

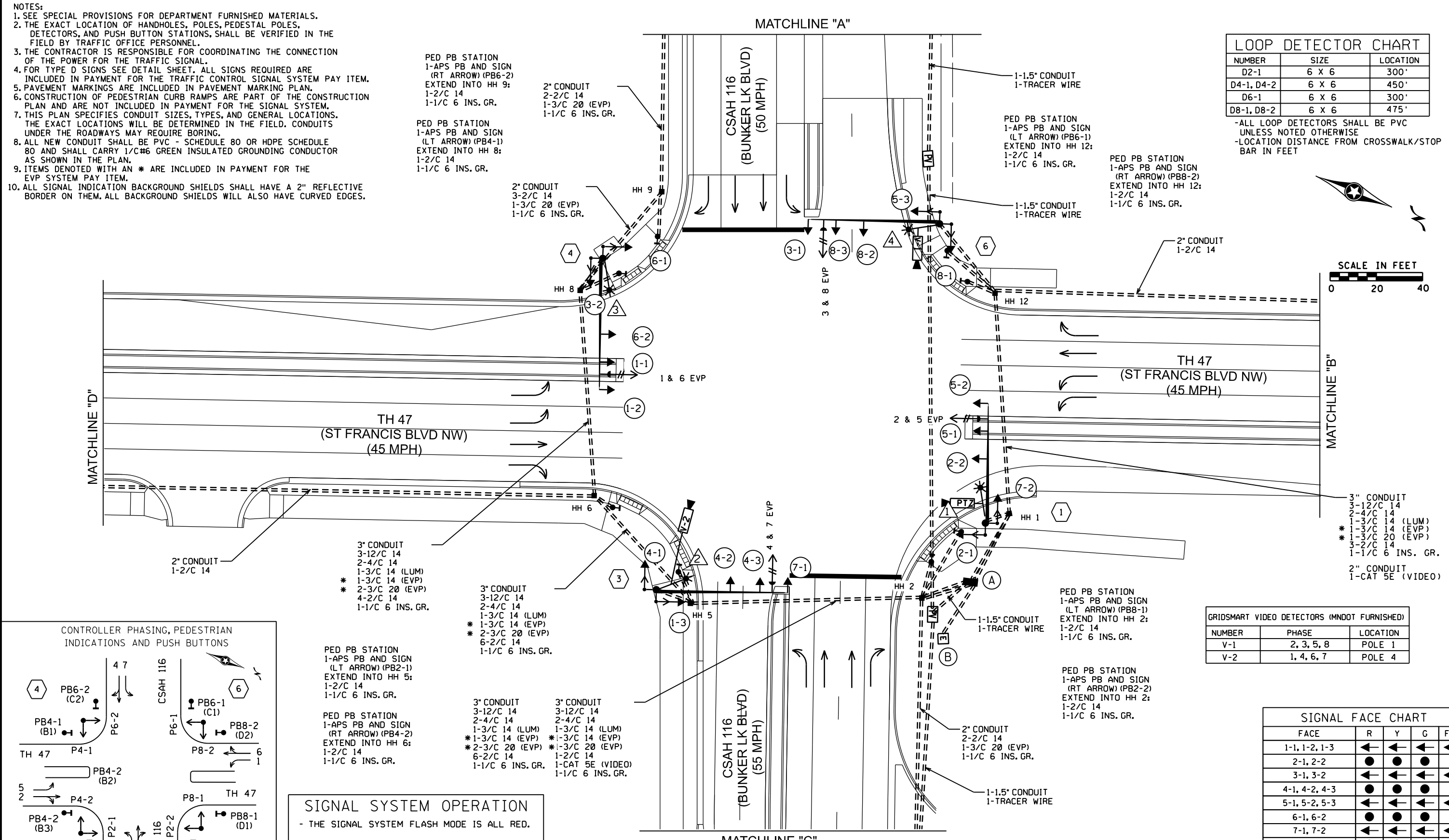
- NOTES:
- SEE SPECIAL PROVISIONS FOR DEPARTMENT FURNISHED MATERIALS.
  - THE EXACT LOCATION OF HANDHOLES, POLES, PEDESTAL POLES, DETECTORS, AND PUSH BUTTON STATIONS, SHALL BE VERIFIED IN THE FIELD BY TRAFFIC OFFICE PERSONNEL.
  - THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL.
  - FOR TYPE D SIGNS SEE DETAIL SHEET. ALL SIGNS REQUIRED ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.
  - PAVEMENT MARKINGS ARE INCLUDED IN PAVEMENT MARKING PLAN.
  - CONSTRUCTION OF PEDESTRIAN CURB RAMP IS PART OF THE CONSTRUCTION PLAN AND ARE NOT INCLUDED IN PAYMENT FOR THE SIGNAL SYSTEM.
  - THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS MAY REQUIRE BORING.
  - ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
  - ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
  - ALL SIGNAL INDICATION BACKGROUND SHIELDS SHALL HAVE A 2" REFLECTIVE BORDER ON THEM. ALL BACKGROUND SHIELDS WILL ALSO HAVE CURVED EDGES.

PED PB STATION  
1-APS PB AND SIGN  
(RT ARROW) (PB6-2)  
EXTEND INTO HH 9:  
1-2/C 14  
1-1/C 6 INS. GR.

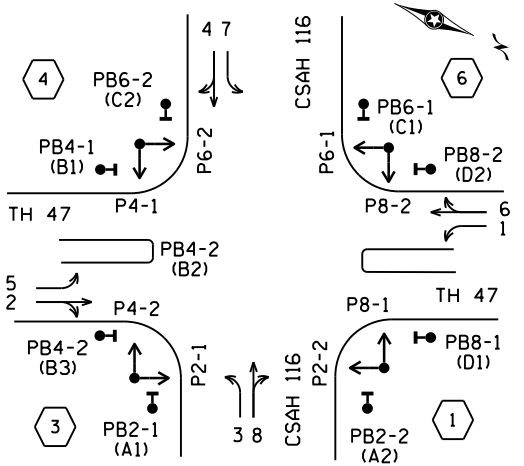
PED PB STATION  
1-APS PB AND SIGN  
(LT ARROW) (PB4-1)  
EXTEND INTO HH 8:  
1-2/C 14  
1-1/C 6 INS. GR.

LOOP DETECTOR CHART		
NUMBER	SIZE	LOCATION
D2-1	6 X 6	300'
D4-1, D4-2	6 X 6	450'
D6-1	6 X 6	300'
D8-1, D8-2	6 X 6	475'

-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE  
-LOCATION DISTANCE FROM CROSSWALK/STOP BAR IN FEET



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PED PB STATION  
1-APS PB AND SIGN  
(LT ARROW) (PB2-1)  
EXTEND INTO HH 5:  
1-2/C 14  
1-1/C 6 INS. GR.

PED PB STATION  
1-APS PB AND SIGN  
(RT ARROW) (PB4-2)  
EXTEND INTO HH 6:  
1-2/C 14  
1-1/C 6 INS. GR.

PED PB STATION  
1-APS PB AND SIGN  
(LT ARROW) (PB8-1)  
EXTEND INTO HH 2:  
1-2/C 14  
1-1/C 6 INS. GR.

**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1,3,5 AND 7 BEING BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

GRIDSMART VIDEO DETECTORS (MNDOT FURNISHED)		
NUMBER	PHASE	LOCATION
V-1	2, 3, 5, 8	POLE 1
V-2	1, 4, 6, 7	POLE 4

SIGNAL FACE CHART				
FACE	R	Y	G	FYA
1-1, 1-2, 1-3	←	←	←	←
2-1, 2-2	●	●	●	
3-1, 3-2	←	←	←	←
4-1, 4-2, 4-3	●	●	●	
5-1, 5-2, 5-3	←	←	←	←
6-1, 6-2	●	●	●	
7-1, 7-2	←	←	←	←
8-1, 8-2, 8-3	●	●	●	

-ALL SIGNAL INDICATIONS SHALL BE 12" LED  
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONATE WITH BACKGROUND SHIELDS

TAMS SIGNAL ID #: 4034116

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NO.	DATE	BY	CHK	REVISIONS

Design By: MS  
Plan By: ES  
Checked By: SD  
Approved By: SD

DATE: 8/25/2020 LICENSE NO. 40945

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

CERTIFIED BY: *Sean Delmore*  
LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE

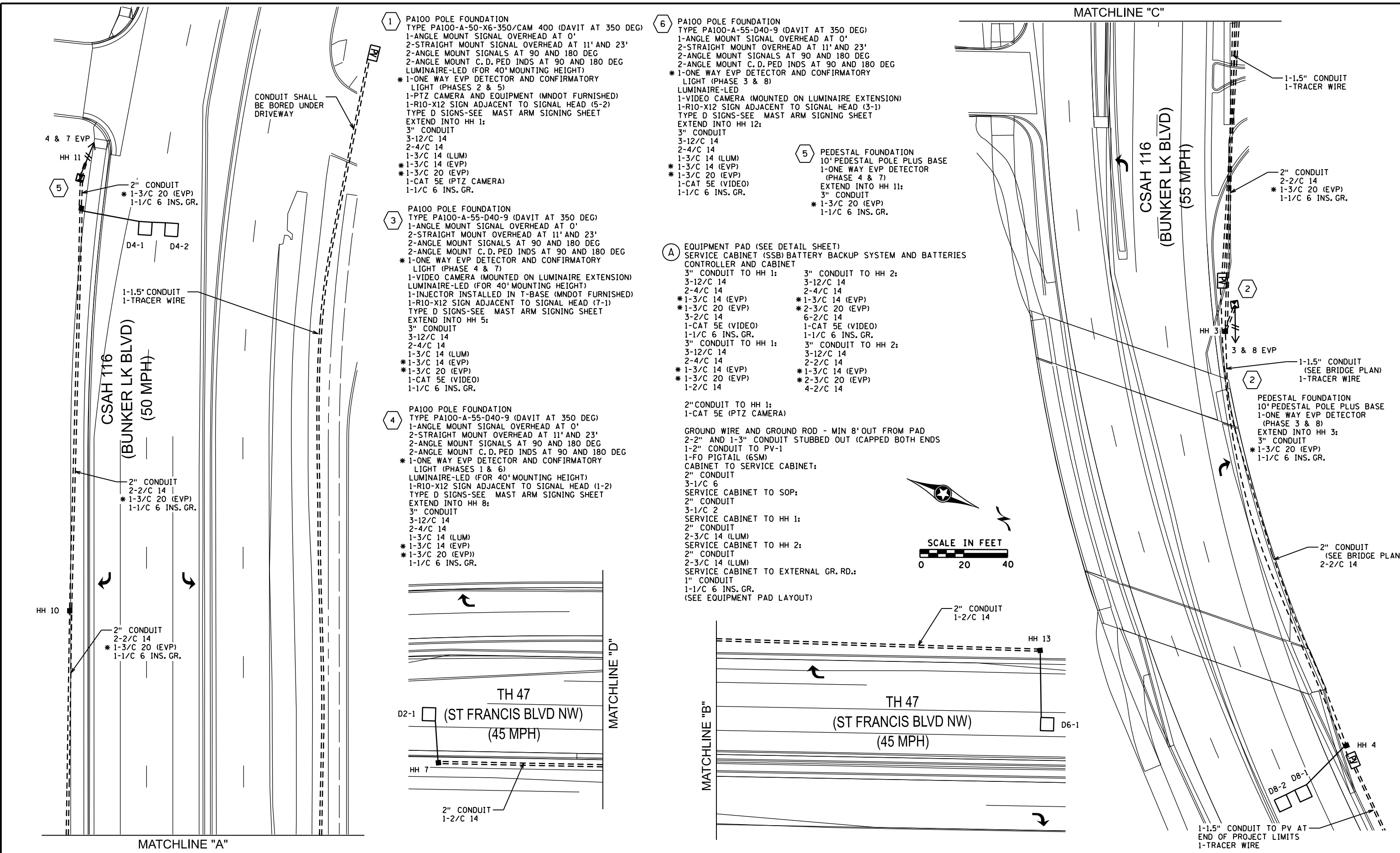


**ANOKA COUNTY**  
ANOKA COUNTY HIGHWAY DEPARTMENT

ANOKA COUNTY, MN  
TH 47 & CSAH 116 INTERSECTION LAYOUT  
TRAFFIC CONTROL SIGNAL SYSTEM  
S.P. 0206-78 (TH 47), S.A.P. 002-716-020

SHEET  
201  
OF  
206  
SHEETS

DATE: 12/28/2021 9:43:22 AM  
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1 PA100 POLE FOUNDATION  
 TYPE PA100-A-50-X6-350/CAM 400 (DAVIT AT 350 DEG)  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'  
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDS AT 90 AND 180 DEG  
 LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)  
 \* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2 & 5)  
 1-PTZ CAMERA AND EQUIPMENT (MNDOT FURNISHED)  
 1-R10-X12 SIGN ADJACENT TO SIGNAL HEAD (5-2)  
 TYPE D SIGNS-SEE MAST ARM SIGNING SHEET  
 EXTEND INTO HH 1:  
 3" CONDUIT  
 3-12/C 14  
 2-4/C 14  
 1-3/C 14 (LUM)  
 \* 1-3/C 14 (EVP)  
 \* 1-3/C 20 (EVP)  
 1-CAT 5E (PTZ CAMERA)  
 1-1/C 6 INS. GR.

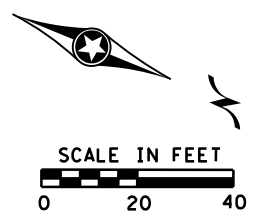
3 PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'  
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDS AT 90 AND 180 DEG  
 \* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4 & 7)  
 1-VIDEO CAMERA (MOUNTED ON LUMINAIRE EXTENSION)  
 LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)  
 1-INJECTOR INSTALLED IN T-BASE (MNDOT FURNISHED)  
 1-R10-X12 SIGN ADJACENT TO SIGNAL HEAD (7-1)  
 TYPE D SIGNS-SEE MAST ARM SIGNING SHEET  
 EXTEND INTO HH 5:  
 3" CONDUIT  
 3-12/C 14  
 2-4/C 14  
 1-3/C 14 (LUM)  
 \* 1-3/C 14 (EVP)  
 \* 1-3/C 20 (EVP)  
 1-CAT 5E (VIDEO)  
 1-1/C 6 INS. GR.

4 PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'  
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDS AT 90 AND 180 DEG  
 \* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1 & 6)  
 LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)  
 1-R10-X12 SIGN ADJACENT TO SIGNAL HEAD (1-2)  
 TYPE D SIGNS-SEE MAST ARM SIGNING SHEET  
 EXTEND INTO HH 8:  
 3" CONDUIT  
 3-12/C 14  
 2-4/C 14  
 1-3/C 14 (LUM)  
 \* 1-3/C 14 (EVP)  
 \* 1-3/C 20 (EVP)  
 1-1/C 6 INS. GR.

6 PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D40-9 (DAVIT AT 350 DEG)  
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'  
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDS AT 90 AND 180 DEG  
 \* 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 3 & 8)  
 LUMINAIRE-LED  
 1-VIDEO CAMERA (MOUNTED ON LUMINAIRE EXTENSION)  
 1-R10-X12 SIGN ADJACENT TO SIGNAL HEAD (3-1)  
 TYPE D SIGNS-SEE MAST ARM SIGNING SHEET  
 EXTEND INTO HH 12:  
 3" CONDUIT  
 3-12/C 14  
 2-4/C 14  
 1-3/C 14 (LUM)  
 \* 1-3/C 14 (EVP)  
 \* 1-3/C 20 (EVP)  
 1-CAT 5E (VIDEO)  
 1-1/C 6 INS. GR.

A EQUIPMENT PAD (SEE DETAIL SHEET)  
 SERVICE CABINET (SSB) BATTERY BACKUP SYSTEM AND BATTERIES  
 CONTROLLER AND CABINET  
 3" CONDUIT TO HH 1:  
 3-12/C 14  
 2-4/C 14  
 \* 1-3/C 14 (EVP)  
 \* 1-3/C 20 (EVP)  
 3-2/C 14  
 1-CAT 5E (VIDEO)  
 1-1/C 6 INS. GR.  
 3" CONDUIT TO HH 1:  
 3-12/C 14  
 2-4/C 14  
 \* 1-3/C 14 (EVP)  
 \* 1-3/C 20 (EVP)  
 1-2/C 14  
 3" CONDUIT TO HH 2:  
 3-12/C 14  
 2-4/C 14  
 \* 1-3/C 14 (EVP)  
 \* 2-3/C 20 (EVP)  
 4-2/C 14  
 3" CONDUIT TO HH 2:  
 3-12/C 14  
 2-2/C 14  
 \* 1-3/C 14 (EVP)  
 \* 2-3/C 20 (EVP)

2" CONDUIT TO HH 1:  
 1-CAT 5E (PTZ CAMERA)  
 GROUND WIRE AND GROUND ROD - MIN 8' OUT FROM PAD  
 2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)  
 1-2" CONDUIT TO PV-1  
 1-FO PIGTAIL (6SM)  
 CABINET TO SERVICE CABINET:  
 2" CONDUIT  
 3-1/C 6  
 SERVICE CABINET TO SOP:  
 2" CONDUIT  
 3-1/C 2  
 SERVICE CABINET TO HH 1:  
 2" CONDUIT  
 2-3/C 14 (LUM)  
 SERVICE CABINET TO HH 2:  
 2" CONDUIT  
 2-3/C 14 (LUM)  
 SERVICE CABINET TO EXTERNAL GR. RD.:  
 1" CONDUIT  
 1-1/C 6 INS. GR.  
 (SEE EQUIPMENT PAD LAYOUT)

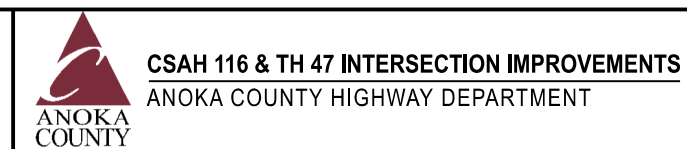


NO.	DATE	BY	CHK	REVISIONS

Design By: MS  
 Plan By: ES  
 Checked By: SD  
 Approved By: SD

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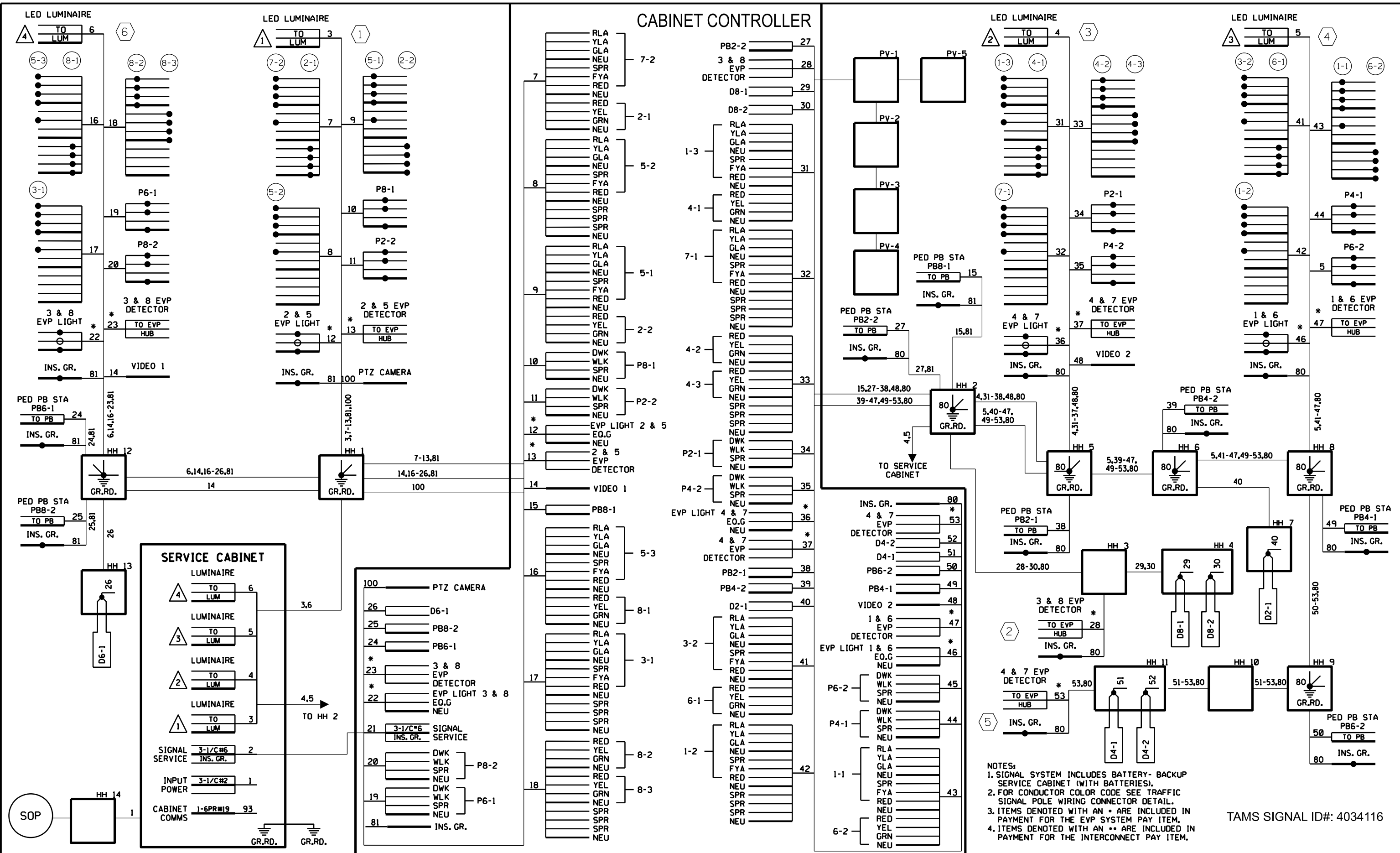
CERTIFIED BY: *Sean Delmore*  
 LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE  
 DATE: 8/25/2020 LICENSE NO. 40945



ANOKA COUNTY, MN  
 TH 77 & CSAH 116 - MATCHLINES  
 TRAFFIC CONTROL SIGNAL SYSTEM  
 S.P. 0206-78 (TH 77), S.A.P. 002-716-020

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 OF  
 206  
 SHEETS

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- NOTES:**
1. SIGNAL SYSTEM INCLUDES BATTERY- BACKUP SERVICE CABINET (WITH BATTERIES).
  2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
  3. ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
  4. ITEMS DENOTED WITH AN \*\* ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT PAY ITEM.

TAMS SIGNAL ID#: 4034116

NO.	DATE	BY	CHK	REVISIONS

Design By: MS  
 Plan By: ES  
 Checked By: SD  
 Approved By: SD

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CERTIFIED BY: *Sean Delmore*  
 LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE  
 DATE: 8/25/2020 LICENSE NO. 40945

**CSAH 116 & TH 47 INTERSECTION IMPROVEMENTS**  
 ANOKA COUNTY HIGHWAY DEPARTMENT

ANOKA COUNTY, MN

TH 47 & CSAH 116 WIRING DIAGRAM  
 TRAFFIC CONTROL SIGNAL SYSTEM  
 S.P. 0206-78 (TH 47), S.A.P. 002-716-020

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