMPTION SEQUENCE

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

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

AFTER PREEMPTION SEQUENCE 4+7 OR 8 AND 4, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)
3. IF ANY OPPOSING THRU PHASES ARE TIMING CONCURRENTLY, THEY SHALL TERMINATE TOGETHER DUE TO PERMISSIVE LEFT TURN CONFLICT.

USH 18 (W. BLUEMOUND ROAD) &
ELM GROVE ROAD
CITY OF BROOKFIELD / VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0126

CONTROLLER TYPE: EPAC

DATE 02/13 PAGE NO. 3 OF 3

3/21/13 JET

3/21/13 Docs

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET	E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, DOT HIGHWAY LIGHTING
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- VIDEO DETECTION AREA
- VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- RED CIRCULAR INDICATOR
- YELLOW CIRCULAR INDICATOR
- GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW
- GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING. TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

AUTUMN GROVE SHOPPING CENTER

TCF BANK

USH 18 (W. BLUEMOUND ROAD)

USH 18 (W. BLUEMOUND ROAD)

UNDERWOOD CROSSING PARKWAY

CONSTRUCTION NOTES:

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

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
03/20/2013

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
UNDERWOOD CROSSING PARKWAY
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S1352

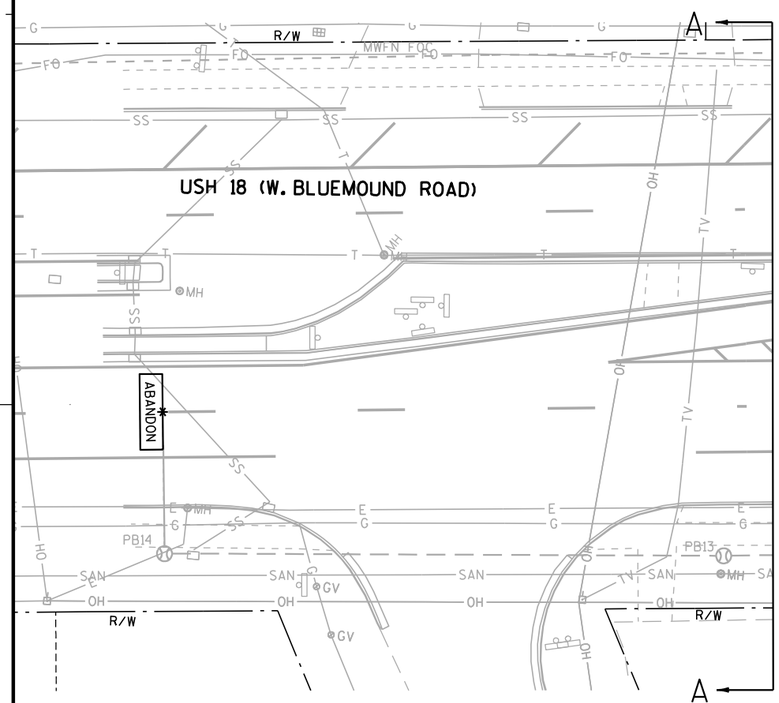
REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

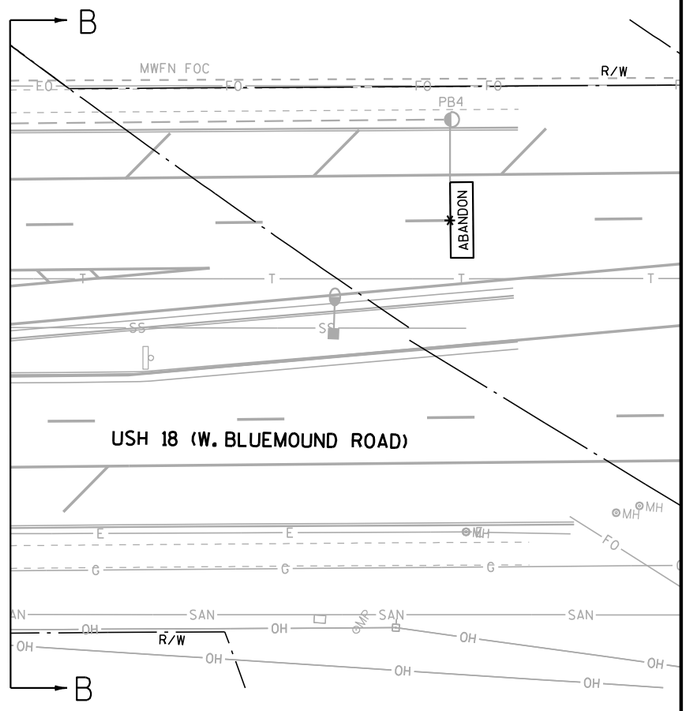
PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024431_sp.dgn PLOT DATE : 20-MAR-2013 13:44 PLOT BY : mscjym PLOT NAME : 024431_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42





TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
UNDERWOOD CROSSING PARKWAY
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S1352

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024432_sp.dgn PLOT DATE : 20-MAR-2013 13:44 PLOT BY : mscjym PLOT NAME : 024432_sp PLOT SCALE : 40:1

LEGEND

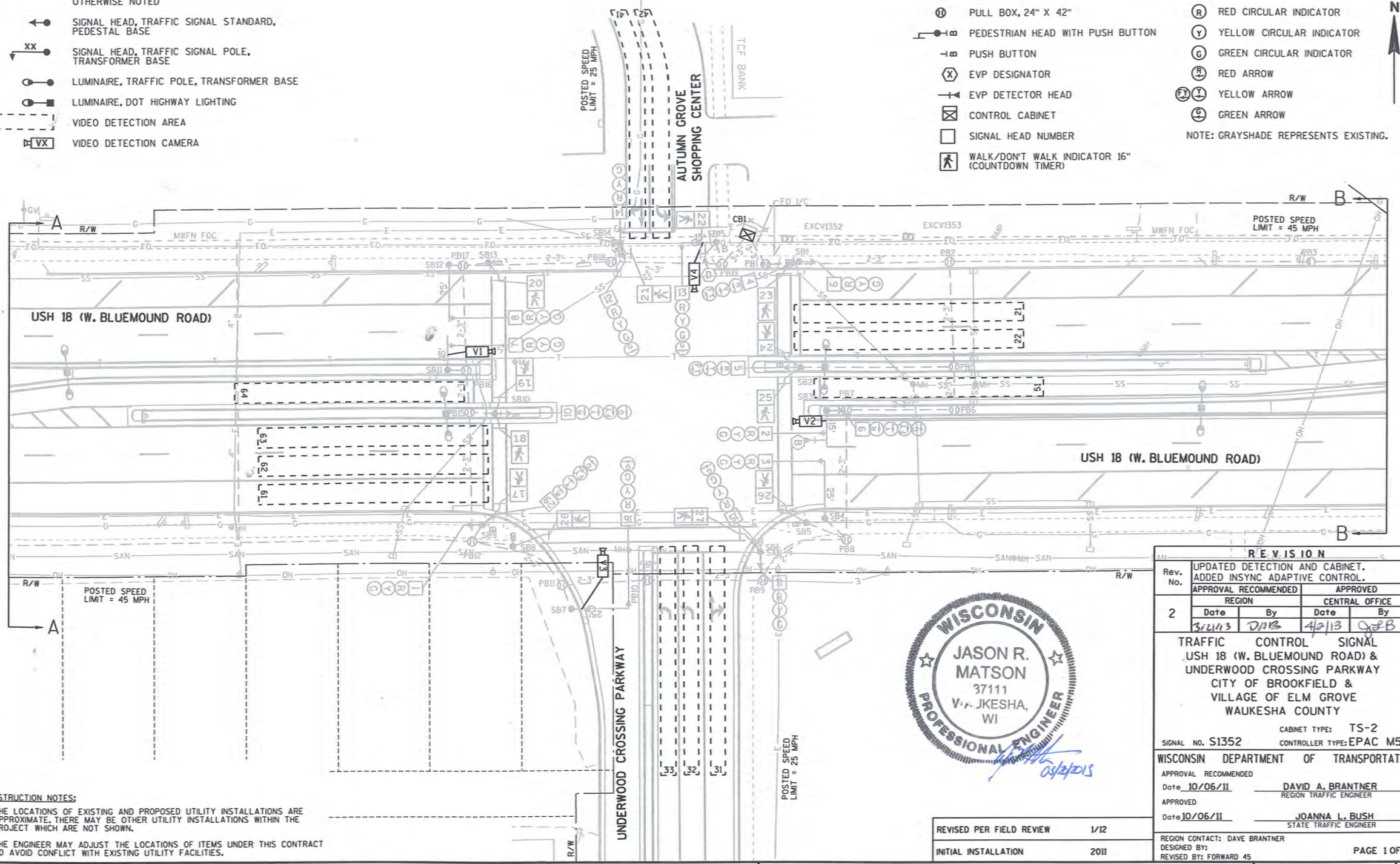
- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE, DOT HIGHWAY LIGHTING
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY Y YELLOW ARROW
- G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N



CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

REVISED PER FIELD REVIEW	1/12
INITIAL INSTALLATION	2011

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
03/21/2013

REVISION

Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
2	REGION		CENTRAL OFFICE	
	Date	By	Date	By
	3/21/13	DAB	4/2/13	JRB

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
UNDERWOOD CROSSING PARKWAY
CITY OF BROOKFIELD &
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S1352 CABINET TYPE: TS-2 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 10/06/11 DAVID A. BRANTNER, REGION TRAFFIC ENGINEER

APPROVED
Date 10/06/11 JOANNA L. BUSH, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 3

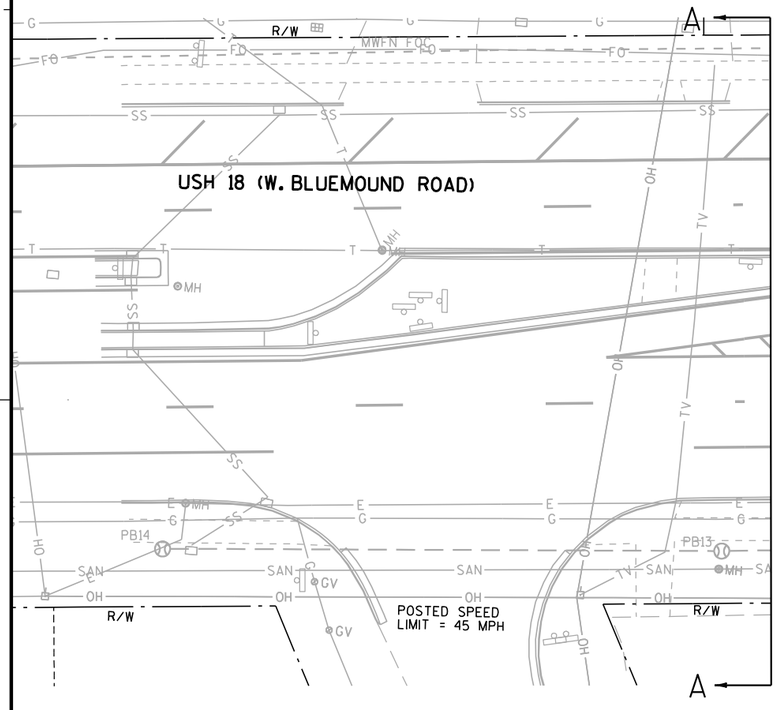
JRE 3/21/13

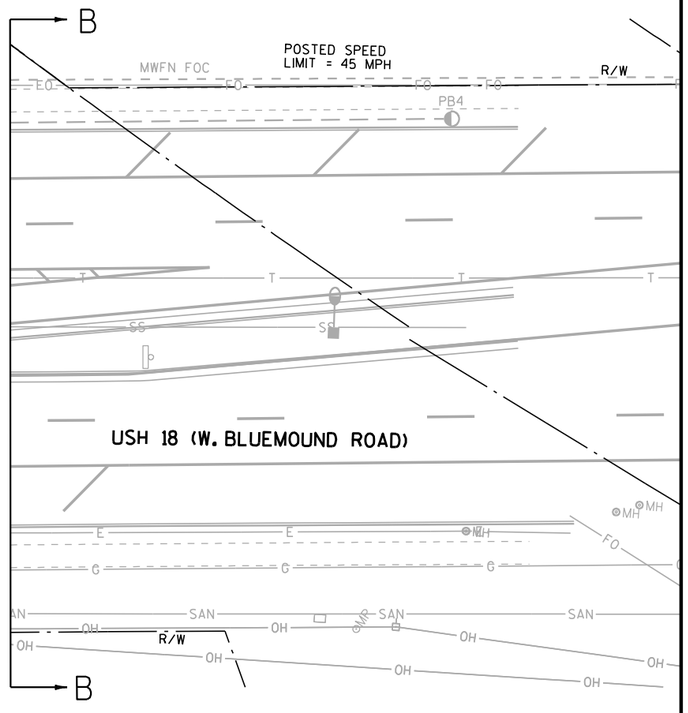
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024435_sp.dgn PLOT DATE : 20-MAR-2013 06:15 PLOT BY : mscjym PLOT NAME : 024435_sp PLOT SCALE : 40:1 WISDOT/CADDET 42

2

N





TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
UNDERWOOD CROSSING PARKWAY
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S1352

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 3

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024436_sp.dgn PLOT DATE : 20-MAR-2013 06:17 PLOT BY : mscjym PLOT NAME : 024436_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

		HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
	Ø1										
	Ø2	6,7,8			G	Y R	R	R R	R	R R	R
	Ø3	11,12,13			R	R R	G,G	Y R	R	R R	R
	Ø4	14,15,16			R	R R	R	R R	G,G	Y R	R
	Ø5	9,10,29			-	- -	-	- -	-	- -	-
	Ø6	1,2,3			R	R R	R	R R	R	R R	R
	Ø7										
	Ø8										
	Ø2P	21,22			*	D D	D	D D	D	D D	
	Ø3P	23,24,25,26			D	D D	*	D D	D	D D	
	Ø4P	17,18,19,20			D	D D	D	D D	*	D D	
	Ø6P	27,28			D	D D	D	D D	D	D D	
	OLA	4,5			FY	Y R	R	R R	R	R R	R
	OLB										
	OLC	9,10,29			R	R R	R	R R	R	R R	R
	OLD										

RING 2

		HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
	Ø1									
	Ø2	6,7,8	R	R R	R	R R				
	Ø3	11,12,13	R	R R	R	R R				
	Ø4	14,15,16	R	R R	R	R R				
	Ø5	9,10,29	G	- -	-	- -				
	Ø6	1,2,3	R	R R	G	Y R				
	Ø7									
	Ø8									
	Ø2P	21,22	D	D D	D	D D				
	Ø3P	23,24,25,26	D	D D	D	D D				
	Ø4P	17,18,19,20	D	D D	D	D D				
	Ø6P	27,28	D	D D	*	D D				
	OLA	4,5	R	R R	R	R R				
	OLB									
	OLC	9,10,29	-	Y R	FY	Y R				
	OLD									

BARRIER

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

N

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2					VIDEO
22		X			2	2					VIDEO
31		X			3	3		X			VIDEO
32		X			3	3					VIDEO
33		X			3	3					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO

CONTROLLER LOGIC

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

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"		2
OL "B"		
OL "C"	5	6
OL "D"		

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	5 OR 6	3,4
3	NONE	2,4,5,6
4	NONE	2,3,5,6
5	2	3,4,6
6	2	3,4,5
7		
8		

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL B	CHANNEL D
MOVEMENT	FY, FY	
PHASE	2 AND 6	3

AFTER PREEMPTION SEQUENCE 2 AND 6, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 3, CONTROLLER SHALL RETURN TO PHASE 3.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1)
3. IF ANY OPPOSING THRU PHASES ARE TIMING CONCURRENTLY, THEY SHALL TERMINATE TOGETHER DUE TO PERMISSIVE LEFT TURN CONFLICT.

USH 18 (W. BLUEMOUND ROAD) & UNDERWOOD CROSSING PARKWAY
CITY OF BROOKFIELD/
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S1352

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 3 OF 3

3/21/13 JRE
3/21/13 PAM

PROJECT NO: 1060-33-99 | HWY: USH 18 | COUNTY: WAUKESHA | SEQUENCE OF OPERATIONS | SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024439_sp_ph.dgn PLOT DATE : 20-MAR-2013 06:18 PLOT BY : mscjym PLOT NAME : 024439_sp_ph PLOT SCALE : 40:1 WISDOT/CADDET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- (XX) MONOTUBE BASE, POLE, 35'-55' ARM
- LUMINAIRE, DOT HIGHWAY LIGHTING OR MUNICIPAL LIGHTING
- LOOP DETECTOR CONDUIT 1" NONMETALLIC
- LOOP DETECTOR IN 1" NONMETALLIC CONDUIT
- PULL BOX, 24" X 36"

WISCONSIN
JASON R. MATSON
37111
V., JKESHA, WI
PROFESSIONAL ENGINEER
8/5/2013

LEGEND (CON'T)

- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- SIGNAL HEAD NUMBER
- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (FY) (Y) (Y) YELLOW ARROW
- (G) (G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

UPS DRIVEWAY

USH 18 (W. BLUEMOUND ROAD)

USH 18 (W. BLUEMOUND ROAD)

STRUCTURE NUMBERS
SB10 = S-67-1138

CONSTRUCTION NOTES:

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

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) & UPS DRIVEWAY
CITY OF BROOKFIELD / VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0263

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

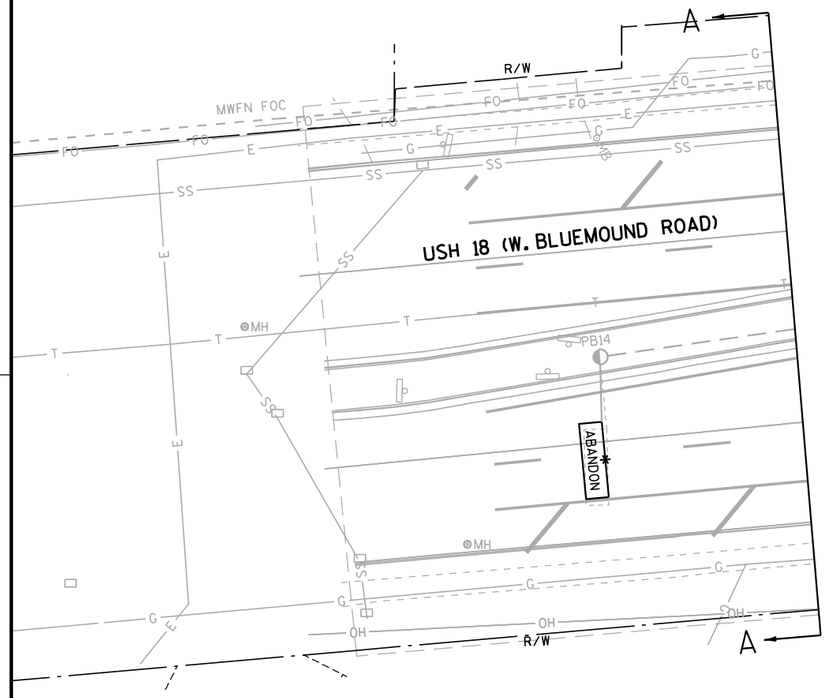
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024441_sp.dgn PLOT DATE : 21-MAR-2013 14:09 PLOT BY : mscjym PLOT NAME : 024441_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

N



TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
UPS DRIVEWAY
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0263

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024442_sp.dgn PLOT DATE : 20-MAR-2013 13:45 PLOT BY : mscjym PLOT NAME : 024442_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

XX SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE

(XX) MONOTUBE BASE, POLE, 35'-55' ARM

LUMINAIRE, DOT HIGHWAY LIGHTING

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
3/20/13

LEGEND (CON'T)

PULL BOX, 24" X 36"

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

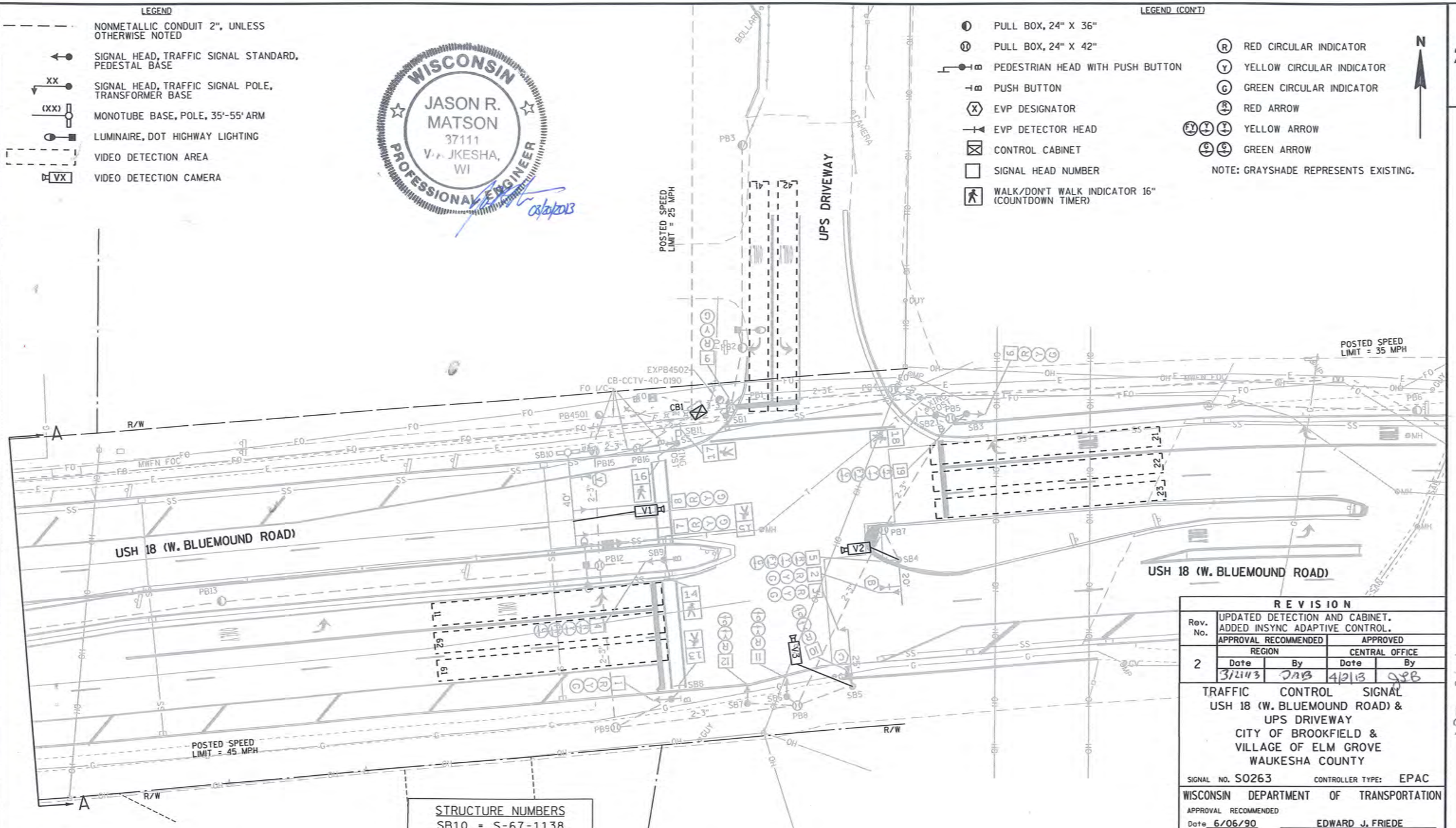
R RED ARROW

Y YELLOW ARROW

G GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N



STRUCTURE NUMBERS
SB10 = S-67-1138

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

REVISION				
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
2	Date	By	Date	By
	3/21/13	DAB	4/2/13	DSB

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
UPS DRIVEWAY
CITY OF BROOKFIELD &
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0263 CONTROLLER TYPE: EPAC

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 6/06/90 EDWARD J. FRIEDE, REGION TRAFFIC ENGINEER

APPROVED
Date 11/25/96 WILLIAM C. GILDING, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 3

SIGNAL AS-BUILT	3/13
SIGNAL RECONSTRUCTION	7/10

JRE 3/21/13

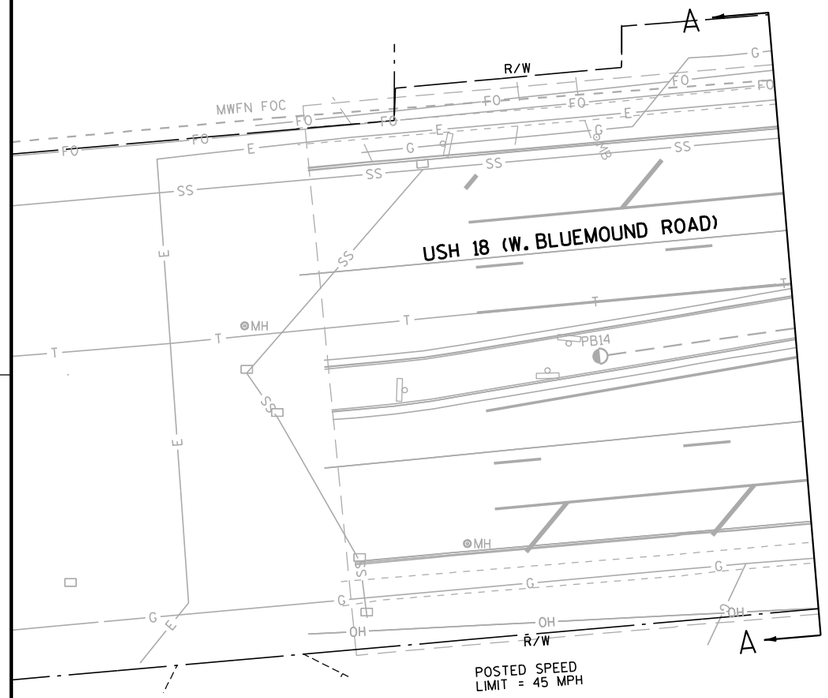
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024445_sp.dgn PLOT DATE : 20-MAR-2013 06:35 PLOT BY : mscjym PLOT NAME : 024445_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

N



TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
UPS DRIVEWAY
CITY OF BROOKFIELD /
VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0263

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL PLAN	SHEET	E

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1	4,5,19	G	- -	-	- -			-	- -	-
Ø2	6,7,8	R	R R	G	Y R			R	R R	R
Ø3										
Ø4	9,10,11,12	R	R R	R	R R			G	Y R	R
Ø5										
Ø6	1,2,3	R	R R	R	R R			R	R R	R
Ø7										
Ø8										
OLA	4,5,19	-	Y R	FY	Y R			R	R R	R
OLB										
OLC										
OLD										
Ø2P	17,18	D	D D	*	D D			D	D D	
Ø4P	13,14,15,16	D	D D	D	D D			*	D D	
Ø6P										
Ø8P										

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1	4,5			-	- -				
Ø2	6,7,8			G	Y R				
Ø3									
Ø4	9,10,11,12			R	R R				
Ø5									
Ø6	1,2,3			R	R R				
Ø7									
Ø8									
OLA	4,5			R	R R				
OLB									
OLC									
OLD									
Ø2P	14,15			D	D D				
Ø4P	16,17,18,19			D	D D				
Ø6P									
Ø8P									

BARRIER

N

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	CALLS ONLY	EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
61		X			4	4					VIDEO
62		X			4	4					VIDEO

CONTROLLER LOGIC

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

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"	1	2
OL "B"		
OL "C"		
OL "D"		

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

TYPE OF PRE-EMPT	
NONE	
RAILROAD	
EMERGENCY VEHICLE	x
3M	
TOMAR	
HARDWIRE	
GTT	x
LIFT BRIDGE	
QUEUE DETECTOR	

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	6	2,4
2	6	1,4
3		
4	NONE	1,2,6
5		
6	1 OR 2	4
7		
8		

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE DETECTOR	A	B	C
MOVEMENT	⇄	⇉	⅄
PHASE	2 AND 6	1+6	4

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 1+6, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4, CONTROLLER SHALL RETURN TO PHASE 4.

USH 18 (W. BLUEMOUND ROAD)
AND UPS DRIVEWAY
CITY OF BROOKFIELD/VILLAGE OF ELM GROVE
WAUKESHA COUNTY

SIGNAL NO. S0263

CONTROLLER TYPE: EPAC

DATE 02/13 PAGE NO. 3 OF 3

3/21/13 JRE

3/21/13 DAH

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	SEQUENCE OF OPERATIONS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024449_sp_ph.dgn PLOT DATE : 20-MAR-2013 06:22 PLOT BY : mscjym PLOT NAME : 024449_sp_ph PLOT SCALE : 40:1 WISDOT/CADDET 42

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

(XX) MONOTUBE BASE, POLE, 15'-30' ARM

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 12" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

YELLOW ARROW

GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

N. 121ST STREET

USH 18 (W. BLUEMOUND ROAD)

USH 18 (W. BLUEMOUND ROAD)

N. 121ST STREET

CONSTRUCTION NOTES:

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

2. CONCRETE BASE FOR CB1 TO REMAIN.

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 121ST STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: BILL WEHRLEY
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024451_sp.dgn PLOT DATE : 14-MAR-2013 15:29 PLOT BY : mscjym PLOT NAME : 024451_sp PLOT SCALE : 40.000023:1

WISDOT/CADDS SHEET 42

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

(XX) MONOTUBE BASE, POLE, 15'-30' ARM

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 12" (COUNTDOWN TIMER)

(R) RED CIRCULAR INDICATOR

(Y) YELLOW CIRCULAR INDICATOR

(G) GREEN CIRCULAR INDICATOR

(R) RED ARROW

(Y) YELLOW ARROW

(G) GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

N. 121ST STREET

POSTED SPEED LIMIT = 25 MPH

POSTED SPEED LIMIT = 35 MPH

USH 18 (W. BLUEMOUND ROAD)

STRUCTURE NUMBERS
SB4 = S-40-1358
SB10= S-40-1359

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING SIGNAL CABLE INTO SYSTEM. CONTACT THE REGIONAL ELECTRICAL FIELD UNIT AT (414) 266-1170.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
4. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
5. CB1 TO BE PLACED ON EXISTING CONCRETE BASE.
6. HEAD 24 AND THE PUSH BUTTON ON SB2 SHALL BE SALVAGED AND REUSED FROM THE EXISTING SIGNAL STANDARD. WORK TO BE PAID FOR UNDER ITEM SPV.0060.3002.

WISCONSIN JASON R. MATSON 37[illegible] V, JKE[illegible], WI PROFESSIONAL ENGINEER 03/13/2013

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) & N. 121ST STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1392 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED Date 3/15/13 David A. Brantner, P.E. REGION TRAFFIC ENGINEER

APPROVED Date 3/15/13 Joanna L. Bush STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

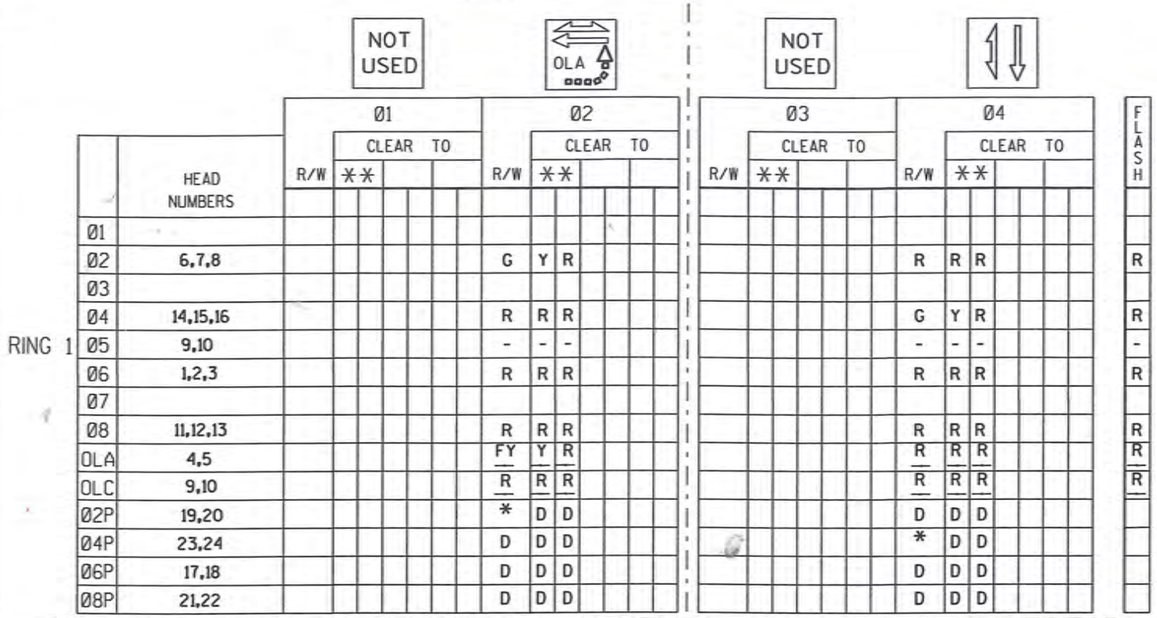
PAGE 1 OF 2

JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024455_sp.dgn PLOT DATE : 01-MAR-2013 01:09 PLOT BY : MSCD1S PLOT NAME : 024455_sp PLOT SCALE : 40.000023:1 WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION



** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS OR VIDEO DETECTION
21		X			2	2					VIDEO
22		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO
81		X			8	8		X			VIDEO
82		X			8	8					VIDEO

CONTROLLER LOGIC

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"		2
OL "B"		
OL "C"	5	6
OL "D"		

N

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	5 OR 6	4,8
3		
4	8	2,5,6
5	2	4,6,8
6	2	4,5,8
7		
8	4	2,5,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	FY	FY / FY		
PHASE	2+5	6 AND 2	4 AND 8	8 AND 4

AFTER PREEMPTION SEQUENCE 2+5 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8 AND 4, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)
3. IF ANY OPPOSING THROUGH PHASES ARE TIMING CONCURRENTLY, THEY SHALL TERMINATE TOGETHER DUE TO PERMISSIVE LEFT-TURN CONFLICT.

USH 18 (W. BLUEMOUND ROAD) &
N. 121ST STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1392

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE
3/15/13 DAB

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024459_sp_ph.dgn PLOT DATE : 01-MAR-2013 01:10 PLOT BY : MSCD1S PLOT NAME : 024459_sp_ph PLOT SCALE : 40:1

WISDOT/CADD SHEET 42

PROJECT ID:	1060-33-99
INTERSECTION:	USH 18 (W. BLUEMOUND ROAD) & N. 121ST STREET

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

CB1 TO	NO. OF CONDUCTORS	HEAD NO.	RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	<FLASHING> <YELLOW>	D/WALK	WALK	PED BUTTON
SB2	15	1	RED	ORG	GRN							
		9				BLK	BLU	GRN/BLK	ORG/BLK			
		23								WHT/BLK	BLU/BLK	
		B										BLK/WHT
SB4	12*	7	RED	ORG	GRN							
		8	RED	ORG	GRN							
		10				BLK	BLU	GRN/BLK	ORG/BLK			
SB8	15	4				BLK	BLU		ORG/BLK			
		6	RED	ORG	GRN							
		21								WHT/BLK	BLU/BLK	
		B										BLK/WHT
SB10	12*	2	RED	ORG	GRN							
		3	RED	ORG	GRN							
		5				BLK	BLU		ORG/BLK			

*EXISTING

NOTES: USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
AT THE SIGNAL BASES, CONNECT ON TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART. CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.



LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

(XX) MONOTUBE BASE, POLE, 15'-30' ARM

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 12" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

N. 112TH STREET

USH 18 (W. BLUEMOUND ROAD)

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. CONCRETE BASE FOR CB1 TO REMAIN.

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 112TH STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: BILL WEHRLEY
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024461_sp.dgn PLOT DATE : 14-MAR-2013 15:30 PLOT BY : mscjym PLOT NAME : 024461_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE

(XX) MONOTUBE BASE, POLE, 15'-30' ARM

LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE

LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY

VIDEO DETECTION AREA

VX VIDEO DETECTION CAMERA

LEGEND (CON'T)

PULL BOX, 24" X 42"

PEDESTRIAN HEAD WITH PUSH BUTTON

PUSH BUTTON

EVP DESIGNATOR

EVP DETECTOR HEAD

CONTROL CABINET

SIGNAL HEAD NUMBER

WALK/DON'T WALK INDICATOR 12" (COUNTDOWN TIMER)

R RED CIRCULAR INDICATOR

Y YELLOW CIRCULAR INDICATOR

G GREEN CIRCULAR INDICATOR

R RED ARROW

Y YELLOW ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING.

N

WISCONSIN
JASON R. MATSON
PROFESSIONAL ENGINEER
3/15/13

N. 112TH STREET

POSTED SPEED LIMIT = 25 MPH

R/W

USH 18 (W. BLUEMOUND ROAD)

POSTED SPEED LIMIT = 35 MPH

STRUCTURE NUMBERS
SB5 = S-40-1360
SB11= S-40-1361

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. CB1 TO BE PLACED ON EXISTING CONCRETE BASE.

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 112TH STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1391 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 3/15/13 David A. Brantner P.E.
REGION TRAFFIC ENGINEER

APPROVED
Date 3/15/13 Joanna L. Bush
STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

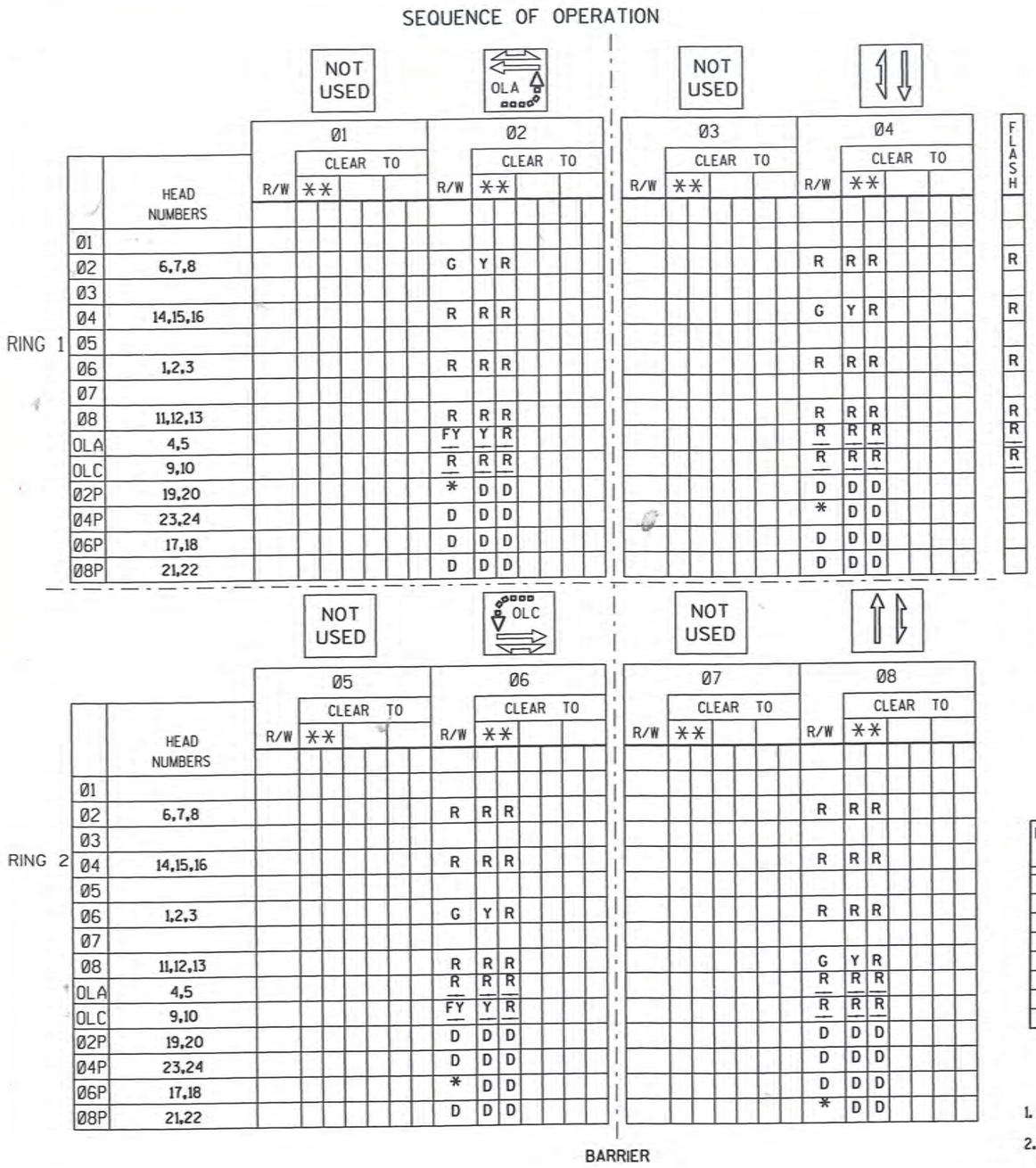
JRE 3/15/13

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024465_sp.dgn PLOT DATE : 01-MAR-2013 01:11 PLOT BY : MSCD1S PLOT NAME : 024465_sp PLOT SCALE : 40:1

WISDOT/CADL... SHEET 42

SEQUENCE OF OPERATION



** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

N

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS OR VIDEO DETECTION
21		X			2	2					VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
81		X			8	8		X			VIDEO

CONTROLLER LOGIC

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

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

OVERLAPS

O.L. "A" =
O.L. "B" =
O.L. "C" =
O.L. "D" =

OVERLAP SPECIAL

OVERLAP	PROTECTED	PERMISSIVE
OL "A"		2
OL "B"		
OL "C"		6
OL "D"		

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	6	4, 8
3		
4	8	2, 6
5		
6	2	4, 8
7		
8	4	2, 6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	FY FY	FY FY		
PHASE	2 AND 6	6 AND 2	4 AND 8	8 AND 4

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8 AND 4, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1 AT LEFT.)
3. IF ANY OPPOSING THROUGH PHASES ARE TIMING CONCURRENTLY, THEY SHALL TERMINATE TOGETHER DUE TO PERMISSIVE LEFT-TURN CONFLICT.

USH 18 (W. BLUEMOUND ROAD) &
N. 112TH STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1391
CONTROLLER TYPE: EPAC M51
DATE 02/13 PAGE NO. 2 OF 2

3/15/13 JRE
3/15/13 PMS

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET E

PROJECT ID:	1060-33-99
INTERSECTION:	USH 18 (W.BLUEMOUND ROAD) & N. 112TH STREET

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

CB1 TO	NO. OF CONDUCTORS	HEAD NO.	RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	<FLASHING> <YELLOW>	D/WALK	WALK	PED BUTTON
SB3	15	1	RED	ORG	GRN							
		9				BLK	BLU		ORG/BLK			
		15								WHT/BLK	BLU/BLK	
		22								RED/BLK	GRN/BLK	
		B										BLK/WHT
SB5	12*	7	RED	ORG	GRN							
		8	RED	ORG	GRN							
		10				BLK	BLU		ORG/BLK			
SB9	15	4				BLK	BLU		ORG/BLK			
		6	RED	ORG	GRN							
		17								WHT/BLK	BLU/BLK	
		20								RED/BLK	GRN/BLK	
		B										BLK/WHT
SB11	12*	2	RED	ORG	GRN							
		3	RED	ORG	GRN							
		5				BLK	BLU		ORG/BLK			

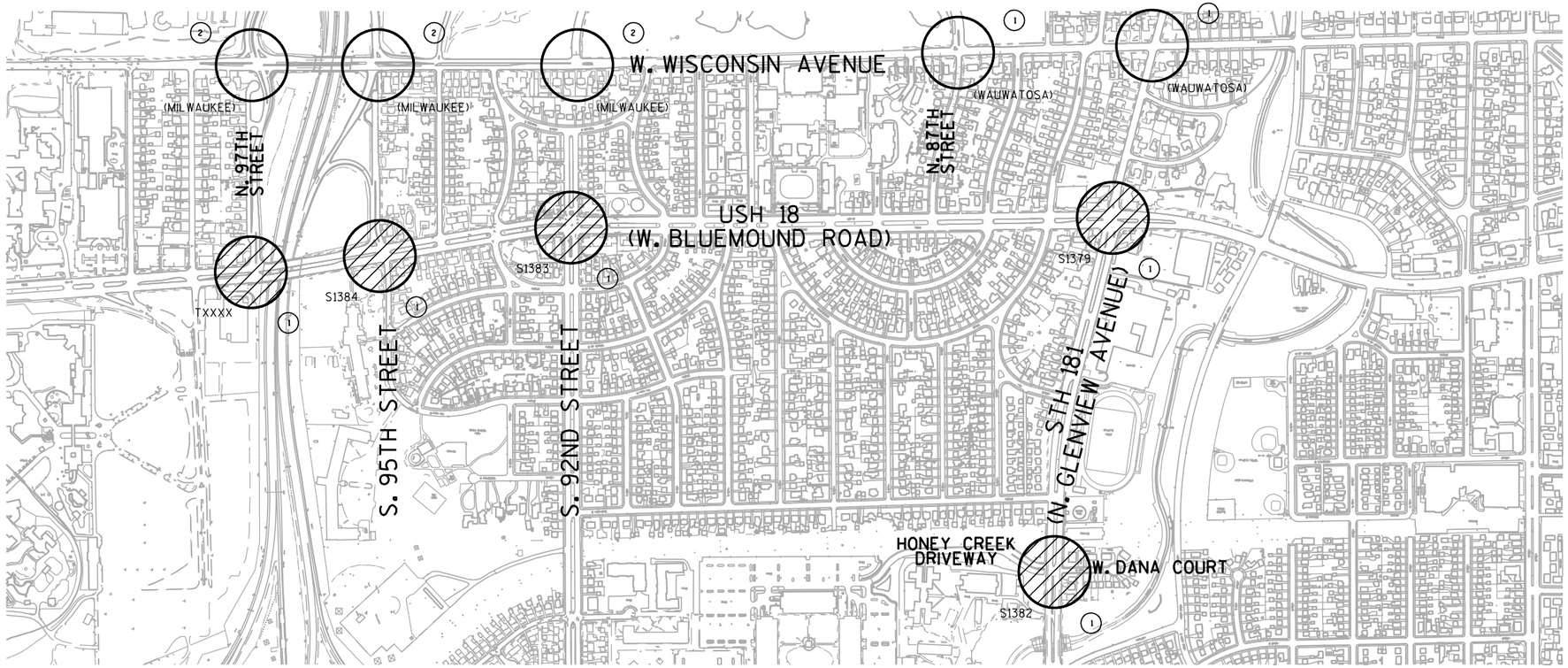
*EXISTING

NOTES: USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
AT THE SIGNAL BASES, CONNECT ON TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART. CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.



2

N



LEGEND

SXXXX — WISDOT OWNED TRAFFIC SIGNAL

(MUNICIPALITY) — MUNICIPAL OWNED TRAFFIC SIGNAL

(1) INSTALL ADAPTABLE TRAFFIC SIGNAL EQUIPMENT

(2) FUTURE INSTALLATION BY CITY OF MILWAUKEE BY LOCAL FORCE ACCOUNT (LFA)

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PROJECT OVERVIEW - USH 18-2	SHEET	E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (FY)(Y) YELLOW ARROW
- (G) GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

N. 97TH STREET

USH 18 (W. BLUEMOUND ROAD)

POSTED SPEED LIMIT=25 MPH

POSTED SPEED LIMIT=35 MPH

R/W IS OFF THE PAGE

193BL 194BL 195BL 196BL 197BL 198BL

250' TO STOP BAR

FO I/C IN SIGNAL CONDUIT

EXCV194BL

FINS FOC

V1 V2 V3

FOR BIDDING PURPOSES ONLY. FINAL PLANS AVAILABLE AT PRE-CONSTRUCTION MEETING.

CONSTRUCTION NOTES:

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

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 97TH STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. T1364

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024511_sp.dgn PLOT DATE : 01-MAR-2013 10:13 PLOT BY : mscjym PLOT NAME : 024511_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 36"
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (FY)(Y) YELLOW ARROW
- (G) GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

N. 97TH STREET

POSTED SPEED LIMIT=25 MPH

R/W IS OFF THE PAGE

POSTED SPEED LIMIT=35 MPH

USH 18 (W. BLUEMOUND ROAD)

193BL 194BL 195BL 196BL 197BL 198BL

EXCV194BL

FO I/C IN SIGNAL CONDUIT

FINS FOC

R/W

SIGN

FOR BIDDING PURPOSES ONLY. FINAL PLANS AVAILABLE AT PRE-CONSTRUCTION MEETING.

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 97TH STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. T1364 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date_____ REGION TRAFFIC ENGINEER

APPROVED
Date_____ STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024515_sp.dgn PLOT DATE : 01-MAR-2013 10:18 PLOT BY : mscjym PLOT NAME : 024515_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

NOT USED | OLA | NOT USED

RING 1		HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **				Ø2 R/W	Ø2 CLEAR TO **				Ø3 R/W	Ø3 CLEAR TO **				Ø4 R/W	Ø4 CLEAR TO **				FLASH
	Ø1	3,4	G	-	-			-	-	-								-	-	-			-
	Ø2	5,6	R	R	R			G	Y	R								R	R	R			R
	Ø3																						
	Ø4	7,8	R	R	R			R	R	R								G	Y	R			R
	Ø5																						
	Ø6	1,2	R	R	R			R	R	R								R	R	R			R
	Ø7																						
	Ø8																						
	OLA	3,4	-	Y	R			FY	Y	R								R	R	R			R
	OLB																						
	OLC																						
	OLD																						
	Ø2P	11,12	D	D	D			*	D	D								D	D	D			
	Ø4P	9,10	D	D	D			D	D	D								*	D	D			
	Ø6P																						
	Ø8P																						

NOT USED | ⇒ | NOT USED | NOT USED

RING 2		HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **				Ø6 R/W	Ø6 CLEAR TO **				Ø7 R/W	Ø7 CLEAR TO **				R/W	CLEAR TO **			
	Ø1	3,4						-	-	-												
	Ø2	5,6						R	R	R												
	Ø3																					
	Ø4	7,8						R	R	R												
	Ø5																					
	Ø6	1,2						G	Y	R												
	Ø7																					
	Ø8																					
	OLA	3,4						R	R	R												
	OLB																					
	OLC																					
	OLD																					
	Ø2P	11,12						D	D	D												
	Ø4P	9,10						D	D	D												
	Ø6P																					
	Ø8P																					

BARRIER

N

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO

CONTROLLER LOGIC

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

SPECIAL OVERLAPS

	PROTECTIVE	PERMISSIVE
O.L. "A" =	1	2
O.L. "B" =		
O.L. "C" =		
O.L. "D" =		

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	6	2,4
2	6	1,4
3		
4	NONE	1,2,6
5		
6	1 OR 2	4
7		
8		

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C
MOVEMENT	FY		
PHASE	2+6	6+1	4

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

AFTER PREEMPTION SEQUENCE 4, CONTROLLER SHALL RETURN TO PHASE 4.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

USH 18 (W. BLUEMOUND ROAD) &
N. 97TH STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. T1364

CONTROLLER TYPE: EPAC M51

DATE 02/13

PAGE NO. 2 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- S STOP SIGN
- PULL BOX, 24" X 42"
- B PEDESTRIAN HEAD WITH PUSH BUTTON
- B PUSH BUTTON
- X EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY Y YELLOW ARROW
- G GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

POSTED SPEED LIMIT = 25 MPH

N. 95TH STREET

R/W IS OFF THE PAGE

FO I/C IN SIGNAL CONDUIT

POSTED SPEED LIMIT=35 MPH

R/W

USH 18 (W. BLUEMOUND ROAD)

200BL 201BL 202BL 203BL 204BL 205BL

250' TO CROSSWALK

FTMS FOC IN CITY OF MILWAUKEE CONDUIT

CV20

V1 V2 V3 V4

FOR BIDDING PURPOSES ONLY. FINAL PLANS AVAILABLE AT PRE-CONSTRUCTION MEETING.

A A

CONSTRUCTION NOTES:

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

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 95TH STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1384

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

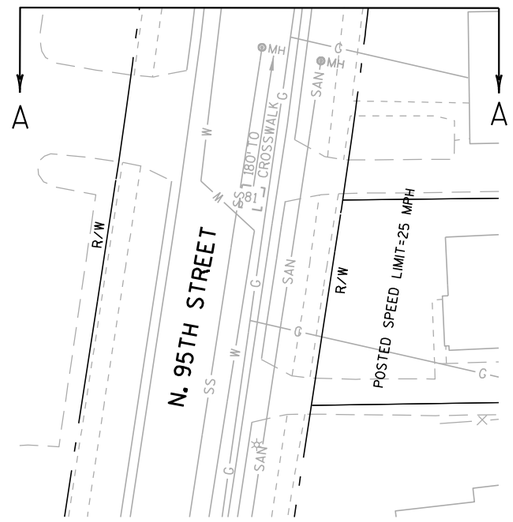
PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024521_sp.dgn PLOT DATE : 01-MAR-2013 01:37 PLOT BY : MSCD1S PLOT NAME : 024521_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2



TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 95TH STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1384

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024522_sp.dgn PLOT DATE : 01-MAR-2013 01:40 PLOT BY : MSCD1S PLOT NAME : 024522_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- S STOP SIGN
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY Y YELLOW ARROW
- G GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

POSTED SPEED LIMIT = 25 MPH

N. 95TH STREET

R/W IS OFF THE PAGE

FO I/C IN SIGNAL CONDUIT

POSTED SPEED LIMIT=35 MPH

USH 18 (W. BLUEMOUND ROAD)

200BL 201BL 202BL 203BL 204BL 205BL

FTMS FOC IN CITY OF MILWAUKEE CONDUIT

FOR BIDDING PURPOSES ONLY. FINAL PLANS AVAILABLE AT PRE-CONSTRUCTION MEETING.

POSTED SPEED LIMIT=25 MPH

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 95TH STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1384 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date _____ REGION TRAFFIC ENGINEER

APPROVED
Date _____ STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

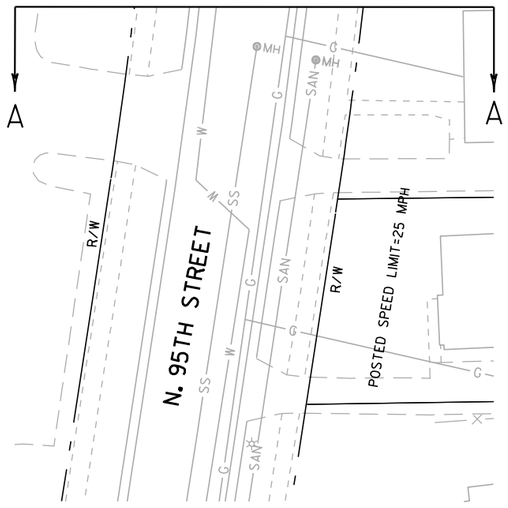
PAGE 1 OF 3

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024525_sp.dgn PLOT DATE : 01-MAR-2013 10:23 PLOT BY : mscjym PLOT NAME : 024525_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2



TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 95TH STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1384

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 2 OF 3

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024526_sp.dgn PLOT DATE : 01-MAR-2013 01:48 PLOT BY : MSCD1S PLOT NAME : 024526_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1		HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø1 CLEAR TO			Ø2 R/W	Ø2 CLEAR TO **	Ø2 CLEAR TO			Ø3 R/W	Ø3 CLEAR TO **	Ø3 CLEAR TO			Ø4 R/W	Ø4 CLEAR TO **	Ø4 CLEAR TO			FLASH
	Ø1	3,4	G	-	-			-	-	-								-	-	-			-
	Ø2	5,6	R	R	R			G	Y	R								R	R	R			R
	Ø3																						
	Ø4	9,10	R	R	R			R	R	R								G	Y	R			R
	Ø5																						
	Ø6	1,2	R	R	R			R	R	R								R	R	R			R
	Ø7																						
	Ø8	7,8	R	R	R			R	R	R								R	R	R			R
	ØLA	3,4	-	Y	R			FY	Y	R								R	R	R			R
	ØLB																						
	ØLC																						
	ØLD																						
	Ø2P	13,14	D	D	D			*	D	D								D	D	D			
	Ø4P	11,12	D	D	D			D	D	D								*	D	D			
	Ø6P	17,18	D	D	D			D	D	D								D	D	D			
	Ø8P	15,16	D	D	D			D	D	D								D	D	D			

NOT USED

NOT USED

RING 2		HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø5 CLEAR TO			Ø6 R/W	Ø6 CLEAR TO **	Ø6 CLEAR TO			Ø7 R/W	Ø7 CLEAR TO **	Ø7 CLEAR TO			Ø8 R/W	Ø8 CLEAR TO **	Ø8 CLEAR TO		
	Ø1	3,4						-	-	-								-	-	-		
	Ø2	5,6						R	R	R								R	R	R		
	Ø3																					
	Ø4	9,10						R	R	R								R	R	R		
	Ø5																					
	Ø6	1,2						G	Y	R								R	R	R		
	Ø7																					
	Ø8	7,8						R	R	R								G	Y	R		
	ØLA	3,4						R	R	R								R	R	R		
	ØLB																					
	ØLC																					
	ØLD																					
	Ø2P	13,14						D	D	D								D	D	D		
	Ø4P	11,12						D	D	D								D	D	D		
	Ø6P	17,18						*	D	D								D	D	D		
	Ø8P	15,16						D	D	D								*	D	D		

BARRIER

N

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
41		X			4	4					VIDEO
61		X			6	2		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
81		X			8	8					VIDEO

CONTROLLER LOGIC

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

SPECIAL OVERLAPS

	PROTECTIVE	PERMISSIVE
O.L. "A" =	1	2
O.L. "B" =		
O.L. "C" =		
O.L. "D" =		

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	6	2,4,8
2	6	1,4,8
3		
4	8	1,2,6
5		
6	1 OR 2	4,8
7		
8	4	1,2,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	FY			
PHASE	2	6+1	4 AND 8	8 AND 4

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

AFTER PREEMPTION SEQUENCE 4 AND 8, CONTROLLER SHALL RETURN TO PHASE 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

USH 18 (W. BLUEMOUND ROAD) &
N. 95TH STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1384

CONTROLLER TYPE: EPAC M51

DATE 02/13

PAGE NO. 3 OF 3

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024529_sp_ph.dgn PLOT DATE : 01-MAR-2013 01:54 PLOT BY : MSCD1S PLOT NAME : 024529_sp_ph PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY Y YELLOW ARROW
- G GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

N. 92ND STREET

USH 18 (W. BLUEMOUND ROAD)

POSTED SPEED LIMIT=30 MPH

POSTED SPEED LIMIT=35 MPH

R/W

211BL 212BL 213BL 214BL 215BL 216BL

V1 V2 V3 V4

SB2 SB5 SB8 SB11

STRUCTURE NUMBERS
SB2 = S-40-1362
SB5 = S-40-1363
SB8 = S-40-1364
SB11 = S-40-1365

FOR BIDDING PURPOSES ONLY. FINAL PLANS AVAILABLE AT PRE-CONSTRUCTION MEETING.

CONSTRUCTION NOTES:

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

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 92ND STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1383

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

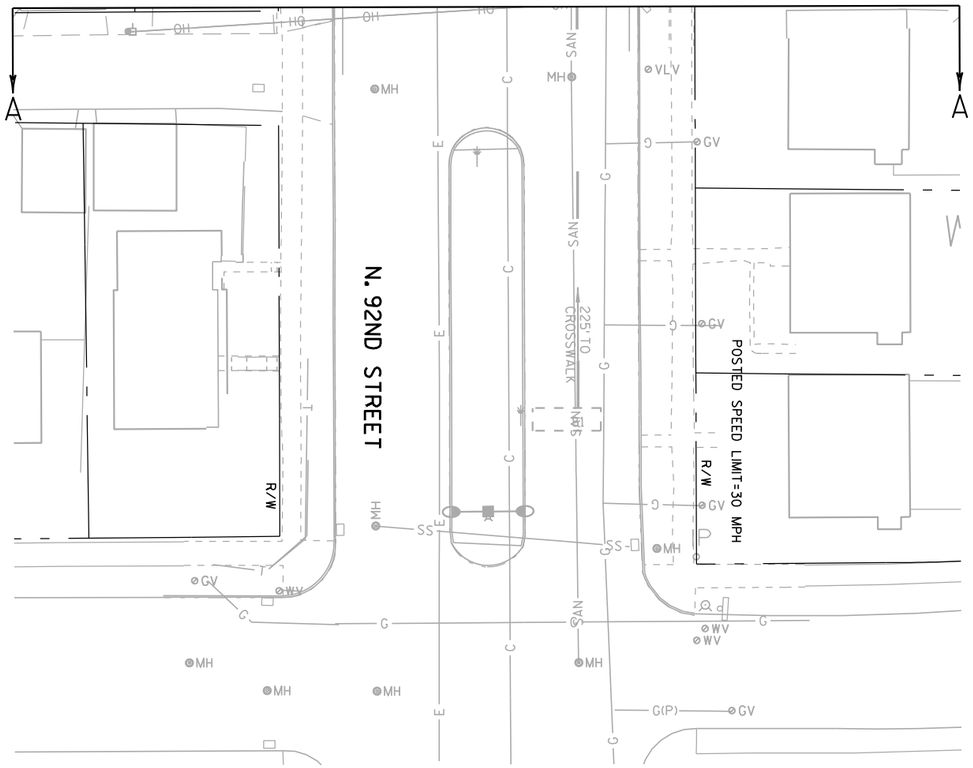
PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024531_sp.dgn PLOT DATE : 01-MAR-2013 02:02 PLOT BY : MSCD1S PLOT NAME : 024531_sp PLOT SCALE : 40:1

2

N



TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 92ND STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1383

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- B BOLLARD
- PULL BOX, 24" X 42"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY Y YELLOW ARROW
- G GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

USH 18 (W. BLUEMOUND ROAD)

N. 92ND STREET

POSTED SPEED LIMIT=30 MPH

POSTED SPEED LIMIT=35 MPH

R/W

211BL 212BL 213BL 214BL 215BL 216BL

V1 V2 V3 V4

STRUCTURE NUMBERS

SB2 = S-40-1362
SB5 = S-40-1363
SB8 = S-40-1364
SB11 = S-40-1365

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

FOR BIDDING PURPOSES ONLY. FINAL PLANS AVAILABLE AT PRE-CONSTRUCTION MEETING.

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 92ND STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1383 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date _____ REGION TRAFFIC ENGINEER

APPROVED
Date _____ STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 3

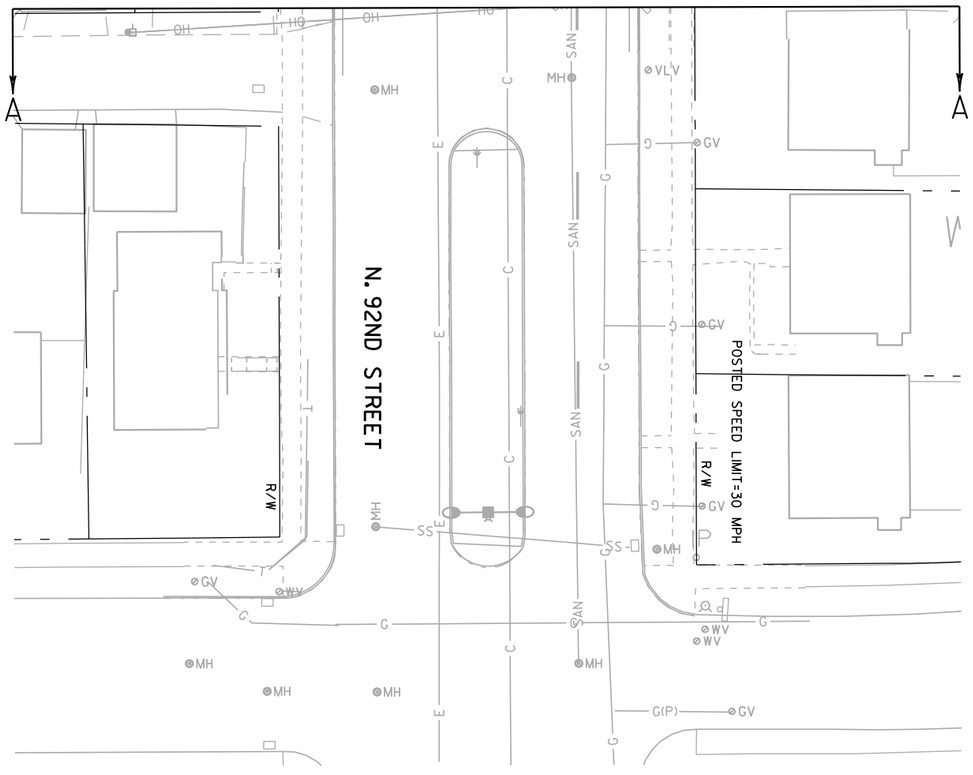
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024535_sp.dgn PLOT DATE : 01-MAR-2013 02:10 PLOT BY : MSCD1S PLOT NAME : 024535_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

N



TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
N. 92ND STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1383

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 2 OF 3

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024536_sp.dgn PLOT DATE : 01-MAR-2013 02:16 PLOT BY : MSCD1S PLOT NAME : 024536_sp PLOT SCALE : 40:1

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
Ø1										
Ø2	5,6			G Y R		R R R		R R R		R
Ø3	11,12			- - -		G - -		- - -		-
Ø4	13,14			R R R		R R R		G Y R		R
Ø5	7,8			- - -		- - -		- - -		-
Ø6	1,2			R R R		R R R		R R R		R
Ø7										
Ø8	9,10			R R R		R R R		R R R		R
OLA	3,4			FY Y R		R R R		R R R		R
OLB	11,12			R R R		- Y R		FY Y R		R
OLC	7,8			R R R		R R R		R R R		R
OLD										
Ø2P	17,18			* D D		D D D		D D D		
Ø4P	15,16			D D D		D D D		* D D		
Ø6P	21,22			D D D		D D D		D D D		
Ø8P	19,20			D D D		D D D		D D D		

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
Ø1									
Ø2	5,6	R	R R	R R R				R R R	
Ø3	11,12	-	- -	- - -				- - -	
Ø4	13,14	R	R R	R R R				R R R	
Ø5	7,8	G	- -	- - -				- - -	
Ø6	1,2	R	R R	G Y R				R R R	
Ø7									
Ø8	9,10	R	R R	R R R				G Y R	
OLA	3,4	R	R R	FY Y R				R R R	
OLB	11,12	R	R R	R R R				R R R	
OLC	7,8	-	Y R	FY Y R				R R R	
OLD									
Ø2P	17,18	D	D D	D D D				D D D	
Ø4P	15,16	D	D D	D D D				D D D	
Ø6P	21,22	D	D D	* D D				D D D	
Ø8P	19,20	D	D D	D D D				* D D	

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

BARRIER

N

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
23		X			2	2					VIDEO
31		X			3	3					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
64		X			6	6					VIDEO
81		X			8	8		X			VIDEO
82		X			8	8					VIDEO

CONTROLLER LOGIC

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

SPECIAL OVERLAPS

	PROTECTIVE	PERMISSIVE
O.L. "A" =		2
O.L. "B" =	3	4
O.L. "C" =	5	6
O.L. "D" =		

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	5 OR 6	3,4,8
3	8	2,4,5,6
4	8	2,3,5,6
5	2	3,4,6,8
6	2	3,4,5,8
7		
8	3 OR 4	2,5,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	FY	FY FY	FY	
PHASE	2+5	6 AND 2	4+8	8+3

AFTER PREEMPTION SEQUENCE 2+5 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4+8 OR 8+3, CONTROLLER SHALL RETURN TO PHASE 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

USH 18 (W. BLUEMOUND ROAD) &
N. 92ND STREET
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1383

CONTROLLER TYPE: EPAC M51

DATE 02/13

PAGE NO. 3 OF 3

PROJECT NO: 1060-33-99 | HWY: USH 18 | COUNTY: MILWAUKEE | SEQUENCE OF OPERATIONS | SHEET E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- BOLLARD
- PULL BOX, 24" X 42"
- COMMUNICATIONS VAULT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (FY) (Y) YELLOW ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

DRIVEWAY SPEED LIMIT=25 MPH

HONEY CREEK DRIVEWAY

POSTED SPEED LIMIT=30 MPH

STH 181 (S. 84TH STREET)

225' TO NEAR RIGHT SIGNAL

FTMS FOC IN CITY OF MILWAUKEE CONDUIT

W. DANA COURT

POSTED SPEED LIMIT=25 MPH

PKNG

R/W

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
03/15/2013

CONSTRUCTION NOTES:

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

STRUCTURE NUMBERS

SB2 = S-40-1343
SB3 = S-40-1344
SB5 = S-40-1345
SB7 = S-40-1346

TRAFFIC CONTROL SIGNAL
STH 181 (S. 84TH STREET) &
W. DANA COURT
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1382

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: STH 181	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024541_sp.dgn PLOT DATE : 01-MAR-2013 02:27 PLOT BY : MSCD1S PLOT NAME : 024541_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- BOLLARD
- PULL BOX, 24" X 42"
- COMMUNICATIONS VAULT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- RED ARROW
- YELLOW ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING.

N

STH 181 (S. 84TH STREET)

HONEY CREEK DRIVEWAY

DRIVEWAY SPEED LIMIT=25 MPH

POSTED SPEED LIMIT=30 MPH

POSTED SPEED LIMIT=25 MPH

W. DANA COURT

PKNG

R/W

1¼" FO I/C

FTMS FOC

FTMS FOC IN CITY OF MILWAUKEE CONDUIT

CB1 PB1 PB2 PB3 PB4 PB5 PB6 PB8 PB9 PB51F PB52F

SB1 SB2 SB3 SB4 SB5 SB6 SB7

V1 V2 V3 V4

50F 51F 52F 53F 54F 55F

EXCMH6

JASON R. MATSON 37111 WAUKESHA, WI WISCONSIN PROFESSIONAL ENGINEER 03/21/2013

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

STRUCTURE NUMBERS

SB2 = S-40-1343
SB3 = S-40-1344
SB5 = S-40-1345
SB7 = S-40-1346

REVISION				
Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
1	REGION		CENTRAL OFFICE	
	Date	By	Date	By
	3/21/13	DAB	4/2/13	JSB

TRAFFIC CONTROL SIGNAL
STH 181 (S. 84TH STREET) &
W. DANA COURT
CITY OF MILWAUKEE
MILWAUKEE COUNTY

CABINET TYPE: TS-2
SIGNAL NO. S1382 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 10/29/12 DAVID A. BRANTNER, REGION TRAFFIC ENGINEER

APPROVED
Date 11/13/12 JOANNA L. BUSH, STATE TRAFFIC ENGINEER

INITIAL INSTALLATION. 08-13

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 2

JRE 3/21/13

PROJECT NO: 1060-33-99	HWY: STH 181	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024545_sp.dgn PLOT DATE : 20-MAR-2013 07:33 PLOT BY : mscjym PLOT NAME : 024545_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

NOT USED | OLA | NOT USED | ⇕

RING 1		HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **	Ø2 R/W	Ø2 CLEAR TO **	Ø3 R/W	Ø3 CLEAR TO **	Ø4 R/W	Ø4 CLEAR TO **	FLASH
	Ø1										
	Ø2	6,7,8			G	Y R			R	R R	R
	Ø3										
	Ø4	12,13,14			R	R R			G	Y R	R
	Ø5										
	Ø6	1,2,3			R	R R			R	R R	R
	Ø7										
	Ø8	9,10,11			R	R R			R	R R	R
	OLA	4,5			FY	Y R			R	R R	R
	OLB										
	OLC										
	OLD										
	Ø2P	17,18			*	D D			D	D D	
	Ø4P	15,16			D	D D			*	D D	
	Ø6P	19,20			D	D D			D	D D	
	Ø8P										

NOT USED | ⇔ | NOT USED | ⇑

RING 2		HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
	Ø1									
	Ø2	6,7,8			R	R R			R	R R
	Ø3									
	Ø4	12,13,14			R	R R			R	R R
	Ø5									
	Ø6	1,2,3			G	Y R			R	R R
	Ø7									
	Ø8	9,10,11			R	R R			G	Y R
	OLA	4,5			R	R R			R	R R
	OLB									
	OLC									
	OLD									
	Ø2P	17,18			D	D D			D	D D
	Ø4P	15,16			D	D D			D	D D
	Ø6P	19,20			*	D D			D	D D
	Ø8P									

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

BARRIER

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2					VIDEO
22		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
81		X			8	8		X			VIDEO

CONTROLLER LOGIC

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

SPECIAL OVERLAPS

	PROTECTIVE	PERMISSIVE
O.L. "A" =		2
O.L. "B" =		
O.L. "C" =		
O.L. "D" =		

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM *:	SS- -

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	6	4,8
3		
4	8	2,6
5		
6	2	4,8
7		
8	4	2,6

Z

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A
MOVEMENT	← / FY ↗ →
PHASE	2 AND 6

AFTER PREEMPTION SEQUENCE 2 AND 6, CONTROLLER SHALL RETURN TO PHASES 2+6.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

STH 181 (S. 84TH STREET) & W. DANA COURT
CITY OF MILWAUKEE
MILWAUKEE COUNTY

SIGNAL NO. S1382

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 2 OF 2

3/21/13 JRE
3/21/13 DMS

PROJECT NO: 1060-33-99	HWY: STH 181	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

LEGEND

- 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
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 42"
- COMMUNICATIONS VAULT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- (R) RED ARROW
- (FY) (Y) YELLOW ARROW
- (G) GREEN ARROW
- S STOP SIGN

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

USH 18 (W. BLUEMOUND ROAD)

STH 181 (N. GLENVIEW AVENUE)

STH 181 (S. 84TH STREET)

DETAIL "A"

POSTED SPEED LIMIT=30 MPH

225' TO NEAR RIGHT SIGNAL

241BL 242BL 243BL 244BL 245BL 246BL

V1 V2 V3 V4



CONSTRUCTION NOTES:

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

STRUCTURE NUMBERS

SB2 = S-40-1347
SB6 = S-40-1448
SB10 = S-40-1441
SB13 = S-40-1442

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
STH 181 (N. GLENVIEW AVE./S. 84TH ST.)
CITY OF MILWAUKEE/WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1379

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET 208 E

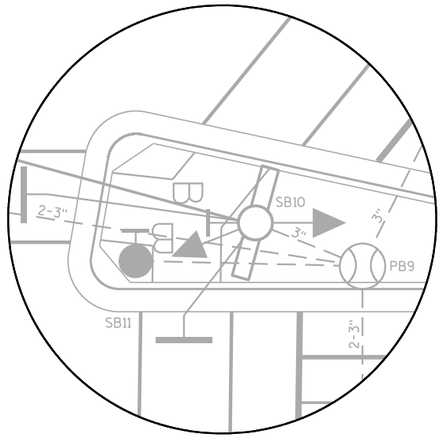
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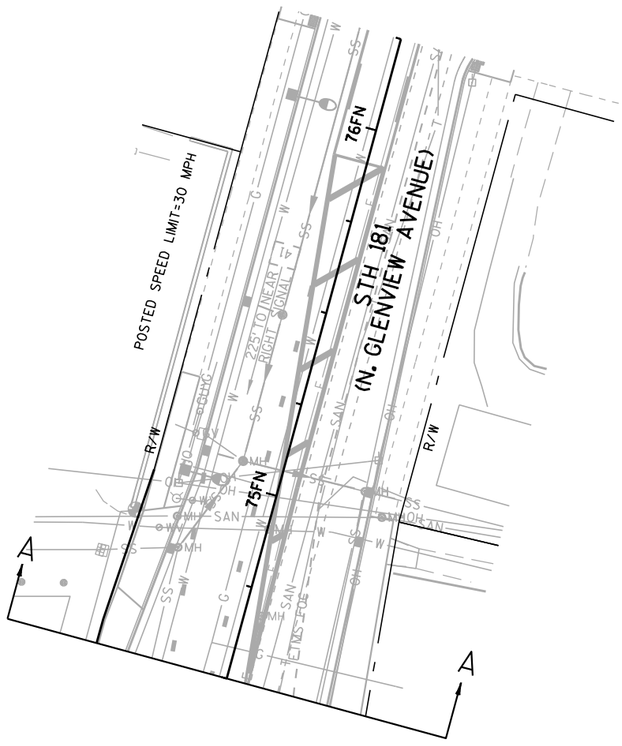
WISDOT/CADDS SHEET 42

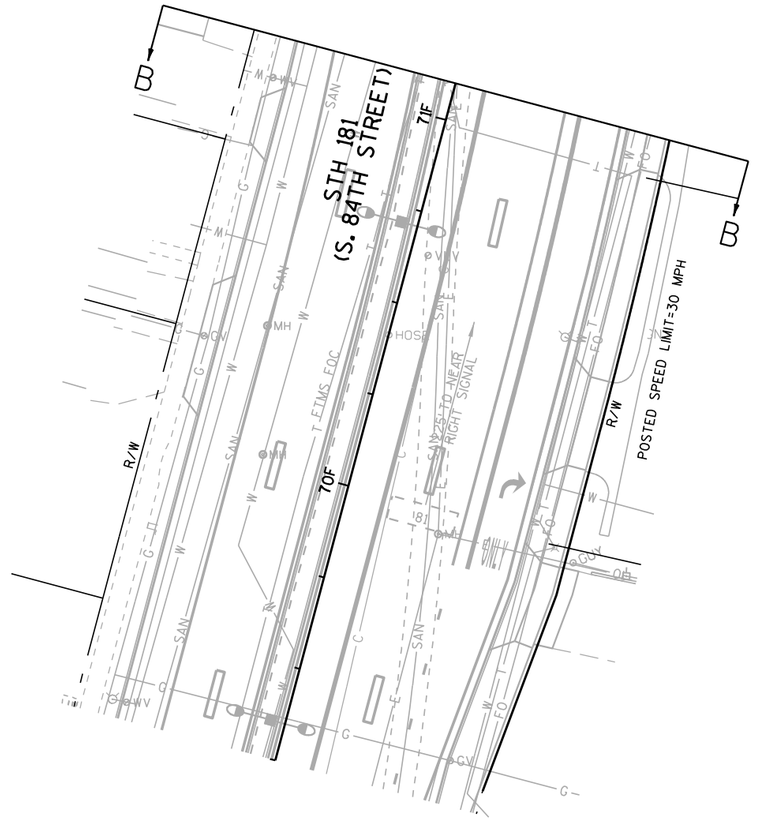
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N



DETAIL "A"





TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
STH 181 (N. GLENVIEW AVE./S. 84TH ST.)
CITY OF MILWAUKEE/WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1379

REGION CONTACT: JUSTIN EFFINGER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024552_sp.dgn PLOT DATE : 01-MAR-2013 02:38 PLOT BY : MSCD1S PLOT NAME : 024552_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- 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
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 42"
- COMMUNICATIONS VAULT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY Y YELLOW ARROW
- G GREEN ARROW
- S STOP SIGN

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

USH 18 (W. BLUEMOUND ROAD)

STH 181 (N. GLENVIEW AVENUE)

STH 181 (S. 84TH STREET)

DETAIL "A"

POSTED SPEED LIMIT=30 MPH

241BL 242BL 243BL 244BL 245BL 246BL

V1 V2 V3 V4

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8 PB9 PB10 PB11 PB12 PB13 PB14

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12 SB13 SB14

CB1

61 62 63 71F 72F 73FN 74FN

INITIAL INSTALLATION. 08-13

REVISION

Rev. No.	UPDATED DETECTION AND CABINET. ADDED INSYNC ADAPTIVE CONTROL.			
	APPROVAL RECOMMENDED		APPROVED	
	REGION		CENTRAL OFFICE	
1	Date	By	Date	By
	3/21/13	DAB	4/2/13	GBB

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
STH 181 (N. GLENVIEW AVE./S. 84TH ST.)
CITY OF MILWAUKEE/WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1379 CABINET TYPE: TS-2 CONTROLLER TYPE: EPAC M51

WISCONSIN DEPARTMENT OF TRANSPORTATION

APPROVAL RECOMMENDED
Date 10/29/12 DAVID A. BRANTNER, REGION TRAFFIC ENGINEER

APPROVED
Date 11/13/12 JOANNA L. BUSH, STATE TRAFFIC ENGINEER

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 1 OF 3

WISCONSIN PROFESSIONAL ENGINEER
JASON R. MATSON
37111
WAUKESHA, WI
04/2/2013

JRE 3/21/13

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

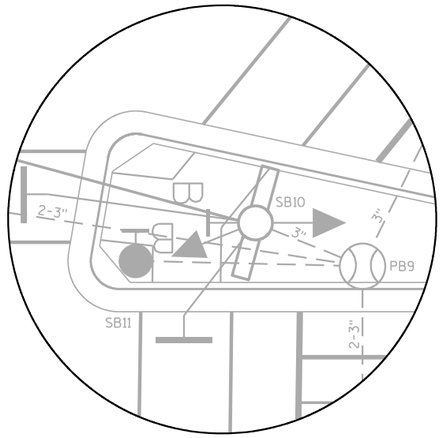
STRUCTURE NUMBERS

SB2 = S-40-1347
SB6 = S-40-1348
SB10 = S-40-1341
SB13 = S-40-1342

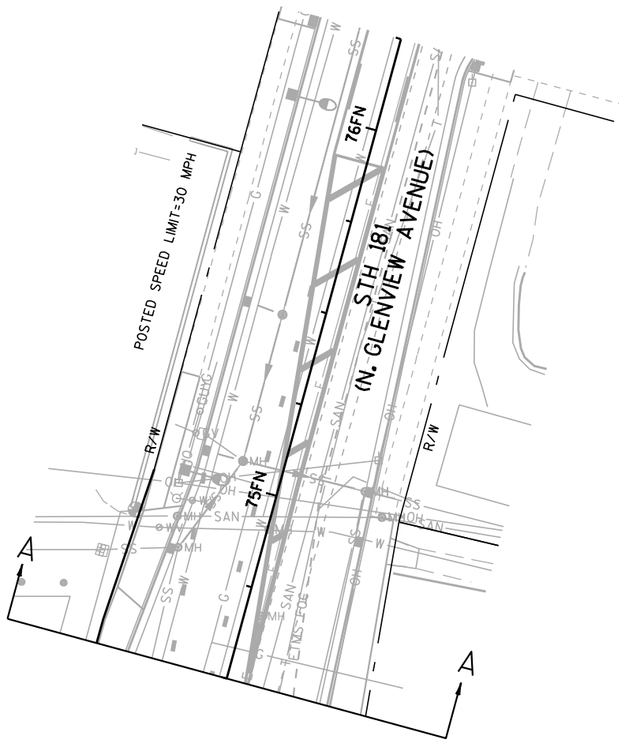
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET E

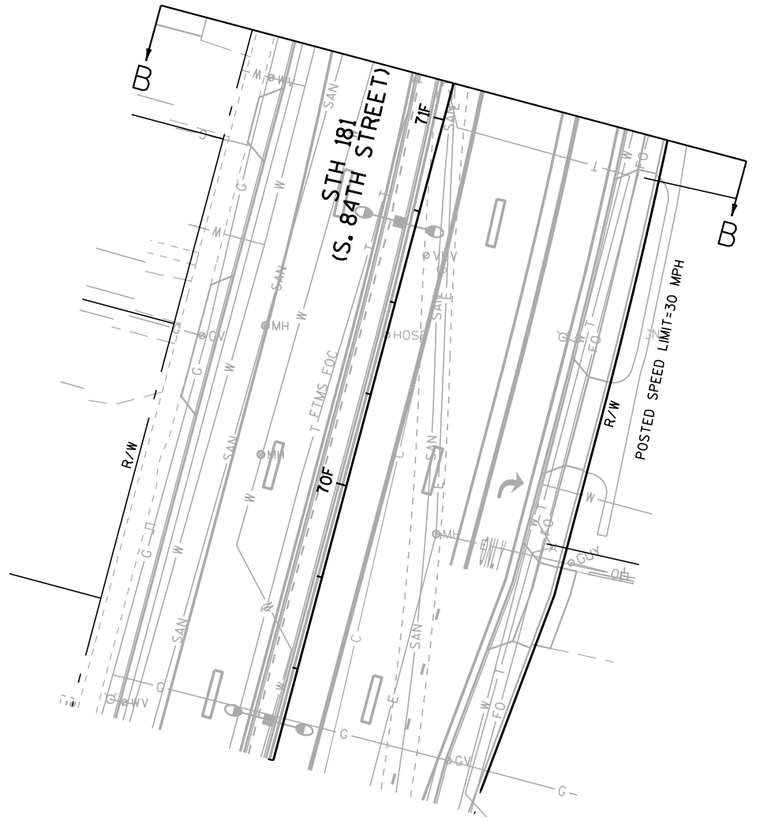
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WISDOT/CADLE SHEET 42



DETAIL "A"





N

2

TRAFFIC CONTROL SIGNAL
USH 18 (W. BLUEMOUND ROAD) &
STH 181 (N. GLENVIEW AVE./S. 84TH ST.)
CITY OF MILWAUKEE/WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1379

REGION CONTACT: JUSTIN EFFINGER
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 2 OF 3

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024556_sp.dgn PLOT DATE : 20-MAR-2013 07:41 PLOT BY : mscjym PLOT NAME : 024556_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

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

		HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **	Ø6 R/W	Ø6 CLEAR TO **	Ø7 R/W	Ø7 CLEAR TO **	Ø8 R/W	Ø8 CLEAR TO **
RING 2	Ø1	4,5	-	- -	-	- -			-	- -
	Ø2	6,7,8	R	R R	R	R R			R	R R
	Ø3	14,15	-	- -	-	- -			-	- -
	Ø4	16,17,18	R	R R	R	R R			R	R R
	Ø5	9,10	G ←	- -	-	- -			-	- -
	Ø6	1,2,3	R	R R	G	Y R			R	R R
	Ø7									
	Ø8	11,12,13	R	R R	R	R R			G	Y R
	OLA	4,5	R ←	R R ←	R ←	R R ←			R ←	R R ←
	OLB	14,15	R ←	R R ←	R ←	R R ←			R ←	R R ←
	OLC	9,10	-	Y R	FY ←	Y R ←			R ←	R R ←
	OLD	19,20	R ←	R R ←	R ←	R R ←			FY ←	Y R ←
	Ø2P	23,24	D	D D	D	D D			D	D D
	Ø4P	21,22	D	D D	D	D D			D	D D
	Ø6P	27,28	D	D D	*	D D			D	D D
	Ø8P	25,26	D	D D	D	D D			*	D D

NOT USED

BARRIER

N

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2					VIDEO
22		X			2	2					VIDEO
31		X			3	3					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
43		X			4	4					VIDEO
51		X			5	5					VIDEO
61		X			6	6		X			VIDEO
62		X			6	6					VIDEO
63		X			6	6					VIDEO
81		X			8	8		X			VIDEO
82		X			8	8					VIDEO
83		X			8	8					VIDEO

CONTROLLER LOGIC

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

SPECIAL OVERLAPS

	PROTECTIVE	PERMISSIVE
O.L. "A" =	1	2
O.L. "B" =	3	4
O.L. "C" =	5	6
O.L. "D" =		8

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	5 OR 6	2,3,4,8
2	5 OR 6	1,3,4,8
3	8	1,2,4,5,6
4	8	1,2,3,5,6
5	1 OR 2	3,4,6,8
6	1 OR 2	3,4,5,8
7		
8	3 OR 4	1,2,5,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	FY	FY	FY, FY	FY
PHASE	2+5	6+1	4 AND 8	8+3

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

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8+3, CONTROLLER SHALL RETURN TO PHASE 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

USH 18 (W. BLUEMOUND ROAD) &
STH 181 (N. GLENVIEW AVENUE)
CITY OF MILWAUKEE/WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO. S1379

CONTROLLER TYPE: EPAC M51

DATE 02/13 PAGE NO. 3 OF 3

3/21/13 JRE

3/21/13 DMS

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	SEQUENCE OF OPERATIONS	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024559_sp_ph.dgn PLOT DATE : 20-MAR-2013 07:47 PLOT BY : mscjym PLOT NAME : 024559_sp_ph PLOT SCALE : 40:1 WISDOT/CADLE SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 42"
- COMMUNICATIONS VAULT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY Y YELLOW ARROW
- G GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

W. WISCONSIN AVENUE

STH 181 (N. GLENVIEW AVENUE)

POSTED SPEED LIMIT = 30 MPH

POSTED SPEED LIMIT=30 MPH

308WX 309WX 310WX 311WX 312WX 313WX 314WX

V1 V2 V3 V4

82FN 83FN 84FN

225' TO NEAR RIGHT SIGNAL

CONSTRUCTION NOTES:

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

TRAFFIC CONTROL SIGNAL
W. WISCONSIN AVENUE &
STH 181 (N. GLENVIEW AVENUE)
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CITY CONTACT: BILL WEHRLEY
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

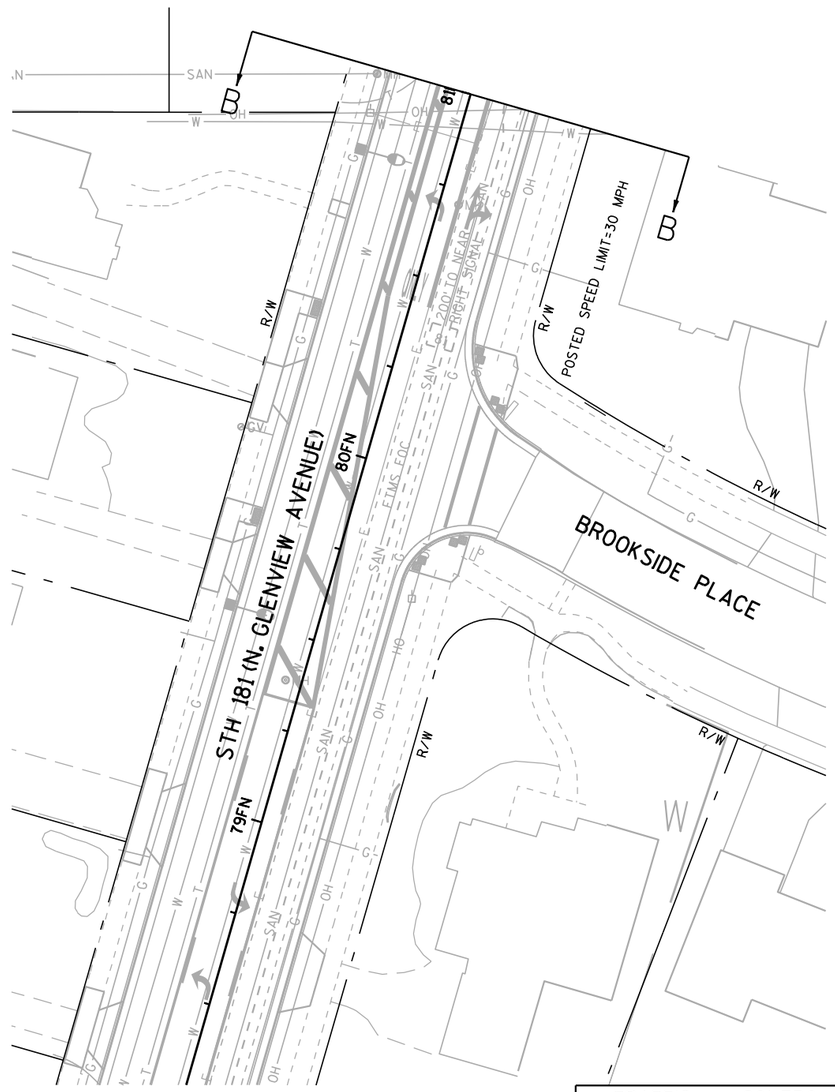
PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: W. WISCONSIN AVENUE	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024561_sp.dgn PLOT DATE : 01-MAR-2013 02:55 PLOT BY : MSCD1S PLOT NAME : 024561_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42





N

TRAFFIC CONTROL SIGNAL
W. WISCONSIN AVENUE &
STH 181 (N. GLENVIEW AVENUE)
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CITY CONTACT: BILL WEHRLEY
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 2 OF 2

PROJECT NO: 1060-33-99	HWY: W. WISCONSIN AVENUE	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024562_sp.dgn PLOT DATE : 01-MAR-2013 02:58 PLOT BY : MSCD1S PLOT NAME : 024562_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) MONOTUBE BASE, POLE, 15'-30' ARM
- LUMINAIRE, TRAFFIC POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 42"
- COMMUNICATIONS VAULT
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- R RED CIRCULAR INDICATOR
- Y YELLOW CIRCULAR INDICATOR
- G GREEN CIRCULAR INDICATOR
- R RED ARROW
- FY YELLOW ARROW
- G GREEN ARROW

NOTE: ALL LENSES ARE 12-INCH GRAYSHADE REPRESENTS EXISTING

N

W. WISCONSIN AVENUE

308WX 309WX 310WX 311WX 312WX 313WX 314WX

STH 181 (N. GLENVIEW AVENUE)

POSTED SPEED LIMIT=30 MPH

POSTED SPEED LIMIT = 30 MPH

R/W

FLAG

84FN 83FN 82FN

CB1

V1 V2 V3 V4

CONSTRUCTION NOTES;

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. ALL LUMINAIRES ARE LED UNLESS OTHERWISE NOTED.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.

TRAFFIC CONTROL SIGNAL
W. WISCONSIN AVENUE &
STH 181 (N. GLENVIEW AVENUE)
CITY OF WAUWATOSA
MILWAUKEE COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: BILL WEHRLEY
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

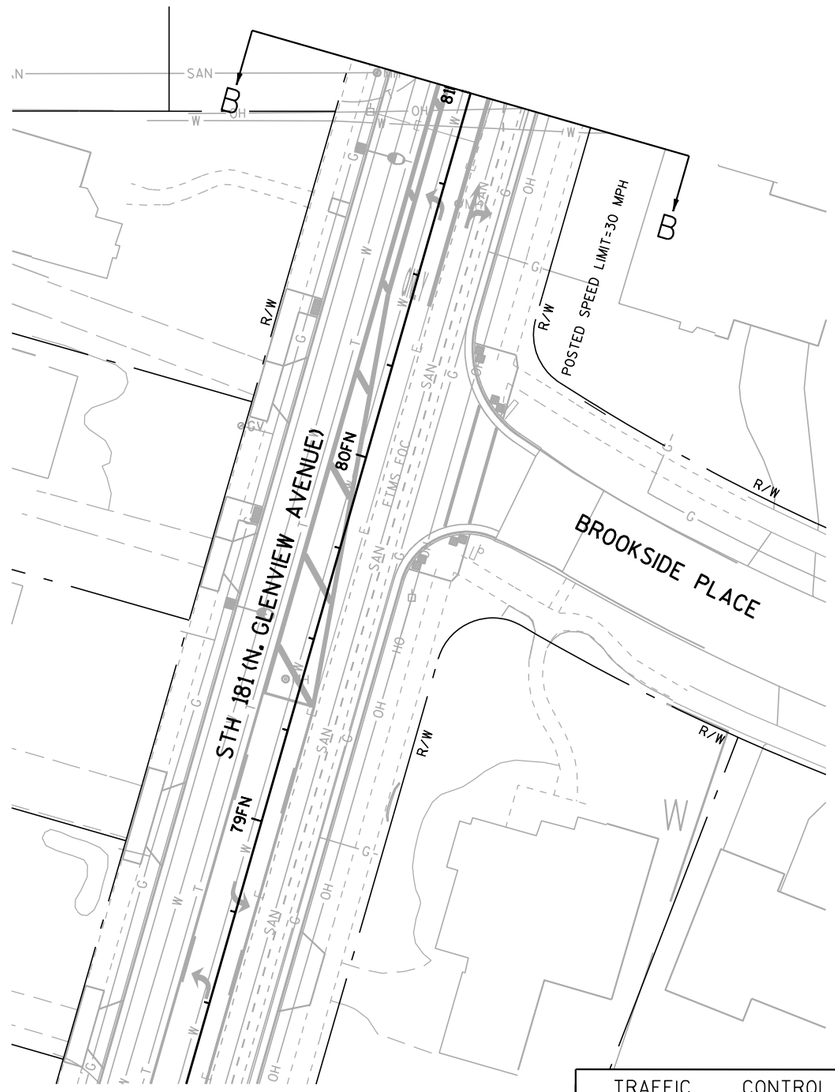
PAGE 1 OF 3

PROJECT NO: 1060-33-99	HWY: W. WISCONSIN AVENUE	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024565_sp.dgn PLOT DATE : 01-MAR-2013 03:00 PLOT BY : MSCD1S PLOT NAME : 024565_sp PLOT SCALE : 40:1

2





TRAFFIC CONTROL SIGNAL
W. WISCONSIN AVENUE &
STH 181 (N. GLENVIEW AVENUE)
CITY OF WAUWATOSA
MILWAUKEE COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: BILL WEHRLEY
DESIGNED BY: FORWARD 45
REVISED BY: FORWARD 45

PAGE 2 OF 3

PROJECT NO: 1060-33-99	HWY: W. WISCONSIN AVENUE	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024566_sp.dgn PLOT DATE : 01-MAR-2013 03:04 PLOT BY : MSCD1S PLOT NAME : 024566_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

SEQUENCE OF OPERATION

RING 1

	HEAD NUMBERS	Ø1 R/W	Ø1 **	Ø1 CLEAR TO	Ø2 R/W	Ø2 **	Ø2 CLEAR TO	Ø3 R/W	Ø3 **	Ø3 CLEAR TO	Ø4 R/W	Ø4 **	Ø4 CLEAR TO	FLASH
Ø1														
Ø2	4,5,6				G	Y	R	R	R		R	R	R	R
Ø3	10,11				-	-	-	G ←	-	-	-	-	-	-
Ø4	12,13,14				R	R	R	R	R		G	Y	R	R
Ø5														
Ø6	1,2,3				R	R	R	R	R		R	R	R	R
Ø7														
Ø8	7,8,9				R	R	R	R	R		R	R	R	R
ØLA														
ØLB	10,11				R ←	R ←	R ←	-	Y ←	R ←	FY ←	Y ←	R ←	R
ØLC														
ØLD	15,16				R ←	R ←	R ←	R ←	R ←	R ←	R ←	R ←	R ←	R
Ø2P	19,20				*	D	D	D	D	D	D	D	D	
Ø4P	17,18				D	D	D	D	D	D	*	D	D	
Ø6P	23,24				D	D	D	D	D	D	D	D	D	
Ø8P	21,22				D	D	D	D	D	D	D	D	D	

RING 2

	HEAD NUMBERS	Ø5 R/W	Ø5 **	Ø5 CLEAR TO	Ø6 R/W	Ø6 **	Ø6 CLEAR TO	Ø7 R/W	Ø7 **	Ø7 CLEAR TO	Ø8 R/W	Ø8 **	Ø8 CLEAR TO
Ø1													
Ø2	4,5,6				R	R	R				R	R	R
Ø3	10,11				-	-	-				-	-	-
Ø4	12,13,14				R	R	R				R	R	R
Ø5													
Ø6	1,2,3				G	Y	R				R	R	R
Ø7													
Ø8	7,8,9				R	R	R				G	Y	R
ØLA													
ØLB	10,11				R ←	R ←	R ←				R ←	R ←	R ←
ØLC													
ØLD	15,16				R ←	R ←	R ←				FY ←	Y ←	R ←
Ø2P	19,20				D	D	D				D	D	D
Ø4P	17,18				D	D	D				D	D	D
Ø6P	23,24				*	D	D				D	D	D
Ø8P	21,22				D	D	D				*	D	D

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

BARRIER

N

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
21		X			2	2					VIDEO
22		X			2	2					VIDEO
31		X			3	3					VIDEO
41		X			4	4					VIDEO
42		X			4	4					VIDEO
61		X			6	6					VIDEO
62		X			6	6					VIDEO
81		X			8	8					VIDEO

CONTROLLER LOGIC

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

SPECIAL OVERLAPS

	PROTECTIVE	PERMISSIVE
O.L. "A" =		
O.L. "B" =	3	4
O.L. "C" =		
O.L. "D" =		8

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	x
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1		
2	6	3,4,8
3	8	2,4,6
4	8	2,3,6
5		
6	2	3,4,8
7		
8	3 OR 4	2,6

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	← →	← →	FY ↓ ↑ FY	FY ↓ ↑
PHASE	2 AND 6	6 AND 2	4 AND 8	8+3

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8+3, CONTROLLER SHALL RETURN TO PHASE 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

W. WISCONSIN AVENUE &
STH 181 (N. GLENVIEW AVENUE)
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO.

CONTROLLER TYPE: EPAC

DATE 02/13

PAGE NO. 3 OF 3

PROJECT NO: 1060-33-99 | HWY: W. WISCONSIN AVENUE | COUNTY: MILWAUKEE | SEQUENCE OF OPERATIONS | SHEET E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- PULL BOX, 24" X 36"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER
- DON'T WALK INDICATOR 12" WALK INDICATOR 12"
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING TO REMAIN. BOLD REPRESENTS EXISTING TO BE REMOVED.

N

N. 87TH STREET

W. WISCONSIN AVENUE

W. WISCONSIN AVENUE

PLEASANT VIEW STREET

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8

301WX 302WX 303WX

CONSTRUCTION NOTES:

1. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
2. EXISTING CONDUIT RUNS TO BE ABANDONED IN PLACE. CONTRACTOR TO REMOVE ANY CONDUCTORS REMAINING IN THE CONDUIT.
3. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
W. WISCONSIN AVENUE &
N. 87TH STREET/PLEASANT VIEW STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

CITY CONTACT: BILL WEHRLEY
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: W. WISCONSIN AVENUE	COUNTY: MILWAUKEE	TRAFFIC SIGNAL REMOVAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024571_sp.dgn PLOT DATE : 01-MAR-2013 03:18 PLOT BY : MSCD1S PLOT NAME : 024571_sp PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- SIGNAL HEAD, TRAFFIC SIGNAL STANDARD, PEDESTAL BASE
- (XX) SIGNAL HEAD, TRAFFIC SIGNAL POLE, TRANSFORMER BASE
- LUMINAIRE UNDER PERMIT TO LOCAL MUNICIPALITY
- VIDEO DETECTION AREA
- VX VIDEO DETECTION CAMERA
- PULL BOX, 24" X 36"
- PEDESTRIAN HEAD WITH PUSH BUTTON
- PUSH BUTTON
- EVP DESIGNATOR
- EVP DETECTOR HEAD
- CONTROL CABINET
- TRAFFIC SIGNAL HEAD
- SIGNAL HEAD NUMBER

LEGEND (CON'T)

- WALK/DON'T WALK INDICATOR 16" (COUNTDOWN TIMER)
- (R) RED CIRCULAR INDICATOR
- (Y) YELLOW CIRCULAR INDICATOR
- (G) GREEN CIRCULAR INDICATOR
- YELLOW ARROW
- GREEN ARROW

NOTE: GRAYSHADE REPRESENTS EXISTING

N

2

W. WISCONSIN AVENUE

N. 87TH STREET

PLEASANT VIEW STREET

POSTED SPEED LIMIT=25 MPH

POSTED SPEED LIMIT=30 MPH

R/W

SB1 SB2 SB3 SB4 SB5 SB6 SB7 SB8 SB9 SB10 SB11 SB12

PB1 PB2 PB3 PB4 PB5 PB6 PB7 PB8

V1 V2 V3 V4

301WX 302WX 303WX

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED. CONTACT THE CITY OF WAUWATOSA AT (414) 471-8422.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. PROPOSED DETECTABLE WARNING FIELDS ARE SHOWN GRAYSHADED FOR PLAN CLARITY.
5. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL SIGNAL
W. WISCONSIN AVENUE &
N. 87TH STREET/PLEASANT VIEW STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

REGION CONTACT: DAVE BRANTNER
CITY CONTACT: BILL WEHRLEY
DESIGNED BY:
REVISED BY: FORWARD 45

PAGE 1 OF 2

PROJECT NO: 1060-33-99	HWY: W. WISCONSIN AVENUE	COUNTY: MILWAUKEE	TRAFFIC SIGNAL PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024575_sp.dgn PLOT DATE : 01-MAR-2013 03:22 PLOT BY : MSCD1S PLOT NAME : 024575_sp PLOT SCALE : 40:1

SEQUENCE OF OPERATION

RING		HEAD NUMBERS	Ø1 R/W	Ø1 CLEAR TO **					Ø2 R/W	Ø2 CLEAR TO **					Ø3 R/W	Ø3 CLEAR TO **					Ø4 R/W	Ø4 CLEAR TO **					FLASH
	Ø1	2,3	G ←	Y ←	-				-	-	-										-	-	-				-
	Ø2	4,5,6	R	R	R				G	Y	R										R	R	R				R
	Ø3																										
	Ø4	10,11,12	R	R	R				R	R	R										G	Y	R				R
RING 1	Ø5																										
	Ø6	1,2,3	R	R	R				R	R	R										R	R	R				R
	Ø7																										
	Ø8	7,8,9	R	R	R				R	R	R										R	R	R				R
	Ø2P	17,18	D	D	D				*	D	D										D	D	D				
	Ø4P	15,16	D	D	D				D	D	D										*	D	D				
	Ø6P	13,14	D	D	D				D	D	D										D	D	D				
	Ø8P	19,20	D	D	D				D	D	D										D	D	D				

NOT USED | NOT USED | NOT USED

RING		HEAD NUMBERS	Ø5 R/W	Ø5 CLEAR TO **					Ø6 R/W	Ø6 CLEAR TO **					Ø7 R/W	Ø7 CLEAR TO **					Ø8 R/W	Ø8 CLEAR TO **				
	Ø1	2,3							-	-	-										-	-	-			
	Ø2	4,5,6							R	R	R										R	R	R			
	Ø3																									
	Ø4	10,11,12							R	R	R										R	R	R			
RING 2	Ø5																									
	Ø6	1,2,3							G	Y	R										R	R	R			
	Ø7																									
	Ø8	7,8,9							R	R	R										G	Y	R			
	Ø2P	17,18							D	D	D										D	D	D			
	Ø4P	15,16							D	D	D										D	D	D			
	Ø6P	13,14							*	D	D										D	D	D			
	Ø8P	19,20							D	D	D										*	D	D			

BARRIER

N

** CLEARANCE TO A PHASE IN CONFLICT WITH THIS PHASE ON (SEE CHART 1)

* WHEN CALLED, TIMED STEADY WALK, THEN FLASHING DON'T WALK, THEN GOES TO STEADY DON'T WALK

CHART 1

PHASE ON	NONCONFLICTING PHASE ALLOWED TO TIME CONCURRENTLY	PHASES IN CONFLICT WITH PHASE ON
1	6	2,4,8
2	6	1,4,8
3		
4	8	1,2,6
5		
6	1 OR 2	4,8
7		
8	4	1,2,6

DETECTOR LOGIC

DETECTOR NUMBER	DETECTOR INPUT	DETECTOR OPERATION: CALLS AND EXTENDS	DETECTOR OPERATION: CALLS ONLY	DETECTOR OPERATION: EXTENDS ONLY	PHASE CALLED	PHASE EXTENDED	DETECTOR DISCONNECT PHASE	CALLING DELAY	EXTENSION STRETCH	SIZE	NUMBER OF TURNS
11		X			1	1					VIDEO
21		X			2	2		X			VIDEO
22		X			2	2					VIDEO
41		X			4	4		X			VIDEO
42		X			4	4					VIDEO
61		X			6	6					VIDEO
81		X			8	8					VIDEO

CONTROLLER LOGIC

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

TYPE OF INTERCONNECT COMMUNICATION	
NONE	
TBC	
CLOSED LOOP TWISTED PAIR*	
CLOSED LOOP FIBER OPTIC*	
FIBER OPTIC (ETHERNET)	X
RADIO	
*LOCATION OF MASTER CONTROLLER NO:	S-
SIGNAL SYSTEM #:	SS- -

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

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

EMERGENCY VEHICLE PREEMPTION SEQUENCE

EMERGENCY VEHICLE PREEMPTOR	CHANNEL A	CHANNEL B	CHANNEL C	CHANNEL D
MOVEMENT	← →	← →	↓ ↑	↓ ↑
PHASE	2 AND 6	6 AND 2	4 AND 8	8 AND 4

AFTER PREEMPTION SEQUENCE 2 AND 6 OR 6 AND 2, CONTROLLER SHALL RETURN TO PHASES 2+6.

AFTER PREEMPTION SEQUENCE 4 AND 8 OR 8 AND 4, CONTROLLER SHALL RETURN TO PHASES 4+8.

GENERAL NOTES:

1. ANY ACTUATED PHASE FOR WHICH THERE IS NO CALL SHALL BE SKIPPED.
2. WHEN ONE PHASE IS ON ALONE, ANY NONCONFLICTING PHASE MAY START TIMING CONCURRENTLY WITHOUT A CLEARANCE INTERVAL. (SEE CHART 1.)

W. WISCONSIN AVENUE &
N. 87TH STREET/PLEASANT VIEW STREET
CITY OF WAUWATOSA
MILWAUKEE COUNTY

SIGNAL NO.

CONTROLLER TYPE: EPAC M52

DATE 02/13

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\024579_sp_ph.dgn PLOT DATE : 01-MAR-2013 03:29 PLOT BY : MSCD1S PLOT NAME : 024579_sp_ph PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

W. WISCONSIN AVENUE & N. 87TH STREET

2

PROJECT ID:	1060-33-99
INTERSECTION:	W. WISCONSIN AVENUE & N. 87TH STREET / PLEASANT VIEW STREET

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

CB1 TO	NO. OF CONDUCTORS	HEAD NO.	RED	YELLOW	GREEN	<RED>	<YELLOW>	<GREEN>	FLASHING <YELLOW>	D/WALK	WALK	PED BUTTON	OTHER
SB2	7	B										WHT/BLK	
SB3	12	12	RED	ORG	GRN								
		15								BLK	BLU		
		B										WHT/BLK	
SB4	7	B										WHT/BLK	
SB6	12	6	RED	ORG	GRN								
		17								BLK	BLU		
		B										WHT/BLK	
SB7	7	B										WHT/BLK	
SB10	12	9	RED	ORG	GRN								
		18								BLK	BLU		
		B										WHT/BLK	
SB12	12	3	RED	ORG	GRN		ORG/BLK	GRN/BLK					
		13								BLK	BLU		
		B										WHT/BLK	

NOTES: USE WHITE CONDUCTOR IN THE SIGNAL CABLE AS THE GROUNDED CONDUCTOR FOR ALL TRAFFIC SIGNAL INDICATIONS.
ENSURE THE GROUNDED CONDUCTOR IN THE FEEDER CABLE AND THE POLE CABLES ARE BOTH 18" LONGER THAN THE UNGROUNDED CONDUCTORS.
AT THE SIGNAL BASES, CONNECT ON TERMINAL FROM THE PEDESTRIAN PUSH BUTTONS TO THE COLOR INDICATED IN THE CHART. CONNECT THE OTHER TERMINAL TO THE GROUNDED CONDUCTOR.

EQUIPMENT GROUNDING CONDUCTOR 10 AWG GRN XLP	
FROM	TO
CB1	SB1
SB1	SB2
SB2	SB3
SB3	SB4
SB4	SB5
SB5	SB6
SB6	SB7
SB7	SB8
SB8	SB9
SB9	SB10
SB10	SB11
SB11	SB12
SB12	CB1

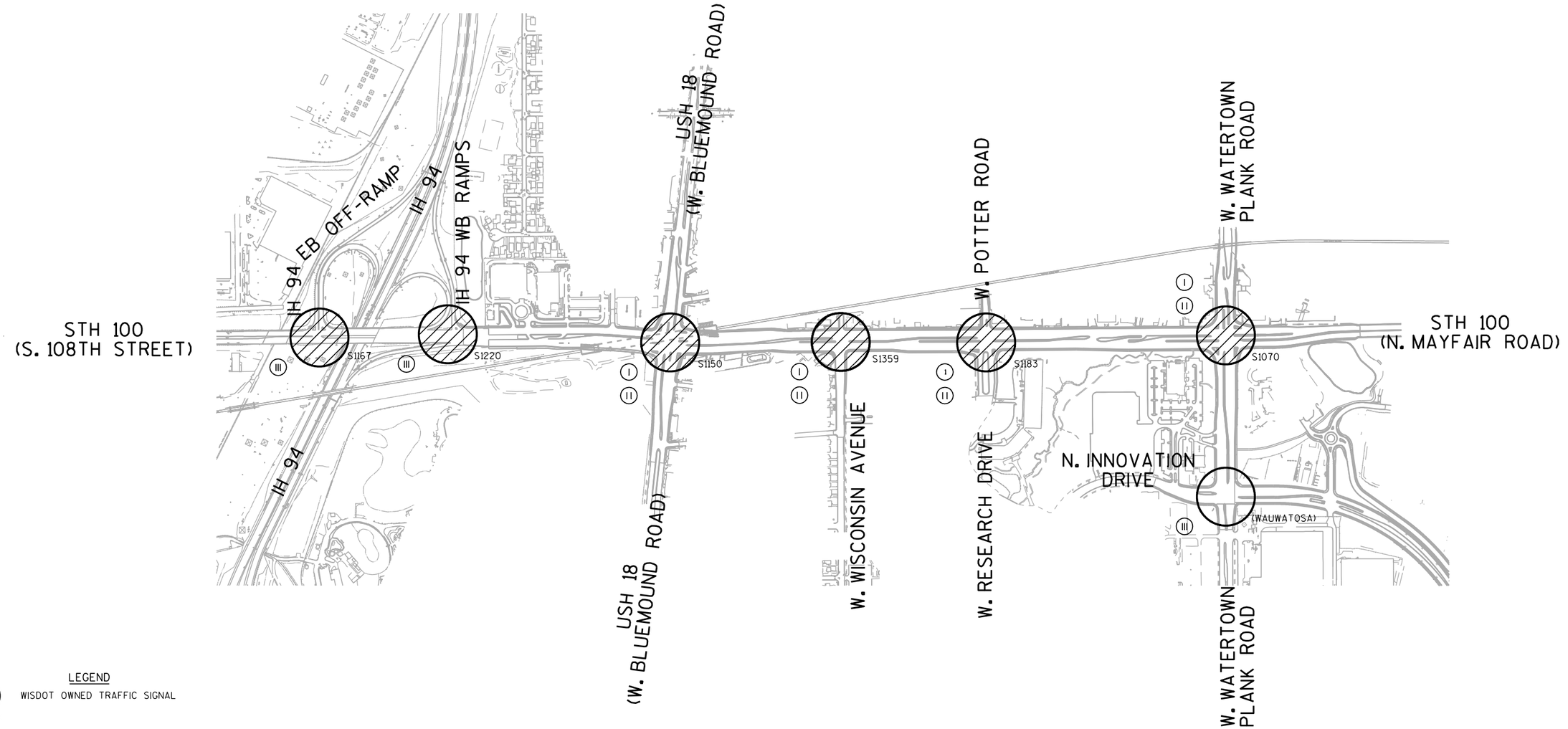
PULL BOX BONDING JUMPER 10 AWG GRN XLP	
FROM	TO
PB1	CB1
PB2	SB1
PB3	SB3
PB4	SB4
PB5	SB8
PB6	SB9
PB7	SB10
PB8	SB12

EMERGENCY VEHICLE PREEMPTION	
FROM	TO
CB1	SB6 (HEAD A)
CB1	SB12 (HEAD B)
CB1	SB3 (HEAD C)
CB1	SB10 (HEAD D)

VIDEO DETECTION CABLE	
FROM	TO
CB1	V1 (SB6)
CB1	V2 (SB12)
CB1	V3 (SB3)
CB1	V4 (SB10)

CONSTRUCTION NOTES:

1. MAXIMUM SPLICE LOSS SHALL BE 0.1 dB.
2. NO INTERMEDIATE SPLICES ALLOWED.
3. ALL SPLICES SHALL BE FUSION SPLICES.
4. COORDINATE FIBER ASSIGNMENTS WITH MARIE TREAZISE, STOC, AT (414) 225-3720 BEFORE SPLICING FIBER OPTIC CABLE.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE SHALL BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.



LEGEND

SXXXX — WISDOT OWNED TRAFFIC SIGNAL

(MUNICIPALITY) — MUNICIPAL OWNED TRAFFIC SIGNAL

(I) ETHERNET SWITCH INSTALLED IN TRAFFIC SIGNAL CABINET UNDER PREVIOUS PROJECT (PLANS NOT INCLUDED IN THIS PROJECT)

(II) PRE-TERMINATED PATCH PANEL INSTALLED IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL INSTALLED IN CONDUIT UNDER PREVIOUS PROJECT (PLANS NOT INCLUDED IN THIS PROJECT)

(III) INTERSECTION INCLUDED IN FUTURE ICMS PROJECT

PROJECT NO: 1060-33-99	HWY: STH 100	COUNTY: MILWAUKEE	TRAFFIC SIGNAL INTERCONNECT PROJECT OVERVIEW - STH 100	SHEET	E

CONSTRUCTION NOTES:

1. MAXIMUM SPLICE LOSS SHALL BE 0.1 dB.
2. NO INTERMEDIATE SPLICES ALLOWED.
3. ALL SPLICES SHALL BE FUSION SPLICES.
4. COORDINATE FIBER ASSIGNMENTS WITH MARIE TREAZISE, STOC, AT (414) 225-3720 BEFORE SPLICING FIBER OPTIC CABLE.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE SHALL BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.



LEGEND

SXXXX — WISDOT OWNED TRAFFIC SIGNAL

(MUNICIPALITY) — MUNICIPAL OWNED TRAFFIC SIGNAL

(I) ETHERNET SWITCH INSTALLED IN TRAFFIC SIGNAL CABINET UNDER PREVIOUS PROJECT (PLANS NOT INCLUDED IN THIS PROJECT)

(II) PRE-TERMINATED PATCH PANEL INSTALLED IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL INSTALLED IN CONDUIT UNDER PREVIOUS PROJECT (PLANS NOT INCLUDED IN THIS PROJECT)

(III) INTERSECTION INCLUDED IN FUTURE ICMS PROJECT

(IV) INSTALL ETHERNET SWITCH IN TRAFFIC SIGNAL CABINET

(V) INSTALL PRE-TERMINATED PATCH PANEL IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL IN CONDUIT

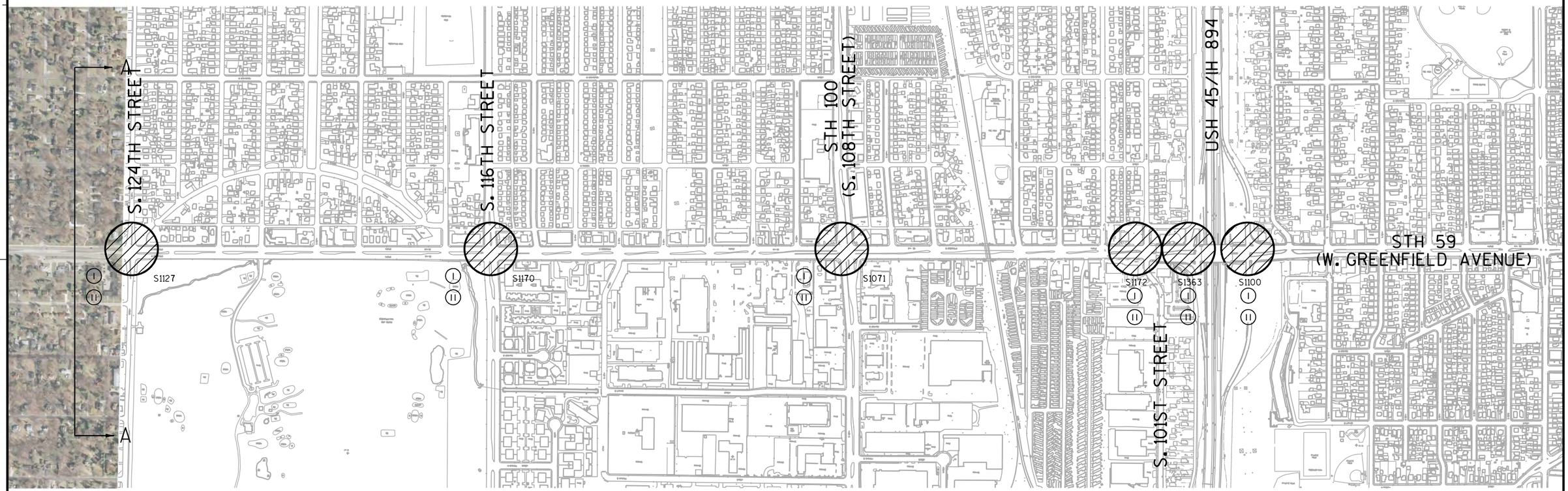
PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE / WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PROJECT OVERVIEW - STH 59	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025201_co_po.dgn PLOT DATE : 01-MAR-2013 03:32 PLOT BY : MSCD1S PLOT NAME : PLOT SCALE : 750:1

WISDOT/CADDS SHEET 42

CONSTRUCTION NOTES:

1. MAXIMUM SPLICE LOSS SHALL BE 0.1 dB.
2. NO INTERMEDIATE SPLICES ALLOWED.
3. ALL SPLICES SHALL BE FUSION SPLICES.
4. COORDINATE FIBER ASSIGNMENTS WITH MARIE TREAZISE, STOC, AT (414) 225-3720 BEFORE SPLICING FIBER OPTIC CABLE.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE SHALL BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.



LEGEND

SXXXX — WISDOT OWNED TRAFFIC SIGNAL

(MUNICIPALITY) — MUNICIPAL OWNED TRAFFIC SIGNAL

(I) ETHERNET SWITCH INSTALLED IN TRAFFIC SIGNAL CABINET UNDER PREVIOUS PROJECT (PLANS NOT INCLUDED IN THIS PROJECT)

(II) PRE-TERMINATED PATCH PANEL INSTALLED IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL INSTALLED IN CONDUIT UNDER PREVIOUS PROJECT (PLANS NOT INCLUDED IN THIS PROJECT)

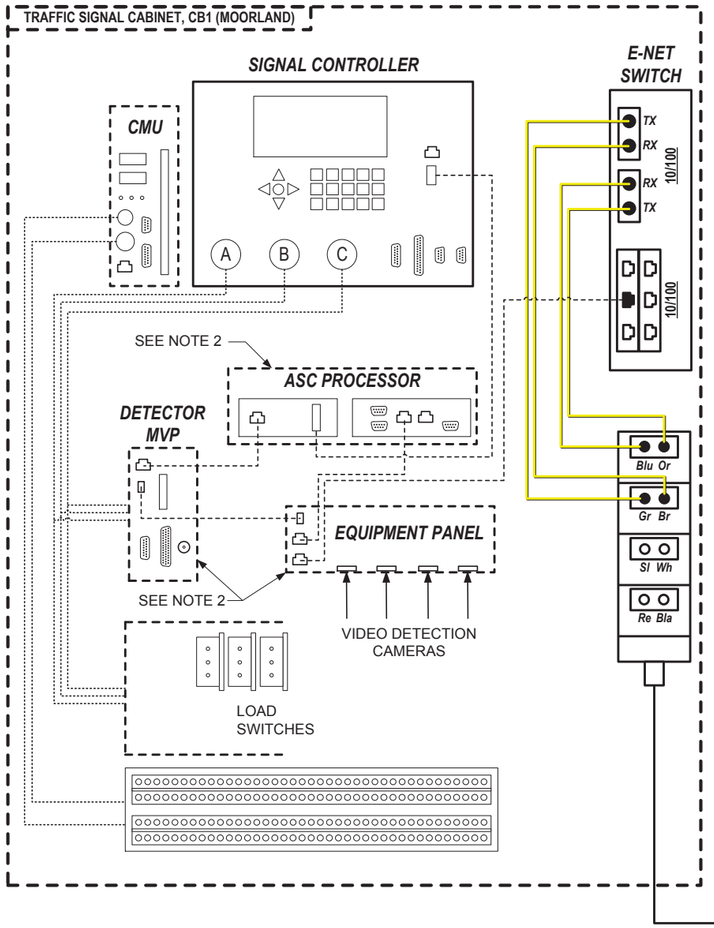
(III) INTERSECTION INCLUDED IN FUTURE ICMS PROJECT

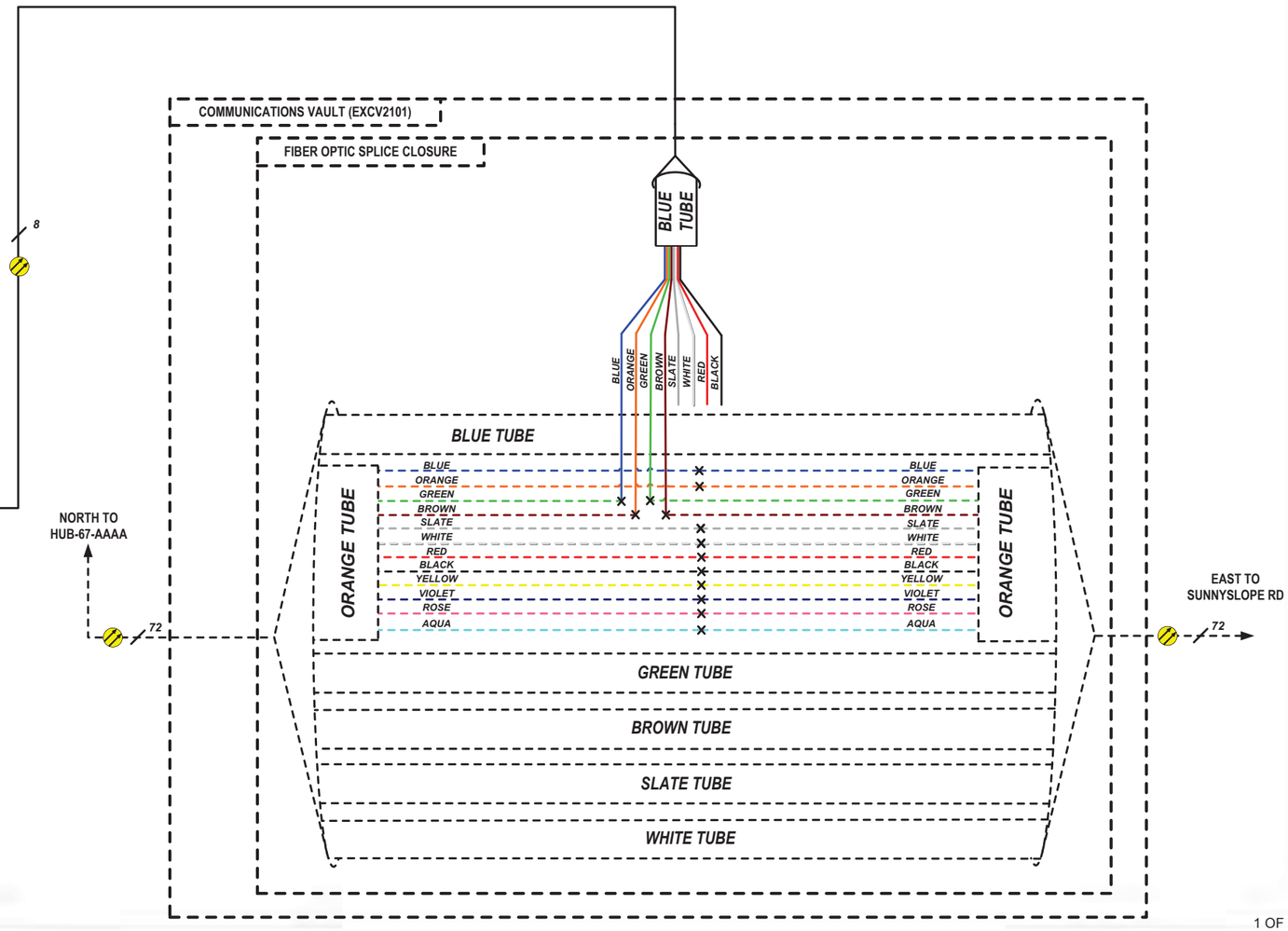
(IV) INSTALL ETHERNET SWITCH IN TRAFFIC SIGNAL CABINET

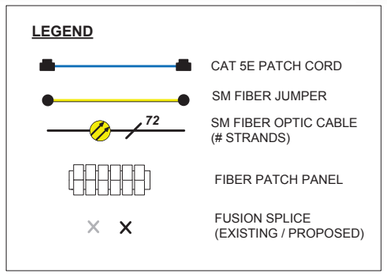
(V) INSTALL PRE-TERMINATED PATCH PANEL IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL IN CONDUIT

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE / WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PROJECT OVERVIEW - STH 59	SHEET	E

2





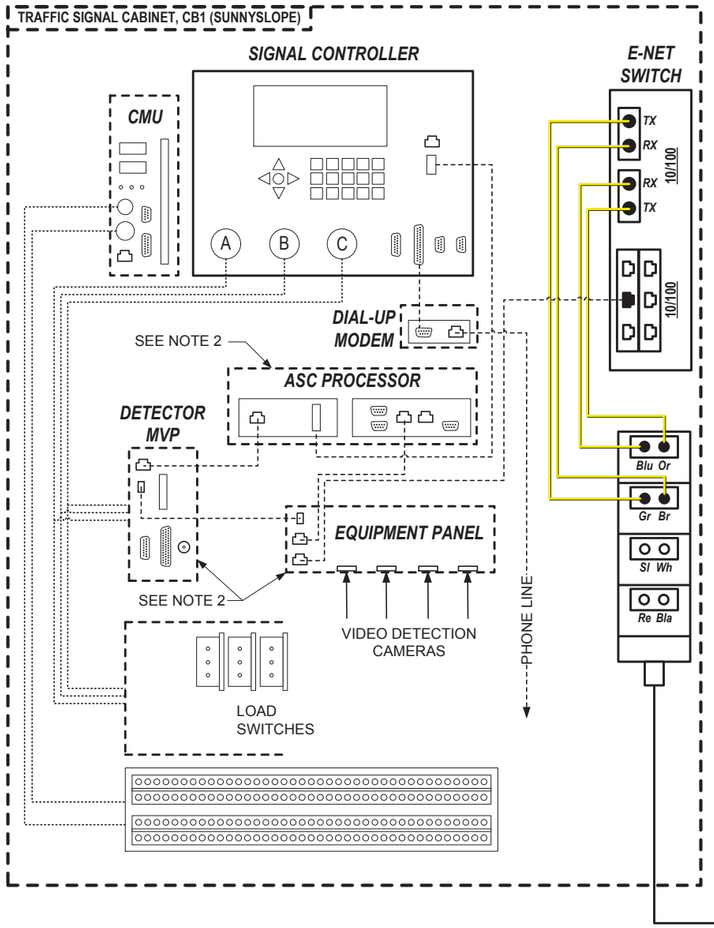


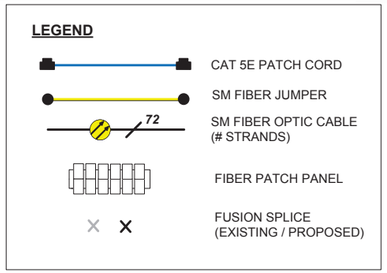
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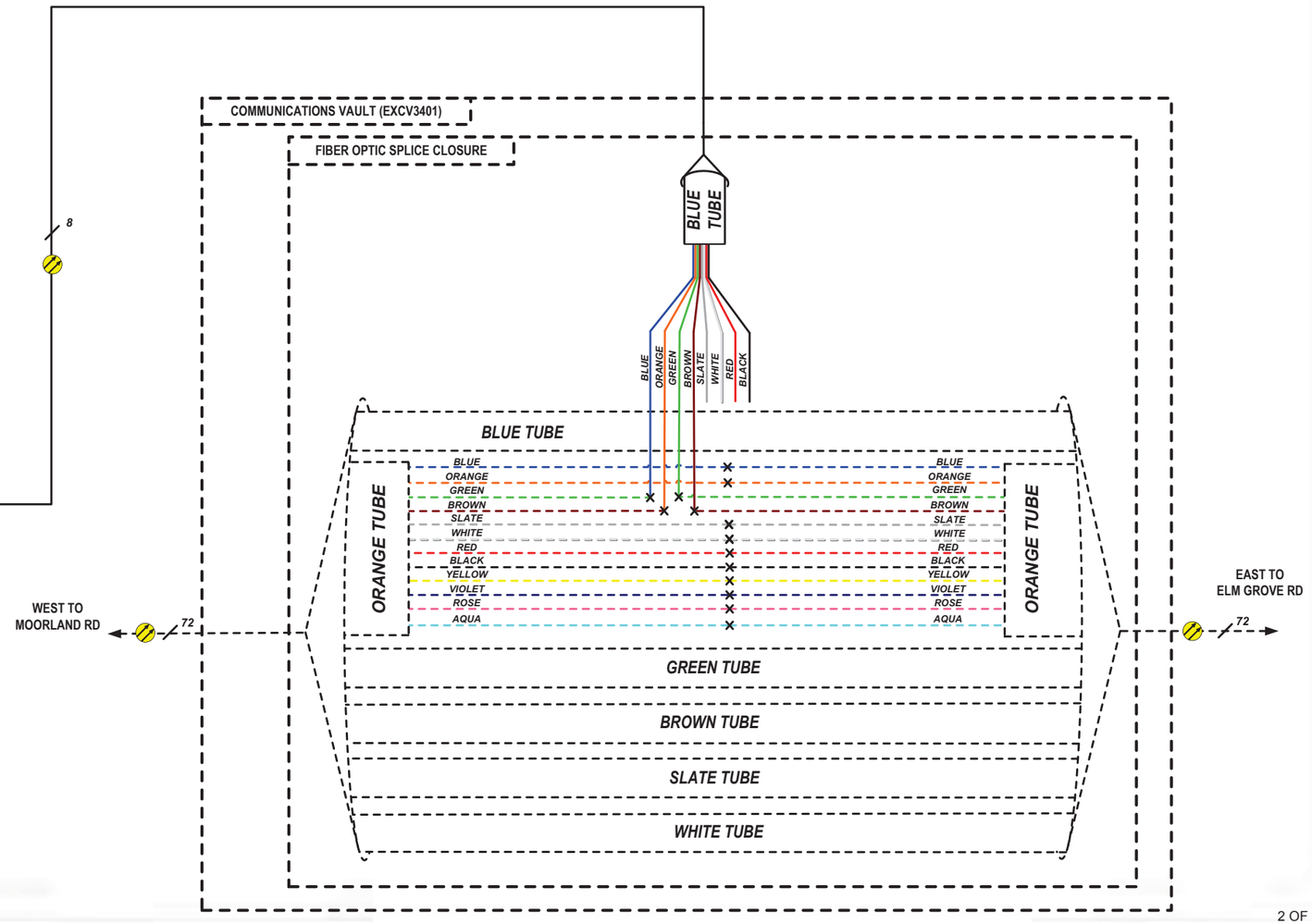
1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.
4. SEE FTMS PLANS FOR TRUNK FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - CTH 0 (S. MOORLAND RD)	SHEET: 225	E

2





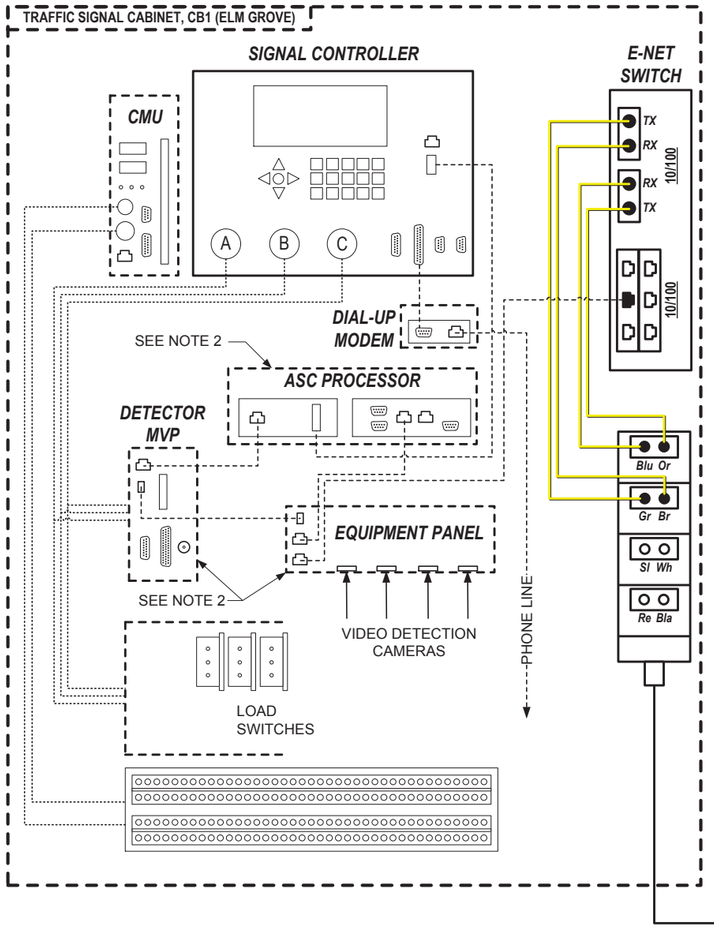


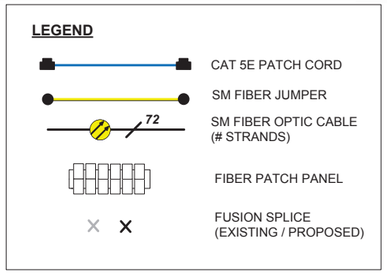
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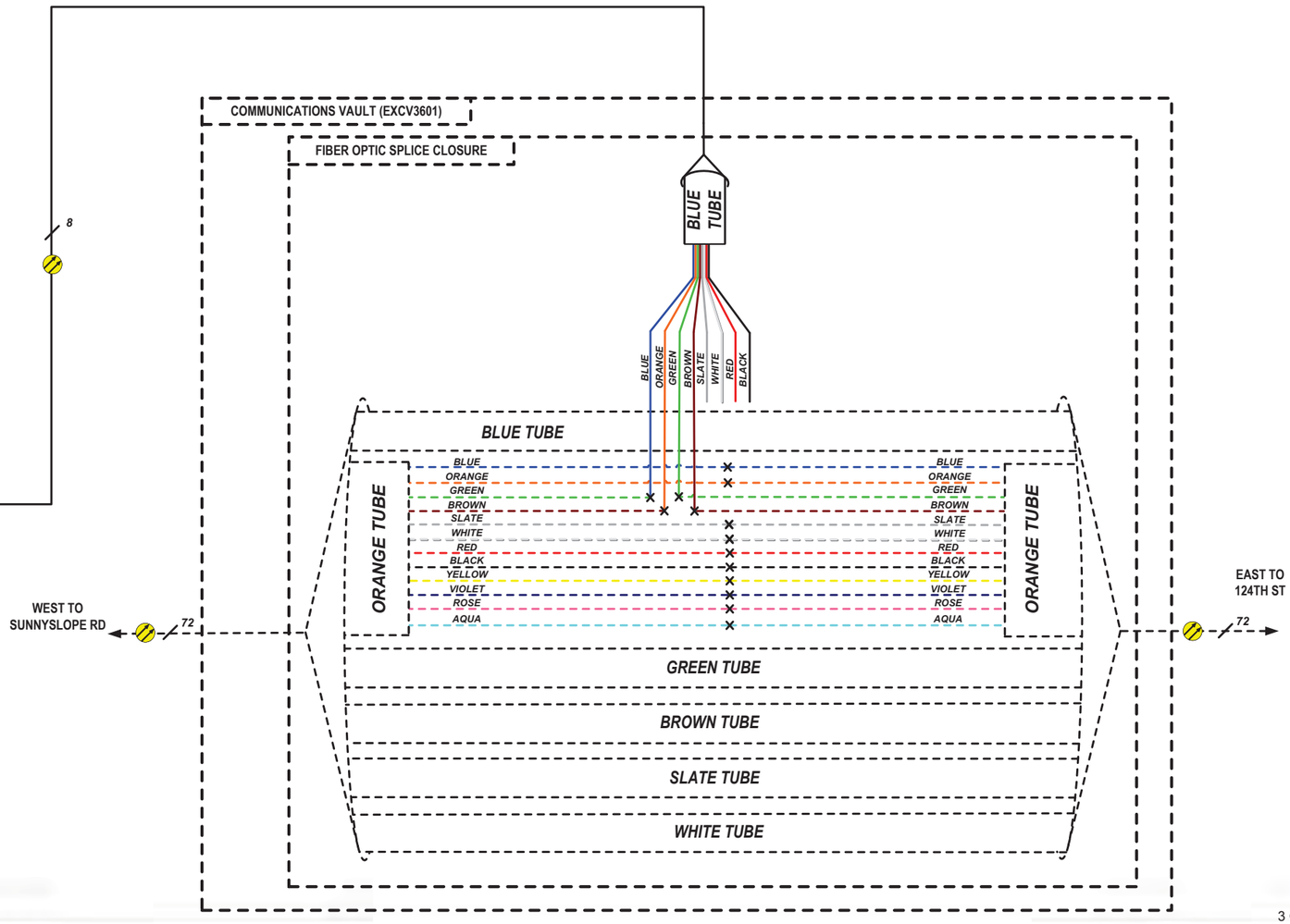
1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.
4. SEE FTMS PLANS FOR TRUNK FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - S. SUNNYSLOPE RD	SHEET: 226	E

2







NOTES:

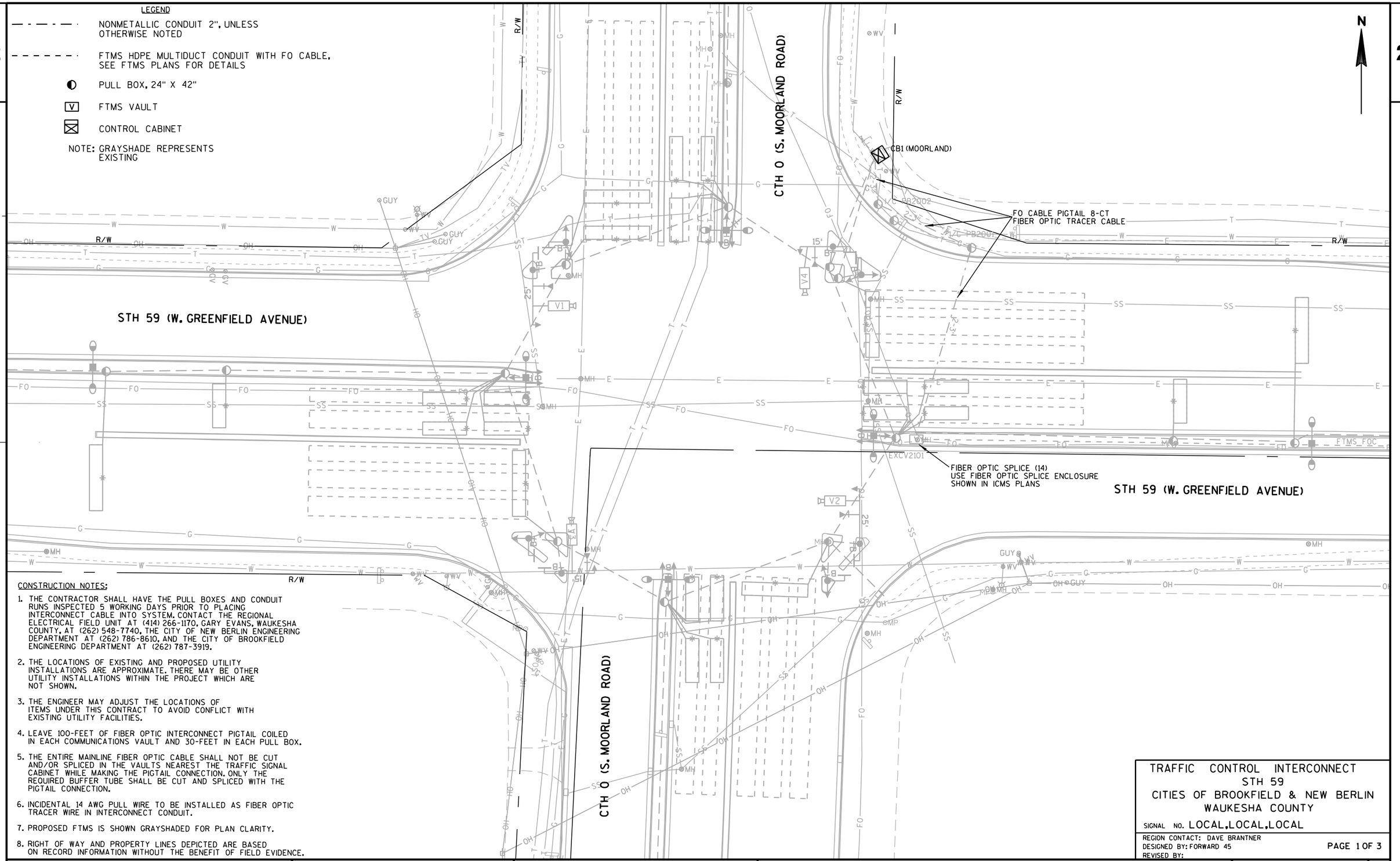
1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.
4. SEE FTMS PLANS FOR TRUNK FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - S. ELM GROVE RD	SHEET: 227	E

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- FTMS HDPE MULTIDUCT CONDUIT WITH FO CABLE, SEE FTMS PLANS FOR DETAILS
- PULL BOX, 24" X 42"
- FTMS VAULT
- CONTROL CABINET

NOTE: GRAYSHADE REPRESENTS EXISTING



CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING INTERCONNECT CABLE INTO SYSTEM. CONTACT THE REGIONAL ELECTRICAL FIELD UNIT AT (414) 266-1170, GARY EVANS, WAUKESHA COUNTY, AT (262) 548-7740, THE CITY OF NEW BERLIN ENGINEERING DEPARTMENT AT (262) 786-8610, AND THE CITY OF BROOKFIELD ENGINEERING DEPARTMENT AT (262) 787-3919.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. LEAVE 100-FEET OF FIBER OPTIC INTERCONNECT PIGTAIL COILED IN EACH COMMUNICATIONS VAULT AND 30-FEET IN EACH PULL BOX.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE TO BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.
7. PROPOSED FTMS IS SHOWN GRAYSHADED FOR PLAN CLARITY.
8. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL INTERCONNECT
STH 59
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

SIGNAL NO. LOCAL,LOCAL,LOCAL

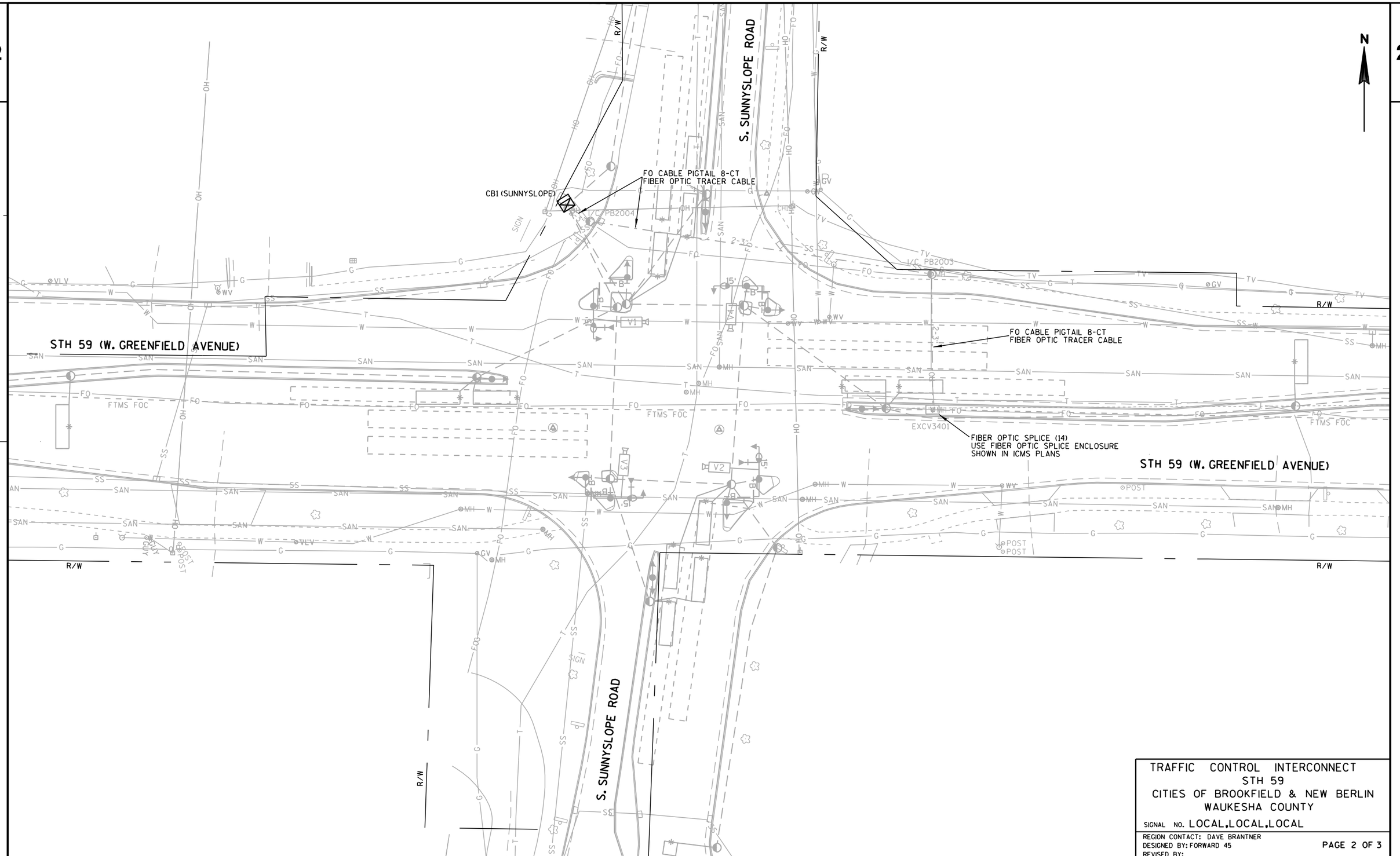
REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 1 OF 3

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

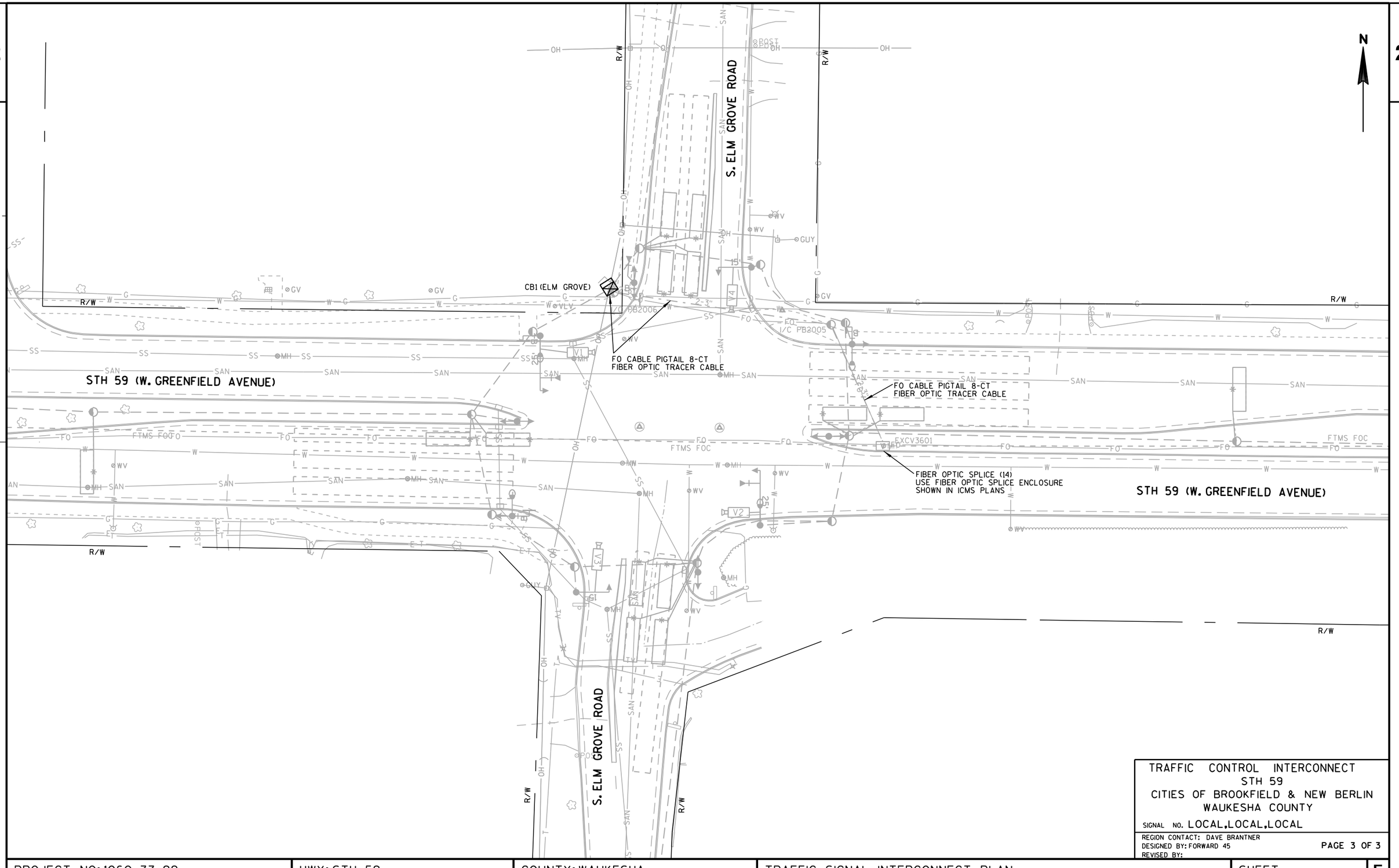
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WISDOT/CADDS SHEET 42



PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025212_co.dgn PLOT DATE : 01-MAR-2013 03:34 PLOT BY : MSCD1S PLOT NAME : 025212_co PLOT SCALE : 40:1



TRAFFIC CONTROL INTERCONNECT
STH 59
CITIES OF BROOKFIELD & NEW BERLIN
WAUKESHA COUNTY

SIGNAL NO. LOCAL,LOCAL,LOCAL

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 3 OF 3

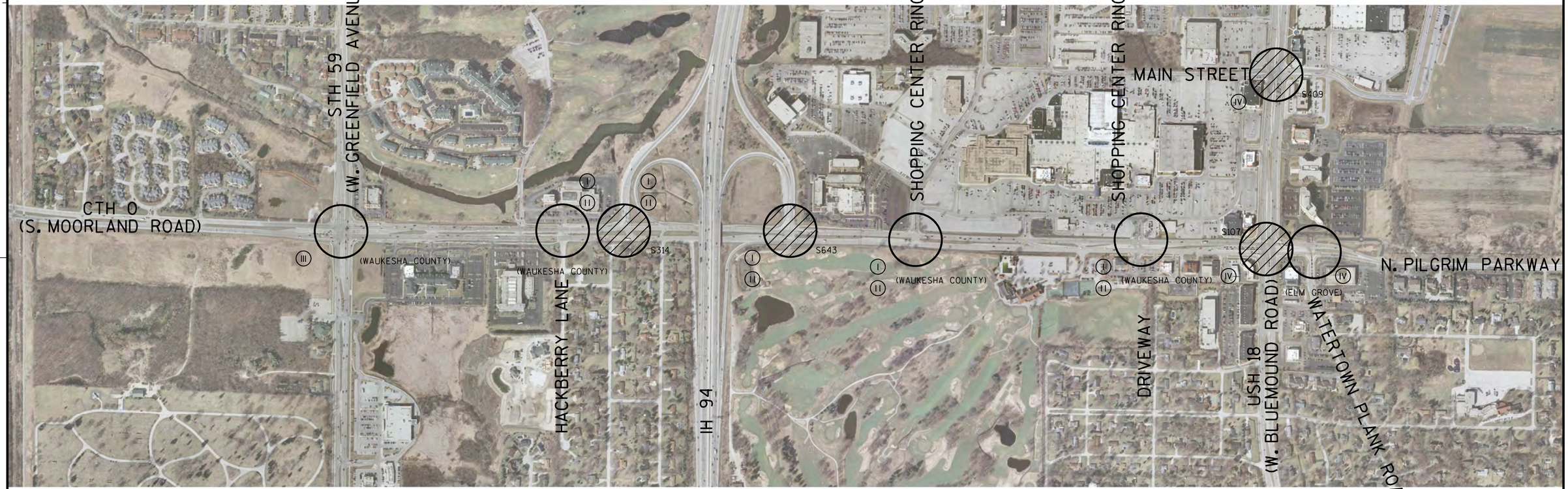
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WISDOT/CADDS SHEET 42

CONSTRUCTION NOTES:

1. MAXIMUM SPLICE LOSS SHALL BE 0.1 dB.
2. NO INTERMEDIATE SPLICES ALLOWED.
3. ALL SPLICES SHALL BE FUSION SPLICES.
4. COORDINATE FIBER ASSIGNMENTS WITH MARIE TREAZISE, STOC, AT (414) 225-3720 BEFORE SPLICING FIBER OPTIC CABLE.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE SHALL BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.



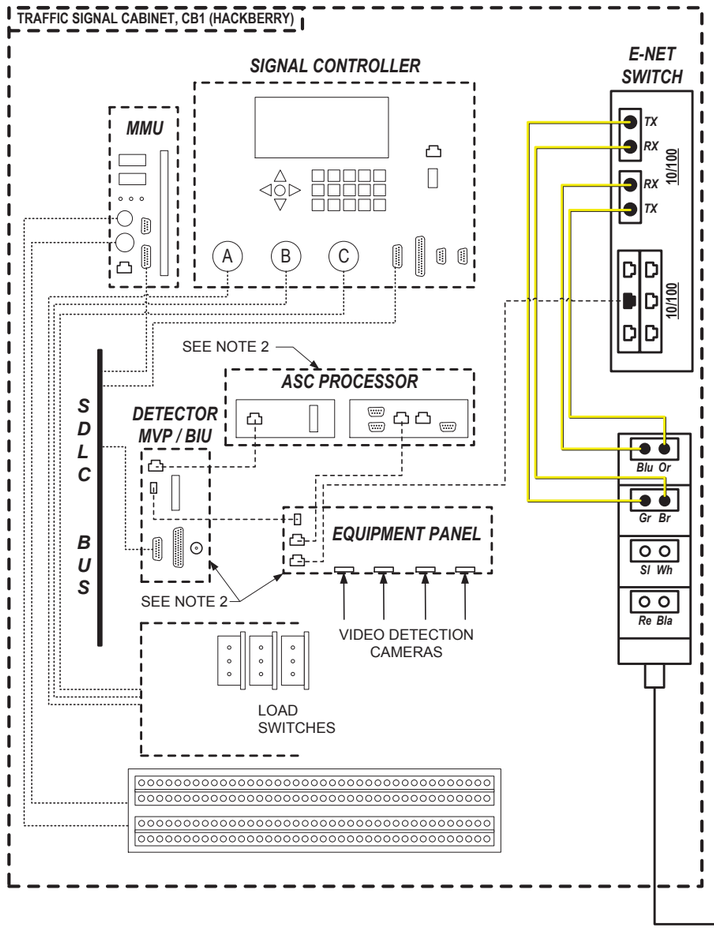
LEGEND

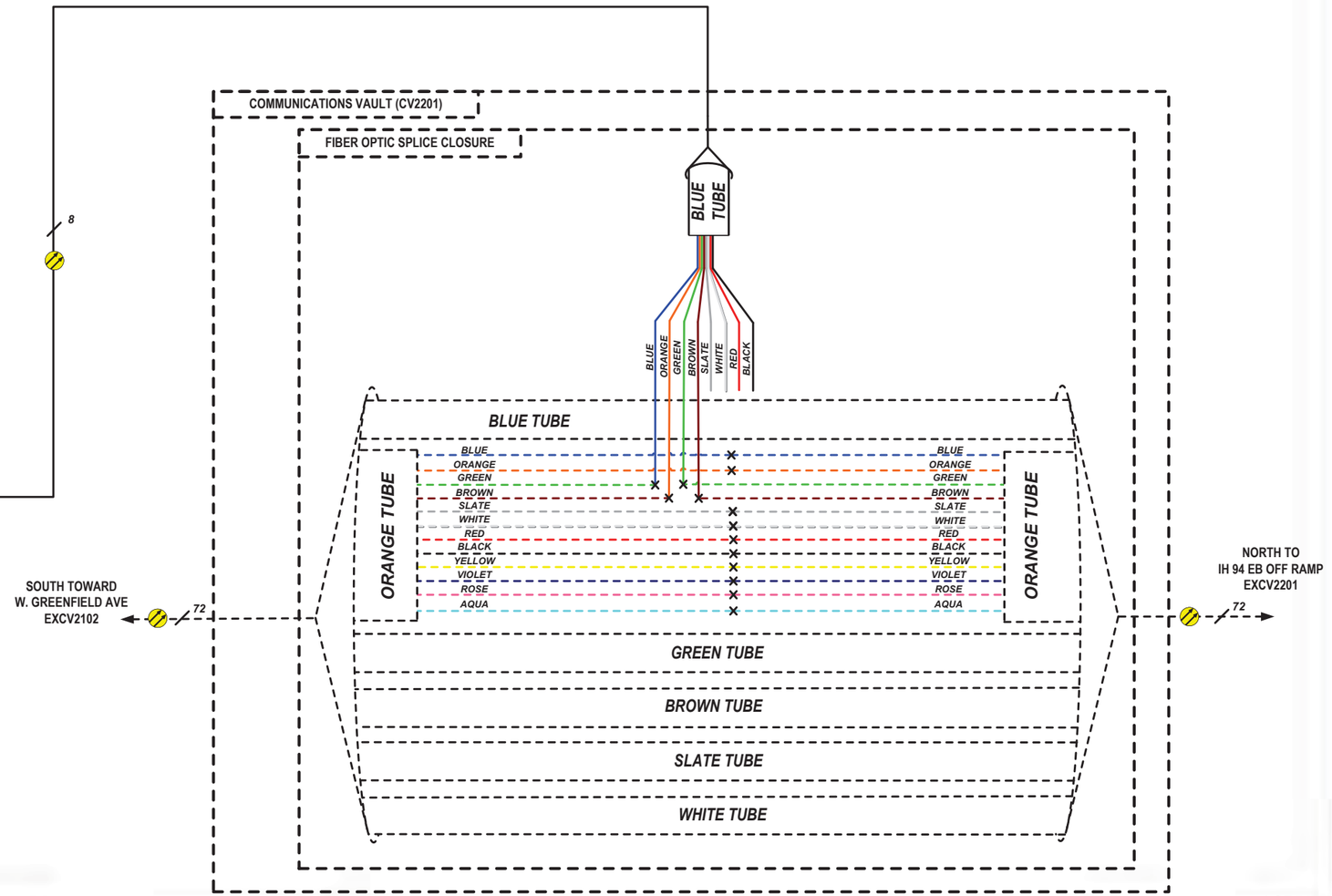
- WISDOT OWNED TRAFFIC SIGNAL — SXXXX
- MUNICIPAL OWNED TRAFFIC SIGNAL — (MUNICIPALITY)
- (I) INSTALL ETHERNET SWITCH IN TRAFFIC SIGNAL CABINET
- (II) INSTALL PRE-TERMINATED PATCH PANEL IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL IN CONDUIT
- (III) INCLUDED IN STH 59 SYSTEM
- (IV) INCLUDED IN STATE OWNED TRAFFIC RESPONSIVE SYSTEM

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PROJECT OVERVIEW - CTH O	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025301_co_po.dgn PLOT DATE : 01-MAR-2013 03:35 PLOT BY : MSCD1S PLOT NAME : PLOT SCALE : 750:1

WISDOT/CADDS SHEET 42





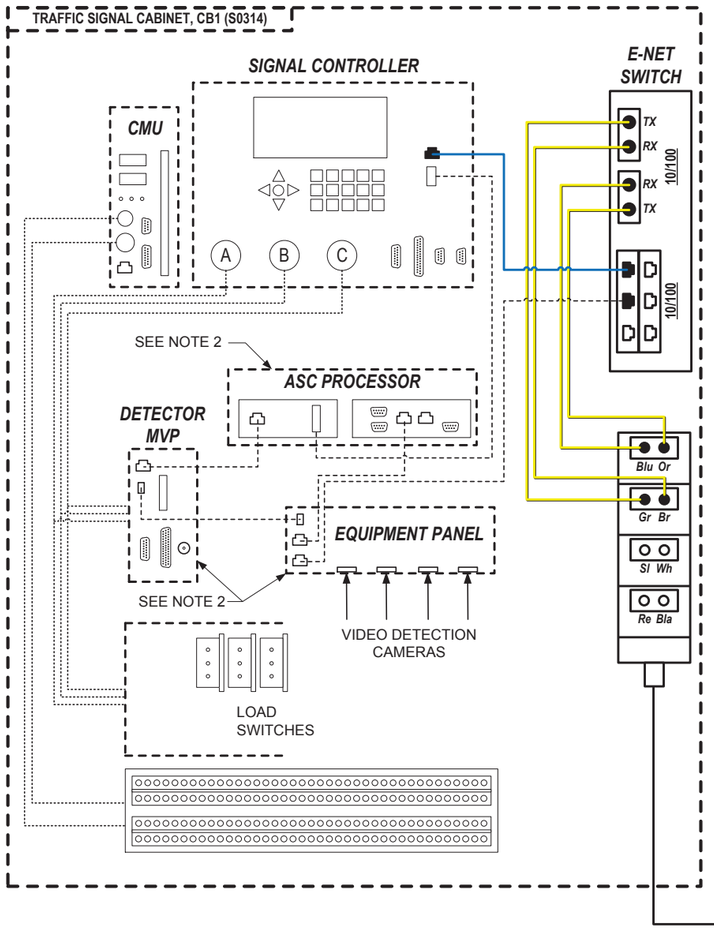
LEGEND

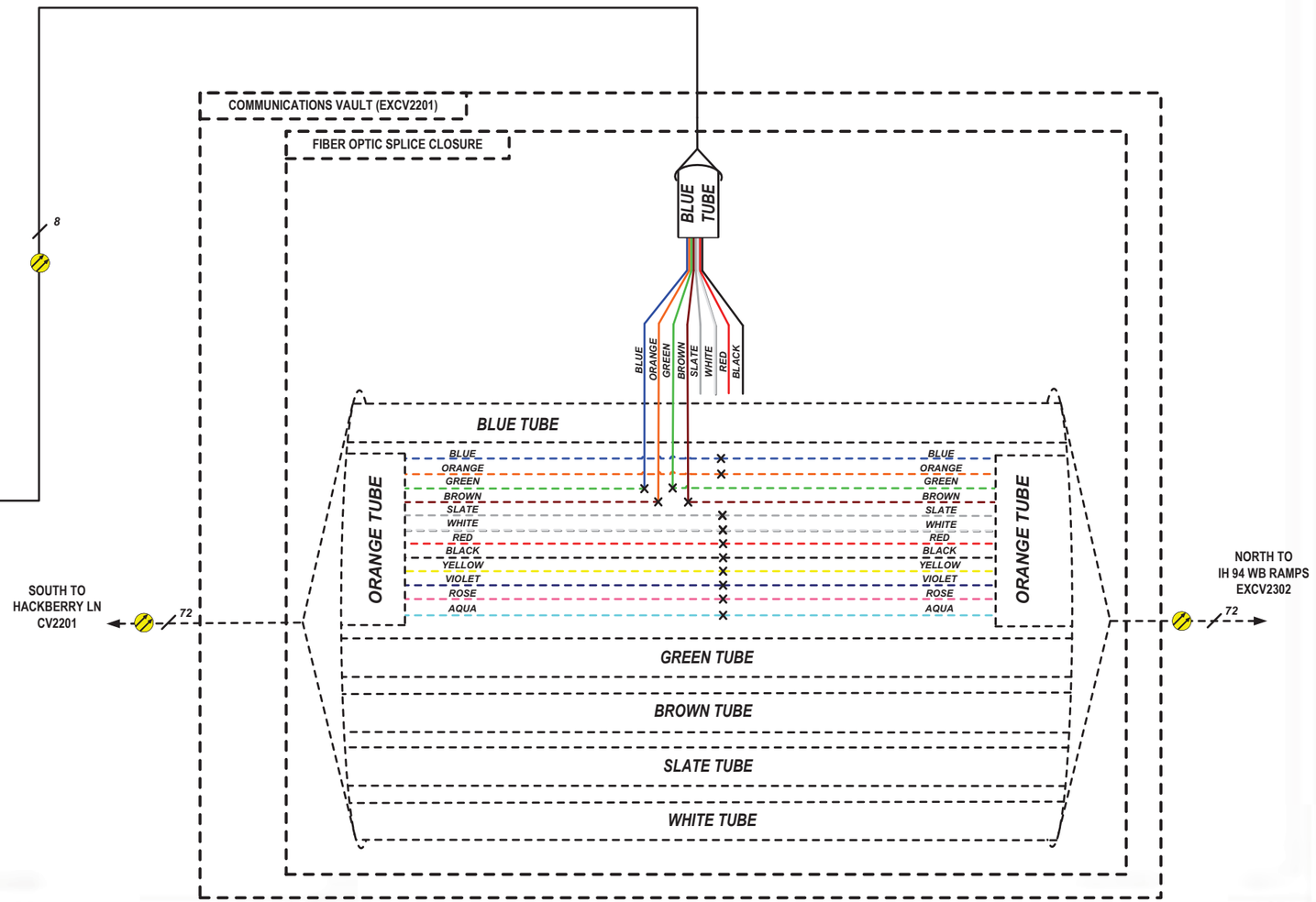
- CAT 5E PATCH CORD
- SM FIBER JUMPER
- 72 — SM FIBER OPTIC CABLE (# STRANDS)
- FIBER PATCH PANEL
- FUSION SPLICE (EXISTING / PROPOSED)

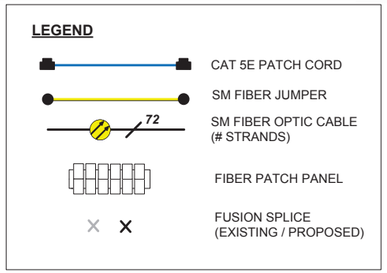
NOTES:

1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.
4. SEE FTMS PLANS FOR TRUNK FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: CTH 0	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - HACKBERRY LN	SHEET: 232	E



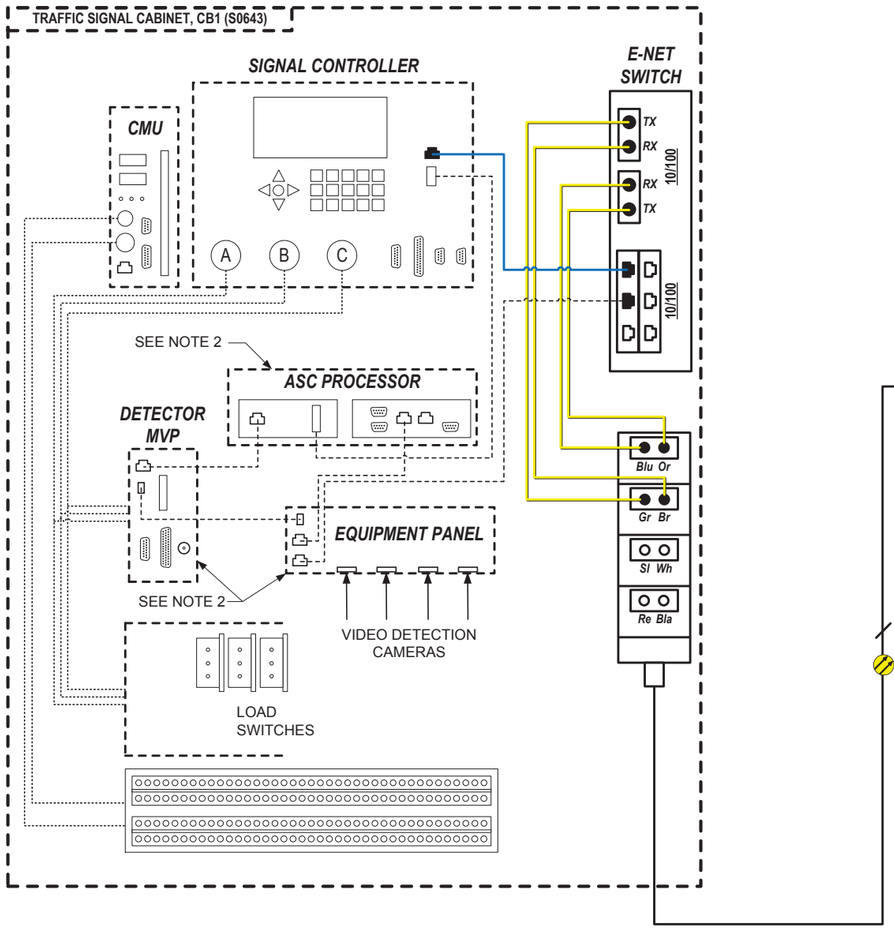


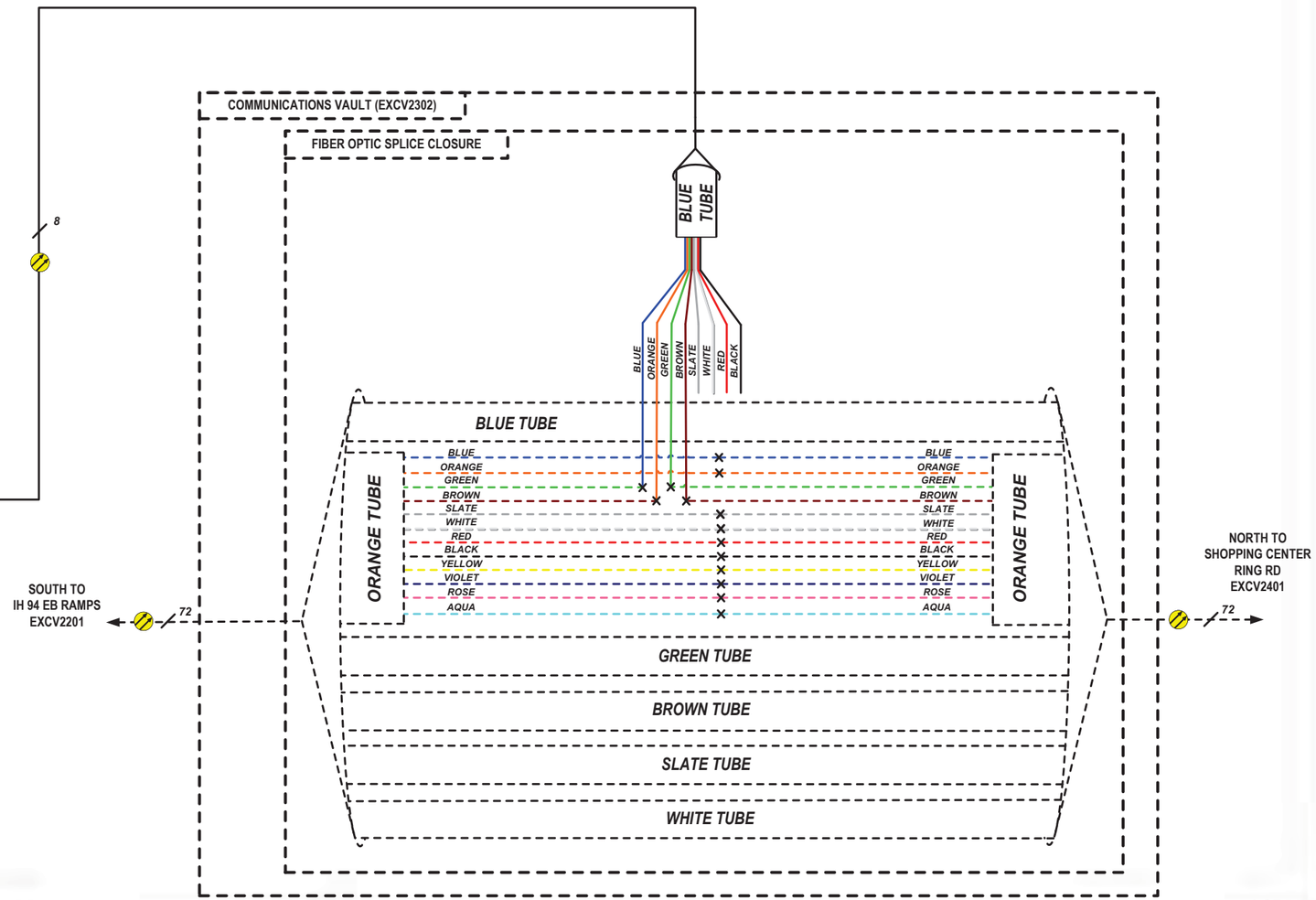


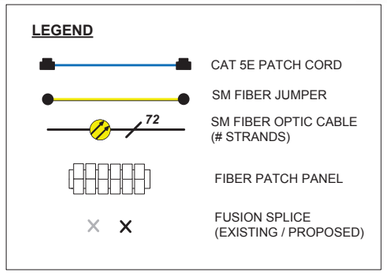
NOTES:

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3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.
4. SEE FTMS PLANS FOR TRUNK FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: CTH 0	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - IH 94 EB RAMPS	SHEET: 233	E





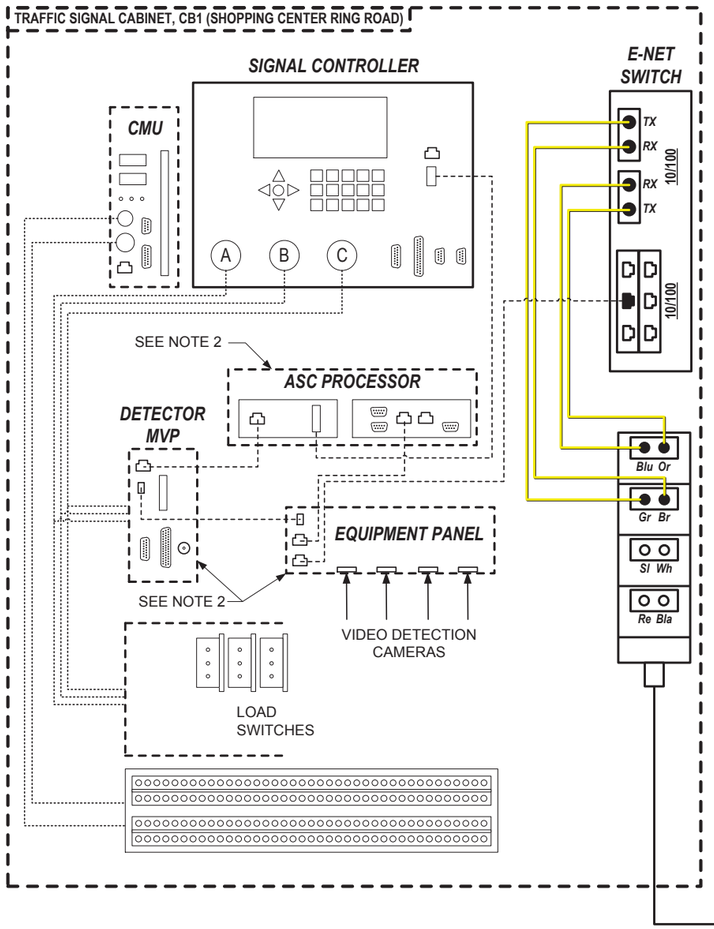


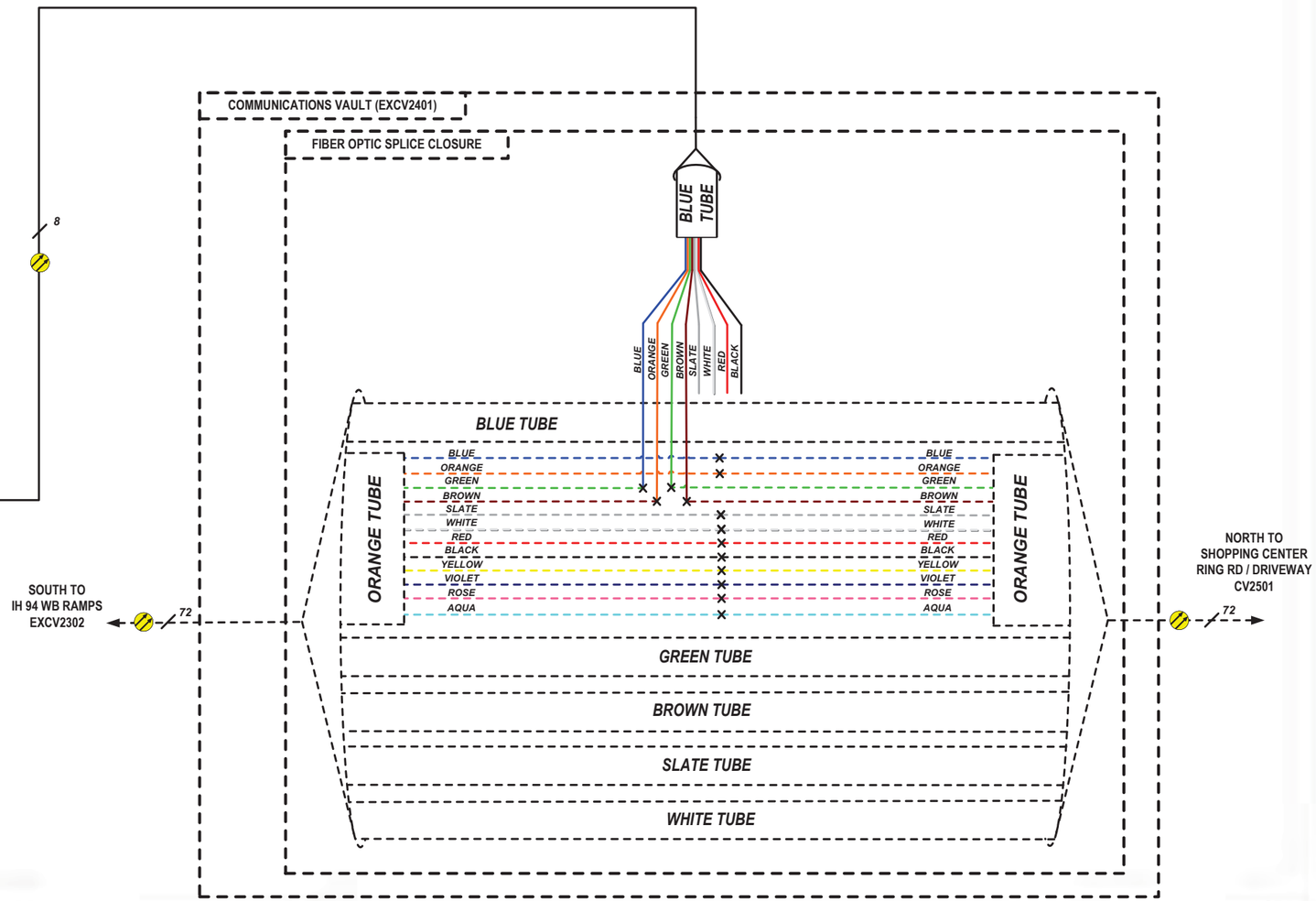
NOTES:

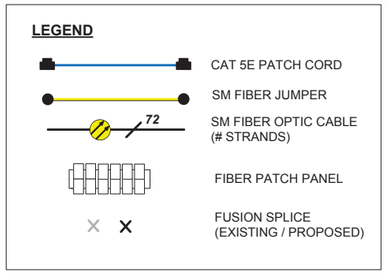
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3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.
4. SEE FTMS PLANS FOR TRUNK FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: CTH 0	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - IH 94 WB RAMPS	SHEET: 234	E

2



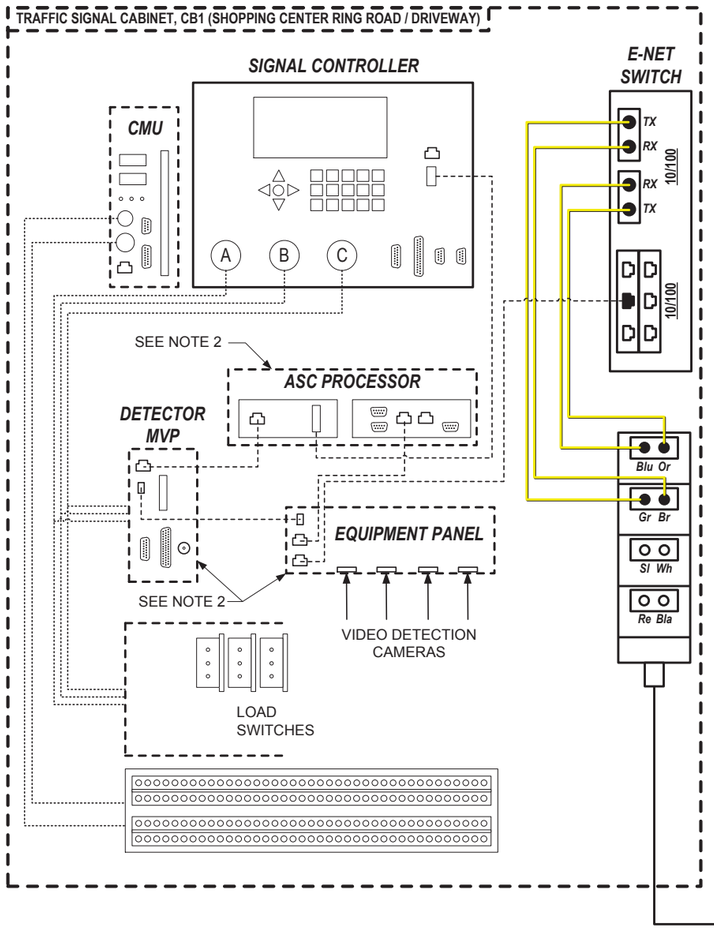


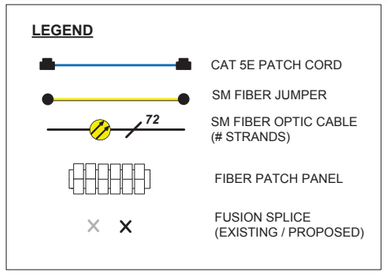


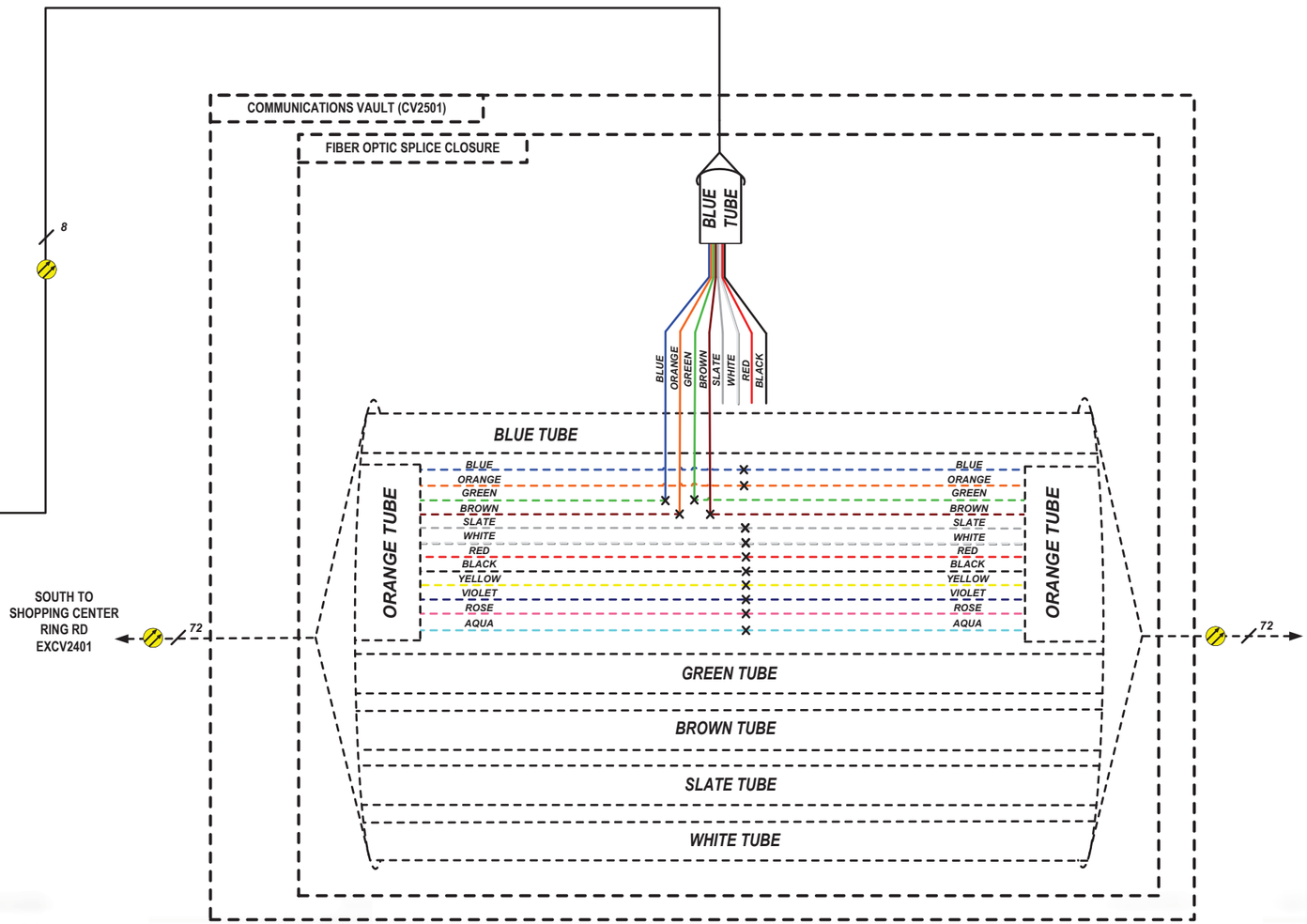
NOTES:

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2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.
4. SEE FTMS PLANS FOR TRUNK FIBER CABLE ROUTE.

2







NOTES:

1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.
4. SEE FTMS PLANS FOR TRUNK FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: CTH 0	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - SHOPPING CENTER RING RD / DRIVEWAY	SHEET: 236	E

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

FTMS HDPE MULTIDUCT CONDUIT WITH FO CABLE, SEE FTMS PLANS FOR DETAILS

PULL BOX, 24" X 42"

FTMS VAULT

CONTROL CABINET

NOTE: GRAYSHADE REPRESENTS EXISTING

N

CTH O (S. MOORLAND ROAD)

FIBER OPTIC SPLICE (14) USE FIBER OPTIC SPLICE ENCLOSURE IN ICMS PLANS

FO CABLE PIGTAIL 8-CT FIBER OPTIC TRACER CABLE

I/C PB3001

FO CABLE PIGTAIL 8-CT FIBER OPTIC TRACER CABLE

FO CABLE PIGTAIL 8-CT

CB1 (HACKBERRY)

DRIVEWAY

HACKBERRY LANE

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING INTERCONNECT CABLE INTO SYSTEM. CONTACT THE REGIONAL ELECTRICAL FIELD UNIT AT (414) 266-1170 AND GARY EVANS, WAUKESHA COUNTY, AT (262) 548-7740..
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. LEAVE 100-FEET OF FIBER OPTIC INTERCONNECT PIGTAIL COILED IN EACH COMMUNICATIONS VAULT AND 30-FEET IN EACH PULL BOX.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE TO BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.
7. PROPOSED FTMS IS SHOWN GRAYSHADED FOR PLAN CLARITY.
8. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL INTERCONNECT
CTH O
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. LOCAL,S0314,S0643,LOCAL,LOCAL

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 1 OF 5

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025311_co.dgn PLOT DATE : 01-MAR-2013 03:36 PLOT BY : MSCD1S PLOT NAME : 025311_co PLOT SCALE : 40:1

2

2

N

R/W

R/W

IH 94 EB OFF RAMP

R/W IS OFF
THE PAGE

IH 94 EB ON RAMP

CTH O (S. MOORLAND ROAD)

V1

FO CABLE PIGTAIL 8-CT

FIBER OPTIC SPLICE (14)
USE FIBER OPTIC SPLICE
ENCLOSURE IN ICMS PLANS

PB10

EXCV2201

V2

FO CABLE PIGTAIL 8-CT

V3

2-3"

PB11

2-3"

PB12

CB1 (S0314)

FO CABLE PIGTAIL 8-CT

CTH O (S. MOORLAND ROAD)

R/W

R/W

TRAFFIC CONTROL INTERCONNECT
CTH O
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. LOCAL,S0314,S0643,LOCAL,LOCAL

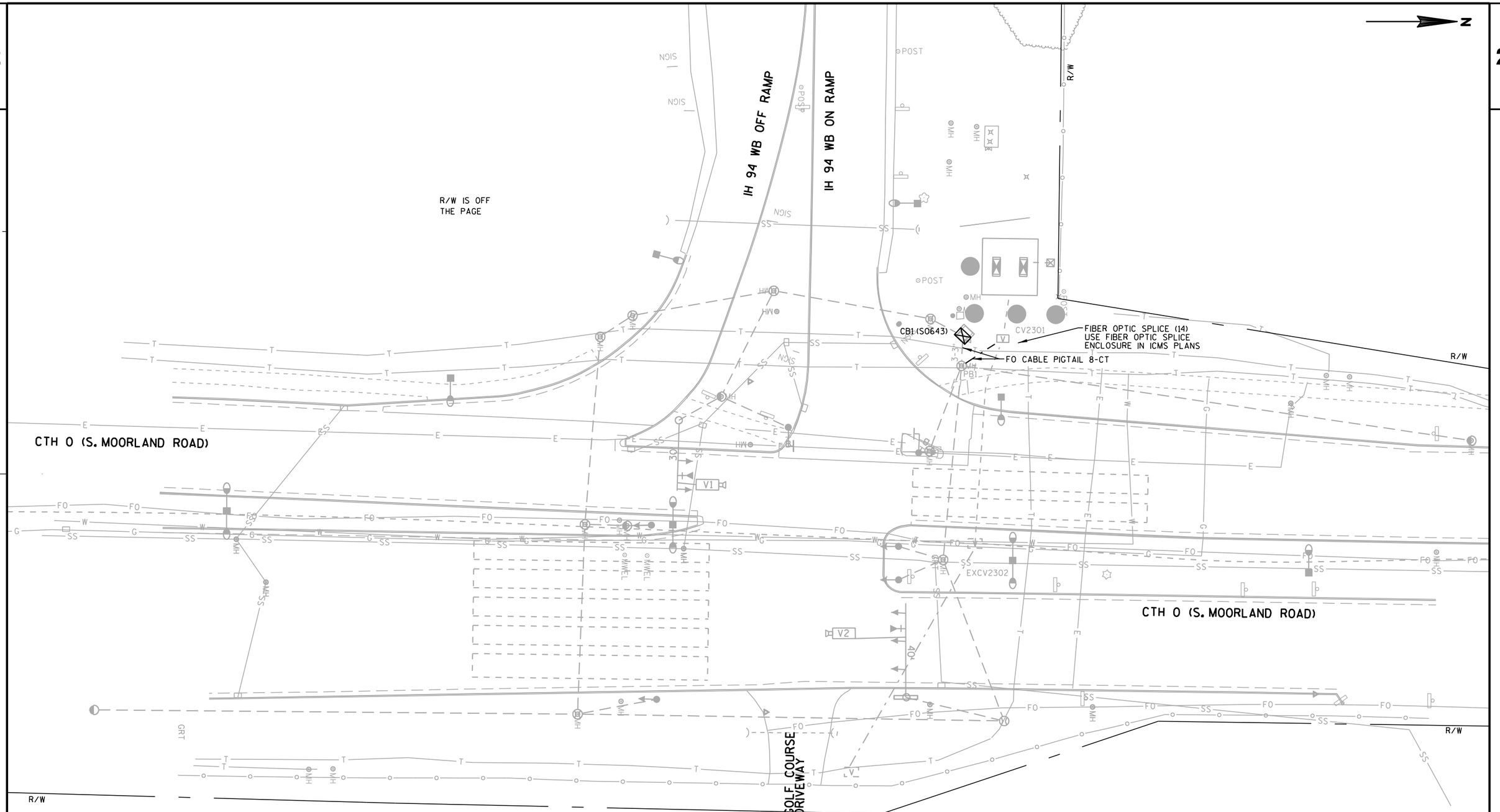
REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 2 OF 5

PROJECT NO: 1060-33-99	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025312_co.dgn PLOT DATE : 01-MAR-2013 03:36 PLOT BY : MSCD1S PLOT NAME : 025312_co PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42



TRAFFIC CONTROL INTERCONNECT
CTH O
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. LOCAL,SO314,SO643,LOCAL,LOCAL

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 3 OF 5

PROJECT NO: 1060-33-99	HWY: IH 94	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025313_co.dgn PLOT DATE : 01-MAR-2013 03:37 PLOT BY : MSCD1S PLOT NAME : 025313_co PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

N

SHOPPING CENTER RING ROAD

R/W

PLE

CTH O (S. MOORLAND ROAD)

CB1 (SHOPPING CENTER RING ROAD)

FO CABLE PIGTAIL 8-CT

FO CABLE PIGTAIL 8-CT
FIBER OPTIC TRACER CABLE

I/C PB3002

PLE

R/W

FO CABLE PIGTAIL 8-CT
FIBER OPTIC TRACER CABLE

EXCV2401

FIBER OPTIC SPLICE (14)
USE FIBER OPTIC SPLICE
ENCLOSURE IN ICMS PLANS

CTH O (S. MOORLAND ROAD)

R/W

R/W

V1

V2

V3

TRAFFIC CONTROL INTERCONNECT
CTH O
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. LOCAL,S0314,S0643,LOCAL,LOCAL

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 4 OF 5

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025314_co.dgn PLOT DATE : 01-MAR-2013 03:37 PLOT BY : MSCD1S PLOT NAME : 025314_co PLOT SCALE : 40:1

2

N

PLE

R/W

I/C PB3003

FO CABLE PIGTAIL 8-CT
FIBER OPTIC TRACER CABLE

FO CABLE PIGTAIL 8-CT

FO CABLE PIGTAIL 8-CT
FIBER OPTIC TRACER CABLE

CTH O (S. MOORLAND ROAD)

FIBER OPTIC SPLICE (14)
USE FIBER OPTIC SPLICE
ENCLOSURE SHOWN IN ICMS PLANS

CV2501

CB1 (SHOPPING CENTER RING
ROAD / DRIVEWAY)

PB1

SHOPPING CENTER
RING ROAD

V1

V2

V3

CTH O (S. MOORLAND ROAD)

R/W

PLE

R/W

DRIVEWAY

TRAFFIC CONTROL INTERCONNECT
CTH O
CITY OF BROOKFIELD
WAUKESHA COUNTY

SIGNAL NO. LOCAL,S0314,S0643,LOCAL,LOCAL

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 5 OF 5

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025315_co.dgn PLOT DATE : 01-MAR-2013 11:28 PLOT BY : mscjym PLOT NAME : 025315_co PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

CONSTRUCTION NOTES:

1. MAXIMUM SPLICE LOSS SHALL BE 0.1 dB.
2. NO INTERMEDIATE SPLICES ALLOWED.
3. ALL SPLICES SHALL BE FUSION SPLICES.
4. COORDINATE FIBER ASSIGNMENTS WITH MARIE TREAZISE, STOC, AT (414) 225-3720 BEFORE SPLICING FIBER OPTIC CABLE.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE SHALL BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.

N



LEGEND

- WISDOT OWNED TRAFFIC SIGNAL — SXXXX
- MUNICIPAL OWNED TRAFFIC SIGNAL — (MUNICIPALITY)
- (I) INSTALL ETHERNET SWITCH IN TRAFFIC SIGNAL CABINET
- (II) INSTALL PRE-TERMINATED PATCH PANEL IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL IN CONDUIT
- (III) INCLUDED IN CTH O SYSTEM
- (IV) INCLUDED IN STATE OWNED TRAFFIC RESPONSIVE SYSTEM
- (V) INCLUDED IN STH 100 SYSTEM

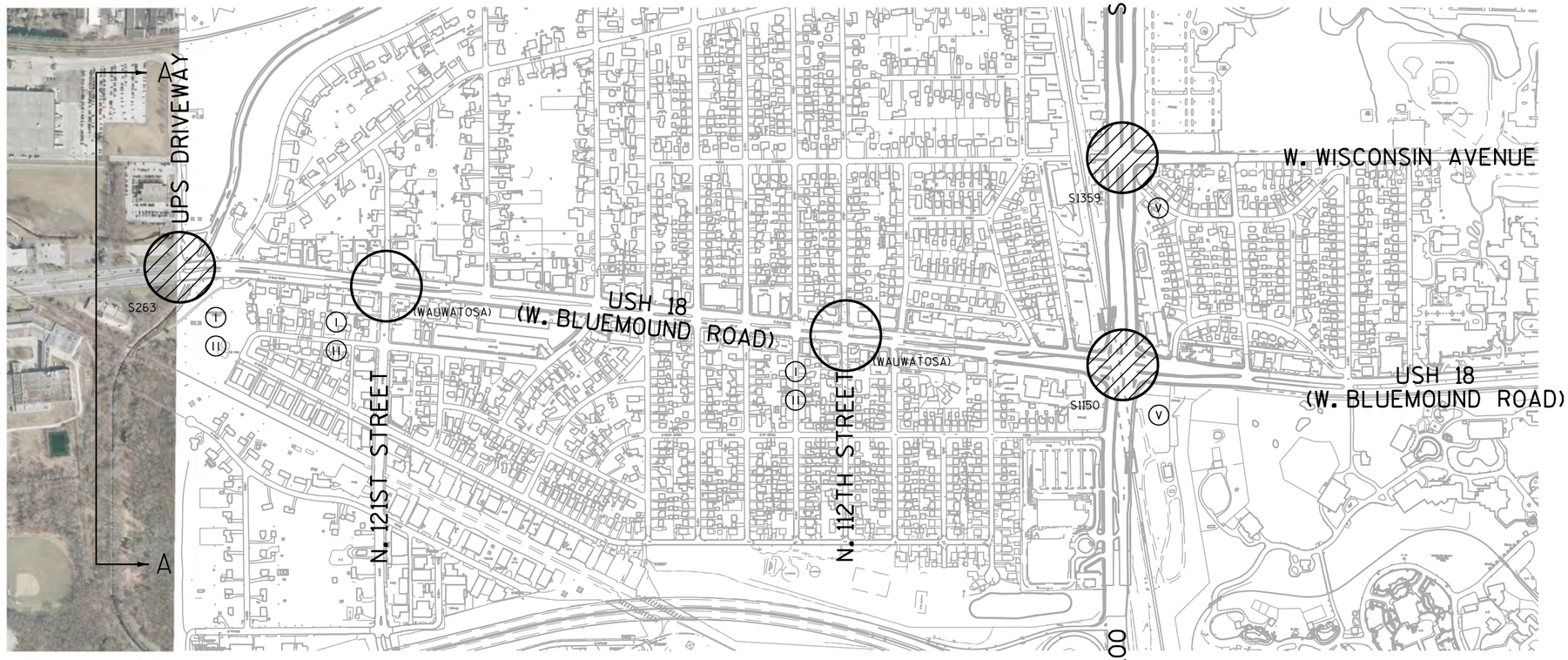
PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE / WAUKEHSA	TRAFFIC SIGNAL INTERCONNECT PROJECT OVERVIEW - USH 18-1	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025401_co_po.dgn PLOT DATE : 01-MAR-2013 03:38 PLOT BY : MSCD1S PLOT NAME : PLOT SCALE : 750:1

WISDOT/CADDS SHEET 42

CONSTRUCTION NOTES:

1. MAXIMUM SPLICE LOSS SHALL BE 0.1 dB.
2. NO INTERMEDIATE SPLICES ALLOWED.
3. ALL SPLICES SHALL BE FUSION SPLICES.
4. COORDINATE FIBER ASSIGNMENTS WITH MARIE TREAZISE, STOC, AT (414) 225-3720 BEFORE SPLICING FIBER OPTIC CABLE.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE SHALL BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.



LEGEND

SXXXX — WISDOT OWNED TRAFFIC SIGNAL

(MUNICIPALITY) — MUNICIPAL OWNED TRAFFIC SIGNAL

(I) INSTALL ETHERNET SWITCH IN TRAFFIC SIGNAL CABINET

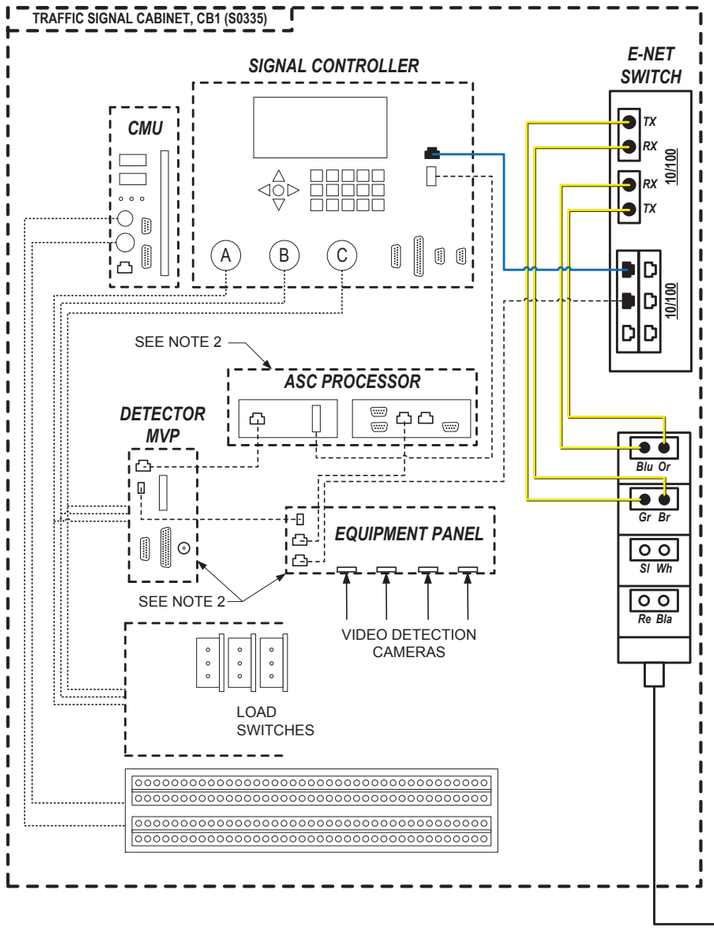
(II) INSTALL PRE-TERMINATED PATCH PANEL IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL IN CONDUIT

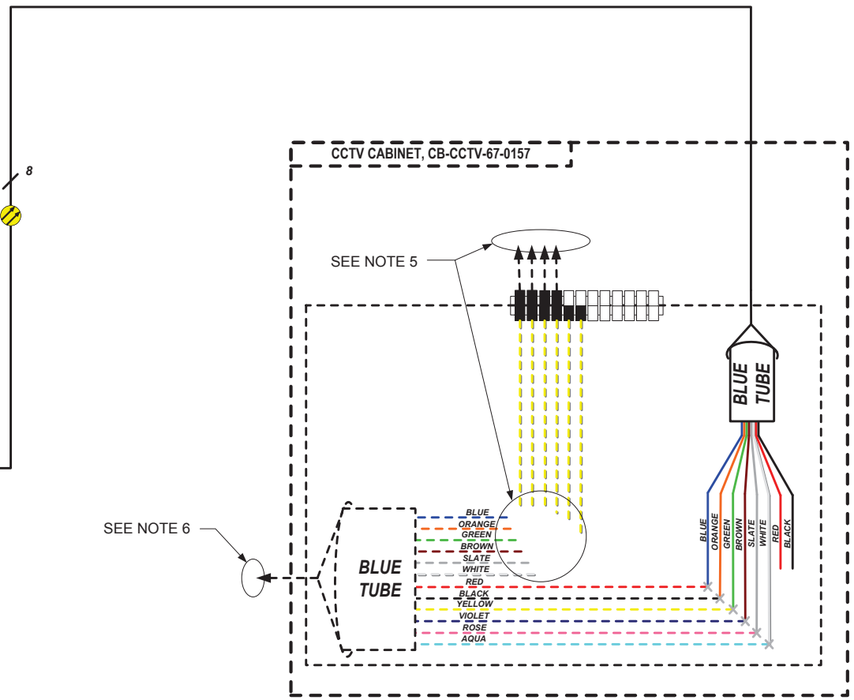
(III) INCLUDED IN CTH O SYSTEM

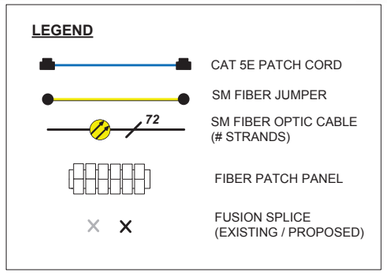
(IV) INCLUDED IN STATE OWNED TRAFFIC RESPONSIVE SYSTEM

(V) INCLUDED IN STH 100 SYSTEM

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE / WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PROJECT OVERVIEW - USH 18-1	SHEET	E



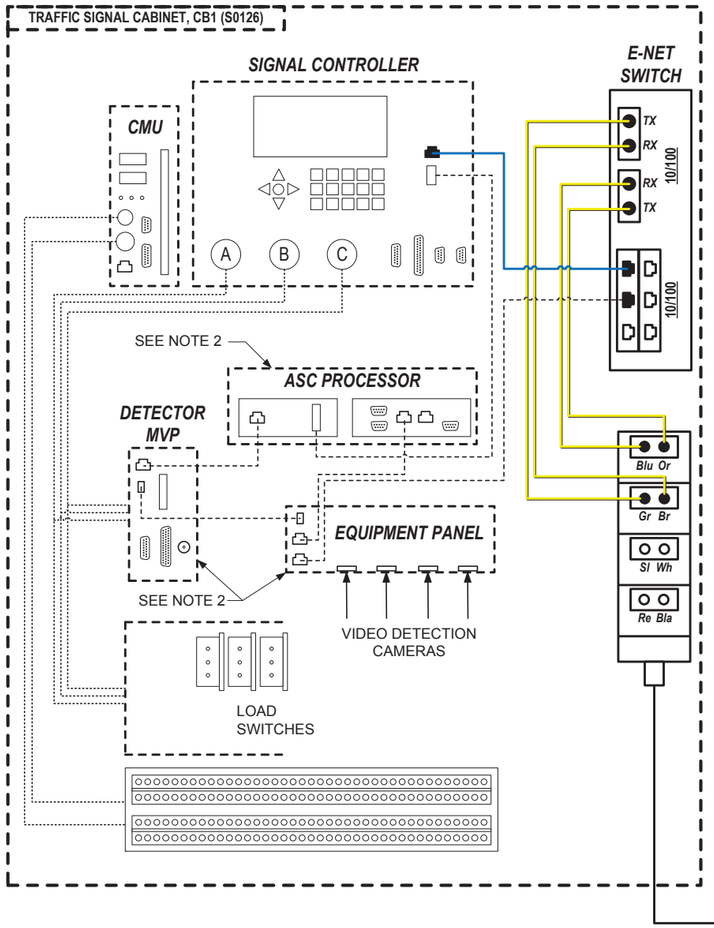


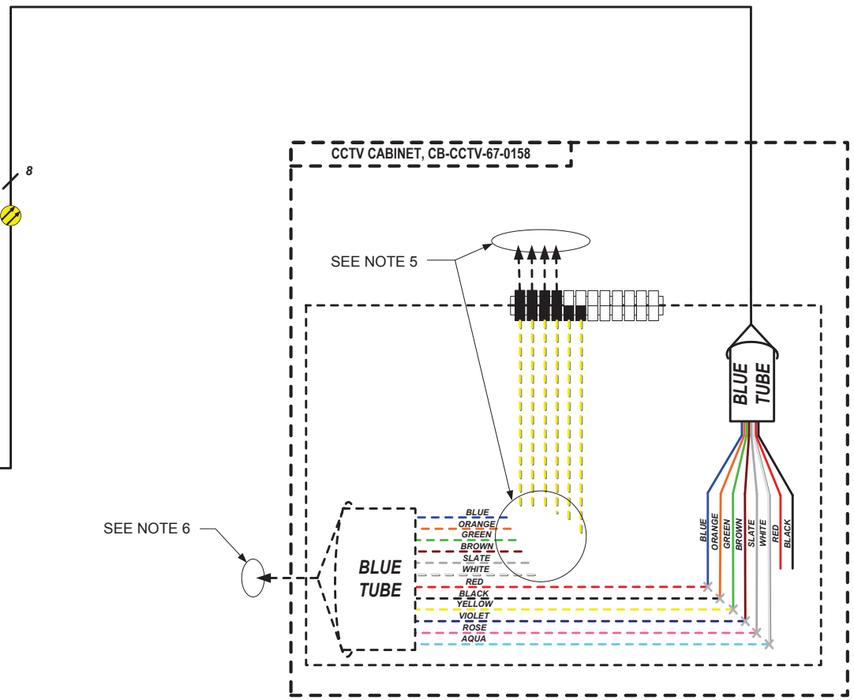


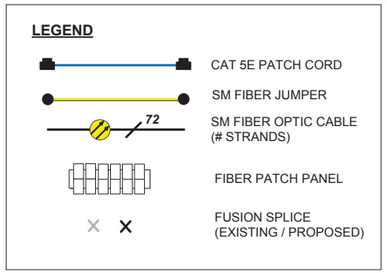
NOTES:

1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. EQUIPMENT INSIDE CCTV CABINET NOT SHOWN FOR CLARITY.
4. FUSION SPLICES ARE INCLUDED IN FTMS PLANS.
5. SEE FTMS PLANS FOR SPLICE ASSIGNMENTS, EQUIPMENT CONNECTIONS, AND ADDITIONAL CABINET DETAILS.
6. SEE FTMS PLANS FOR FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - N. SUNNYSLOPE RD	SHEET: 244	E



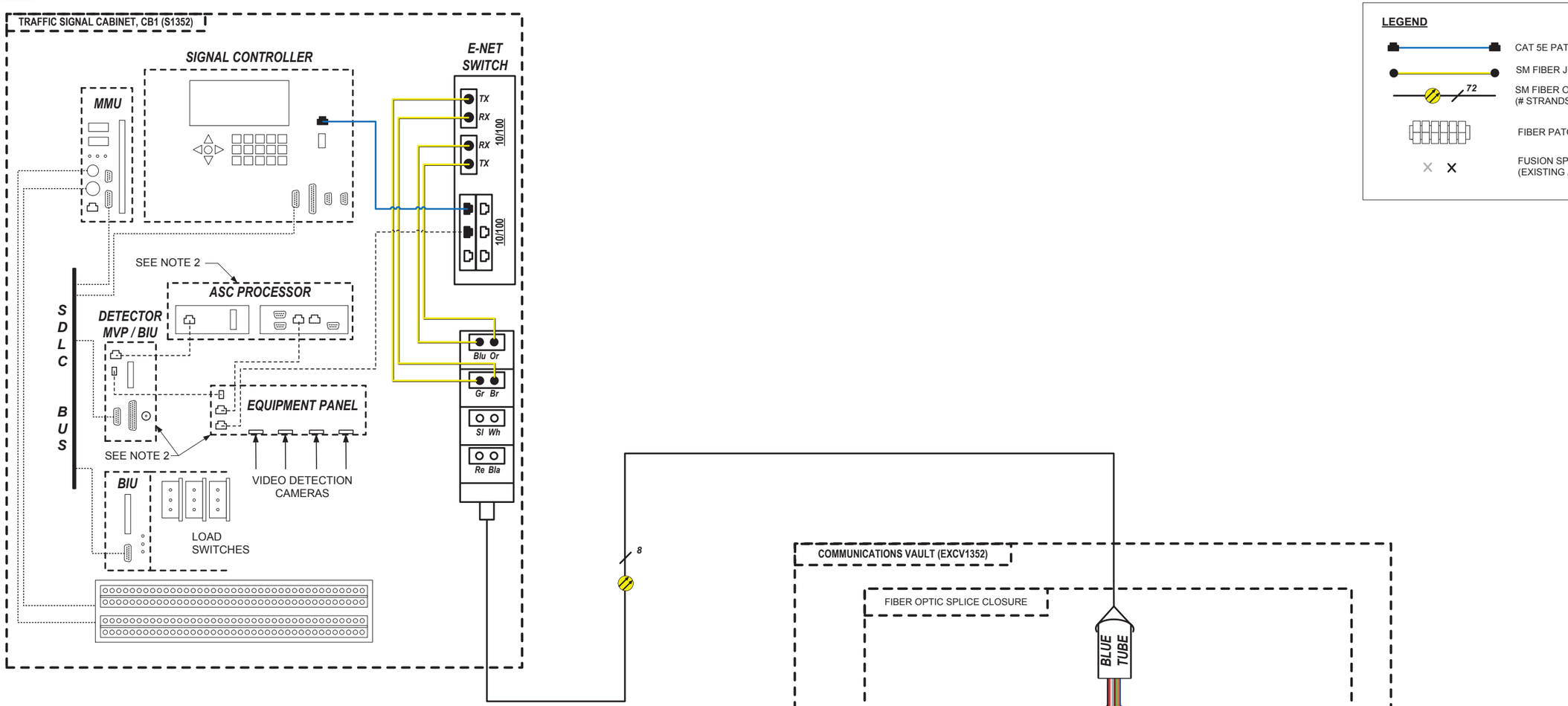




NOTES:

1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. EQUIPMENT INSIDE CCTV CABINET NOT SHOWN FOR CLARITY.
4. FUSION SPLICES ARE INCLUDED IN FTMS PLANS.
5. SEE FTMS PLANS FOR SPLICE ASSIGNMENTS, EQUIPMENT CONNECTIONS, AND ADDITIONAL CABINET DETAILS.
6. SEE FTMS PLANS FOR FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - ELM GROVE RD	SHEET: 245	E

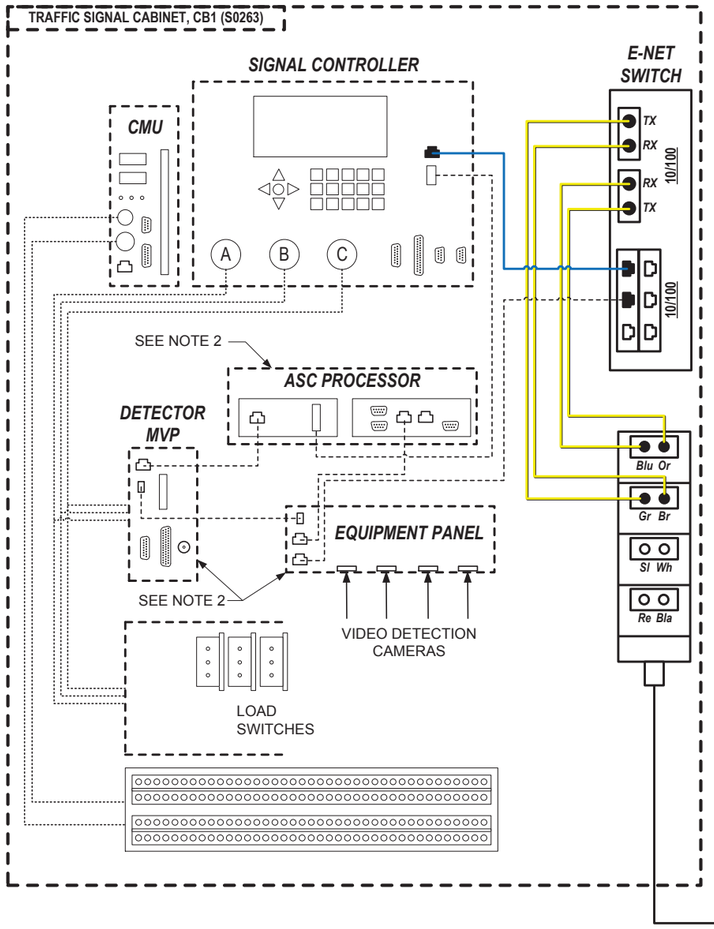


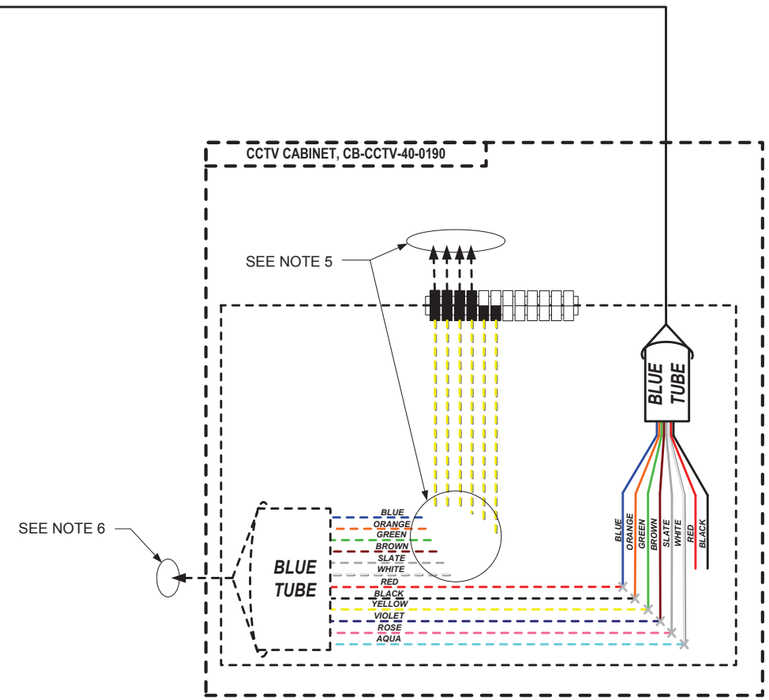
LEGEND

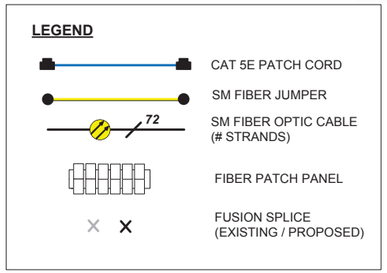
- CAT 5E PATCH CORD
- SM FIBER JUMPER
- 72 — SM FIBER OPTIC CABLE (# STRANDS)
- FIBER PATCH PANEL
- FUSION SPLICE (EXISTING / PROPOSED)

NOTES:

1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. 6-COUNT FIBER DROP CABLE INCLUDED IN FTMS PLANS. SEE FTMS PLANS FOR MORE INFORMATION ON FIBER CABLE ROUTE.



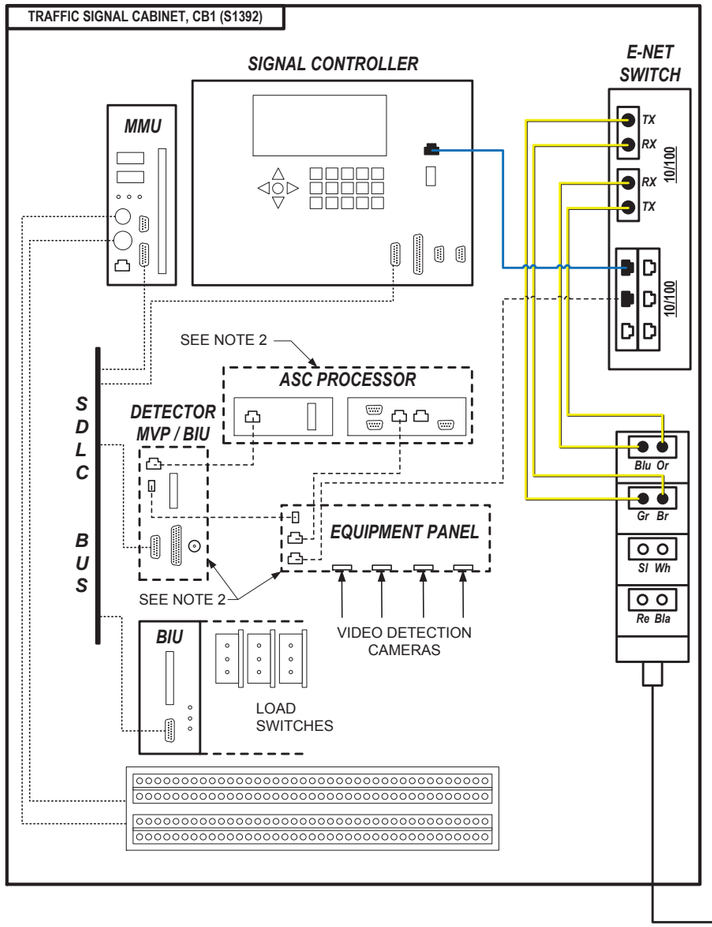




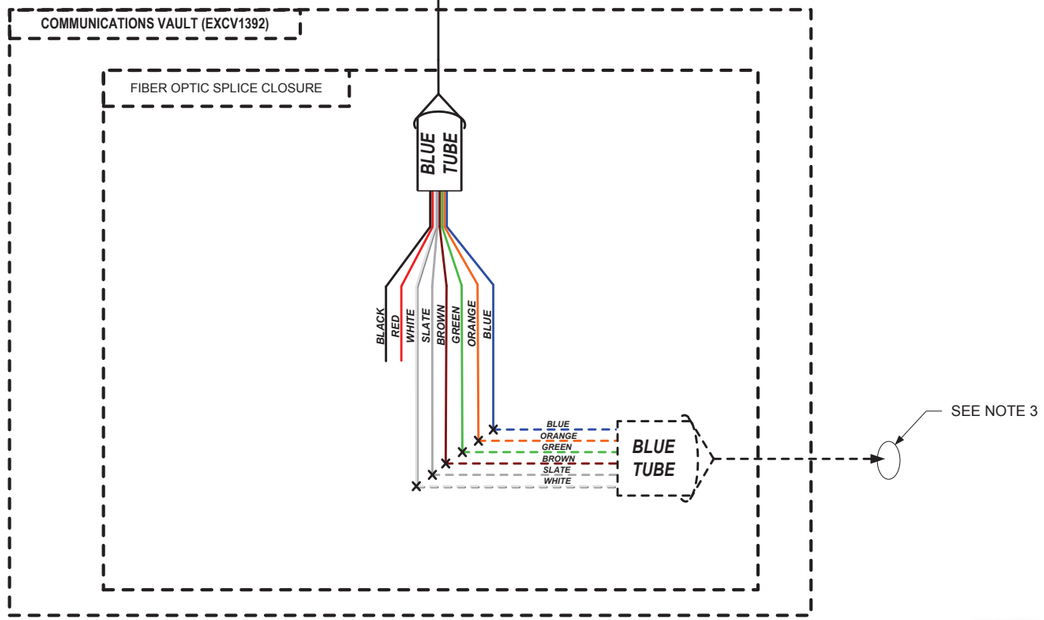
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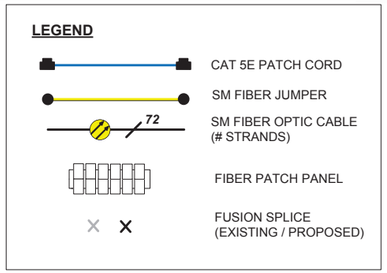
1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. EQUIPMENT INSIDE CCTV CABINET NOT SHOWN FOR CLARITY.
4. FUSION SPLICES ARE INCLUDED IN FTMS PLANS.
5. SEE FTMS PLANS FOR SPLICE ASSIGNMENTS, EQUIPMENT CONNECTIONS, AND ADDITIONAL CABINET DETAILS.
6. SEE FTMS PLANS FOR FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT - UPS DRIVEWAY	SHEET: 247	E





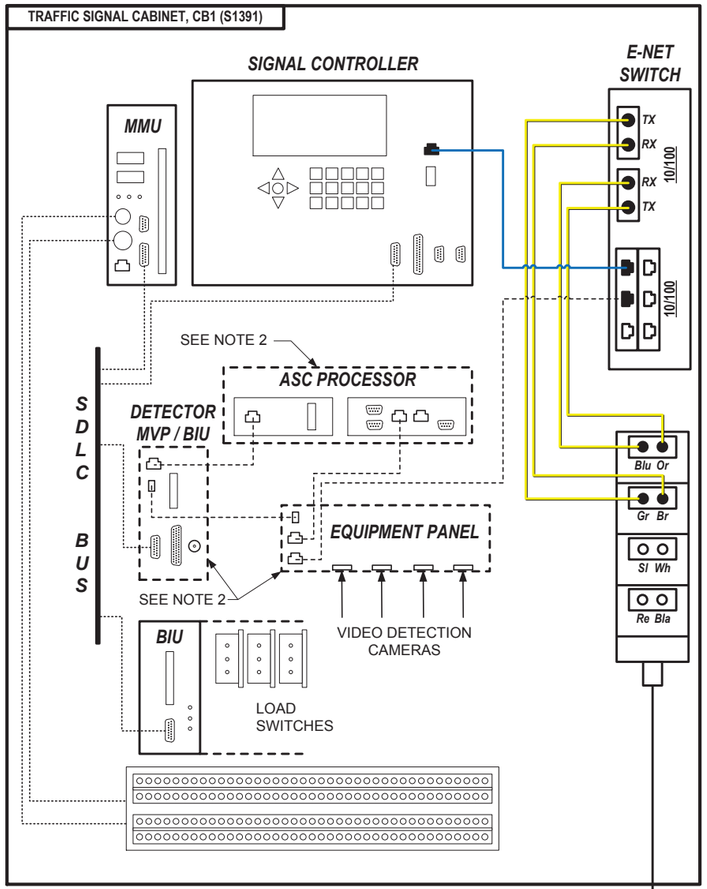


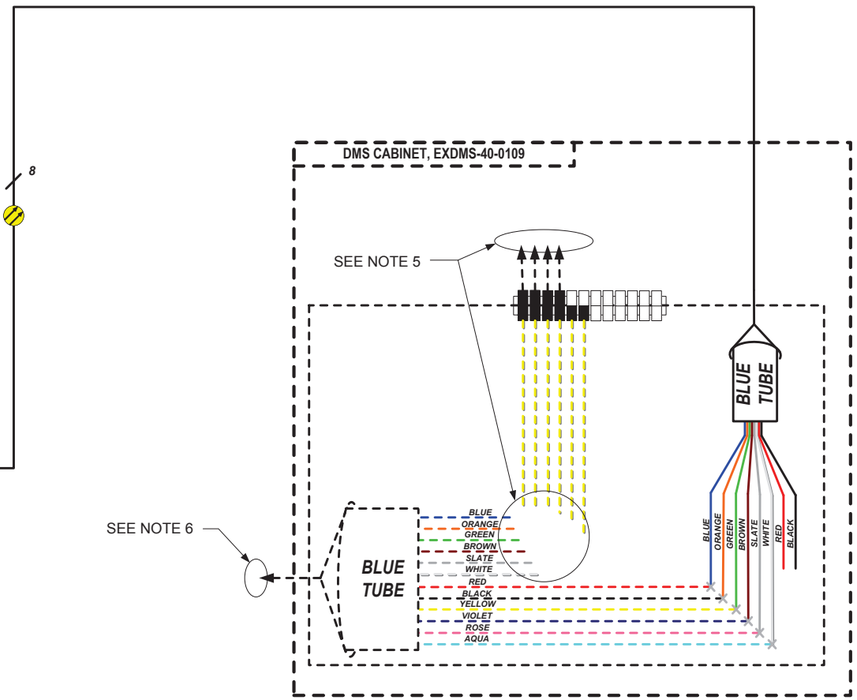


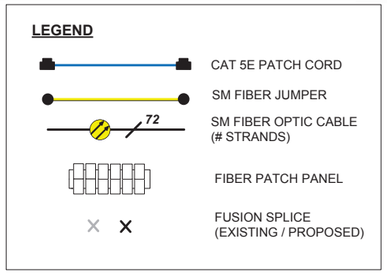
NOTES:

1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. 6-COUNT FIBER DROP CABLE INCLUDED IN FTMS PLANS. SEE FTMS PLANS FOR MORE INFORMATION ON FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL INTERCONNECT - N. 121ST STREET	SHEET: 248	E







NOTES:

1. DASHED LINES INDICATE EXISTING ITEMS.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. EQUIPMENT INSIDE DMS CABINET NOT SHOWN FOR CLARITY.
4. FUSION SPLICES ARE INCLUDED IN FTMS PLANS.
5. SEE FTMS PLANS FOR SPLICE ASSIGNMENTS, EQUIPMENT CONNECTIONS, AND ADDITIONAL CABINET DETAILS.
6. SEE FTMS PLANS FOR FIBER CABLE ROUTE.

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL INTERCONNECT - N. 112TH STREET	SHEET: 249	E

LEGEND

NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED

FTMS HDPE MULTIDUCT CONDUIT WITH FO CABLE, SEE FTMS PLANS FOR DETAILS

PULL BOX, 24" X 42"

FTMS VAULT

CONTROL CABINET

NOTE: GRAYSHADE REPRESENTS EXISTING

N. SUNNYSLOPE ROAD

USH 18 (W. BLUEMOUND ROAD)

R/W

CBI (S0335)

PB25 (S0335)

FO CABLE PIGTAIL 8-CT

EXPB4302

SEE ICMS PLAN FOR SPLICE DETAILS

CB-CCTV-67-0157

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING INTERCONNECT CABLE INTO SYSTEM. CONTACT THE REGIONAL ELECTRICAL FIELD UNIT AT (414) 266-1170.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. LEAVE 100-FEET OF FIBER OPTIC INTERCONNECT PIGTAIL COILED IN EACH COMMUNICATIONS VAULT AND 30-FEET IN EACH PULL BOX.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE TO BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.
7. PROPOSED FTMS IS SHOWN GRAYSHADED FOR PLAN CLARITY.

TRAFFIC CONTROL INTERCONNECT
USH 18
CITIES OF BROOKFIELD & WAUWATOSA
WAUKESHA / MILWAUKEE COUNTY

SIGNAL NO. S0335,S0126,S1352,S0263,S1392,S1391

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 1 OF 6

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025411_co.dgn PLOT DATE : 26-MAR-2013 10:06 PLOT BY : mscjym PLOT NAME : 025411_co PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

2

N

ELM GROVE ROAD

USH 18 (W. BLUEMOUND ROAD)

R/W

CB-CCTV-67-0158

CBI (S0126)

SEE ICMS PLAN FOR SPLICE DETAILS

EXPB4402

FO CABLE PIGTAIL 8-CT

PB1 (S0126)

EXCVEGR1

MWFN FOC

35'

30'

40'

V1

V2

V3

V4

TRAFFIC CONTROL INTERCONNECT
USH 18
CITIES OF BROOKFIELD & WAUWATOSA
WAUKESHA / MILWAUKEE COUNTY

SIGNAL NO. S0335,S0126,S1352,S0263,S1392,S1391

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 2 OF 6

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025412_co.dgn PLOT DATE : 26-MAR-2013 10:06 PLOT BY : mscjym PLOT NAME : 025412_co PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

2

N

AUTUMN GROVE
SHOPPING CENTER

TCF BANK

R/W

MWFN FOC

CBI (S1352)

FO CABLE PIGTAIL 8-CT

EXCV1352

EXCV1353

FIBER OPTIC SPLICE (6)
USE EXISTING FIBER
OPTIC SPLICE ENCLOSURE

PBI (S1352)

USH 18 (W. BLUEMOUND ROAD)

USH 18 (W. BLUEMOUND ROAD)

UNDERWOOD CROSSING PARKWAY

TRAFFIC CONTROL INTERCONNECT
USH 18
CITIES OF BROOKFIELD & WAUWATOSA
WAUKESHA / MILWAUKEE COUNTY

SIGNAL NO. S0335,S0126,S1352,S0263,S1392,S1391

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 3 OF 6

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025413_co.dgn PLOT DATE : 26-MAR-2013 10:06 PLOT BY : mscjym PLOT NAME : 025413_co PLOT SCALE : 40:1
WISDOT/CADDS SHEET 42

2

2

N

UPS DRIVEWAY

USH 18 (W. BLUEMOUND ROAD)

USH 18 (W. BLUEMOUND ROAD)

SEE ICMS PLAN FOR SPLICE DETAILS

FO CABLE PIGTAIL 8-CT

CB-CCTV-40-0190

CB1 (SO263)

PB4501

PB15 (SO263)

PB16 (SO263)

R/W

R/W

R/W

A

A

MWFN FOC

CAMERA

GUY

V1

V2

40'

20'

25'

MH

TRAFFIC CONTROL INTERCONNECT
USH 18
CITIES OF BROOKFIELD & WAUWATOSA
WAUKESHA / MILWAUKEE COUNTY

SIGNAL NO. SO335,SO126,S1352,SO263,S1392,S1391

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 4 OF 6

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025414_co.dgn PLOT DATE : 26-MAR-2013 10:06 PLOT BY : mscjym PLOT NAME : 025414_co PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

2

N

N. 121ST STREET

R/W

USH 18 (W. BLUEMOUND ROAD)

FIBER OPTIC SPLICE (6)
USE EXISTING FIBER OPTIC SPLICE ENCLOSURE

25'

V1

PB3 (S1392)

EXPB1392

MWFN FOC

EXCV1392

FO CABLE PIGTAIL 8-CT

PB2 (S1392)

PB1 (S1392)

CB1 (S1392)

V2

V3

V4

25'

USH 18 (W. BLUEMOUND ROAD)

N. 121ST STREET

TRAFFIC CONTROL INTERCONNECT
USH 18
CITIES OF BROOKFIELD & WAUWATOSA
WAUKESHA / MILWAUKEE COUNTY

SIGNAL NO. S0335,S0126,S1352,S0263,S1392,S1391

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 5 OF 6

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025415_co.dgn PLOT DATE : 26-MAR-2013 10:07 PLOT BY : mscjym PLOT NAME : 025415_co PLOT SCALE : 40.000023:1

WISDOT/CADDS SHEET 42

2

PARKING

R/W

N. 112TH STREET

USH 18 (W. BLUEMOUND ROAD)

W BLUE MO.

SEE ICMS PLAN FOR SPLICE DETAILS.

EXDMS-40-0109

EXPB6001

PB6001

CV6001

O/H SIGN

FO CABLE PIGTAIL 8-CT

FTMS FOC

EXPB1393

EXPB1394

PKNG

PKNG

PB3 (S1391)

EXPB6002

PB2 (S1391)

PB1 (S1391)

CB1 (S1391)

USH 18
(W. BLUEMOUND ROAD)

N. 112TH STREET

TRAFFIC CONTROL INTERCONNECT
USH 18
CITIES OF BROOKFIELD & WAUWATOSA
WAUKESHA / MILWAUKEE COUNTY

SIGNAL NO. S0335,S0126,S1352,S0263,S1392,S1391

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

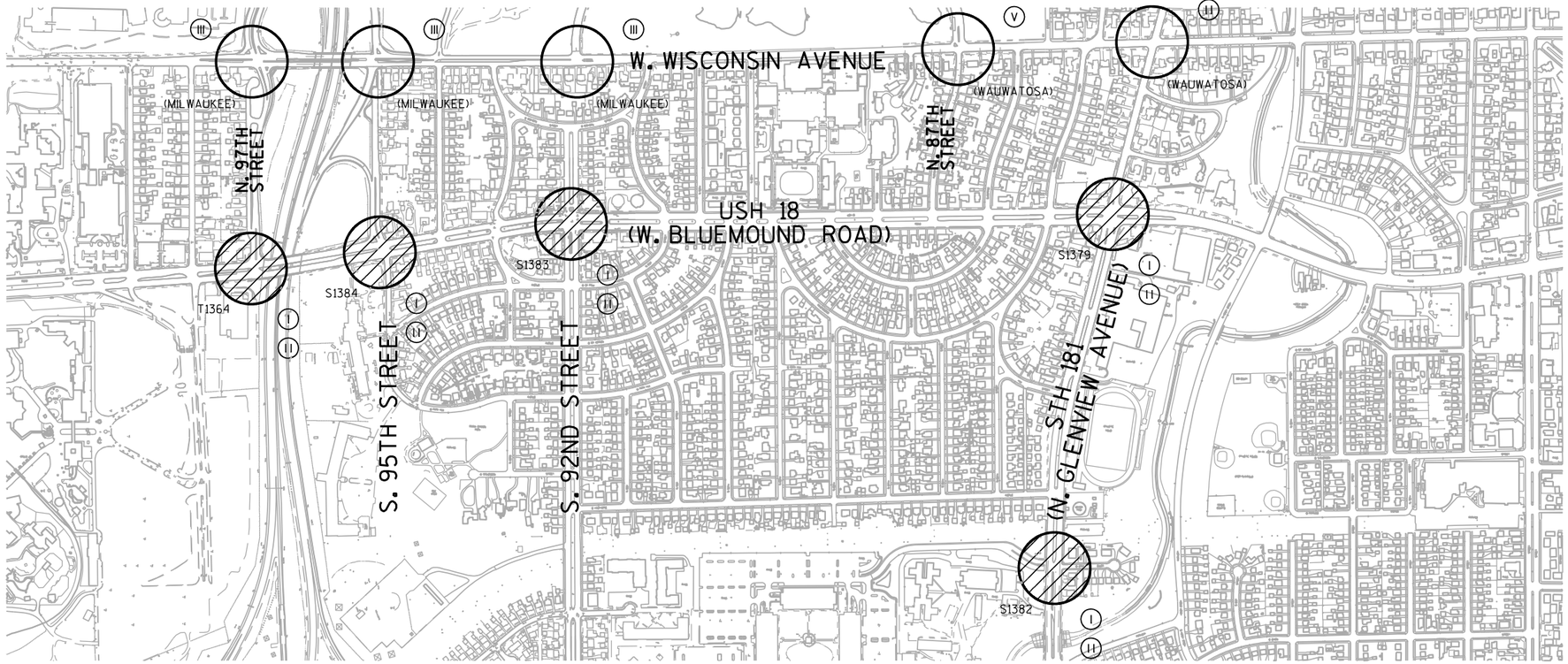
PAGE 6 OF 6

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025416_co.dgn PLOT DATE : 26-MAR-2013 10:08 PLOT BY : mscjym PLOT NAME : 025416_co PLOT SCALE : 40:1

CONSTRUCTION NOTES:

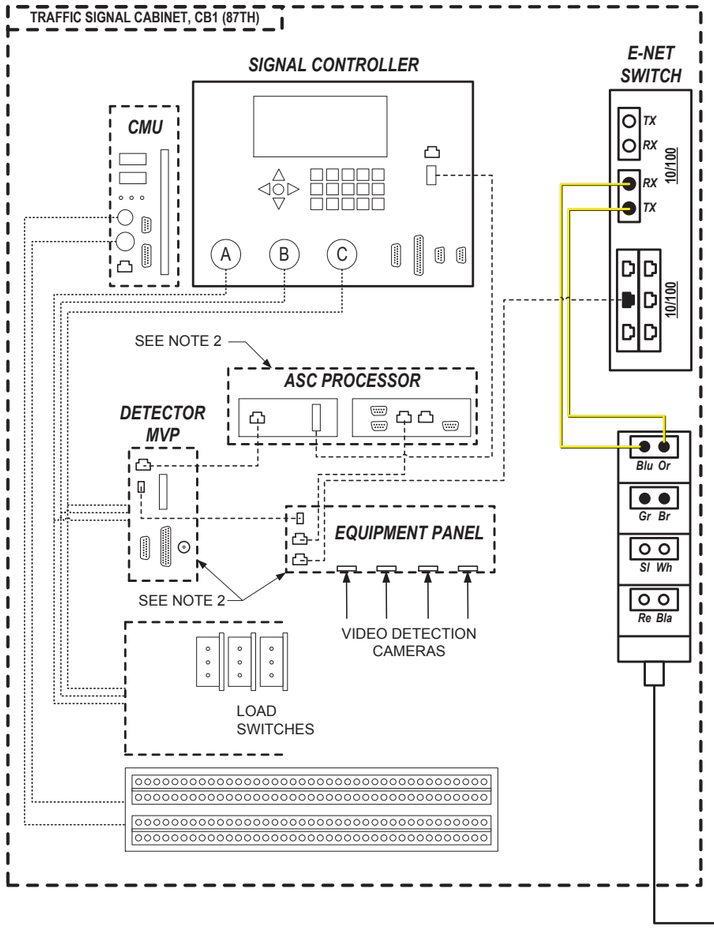
1. MAXIMUM SPLICE LOSS SHALL BE 0.1 dB.
2. NO INTERMEDIATE SPLICES ALLOWED.
3. ALL SPLICES SHALL BE FUSION SPLICES.
4. COORDINATE FIBER ASSIGNMENTS WITH MARIE TREAZISE, STOC, AT (414) 225-3720 BEFORE SPLICING FIBER OPTIC CABLE.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE SHALL BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.

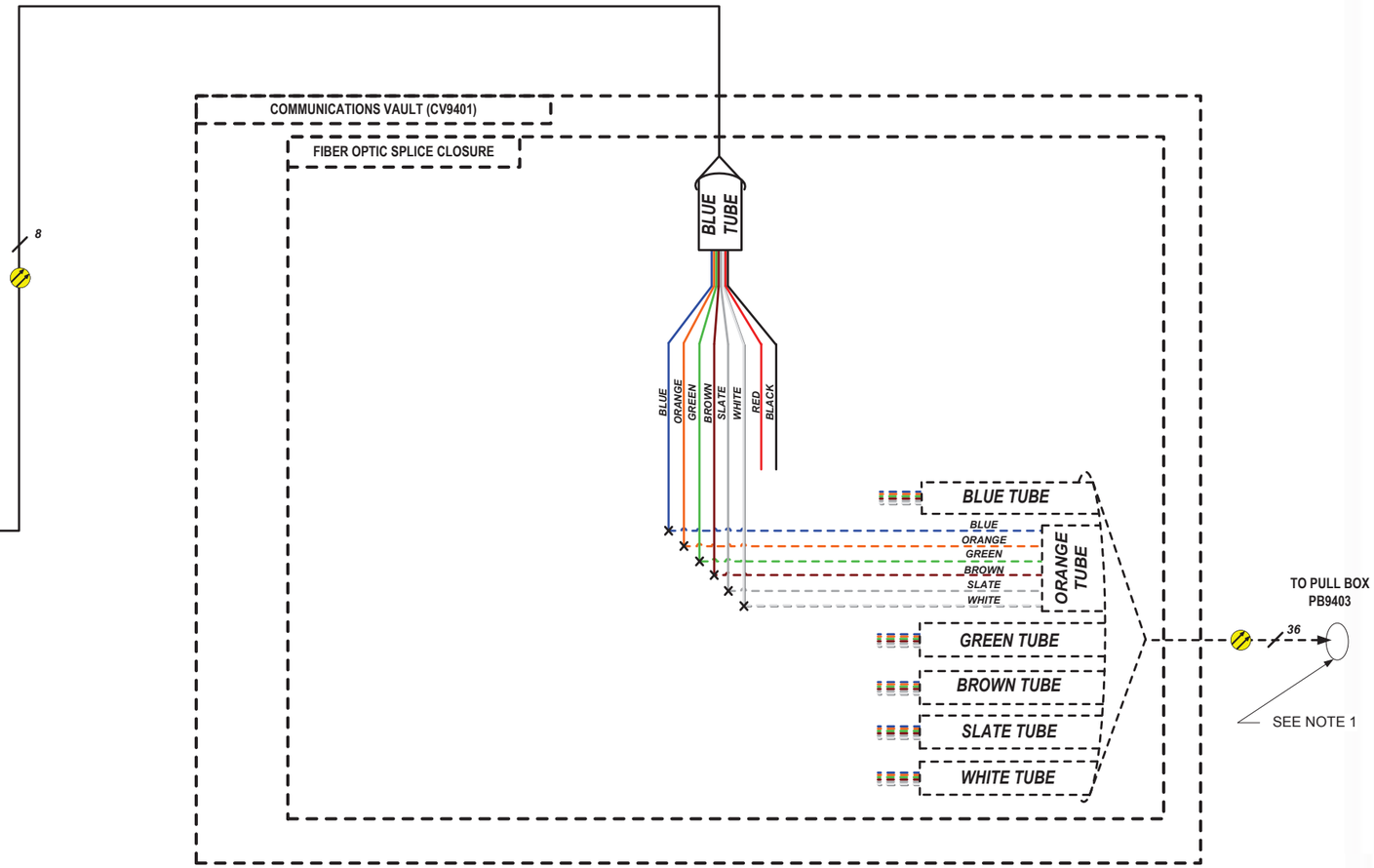


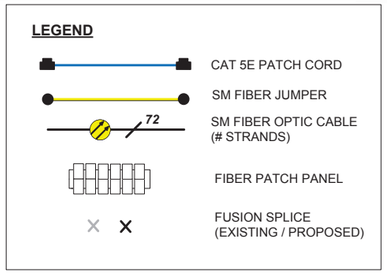
LEGEND

- WISDOT OWNED TRAFFIC SIGNAL (SXXXX)
- MUNICIPAL OWNED TRAFFIC SIGNAL (MUNICIPALITY)
- (I) ETHERNET SWITCH INSTALLED IN TRAFFIC SIGNAL CABINET UNDER PREVIOUS PROJECT (PLANS NOT INCLUDED IN THIS PROJECT)
- (II) PRE-TERMINATED PATCH PANEL INSTALLED IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL INSTALLED IN CONDUIT UNDER PREVIOUS PROJECT (PLANS NOT INCLUDED IN THIS PROJECT)
- (III) INTERSECTION INCLUDED IN FUTURE ICMS PROJECT
- (IV) INSTALL ETHERNET SWITCH IN TRAFFIC SIGNAL CABINET
- (V) INSTALL PRE-TERMINATED PATCH PANEL IN TRAFFIC SIGNAL CABINET AND 8-CT SINGLE MODE FIBER OPTIC PIGTAIL IN CONDUIT

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	TRAFFIC SIGNAL INTERCONNECT PROJECT OVERVIEW - USH 18-2	SHEET	E







NOTES:

1. SEE FTMS PLANS FOR FIBER CABLE ROUTE.
2. ADAPTIVE SIGNAL CONTROL EQUIPMENT TO BE INSTALLED BY OTHERS.
3. OTHER FIBER SPLICES UNASSOCIATED WITH TRAFFIC SIGNAL COMMUNICATIONS ARE NOT SHOWN. SEE FTMS PLANS FOR ADDITIONAL DETAILS.

PROJECT NO: 1060-33-99	HWY: W. WISCONSIN AVENUE	COUNTY: MILWAUKEE	TRAFFIC SIGNAL INTERCONNECT - N. 87TH ST / PLEASANT VIEW ST	SHEET: 257	E

2

LEGEND

- NONMETALLIC CONDUIT 2", UNLESS OTHERWISE NOTED
- FTMS HDPE MULTIDUCT CONDUIT WITH FO CABLE, SEE FTMS PLANS FOR DETAILS
- PULL BOX, 24" X 36"
- V — FTMS VAULT
- CONTROL CABINET

NOTE: GRAYSHADE REPRESENTS EXISTING

N

N. 87TH STREET

W. WISCONSIN AVENUE

W. WISCONSIN AVENUE

PLEASANT VIEW STREET

R/W

301WX

302WX

303WX

FIBER OPTIC SPLICE (2)
USE FIBER OPTIC SPLICE ENCLOSURE SHOWN IN ICMS PLANS

CV9401

PB1 (87TH)

FO CABLE PIGTAIL 8-CT

CB1 (87TH)

CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL HAVE THE PULL BOXES AND CONDUIT RUNS INSPECTED 5 WORKING DAYS PRIOR TO PLACING INTERCONNECT CABLE INTO SYSTEM. CONTACT THE REGIONAL ELECTRICAL FIELD UNIT AT (414) 266-1170 AND THE CITY OF WAUWATOSA AT (414) 471-8422.
2. THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT WHICH ARE NOT SHOWN.
3. THE ENGINEER MAY ADJUST THE LOCATIONS OF ITEMS UNDER THIS CONTRACT TO AVOID CONFLICT WITH EXISTING UTILITY FACILITIES.
4. LEAVE 100-FEET OF FIBER OPTIC INTERCONNECT PIGTAIL COILED IN EACH COMMUNICATIONS VAULT AND 30-FEET IN EACH PULL BOX.
5. THE ENTIRE MAINLINE FIBER OPTIC CABLE SHALL NOT BE CUT AND/OR SPLICED IN THE VAULTS NEAREST THE TRAFFIC SIGNAL CABINET WHILE MAKING THE PIGTAIL CONNECTION. ONLY THE REQUIRED BUFFER TUBE SHALL BE CUT AND SPLICED WITH THE PIGTAIL CONNECTION.
6. INCIDENTAL 14 AWG PULL WIRE TO BE INSTALLED AS FIBER OPTIC TRACER WIRE IN INTERCONNECT CONDUIT.
7. PROPOSED FTMS IS SHOWN GRAYSHADED FOR PLAN CLARITY.
8. RIGHT OF WAY AND PROPERTY LINES DEPICTED ARE BASED ON RECORD INFORMATION WITHOUT THE BENEFIT OF FIELD EVIDENCE.

TRAFFIC CONTROL INTERCONNECT
W. WISCONSIN AVENUE
CITY OF WAUWATOSA
MILWAUKEE COUNT

SIGNAL NO. LOCAL

REGION CONTACT: DAVE BRANTNER
DESIGNED BY: FORWARD 45
REVISED BY:

PAGE 1 OF 1

PROJECT NO: 1060-33-99	HWY: W. WISCONSIN AVENUE	COUNTY: MILWAUKEE	TRAFFIC SIGNAL INTERCONNECT PLAN	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\025511_co.dgn PLOT DATE : 01-MAR-2013 03:49 PLOT BY : MSCD1S PLOT NAME : 025511_co PLOT SCALE : 40:1

WISDOT/CADDS SHEET 42

2

N

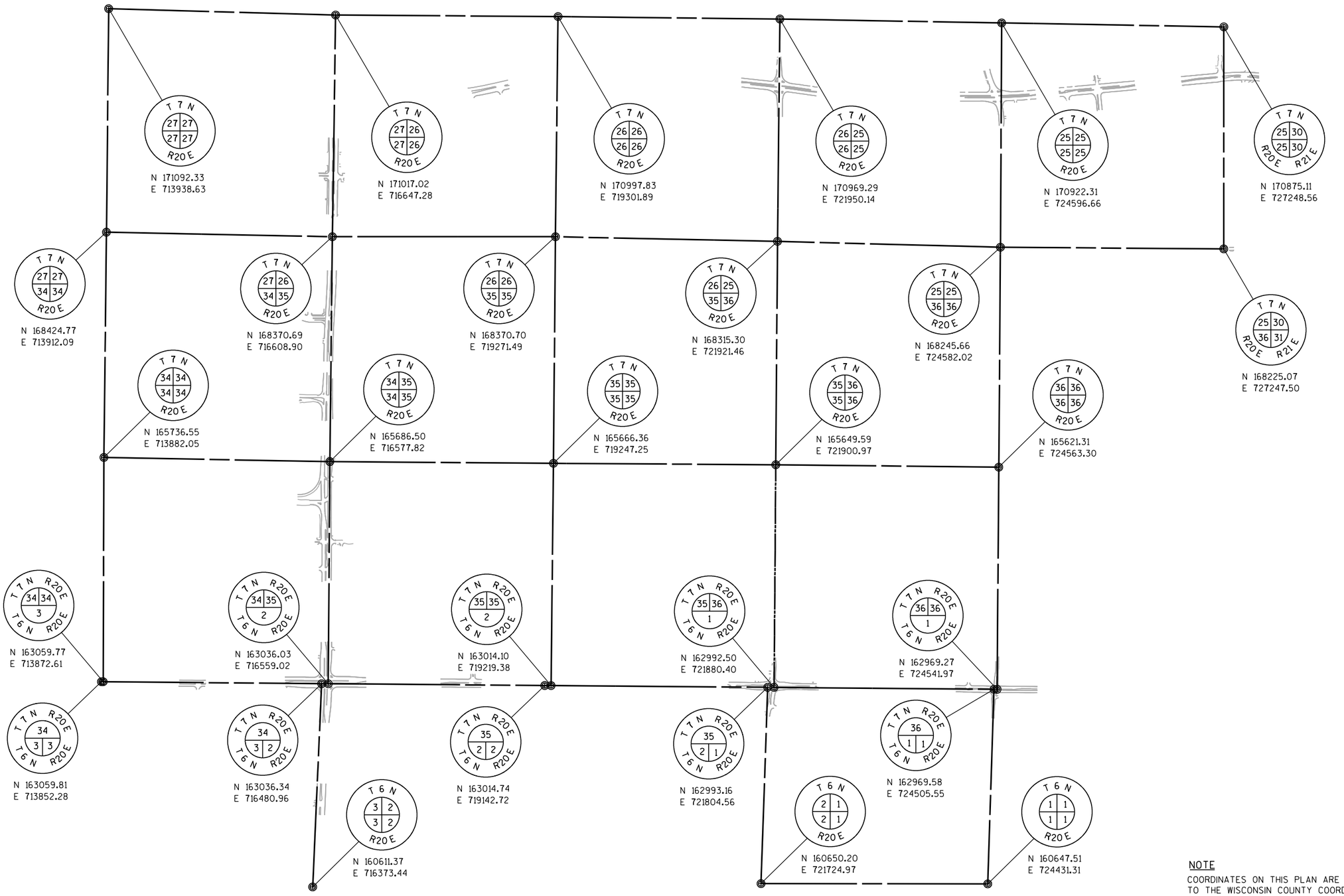
NOTE

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), MILWAUKEE COUNTY ZONE, NAD 83 (2007).

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: MILWAUKEE	SECTION CORNERS - MILWAUKEE COUNTY	SHEET	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\027201_ad.dgn PLOT DATE : 01-MAR-2013 11:36 PLOT BY : MSCDYB PLOT NAME : PLOT SCALE : 2400:1

2



NOTE

COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WAUKESHA COUNTY ZONE, NAD 83 (2007).

PROJECT NO: 1060-33-99	HWY: IH 894/IH 94/USH 45	COUNTY: WAUKESHA	SECTION CORNERS - WAUKESHA COUNTY	SHEET	E

DATE 09APR13 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	1060-33-99 QUANTITY
0010	108.4400	CPM PROGRESS SCHEDULE	EACH	1.000	1.000
0020	204.0150	REMOVING CURB & GUTTER	LF	175.000	175.000
0030	204.0155	REMOVING CONCRETE SIDEWALK	SY	27.000	27.000
0040	204.0195	REMOVING CONCRETE BASES	EACH	3.000	3.000
0050	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	6.000	6.000
0060	601.0409	CONCRETE CURB & GUTTER 30-INCH TYPE A	LF	175.000	175.000
0070	602.0410	CONCRETE SIDEWALK 5-INCH	SF	245.000	245.000
0080	614.2300	MGS GUARDRAIL 3	LF	320.000	320.000
0090	614.2610	MGS GUARDRAIL TERMINAL EAT	EACH	2.000	2.000
0100	614.2620	MGS GUARDRAIL TERMINAL TYPE 2	EACH	2.000	2.000
0110	625.0500	SALVAGED TOPSOIL	SY	100.000	100.000
0120	627.0200	MULCHING	SY	100.000	100.000
0130	628.1504	SILT FENCE	LF	2,250.000	2,250.000
0140	628.1520	SILT FENCE MAINTENANCE	LF	2,250.000	2,250.000
0150	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	4.000	4.000
0160	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	4.000	4.000
0170	628.7005	INLET PROTECTION TYPE A	EACH	3.000	3.000
0180	628.7015	INLET PROTECTION TYPE C	EACH	9.000	9.000
0190	629.0210	FERTILIZER TYPE B	CWT	1.000	1.000
0200	630.0120	SEEDING MIXTURE NO. 20	LB	5.000	5.000
0210	630.0200	SEEDING TEMPORARY	LB	5.000	5.000
0220	631.0300	SOD WATER	MGAL	2.000	2.000
0230	631.1000	SOD LAWN	SY	50.000	50.000
0240	637.0202	SIGNS REFLECTIVE TYPE II	SF	30.000	30.000
0250	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0001. S-67-416	LS	1.000	1.000
0260	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0002. S-67-414	LS	1.000	1.000
0270	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0003. S-67-415	LS	1.000	1.000
0280	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0004. S-67-411	LS	1.000	1.000
0290	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0005. S-67-412	LS	1.000	1.000
0300	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0011. S-40-451	LS	1.000	1.000
0310	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0012. S-40-450	LS	1.000	1.000
0320	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0013. S-40-448	LS	1.000	1.000
0330	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0014. S-40-453	LS	1.000	1.000
0340	641.8100	OVERHEAD SIGN SUPPORT (STRUCTURE) 0015. S-40-452	LS	1.000	1.000
0350	643.0100	TRAFFIC CONTROL (PROJECT) 0001. 1060-33-99	EACH	1.000	1.000
0360	643.0300	TRAFFIC CONTROL DRUMS	DAY	465.000	465.000
0370	643.0420	TRAFFIC CONTROL BARRICADES TYPE III	DAY	140.000	140.000
0380	643.0705	TRAFFIC CONTROL WARNING LIGHTS TYPE A	DAY	280.000	280.000
0390	643.0715	TRAFFIC CONTROL WARNING LIGHTS TYPE C	DAY	140.000	140.000
0400	643.0800	TRAFFIC CONTROL ARROW BOARDS	DAY	20.000	20.000
0410	643.0900	TRAFFIC CONTROL SIGNS	DAY	180.000	180.000
0420	643.0920	TRAFFIC CONTROL COVERING SIGNS TYPE II	EACH	5.000	5.000
0430	652.0125	CONDUIT RIGID METALLIC 2-INCH	LF	575.000	575.000
0440	652.0225	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	LF	2,486.000	2,486.000

3

DATE 09APR13 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	1060-33-99 QUANTITY
0450	652.0235	CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	LF	105.000	105.000
0460	652.0605	CONDUIT SPECIAL 2-INCH	LF	857.000	857.000
0470	652.0700.S	INSTALL CONDUIT INTO EXISTING ITEM	EACH	29.000	29.000
0480	653.0135	PULL BOXES STEEL 24X36-INCH	EACH	19.000	19.000
0490	653.0140	PULL BOXES STEEL 24X42-INCH	EACH	3.000	3.000
0500	654.0101	CONCRETE BASES TYPE 1	EACH	3.000	3.000
0510	654.0102	CONCRETE BASES TYPE 2	EACH	5.000	5.000
0520	654.0220	CONCRETE CONTROL CABINET BASES TYPE 10	EACH	3.000	3.000
0530	655.0230	CABLE TRAFFIC SIGNAL 5-14 AWG	LF	298.000	298.000
0540	655.0240	CABLE TRAFFIC SIGNAL 7-14 AWG	LF	648.000	648.000
0550	655.0260	CABLE TRAFFIC SIGNAL 12-14 AWG	LF	1,139.000	1,139.000
0560	655.0270	CABLE TRAFFIC SIGNAL 15-14 AWG	LF	622.000	622.000
0570	655.0505	ELECTRICAL WIRE TRAFFIC SIGNALS 14 AWG	LF	3,675.000	3,675.000
0580	655.0515	ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG	LF	1,379.000	1,379.000
0590	655.0615	ELECTRICAL WIRE LIGHTING 10 AWG	LF	1,000.000	1,000.000
0600	655.0625	ELECTRICAL WIRE LIGHTING 6 AWG	LF	3,360.000	3,360.000
0610	655.0900	TRAFFIC SIGNAL EVP DETECTOR CABLE	LF	4,480.000	4,480.000
0620	656.0100	ELECTRICAL SERVICE METER SOCKET (LOCATION) 0001. CB-CCTV-67-0157	LS	1.000	1.000
0630	656.0100	ELECTRICAL SERVICE METER SOCKET (LOCATION) 0002. CB-CCTV-67-0158	LS	1.000	1.000
0640	656.0100	ELECTRICAL SERVICE METER SOCKET (LOCATION) 0003. CB-CCTV-67-0190	LS	1.000	1.000
0650	656.0100	ELECTRICAL SERVICE METER SOCKET (LOCATION) 0020. CCTV-40-0155	LS	1.000	1.000
0660	656.0100	ELECTRICAL SERVICE METER SOCKET (LOCATION) 0021. CCTV-40-0156	LS	1.000	1.000
0670	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0001. CCTV-67-0152	LS	1.000	1.000
0680	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0002. HUB-67-0010	LS	1.000	1.000
0690	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0003. DMS-67-0119	LS	1.000	1.000
0700	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0004. DMS-67-0121	LS	1.000	1.000
0710	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0005. DMS-67-0122	LS	1.000	1.000
0720	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0006. CCTV-67-0153	LS	1.000	1.000
0730	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0007. CCTV-67-0154	LS	1.000	1.000
0740	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0008. DMS-67-0123	LS	1.000	1.000
0750	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0009. DMS-67-0124	LS	1.000	1.000
0760	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0020. DMS-40-0125	LS	1.000	1.000
0770	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0021. DMS-40-0126	LS	1.000	1.000
0780	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0022. DMS-40-0129	LS	1.000	1.000
0790	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0023. DMS-40-0130	LS	1.000	1.000
0800	656.0200	ELECTRICAL SERVICE METER BREAKER PEDESTAL (LOCATION) 0024. DMS-40-0117	LS	1.000	1.000

3

DATE 09APR13 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	1060-33-99 QUANTITY
0810	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0001. CB-CCTV-67-0152	LS	1.000	1.000
0820	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0002. HUB-67-0010	LS	1.000	1.000
0830	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0003. DMS-67-0119	LS	1.000	1.000
0840	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0004. DMS-67-0121	LS	1.000	1.000
0850	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0005. DMS-67-0122	LS	1.000	1.000
0860	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0006. CB-CCTV-67-0153	LS	1.000	1.000
0870	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0007. CB-CCTV-67-0154	LS	1.000	1.000
0880	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0008. DMS-67-0123	LS	1.000	1.000
0890	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0009. DMS-67-0124	LS	1.000	1.000
0900	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0010. CB-CCTV-67-0157	LS	1.000	1.000
0910	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0011. CB-CCTV-67-0158	LS	1.000	1.000
0920	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0012. CB-CCTV-67-0190	LS	1.000	1.000
0930	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0020. DMS-40-0125	LS	1.000	1.000
0940	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0021. DMS-40-0126	LS	1.000	1.000
0950	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0022. DMS-40-0129	LS	1.000	1.000
0960	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0023. DMS-40-0130	LS	1.000	1.000
0970	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0024. DMS-40-0117	LS	1.000	1.000
0980	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0025. CB-CCTV-40-0155	LS	1.000	1.000
0990	656.0500	ELECTRICAL SERVICE BREAKER DISCONNECT BOX (LOCATION) 0026. DMS-40-0156	LS	1.000	1.000
1000	657.0100	PEDESTAL BASES	EACH	4.000	4.000
1010	657.0255	TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE	EACH	10.000	10.000
1020	657.0305	POLES TYPE 2	EACH	5.000	5.000
1030	657.0405	TRAFFIC SIGNAL STANDARDS ALUMINUM 3.5-FT	EACH	3.000	3.000
1040	657.0425	TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT	EACH	1.000	1.000
1050	657.0585	TROMBONE ARMS 15-FT	EACH	1.000	1.000
1060	657.0590	TROMBONE ARMS 20-FT	EACH	2.000	2.000
1070	657.0595	TROMBONE ARMS 25-FT	EACH	1.000	1.000
1080	658.0110	TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL	EACH	34.000	34.000
1090	658.0115	TRAFFIC SIGNAL FACE 4-12 INCH VERTICAL	EACH	2.000	2.000
1100	658.0120	TRAFFIC SIGNAL FACE 5-12 INCH VERTICAL	EACH	1.000	1.000
1110	658.0215	BACKPLATES SIGNAL FACE 3 SECTION 12-INCH	EACH	34.000	34.000
1120	658.0220	BACKPLATES SIGNAL FACE 4 SECTION 12-INCH	EACH	2.000	2.000
1130	658.0225	BACKPLATES SIGNAL FACE 5 SECTION 12-INCH	EACH	1.000	1.000
1140	658.0416	PEDESTRIAN SIGNAL FACE 16-INCH	EACH	8.000	8.000
1150	658.0500	PEDESTRIAN PUSH BUTTONS	EACH	8.000	8.000
1160	658.0600	LED MODULES 12-INCH RED BALL	EACH	29.000	29.000
1170	658.0605	LED MODULES 12-INCH YELLOW BALL	EACH	29.000	29.000

3

DATE 09APR13 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	1060-33-99 QUANTITY
1180	658.0610	LED MODULES 12-INCH GREEN BALL	EACH	29.000	29.000
1190	658.0615	LED MODULES 12-INCH RED ARROW	EACH	8.000	8.000
1200	658.0620	LED MODULES 12-INCH YELLOW ARROW	EACH	17.000	17.000
1210	658.0625	LED MODULES 12-INCH GREEN ARROW	EACH	3.000	3.000
1220	658.0635	LED MODULES PEDESTRIAN COUNTDOWN TIMER 16-INCH	EACH	8.000	8.000
1230	658.5069	SIGNAL MOUNTING HARDWARE (LOCATION) 3001. CTH O & SHOPPING CENTER RING ROAD	LS	1.000	1.000
1240	658.5069	SIGNAL MOUNTING HARDWARE (LOCATION) 3002. USH 18 & N 121ST STREET	LS	1.000	1.000
1250	658.5069	SIGNAL MOUNTING HARDWARE (LOCATION) 3003. USH 18 & N 112TH STREET	LS	1.000	1.000
1260	658.5069	SIGNAL MOUNTING HARDWARE (LOCATION) 3004. W WISCONSIN AVENUE & N 87TH STREET	LS	1.000	1.000
1270	659.0802	PLAQUES SEQUENCE IDENTIFICATION	EACH	28.000	28.000
1280	670.0100	FIELD SYSTEM INTEGRATOR 0001. FTMS	LS	1.000	1.000
1290	670.0100	FIELD SYSTEM INTEGRATOR 3001. STH 100	LS	1.000	1.000
1300	670.0100	FIELD SYSTEM INTEGRATOR 3002. STH 59	LS	1.000	1.000
1310	670.0100	FIELD SYSTEM INTEGRATOR 3003. CTH O	LS	1.000	1.000
1320	670.0100	FIELD SYSTEM INTEGRATOR 3004. USH 18	LS	1.000	1.000
1330	670.0100	FIELD SYSTEM INTEGRATOR 3005. USH 18 / STH 181	LS	1.000	1.000
1340	670.0200	ITS DOCUMENTATION 0002. FTMS	LS	1.000	1.000
1350	670.0200	ITS DOCUMENTATION 3001. STH 100	LS	1.000	1.000
1360	670.0200	ITS DOCUMENTATION 3002. STH 59	LS	1.000	1.000
1370	670.0200	ITS DOCUMENTATION 3003. CTH O	LS	1.000	1.000
1380	670.0200	ITS DOCUMENTATION 3004. USH 18	LS	1.000	1.000
1390	670.0200	ITS DOCUMENTATION 3005. USH 18 / STH 181	LS	1.000	1.000
1400	671.0222	CONDUIT HDPE DIRECTIONAL BORE 2-DUCT 2-IN	LF	2,720.000	2,720.000
1410	672.0230	BASE CAMERA POLE 30-FT	EACH	3.000	3.000
1420	672.0250	BASE CAMERA POLE 50-FT	EACH	1.000	1.000
1430	673.0105	COMMUNICATION VAULT TYPE 1	EACH	4.000	4.000
1440	673.0200.S	INSTALL ITS FIELD CABINET	EACH	2.000	2.000
1450	673.0225.S	INSTALL POLE MOUNTED CABINET	EACH	18.000	18.000
1460	675.0400.S	INSTALL ETHERNET SWITCH	EACH	11.000	11.000
1470	677.0100	INSTALL CAMERA POLE	EACH	4.000	4.000
1480	677.0200	INSTALL CAMERA ASSEMBLY	EACH	9.000	9.000
1490	677.0300.S	INSTALL VIDEO ENCODER	EACH	9.000	9.000
1500	678.0006	INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 6-CT	LF	1,700.000	1,700.000
1510	678.0012	INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 12-CT	LF	155.000	155.000
1520	678.0036	INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 36-CT	LF	5,225.000	5,225.000
1530	678.0072	INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 72-CT	LF	30,510.000	30,510.000
1540	678.0300	FIBER OPTIC SPLICE	EACH	430.000	430.000
1550	678.0400	FIBER OPTIC TERMINATION	EACH	270.000	270.000
1560	678.0500	COMMUNICATION SYSTEM TESTING 0001. FTMS	LS	1.000	1.000
1570	678.0500	COMMUNICATION SYSTEM TESTING 3001. STH 100	LS	1.000	1.000
1580	678.0500	COMMUNICATION SYSTEM TESTING 3002. STH 59	LS	1.000	1.000
1590	678.0500	COMMUNICATION SYSTEM TESTING 3003. CTH O	LS	1.000	1.000

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LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1060-33-99 QUANTITY
1600	678.0500	COMMUNICATION SYSTEM TESTING 3004. USH 18	LS	1.000	1.000
1610	678.0500	COMMUNICATION SYSTEM TESTING 3005. USH 18 / STH 181	LS	1.000	1.000
1620	SPV.0060	SPECIAL 2001. INSTALL 900 MHZ RADIO	EACH	10.000	10.000
1630	SPV.0060	SPECIAL 2002. INSTALL DYNAMIC MESSAGE SIGN	EACH	10.000	10.000
1640	SPV.0060	SPECIAL 2003. DUAL ITS CONCRETE BASE	EACH	1.000	1.000
1650	SPV.0060	SPECIAL 2004. INSTALL CELLULAR MODEM	EACH	3.000	3.000
1660	SPV.0060	SPECIAL 2005. GROUND ROD	EACH	23.000	23.000
1670	SPV.0060	SPECIAL 2006. INSTALL ANTENNA	EACH	10.000	10.000
1680	SPV.0060	SPECIAL 2007. INSTALL BLUETOOTH READER	EACH	20.000	20.000
1690	SPV.0060	SPECIAL 2008. BOLLARDS	EACH	4.000	4.000
1700	SPV.0060	SPECIAL 2009. COMMUNICATION VAULT OVER EXISTING FIBER	EACH	1.000	1.000
1710	SPV.0060	SPECIAL 2010. EQUIPMENT RACK UNINTERRUPTABLE POWER SUPPLY	EACH	2.000	2.000
1720	SPV.0060	SPECIAL 3002. RELOCATE TRAFFIC SIGNAL EQUIPMENT	EACH	1.000	1.000
1730	SPV.0060	SPECIAL 3003. EVP DETECTOR TYPE I	EACH	4.000	4.000
1740	SPV.0060	SPECIAL 3004. EVP DISCRIMINATOR TYPE IV	EACH	1.000	1.000
1750	SPV.0060	SPECIAL 3005. EVP CONFIRMATION LIGHT ASSEMBLY TYPE I	EACH	4.000	4.000
1760	SPV.0060	SPECIAL 3006. EVP CARD RACK	EACH	1.000	1.000
1770	SPV.0060	SPECIAL 3007. REMOVE SALVAGE AND INSTALL TRAFFIC SIGNAL CONTROLLER	EACH	6.000	6.000
1780	SPV.0090	SPECIAL 3001. INSTALL CAMERA POWER CABLE	LF	32,712.000	32,712.000
1790	SPV.0090	SPECIAL 3002. INSTALL CAT 5E CABLE	LF	32,712.000	32,712.000
1800	SPV.0090	SPECIAL 3003. TYPE UF CABLE 2 CONDUCTOR NO. 14	LF	1,065.000	1,065.000
1810	SPV.0105	SPECIAL 0001. PAVEMENT CLEANUP PROJECT 1060-33-99	LS	1.000	1.000
1820	SPV.0105	SPECIAL 0002. SURVEY PROJECT 1060-33-99	LS	1.000	1.000
1830	SPV.0105	SPECIAL 3001. REMOVE VIDEO DETECTION EQUIPMENT USH 18 & STH 100	LS	1.000	1.000
1840	SPV.0105	SPECIAL 3002. REMOVE VIDEO DETECTION EQUIPMENT STH 100 & W WISCONSIN AVENUE	LS	1.000	1.000
1850	SPV.0105	SPECIAL 3003. REMOVE VIDEO DETECTION EQUIPMENT STH 100 & W POTTER RD / W RESEACH DR	LS	1.000	1.000
1860	SPV.0105	SPECIAL 3004. REMOVE VIDEO DETECTION EQUIPMENT STH 100 & W WATERTOWN PLANK ROAD	LS	1.000	1.000
1870	SPV.0105	SPECIAL 3005. REMOVE VIDEO DETECTION EQUIPMENT STH 59 & S 124TH STREET	LS	1.000	1.000
1880	SPV.0105	SPECIAL 3006. REMOVE VIDEO DETECTION EQUIPMENT STH 59 & S 116TH STREET	LS	1.000	1.000
1890	SPV.0105	SPECIAL 3007. REMOVE VIDEO DETECTION EQUIPMENT STH 100 & STH 59	LS	1.000	1.000
1900	SPV.0105	SPECIAL 3008. REMOVE VIDEO DETECTION EQUIPMENT STH 59 & S 101ST STREET	LS	1.000	1.000
1910	SPV.0105	SPECIAL 3009. REMOVE VIDEO DETECTION EQUIPMENT USH 45/IH 894 EB RAMPS & STH 59	LS	1.000	1.000
1920	SPV.0105	SPECIAL 3010. REMOVE VIDEO DETECTION EQUIPMENT USH 45/IH 894 WB RAMPS & STH 59	LS	1.000	1.000

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LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1060-33-99 QUANTITY
1930	SPV.0105	SPECIAL 3011. REMOVE VIDEO DETECTION EQUIPMENT CTH O & HACKBERRY LANE	LS	1.000	1.000
1940	SPV.0105	SPECIAL 3012. REMOVE VIDEO DETECTION EQUIPMENT IH 94 EB RAMPS & CTH O	LS	1.000	1.000
1950	SPV.0105	SPECIAL 3013. REMOVE VIDEO DETECTION EQUIPMENT IH 94 WB RAMPS & CTH O	LS	1.000	1.000
1960	SPV.0105	SPECIAL 3015. REMOVE VIDEO DETECTION EQUIPMENT CTH O & SHOPPING CENTER RING RD/DRIVEWAY	LS	1.000	1.000
1970	SPV.0105	SPECIAL 3016. REMOVE VIDEO DETECTION EQUIPMENT USH 18 & UNDERWOOD CROSSING PARKWAY	LS	1.000	1.000
1980	SPV.0105	SPECIAL 3019. REMOVE VIDEO DETECTION EQUIPMENT USH 18 & N 97TH STREET	LS	1.000	1.000
1990	SPV.0105	SPECIAL 3020. REMOVE VIDEO DETECTION EQUIPMENT USH 18 & N 95TH STREET	LS	1.000	1.000
2000	SPV.0105	SPECIAL 3021. REMOVE VIDEO DETECTION EQUIPMENT USH 18 & N 92ND STREET	LS	1.000	1.000
2010	SPV.0105	SPECIAL 3022. REMOVE VIDEO DETECTION EQUIPMENT STH 181 & W DANA COURT	LS	1.000	1.000
2020	SPV.0105	SPECIAL 3023. REMOVE VIDEO DETECTION EQUIPMENT USH 18 & STH 181	LS	1.000	1.000
2030	SPV.0105	SPECIAL 3024. REMOVE VIDEO DETECTION EQUIPMENT STH 181 & W WISCONSIN AVENUE	LS	1.000	1.000
2040	SPV.0105	SPECIAL 3025. REMOVE TRAFFIC SIGNAL USH 18 & N 121ST STREET	LS	1.000	1.000
2050	SPV.0105	SPECIAL 3026. REMOVE TRAFFIC SIGNAL USH 18 & N 112TH STREET	LS	1.000	1.000
2060	SPV.0105	SPECIAL 3027. REMOVE TRAFFIC SIGNAL W. WISCONSIN AVENUE & N 87TH STREET	LS	1.000	1.000
2070	SPV.0105	SPECIAL 3055. INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET USH 18 & N 121ST STREET	LS	1.000	1.000
2080	SPV.0105	SPECIAL 3056. INSTALL STATE-FURNISHED TRAFFIC SIGNAL CABINET USH 18 & N 112TH STREET	LS	1.000	1.000
2090	SPV.0105	SPECIAL 3060. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & STH 100	LS	1.000	1.000
2100	SPV.0105	SPECIAL 3061. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS STH100 & W WISCONSIN AV	LS	1.000	1.000
2110	SPV.0105	SPECIAL 3062. TRNSP AND INST S-F ADAPTABLE TRAF SIG CAM STH100 & POTTER RD / RESEARCH DR	LS	1.000	1.000
2120	SPV.0105	SPECIAL 3063. TRNSP AND INST S-F ADAPTABLE TRAF SIG CAMERAS STH 100 & WATERTOWN PLANK RD	LS	1.000	1.000
2130	SPV.0105	SPECIAL 3064. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS STH 59 & CTH O	LS	1.000	1.000
2140	SPV.0105	SPECIAL 3065. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS STH 59 & S SUNNYSLOPE RD	LS	1.000	1.000
2150	SPV.0105	SPECIAL 3066. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS STH 59 & S ELM GROVE RD	LS	1.000	1.000

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LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1060-33-99 QUANTITY
2160	SPV.0105	SPECIAL 3067. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS STH 59 & S 124TH STREET	LS	1.000	1.000
2170	SPV.0105	SPECIAL 3068. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS STH 59 & S 116TH STREET	LS	1.000	1.000
2180	SPV.0105	SPECIAL 3069. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS STH 100 & STH 59	LS	1.000	1.000
2190	SPV.0105	SPECIAL 3070. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS STH 59 & S 101ST STREET	LS	1.000	1.000
2200	SPV.0105	SPECIAL 3071. TRNSP AND INST S-F ADAPTABLE TRAF SIG CAM USH 45/ IH 894 EB RAMPS & STH 59	LS	1.000	1.000
2210	SPV.0105	SPECIAL 3072. TRNSP AND INST S-F ADAPTABLE TRAF SIG CAM USH 45/IH 894 WB RAMPS & STH 59	LS	1.000	1.000
2220	SPV.0105	SPECIAL 3073. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS CTH O & HACKBERRY LANE	LS	1.000	1.000
2230	SPV.0105	SPECIAL 3074. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS IH 94 EB RAMPS & CTH O	LS	1.000	1.000
2240	SPV.0105	SPECIAL 3075. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS IH 94 WB RAMPS & CTH O	LS	1.000	1.000
2250	SPV.0105	SPECIAL 3076. TRNSP AND INST S-F ADAPTABLE TRAF SIG CAM CTH O & SHOPPING CENTER RING RD	LS	1.000	1.000
2260	SPV.0105	SPECIAL 3077. TRNSP AND INST S-F ADAPTABLE TRAF SIG CAM CTH O & SHOPPING CNTR RING RD/DW	LS	1.000	1.000
2270	SPV.0105	SPECIAL 3078. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & CTH YY	LS	1.000	1.000
2280	SPV.0105	SPECIAL 3079. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & ELM GROVE RD	LS	1.000	1.000
2290	SPV.0105	SPECIAL 3080. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAM USH 18 & UNDERWOOD XING PRKWY	LS	1.000	1.000
2300	SPV.0105	SPECIAL 3081. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & UPS DRIVEWAY	LS	1.000	1.000
2310	SPV.0105	SPECIAL 3082. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & N 121ST STREET	LS	1.000	1.000
2320	SPV.0105	SPECIAL 3083. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & N 112TH STREET	LS	1.000	1.000
2330	SPV.0105	SPECIAL 3084. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & N 97TH STREET	LS	1.000	1.000
2340	SPV.0105	SPECIAL 3085. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & N 95TH STREET	LS	1.000	1.000
2350	SPV.0105	SPECIAL 3086. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & N 92ND STREET	LS	1.000	1.000

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LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1060-33-99 QUANTITY
2360	SPV.0105	SPECIAL 3087. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 181 & W DANA COURT	LS	1.000	1.000
2370	SPV.0105	SPECIAL 3088. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 18 & STH 181	LS	1.000	1.000
2380	SPV.0105	SPECIAL 3089. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAMERAS USH 181 & W WISCONSIN AVE	LS	1.000	1.000
2390	SPV.0105	SPECIAL 3090. TRNSP AND INST S-F ADAPTABLE TRAF SIGNAL CAM W WISCONSIN AVE & N 87TH AVE	LS	1.000	1.000
2400	SPV.0105	SPECIAL 3095. INST FIBER OPTIC COMM. IN CABINET STH 59 & CTH O	LS	1.000	1.000
2410	SPV.0105	SPECIAL 3096. INST FIBER OPTIC COMM. IN CABINET STH 59 & S. SUNNYSLOPE ROAD	LS	1.000	1.000
2420	SPV.0105	SPECIAL 3097. INST FIBER OPTIC COMM. IN CABINET STH 59 & S. ELM GROVE ROAD	LS	1.000	1.000
2430	SPV.0105	SPECIAL 3098. INST FIBER OPTIC COMM. IN CABINET CTH O & HACKBERRY LANE	LS	1.000	1.000
2440	SPV.0105	SPECIAL 3099. INST FIBER OPTIC COMM. IN CABINET IH 94 EB RAMPS & CTH O	LS	1.000	1.000
2450	SPV.0105	SPECIAL 3100. INST FIBER OPTIC COMM. IN CABINET IH 94 WB RAMPS & CTH O	LS	1.000	1.000
2460	SPV.0105	SPECIAL 3101. INST FIBER OPTIC COMM. IN CABINET CTH O & SHOPPING CENTER RING ROAD	LS	1.000	1.000
2470	SPV.0105	SPECIAL 3102. INST FIBER OPTIC COMM. IN CABINET CTH O & SHOPPING CENTER RING RD/DRIVEWAY	LS	1.000	1.000
2480	SPV.0105	SPECIAL 3103. INST FIBER OPTIC COMM. IN CABINET USH 18 & CTH YY	LS	1.000	1.000
2490	SPV.0105	SPECIAL 3104. INST FIBER OPTIC COMM. IN CABINET USH 18 & ELM GROVE ROAD	LS	1.000	1.000
2500	SPV.0105	SPECIAL 3105. INST FIBER OPTIC COMM. IN CABINET USH 18 & UNDERWOOD CROSING PARKWAY	LS	1.000	1.000
2510	SPV.0105	SPECIAL 3106. INST FIBER OPTIC COMM. IN CABINET USH 18 & UPS DRIVEWAY	LS	1.000	1.000
2520	SPV.0105	SPECIAL 3107. INST FIBER OPTIC COMM. IN CABINET USH 18 & N 121ST STREET	LS	1.000	1.000
2530	SPV.0105	SPECIAL 3108. INST FIBER OPTIC COMM. IN CABINET USH 18 & N 112TH STREET	LS	1.000	1.000
2540	SPV.0105	SPECIAL 3109. INST FIBER OPTIC COMM. IN CABINET W. WISCONSIN AVENUE & N 87TH STREET	LS	1.000	1.000
2550	SPV.0105	SPECIAL 3115. EVP DETECTOR HEAD INSTALLATION STH 59 & S 124TH STREET	LS	1.000	1.000
2560	SPV.0105	SPECIAL 3116. EVP DETECTOR HEAD INSTALLATION STH 59 & S 116TH STREET	LS	1.000	1.000
2570	SPV.0105	SPECIAL 3117. EVP DETECTOR HEAD INSTALLATION USH 18 & CTH YY	LS	1.000	1.000
2580	SPV.0105	SPECIAL 3118. EVP DETECTOR HEAD INSTALLATION USH 18 & ELM GROVE ROAD	LS	1.000	1.000

REMOVALS

CATEGORY	ROADWAY	SIGN	LOCATION	204.0150 REMOVING CURB AND GUTTER LF	204.0155 REMOVING CONCRETE SIDEWALK SY
1000	87TH STREET AND WISCONSIN AVENUE		NW QUADRANT	-	27
	BLUEMOUND RD EAST OF TERRACE DR	S-67-412	MEDIAN	175	-
	TOTALS			175	27

BASE AGGREGATE ITEMS

CATEGORY	ROADWAY	LOCATION	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON
1000			
	87TH STREET AND WISCONSIN AVENUE	NW QUADRANT	6
	TOTALS		6

AGGREGATE UNIT WEIGHTS USED	
Base Aggregate Dense	2.1 TONS/CY

CONCRETE

CATEGORY	ROADWAY	SIGN	LOCATION	601.0409 CONCRETE CURB & GUTTER 30-INCH TYPE A LF	602.0410 CONCRETE SIDEWALK 5-INCH SF
1000	87TH STREET AND WISCONSIN AVENUE		NW QUADRANT	-	245
	BLUEMOUND RD EAST OF TERRACE DR	S-67-412	MEDIAN	175	-
	TOTALS			175	245

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030201_pav.ppt PLOT DATE : 3/1/2013 4:02:19 AM PLOT BY : MSCKKC PLOT NAME : 030201_pav1 PLOT SCALE : 1:1

BEAM GUARD ITEMS

CATEGORY	ROADWAY	SIGN	614.2300 MGS GUARDRAIL 3 LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH
1000	BLUEMOUND RD EAST OF TERRACE DR	S-67-412	320	2	2
	TOTALS		320	2	2

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EROSION CONTROL ITEMS

CATEGORY	LOCATION	SIGN	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.1905 MOBILIZATIONS EROSION CONTROL EACH	628.1910 MOBILIZATIONS EMERGENCY EROSION CONTROL EACH	629.0210 FERTILIZER TYPE B CWT	630.0120 SEEDING MIX NO. 20 LB	630.0200 SEEDING TEMPORARY LB	631.0300 SOD WATER MGAL	631.1000 SOD LAWN SY
1000	MOORLAND RD AND SHOPPING CENTER RING RD	S-67-416	--	--	300	300	--	--	--	--	--	--	--
	GREENFIELD AVE WEST OF CTH O	S-67-414	--	--	230	230	--	--	--	--	--	--	--
	GREENFIELD AVE EAST OF CTH O	S-67-415	--	--	300	300	--	--	--	--	--	--	--
	GREENFIELD AT 95TH ST	S-40-451	--	--	200	200	--	--	--	--	--	--	--
	BLUEMOUND RD EAST OF TERRACE DR	S-67-412	--	--	300	300	--	--	--	--	--	--	--
	BLUEMOUND RD AT 95TH ST	S-40-450	--	--	300	300	--	--	--	--	--	--	--
	STH 100 NORTH OF NORTH AVE	S-40-448	--	--	150	150	--	--	--	--	--	--	--
	85TH ST SOUTH OF IH 94	S-40-453	--	--	190	190	--	--	--	--	--	--	--
	87TH ST AND WISCONSIN AVENUE				40	40							
	SUBTOTAL		--	--	2,010	2,010	--	--	--	--	--	--	--
	UNDISTRIBUTED		100	100	240	240	4	4	1	5	5	2	50
	TOTAL		100	100	2,250	2,250	4	4	1	5	5	2	50

INLET PROTECTION

CATEGORY	LOCATION	SIGN	628.7005 INLET PROTECTION TYPE A EACH	628.7015 INLET PROTECTION TYPE C EACH
1000	GREENFIELD AVE EAST OF CTH O	S-67-415	--	1
	BLUEMOUND RD EAST OF THOMAS LN	S-67-411	--	2
	BLUEMOUND RD EAST OF TERRACE DR	S-67-412	--	1
	BLUEMOUND RD AT 95TH ST	S-40-450	1	--
	84TH ST NORTH OF IH 94	S-40-452	--	2
	85TH ST SOUTH OF IH 94	S-40-453	1	--
	87TH ST AND WISCONSIN AVENUE		--	1
	SUBTOTAL		2	7
	UNDISTRIBUTED		1	2
	TOTALS		3	9

PAVEMENT CLEANUP

CATEGORY	STAGE	LOCATION	SPV.0105.0001 LS
1000	ALL	PROJECT	1
		TOTAL	1

SURVEY PROJECT

CATEGORY	STAGE	LOCATION	SPV.0105.0002 SURVEY PROJECT 1060-33-99 LS
1000	ALL	PROJECT	1
		TOTAL	1

OVERHEAD SIGN STRUCTURE SUPPORT (WAUKESHA COUNTY)

CATEGORY	ITEM ID	LOCATION* X	LOCATION* Y	641.8100.0001 OVERHEAD SIGN SUPPORT STRUCTURE S-67-416 LS	641.8100.0002 OVERHEAD SIGN SUPPORT STRUCTURE S-67-414 LS	641.8100.0003 OVERHEAD SIGN SUPPORT STRUCTURE S-67-415 LS	641.8100.0004 OVERHEAD SIGN SUPPORT STRUCTURE S-67-411 LS	641.8100.0005 OVERHEAD SIGN SUPPORT STRUCTURE S-67-412 LS
1000								
	DMS-67-0119	716539.5437	168009.3872	1	--	--	--	--
	DMS-67-0121	714891.0243	163042.9029	--	1	--	--	--
	DMS-67-0122	718110.9124	163097.6111	--	--	1	--	--
	DMS-67-0123	713644.0567	170331.4145	--	--	--	1	--
	DMS-67-0124	718321.5141	170105.7091	--	--	--	--	1
TOTALS				1	1	1	1	1

* COORDINATES IN THIS TABLE ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS) WAUKESHA COUNTY ZONE

OVERHEAD SIGN STRUCTURE SUPPORT (MILWAUKEE COUNTY)

CATEGORY	ITEM ID	LOCATION X	LOCATION Y	641.8100.0011 OVERHEAD SIGN SUPPORT STRUCTURE S-40-451 LS	641.8100.0012 OVERHEAD SIGN SUPPORT STRUCTURE S-40-450 LS	641.8100.0013 OVERHEAD SIGN SUPPORT STRUCTURE S-40-448 LS	641.8100.0014 OVERHEAD SIGN SUPPORT STRUCTURE S-40-453 LS	641.8100.0015 OVERHEAD SIGN SUPPORT STRUCTURE S-40-452 LS
1000								
	DMS-40-0125	573535.5167	291536.5096	1	--	--	--	--
	DMS-40-0126	573621.0832	298496.2096	--	1	--	--	--
	DMS-40-0129	568992.8358	307847.9667	--	--	1	--	--
	DMS-40-0130	577151.2086	294945.5433	--	--	--	1	--
	DMS-40-0117	577100.1071	296362.3054	--	--	--	--	1
TOTALS				1	1	1	1	1

3

TRAFFIC CONTROL

CATEGORY	SIGN	LOCATION	STAGE DURATION DAYS	643.0100 TRAFFIC CONTROL PROJECT 1060-33-99 EACH	643.0300 TRAFFIC CONTROL DRUMS EACH*	643.0300 DAYS	643.0420 TRAFFIC CONTROL BARRICADES TYPE III EACH*	643.0420 DAYS	643.0705 TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH*	643.0705 DAYS	643.0715 TRAFFIC CONTROL WARNING LIGHTS TYPE C EACH*	643.0715 DAYS	643.0800 TRAFFIC CONTROL ARROW BOARDS EACH*	643.0800 DAYS	643.0900 TRAFFIC CONTROL SIGNS EACH*	643.0900 DAYS	643.0920 TRAFFIC CONTROL COVERING TYPE II SIGNS EACH
1000	S-67-416	MOORLAND RD AND SHOPPING CENTER RING RD	1		30	30	1	1	2	2	10	10	1	1	6	6	-
	S-67-414	GREENFIELD AVE WEST OF CTH O	1		50	50	2	2	4	4	12	12	2	2	12	12	-
	S-67-415	GREENFIELD AVE EAST OF CTH O	1		25	25	1	1	2	2	7	7	1	1	6	6	-
	S-40-451	GREENFIELD AT 95TH ST	1		60	60	2	2	4	4	20	20	2	2	12	12	-
	S-67-412	BLUEMOUND RD EAST OF TERRACE DR	1		50	50	2	2	4	4	14	14	2	2	12	12	-
	S-67-411	BLUEMOUND RD EAST OF THOMAS LN	1		50	50	2	2	4	4	14	14	2	2	12	12	-
	S-40-450	BLUEMOUND RD AT 95TH ST	1		60	60	2	2	4	4	20	20	2	2	12	12	-
	S-40-448	STH 100 NORTH OF NORTH AVE	1		25	25	1	1	2	2	7	7	1	1	6	6	-
	S-40-452	84th ST NORTH OF IH 94	1		25	25	1	1	2	2	7	7	1	1	6	6	-
	S-40-453	85th ST SOUTH OF IH 94	1		50	50	2	2	4	4	14	14	2	2	12	12	-
		87TH ST AND WISCONSIN AVENUE	14		--	--	8	112	16	224	--	--	--	--	5	70	
		SUBTOTAL		1		425		128		256		125		16		166	-
		UNDISTRIBUTED				40		12		24		15		4		14	5
		TOTALS		1		465		140		280		140		20		180	5

* FOR INFORMATION ONLY

3

TYPE II PERMANENT SIGNING - CATEGORY 1000

1060-33-99 Zoo interchange intergrated corridors phase 1

SIGN NO.	SIGN CODE	SIGN MESSAGE	TYPE II SIGN SIZE W [IN.] x H [IN.]	637.0202 SIGNS REFLC TYPE II [SF]	REMARKS
1	R10-50 (2S)		30 x 36	7.500	mount on signal pole above signal indication. Bracket incidental
2	R10-50 (2S)		30 x 36	7.500	mount on signal pole above signal indication. Bracket incidental
3	R10-50 (2S)		30 x 36	7.500	mount on signal pole above signal indication. Bracket incidental
4	R10-50 (2S)		30 x 36	7.500	mount on signal pole above signal indication. Bracket incidental
	TOTALS			30.000	

3

FTMS PULL BOXES & COMMUNICATION VAULTS (MILWAUKEE COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	653.0135* PULL BOXES STEEL 24 X 36 - INCH EACH	673.0105 COMMUNICATION VAULT TYPE 1 ITEM EACH	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM EACH
1300							
	GREENFIELD AVE AND 95TH ST	PB5601	573525.6733	291536.8655	1	--	--
	BLUEMOUND RD AND 114TH ST	PB6001	567145.5486	298541.9983	1	--	--
	BLUEMOUND RD AND 114TH ST	EXCB6001	567156.9464	298543.6845	--	--	1
	BLUEMOUND RD AND 114TH ST	CV6001	567185.7929	298540.3860	--	1	--
	BLUEMOUND RD AND 114TH ST	EXPB6001	567168.5718	298540.9612	--	--	1
	BLUEMOUND RD AND 95TH ST	PB6101	573644.4038	298500.9487	1	--	--
	HWY 100 AND NORTH AVE	PB8401	568992.8446	307856.2044	1	--	--
	84TH STREET AND I-94 EB	PB9001	577150.9471	294929.7085	1	--	--
	84TH STREET AND I-94 WB	PB9002	577100.1071	296372.3054	1	--	--
	WISCONSIN AVE AND 92 ST	EXPB9301	574409.9265	299557.1578	--	--	1
	WISCONSIN AVE	PB9301	575109.9179	299560.6245	1	--	--
	WISCONSIN AVE	PB9401	575823.0107	299576.2688	1	--	--
	WISCONSIN AVE	PB9402	576366.7996	299599.2166	1	--	--
	WISCONSIN AVE AND 87TH ST	PB9403	576714.2299	299615.2897	1	--	--
	WISCONSIN AVE AND 87TH ST	CV9401	576640.3537	299479.0049	--	1	--
		TOTALS			10	2	3

*ADDITIONAL QUANTITIES FOUND ELSEWHERE

3

FTMS PULL BOXES & COMMUNICATION VAULTS (WAUKESHA COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	653.0135* PULL BOXES STEEL 24 X 36 - INCH EACH	673.0105 COMMUNICATION VAULT TYPE 1 ITEM EACH	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM EACH	SPV.0060.2009 COMMUNICATION VAULT OVER EXISTING FIBER EACH
1300								
	GREENFIELD AVE AND MOORLAND RD	PB2101	716602.8924	163198.9539	1	--	--	--
	GREENFIELD AVE AND MOORLAND RD	EXPB2101	716654.0481	163127.2186	--	--	1	--
	MOORLAND RD	EXCV2302	716545.9824	166520.0426	--	--	2	--
	MOORLAND RD	CV2201	716536.0094	164528.7532	--	1	--	--
	MOORLAND RD	CV2301	716459.0224	166531.5773	--	1	--	--
	MOORLAND RD	PB2401	716538.4557	168021.5584	1	--	--	--
	MOORLAND RD	CV2501	716609.1534	168831.8166	--	--	--	1
	GREENFIELD AVE AND COACHLIGHT DR	PB3001	714878.8205	163042.2801	1	--	--	--
	GREENFIELD AVE AND PICKN' SAVE ENTRANCE	PB3101	718112.3152	163110.5053	1	--	--	--
	GREENFIELD AVE AND SUNNYSLOPE RD	EXPB3401	721821.0343	163087.2243	--	--	1	--
	GREENFIELD AVE AND SUNNYSLOPE RD	PB3401	721928.4388	163081.4785	1	--	--	--
	GREENFIELD AVE AND ELM GROVE RD	PB3601	724446.5407	163016.1515	1	--	--	--
	GREENFIELD AVE AND ELM GROVE RD	EXPB3601	724493.6866	163030.8744	--	--	1	--
	BLUEMOUND RD AND EXECUTIVE DR	PB4001	713646.1700	170342.2710	1	--	--	--
	BLUEMOUND RD AND PROSPECT DR	PB4201	718306.6945	170103.3893	1	--	--	--
	BLUEMOUND RD AND SUNNYSLOPE	EXPB4301	721839.3502	170101.0486	--	--	1	--
	BLUEMOUND RD AND SUNNYSLOPE	EXPB4302	721843.6149	170084.8537	--	--	1	--
	BLUEMOUND AND ELM GROVE RD	EXPB4401	724623.0079	170133.5825	--	--	1	--
	BLUEMOUND AND ELM GROVE RD	EXPB4402	724631.4920	170143.0961	--	--	1	--
	BLUEMOUND RD AND UPS DRIVEWAY	PB4501	727114.7385	170334.1495	1	--	--	--
	BLUEMOUND RD AND UPS DRIVEWAY	EXPB4501	727112.8703	170318.3697	--	--	1	--
	BLUEMOUND RD AND UPS DRIVEWAY	EXPB4502	727166.8882	170340.8237	--	--	1	--
			TOTALS		9	2	11	1
			PROJECT TOTALS		**19**	**4**	**14**	**1**

FTMS CONDUIT, TRACER WIRE (WAUKESHA COUNTY)

CATEGORY	EQUIPMENT ID	LINEAR DISTANCE	652.0125 CONDUIT RIGID METALLIC 2-INCH LF	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH LF	652.0605 CONDUIT SPECIAL 2-INCH LF	655.0505 ELECTRICAL WIRE TRAFFIC SIGNALS 14 AWG LF	671.0222 CONDUIT HDPE DIRECTIONAL BORE 2-DUCT 2-INCH LF
1300								
	MB2101 - PB2101	15	--	15	--	--	15	--
	PB2101 - CCTV-67-0152	20	60	--	--	--	--	--
	EXPB2101 - CCTV-67-0152	80	--	160	--	--	80	--
	EXCV2302 - CV2301	90	--	--	--	270	90	--
	CV2301 - HUB-67-0010	35	--	--	105	--	35	--
	HUB-67-0010 - MB2301	20	--	20	--	--	20	--
	MB2401 - PB2401	20	--	20	--	--	20	--
	PB2401 - DMS-67-0119	15	--	15	--	--	15	--
	MB3001 - PB3001	50	--	--	--	100	50	--
	PB3001 - DMS-67-0121	15	--	30	--	--	15	--
	MB3101 - PB3101	20	--	20	--	--	20	--
	PB3101 - DMS-67-0122	15	--	30	--	--	15	--
	MB3401 - PB3401	15	--	15	--	--	15	--
	PB3401 - CCTV-67-0153	10	--	10	--	--	10	--
	CCTV-67-0153 - EXPB3401	55	165	--	--	--	--	--
	MB3601 - PB3601	10	--	10	--	--	10	--
	PB3601 - CCTV-67-0154	30	--	30	--	--	30	--
	CCTV-67-0154 - EXPB3601	30	90	--	--	--	--	--
	MB4001 - PB4001	75	--	--	--	150	75	--
	PB4001 - DMS-67-0123	15	--	15	--	--	15	--
	MB4201 - PB4201	70	--	--	--	140	70	--
	PB4201 - DMS-67-0124	15	--	30	--	--	15	--
	EXPB4301 - CB-CCTV-67-0157	60	--	120	--	--	60	--
	EXPB4302 - CB-CCTV-67-0157	15	45	--	--	--	--	--
	EXPB4401 - CB-CCTV-67-0158	35	--	70	--	--	35	--
	EXPB4402 - CB-CCTV-67-0158	35	105	--	--	--	--	--
	EXPB4501 - PB4501	20	--	20	--	--	20	--
	PB4501 - CB-CCTV-40-0190	30	--	90	--	--	30	--
	CCTV-67-0190 - EXPB4502	30	90	--	--	--	--	--
	TOTALS		555	720	105	660	760	--
	PROJECT TOTALS		**575**	**1,975**	**105**	**660**	**3,675**	**2,720**

*ADDITIONAL QUANTITIES FOUND ELSEWHERE

FTMS CONDUIT, TRACER WIRE (MILWAUKEE COUNTY)

CATEGORY	EQUIPMENT ID	LINEAR DISTANCE	652.0125 CONDUIT RIGID METALLIC 2-INCH LF	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	655.0505 ELECTRICAL WIRE TRAFFIC SIGNALS 14 AWG LF	671.0222 CONDUIT HDPE DIRECTIONAL BORE 2-DUCT 2-IN LF
1300						
	CB-CCTV-40-0155 - EXPB01	10	10	--	--	--
	CB-CCTV-40-0156 - EXPB5102	10	10	--	--	--
	MB5601 - PB5601	15	--	40	14	--
	PB5601 - DMS-40-0125	10	--	50	10	--
	CCTV-40-0191 - PB6001	15	--	20	12	--
	PB6001 - EXCB6001	15	--	30	12	--
	EXPB6001 - EXPB6001	20	--	75	17	--
	MB6101 - PB6101	60	--	130	58	--
	PB6101 - DMS-40-0126	25	--	80	24	--
	MB8401 - PB8401	20	--	25	17	--
	PB8401 - DMS-40-0129	10	--	25	8	--
	MB9001 - PB9001	50	--	330	50	--
	PB9001 - DMS-40-0129	20	--	210	16	--
	MB9002 - PB9002	10	--	90	10	--
	PB9002 - DMS-40-0117	10	--	150	10	--
	EXPB9301 - PB9301	705	--	--	700	715
	PB9301 - PB9401	715	--	--	713	725
	PB9401 - PB9402	545	--	--	544	555
	PB9402 - PB9403	350	--	--	349	360
	PB9403 - CV9301	355	--	--	350	365
	TOTALS		20	1,255	2,915	2,720

FTMS WIRE (WAUKESHA COUNTY)

CATEGORY	EQUIPMENT ID	LINEAR DISTANCE	655.0615 ELECTRICAL WIRE LIGHTING 10 AWG LF	655.0625 ELECTRICAL WIRE LIGHTING 6 AWG LF
1300				
	MB2101 - PB2101	15	20	60
	PB2101 - CCTV-67-0152	20	25	105
	EXPB2101 - CCTV-67-0152	80	85	285
	HUB-67-0010 - MB2301	20	25	75
	MB2401 - PB2401	20	25	75
	PB2401 - DMS-67-0119	15	20	90
	MB3001 - PB3001	50	55	165
	PB3001 - DMS-67-0121	15	20	90
	MB3101 - PB3101	20	25	75
	PB3101 - DMS-67-0122	15	20	90
	MB3401 - PB3401	15	20	60
	PB3401 - CCTV-67-0153	10	15	75
	CCTV-67-0153 - EXPB3401	55	60	210
	MB3601 - PB3601	10	15	45
	PB3601 - CCTV-67-0154	30	35	135
	MB4001 - PB4001	75	80	240
	PB4001 - DMS-67-0123	15	20	90
	MB4201 - PB4201	70	75	225
	PB4201 - DMS-67-0124	15	20	90
	TOTALS		660	2,280
	PROJECT TOTALS		**1,000**	**3,360**

FTMS WIRE (MILWAUKEE COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LINEAR DISTANCE	655.0615 ELECTRICAL WIRE LIGHTING 10 AWG LF	655.0625 ELECTRICAL WIRE LIGHTING 6 AWG LF
1300					
		MB5601 - PB5601	15	20	60
		PB5601 - DMS-40-0125	10	15	75
		CCTV-40-0191 - PB6001	15	20	--
		PB6001 - EXCB6001	15	20	--
		EXPB6001 - EXPB6001	20	25	105
		MB6101 - PB6101	60	65	195
		PB6101 - DMS-40-0126	25	30	90
		MB8401 - PB8401	15	20	90
		PB8401 - DMS-40-0129	10	15	45
		MB9001 - PB9001	50	55	195
		PB9001 - DMS-40-0130	20	25	75
		MB9002 - PB9101	10	15	75
		PB9002 - DMS-40-0117	10	15	75
		TOTALS		340	1,080

FTMS CABLE (WAUKESHA COUNTY)

CATEGORY	EQUIPMENT ID	LINEAR DISTANCE	678.0006 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 6-CT LF	678.0012 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 12-CT LF	678.0036 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 36-CT LF	678.0072 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 72-CT LF
1300						
	CCTV-67-0152 - EXPB2101	80	105	--	--	--
	EXPB2101 - EXCV2101	95	145	--	--	--
	EXCV2101 - EXCV2102	620	--	--	--	645
	EXCV2102 - EXCV2202	1660	--	--	--	1,685
	EXCV2202 - EXCV2301	365	--	--	--	390
	EXCV2301 - EXCV2302	840	--	--	--	865
	EXCV2302 - CV2301	90	--	--	--	345
	CV2301 - HUB-67-0010	35	--	--	--	180
	EXCV2302 - EXCV2303	115	--	--	--	140
	EXCV2302 - EXCV2401	970	--	--	--	995
	EXCV2401 - EXCV2402	645	--	--	--	670
	EXCV2401 - CV2501	690	--	--	--	715
	CV2501 - EXCV2501	875	--	--	--	900
	EXCV2101 - EXCV3101	910	--	--	--	935
	EXCV3101 - EXCV3102	825	--	--	--	850
	EXCV3102 - EXCV3201	875	--	--	--	900
	EXCV3201 - EXCV3301	750	--	--	--	775
	EXCV3301 - EXCV3302	755	--	--	--	780
	EXCV3302 - EXCV3303	560	--	--	--	585
	EXCV3303 - EXCV3401	620	--	--	--	670
	CCTV-67-0153 - EXPB3401	55	105	--	--	--
	EXPB3401 - EXCV3401	220	245	--	--	--
	EXCV3401 - EXCV3402	610	--	--	--	660
	EXCV3402 - EXCV3501	515	--	--	--	565
	EXCV3501 - EXCV3502	730	--	--	--	755
	EXCV3502 - EXCV3601	760	--	--	--	785
	CCTV-67-0154 - EXPB3601	30	80	--	--	--
	EXPB3601 - EXCV3601	160	185	--	--	--
	EXCV3601 - EXCV3602	555	--	--	--	580
	EXCV3602 - EXCV3701	800	--	--	--	825
	EXCV3701 - EXCV3702	795	--	--	--	820
	EXCV3702 - EXCV3703	275	--	--	--	300
	CB-CCTV-67-0157 - EXPB4302	15	--	40	--	--
	CB-CCTV-67-0158 - EXPB4402	35	--	60	--	--
	CB-CCTV-40-0190 - EXPB4502	30	--	55	--	--
	TOTALS		865	155	--	18,315
	PROJECT TOTALS		**1,700**	**155**	**5,225**	**30,510**

FTMS CABLE (MILWAUKEE COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LINEAR DISTANCE	678.0006 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 6-CT LF	678.0036 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 36-CT LF	678.0072 INSTALL FIBER OPTIC CABLE OUTDOOR PLANT 72-CT LF
1300						
		CB-CCTV-40-0155 - EXPB01	15	65	--	--
		EXPB01 - EXPB02	20	70	--	--
		EXPB02 - EXCV5001	100	125	--	--
		EXCV3703 - EXCV5001	200	--	--	225
		EXCV5001 - EXCV5101	1430	--	--	1,455
		EXCV5101 - EXCV5102	1060	--	--	1,085
		CB-CCTV-40-0156 - EXPB5102	20	45	--	--
		EXPB5102 - EXCV5103	35	60	--	--
		EXCV5103 - EXCV5102	45	70	--	
		EXCV5102 - EXCV5201	1385	--	--	4,230
		EXCV5201 - EXCV5202	115	--	--	140
		EXCV5202 - EXCV5301	1185	--	--	1,210
		EXCV5301 - EXCV5302	380	--	--	405
		EXCV5302 - EXCV5303	65	--	--	90
		EXCV5301 - EXCV5401	1175	--	--	1,200
		EXCV5401 - EXCV5501	1190	--	--	1,215
		EXCV5501 - EXPB5501	375	--	--	400
		EXPB5501 - EXCV5502	85	--	--	110
		EXCV5502 - EXCV5503	115	--	--	140
		EXCV5503 - EXCV5504	240	--	--	290
		EXCV5504 - EXPB5502	170	220	--	--
		EXPB5502 - EXCV5505	155	180	--	--
		EXMH9201 - EXCV9201	335	--	635	--
		EXCV9201 - EXPB9201	270	--	295	--
		EXPB9201 - EXPB9202	150	--	175	--
		EXPB9202 - EXPB9203	145	--	170	--
		EXPB9203 - EXPB9204	405	--	455	--
		EXPB9204 - EXPB9301	600	--	650	--
		EXPB9301 - PB9301	705	--	755	--
		PB9301 - PB9401	715	--	740	--
		PB9401 - PB9402	545	--	570	--
		PB9402 - PB9403	350	--	375	--
		PB9403 - PB9404	355	--	405	--
		TOTALS		835	5,225	12,195

3

FTMS ELECTRICAL SERVICE (WAUKESHA COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	656.0100.0001 ELECTRICAL SERVICE METER SOCKET (CB-CCTV-67-0157) LS	656.0100.0002 ELECTRICAL SERVICE METER SOCKET (CB-CCTV-67-0158) LS	656.0100.0003 ELECTRICAL SERVICE METER SOCKET (CB-CCTV-40-0190) LS
1300							
	BLUEMOUND RD AND SUNNYSLOPE RD	CB-CCTV-67-0157	721843.6149	170084.8537	1	--	--
	BLUEMOUND RD AND ELM GROVE RD	CB-CCTV-67-0158	724615.4741	170146.7279	--	1	--
	BLUEMOUND RD AND UPS DRIVEWAY	CB-CCTV-40-0190	727138.0324	170341.7021	--	--	1
	TOTALS				1	1	1

FTMS ELECTRICAL SERVICE (MILWAUKEE COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	656.0100.0020 ELECTRICAL SERVICE METER SOCKET (CB-CCTV-40-0155) LS	656.0100.0021 ELECTRICAL SERVICE METER SOCKET (DMS-40-0156) LS
1300						
	GREENFIELD AVE AND 124TH ST	CB-CCTV-40-0155	563872.4231	291582.4057	1	--
	GREENFIELD AVE AND 116TH ST	CB-CCTV-40-0156	566444.8411	291578.2833	--	1
	TOTALS				1	1

FTMS ELECTRICAL SERVICE (WAUKESHA COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	656.0200.0001 ELECTRICAL SERVICE METER BREAKER PEDESTAL (CCTV-67-0152) LS	656.0200.0002 ELECTRICAL SERVICE METER BREAKER PEDESTAL (HUB-67-0010) LS	656.0200.0003 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-67-0119) LS	656.0200.0004 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-67-0121) LS	656.0200.0005 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-67-0122) LS	656.0200.0006 ELECTRICAL SERVICE METER BREAKER PEDESTAL (CCTV-67-0153) LS	656.0200.0007 ELECTRICAL SERVICE METER BREAKER PEDESTAL (CCTV-67-0154) LS	656.0200.0008 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-67-0123) LS	656.0200.0009 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-67-0124) LS
1300													
	GREENFIELD AVE AND MOORLAND RD	MB2101	716626.8050	163202.3839	1	--	--	--	--	--	--	--	--
	MOORLAND RD	MB2301	716426.5582	166551.6795	--	1	--	--	--	--	--	--	--
	MOORLAND RD	MB2401	716538.3887	168036.6431	--	--	1	--	--	--	--	--	--
	GREENFIELD AVE AND COACHLIGHT DR	MB3001	714871.9833	162992.4794	--	--	--	1	--	--	--	--	--
	GREENFIELD AVE AND PICKN' SAVE ENTRANCE	MB3101	718093.8437	163110.2350	--	--	--	--	1	--	--	--	--
	GREENFIELD AVE AND SUNNYSLOPE RD	MB3401	721926.9595	163094.1896	--	--	--	--	--	1	--	--	--
	GREENFIELD AVE AND ELM GROVE RD	MB3601	724436.5512	163015.6923	--	--	--	--	--	--	1	--	--
	BLUEMOUND RD	MB4001	713662.9940	170410.2927	--	--	--	--	--	--	--	1	--
	BLUEMOUND RD AND PROSPECT DR	MB4201	718300.0907	170171.9360	--	--	--	--	--	--	--	--	1
	TOTALS				1	1	1	1	1	1	1	1	1

FTMS ELECTRICAL SERVICE (MILWAUKEE COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	656.0200.0020 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-40-0125) LS	656.0200.0021 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-40-0126) LS	656.0200.0022 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-40-0129) LS	656.0200.0023 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-40-0130) LS	656.0200.0024 ELECTRICAL SERVICE METER BREAKER PEDESTAL (DMS-40-0117) LS
1300									
	GREENFIELD AVE AND 95TH ST	MB5601	573511.4901	291537.5811	1	--	--	--	--
	BLUEMOUND RD AND 95TH ST	MB6101	573635.2054	298558.1080	--	1	--	--	--
	HWY 100 AND NORTH AVE	MB8401	568992.4141	307869.7027	--	--	1	--	--
	84TH STREET AND I-94 EB	MB9001	577100.8502	294928.9064	--	--	--	1	--
	84TH STREET AND I-94 WB	MB9002	577099.5833	296382.6023	--	--	--	--	1
	TOTALS				1	1	1	1	1

FTMS ELECTRICAL SERVICE (WAUKESHA COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	656.0500.0001 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (CB-CCTV-67-0152) LS	656.0500.0002 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (HUB-67-0010) LS	656.0500.0003 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-67-0119) LS	656.0500.0004 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-67-0121) LS	656.0500.0005 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-67-0122) LS	656.0500.0006 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (CB-CCTV-67-0153) LS	656.0500.0007 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (CB-CCTV-67-0154) LS	656.0500.0008 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-67-0123) LS	656.0500.0009 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-67-0124) LS
1300													
	GREENFIELD AVE AND MOORLAND RD	CB-CCTV-67-0152	716626.8050	163202.3839	1	--	--	--	--	--	--	--	--
	MOORLAND RD	HUB-67-0010	716428.3533	166534.4150	--	1	--	--	--	--	--	--	--
	MOORLAND RD	DMS-67-0119	716539.5437	168009.3872	--	--	1	--	--	--	--	--	--
	GREENFIELD AVE AND COACHLIGHT DR	DMS-67-0121	714891.0243	163042.9029	--	--	--	1	--	--	--	--	--
	GREENFIELD AVE AND PICK 'N SAVE ENTRACE	DMS-67-0122	718110.9124	163097.6111	--	--	--	--	1	--	--	--	--
	GREENFIELD AVE AND SUNNYSLOPE RD	CB-CCTV-67-0153	721937.8157	163078.3722	--	--	--	--	--	1	--	--	--
	GREENFIELD AVE AND ELM GROVE RD	CB-CCTV-67-0154	724436.5512	163015.6923	--	--	--	--	--	--	1	--	--
	BLUEMOUND RD AND EXECUTIVE DR	DMS-67-0123	713644.0567	170331.4145	--	--	--	--	--	--	--	1	--
	BLUEMOUND RD AND PROSPECT DR	DMS-67-0124	718321.5141	170105.7091	--	--	--	--	--	--	--	--	1
	TOTALS				1	1	1	1	1	1	1	1	1

FTMS ELECTRICAL SERVICE (WAUKESHA COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	656.0500.0010 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (CB-CCTV-67-0157) LS	656.0500.0011 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (CB-CCTV-67-0158) LS	656.0500.0012 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (CB-CCTV-40-0190) LS
1300							
	BLUEMOUND RD AND SUNNYSLOPE RD	CB-CCTV-67-0157	721843.6149	170084.8537	1	--	--
	BLUEMOUND RD AND ELM GROVE RD	CB-CCTV-67-0158	724615.4741	170146.7279	--	1	--
	BLUEMOUND RD ANDUPS DRIVEWAY	CB-CCTV-40-0190	727138.0324	170341.7021	--	--	1
	TOTALS				1	1	1

3

FTMS ELECTRICAL SERVICE (MILWAUKEE COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	656.0500.0020 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-40-0125) LS	656.0500.0021 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-40-0126) LS	656.0500.0022 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-40-0129) LS	656.0500.0023 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-40-0130) LS	656.0500.0024 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-40-0117) LS	656.0500.0025 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (CB-CCTV-40-0155) LS	656.0500.0026 ELECTRICAL SERVICE BREAKER DISCONNECT BOX (DMS-40-0156) LS
1300											
	GREENFIELD AVE AND 95TH ST	DMS-40-0125	573535.5167	291536.5096	1	--	--	--	--	--	--
	BLUEMOUND RD AND 95TH ST	DMS-40-0126	573621.0832	298496.2096	--	1	--	--	--	--	--
	HWY 100 AND NORTH AVE	DMS-40-0129	568992.8358	307847.9667	--	--	1	--	--	--	--
	84TH STREET AND I-94 EB	DMS-40-0130	577151.2086	294945.5433	--	--	--	1	--	--	--
	84TH STREET AND I-94 WB	DMS-40-0117	577100.1071	296362.3054	--	--	--	--	1	--	--
	GREENFIELD AVE AND 124TH ST	CB-CCTV-40-0155	563872.4231	291582.4057	--	--	--	--	--	1	--
	GREENFIELD AVE AND 116TH ST	CB-CCTV-40-0156	566444.8411	291578.2833	--	--	--	--	--	--	1
	TOTALS				1	1	1	1	1	1	1

FTMS BASES, POLES AND EQUIPMENT (WAUKESHA COUNTY)

CATEGORY	EQUIPMENT ID	LOCATION X	LOCATION Y	654.0220 CONCRETE CONTROL CABINET BASE TYPE 10 EACH	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE EACH	659.0802 PLAQUES SEQUENCE IDENTIFICATION EACH	672.0230 BASE CAMERA POLE 30-FT EACH	672.0250 BASE CAMERA POLE 50-FT EACH	677.0100 INSTALL CAMERA POLE EACH	677.0200 INSTALL CAMERA ASSEMBLY EACH	673.0225.S INSTALL POLE MOUNTED CABINET EACH	673.0200.S INSTALL ITS FIELD CABINET EACH	SPV.0060.2005 GROUND ROD EACH	SPV.0060.2002 INSTALL DYNAMIC MESSAGE SIGN EACH	SPV.0060.2003 DUAL ITS CONCRETE BASE EACH
1300															
	CCTV-67-0152	716603.3976	163182.8186	--	--	2	--	1	1	1	1	--	1	--	--
	HUB-67-0010	716428.3533	166534.4150	--	--	1	--	--	--	--	--	2	1	--	1
	DMS-67-0119	716539.5437	168009.3872	--	--	1	--	--	--	--	1	--	1	1	--
	DMS-67-0121	714891.0243	163042.9029	--	--	1	--	--	--	--	1	--	1	1	--
	DMS-67-0122	718110.9124	163097.6111	--	--	1	--	--	--	--	1	--	1	1	--
	CCTV-67-0153	721937.8157	163078.3722	--	--	2	1	--	1	1	1	--	1	--	--
	CCTV-67-0154	724472.2713	163016.7875	--	--	2	1	--	1	1	1	--	1	--	--
	DMS-67-0123	713644.0567	170331.4145	--	--	1	--	--	--	--	1	--	1	1	--
	DMS-67-0124	718321.5141	170105.7091	--	--	1	--	--	--	--	1	--	1	1	--
	CB-CCTV-67-0157	721833.8612	170074.5536	1	1	1	--	--	--	--	1	--	1	--	--
	CCTV-67-0157	721996.0779	170166.7283	--	--	1	--	--	--	1	--	--	1	--	--
	CB-CCTV-67-0158	724615.4741	170146.7279	1	1	1	--	--	--	--	1	--	1	--	--
	CCTV-67-0158	724612.8703	170054.4578	--	--	1	--	--	--	1	--	--	1	--	--
	CCTV-40-0190	727109.6926	170268.9612	--	--	1	--	--	--	1	--	--	1	--	--
	CB-CCTV-40-0190	727138.0324	170341.7021	1	1	1	--	--	--	--	1	--	1	--	--
		TOTALS		3	3	18	2	1	3	6	11	2	15	5	1
		PROJECT TOTALS		**3**	**5**	**28**	**3**	**1**	**4**	**9**	**18**	**2**	**23**	**10**	**1**

FTMS BASES, POLES AND EQUIPMENT (MILWAUKEE COUNTY)

CATEGORY	EQUIPMENT ID	LOCATION X	LOCATION Y	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE EACH	658.0802 PLAQUES SEQUENCE IDENTIFICATION EACH	672.0230 BASE CAMERA POLE 30-FT EACH	677.0100 INSTALL CAMERA POLE EACH	677.0200 INSTALL CAMERA ASSEMBLY EACH	673.0225.S INSTALL POLE MOUNTED CABINET EACH	SPV.0060.2005 GROUND ROD EACH	SPV.0060.2002 INSTALL DYNAMIC MESSAGE SIGN EACH
1300											
	CCTV-40-0155	563683.2738	291525.6614	--	1	--	--	1	--	--	--
	CB-CCTV-40-0155	563872.4231	291582.4057	1	1	--	--	--	1	1	--
	CCTV-40-0156	566583.9580	291503.8764	--	1	--	--	1	--	--	--
	CB-CCTV-40-0156	566444.8411	291578.2833	1	1	--	--	--	1	1	--
	DMS-40-0125	573535.5167	291536.5096	--	1	--	--	--	1	1	1
	CCTV-40-0191	567133.5163	298541.7415	--	1	1	1	1	--	1	--
	DMS-40-0126	573621.0832	298496.2096	--	1	--	--	--	1	1	1
	DMS-40-0129	568992.8358	307847.9667	--	1	--	--	--	1	1	1
	DMS-40-0130	577151.2086	294945.5433	--	1	--	--	--	1	1	1
	DMS-40-0117	577100.1071	296362.3054	--	1	--	--	--	1	1	1
		TOTALS		2	10	1	1	3	7	8	5

3

FTMS COMMUNICATIONS (CABINETS) (WAUKESHA COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	675.0400.S INSTALL ETHERNET SWITCH EACH	677.0300.S INSTALL VIDEO ENCODER EACH	678.0300 FIBER OPTIC SPLICE EACH	678.0400 FIBER OPTIC TERMINATION EACH	SPV.0060.2001 INSTALL 900 MHZ RADIO EACH	SPV.0060.2006 INSTALL ANTENNA EACH	SPV.0060.2007 INSTALL BLUETOOTH DETECTOR EACH	SPV.0060.2010 EQUIPMENT RACK UNINTERRUPTABLE POWER SUPPLY EACH
1300												
	GREENFIELD AVE AND MOORLAND RD	CCTV-67-0152	716603.3976	163182.8186	1	1	--	6	1	1	1	--
	GREENFIELD AVE AND MOORLAND RD	EXCV2101	716629.9257	163039.7656	--	--	75	--	--	--	--	--
	MOORLAND RD	HUB-67-0010	716428.3533	166534.4150	2	--	--	216	--	--	--	2
	MOORLAND RD	EXCV2302	716545.9824	166520.0426	--	--	--	--	--	--	--	--
	MOORLAND RD	EXCV2303	716643.3066	166467.9288	--	--	24	--	--	--	--	--
	MOORLAND RD	DMS-67-0119	716539.5437	168009.3872	--	--	--	--	1	1	--	--
	GREENFIELD AVE AND COACHLIGHT DR	DMS-67-0121	714891.1405	163042.8991	--	--	--	--	1	1	--	--
	GREENFIELD AVE AND PICKN' SAVE ENTRANCE	DMS-67-0122	718110.9124	163097.6111	--	--	--	--	1	1	--	--
	GREENFIELD AVE AND SUNNYSLOPE RD	CCTV-67-0153	721937.8157	163078.3722	1	1	--	6	--	--	1	--
	GREENFIELD AVE AND SUNNYSLOPE RD	EXCV3401	721977.5306	163002.0559	--	--	15	--	--	--	--	--
	GREENFIELD AVE AND ELM GROVE RD	CCTV-67-0154	724472.2713	163016.7875	1	1	--	6	--	--	1	--
	BLUEMOUND RD AND EXECUTIVE DR	DMS-67-0123	713644.0567	170331.4145	--	--	--	--	1	1	--	--
	BLUEMOUND RD AND MOORLAND RD	EXCCTV-67-0117	716554.4534	170065.0467	--	--	--	--	--	1	1	--
	BLUEMOUND RD AND MOORLAND RD	EXCB-CCTV-67-0117	716465.6334	170185.0371	--	--	--	--	1	--	--	--
	BLUEMOUND RD AND PROSPECT DR	DMS-67-0124	718321.5141	170105.7091	--	--	--	--	1	1	--	--
	BLUEMOUND RD AND SUNNYSLOPE RD	CB-CCTV-67-0157	721833.8612	170074.5536	1	1	6	6	--	--	--	--
	BLUEMOUND RD AND ELM GROVE RD	CB-CCTV-67-0158	724615.4741	170146.7279	1	1	6	6	--	--	1	--
	BLUEMOUND RD AND UPS DRIVEWAY	CB-CCTV-40-0190	727138.0323	170341.7021	1	1	6	6	--	--	--	--
	CAPITOL DR AND 124TH ST	EXDMS-67-0014	726706.6536	189347.1379	--	--	--	--	--	--	1	--
	TOTALS				8	6	132	252	7	7	6	2

FTMS COMMUNICATIONS (CABINETS) (MILWAUKEE COUNTY)

CATEGORY	ROADWAY	EQUIPMENT ID	LOCATION X	LOCATION Y	675.0400.S INSTALL ETHERNET SWITCH EACH	677.0300.S INSTALL VIDEO ENCODER EACH	678.0300 FIBER OPTIC SPLICE EACH	678.0400 FIBER OPTIC TERMINATION EACH	SPV.0060.2004 INSTALL CELLULAR MODEM EACH	SPV.0060.2001 INSTALL 900 MHZ RADIO EACH	SPV.0060.2006 INSTALL ANTENNA EACH	SPV.0060.2007 INSTALLING BLUETOOTH DETECTOR EACH
1300												
	GREENFIELD AVE AND 124TH ST	CB-CCTV-40-0155	563872.4231	291582.4057	1	1	--	6	--	--	--	1
	GREENFIELD AVE AND 124TH ST	EXCV5001	563914.1985	291510.6870	--	--	15	--	--	--	--	--
	GREENFIELD AVE AND 116TH ST	CB-CCTV-40-0156	566444.8411	291578.2833	1	1	--	6	--	--	--	1
	GREENFIELD AVE AND 116TH ST	EXCV5102	566398.4947	291522.7718	--	--	15	--	--	--	--	--
	GREENFIELD AVE AND STH 100	EX-CCTV-40-0112	569289.8084	291425.0757	--	--	--	--	--	--	--	1
	GREENFIELD AVE AND STH 100	EXCV5303	569198.8867	291891.1604	--	--	72	--	--	--	--	--
	GREENFIELD AVE AND USH 45	EXCV5505	572299.0129	291783.6987	--	--	72	--	--	--	--	--
	GREENFIELD AVE AND 95TH ST	DMS-40-0125	573535.5167	291536.5096	--	--	--	--	1	--	--	1
	GREENFIELD AVE AND 84TH ST	EXCB-CCTV-40-0116	573535.5167	291536.5096	--	--	--	--	--	--	--	1
	BLUEMOUND RD AND 114TH ST	EXCB-DMS-40-0109	291536.5096	291536.5096	1	1	--	6	--	--	--	1
	BLUEMOUND RD AND 95TH ST	DMS-40-0126	573621.0832	298496.2096	--	--	--	--	1	--	--	1
	CAPITOL DR AND STH 100	EXCCTV-40-0107	569119.9318	318274.7153	--	--	--	--	--	--	--	1
	LINCOLN AVE AND STH 100	EXCB-CCTV-40-0113	569271.6169	286517.1622	--	--	--	--	--	--	--	1
	BLUEMOUND AND STH 100	EXCB-CCTV-40-0110	569079.5136	298420.8568	--	--	--	--	--	--	--	1
	WATERTOWN PLANK RD AND STH 100	EXCB-CCTV-40-0111	569057.4875	302311.8803	--	--	--	--	--	--	--	1
	HWY 100 AND NORTH AVE	DMS-40-0129	568992.8358	307847.9667	--	--	--	--	--	1	1	1
	BURLEIGH ST AND STH 100	EX-CCTV-40-0108	569004.4093	312715.7314	--	--	--	--	--	--	--	1
	84TH STREET AND I-94 EB	DMS-40-0130	577151.2086	294945.5433	--	--	--	--	--	1	1	--
	84TH STREET AND I-94 WB	EXCB-RM-40-0010	577087.2382	295636.2281	--	--	--	--	--	1	1	--
	84TH STREET AND I-94 WB	DMS-40-0117	577100.1071	296362.3054	--	--	--	--	1	--	--	--
	84TH STREET AND BLUEMOUND RD	EXCCTV-40-0149	577536.1873	298577.2443	--	--	--	--	--	--	--	1
	WISCONSIN AVE AND 97TH ST	EXMH9201	572816.7305	299264.5426	--	--	36	--	--	--	--	--
		TOTALS			3	3	210	18	3	3	3	14
		PROJECT TOTALS			**11**	**9**	**342**	**270**	**3**	**10**	**10**	**20**

FTMS MISCELLANEOUS ITEMS

CATEGORY	ROADWAY	670.0100.0001 FIELD SYSTEM INTERGRATOR (FTMS) LS	670.0200.0001 ITS DOCUMENTATION (FTMS) LS	678.0500.0001 COMMUNICATION SYSTEM TESTING (FTMS) LS
1300				
	IH 894/IH 94/USH 45	1	1	1
	TOTALS	1	1	1

BOLLARDS (WAUKESHA COUNTY)

CATEGORY	ROADWAY	SPV.0060.2008 FTMS EACH
1300		
	MOORLAND ROAD	4
	TOTALS	4

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1520	LF	CAMERA POWER CABLE
1520	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB4 (V1)	271	271
CB1	SB16 (V2)	549	549
CB1	SB23 (V3)	238	238
CB1	SB9 (V4)	462	462
	*** TOTAL	1520	1520

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

USH 18 & STH 100

ALL ITEMS ARE CATEGORY 1500 UNLESS OTHERWISE NOTED

3

REMOVE VIDEO DETECTION EQUIPMENT
USH 18 & STH 100

LOCATION	SPV.0105.3001 REMOVE VIDEO DETECTION EQUIPMENT LS
USH 18 (W. BLUEMOUND ROAD) & STH 100 (N. MAYFAIR ROAD)	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & STH 100

LOCATION	SPV.0105.3060 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & STH 100 (N. MAYFAIR ROAD)	1
TOTAL	1

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
03/13/2013

PAGE 1 OF 1

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030115_mq_sp.ppt PLOT DATE : 3/1/2013 4:03:05 AM PLOT BY : MSCCEJ PLOT NAME : 030115_mq_sp1 PLOT SCALE : 1:1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1097	LF	CAMERA POWER CABLE
1097	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB1 (V1)	201	201
CB1	SB6 (V2)	337	337
CB1	SB9 (V3)	131	131
CB1	SB4 (V4)	428	428
	*** TOTAL	1097	1097

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVE VIDEO DETECTION EQUIPMENT
STH 100 & W. WISCONSIN AVENUE

LOCATION	SPV.0105.3002 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 100 (N. MAYFAIR ROAD) & WISCONSIN AVNUE	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 100 & W. WISCONSIN AVENUE

LOCATION	SPV.0105.3061 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 100 (N. MAYFAIR ROAD) & W. WISCONSIN AVENUE	1
TOTAL	1

WISCONSIN
JASON R. MATSON
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PROFESSIONAL ENGINEER
03/15/2013

STH 100 & W. POTTER ROAD / W. RESEARCH DRIVE

ALL ITEMS ARE CATEGORY 1500 UNLESS OTHERWISE NOTED

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1320	LF	CAMERA POWER CABLE
1320	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB6 (V1)	432	432
CB1	SB12 (V2)	199	199
CB1	SB5 (V3)	348	348
CB1	SB10 (V4)	341	341
	*** TOTAL	1320	1320

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVE VIDEO DETECTION EQUIPMENT
STH 100 & W. POTTER ROAD / W. RESEARCH DRIVE

LOCATION	SPV.0105.3003 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 100 (N. MAYFAIR ROAD) & W. POTTER ROAD / W. RESEARCH DRIVE	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 100 & W. POTTER ROAD / W. RESEARCH DRIVE

LOCATION	SPV.0105.3062 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 100 (N. MAYFAIR ROAD) & W. POTTER ROAD / W. RESEARCH DRIVE	1
TOTAL	1

WISCONSIN JASON R. MATSON 37111 WAUKESHA, WI PROFESSIONAL ENGINEER 03/13/2013

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030135_mq_sp.ppt PLOT DATE : 3/1/2013 4:03:49 AM PLOT BY : MSCCEJ PLOT NAME : 030135_mq_sp1 PLOT SCALE : 1:1

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1565	LF	CAMERA POWER CABLE
1565	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS



STH 100 & W. WATERTOWN PLANK ROAD

ALL ITEMS ARE CATEGORY 1500 UNLESS OTHERWISE NOTED

3

REMOVE VIDEO DETECTION EQUIPMENT
STH 100 & W. WATERTOWN PLANK ROAD

LOCATION	SPV.0105.3004 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 100 (N. MAYFAIR ROAD) & W. WATERTOWN PLANK ROAD	1
TOTAL	1

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB12 (V1)	503	503
CB1	SB3 (V2)	292	292
CB1	SB8 (V3)	521	521
CB1	SB16 (V4)	249	249
	*** TOTAL	1565	1565

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 100 & W. WATERTOWN PLANK ROAD

LOCATION	SPV.0105.3063 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 100 (N. MAYFAIR ROAD) & W. WATERTOWN PLANK ROAD	1
TOTAL	1

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030145_mq_sp.ppt
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3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	TRAFFIC SIGNAL CONTROLLER (EPAC M52)
1175	LF	CAMERA POWER CABLE
1175	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB9 (V1)	302	302
CB1	SB3 (V2)	300	300
CB1	SB6 (V3)	439	439
CB1	SB12 (V4)	134	134
	*** TOTAL	1175	1175

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

3

REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER

LOCATION	SPV.0060.3007 REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER EACH
CB1	1
*** TOTAL	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 59 & CTH O

LOCATION	SPV.0105.3064 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 59 (W. GREENFIELD AVENUE) & CTH O (S. MOORLAND ROAD)	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	TRAFFIC SIGNAL CONTROLLER (EPAC M52)
857	LF	CAMERA POWER CABLE
857	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB12 (V1)	141	141
CB1	SB6 (V2)	292	292
CB1	SB9 (V3)	224	224
CB1	SB3 (V4)	200	200
	*** TOTAL	857	857

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER

LOCATION	SPV.0060.3007 REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER EACH
CB1	1
*** TOTAL	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 59 & S. SUNNYSLOPE ROAD

LOCATION	SPV.0105.3065 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 59 (W. GREENFIELD AVENUE) & S. SUNNYSLOPE ROAD	1
TOTAL	1

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	TRAFFIC SIGNAL CONTROLLER (EPAC M52)
937	LF	CAMERA POWER CABLE
937	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER

LOCATION	SPV.0060.3007 REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER EACH
CB1	1
*** TOTAL	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

STH 59 & S. ELM GROVE ROAD

ALL ITEMS ARE CATEGORY 1500

3

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB10 (V1)	132	132
CB1	SB5 (V2)	366	366
CB1	SB7 (V3)	281	281
CB1	SB2 (V4)	158	158
	*** TOTAL	937	937

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 59 & S. ELM GROVE ROAD

LOCATION	SPV.0105.3066 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 59 (W. GREENFIELD AVENUE) & S. ELM GROVE ROAD	1
TOTAL	1

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET:	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030235_mq_sp.ppt PLOT DATE : 3/26/2013 12:21:17 PM PLOT BY : MSCCEJ PLOT NAME : 030235_mq_sp1 PLOT SCALE : 1:1

STH 59 & S. 124TH STREET

ALL ITEMS ARE CATEGORY 1500

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
4	EACH	EVP DETECTOR HEADS
1111	LF	CAMERA POWER CABLE
1111	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

REMOVE VIDEO DETECTION EQUIPMENT
STH 59 & S. 124TH STREET

LOCATION	SPV.0105.3005 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 59 (W. GREENFIELD ROAD) & S. 124TH STREET	1
TOTAL	1

3

TRAFFIC SIGNAL EVP DETECTOR CABLE

FROM	TO	655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE LF
CB1	SB15 (HEAD A)	289
CB1	SB5 (HEAD B)	270
CB1	SB10 (HEAD C)	407
CB1	SB19 (HEAD D)	121
	*** TOTAL	1087

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE



TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 59 & S. 124TH STREET

LOCATION	SPV.0105.3067 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 59 (W. GREENFIELD AVENUE) & S. 124TH STREET	1
TOTAL	1

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB14 (V1)	295	295
CB1	SB4 (V2)	276	276
CB1	SB9 (V3)	413	413
CB1	SB18 (V4)	127	127
	*** TOTAL	1111	1111

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

EVP DETECTOR HEAD INSTALLATION
STH 59 & S. 124TH STREET

LOCATION	SPV.0105.3115 EVP DETECTOR HEAD INSTALLATION LS
STH 59 (W. GREENFIELD AVENUE) & S. 124TH STREET	1
TOTAL	1

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET:	E

STH 59 & S. 116TH STREET

ALL ITEMS ARE CATEGORY 1500

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
4	EACH	EVP DETECTOR HEADS
1080	LF	CAMERA POWER CABLE
1080	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

REMOVE VIDEO DETECTION EQUIPMENT
STH 59 & S. 116TH STREET

LOCATION	SPV.0105.3006 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 59 (W. GREENFIELD ROAD) & S. 116TH STREET	1
TOTAL	1

3

TRAFFIC SIGNAL EVP DETECTOR CABLE

FROM	TO	655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE LF
CB1	SB16 (HEAD A)	129
CB1	SB6 (HEAD B)	338
CB1	SB9 (HEAD C)	396
CB1	SB2 (HEAD D)	193
*** TOTAL		1056

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

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PROFESSIONAL ENGINEER
02/13/2013

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 59 & S. 116TH STREET

LOCATION	SPV.0105.3068 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 59 (W. GREENFIELD AVENUE) & S. 116TH STREET	1
TOTAL	1

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB16 (V1)	135	135
CB1	SB6 (V2)	344	344
CB1	SB9 (V3)	402	402
CB1	SB2 (V4)	199	199
*** TOTAL		1080	1080

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

EVP DETECTOR HEAD INSTALLATION
STH 59 & S. 116TH STREET

LOCATION	SPV.0105.3116 EVP DETECTOR HEAD INSTALLATION LS
STH 59 (W. GREENFIELD AVENUE) & S. 116TH STREET	1
TOTAL	1

PROJECT NO: 1060-33-99	HWY: STH 59	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET:	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030255_mq_sp.ppt PLOT DATE : 3/1/2013 4:06:04 AM PLOT BY : MSCCEJ PLOT NAME : 030255_mq_sp1 PLOT SCALE : 1:1

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SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1511	LF	CAMERA POWER CABLE
1511	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB12 (V1)	389	389
CB1	SB4 (V2)	342	342
CB1	SB10 (V3)	604	604
CB1	SB1 (V4)	176	176
	*** TOTAL	1511	1511

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE



REMOVE VIDEO DETECTION EQUIPMENT
STH 100 & STH 59

LOCATION	SPV.0105.3007 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 100 (S. 108TH STREET) & STH 59 (W. GREENFIELD AVENUE)	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 100 & STH 59

LOCATION	SPV.0105.3069 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 100 (S. 108TH STREET) & STH 59 (W. GREENFIELD AVENUE)	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1090	LF	CAMERA POWER CABLE
1090	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB13 (V1)	137	137
CB1	SB4 (V2)	364	364
CB1	SB8 (V3)	388	388
CB1	SB2 (V4)	201	201
	*** TOTAL	1090	1090

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

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W., JKESHA, WI
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03/13/2013

REMOVE VIDEO DETECTION EQUIPMENT
STH 59 & S. 101ST STREET

LOCATION	SPV.0105.3008 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 59 (W. GREENFIELD ROAD) & S. 101ST STREET	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 59 & S. 101ST STREET

LOCATION	SPV.0105.3070 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 59 (W. GREENFIELD AVENUE) & S. 101ST STREET	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
940	LF	CAMERA POWER CABLE
940	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB1 (V1)	281	281
CB1	SB13 (V2)	262	262
CB1	SB14 (V3)	210	210
CB1	SB4 (V4)	187	187
	*** TOTAL	940	940

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE



REMOVE VIDEO DETECTION EQUIPMENT
USH 45/IH 894 EB RAMPS & STH 59

LOCATION	SPV.0105.3009 REMOVE VIDEO DETECTION EQUIPMENT LS
USH 45/IH 894 EB RAMPS & STH 59 (W. GREENFIELD AVENUE)	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 45/IH 894 EB RAMPS & STH 59

LOCATION	SPV.0105.3071 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 45/IH 894 EB RAMPS & STH 59 (W. GREENFIELD AVENUE)	1
TOTAL	1

PAGE 1 OF 1

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1197	LF	CAMERA POWER CABLE
1197	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB5 (V1)	518	518
CB1	SB10 (V2)	245	245
CB1	SB6 (V3)	434	434
	*** TOTAL	1197	1197

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

WISCONSIN JASON R. MATSON WAUKESHA, WI PROFESSIONAL ENGINEER 03/1/2013

USH 45/IH 894 WB RAMPS & STH 59

ALL ITEMS ARE CATEGORY 1500

3

REMOVE VIDEO DETECTION EQUIPMENT
USH 45/IH 894 WB RAMPS & STH 59

LOCATION	SPV.0105.3010 REMOVE VIDEO DETECTION EQUIPMENT LS
USH 45/IH 894 WB RAMPS & STH 59 (W. GREENFIELD AVENUE)	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 45/IH 894 WB RAMPS & STH 59

LOCATION	SPV.0105.3072 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 45/IH 894 WB RAMPS & STH 59 (W. GREENFIELD AVENUE)	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1012	LF	CAMERA POWER CABLE
1012	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

REMOVE VIDEO DETECTION EQUIPMENT
CTH O & HACKBERRY LANE

LOCATION	SPV.0105.3011 REMOVE VIDEO DETECTION EQUIPMENT LS
CTH O (S. MOORLAND ROAD) & HACKBERRY LANE	1
TOTAL	1

3

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB3 (V1)	277	277
CB1	SB8 (V2)	245	245
CB1	SB9 (V3)	173	173
CB1	SB4 (V4)	317	317
	*** TOTAL	1012	1012

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
CTH O & HACKBERRY LANE

LOCATION	SPV.0105.3073 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
CTH O (S. MOORLAND ROAD) & HACKBERRY LANE	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
772	LF	CAMERA POWER CABLE
772	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

REMOVE VIDEO DETECTION EQUIPMENT
IH 94 EB RAMPS & CTH O

LOCATION	SPV.0105.3012 REMOVE VIDEO DETECTION EQUIPMENT LS
IH 94 EB RAMPS & CTH O (S. MOORLAND ROAD)	1
TOTAL	1

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB3 (V1)	207	207
CB1	SB11 (V2)	224	224
CB1	SB12 (V3)	111	111
CB1	SB4 (V4)	230	230
	*** TOTAL	772	772

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

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W , JKESHA, WI
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TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
IH 94 EB RAMPS & CTH O

LOCATION	SPV.0105.3074 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
IH 94 EB RAMPS & CTH O (S. MOORLAND ROAD)	1
TOTAL	1

PAGE 1 OF 1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
568	LF	CAMERA POWER CABLE
568	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB5 (V1)	251	251
CB1	SB2 (V2)	317	317
	*** TOTAL	568	568

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

WISCONSIN
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WAUKESHA, WI
PROFESSIONAL ENGINEER
03/13/2013

REMOVE VIDEO DETECTION EQUIPMENT
IH 94 WB RAMPS & CTH O

LOCATION	SPV.0105.3013 REMOVE VIDEO DETECTION EQUIPMENT LS
IH 94 WB RAMPS & CTH O (S. MOORLAND ROAD)	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
IH 94 WB RAMPS & CTH O

LOCATION	SPV.0105.3075 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
IH 94 WB RAMPS & CTH O (S. MOORLAND ROAD)	1
TOTAL	1

CTH O & SHOPPING CENTER RING ROAD

ALL ITEMS ARE CATEGORY 1500

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	TRAFFIC SIGNAL CONTROLLER (EPAC M52)
866	LF	CAMERA POWER CABLE
866	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

CONDUIT

FROM	TO	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF
PB6	SB5	18
	*** TOTALS	18

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL CONDUIT INTO EXISTING ITEM

STRUCTURE NO.	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM EACH
PB6	1
*** TOTAL	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

CONCRETE BASES

BASE NO.	** NORTHING	** EASTING	654.0102 CONCRETE BASES TYPE 2 EACH
SB4	167342.0	716568.2	1
		*** TOTAL	1

* FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD
** COORDINATES REFERENCED TO WAUKESHA COUNTY COORDINATE SYSTEM
*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ABOVE GROUND TRAFFIC SIGNAL CABLE NO. 14

FROM	TO	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF
SB5	HEAD 11	19
	*** TOTALS	19

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

UNDERGROUND TRAFFIC SIGNAL CABLE NO. 14

FROM	TO	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG LF
CB1	SB4	274
	*** TOTALS	274

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG

FROM	TO	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF
SB4	SB5	40
SB5	SB6	68
	*** TOTAL	108

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PROJECT NO: 1060-33-99	HWY: CTH O	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET:	E

3

CAST BASES AND POLES

SIGNAL BASE NO.	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE EACH	657.0305 POLES TYPE 2 EACH
SB5	1	1
*** TOTALS	1	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

3

TRAFFIC SIGNAL AND PEDESTRIAN FACES, AND BACKPLATES

SIGNAL HEAD NO.	SIGNAL BASE NO.	658.0110 TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL EACH	658.0215 BACKPLATES SIGNAL FACE 3 SECTION 12-INCH EACH	658.0600 LED MODULES 12-INCH RED BALL EACH	658.0605 LED MODULES 12-INCH YELLOW BALL EACH	658.0610 LED MODULES 12-INCH GREEN BALL EACH
11	SB5	1	1	1	1	1
	*** TOTALS	1	1	1	1	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

SIGNAL MOUNTING HARDWARE
CTH O & SHOPPING CENTER RING ROAD

LOCATION	658.5069.3001 SIGNAL MOUNTING HARDWARE L.S.
CTH O (S. MOORLAND ROAD) & SHOPPING CENTER RING ROAD	1
TOTAL	1

3

REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER

LOCATION	SPV.0060.3007 REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER EACH
CB1	1
*** TOTAL	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB5 (V1)	320	320
CB1	SB2 (V2)	226	226
CB1	SB5 (V3)	320	320
	*** TOTAL	866	866

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
CTH O & SHOPPING CENTER RING ROAD

LOCATION	SPV.0105.3076 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
CTH O (S. MOORLAND ROAD) & SHOPPING CENTER RING ROAD	1
TOTAL	1

CTH O & SHOPPING CENTER RING ROAD/DRIVEWAY

ALL ITEMS ARE CATEGORY 1500

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	TRAFFIC SIGNAL CONTROLLER (EPAC M52)
996	LF	CAMERA POWER CABLE
996	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER

LOCATION	SPV.0060.3007 REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER EACH
CB1	1
*** TOTAL	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB11 (V1)	143	143
CB1	SB5 (V2)	294	294
CB1	SB8 (V3)	440	440
CB1	SB2 (V4)	119	119
	*** TOTAL	996	996

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVE VIDEO DETECTION EQUIPMENT
CTH O & SHOPPING CENTER RING ROAD/DRIVEWAY

LOCATION	SPV.0105.3015 REMOVE VIDEO DETECTION EQUIPMENT LS
CTH O (S. MOORLAND ROAD) & SHOPPING CENTER RING ROAD / DRIVEWAY	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
CTH O & SHOPPING CENTER RING ROAD/DRIVEWAY

LOCATION	SPV.0105.3077 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
CTH O (S. MOORLAND ROAD) & SHOPPING CENTER RING ROAD / DRIVEWAY	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	EVP DETECTOR HEADS
1453	LF	CAMERA POWER CABLE
1453	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

TRAFFIC SIGNAL EVP DETECTOR CABLE

FROM	TO	655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE LF
CB1	SB7 (HEAD C)	572
	*** TOTAL	572

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE



INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB3 (V1)	269	269
CB1	SB11 (V2)	396	396
CB1	SB14 (V3)	192	192
CB1	SB7 (V4)	596	596
	*** TOTAL	1453	1453

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

3

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & CTH YY

LOCATION	SPV.0105.3078 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & CTH YY (SUNNYSLOPE ROAD)	1
TOTAL	1

EVP DETECTOR HEAD INSTALLATION
USH 18 & CTH YY

LOCATION	SPV.0105.3117 EVP DETECTOR HEAD INSTALLATION LS
USH 18 (W. BLUEMOUND ROAD) & CTH YY	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
2	EACH	EVP DETECTOR HEADS
1376	LF	CAMERA POWER CABLE
1376	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

TRAFFIC SIGNAL EVP DETECTOR CABLE

FROM	TO	655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE LF
CB1	SB8 (HEAD C)	506
CB1	SB1 (HEAD D)	194
	*** TOTAL	700

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE



INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB12 (V1)	337	337
CB1	SB5 (V2)	320	320
CB1	SB8 (V3)	513	513
CB1	SB1 (V4)	206	206
	*** TOTAL	1376	1376

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

EVP DETECTOR HEAD INSTALLATION
USH 18 & ELM GROVE ROAD

LOCATION	SPV.0105.3118 EVP DETECTOR HEAD INSTALLATION LS
USH 18 (W. BLUEMOUND ROAD) & ELM GROVE ROAD	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & ELM GROVE ROAD

LOCATION	SPV.0105.3079 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & ELM GROVE ROAD	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1089	LF	CAMERA POWER CABLE
1089	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB11 (V1)	270	270
CB1	SB3 (V2)	308	308
CB1	SB7 (V3)	416	416
CB1	SB15 (V4)	95	95
	*** TOTAL	1089	1089

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

WISCONSIN JASON R. MATSON PROFESSIONAL ENGINEER

03/15/2013

USH 18 & UNDERWOOD CROSSING PARKWAY

ALL ITEMS ARE CATEGORY 1500

3

REMOVE VIDEO DETECTION EQUIPMENT
USH 18 & UNDERWOOD CROSSING PARKWAY

LOCATION	SPV.0105.3016 REMOVE VIDEO DETECTION EQUIPMENT LS
USH 18 (W. BLUEMOUND ROAD) & UNDERWOOD CROSSING PARKWAY	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & UNDERWOOD CROSSING PARKWAY

LOCATION	SPV.0105.3080 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & UNDERWOOD CROSSING PARKWAY	1
TOTAL	1

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030435_mq_sp.ppt PLOT DATE : 3/1/2013 4:10:32 AM PLOT BY : MSCCEJ PLOT NAME : 030435_mq_sp1 PLOT SCALE : 1:1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
798	LF	CAMERA POWER CABLE
798	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB10 (V1)	159	159
CB1	SB4 (V2)	272	272
CB1	SB5 (V3)	367	367
	*** TOTAL	798	798

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & UPS DRIVEWAY

LOCATION	SPV.0105.3081 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & UPS DRIVEWAY	1
TOTAL	1

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PROFESSIONAL ENGINEER
05/13/2013

PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: WAUKESHA	MISCELLANEOUS QUANTITIES	SHEET: 310	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030445_mq_sp.ppt PLOT DATE : 3/1/2013 4:10:55 AM PLOT BY : MSCCEJ PLOT NAME : 030445_mq_sp1 PLOT SCALE : 1:1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	TRAFFIC SIGNAL CONTROLLER AND CABINET
857	LF	CAMERA POWER CABLE
857	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

ABOVE GROUND TRAFFIC SIGNAL CABLE NO. 14

FROM	TO	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF
SB2	HEAD 9	22
SB8	HEAD 4	19
*** TOTALS		41

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

UNDERGROUND TRAFFIC SIGNAL CABLE NO. 14

FROM	TO	655.0270 CABLE TRAFFIC SIGNAL 15-14 AWG LF
CB1	SB2	64
CB1	SB8	240
*** TOTALS		304

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

CAST BASES AND POLES

SIGNAL BASE NO.	657.0100 PEDESTAL BASES EACH	657.0425 TRAFFIC SIGNAL STANDARDS ALUMINUM 15-FT EACH
SB2	1	1
*** TOTALS	1	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

SIGNAL MOUNTING HARDWARE
USH 18 & N. 121ST STREET

LOCATION	658.5069.3002 SIGNAL MOUNTING HARDWARE LS
USH 18 (W. BLUEMOUND ROAD) & N. 121ST STREET	1
TOTAL	1

WISCONSIN
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03/1/2013

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030455_mq_sp.ppt PLOT DATE : 3/1/2013 4:11:17 AM PLOT BY : MSCCEJ PLOT NAME : 030455_mq_sp1 PLOT SCALE : 1:1

3

TRAFFIC SIGNAL AND PEDESTRIAN FACES, AND BACKPLATES

SIGNAL HEAD NO.	SIGNAL BASE NO.	658.0110 TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL EACH	658.0115 TRAFFIC SIGNAL FACE 4-12 INCH VERTICAL EACH	658.0215 BACKPLATES SIGNAL FACE 3 SECTION 12-INCH EACH	658.0220 BACKPLATES SIGNAL FACE 4 SECTION 12-INCH EACH	658.0600 LED MODULES 12-INCH RED BALL EACH	658.0605 LED MODULES 12-INCH YELLOW BALL EACH	658.0610 LED MODULES 12-INCH GREEN BALL EACH	658.0615 LED MODULES 12-INCH RED ARROW EACH	658.0620 LED MODULES 12-INCH YELLOW ARROW EACH	658.0625 LED MODULES 12-INCH GREEN ARROW EACH
1	SB2	1		1		1	1	1			
2	SB10	1		1		1	1	1			
3	SB10	1		1		1	1	1			
4	SB8	1		1					1	2	
5	SB10	1		1					1	2	
6	SB8	1		1		1	1	1			
7	SB4	1		1		1	1	1			
8	SB4	1		1		1	1	1			
9	SB2		1		1				1	2	1
10	SB4		1		1				1	2	1
11	SB12	1		1		1	1	1			
12	SB6	1		1		1	1	1			
13	SB7	1		1		1	1	1			
14	SB6	1		1		1	1	1			
15	SB12	1		1		1	1	1			
16	SB1	1		1		1	1	1			
	*** TOTALS	14	2	14	2	12	12	12	4	8	2

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

RELOCATE TRAFFIC SIGNAL EQUIPMENT
USH 18 & N. 121ST STREET

LOCATION	SPV.0060.3002 RELOCATE TRAFFIC SIGNAL EQUIPEMNT EACH
USH 18 (W. BLUEMOUND ROAD) & N. 121ST STREET	1
TOTAL	1

USH 18 & N. 121ST STREET

ALL ITEMS ARE CATEGORY 1500

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB4 (V1)	203	203
CB1	SB10 (V2)	246	246
CB1	SB1 (V3)	89	89
CB1	SB7 (V4)	319	319
	*** TOTAL	857	857

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL STATE FURNISHED TRAFFIC SIGNAL CABINET
USH 18 & N. 121ST STREET

LOCATION	SPV.0105.3055 INSTALL STATE FURNISHED TRAFFIC SIGNAL CABINET LS
USH 18 (W. BLUEMOUND ROAD) & N. 121ST STREET	1
TOTAL	1

REMOVE TRAFFIC SIGNALS
USH 18 & N. 121ST STREET

LOCATION	SPV.0105.3025 REMOVE TRAFFIC SIGNALS LS
USH 18 (W. BLUEMOUND ROAD) & N. 121ST STREET	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & N. 121ST STREET

LOCATION	SPV.0105.3082 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & N. 121ST STREET	1
TOTAL	1

USH 18 & N. 112th STREET

ALL ITEMS ARE CATEGORY 1500

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	TRAFFIC SIGNAL CONTROLLER AND CABINET
822	LF	CAMERA POWER CABLE
822	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

ABOVE GROUND TRAFFIC SIGNAL CABLE NO. 14

FROM	TO	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF
SB3	HEAD 9	19
SB9	HEAD 4	19
*** TOTALS		38

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

BELOW GROUND TRAFFIC SIGNAL CABLE NO. 14

FROM	TO	655.0270 CABLE TRAFFIC SIGNAL 15-14 AWG LF
CB1	SB3	145
CB1	SB9	173
*** TOTALS		318

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

SIGNAL MOUNTING HARDWARE
USH 18 & N. 112TH STREET

LOCATION	658.5069.3003 SIGNAL MOUNTING HARDWARE LS
USH 18 (W. BLUEMOUND ROAD) & N. 112TH STREET	1
TOTAL	1

3

TRAFFIC SIGNAL AND PEDESTRIAN FACES, AND BACKPLATES

SIGNAL HEAD NO.	SIGNAL BASE NO.	658.0110 TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL EACH	658.0215 BACKPLATES SIGNAL FACE 3 SECTION 12-INCH EACH	658.0600 LED MODULES 12-INCH RED BALL EACH	658.0605 LED MODULES 12-INCH YELLOW BALL EACH	658.0610 LED MODULES 12-INCH GREEN BALL EACH	658.0615 LED MODULES 12-INCH RED ARROW EACH	658.0620 LED MODULES 12-INCH YELLOW ARROW EACH
1	SB3	1	1	1	1	1		
2	SB11	1	1	1	1	1		
3	SB11	1	1	1	1	1		
4	SB9	1	1				1	2
5	SB11	1	1				1	2
6	SB9	1	1	1	1	1		
7	SB5	1	1	1	1	1		
8	SB5	1	1	1	1	1		
9	SB3	1	1				1	2
10	SB5	1	1				1	2
11	SB1	1	1	1	1	1		
12	SB7	1	1	1	1	1		
13	SB8	1	1	1	1	1		
14	SB7	1	1	1	1	1		
15	SB1	1	1	1	1	1		
16	SB2	1	1	1	1	1		
*** TOTALS		16	16	12	12	12	4	8

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE



PROJECT NO: 1060-33-99	HWY: USH 18	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET:	E

FILE NAME : W:\Cadd\Final\10603399_IC1\Roads\cds\030465_mq_sp.ppt PLOT DATE : 3/1/2013 4:11:39 AM PLOT BY : MSCCEJ PLOT NAME : 030465_mq_sp1 PLOT SCALE : 1:1

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INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB5 (V1)	254	254
CB1	SB11 (V2)	173	173
CB1	SB2 (V3)	140	140
CB1	SB8 (V4)	255	255
	*** TOTAL	822	822

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL STATE FURNISHED TRAFFIC SIGNAL CABINET
USH 18 & N. 112TH STREET

LOCATION	SPV.0105.3056 INSTALL STATE FURNISHED TRAFFIC SIGNAL CABINET LS
USH 18 (W. BLUEMOUND ROAD) & N. 112TH STREET	1
TOTAL	1

3

REMOVE TRAFFIC SIGNALS
USH 18 & N. 112TH STREET

LOCATION	SPV.0105.3026 REMOVE TRAFFIC SIGNALS LS
USH 18 (W. BLUEMOUND ROAD) & N. 112TH STREET	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & N. 112TH STREET

LOCATION	SPV.0105.3083 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & N. 112TH STREET	1
TOTAL	1

USH 18 & N. 97th STREET

ALL ITEMS ARE CATEGORY 1500

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
803	LF	CAMERA POWER CABLE
803	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB7 (V1)	177	177
CB1	SB3 (V2)	261	261
CB1	SB5 (V3)	365	365
	*** TOTAL	803	803

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVE VIDEO DETECTION EQUIPMENT
USH 18 & N. 97TH STREET

LOCATION	SPV.0105.3019 REMOVE VIDEO DETECTION EQUIPMENT LS
USH 18 (W. BLUEMOUND ROAD) & N. 97TH STREET	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & N. 97TH STREET

LOCATION	SPV.0105.3084 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & N. 97TH STREET	1
TOTAL	1

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1074	LF	CAMERA POWER CABLE
1074	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB3 (V1)	150	150
CB1	SB6 (V2)	342	342
CB1	SB10 (V3)	338	338
CB1	SB4 (V4)	244	244
	*** TOTAL	1074	1074

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

USH 18 & N. 95th STREET

ALL ITEMS ARE CATEGORY 1500

3

REMOVE VIDEO DETECTION EQUIPMENT
USH 18 & N. 95TH STREET

LOCATION	SPV.0105.3020 REMOVE VIDEO DETECTION EQUIPMENT LS
USH 18 (W. BLUEMOUND ROAD) & N. 95TH STREET	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & N. 95TH STREET

LOCATION	SPV.0105.3085 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & N. 95TH STREET	1
TOTAL	1

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
931	LF	CAMERA POWER CABLE
931	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB11 (V1)	179	179
CB1	SB5 (V2)	305	305
CB1	SB8 (V3)	280	280
CB1	SB2 (V4)	167	167
	*** TOTAL	931	931

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

USH 18 & N. 92ND STREET

ALL ITEMS ARE CATEGORY 1500

3

REMOVE VIDEO DETECTION EQUIPMENT
USH 18 & N. 92ND STREET

LOCATION	SPV.0105.3021 REMOVE VIDEO DETECTION EQUIPMENT LS
USH 18 (W. BLUEMOUND ROAD) & N. 92ND STREET	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & N. 92ND STREET

LOCATION	SPV.0105.3086 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & N. 92ND STREET	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1024	LF	CAMERA POWER CABLE
1024	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

REMOVE VIDEO DETECTION EQUIPMENT
STH 181 & W. DANA COURT

LOCATION	SPV.0105.3022 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 181 (S. 84TH STREET) & W. DANA COURT	1
TOTAL	1

3

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB7 (V1)	188	188
CB1	SB3 (V2)	310	310
CB1	SB5 (V3)	270	270
CB1	SB2 (V4)	256	256
	*** TOTAL	1024	1024

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

WISCONSIN
JASON R. MATSON
37111
WAUKESHA, WI
PROFESSIONAL ENGINEER
04/15/2013

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 181 & W. DANA COURT

LOCATION	SPV.0105.3087 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 181 (S. 84TH STREET) & W. DANA COURT	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1000	LF	CAMERA POWER CABLE
1000	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB6 (V1)	351	351
CB1	SB13 (V2)	211	211
CB1	SB2 (V3)	180	180
CB1	SB10 (V4)	258	258
	*** TOTAL	1000	1000

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE



REMOVE VIDEO DETECTION EQUIPMENT
USH 18 & STH 181

LOCATION	SPV.0105.3023 REMOVE VIDEO DETECTION EQUIPMENT LS
USH 18 (W. BLUEMOUND ROAD) & STH 181 (N. GLENVIEW AVENUE)	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
USH 18 & STH 181

LOCATION	SPV.0105.3088 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
USH 18 (W. BLUEMOUND ROAD) & STH 181 (N. GLENVIEW AVENUE)	1
TOTAL	1

3

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
782	LF	CAMERA POWER CABLE
782	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

INSTALL STATE SUPPLIED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB6 (V1)	221	221
CB1	SB2 (V2)	171	171
CB1	SB4 (V3)	283	283
CB1	SB8 (V4)	107	107
	*** TOTAL	782	782

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

REMOVE VIDEO DETECTION EQUIPMENT
STH 181 & W. WISCONSIN AVENUE

LOCATION	SPV.0105.3024 REMOVE VIDEO DETECTION EQUIPMENT LS
STH 181 (N. GLENVIEW AVENUE) & W. WISCONSIN AVENUE	1
TOTAL	1

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
STH 181 & W. WISCONSIN AVENUE

LOCATION	SPV.0105.3089 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
STH 181 (N. GLENVIEW AVENUE) & W. WISCONSIN AVENUE	1
TOTAL	1

W. WISCONSIN AVENUE & N. 87TH STREET

ALL ITEMS ARE CATEGORY 1500

SUMMARY OF STATE FURNISHED MATERIALS - FOR INFORMATION ONLY

QUANTITY	UNIT	DESCRIPTION
1	EACH	TRAFFIC SIGNAL CONTROLLER (EPAC M52)
1089	LF	CAMERA POWER CABLE
1089	LF	CAT 5E CABLE
1	LS	ADAPTABLE TRAFFIC SIGNAL CAMERAS

REMOVING CONCRETE BASES

EXISTING BASE NO.	204.0195 REMOVING CONCRETE BASES EACH
SB2	1
SB4	1
SB9	1
*** TOTAL	3

CONDUIT

FROM	TO	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF
PB2	SB2	10
PB3	SB3	8
PB4	SB4	7
PB5	SB6	25
PB5	SB7	13
PB7	SB10	17
PB8	SB12	7
	*** TOTALS	87

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL CONDUIT INTO EXISTING ITEM

STRUCTURE NO.	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM EACH
PB2	1
PB3	1
PB4	1
PB5	1
PB7	1
PB8	1
*** TOTAL	6

*** ADDITIONAL QUANTITIES SHOWN ELSE

CONCRETE BASES

BASE NO.	** NORTHING	** EASTING	654.0101 CONCRETE BASES TYPE 1 EACH	654.0102 CONCRETE BASES TYPE 2 EACH
SB2	299542.6	576641.1	1	
SB3	299540.8	576600.9		1
SB4	299555.0	576590.5	1	
SB6	299612.9	576571.5		1
SB7	299620.8	576580.9	1	
SB10	299623.0	576665..2		1
SB12	299557.1	576652.5		1
		*** TOTALS	3	4

* FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD
** COORDINATES REFERENCED TO MILWAUKEE COUNTY COORDINATE SYSTEM
*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PROJECT NO: 1060-33-99	HWY: WISCONSIN AVENUE	COUNTY: MILWAUKEE	MISCELLANEOUS QUANTITIES	SHEET:	E

ABOVE GROUND TRAFFIC SIGNAL CABLE NO. 14

FROM	TO	655.0230 CABLE TRAFFIC SIGNAL 5-14 AWG LF	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG LF
SB3	HEAD 12	43	
SB3	HEAD 15	14	
SB6	HEAD 6	53	
SB6	HEAD 17	14	
SB10	HEAD 9	48	
SB10	HEAD 18	14	
SB12	HEAD 3		50
SB12	HEAD 12	14	
	*** TOTALS	200	50

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

UNDERGROUND TRAFFIC SIGNAL CABLE NO. 14

FROM	TO	655.0240 CABLE TRAFFIC SIGNAL 7-14 AWG LF	655.0260 CABLE TRAFFIC SIGNAL 12-14 AWG LF
CB1	SB2	120	
CB1	SB3		161
CB1	SB4	192	
CB1	SB6		298
CB1	SB7	286	
CB1	SB10		251
CB1	SB12		155
	*** TOTALS	598	865

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

W. WISCONSIN AVENUE & N. 87TH STREET

ALL ITEMS ARE CATEGORY 1500

3

ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG

FROM	TO	655.0515 ELECTRICAL WIRE TRAFFIC SIGNALS 10 AWG LF
CB1	SB1	117
SB1	SB2	31
SB2	SB3	75
SB3	SB4	61
SB4	SB5	28
SB5	SB6	134
SB6	SB7	52
SB7	SB8	32
SB8	SB9	64
SB9	SB10	79
SB10	SB11	60
SB11	SB12	136
SB12	CB1	251
PB1	CB1	25
PB2	SB1	17
PB3	SB3	18
PB4	SB4	17
PB5	SB8	15
PB6	SB9	15
PB7	SB10	27
PB8	SB12	17
	*** TOTAL	1271

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRAFFIC SIGNAL EVP DETECTOR CABLE

FROM	TO	655.0900 TRAFFIC SIGNAL EVP DETECTOR CABLE LF	SPV.0090.3003 TYPE UF CABLE 2 CONDUCTOR NO. 14 LF
CB1	SB6 (HEAD A)	353	353
CB1	SB12 (HEAD B)	301	301
CB1	SB3 (HEAD C)	206	206
CB1	SB10 (HEAD D)	205	205
	*** TOTAL	1065	1065

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

CAST BASES, POLES, MONOTUBE ARMS, PUSH BUTTONS, AND LUMINAIRES

SIGNAL BASE NO.	657.0100 PEDESTAL BASES EACH	657.0255 TRANSFORMER BASES BREAKAWAY 11 1/2-INCH BOLT CIRCLE EACH	657.0305 POLES TYPE 2 EACH	657.0405 TRAFFIC SIGNAL STANDARDS ALUMINUM 3.5-FT EACH	657.0585 TROMBONE ARMS 15-FT EACH	657.0590 TROMBONE ARMS 20-FT EACH	657.0595 TROMBONE ARMS 25-FT EACH	658.0500 PEDESTRIAN PUSH BUTTONS EACH
SB2	1			1				1
SB3		1	1		1			1
SB4	1			1				1
SB6		1	1				1	1
SB7	1			1				1
SB10		1	1			1		1
SB11*								1
SB12		1	1			1		1
*** TOTALS	3	4	4	3	1	2	1	8

*EXISTING

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRAFFIC SIGNAL AND PEDESTRIAN FACES, AND BACKPLATES

SIGNAL HEAD NO.	SIGNAL BASE NO.	658.0110 TRAFFIC SIGNAL FACE 3-12 INCH VERTICAL EACH	658.0120 TRAFFIC SIGNAL FACE 5-12 INCH VERTICAL EACH	658.0215 BACKPLATES SIGNAL FACE 3 SECTION 12-INCH EACH	658.0225 BACKPLATES SIGNAL FACE 5 SECTION 12-INCH EACH	658.0416 PEDESTRIAN SIGNAL FACE 16-INCH EACH	658.0600 LED MODULES 12-INCH RED BALL EACH	658.0605 LED MODULES 12-INCH YELLOW BALL EACH	658.0610 LED MODULES 12-INCH GREEN BALL EACH	658.0620 LED MODULES 12-INCH YELLOW ARROW EACH	658.0625 LED MODULES 12-INCH GREEN ARROW EACH	658.0635 LED MODULES PEDESTRIAN COUNTDOWN TIMER 16-INCH EACH
3	SB12		1		1		1	1	1	1	1	
6	SB6	1		1			1	1	1			
9	SB10	1		1			1	1	1			
12	SB3	1		1			1	1	1			
13	SB12					1						1
14	SB4					1						1
15	SB3					1						1
16	SB8					1						1
17	SB6					1						1
18	SB11					1						1
19	SB10					1						1
20	SB1					1						1
	*** TOTALS	3	1	3	1	8	4	4	4	1	1	8

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

W. WISCONSIN AVENUE & N. 87TH STREET

ALL ITEMS ARE CATEGORY 1500

3

SIGNAL MOUNTING HARDWARE
W. WISCONSIN AVENU E & N. 87TH STREET

LOCATION	658.5069.3004 SIGNAL MOUNTING HARDWARE LS
W. WISCONSIN AVENUE & N. 87TH STREET / PLEASANT VIEW STREET	1
TOTAL	1

REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER

LOCATION	SPV.0060.3007 REMOVE, SALVAGE, AND INSTALL TRAFFIC SIGNAL CONTROLLER EACH
CB1	1
*** TOTAL	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

3

EMERGENCY VEHICLE PREEMPTION

LOCATION	SPV.0060.3003 EVP DETECTOR TYPE I EACH	SPV.0060.3004 EVP DISCRIMINATOR TYPE IV EACH	SPV.0060.3005 EVP CONFIRMATION LIGHT ASSEMBLY TYPE I EACH	SPV.0060.3006 EVP CARD RACK EACH
CB1		1		1
SB3	1		1	
SB6	1		1	
SB10	1		1	
SB12	1		1	
TOTALS	4	1	4	1

REMOVE TRAFFIC SIGNALS
W. WISCONSIN AVENUE & N. 87TH STREET

LOCATION	SPV.0105.3027 REMOVE TRAFFIC SIGNALS LS
W. WISCONSIN AVENUE & N. 87TH STREET / PLEASANT VIEW STREET	1
TOTAL	1

INSTALLING STATE FURNISHED VIDEO DETECTION CABLE

FROM	TO	SPV.0090.3001 INSTALL CAMERA POWER CABLE LF	SPV.0090.3002 INSTALL CAT 5E CABLE LF
CB1	SB6 (V1)	359	359
CB1	SB12 (V2)	211	211
CB1	SB3 (V3)	212	212
CB1	SB10 (V4)	307	307
	*** TOTAL	1089	1089

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS
W. WISCONSIN AVENUE & N. 87TH STREET

LOCATION	SPV.0105.3090 TRANSPORTING AND INSTALLING STATE FURNISHED ADAPTABLE TRAFFIC SIGNAL CAMERAS LS
W. WISCONSIN AVENUE & N. 87TH STREET / PLEASANT VIEW STREET	1
TOTAL	1

3

3

TRAFFIC SIGNAL INTERCONNECT

LOCATION	670.0100.3001 FIELD SYSTEM INTEGRATOR LS	670.0200.3001 ITS DOCUMENTATION LS	678.0500.3001 COMMUNICATION SYSTEM TESTING LS
1060-33-99 CATEGORY 1500 STH 100	1	1	1
*** TOTALS	1	1	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRAFFIC SIGNAL INTERCONNECT

LOCATION	670.0100.3002 FIELD SYSTEM INTEGRATOR LS	670.0200.3002 ITS DOCUMENTATION LS	678.0500.3002 COMMUNICATION SYSTEM TESTING LS
1060-33-99 CATEGORY 1500 STH 59	1	1	1
*** TOTALS	1	1	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET STH 59 & CTH O

LOCATION	*** SPV.0105.3095 LS
CB1 (MOORLAND)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
320	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
185	LF	TRACER WIRE
2	EACH	CAT-5E CABLE 1-METER

STH 59 COMMUNICATIONS

ALL ITEMS ARE CATEGORY 1500

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET STH 59 & S. SUNNYSLOPE ROAD

LOCATION	*** SPV.0105.3096 LS
CB1 (SUNNYSLOPE)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
393	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
258	LF	TRACER WIRE
2	EACH	CAT-5E CABLE 1-METER

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET STH 59 & S. ELM GROVE ROAD

LOCATION	*** SPV.0105.3097 LS
CB1 (ELM GROVE)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
325	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
190	LF	TRACER WIRE
2	EACH	CAT-5E CABLE 1-METER

CTH O COMMUNICATIONS

ALL ITEMS ARE CATEGORY 1500

CONDUIT

FROM	TO	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF	652.0605 CONDUIT SPECIAL 2-INCH LF
CV2201	I/C PB3001		74
I/C PB3001	PB1 (HACKBERRY)	141	
EXCV2201	PB10 (S0314)	18	
CV2301	PB1 (S0643)	21	
EXCV2401	I/C PB3002		63
I/C PB3002	PB1 (SHOPPING CENTER RING ROAD)	25	
CV2501	I/C PB3003		60
I/C PB3003	PB1 (SHOPPING CENTER RING ROAD / DRIVEWAY)	179	
	*** TOTALS	384	197

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

PULL BOXES

PULL BOX NO.	** NORTHING	** EASTING	653.0140 PULL BOXES STEEL 24X42-INCH EACH
I/C PB3001	164528.0	716611.8	1
I/C PB3002	167492.5	716526.2	1
I/C PB3003	168833.8	716549.7	1
		*** TOTALS	3

* FINAL LOCATION TO BE DETERMINED BY THE ENGINEER IN THE FIELD
** COORDINATES REFERENCED TO WAUKESHA COUNTY COORDINATE S
*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL CONDUIT INTO EXISTING ITEM

STRUCTURE NO.	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM EACH
PB1 (HACKBERRY)	1
PB10 (S0314)	1
EXCV2201	1
PB1 (S0643)	1
PB1 (SHOPPING CENTER RING ROAD)	1
EXCV2401	1
PB1 (SHOPPING CENTER RING ROAD / DRIVEWAY)	1
*** TOTAL	7

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRAFFIC SIGNAL INTERCONNECT

LOCATION	670.0100.3003 FIELD SYSTEM INTEGRATOR LS	670.0200.3003 ITS DOCUMENTATION LS	678.0500.3003 COMMUNICATION SYSTEM TESTING LS
1060-33-99 CATEGORY 1500 CTH O	1	1	1
*** TOTALS	1	1	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

3

FIBER OPTIC

LOCATION	678.0300 FIBER OPTIC SPLICE EACH
CV2201	14
EXCV2201	14
CV2301	14
EXCV2401	14
CV2501	14
*** TOTALS	70

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET CTH O & HACKBERRY LANE

LOCATION	*** SPV.0105.3098 LS
CB1 (HACKBERRY)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
418	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
283	LF	TRACER WIRE
2	EACH	CAT-5E CABLE 1-METER

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET IH 94 EB RAMPS & CTH O

LOCATION	*** SPV.0105.3099 LS
CB1 (S0314)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
395	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
233	LF	TRACER WIRE
2	EACH	CAT-5E CABLE 1-METER

3

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET IH 94 WB RAMPS & CTH O

LOCATION	*** SPV.0105.3100 LS
CB1 (S0643)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
164	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
53	LF	TRACER WIRE
2	EACH	CAT-5E CABLE 1-METER

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET CTH O & SHOPPING CENTER RING ROAD

LOCATION	*** SPV.0105.3101 LS
CB1 (SHOPPING CENTER RING ROAD)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
257	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
122	LF	TRACER WIRE
2	EACH	CAT-5E CABLE 1-METER

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET CTH O & SHOPPING CENTER RING ROAD / DRIVEWAY

LOCATION	*** SPV.0105.3102 LS
CB1 (SHOPPING CENTER RING ROAD / DRIVEWAY)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
405	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
270	LF	TRACER WIRE
2	EACH	CAT-5E CABLE 1-METER

TRAFFIC SIGNAL INTERCONNECT

LOCATION	670.0100.3004 FIELD SYSTEM INTEGRATOR LS	670.0200.3004 ITS DOCUMENTATION LS	678.0500.3004 COMMUNICATION SYSTEM TESTING LS
1060-33-99 CATEGORY 1500 USH 18	1	1	1
*** TOTALS	1	1	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

USH 18 COMMUNICATIONS

ALL ITEMS ARE CATEGORY 1500

3

FIBER OPTIC

LOCATION	678.0300 FIBER OPTIC SPLICE EACH
EXCV1352	6
EXCV1392	6
*** TOTAL	12

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET USH 18 & CTH YY

LOCATION	*** SPV.0105.3103 LS
CB1 (S0335)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
212	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
2	EACH	CAT-5E CABLE 1-METER

3

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET USH 18 & ELM GROVE ROAD

LOCATION	*** SPV.0105.3104 LS
CB1 (S0126)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
217	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
2	EACH	CAT-5E CABLE 1-METER

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET USH 18 & UPS DRIVEWAY

LOCATION	*** SPV.0105.3106 LS
CB1 (S0263)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
209	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
2	EACH	CAT-5E CABLE 1-METER

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET USH 18 & UNDERWOOD CROSSING PARKWAY

LOCATION	*** SPV.0105.3105 LS
CB1 (S1352)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
160	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
2	EACH	CAT-5E CABLE 1-METER

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET USH 18 & N. 121ST STREET

LOCATION	*** SPV.0105.3107 LS
CB1 (S1392)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
289	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
2	EACH	CAT-5E CABLE 1-METER

3

3

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET USH 18 & N. 112TH STREET

LOCATION	*** SPV.0105.3108 LS
CB1 (S1391)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
944	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
2	EACH	CAT-5E CABLE 1-METER

3

CONDUIT

FROM	TO	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH LF
CV9301	PB1 (87TH)	22
	*** TOTALS	22

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL CONDUIT INTO EXISTING ITEM

STRUCTURE NO.	652.0700.S INSTALL CONDUIT INTO EXISTING ITEM EACH
PB1 (87TH)	1
*** TOTAL	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

TRAFFIC SIGNAL INTERCONNECT

LOCATION	670.0100.3005 FIELD SYSTEM INTEGRATOR LS	670.0200.3005 ITS DOCUMENTATION LS	678.0500.3005 COMMUNICATION SYSTEM TESTING LS
1060-33-99 CATEGORY 1500 USH 18/STH 181	1	1	1
*** TOTALS	1	1	1

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

FIBER OPTIC

LOCATION	678.0300 FIBER OPTIC SPLICE EACH
CV9401	6
*** TOTALS	6

*** ADDITIONAL QUANTITIES SHOWN ELSEWHERE

INSTALL FIBER OPTIC COMMUNICATIONS IN CABINET W. WISCONSIN AVENUE & N. 87TH STREET

LOCATION	*** SPV.0105.3109 LS
CB1 (87TH)	1
TOTAL	1

*** PAY ITEM INCLUDES INSTALLATION OF BOTH CONTRACTOR FURNISHED AND STATE FURNISHED MATERIALS

SUMMARY OF STATE FURNISHED MATERIALS

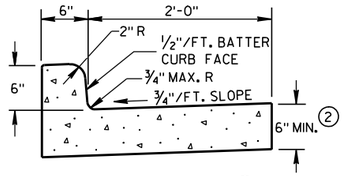
QUANTITY	UNIT	DESCRIPTION
165	LF	PATCH PANEL WITH FIBER OPTIC CABLE PIGTAIL 8-CT
1	EACH	ETHERNET SWITCH (RS 900)

SUMMARY OF CONTRACTOR FURNISHED MATERIALS

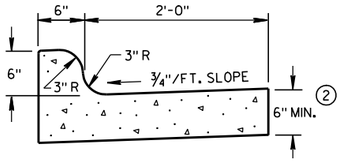
QUANTITY	UNIT	DESCRIPTION
2	LF	ST-ST SINGLE MODE FIBER OPTIC JUMPER 2-CT
2	EACH	CAT-5E CABLE 1-METER

Standard Detail Drawing List

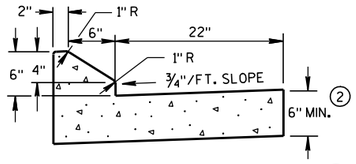
08D01-17	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
09B02-07	CONDUIT
09B04-09	PULL BOX
09C02-06	CONCRETE BASES, TYPES 1, 2 & 5
09C03-03	TRANSFORMER/PEDESTAL BASES
09C05-07	CONCRETE CONTROL CABINET BASES
09D01-04	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
09D02-02	SIGNAL OR LIGHTING CONTROL CABINET
09D03-02	POST MOUNTED CONTROLLER SERVICE INSTALLATION
09E01-11A	POLE MOUNTINGS FOR TRAFFIC SIGNALS TYPE 2
09E01-11G	HARDWARE DETAILS FOR POLE MOUNTINGS
09E06-04	TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.
09E07-05	TRAFFIC SIGNAL STANDARD PEDESTRIAN AND FLASHER TYPICAL MOUNTING DETAILS
12A04-03	STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES & OVERHEAD SIGN SUPPORTS & TRAFFIC SIGNALS
14B42-02A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-02C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B44-01A	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01B	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B44-01C	MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)
14B47-01A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-01B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-01C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15C24-02	36" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE
15D12-02	TRAFFIC CONTROL, LANE CLOSURE, SPEEDS GREATER THAN 40 M.P.H.
15D27-01	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH
15D28-01	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D30-01	TRAFFIC CONTROL, SIDEWALK CLOSURE



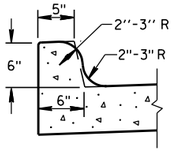
TYPES A & D (1)



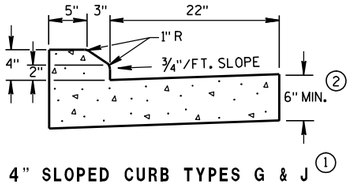
TYPES K & L (1)



6" SLOPED CURB TYPES G & J (1)

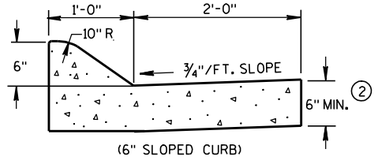


OPTIONAL CURB SHAPE FOR TYPES K & L (1)

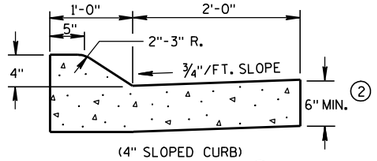


4" SLOPED CURB TYPES G & J (1)

CONCRETE CURB & GUTTER 30"

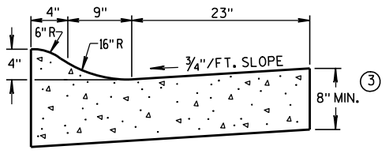


(6" SLOPED CURB)



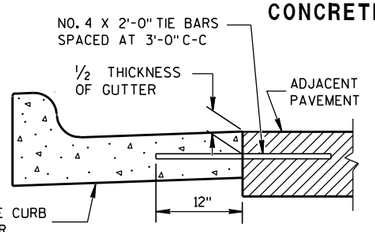
(4" SLOPED CURB)

TYPES A & D (1)

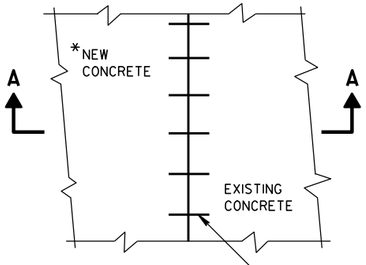


4" SLOPED CURB TYPES R & T (1) (4)

CONCRETE CURB & GUTTER 36"

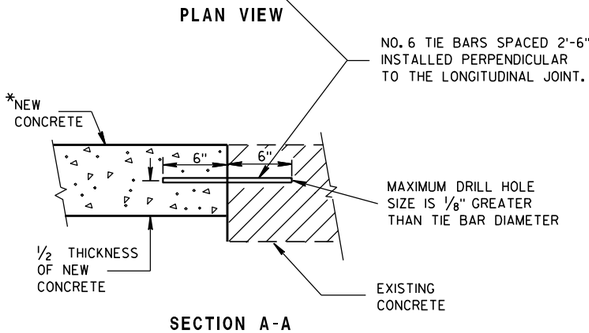


TYPICAL TIE BAR LOCATION (1)



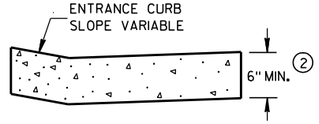
*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

PLAN VIEW

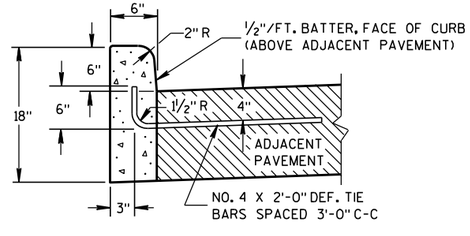


SECTION A-A

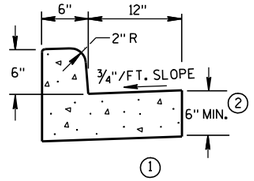
TIE BARS DRILLED INTO EXISTING PAVEMENT



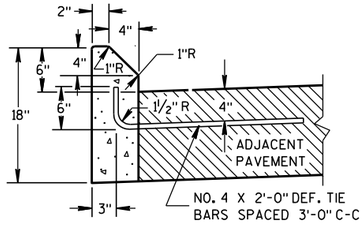
DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)



(1)
TYPES A & D

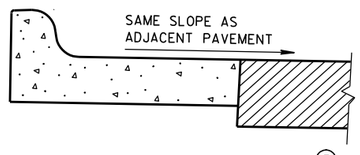


(1)
TYPES A & D
CONCRETE CURB & GUTTER 18"



(1)
TYPES G & J

CONCRETE CURB



REVERSE SLOPE GUTTER (5)
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

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

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

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

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

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

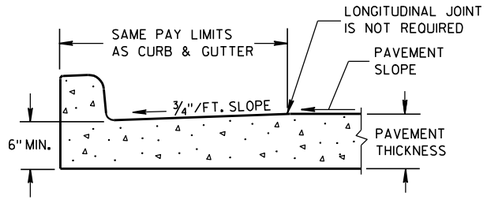
(1) TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K AND R.

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

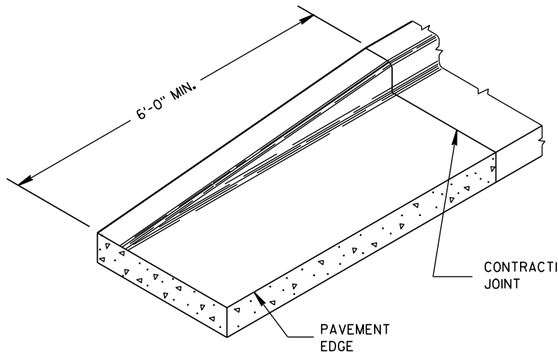
(3) THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

(4) THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

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



PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



END SECTION CURB & GUTTER

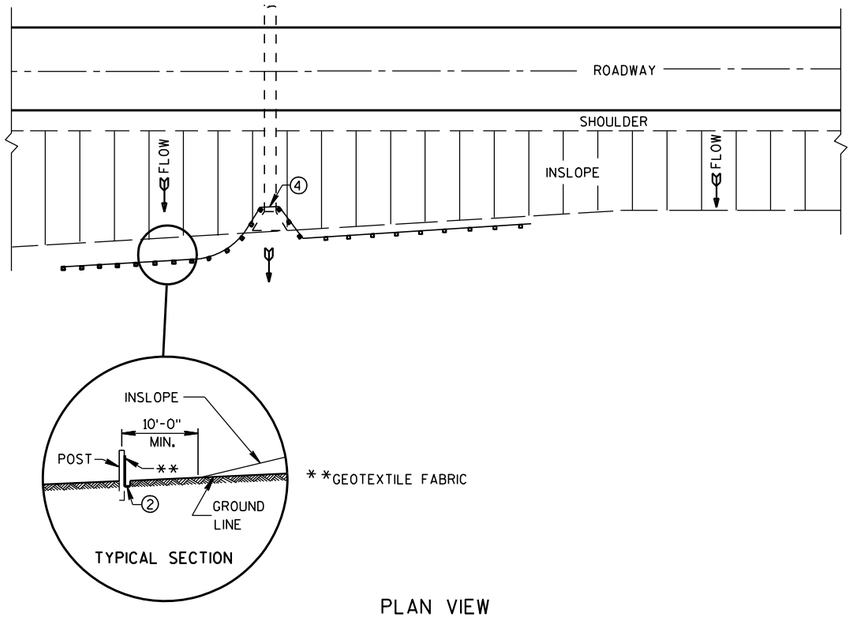
CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/4/08 DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER
FHWA

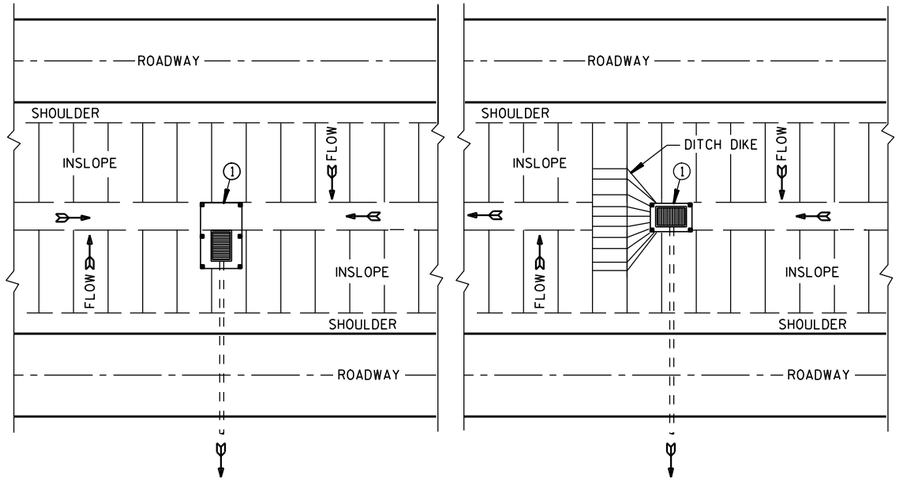
6

S.D.D. 8 D 1-17



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



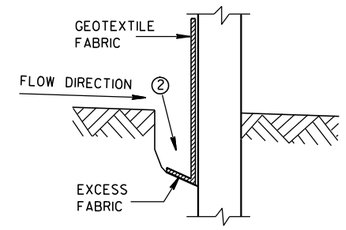
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

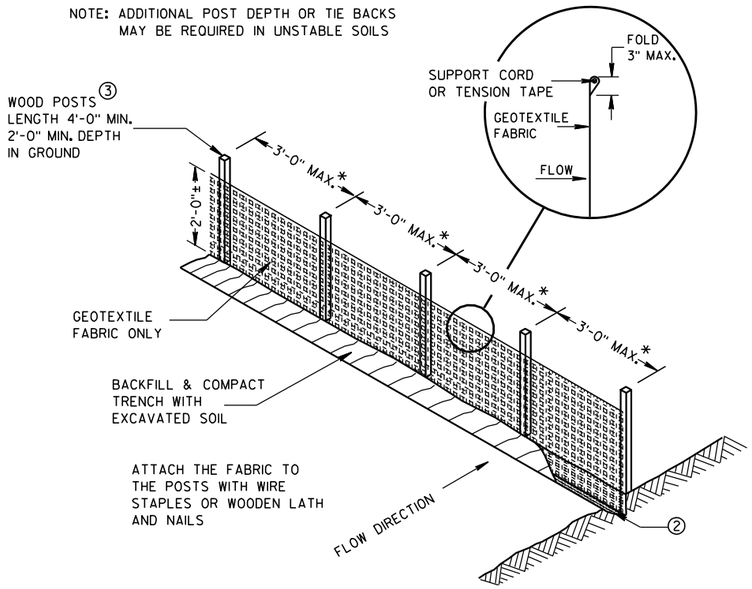
GENERAL NOTES

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

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

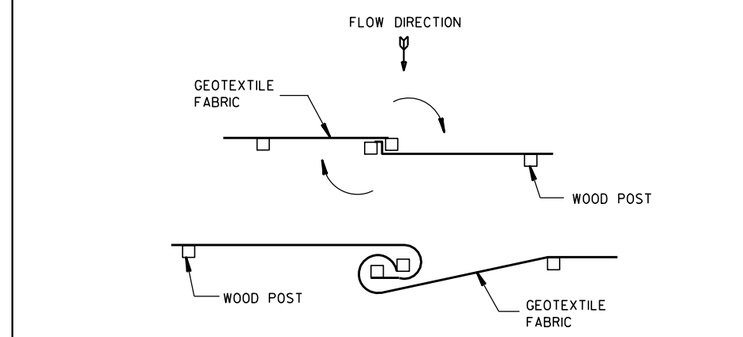


TRENCH DETAIL

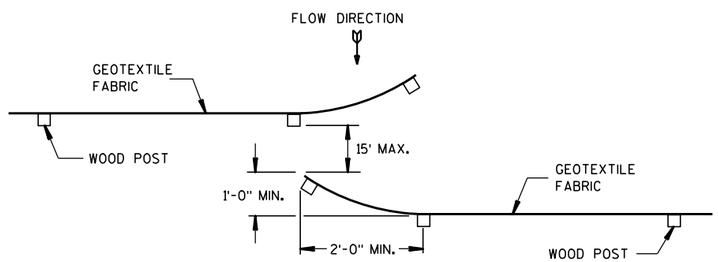


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

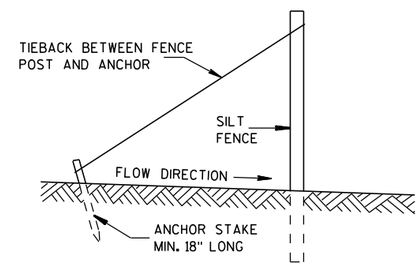


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

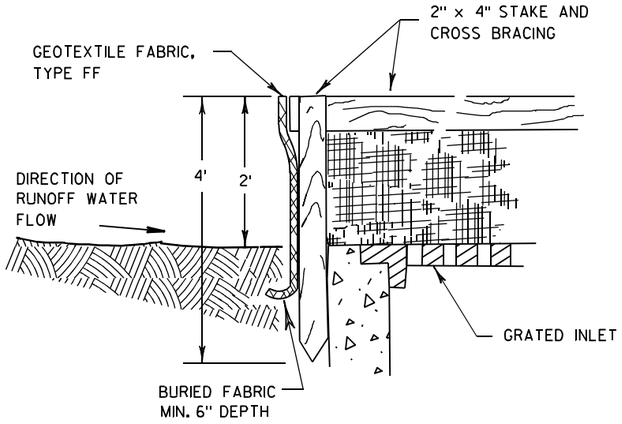
APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

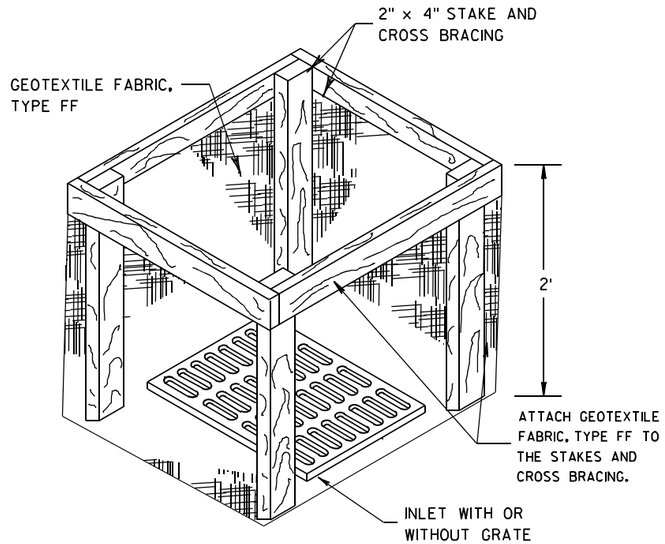
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S.D.D. 8 E 9-6

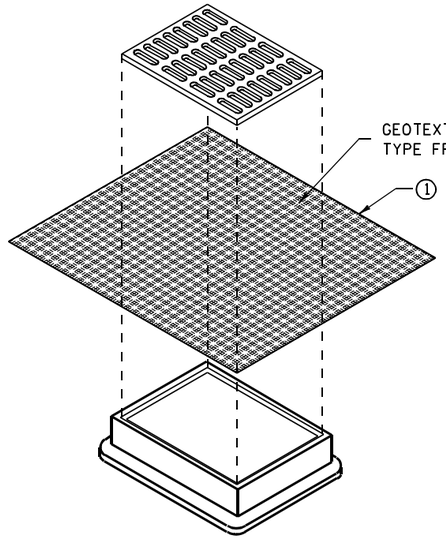
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S.D.D. 8 E 9-6



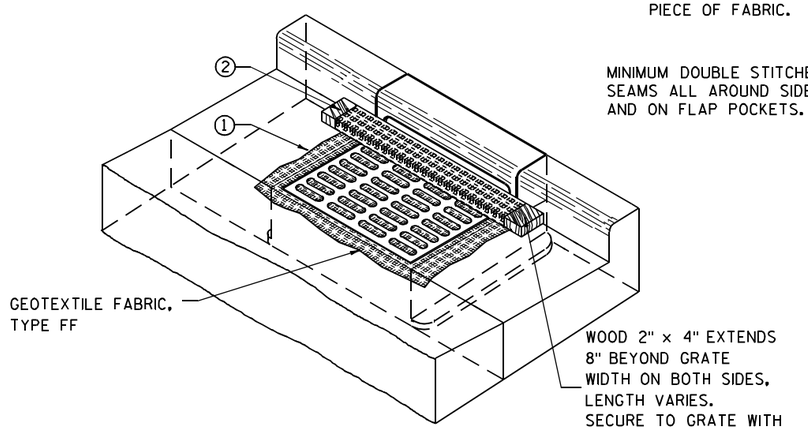


INLET PROTECTION, TYPE A

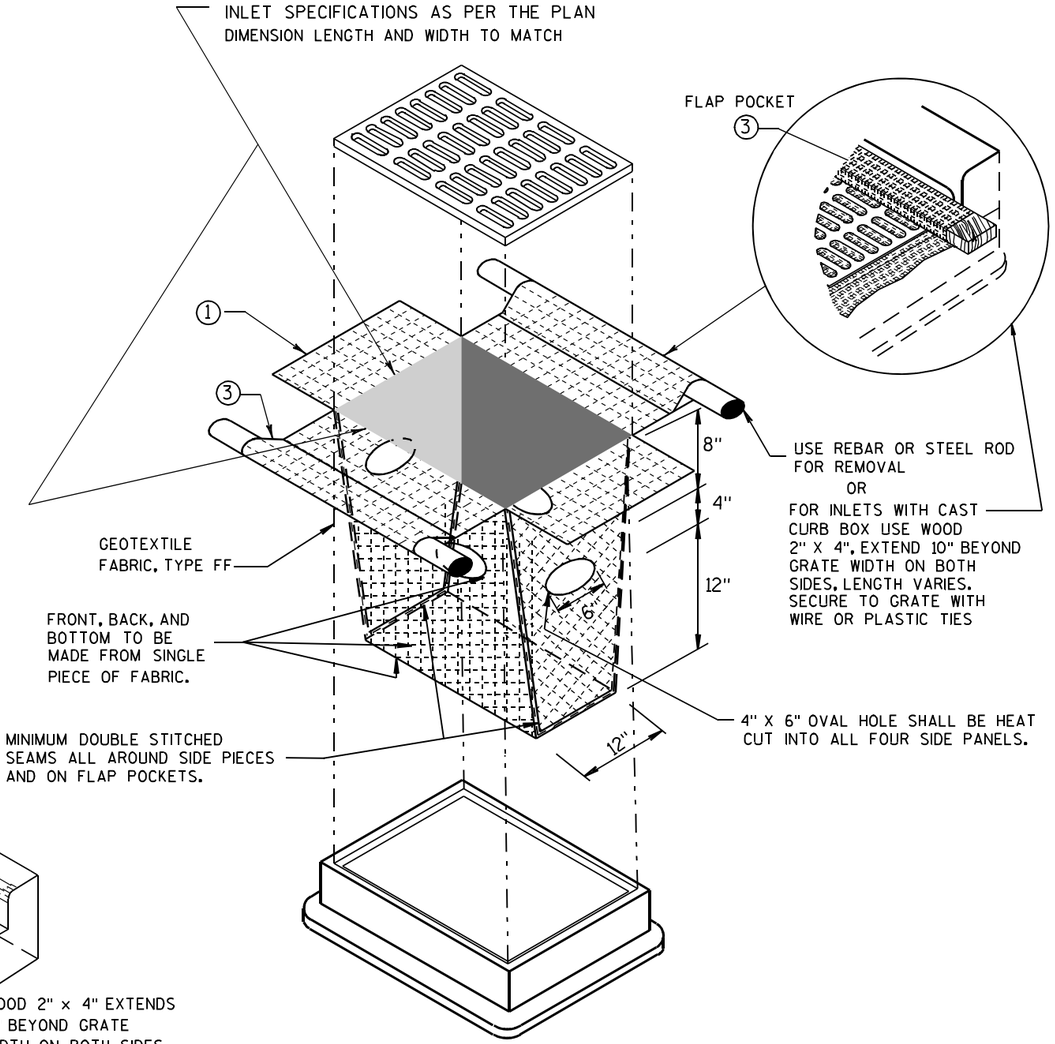


INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

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



INLET PROTECTION, TYPE 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

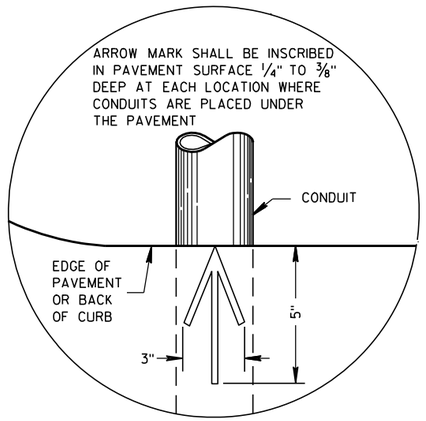
FHWA

6

S.D.D. 8 E 10-2

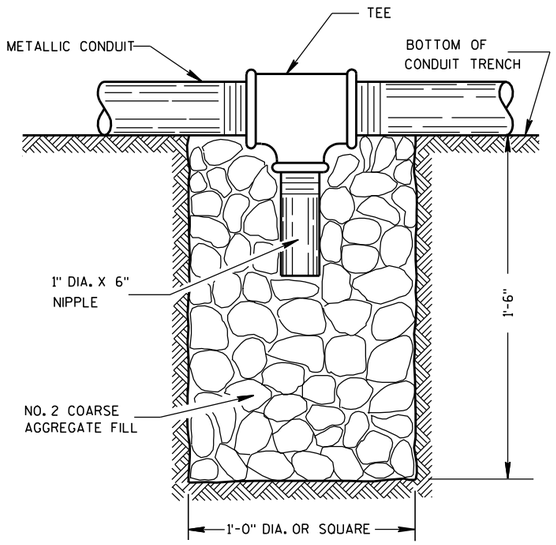
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S.D.D. 8 E 10-2



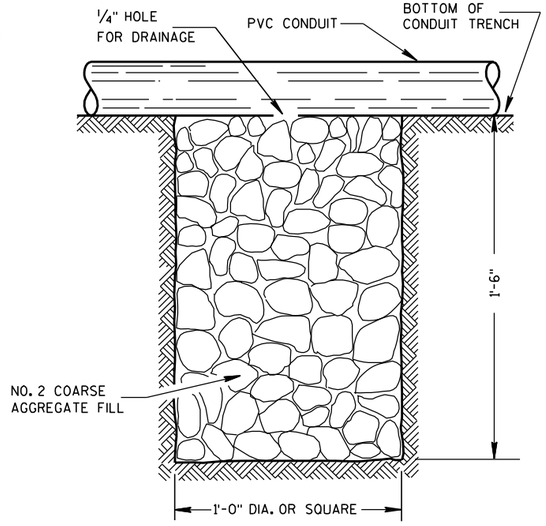
PLAN VIEW

ARROW MARK



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

DRAIN SUMP FOR METALLIC CONDUIT



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

DRAIN SUMP FOR PVC CONDUIT

GENERAL NOTES

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

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

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

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

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

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

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

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

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

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

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

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

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

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

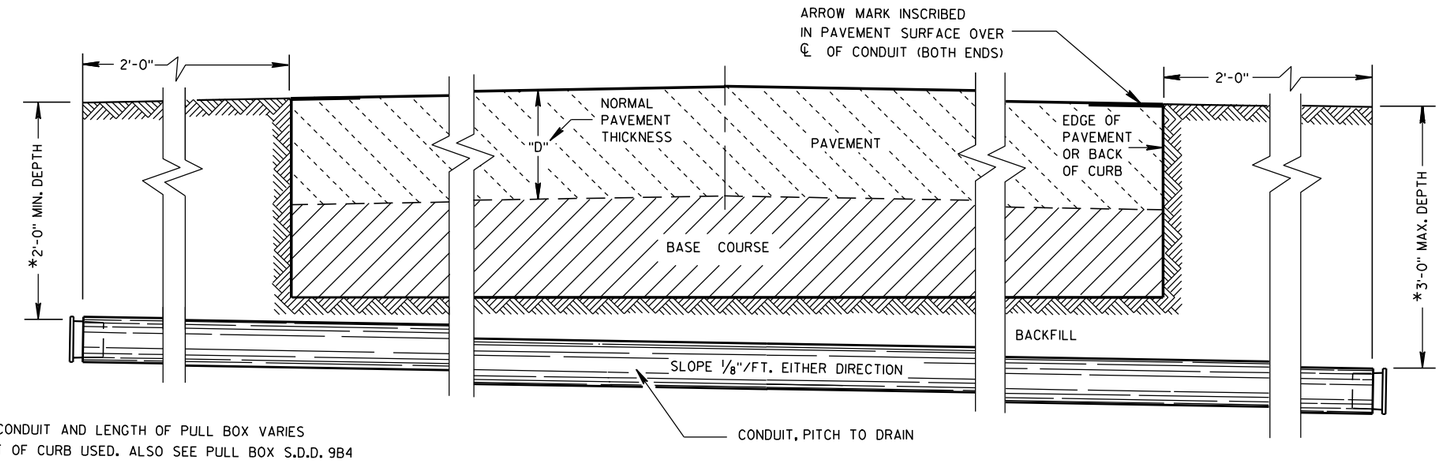
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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

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

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

339

HWYS

FHWA

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.

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. THE MECHANICAL CONNECTION (INSIDE AND OUTSIDE) TO THE PULL BOX, SHALL BE TOTALLY AND PERMANENTLY SEALED WITH A SILICONE OR RUBBERIZED CAULKING COMPOUND AS APPROVED BY THE ENGINEER.

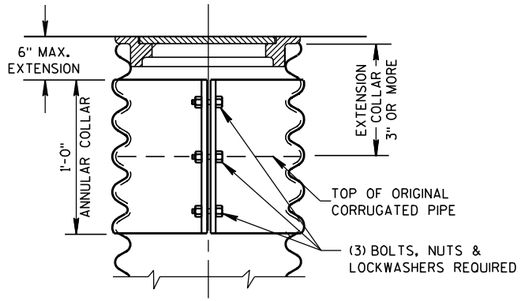
GROUNDING LUGS ARE NOT REQUIRED IN PULL BOXES WHEN VOLTAGES OF LESS THAN 50 VOLTS AC ARE THE ONLY VOLTAGES ENCOUNTERED IN THE BOXES.

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

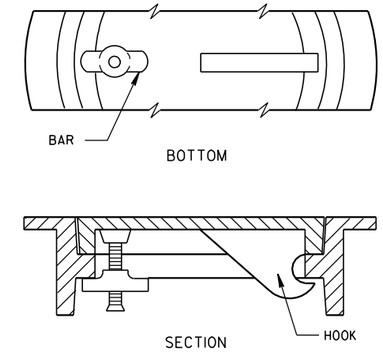
S.D.D. 9B2, "CONDUIT", APPLIES TO THIS DRAWING.

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.

IF PULL BOX EQUIPMENT GROUNDING IS REQUIRED USING AN EQUIPMENT GROUNDING ELECTRODE IN EACH PULL BOX, THE EQUIPMENT GROUNDING ELECTRODE SHALL BE 5/8" X 8'-0", COPPERCLAD AND BE EXOTHERMICALLY WELDED TO A #4 AWG, COPPER, STRANDED WIRE (BARE OR GREEN INSULATED). THE #4 AWG WIRE SHALL BE 4 FEET IN LENGTH, NEATLY COILED, TAPED AND AVAILABLE FOR USE WHEN REQUIRED.

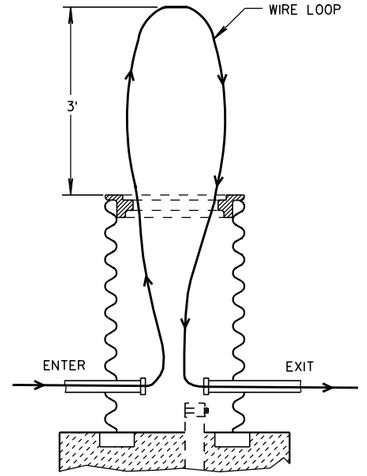


CORRUGATED PIPE EXTENDER

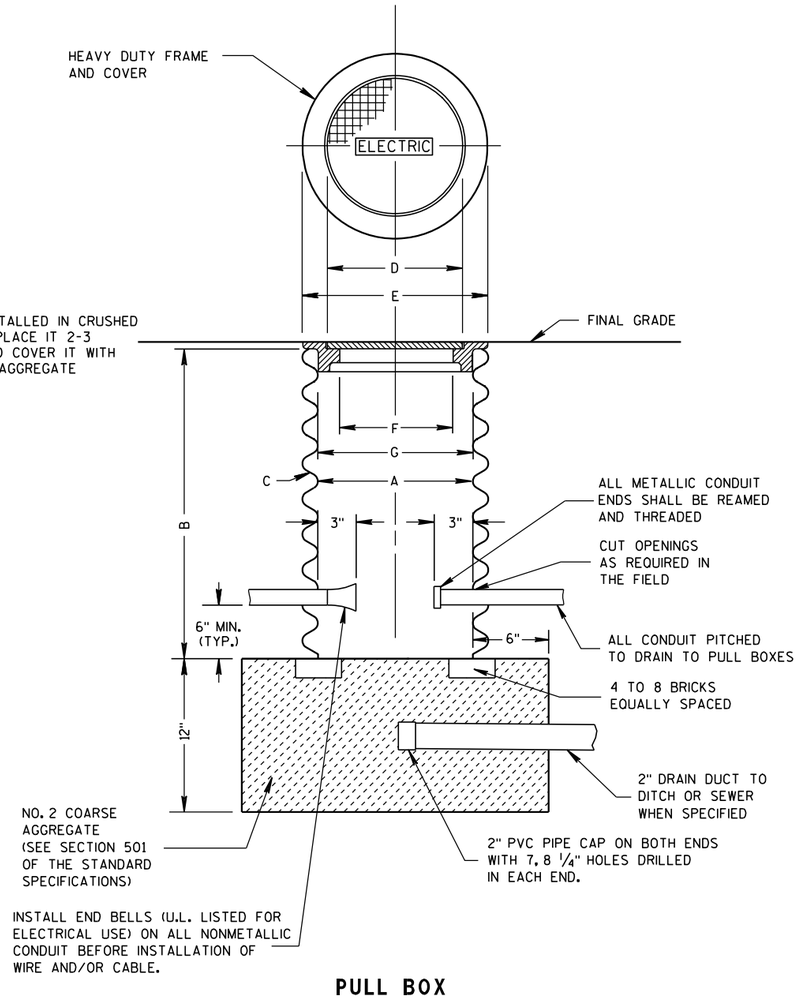


ALTERNATE COVER (LOCKING)

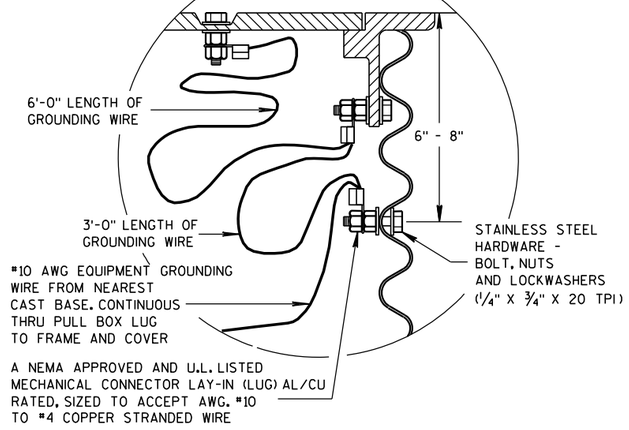
TIGHTENING BAR TYPE



MEASUREMENT DETAIL FOR WIRE/CABLE IN THE PULL BOX



PULL BOX



EQUIPMENT GROUNDING LUG AND LOCATION IN STEEL PULL BOXES

PULL BOX

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
9/27/06 DATE
/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGI
FHWA

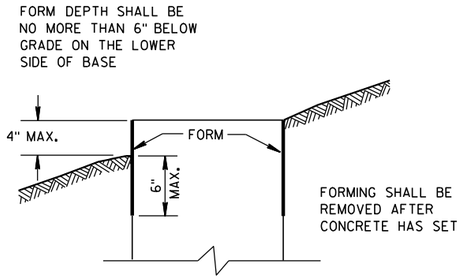
HWYS

6

S.D.D. 9 B 4-9

6

S.D.D. 9 B 4-9



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5
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 2 AND TYPE 5 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 AND 641.2.2 OF THE STANDARD SPECIFICATIONS, ASTM A-449, OR ASTM A-687 (GRADE 105).

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

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

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

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

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

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

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

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

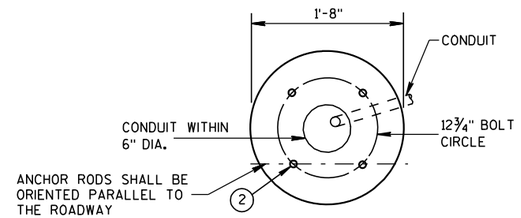
(4) (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

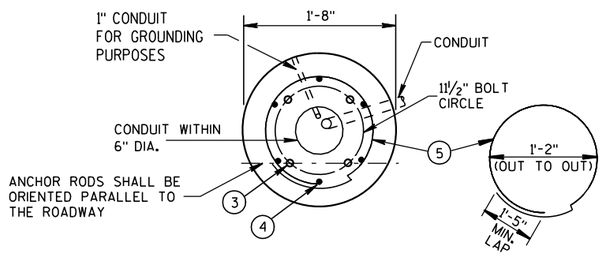
(5) (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

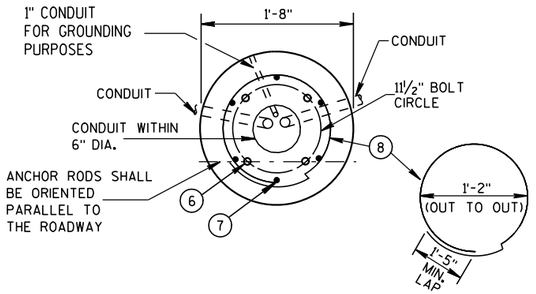
(6) (4) 1" DIA. X 3'-6" ANCHOR RODS.

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

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



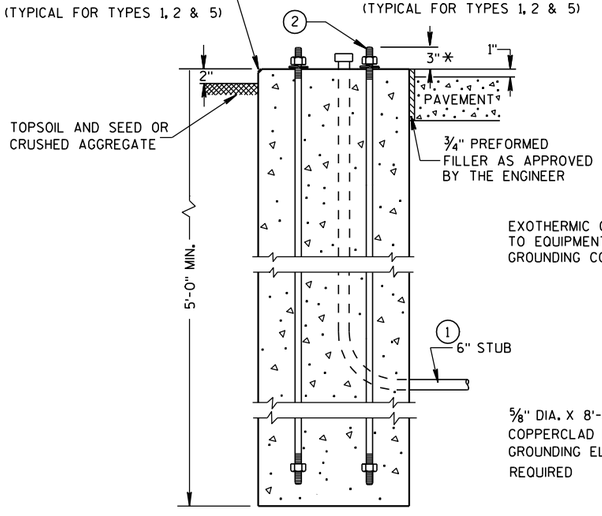




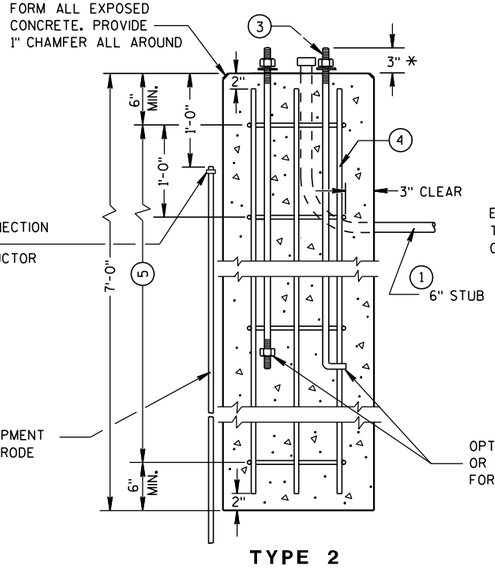
FORM ALL EXPOSED CONCRETE. PROVIDE 1" CHAMFER ALL AROUND

HALF SECTION IN UNPAVED AREA
(TYPICAL FOR TYPES 1, 2 & 5)

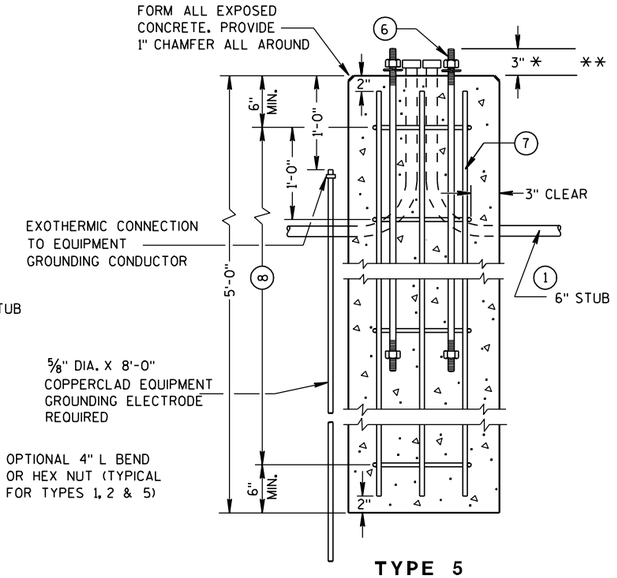
HALF SECTION IN PAVEMENT
(TYPICAL FOR TYPES 1, 2 & 5)



TYPE 1



TYPE 2



TYPE 5

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
3/3/10 — DATE
/S/ Joanna L. Rush — STATE ELECTRICAL ENGI
341
HWYS
FHWA

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S.D.D. 9 C 2-6

6

S.D.D. 9 C 2-6

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, ASTM A-325, (92,000 YIELD) HEAVY HEX NUT AND BE GALVANIZED IN ACCORDANCE WITH ASTM A-153, CLASS C.

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 AND U.L. LISTED MECHANICAL CONNECTOR (LUG) AL/CU RATED AND SIZED TO ACCEPT #10 AWG STRANDED WIRE, SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

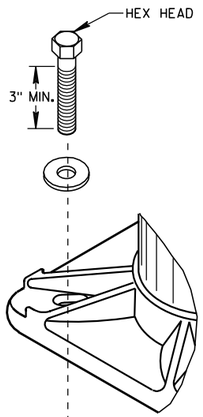
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

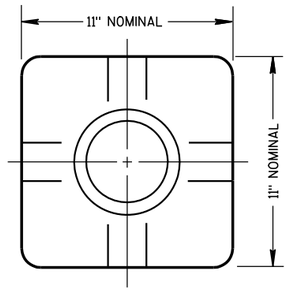
SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

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

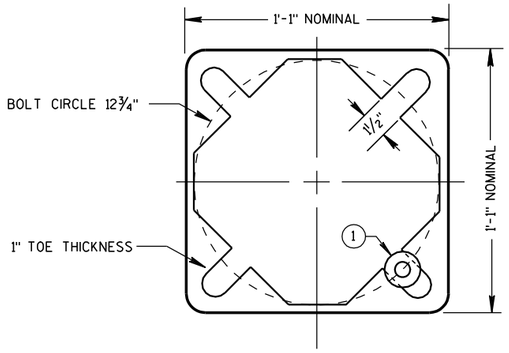
BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1½", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

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

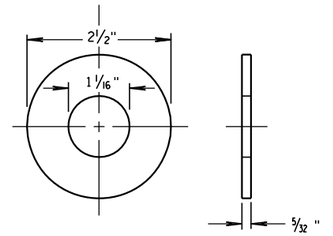




TOP VIEW
(PEDESTAL BASE)

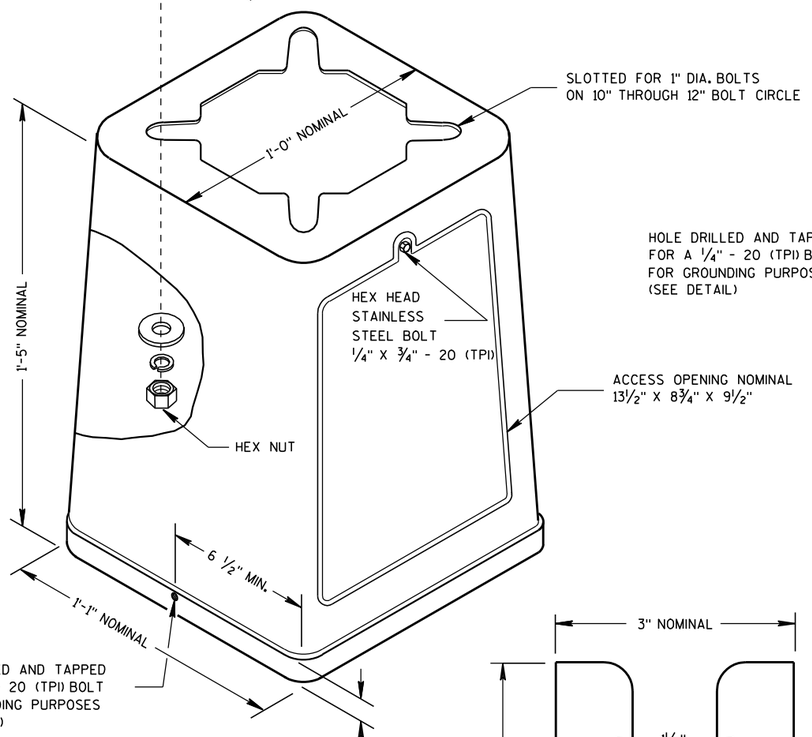


BOTTOM VIEW
(PEDESTAL BASE)

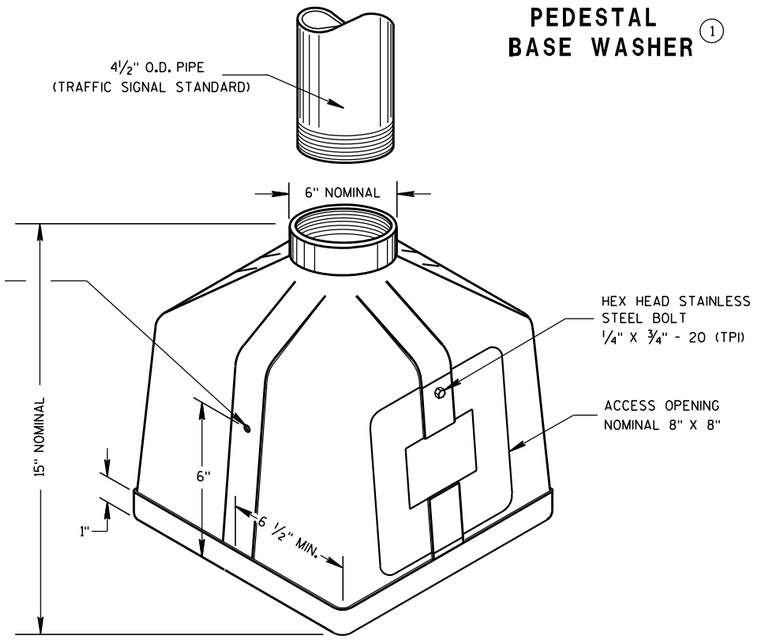


ZINC COATED STEEL WASHER
TO BE PROVIDED BY THE CONTRACTOR

PEDESTAL BASE WASHER (1)

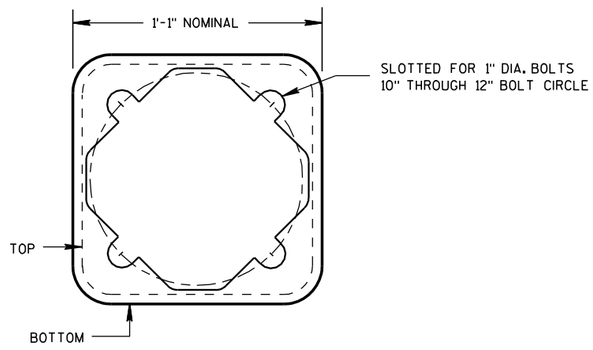


ISOMETRIC VIEW

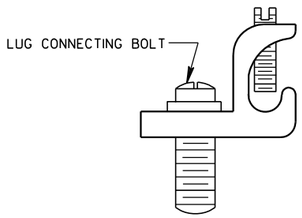


ISOMETRIC VIEW

PEDESTAL BASE



BOTTOM VIEW
(TRANSFORMER BASE)

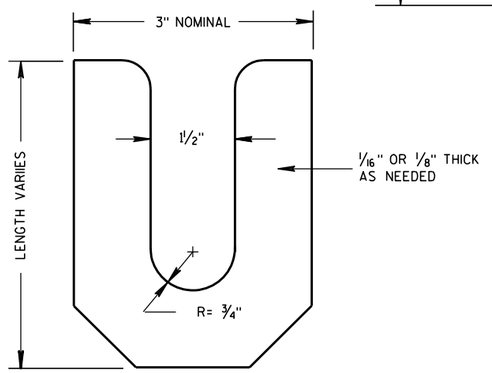


TYPICAL MECHANICAL CONNECTOR LUG

TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE

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



LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/27/09 — DATE
/S/ Joanna L. Rich — STATE ELECTRICAL ENGI
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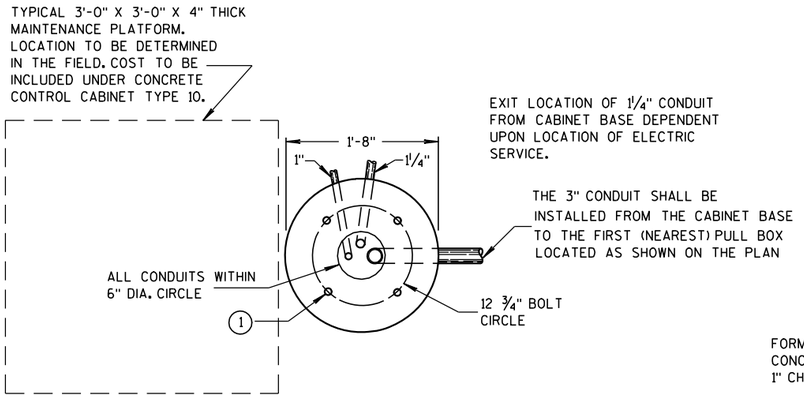
S.D.D. 9 C 3-3

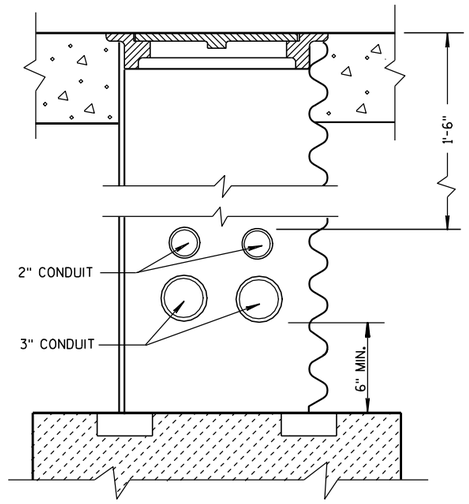
6

S.D.D. 9 C 3-3

CONTROL CABINET BASE TYPE	DIMENSIONS				C.Y. CONCRETE (APPROX.)
	H	I	J	K	
TYPE 6 - 30" CABINET	34"	60"	10"	17"	.64
TYPE 7 - 38" CABINET	42"	60"	10"	21"	.93
TYPE 8 - 38" CABINET	42"	72"	12"	21"	1.29
TYPE 9 - VARIABLE	54"	72"	14"	27"	1.56
TYPE 10 - POST MOUNT	AS SHOWN				.65 *

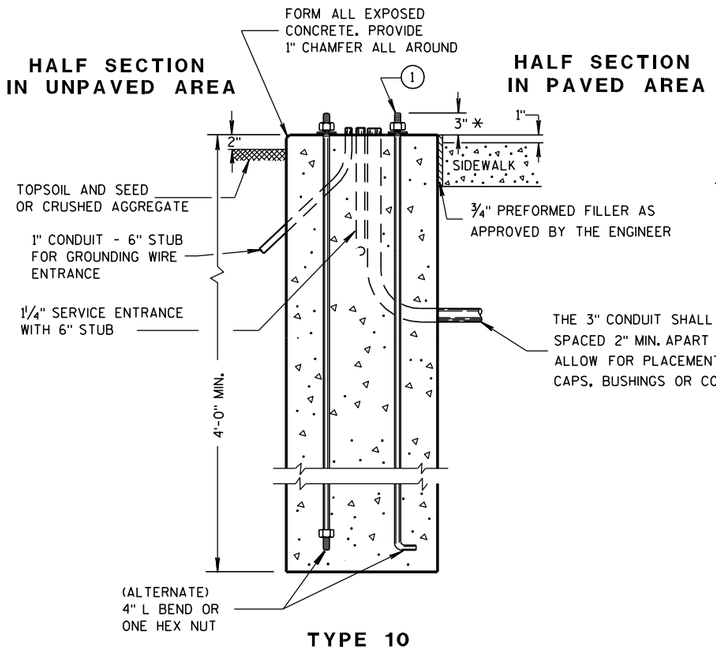
* INCLUDES MAINTENANCE PLATFORM.



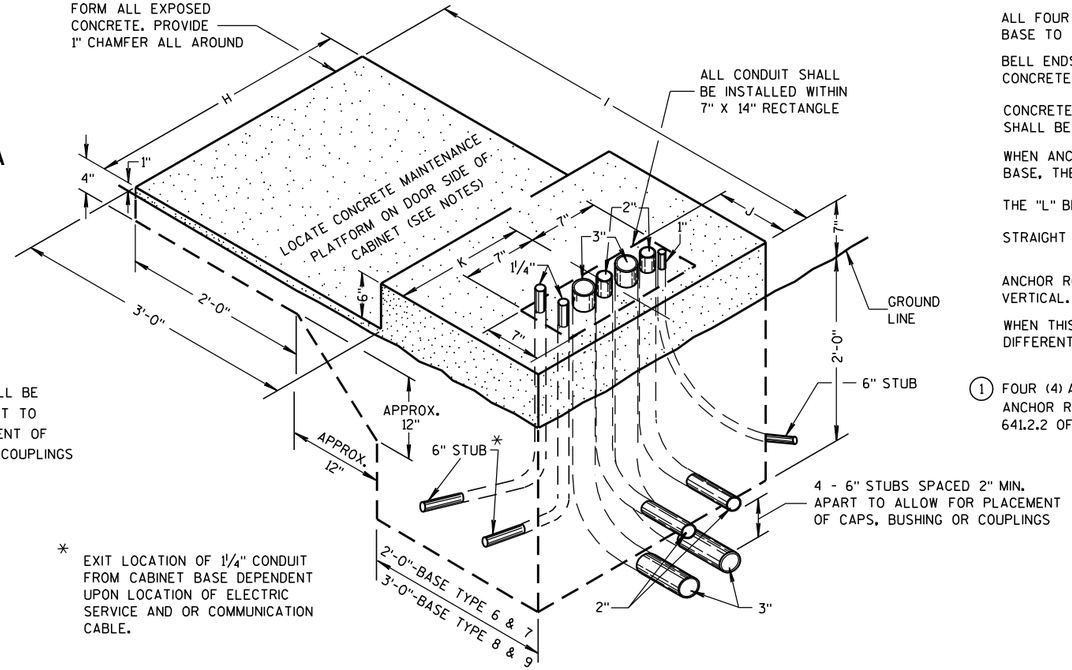


CONDUIT LOCATIONS IN 24" X 36" PULL BOX

(LEADING TO CONTROLLER CABINET BASE TYPE 6, 7, 8 AND 9)



TYPE 10



TYPE 6,7,8 AND 9 (ISOMETRIC VIEW)

* EXIT LOCATION OF 1¼" CONDUIT FROM CABINET BASE DEPENDENT UPON LOCATION OF ELECTRIC SERVICE AND OR COMMUNICATION CABLE.

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

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 APPROVED CONCRETE MASONRY ANCHORS 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 SURFACES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

WHEN A TYPE 10 CONTROL CABINET BASE IS USED TO POST MOUNT A CONTROL CABINET, A 36" SQUARE 4" THICK CONCRETE MAINTENANCE PLATFORM SHALL BE REQUIRED ON THE DOOR SIDE OF THE CABINET. THE TOP 1 INCH SHALL BE ABOVE FINISHED GRADE AND BE BROOM FINISHED AND 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.

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.

ALL FOUR (TWO INCH AND THREE INCH) CONDUIT SHALL BE INSTALLED FROM THE CABINET BASE TO THE FIRST (NEAREST PULL BOX LOCATED AS SHOWN ON THE PLANS.

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

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

WHEN ANCHOR RODS USING THE ALTERNATE L BEND ARE FURNISHED FOR THE TYPE 10 BASE, THE 4" L BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH.

THE "L" BEND SHALL NOT BE THREADED.

STRAIGHT ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD.

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

WHEN THIS DRAWING IS USED FOR STREET LIGHTING CABINET BASES, CONDUIT MAY BE DIFFERENT AS SHOWN ON THE PLAN OR AS DIRECTED BY THE ENGINEER.

(1) FOUR (4) ANCHOR RODS, 1" DIA. X 3'-6"
ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 AND 641.2.2 OF THE STANDARD SPECIFICATIONS.

CONCRETE CONTROL CABINET BASES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

3/3/10
DATE

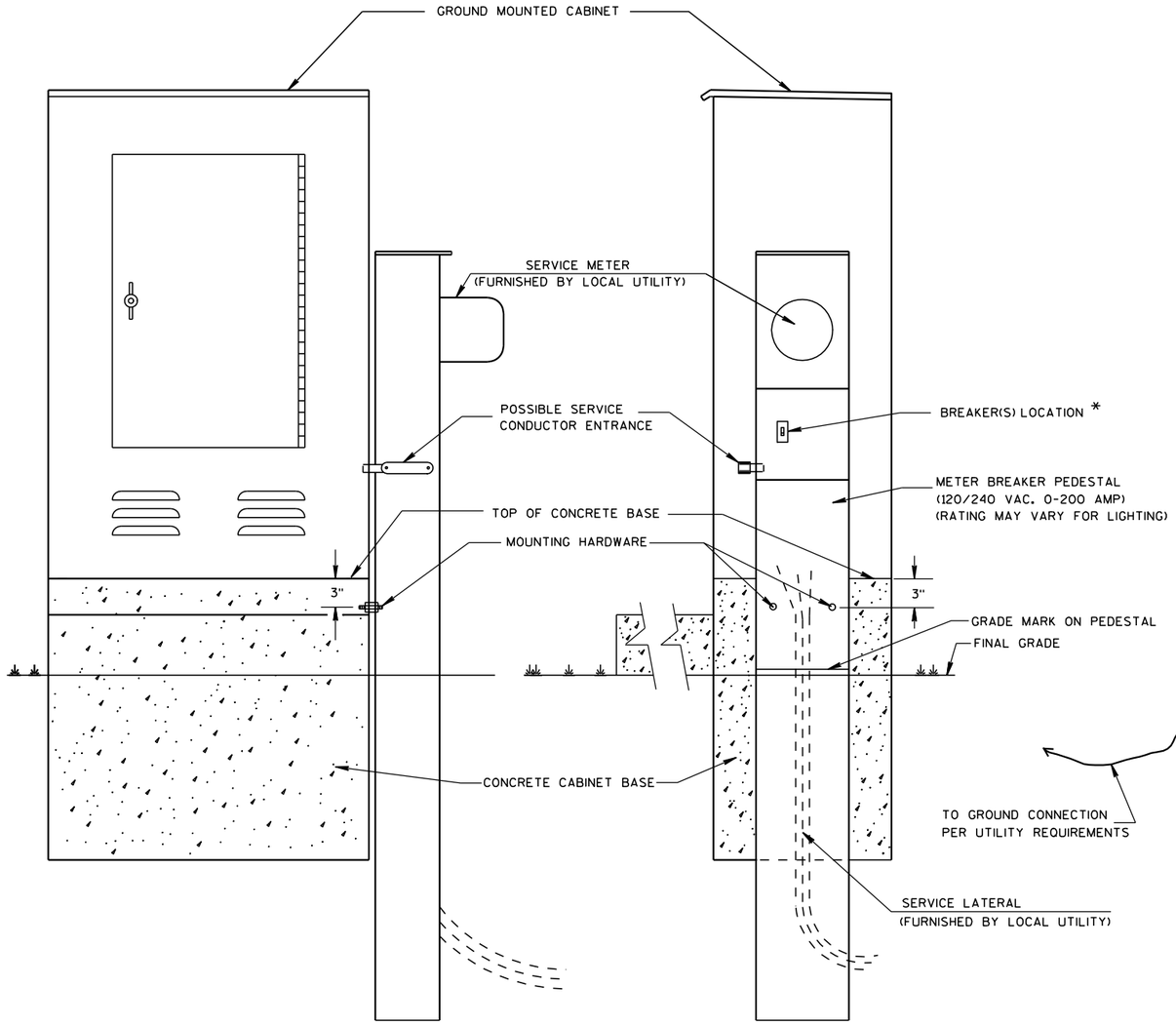
/S/ Joanna L. [illegible]
STATE ELECTRICAL ENGI

HWYS

FHWA

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S.D.D. 9 C 5-7



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

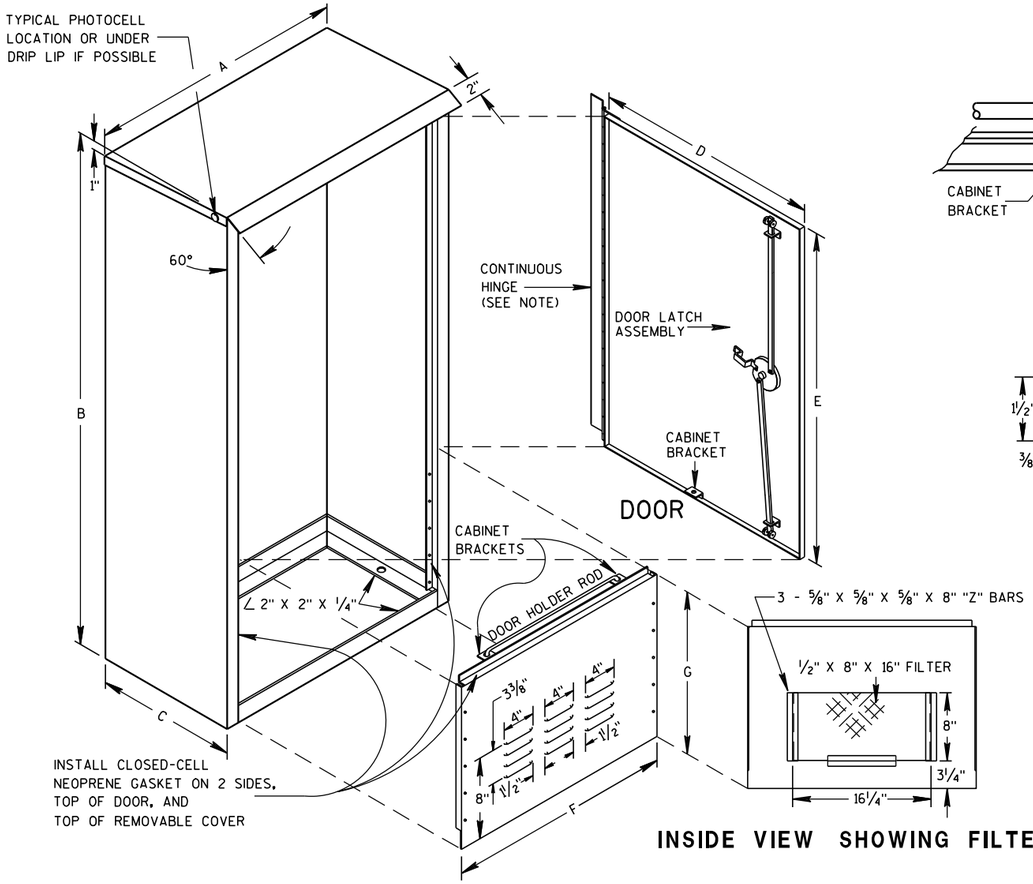
APPROVED

10/27/09	/S/ Joanna L. Bush	
DATE	STATE ELECTRICAL ENGI	HWYS

FHWA

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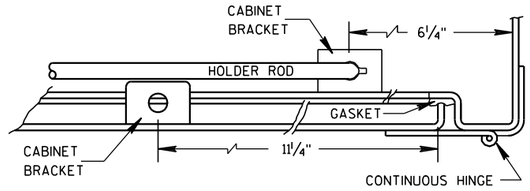
S.D.D. 9 D 1-4



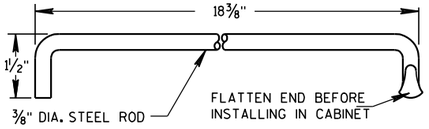
DOOR

REMOVABLE COVER

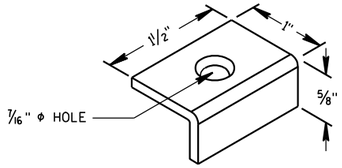
INSIDE VIEW SHOWING FILTER



HINGE & DOOR HOLDER



HOLDER ROD

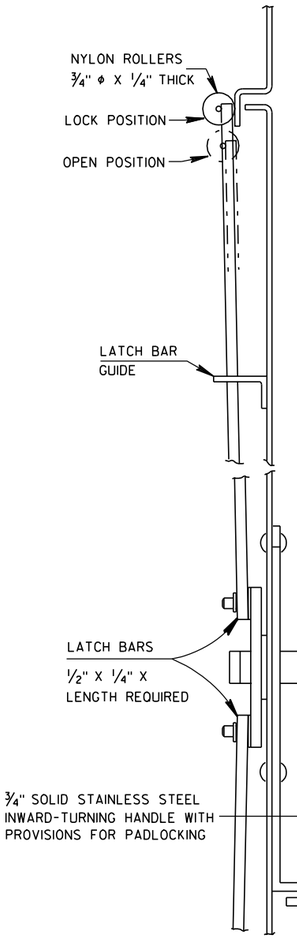


CABINET BRACKET

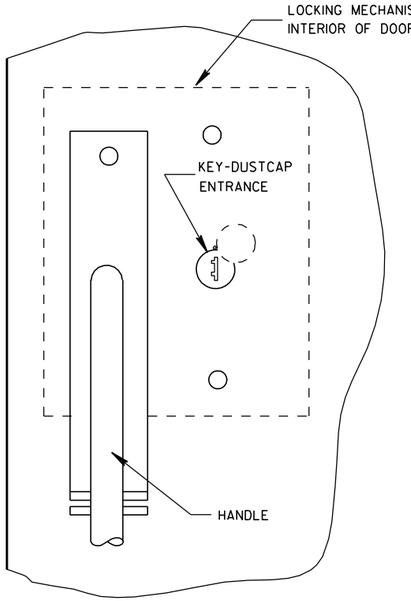
MOUNTING BASE

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

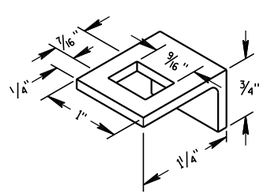


SIDE VIEW



FRONT VIEW

LATCH ASSEMBLY



LATCH BAR GUIDE

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 AN APPROVED TYPE.

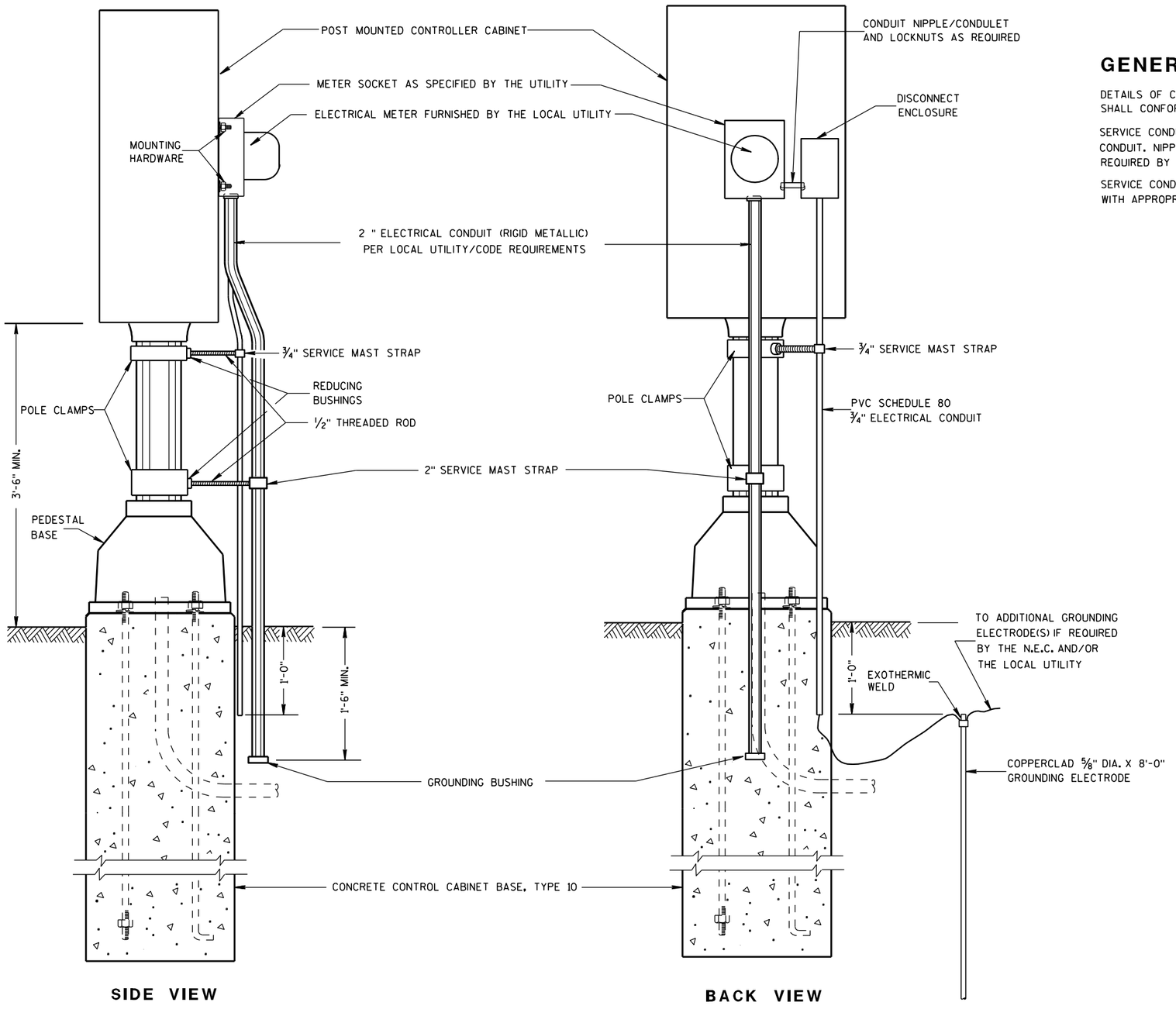
DOOR LATCH ASSEMBLY TO BE PROVIDED WITH THREE-POINT LOCKING MECHANISM.

SIGNAL OR LIGHTING CONTROL CABINET

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/21/96 — DATE
/S/ Balu Ananthanarayanan — STATE ELECTRICAL ENGI
FHWA

6
S.D.D. 9 D 2-2



POST MOUNTED CONTROLLER SERVICE INSTALLATION

GENERAL NOTES

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

SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID STEEL OR SCHEDULE 80 PVC ELECTRICAL CONDUIT. NIPPLES AND/OR CONDULETS, WITH LOCK NUTS AND GROUNDING BUSHINGS AS REQUIRED BY THE N.E.C. OR THE LOCAL UTILITY.

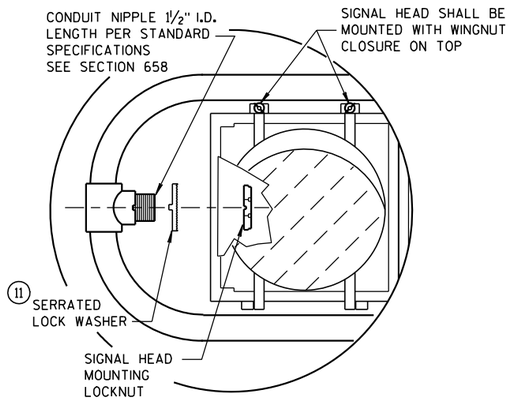
SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AS REQUIRED AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED ELECTRICAL CODE.

POST MOUNTED CONTROLLER SERVICE INSTALLATION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

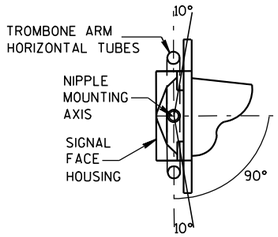
APPROVED
3/24/2003 DATE
/S/ Balu Ananthanarayanan
STATE ELECTRICAL ENGI
FHWA

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S.D.D. 9 D 3-2



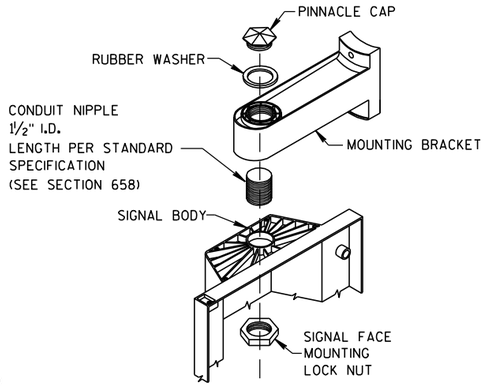
HORIZONTAL SIGNAL HEAD MOUNTING DETAIL *

* SIGNAL HEAD ATTACHMENT ALSO APPLYS TO MOUNTING AT CROSS BAR



SECTION A-A

(10 DEGREES TILT REQUIREMENT OF FACE(S) IN THE TROMBONE MOUNTING)



SIGNAL FACE MOUNTING DETAIL

(BANDED)

GENERAL NOTES

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

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

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

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

TYPE 2 ALUMINUM POLES SHALL BE CONSTRUCTED OF 6063-T6 ALUMINUM ALLOY. SLEEVING INSIDE THE POLE IS NOT ACCEPTABLE.

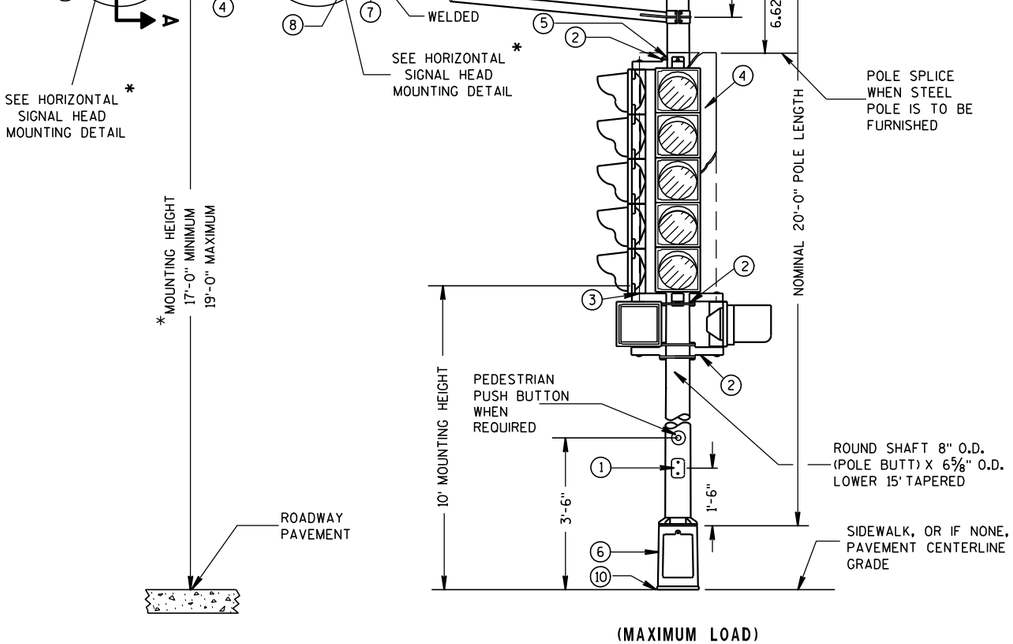
WHEN TRANSFORMER BASES ARE USED, WIRE CONNECTIONS SHALL BE MADE IN THE TRANSFORMER BASE.

1. 4" X 6" REINFORCED HANDHOLE & COVER ASSEMBLY WITH 2 (TWO) ¼" X ¾" - 20 TPI HEX HEAD STAINLESS STEEL BOLTS.
2. SIGNAL FACE MOUNTING BRACKETS. MOUNT WITH CAP SCREWS AND BANDING. (SEE STANDARD SPECIFICATIONS - SEC. 658)
3. GROMMETS, 1" CHASE NIPPLES OR 1" CLOSE CONDUIT NIPPLES WITH BUSHINGS SHALL BE PROVIDED FOR 1⅜" HOLE IN POLE SHAFT FOR WIRING.
4. SECURELY MOUNT DULL BLACK POLYCARBONATE BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURER'S RECOMMENDATIONS.
5. POLE MOUNTED SIGNAL FACES SHALL REQUIRE 1 OR MORE MOUNTING SPACERS UNDER THE TOP MOUNTING BRACKET(S) AS REQUIRED, TO PLUMB THE SIGNAL FACES.
6. CAST ALUMINUM TRANSFORMER BASE, WHEN REQUIRED.
7. MOUNTING BRACKET NIPPLES FOR THE SIGNAL FACE(S) SHALL BE 2 INCHES IN LENGTH AND 1½ INCHES IN DIAMETER. (SEE STANDARD SPECIFICATION - SECTION 658).
8. VERTICAL STRUT (ADJUSTABLE). ONE (1) SET SCREW (¼" X ¾" LONG- 20 TPI, STAINLESS STEEL, HEX HEAD) INTO EACH ARM MEMBER IF STRUT IS THE SLIDING TYPE.
9. FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) ¼" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.
10. SHIMMING, IF NEEDED, SHALL BE LOCATED BETWEEN THE CONCRETE FOUNDATION AND THE TRANSFORMER BASE.
11. USE SERRATED LOCK WASHERS WITH NOTCHES BETWEEN END TEE AND SIGNAL HEAD.

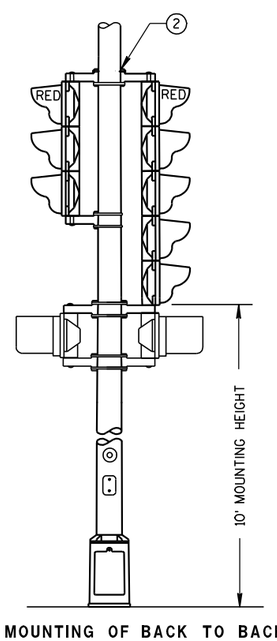
*MOUNTING HEIGHT LIMITATION DIMENSIONS OF THE TROMBONE MAST ARM WILL BE DEPENDENT UPON THE USE/NON-USE OF A TRANSFORMER BASE.

FOR MANUFACTURERS USE ONLY

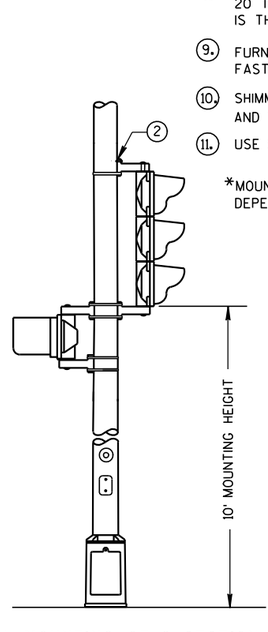
WELD TO BE 100% R.T. OR U.T. TESTED AS PER THE REQUIREMENTS OF AWS D 1.5-88. RECORDS OF COMPLIANCE OF SUCH TESTING SHALL BE FURNISHED TO THE OFFICE OF DESIGN/BRIDGE FOR VERIFICATION AND APPROVAL.



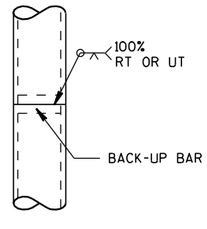
(MAXIMUM LOAD)



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



TYPICAL MOUNTING OF 3 SECTION SIGNAL FACE



POLE SPLICE DETAIL

TYPE 2 POLE MOUNTING CONFIGURATION

POLE MOUNTINGS FOR TRAFFIC SIGNALS TYPE 2

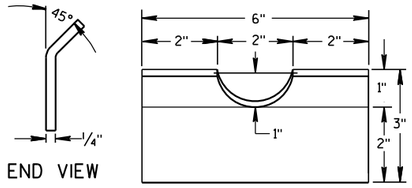
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

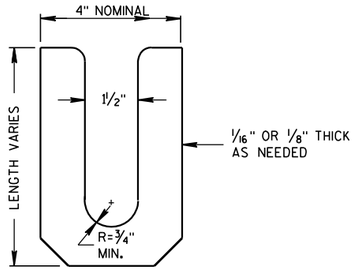
S.D.D. 9 E 1-11a

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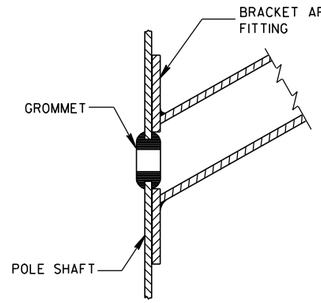
S.D.D. 9 E 1-11a



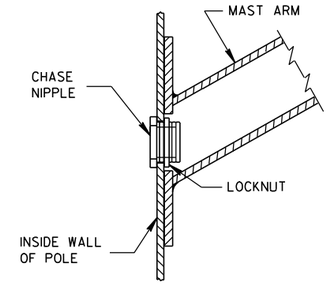
RECTANGULAR CLAMP SHIM
(4 TO A SET)



LEVELING SHIM (15)
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.) OUTSIDE SHIM DIAMETER - (4.5" O.D. FOR LUMINAIRE MAST ARM)
(6.625" O.D. FOR TROMBONE MAST ARM)

(14.) VARIABLE SHIM THICKNESS - (0.10", 0.25", 0.35", 0.53" OR 0.70")

SHIM THICKNESS FOR TROMBONE MAST ARMS MAY BE TYPICALLY 0.25", 0.35", 0.53" OR 0.70".

SHIM THICKNESS FOR LUMINAIRE MAST ARMS MAY BE TYPICALLY 0.10", 0.25" OR 0.35".

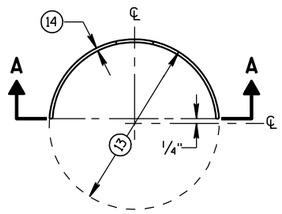
SHIM MATERIAL SHALL BE ALUMINUM ALLOY.

SHIM THICKNESS SHALL BE IMPRESSED INTO EACH SHIM. NUMERALS SHALL BE 1/4" HIGH AND LEGIBLE.

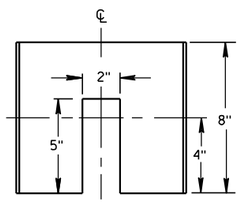
THE CONTRACTOR SHALL SUBMIT TWO COPIES OF ALL SHIM SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.

(15.) 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.

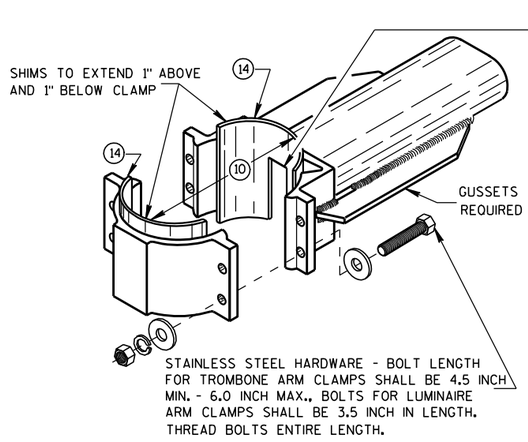
SHIMS SHALL BE LONG ENOUGH AND WIDE ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.



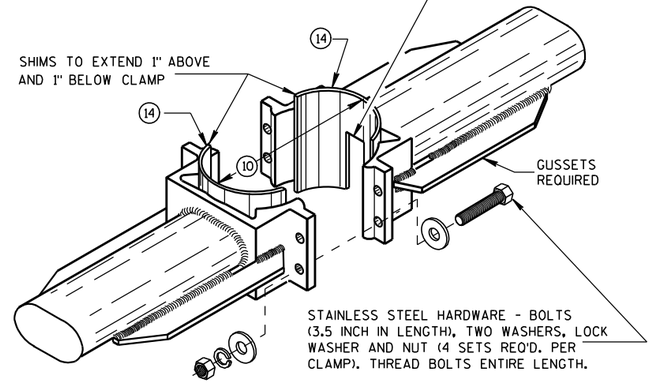
PLAN VIEW



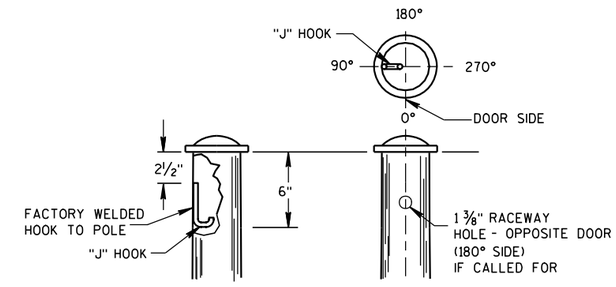
SECTION A-A
CIRCULAR CLAMP SHIM
(2 TO A SET)



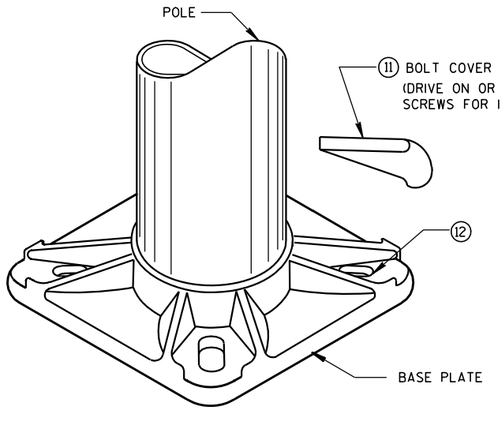
TYPICAL TROMBONE MAST ARM AND SINGLE LUMINAIRE MAST ARM MOUNTING CLAMP



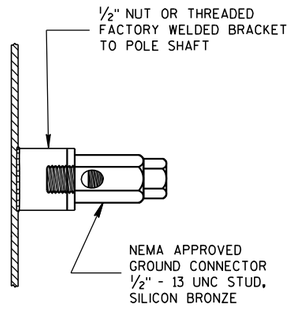
TYPICAL LUMINAIRE MAST ARM (DOUBLE) MOUNTING BRACKETS

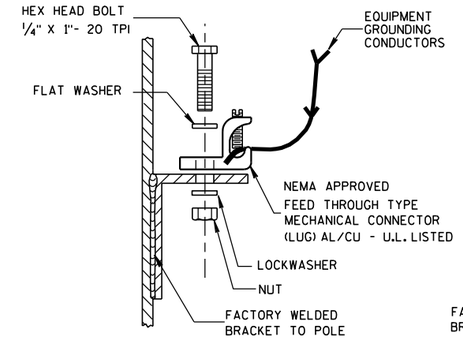


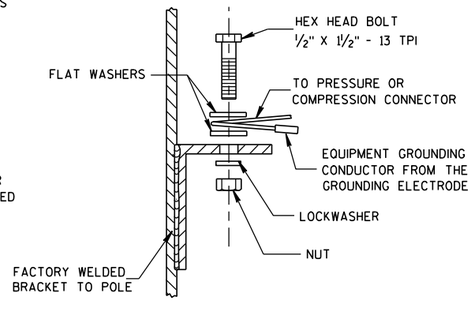
TYPICAL "J" HOOK LOCATION



BASE PLATE





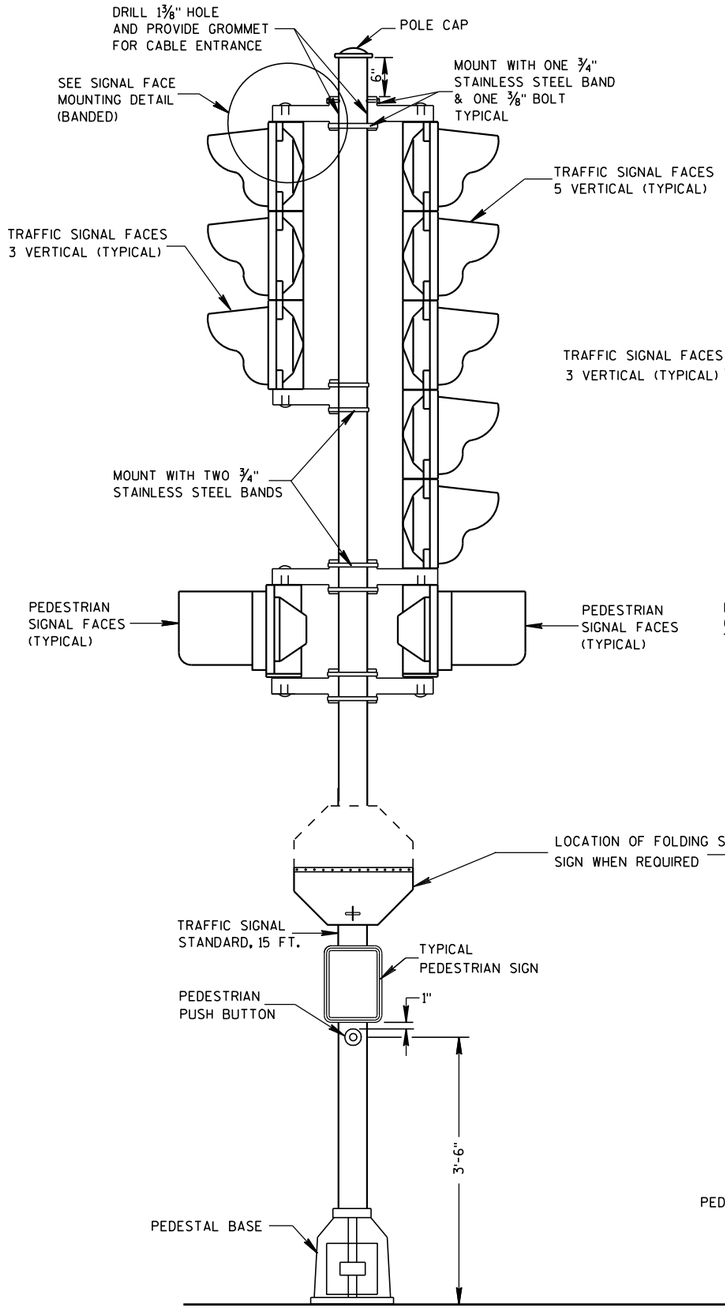


TYPICAL GROUNDING CONNECTIONS
NUT, BOLT AND WASHERS SHALL BE STAINLESS STEEL

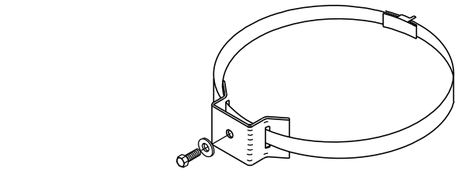
HARDWARE DETAILS FOR POLE MOUNTINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

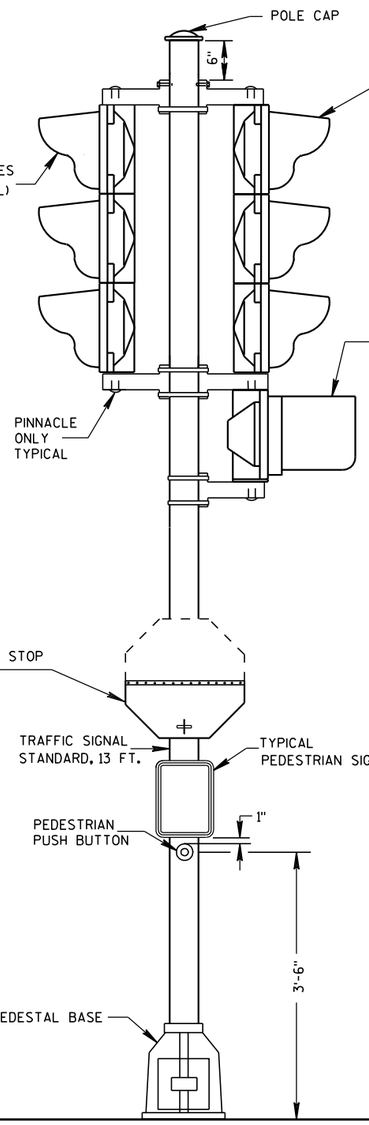
APPROVED
3/2/11 DATE
/S/ Thomas J. Goerlinger STATE ELECTRICAL ENGI
348 HWYS
FHWA



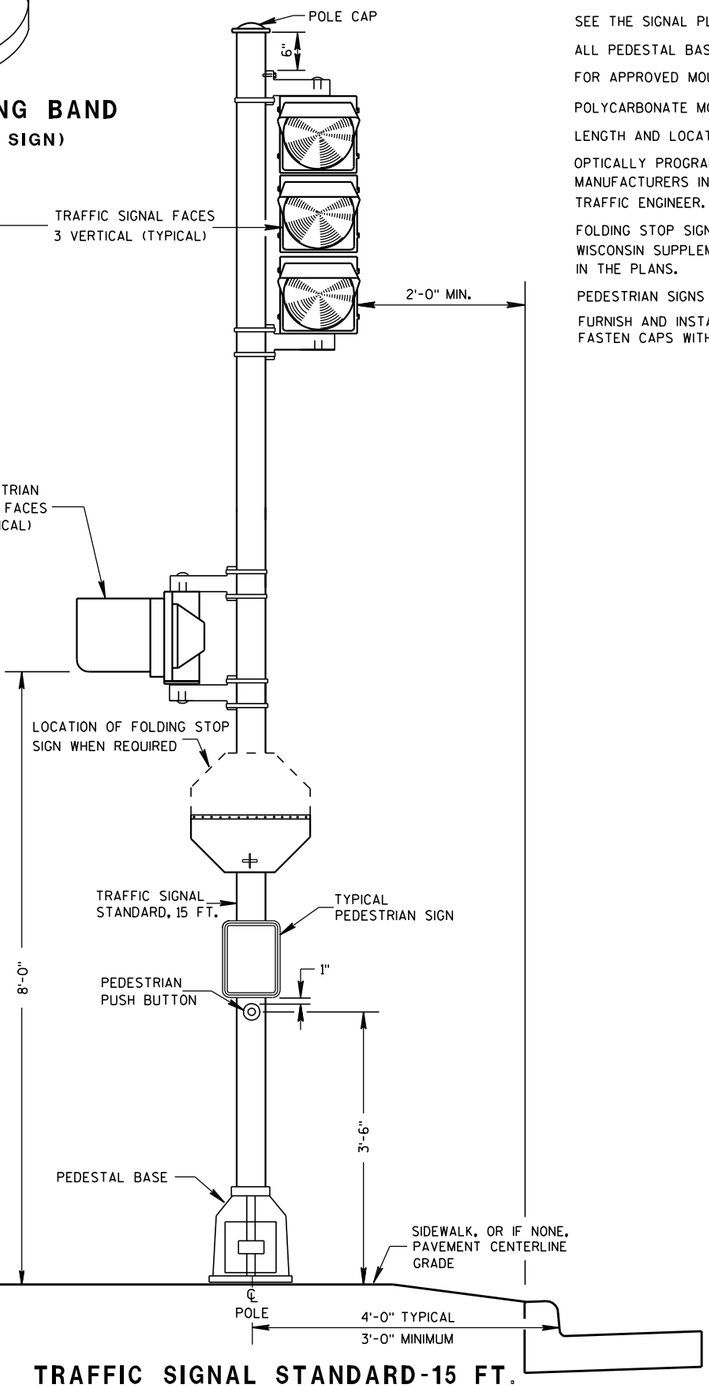
TRAFFIC SIGNAL STANDARD-15 FT.



TYPICAL SIGN MOUNTING BAND
(TOP AND BOTTOM OF SIGN)



TRAFFIC SIGNAL STANDARD-13 FT.



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.

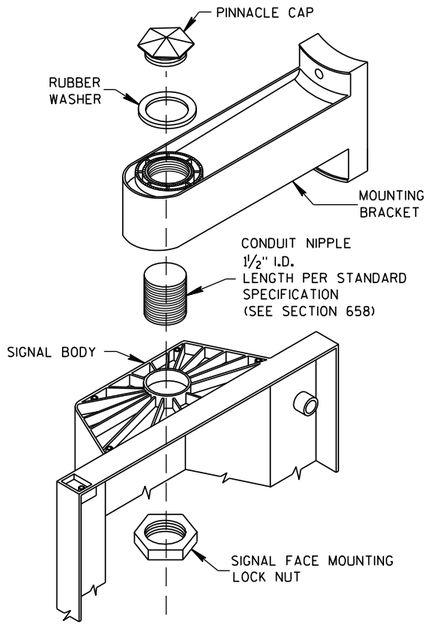
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE DISTRICT 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) 1/4" X ¾" - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



SIGNAL FACE MOUNTING DETAIL
(BANDED)

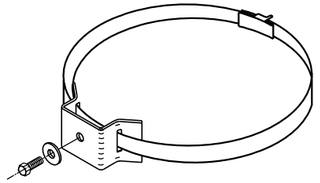
TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

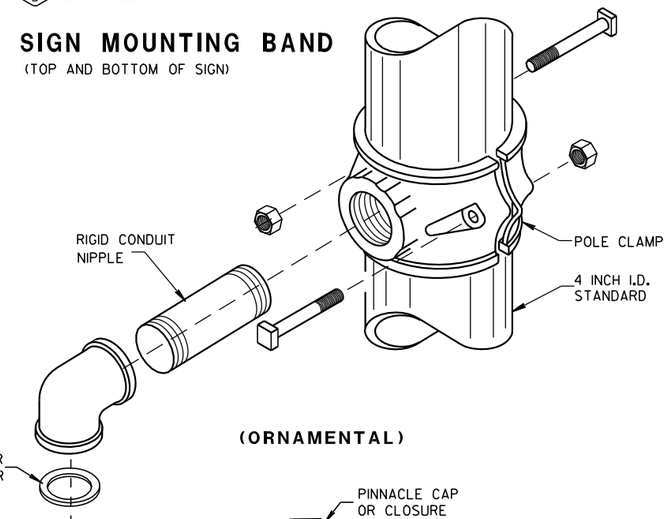
APPROVED
5/11/10 DATE
/S/ John Corbin STATE ELECTRICAL ENGI
FHWA

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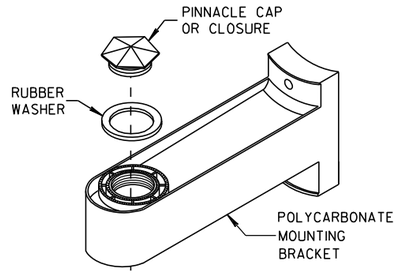
S.D.D. 9 E 6-4



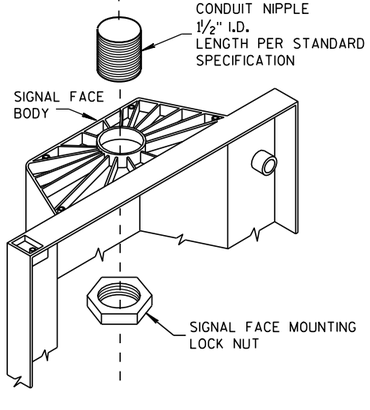
TYPICAL SIGN MOUNTING BAND
(TOP AND BOTTOM OF SIGN)



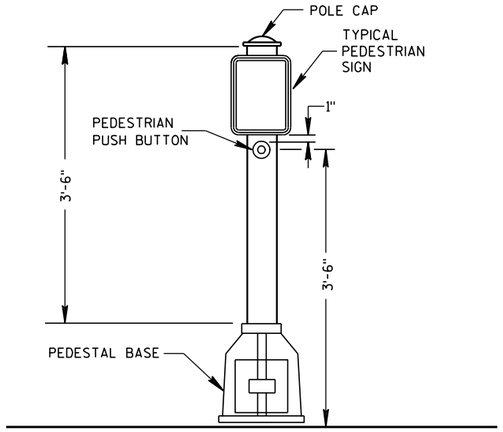
(ORNAMENTAL)



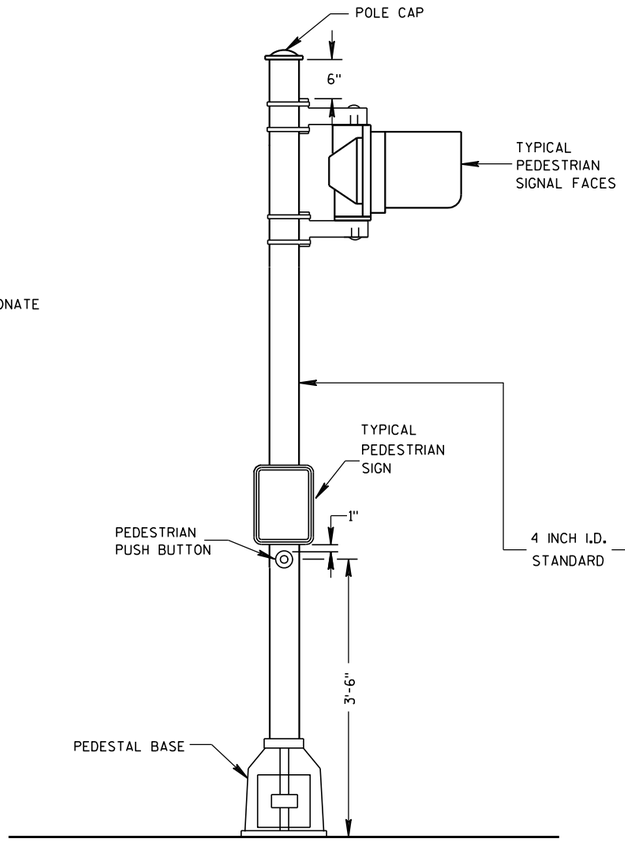
(BANDED)



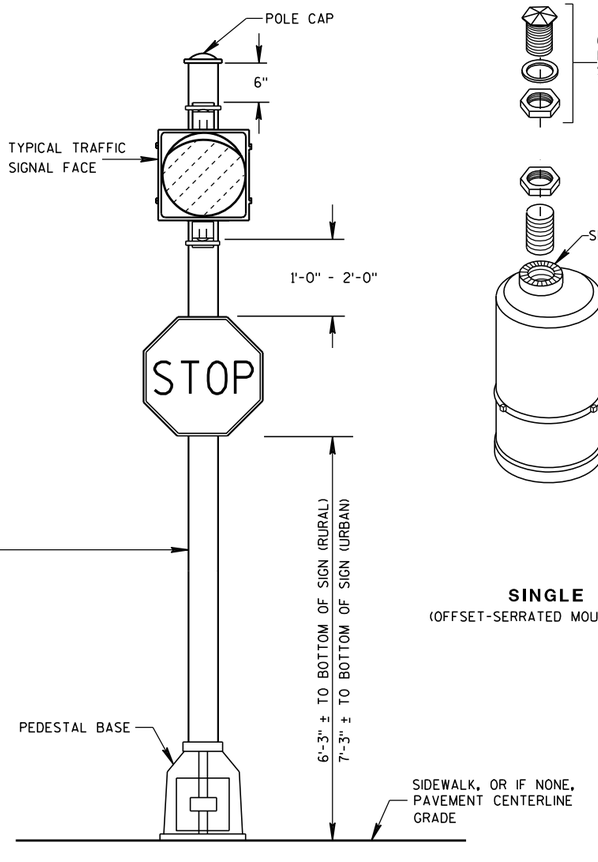
SIGNAL FACE MOUNTING DETAILS



PEDESTRIAN PUSH BUTTON TYPICAL MOUNTING



PEDESTRIAN FACE STANDARD-10 FT.
(WALK-DON'T WALK)



STANDARD FLASHER.
10 FOOT, 13 FOOT OR 15 FOOT AS REQUIRED

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.

LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

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

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIFICATIONS.

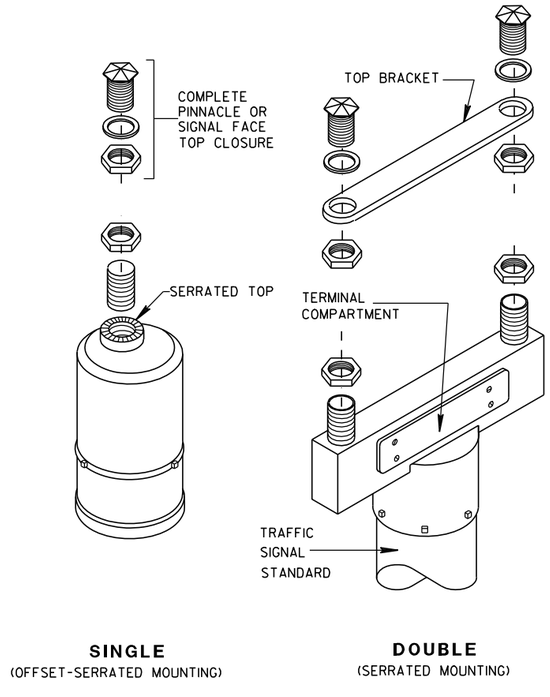
POLYCARBONATE SIGNAL FACE MOUNTING BRACKETS SHALL BE USED UNLESS ORNAMENTAL POLE CLAMPS ARE SPECIFIED.

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

MOUNTINGS AND BRACKETS SHALL BE AS SHOWN ON THE PLANS OR DESCRIBED IN THE SPECIAL PROVISIONS (BY THE DISTRICT TRAFFIC ENGINEER).

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.



SINGLE
(OFFSET-SERRATED MOUNTING)

DOUBLE
(SERRATED MOUNTING)

SLIPFITTERS

TRAFFIC SIGNAL STANDARD PEDESTRIAN AND FLASHER TYPICAL MOUNTING DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/11/10
DATE

/S/ John Corbin
STATE ELECTRICAL ENGI 350

HWYS

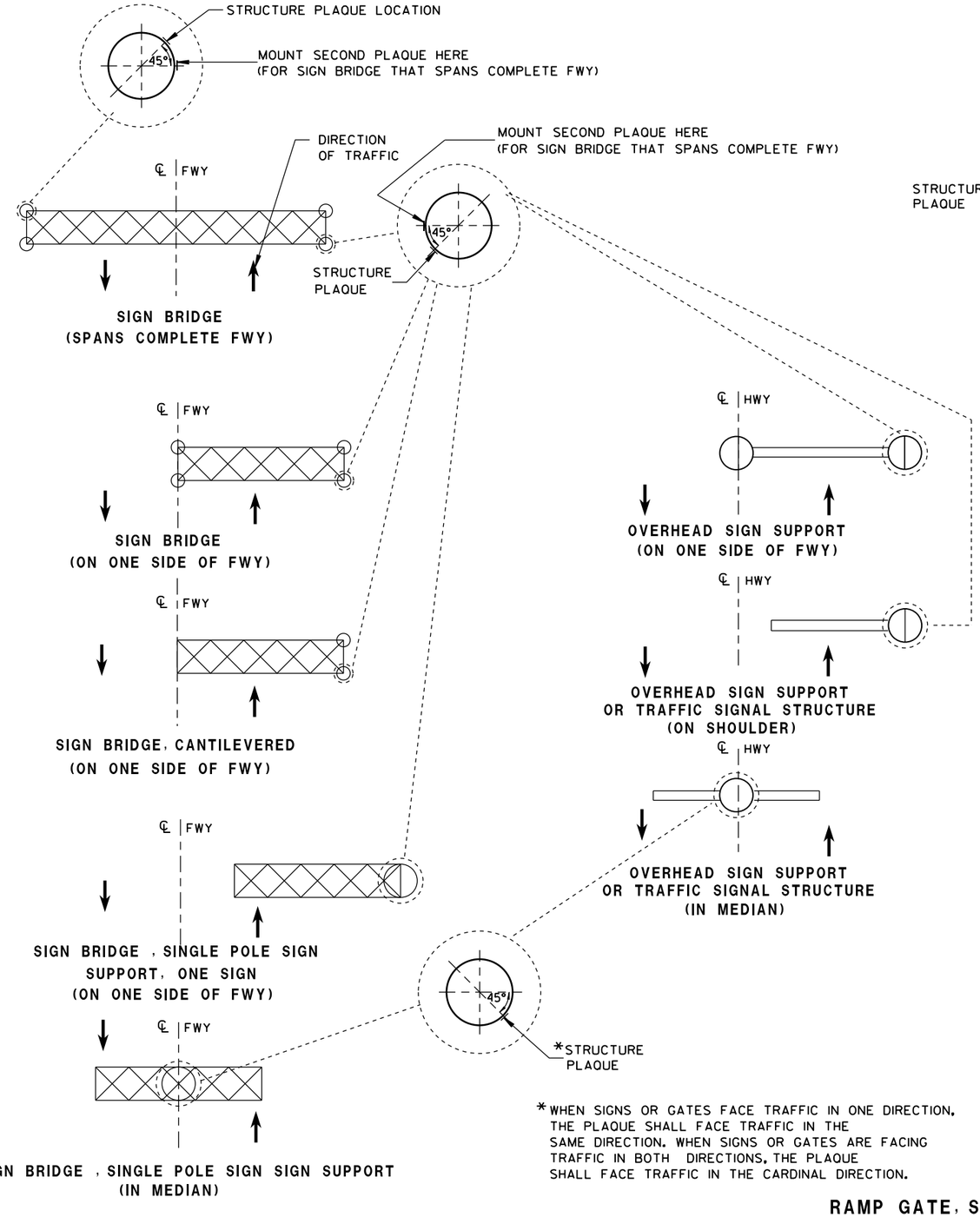
FHWA

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S.D.D. 9 E 7-5

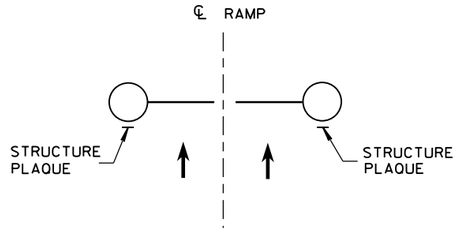
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S.D.D. 9 E 7-5

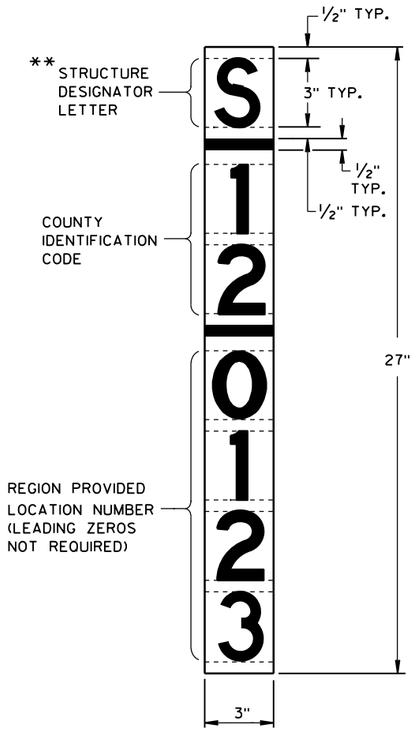


* WHEN SIGNS OR GATES FACE TRAFFIC IN ONE DIRECTION, THE PLAQUE SHALL FACE TRAFFIC IN THE SAME DIRECTION. WHEN SIGNS OR GATES ARE FACING TRAFFIC IN BOTH DIRECTIONS, THE PLAQUE SHALL FACE TRAFFIC IN THE CARDINAL DIRECTION.

LOCATION OF RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT & TRAFFIC SIGNAL STRUCTURE PLAQUES



**RAMP GATE
(ACROSS FWY ON-RAMP)**



** LETTER "G" UTILIZED FOR RAMP GATES. LETTER "S" UTILIZED FOR SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, AND TRAFFIC SIGNALS.

RAMP GATE, SIGN BRIDGE, OVERHEAD SIGN SUPPORT AND TRAFFIC SIGNAL STRUCTURE PLAQUE FOR SIGN BRIDGES AND OVERHEAD SIGN SUPPORT WHICH ARE NOT STRUCTURE MOUNTED

GENERAL NOTES

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

PLAQUES SHALL BE INCIDENTAL TO ALL NEW INSTALLATIONS.

IF THE PROPOSED SIGN BRIDGE OR OVERHEAD SIGN SUPPORT IS REPLACING AN EXISTING SIGN BRIDGE OR OVERHEAD SIGN SUPPORT, A NEW IDENTIFICATION PLAQUE WILL BE REQUIRED.

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

GALVANIZED STEEL SHAFT - 3 STAINLESS STEEL POP RIVETS

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

ALUMINUM SHAFTS - 3 ALUMINUM POP RIVETS

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

PLAQUE MATERIALS:

BASE - SHEET ALUMINUM, 0.060" THICK.

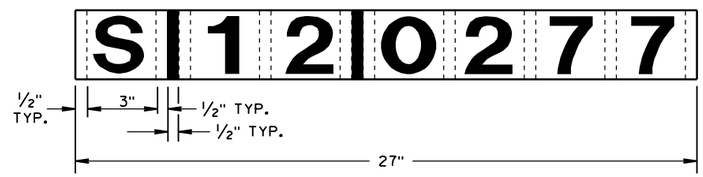
FACE - WHITE, SELF-ADHESIVE VINYL SHEETING, NON-RETROREFLECTIVE

LINES - BLACK, ½" WIDE, SELF-ADHESIVE

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

FOR SIGN BRIDGES, STRUCTURE MOUNTED, THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY AS SHOWN ON THE DRAWING. THE STRUCTURE PLAQUE SHALL BE MOUNTED HORIZONTALLY TO THE BACK OF THE SIGN, BETWEEN THE ALUMINUM EXTRUSIONS, NEAR THE TOP LEFT HAND CORNER OF THE SIGN. THE BASE MATERIAL SHALL BE OMITTED AND THE FACE ADHERED DIRECTLY TO THE ALUMINUM SURFACE. PRIOR TO ADHERING THE MATERIAL, THE ALUMINUM SURFACE SHALL BE SMOOTH, CLEAN AND DRY.

WHERE SIGN BRIDGE ILLUMINATION IS PROVIDED, THE STRUCTURE MUST ALSO HAVE A SIGN BRIDGE CIRCUIT PLAQUE AS SHOWN IN THE ELECTRICAL DETAILS.



IDENTIFICATION PLAQUE FOR SIGN BRIDGE, STRUCTURE MOUNTED

STRUCTURE IDENTIFICATION PLAQUES, RAMP GATES, SIGN BRIDGES, OVERHEAD SIGN SUPPORTS, & TRAFFIC SIGNALS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/4/2012 — DATE
/S/ Travis Feltes — STATE TRAFFIC ENGINEER
FHWA

6

S.D.D. 12 A 4-3

6

S.D.D. 12 A 4-3

GENERAL NOTES

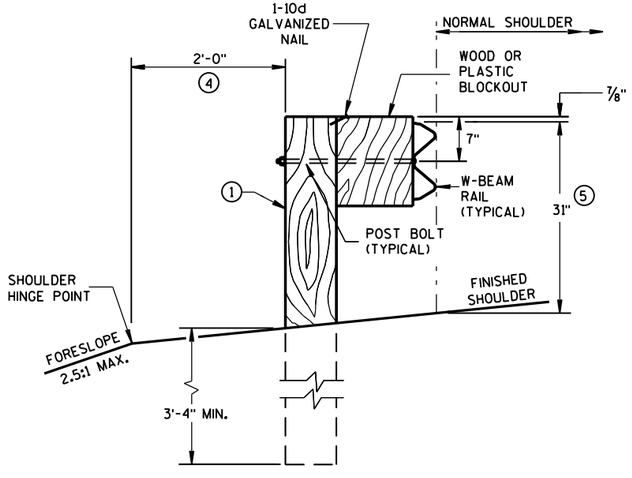
1. WOOD OR STEEL POSTS (w6X9 OR w6X8.5) MAY BE USED. DO NOT INTERMIX WOOD AND STEEL POSTS. INSTALL STEEL POSTS WITH HOLES ON APPROACHING TRAFFIC SIDE.

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

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

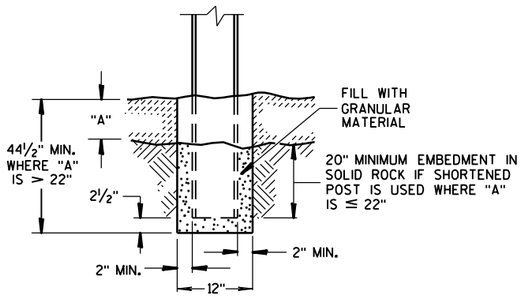
4. WHEN THE DISTANCE FROM BACK OF POST TO SHOULDER HINGE POINT IS LESS THAN 2 FEET INSTALL LONGER POST AT HALF POST SPACING (K).

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



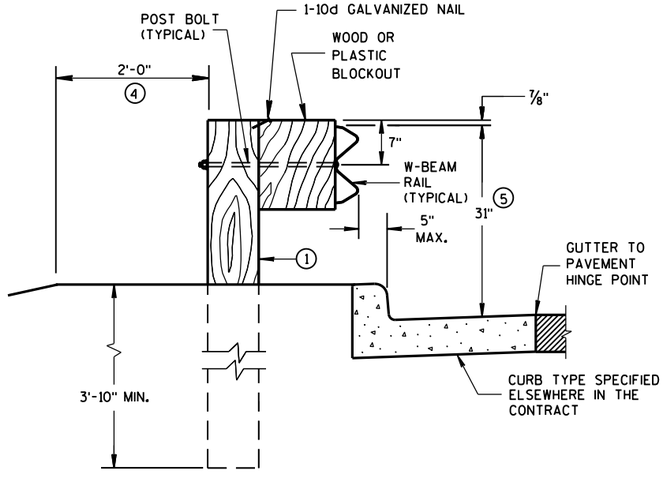
END VIEW

LOCATED ALONG A ROADWAY SHOULDER
STANDARD INSTALLATION



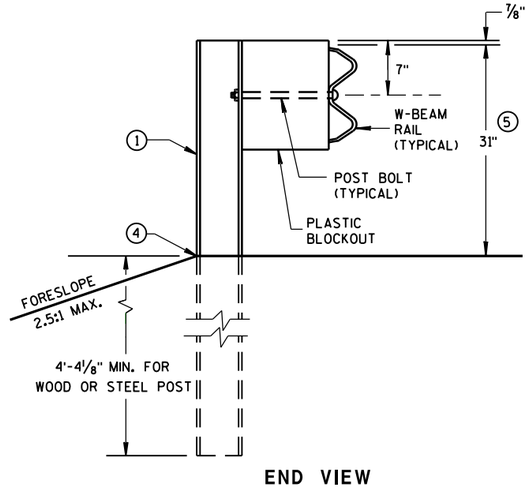
END VIEW

SETTING STEEL OR WOOD POST IN ROCK ③



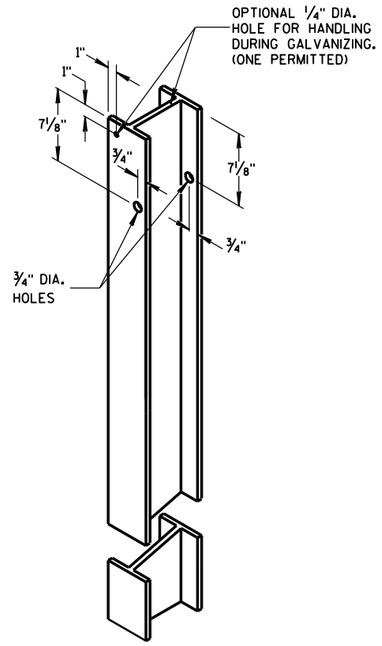
END VIEW

LOCATED ALONG A CURBED ROADWAY

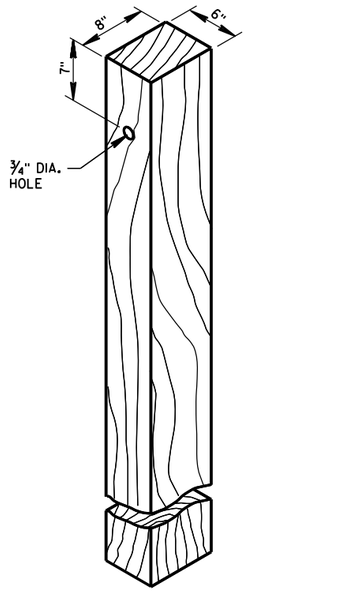


END VIEW

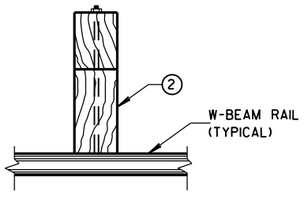
MGS LONGER POST AT HALFPOST SPACING W BEAM (K)



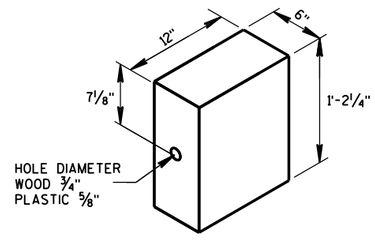
STEEL POST &
HOLE PUNCHING DETAIL
(w6X9) ①



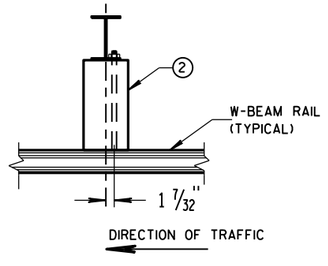
WOOD POST
(6" X 8") NOMINAL ①



PLAN VIEW
WOOD POST,
BLOCKOUT & BEAM



WOOD OR
PLASTIC BLOCKOUT ②

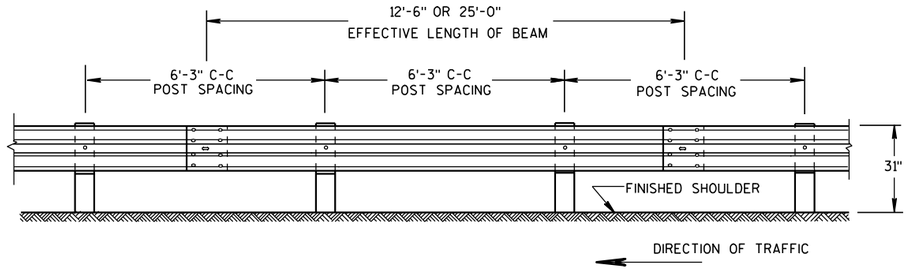


PLAN VIEW
STEEL POST,
PLASTIC BLOCKOUT & BEAM

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

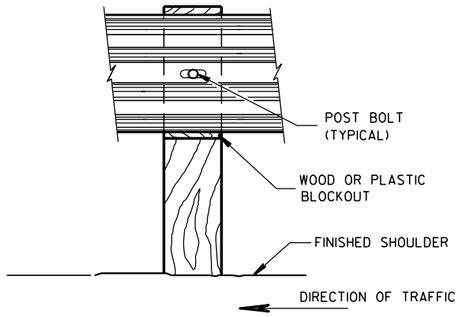
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOR

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S.D.D. 14 B 42-2a



FRONT VIEW

POST SPACING STANDARD INSTALLATION



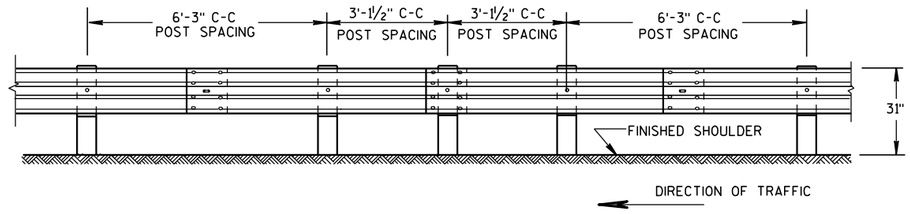
FRONT VIEW AT WOOD POST

GENERAL NOTES

1. PROVIDE TYPE "H" SILVER REFLECTIVE SHEETING ON ALL REFLECTORS EXCEPT THOSE LOCATED ALONG THE LEFT EDGE OF ONE-WAY ROADWAYS, WHICH SHALL BE PROVIDED WITH TYPE "H" YELLOW REFLECTIVE SHEETING.
2. DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL. RAIL SPLICE LOCATIONS ARE THE ONLY ACCEPTABLE LOCATIONS FOR REFLECTORS.
3. REVERSE EVERY OTHER REFLECTOR FOR 2-WAY VISIBILITY. THE CONTRACTOR MAY FURNISH TWO-SIDED REFLECTORS IN LIEU OF ONE-SIDED REFLECTORS.
4. PROVIDE AN ANGLE OF BEND OF 90° ± 1° FOR TWO-SIDED REFLECTORS.
5. 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.

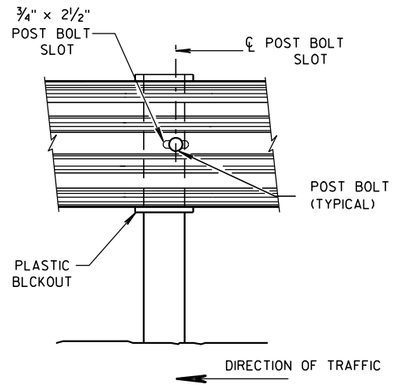
POST BOLTS ARE A 5/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 5/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 5/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.

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

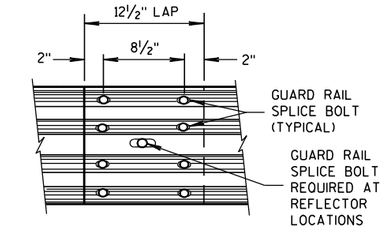


FRONT VIEW

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

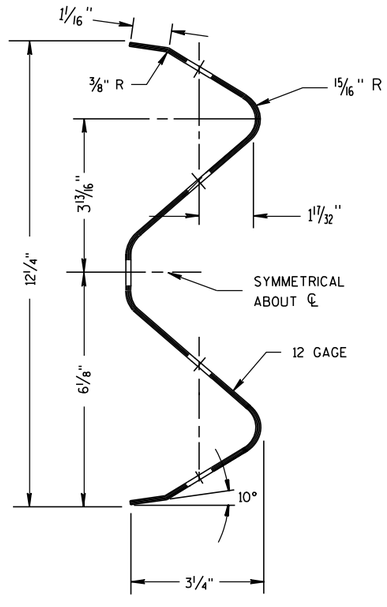


FRONT VIEW AT STEEL POST

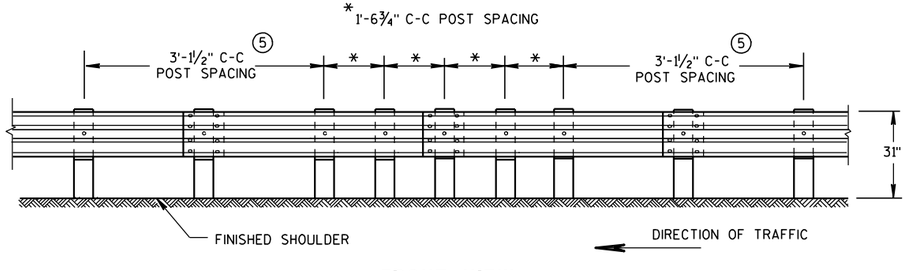


FRONT VIEW

MID-SPAN BEAM SPLICE

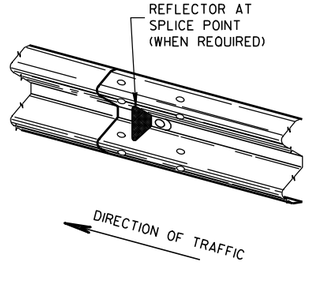


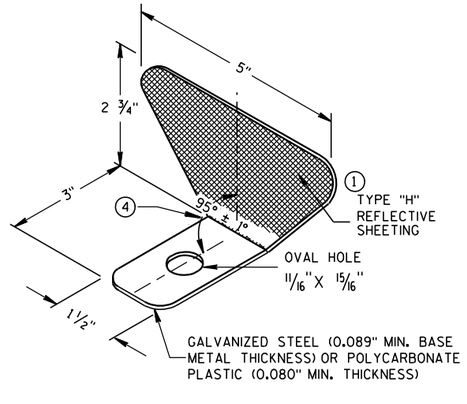
SECTION THRU W-BEAM RAIL



FRONT VIEW

QUARTER POST SPACING (QS)





ONE SIDED REFLECTOR DETAIL AND TYPICAL INSTALLATION ①

REFLECTOR SPACING ②

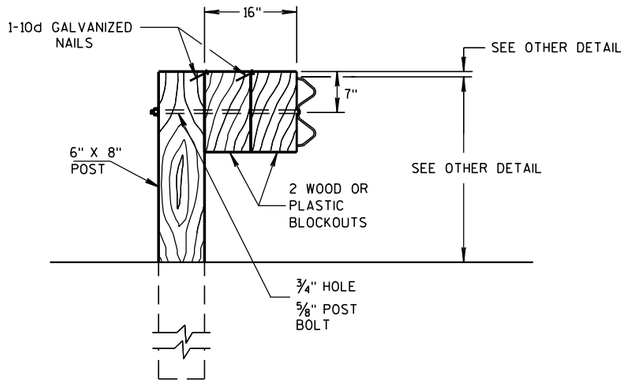
	BEAM GUARD LENGTH	REFLECTOR SPACING	NO. SURFACES REFLECTORIZED	MIN. NO. REFLECTORS
ONE WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	1 1	3
TWO WAY TRAFFIC	< 200' > 200'	25' C-C 50' C-C	1 ③ 1	6
TWO WAY TRAFFIC	< 200' > 200'	50' C-C 100' C-C	2 ④ 2	3

MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

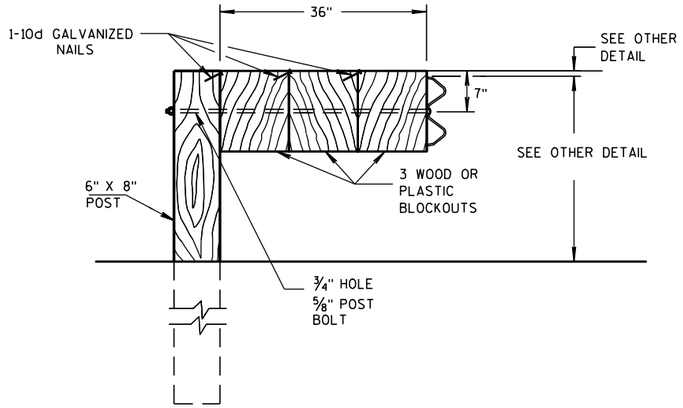
S.D.D. 14 B 42-2b

S.D.D. 14 B 42-2b



DETAIL FOR 16" BLOCKOUT DEPTH

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

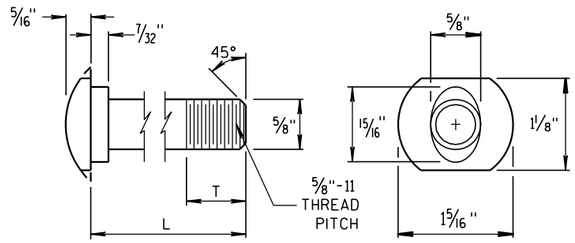


DETAIL FOR 36" BLOCKOUT DEPTH

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

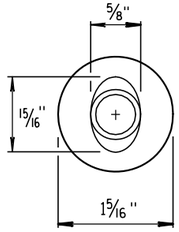
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.

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

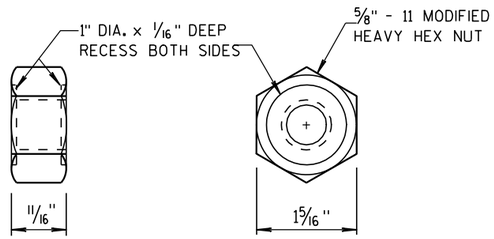


POST BOLT TABLE

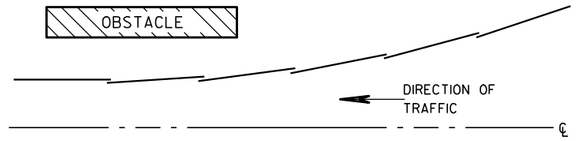
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



ALTERNATE BOLT HEAD

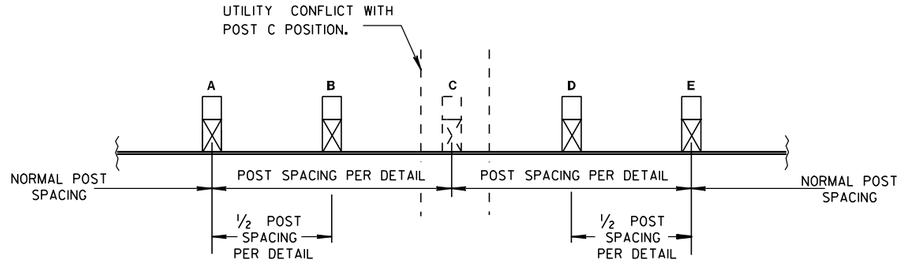


POST BOLT AND RECESS NUT

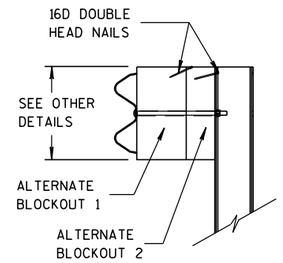


PLAN VIEW

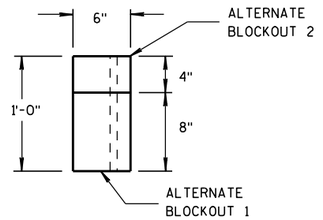
BEAM LAPPING DETAIL



POST DRIVING FOR CONTINUOUS UNDERGROUND OBSTRUCTION



SIDE VIEW



TOP VIEW

ALTERNATE WOOD BLOCKOUT DETAIL

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

11/15/2011
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

FHWA

354

ENT

6

S.D.D. 14 B 42-2c

6

S.D.D. 14 B 42-2c

GENERAL NOTES

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

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

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

(D) THE TOP OF THE STEEL TUBE ON POST 1 AND POST 2 SHALL NOT BE MORE THAN 3" ABOVE THE FINISH GROUND ELEVATION.

(F) SHEETING IS ATTACHED TO 0.040 ALUMINUM SHEET AND ATTACHED TO E.A.T. HEAD USING 4 STAINLESS STEEL SELF-TAPPING SCREWS. ONE SCREW PER CORNER OF E.A.T.

(G) ½" DIAMETER X 3" LONG LAG BOLT AND WASHER.

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

(I) DIMENSIONS MAY VARY. SEE MANUFACTURE'S INFORMATION.

SEE SDD 14B42 FOR MORE INFORMATION.

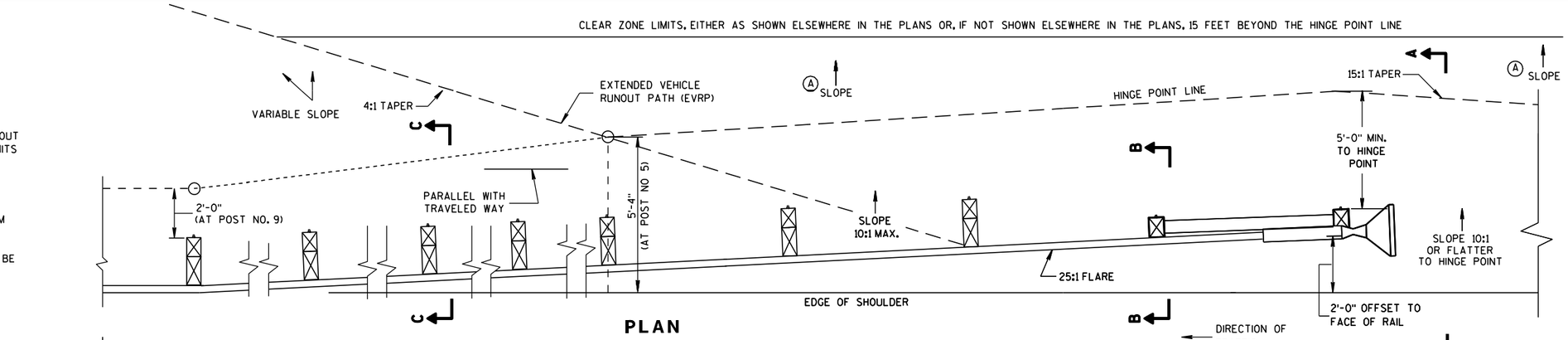
* DO NOT ATTACH BLOCKOUTS TO POSTS 1 AND 2.

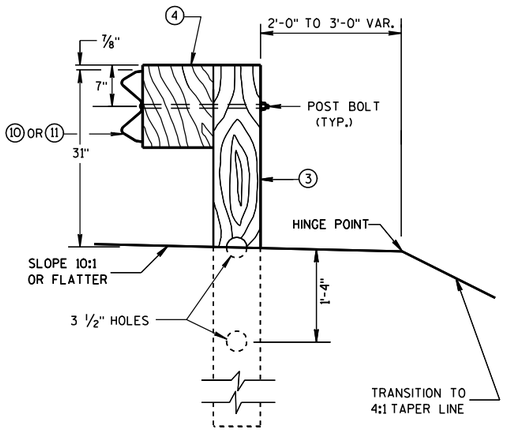
DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.

W-BEAM RAIL SPLICES ARE LOCATED AT POST NUMBER 3, AND BETWEEN POST 5 AND 6, BETWEEN POSTS 7 AND 8, AND MIDDLE OF THE SPAN AFTER POST 9.

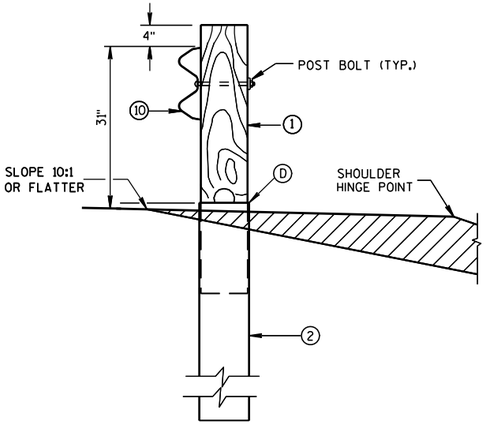
PATTERN AND COLORS ON REFLECTIVE SHEETING TYPE H ARE TO CONFORM TO OM3-L OR OM3-R OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

THE CENTER OF THE UPPER 3½" DIAMETER HOLE ON POST NUMBER 3 THROUGH POST 9 IS TO BE FLUSH WITH THE GROUND LINE (± ¾")

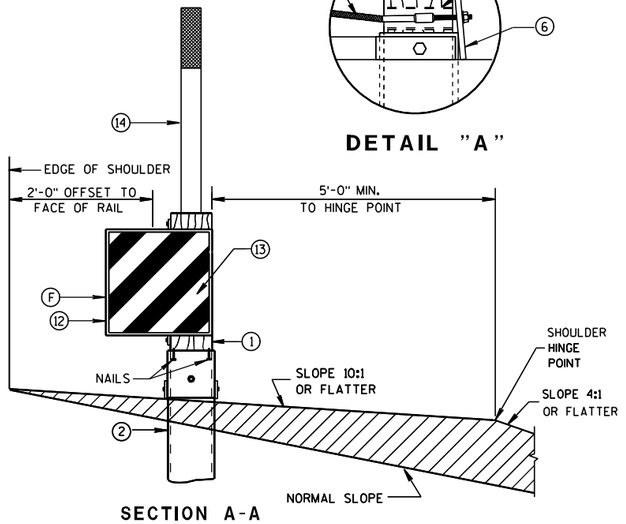




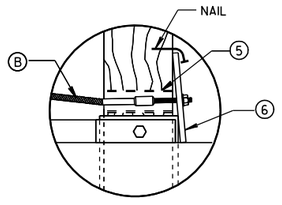
SECTION C-C
TYPICAL AT POST NOS. 3-9



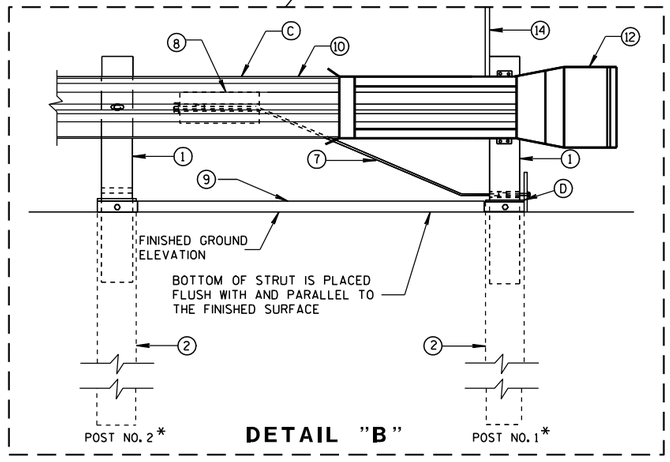
SECTION B-B
TYPICAL AT POST NO. 2*



SECTION A-A
TYPICAL AT POST NO. 1*



DETAIL "A"



DETAIL "B"

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL (MGS)

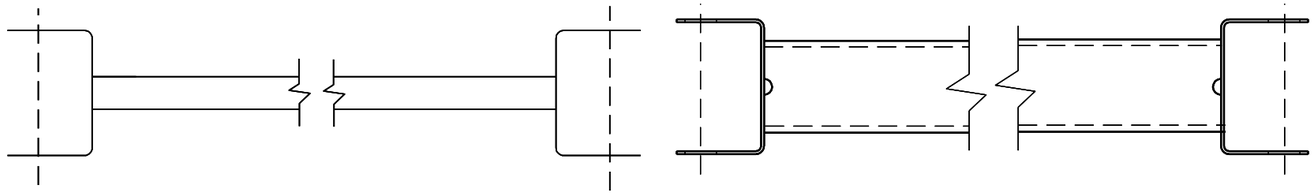
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 44-1a

6

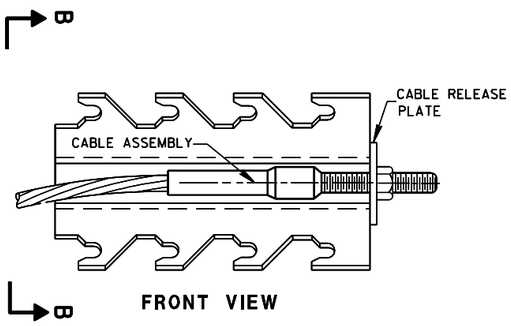
S.D.D. 14 B 44-1a



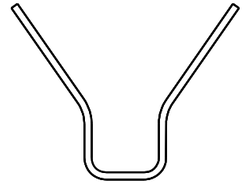
GENERIC GROUND STRUT (9) (H)

BILL OF MATERIALS

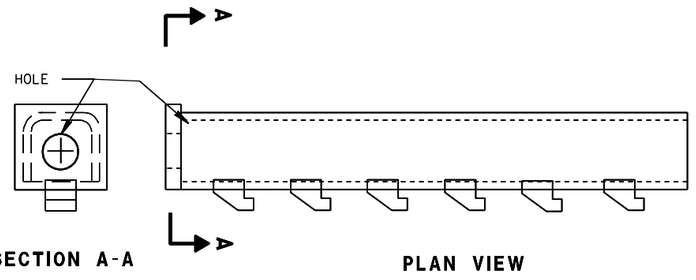
PART NO.	DESCRIPTION MATERIALS PROVIDED BY MGS EAT MANUFACTURER. SEE MANUFACTURER'S DETAILS FOR MORE INFORMATION.
(1)	WOOD BREAKAWAY POST
(2)	6" X 8" X 0.188", 6'-0" LONG FOUNDATION TUBE AT POSTS 1 AND 2
(3)	WOOD CRT
(4)	WOOD BLOCKOUT
(5)	PIPE SLEEVE
(6)	BEARING PLATE
(7)	BCT CABLE ASSEMBLY
(8)	ANCHOR CABLE BOX
(9)	GROUND STRUT
(10)	PERFORATED W-BEAM RAIL END PANEL, 12'-6" LONG.
(11)	STANDARD W-BEAM RAIL. MULTIPLE SECTIONS REQUIRED. SECTIONS VARY IN LENGTH.
(12)	END SECTION EAT
(13)	0.040" ALUMINUM SHEET WITH REFLECTIVE SHEETING TYPE H (ONLY THE SHEETING IS SUPPLIED BY THE MANUFACTURER)
(14)	EAT MARKER POST - YELLOW (SEE APPROVED PRODUCTS LIST)



FRONT VIEW



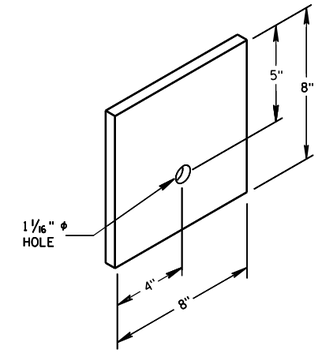
SECTION B-B



SECTION A-A

PLAN VIEW

GENERIC ANCHOR CABLE BOX (8) (H)



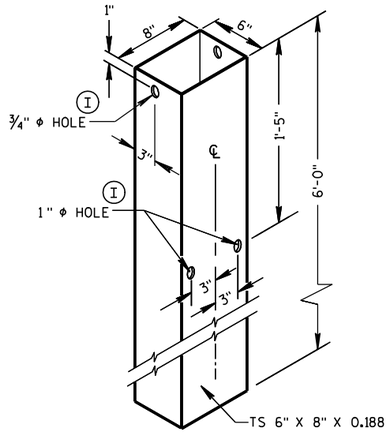
BEARING PLATE (6)

MIDWEST GUARDRAIL SYSTEM
ENERGY ABSORBING TERMINAL
(MGS)

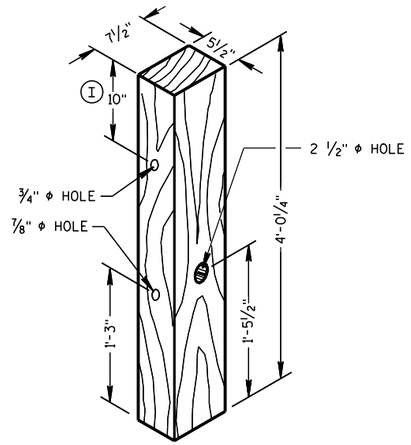
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

S.D.D. 14 B 44-1b

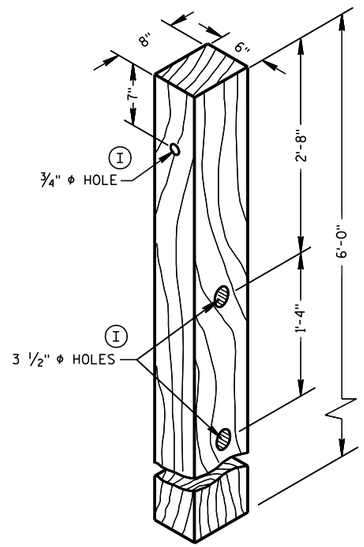


FOUNDATION TUBE (2)



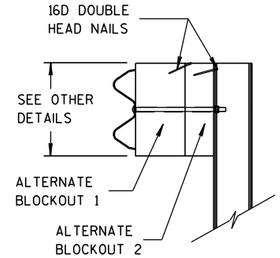
POSTS NUMBER 1 AND 2

WOOD BREAKAWAY POST (1)

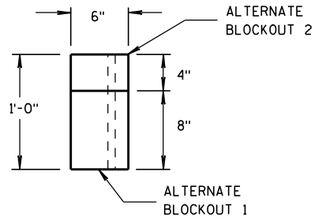


POSTS NUMBER 3-9

WOOD CRT POST (3)

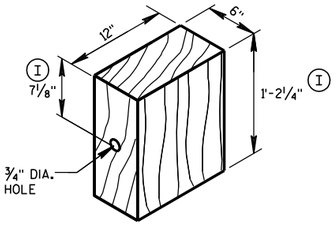


SIDE VIEW



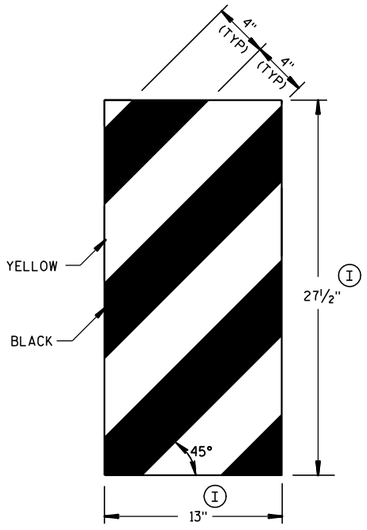
TOP VIEW

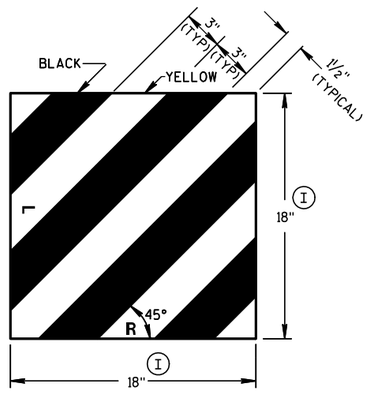
ALTERNATE WOOD BLOCKOUT DETAIL



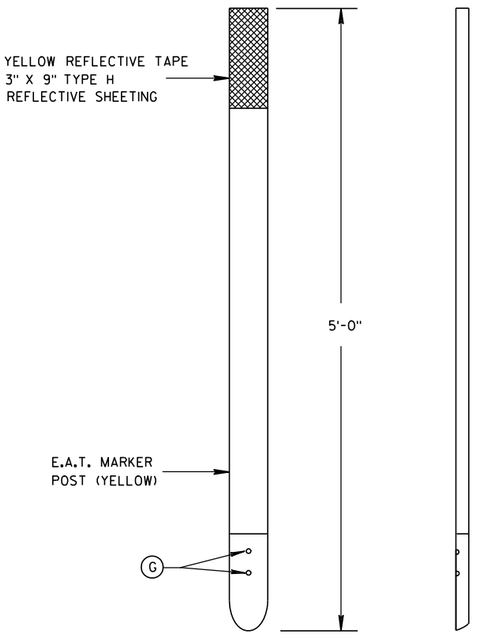
WOOD BLOCKOUT (4)

REQ'D. AT ALL POSTS EXCEPT POST NO'S 1 & 2





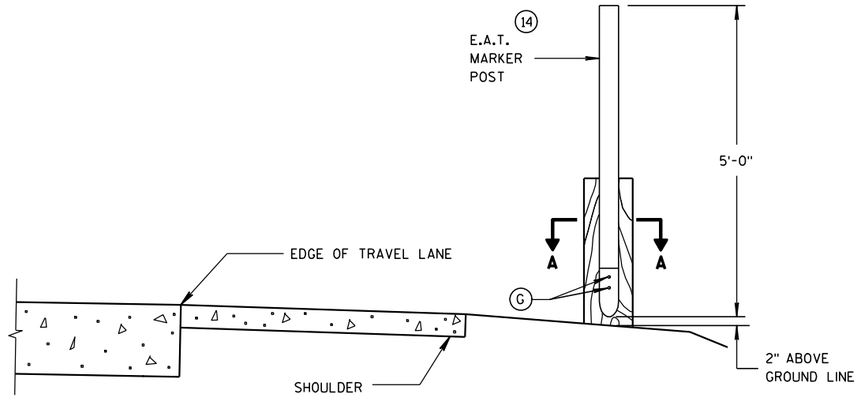
GENERIC REFLECTIVE SHEETING (13) (H)



FRONT VIEW

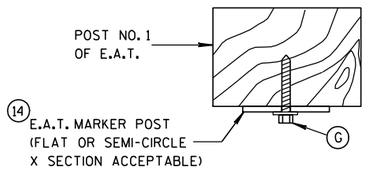
SIDE VIEW

E.A.T. MARKER POST (14)



TYPICAL INSTALLATION OF E.A.T. MARKER POST BACKSIDE OF POST NO. 1

(E.A.T. AND RAIL REMOVED FOR CLARITY)



SECTION A-A

MIDWEST GUARDRAIL SYSTEM ENERGY ABSORBING TERMINAL (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

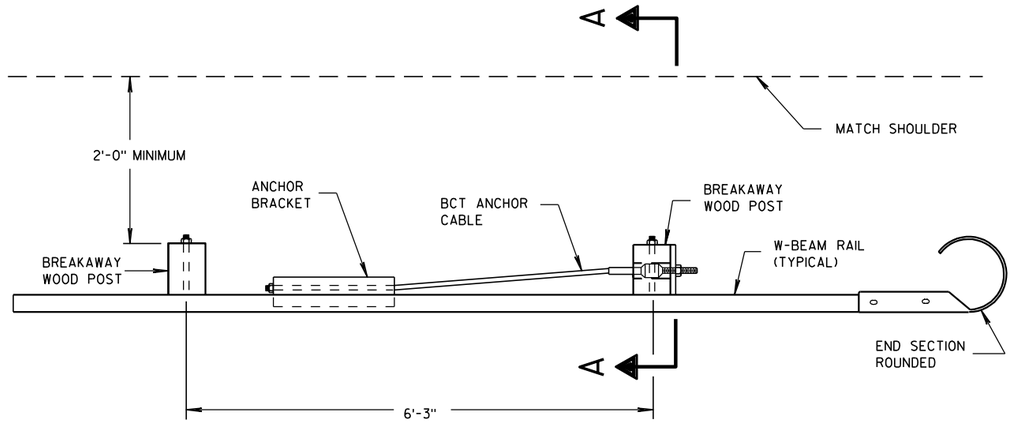
APPROVED
5/23/2011
DATE
/S/ Jerry H. [illegible]
ROADWAY STANDARDS 357 [illegible]
ENGINEER
FHWA

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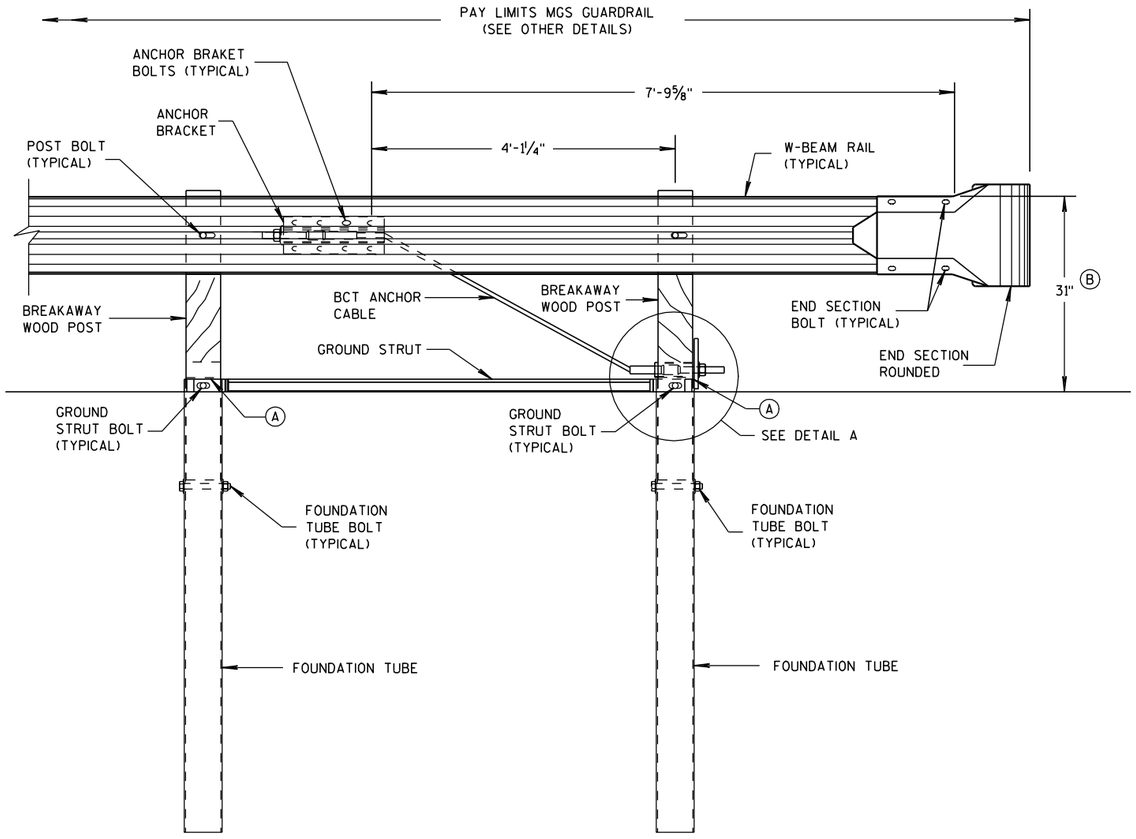
S.D.D. 14 B 44-1c

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S.D.D. 14 B 44-1c

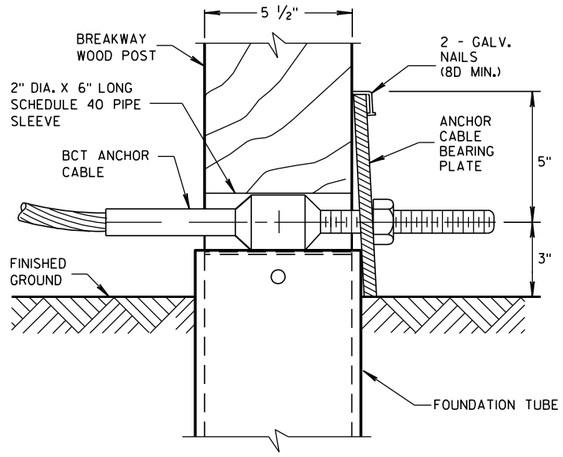


PLAN VIEW



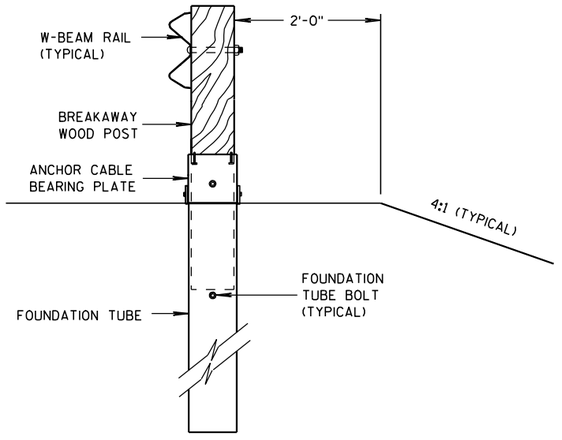
FRONT VIEW

END RAIL DETAIL



DETAIL A

POST NO. 1
GROUNG STRUT NOT SHOWN FOR CLARITY.



SECTION A-A

GENERAL NOTES

SEE SDD 14 B 42 FOR MORE INFORMATION.

POST BOLTS ARE A ⅝" DIAMETER X 10" LONG GUARDRAIL BOLT. A POST BOLT REQUIRES A ⅝" DIAMETER DH MODIFIED (RECESSED) HEAVY HEX NUT AND ⅝" DIAMETER FLAT WASHER.

FOUNDATION TUBE BOLTS ARE A ⅞" DIAMETER X 7½" LONG HEAVY HEX HEAD BOLT. A FOUNDATION TUBE BOLT REQUIRES A ⅞" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

GROUND STRUT BOLTS ARE A ⅝" DIAMETER X 10" LONG HEAVY HEX HEAD BOLT. A GROUND STRUT BOLT REQUIRES A ⅝" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

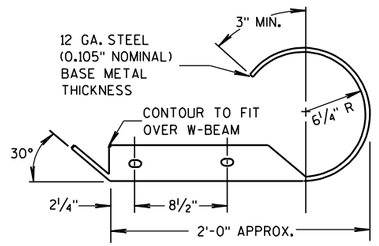
ANCHOR BRAKET BOLTS ARE A ⅝" DIAMETER X 1½" LONG HEAVY HEX HEAD BOLT. AN ANCHOR BRAKET BOLT REQUIRES A ⅝" DIAMETER DH HEAVY HEX NUT AND A FLAT WASHER.

END SECTION BOLTS ARE A ⅝" DIAMETER X 1½" HEAVY HEX HEAD BOLT. AN END SECTION BOLT REQUIRES ⅝" DIAMETER DH HEAVY HEX NUT AND A ⅝" DIAMETER FLAT WASHER.

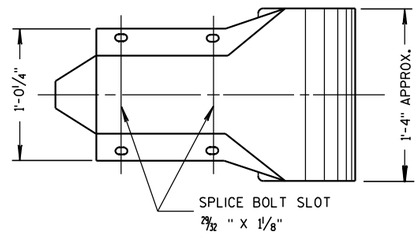
W-BEAM END SECTION ROUNDED HAS THE SAME MATERIAL PROPERTIES AS STANDARD STEEL RAIL.

(A) TOP OF FOUNDATION TUBE SHALL BE NO MORE THAN 3" ABOVE FINISHED GROUND.

(B) FOR NEW CONSTRUCTION TOP OF RAIL IS 31" ± 1".
FOR EXISTING INSTALLATIONS TOP OF RAIL IS BETWEEN 27¾" TO 32" ± 1".



PLAN VIEW



FRONT VIEW

W BEAM END SECTION ROUNDED

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

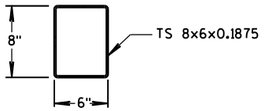
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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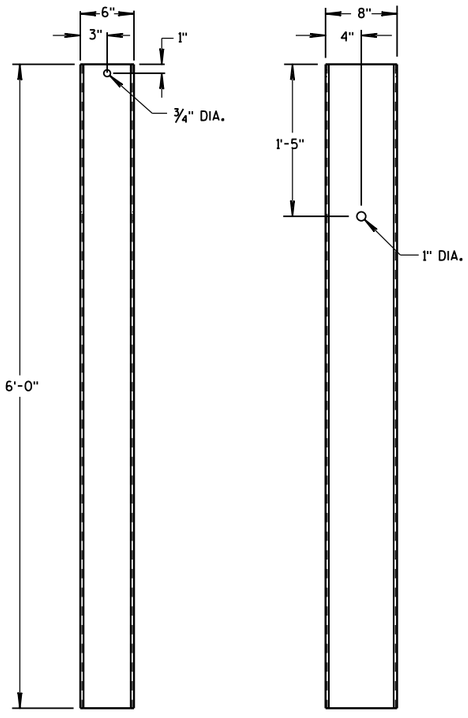
S.D.D. 14 B 47-1a

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S.D.D. 14 B 47-1a

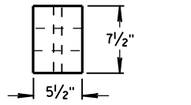


PLAN VIEW

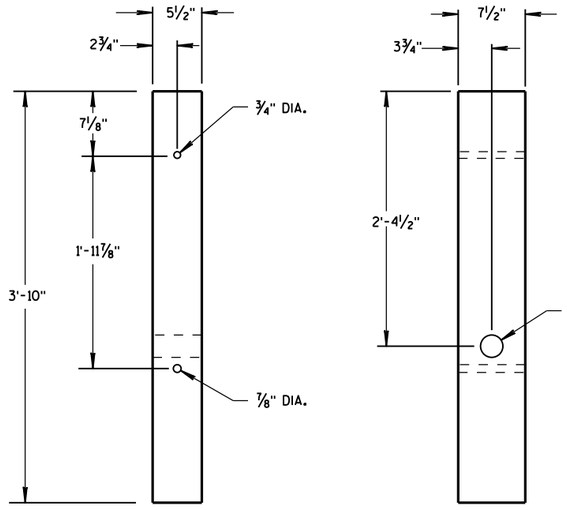


FRONT VIEW SIDE VIEW

FOUNDATION TUBE



PLAN VIEW



FRONT VIEW

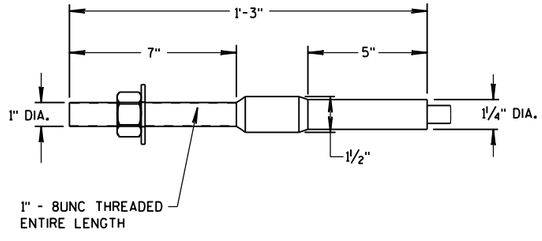
SIDE VIEW

BREAKAWAY WOOD POST

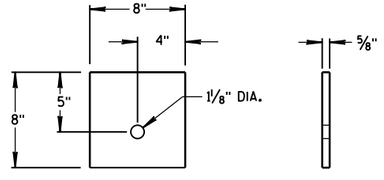
GENERAL NOTES

BCT ANCHOR CABLE IS A ⅜" DIAMETER 6X19 IWRC IPS GALVANIZED WIRE ROPE. THE SWAGED FITTINGS AND STUD ARE REQUIRED. THE END FITTING SHALL BE MACHINED FROM HOT-ROLLED CARBON STEEL CONFORMING TO ASTM A576 GRADE 1035 AND GALVANIZED ACCORDING TO ASTM A123. THE TREADED STUD SHOULD CONFORM TO ASTM A325 OR SAE GRADE 5. MINIMUM BREAKING STRENGTH OF WIRE ROPE IS 43,000 LB. WIRE ROPE IS TO BE TAUT.

BCT ANCHOR CABLE



DETAIL B



SIDE VIEW FRONT VIEW

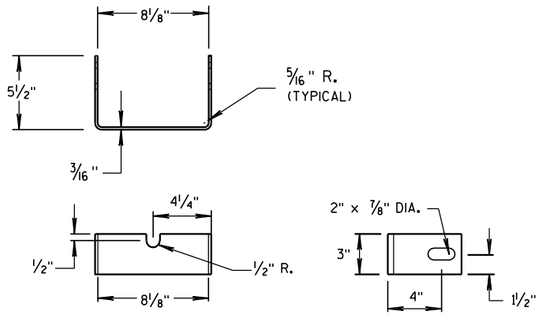
ANCHOR CABLE
BEARING PLATE

MIDWEST GUARDRAIL
SYSTEM (MGS) TYPE 2 TERMINAL

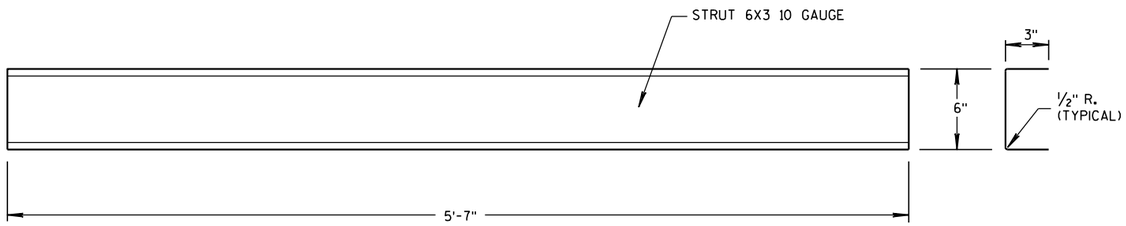
STATE OF WISCONSIN
DEPARTMENT OF TRANSPOI

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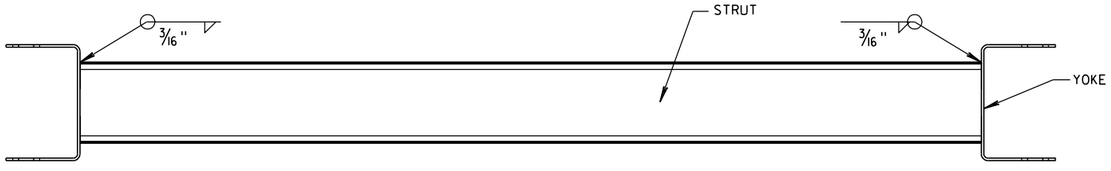
S.D.D. 14 B 47-1b



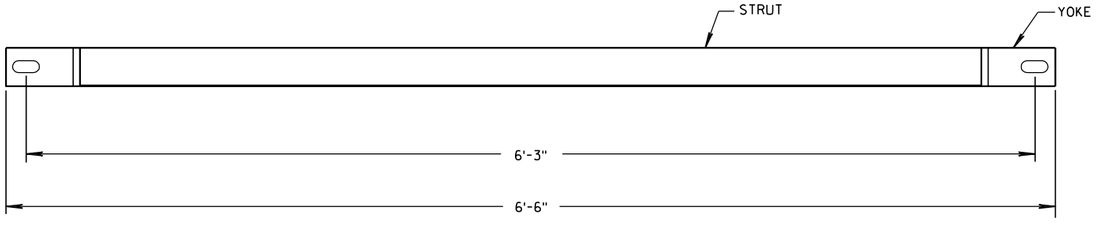
YOKE DETAIL



STRUT DETAIL

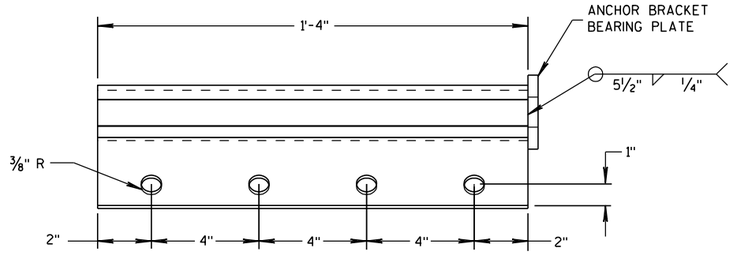


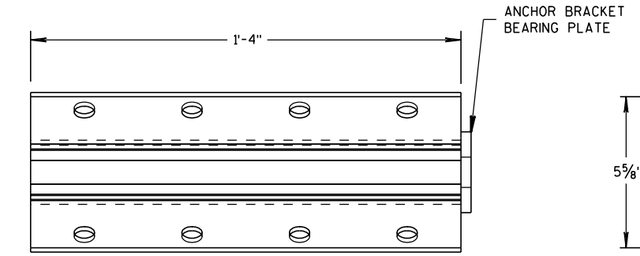
PLAN VIEW

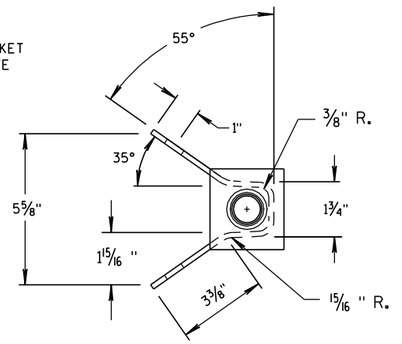


FRONT VIEW

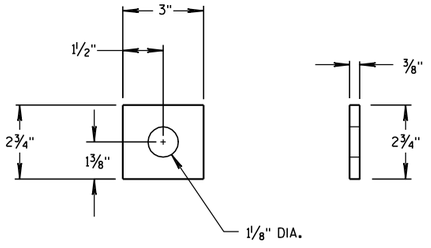
GROUND STRUT DETAIL







ANCHOR BRACKET



ANCHOR BRACKET BEARING PLATE

6

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S.D.D. 14 B 47-1c

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

5/23/2011
DATE

/S/ Jerry H. [illegible]
ROADWAY STANDARDS ENGINEER

FHWA

GENERAL NOTES

ORIENT ANCHOR BOLTS IN FOOTING AND PROVIDE ANCHOR BOLT STICK OUT ABOVE TOP OF CONCRETE FOOTING BASE PER FABRICATION DRAWING.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

SIGN SUPPORTS SHALL BE LOCATED NORMAL TO ROADWAY.

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

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

BAR CAGE TO BE ASSEMBLED USING TIE WIRES ONLY, NO WELDING.

BASES (SHAFT) 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 BACK FILLING AROUND THE BASE. ANY REQUIRED BACKFILL SHALL BE WELL COMPACTED IN LAYERS OF 1 FOOT OR LESS. COMPACTION SHALL BE BY MECHANICAL MEANS. CARE SHALL BE TAKEN SO NO DAMAGE OCCURS TO THE CONCRETE BASE DURING COMPACTION.

EXCAVATION OF MATERIALS NOT OCCUPIED BY CONCRETE SHALL BE MINIMIZED TO REDUCE DISTURBANCE OF THE SURROUNDING SOILS.

THE BOTTOM OF THE DRILLED HOLE SHALL BE FIRM AND THOROUGHLY CLEANED SO NO LOOSE OR COMPRESSIBLE MATERIALS ARE PRESENT AT THE TIME OF THE CONCRETE PLACEMENT.

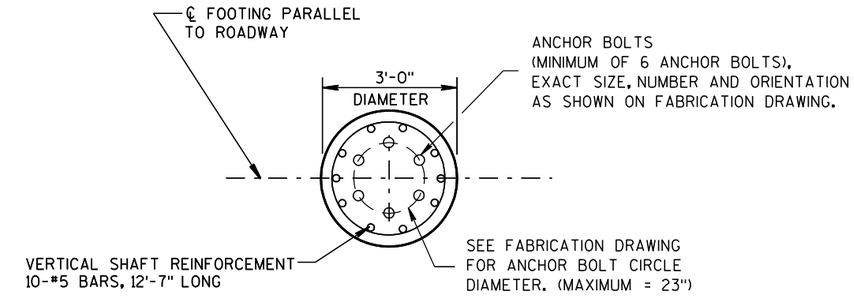
IF THE DRILLED HOLE CONTAINS STANDING WATER, THE CONCRETE SHALL BE PLACED USING A TREMIE TO DISPLACE THE WATER.

THE REINFORCEMENT AND ANCHOR BOLTS SHALL BE ADEQUATELY SUPPORTED IN THE PROPER POSITIONS SO NO MOVEMENT OCCURS DURING CONCRETE PLACEMENT.

ANY DAMAGE TO THE CONCRETE BASE DURING CONSTRUCTION OPERATIONS SHALL BE REPAIRED AT THE ENGINEER'S DIRECTION, AT THE EXPENSE OF THE CONTRACTOR.

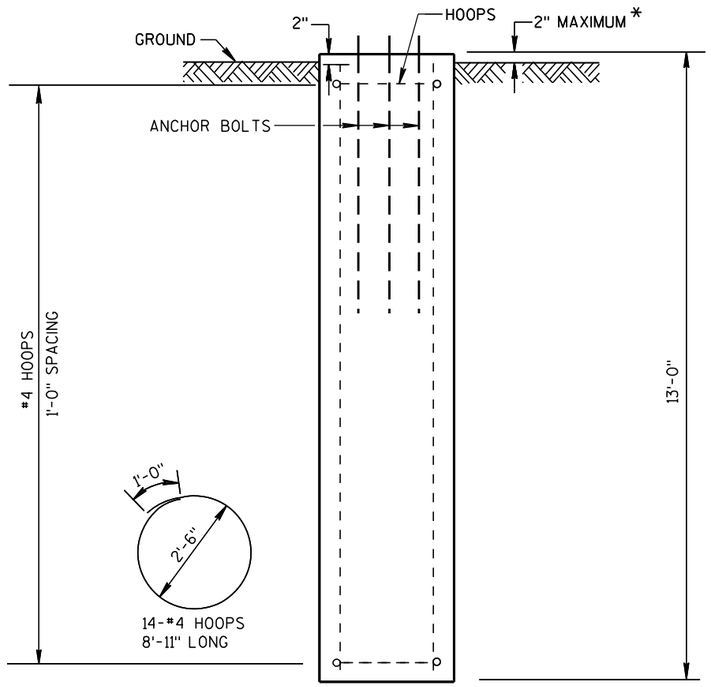
CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR BOLTS	AASHTO M314 GRADE 55

THIS FOOTING HAS BEEN DESIGNED FOR SITES WHERE SOILS EXHIBIT A PHI-ANGLE GREATER THAN OR EQUAL TO 20 DEGREES (GRANULAR SOILS), OR A COHESION VALUE GREATER THAN OR EQUAL TO 350 PSF (COHESIVE SOILS).



PLAN VIEW

* FOR OVERHEAD SIGN SUPPORTS THAT ARE INSTALLED ADJACENT TO SIDEWALKS, THE TOP OF THE BASE SHALL BE POURED FLUSH WITH THE GROUND.



ELEVATION VIEW

CONCRETE - 3.4 C.Y. PER FOOTING
H.S. REINFORCEMENT - 215 LBS. PER FOOTING

36" DIAMETER CANTILEVER OVERHEAD SIGN SUPPORT BASE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/17/2009 DATE
/S/ Thomas N. N[illegible] STATE TRAFFIC ENGINEER
361 IGN
FHWA

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S.D.D. 15 C 24-2

6

S.D.D. 15 C 24-2

LEGEND

- POST WITH ATTACHED SIGN
- POST WITH ATTACHED SIGN IN DRUM
- DRUM WITH WARNING LIGHT (TYPE C)
- DRUM
- ARROW BOARD
- 8' TYPE III BARRICADE
- REMOVING PAVEMENT MARKING
- DIRECTION OF TRAFFIC

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 TO PROVIDE A MINIMUM OF 200 FEET, (500 FEET DESIREABLE) DISTANCE TO EXISTING SIGNS.

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

ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.

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

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER. NO WARNING LIGHTS SHALL BE WORKING ON "COVERED" OR "DOWNED" SIGNS.

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

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

GENERAL NOTES CONTINUED:

REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 7 CONTINUOUS DAYS AND NIGHTS.

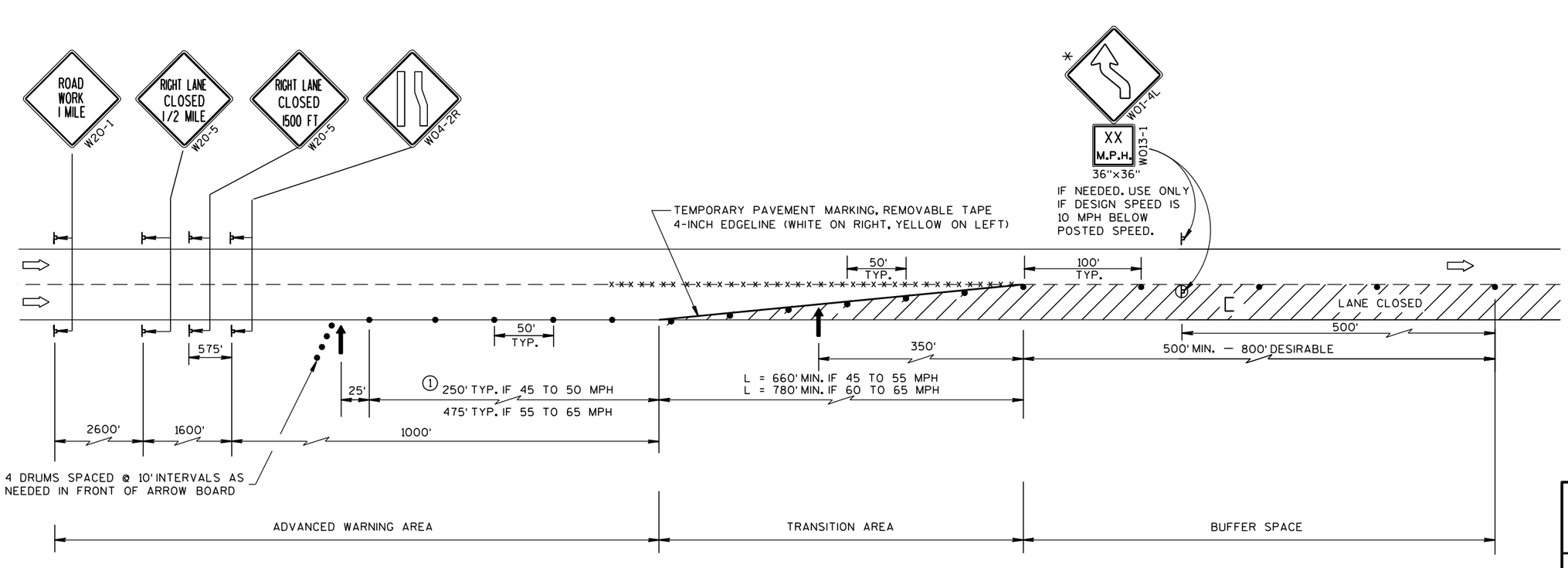
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

IF LANE CLOSURE IS MORE THAN 1 MILE, PLACE A TYPE III BARRICADE APPROXIMATELY EVERY 1/4 MILE ACROSS THE CLOSED LANE TO HELP ENFORCE THE DRUM LINE.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE CLOSURE MUST MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE 1/2 THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
8-7-95 DATE
/S/ Chester J. [illegible]
DIRECTOR, OFFICE O 362 C
FHWA

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S.D.D. 15 D 12-2

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S.D.D. 15 D 12-2

SYMBOLS

- TRAFFIC CONTROL DRUM
- POST MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW
- ARROW BOARD IN CAUTION MODE

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.

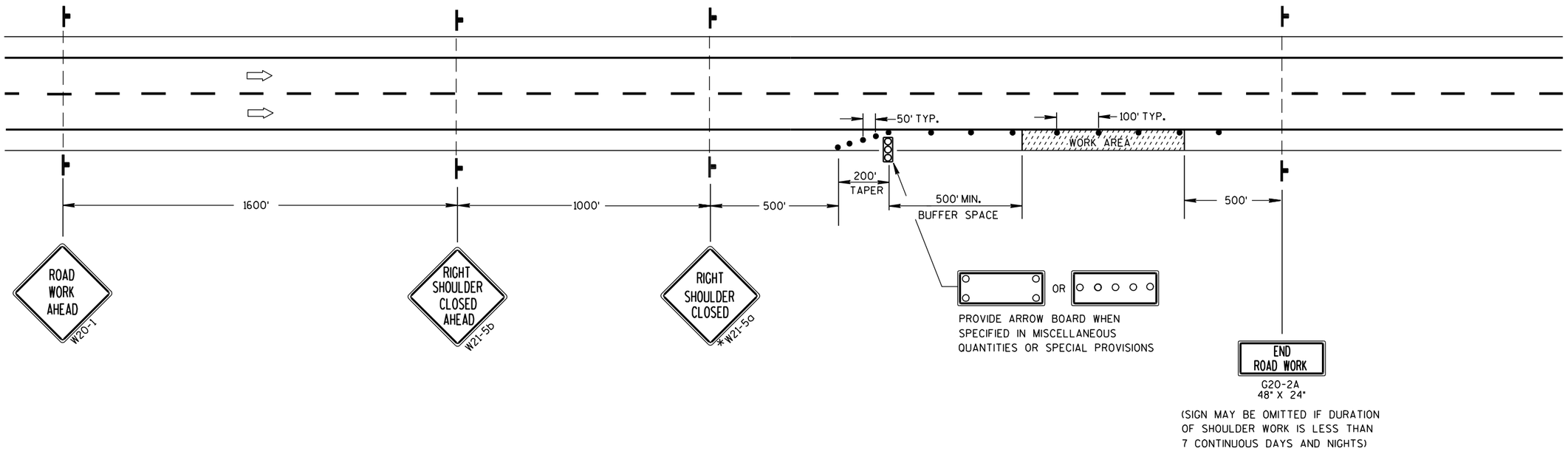
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

5/23/00
DATE

/S/ Chester J Spaan
CHIEF SIGNS AND MARKING ENGINEER

FHWA

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S.D.D. 15 D 27-1

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.

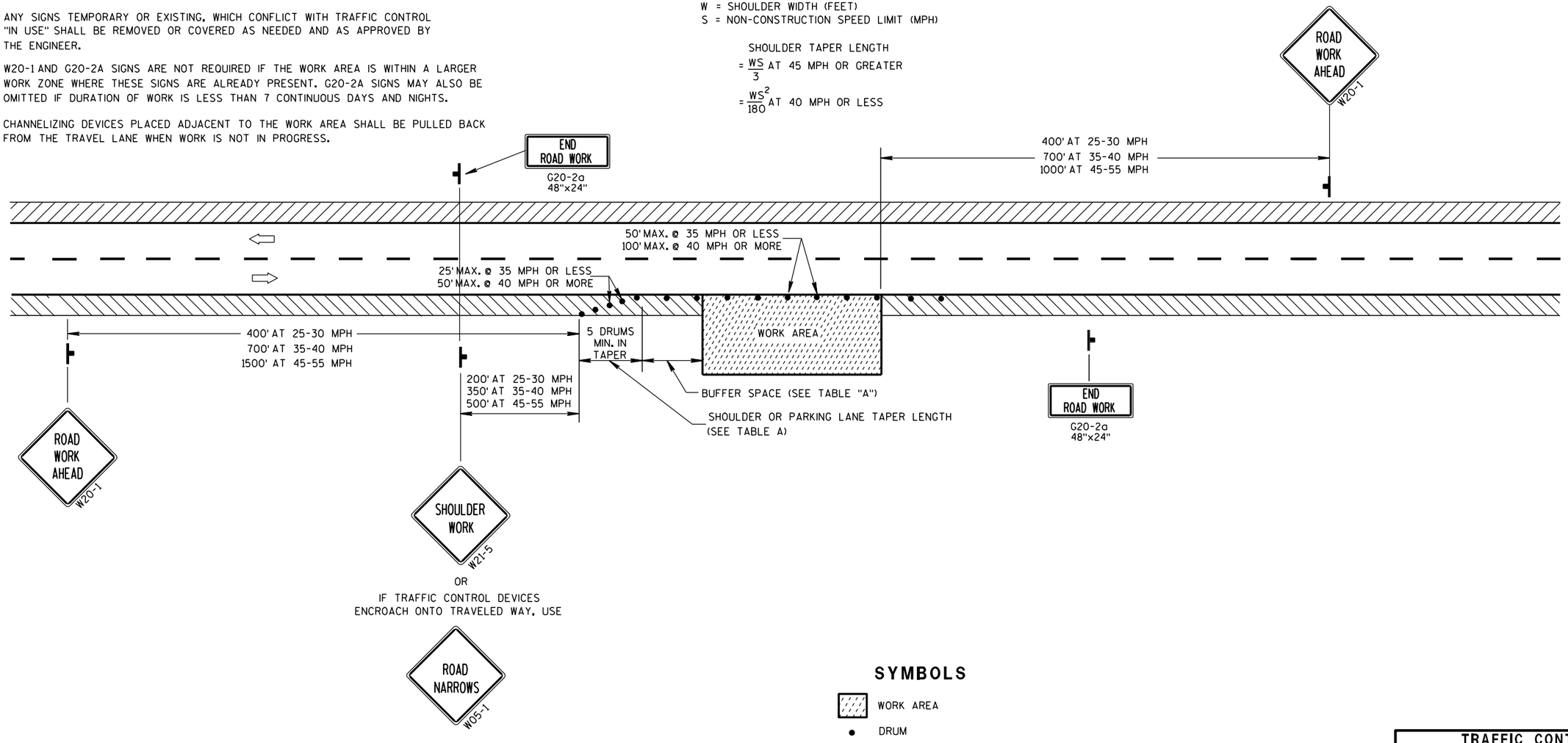
CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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
$= \frac{WS}{3}$ AT 45 MPH OR GREATER
$= \frac{WS^2}{180}$ AT 40 MPH OR LESS



SYMBOLS

- WORK AREA
- DRUM
- POST MOUNTED SIGN
- DIRECTION OF TRAFFIC FLOW

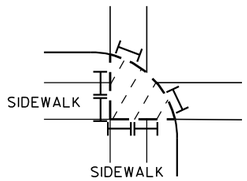
TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY

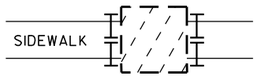
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

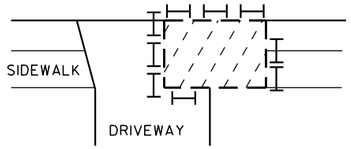
APPROVED
5/23/00 DATE
/S/ Chester J. [illegible]
CHIEF SIGNS AND MARK[illegible] ENGINEER
FHWA

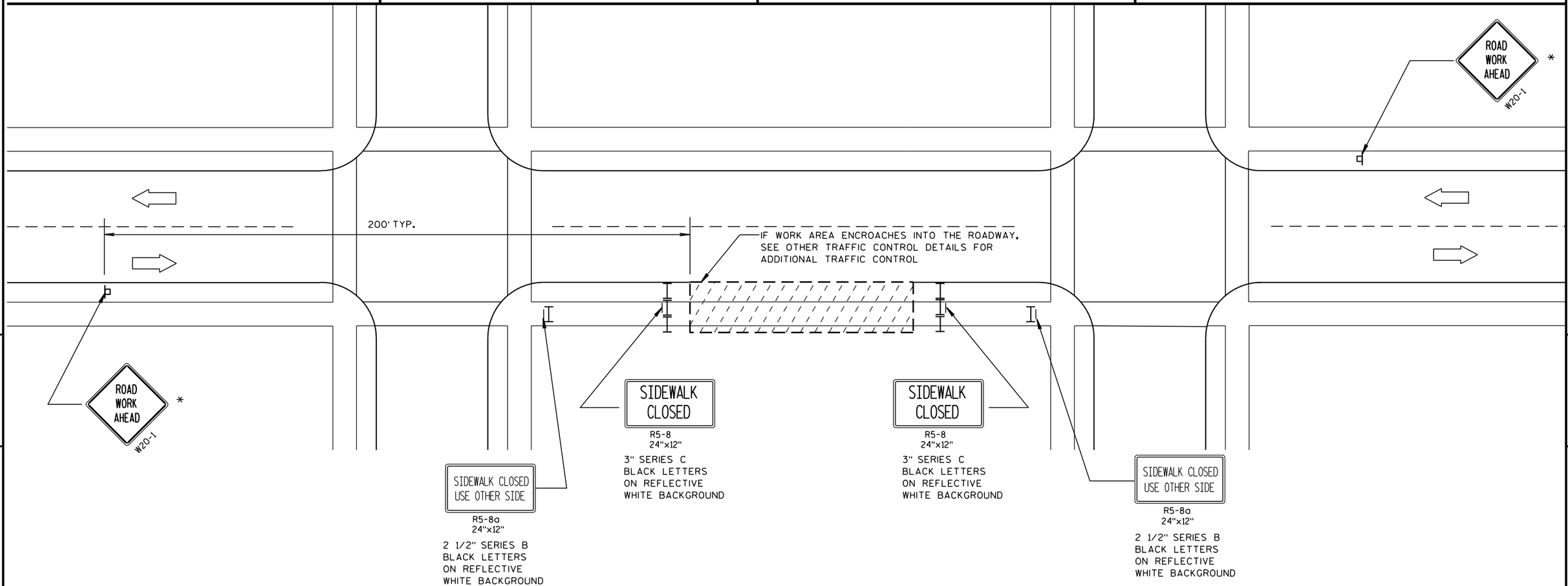
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WARNING OF LOCALIZED SIDEWALK WORK AREAS









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]NEER
FHWA

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