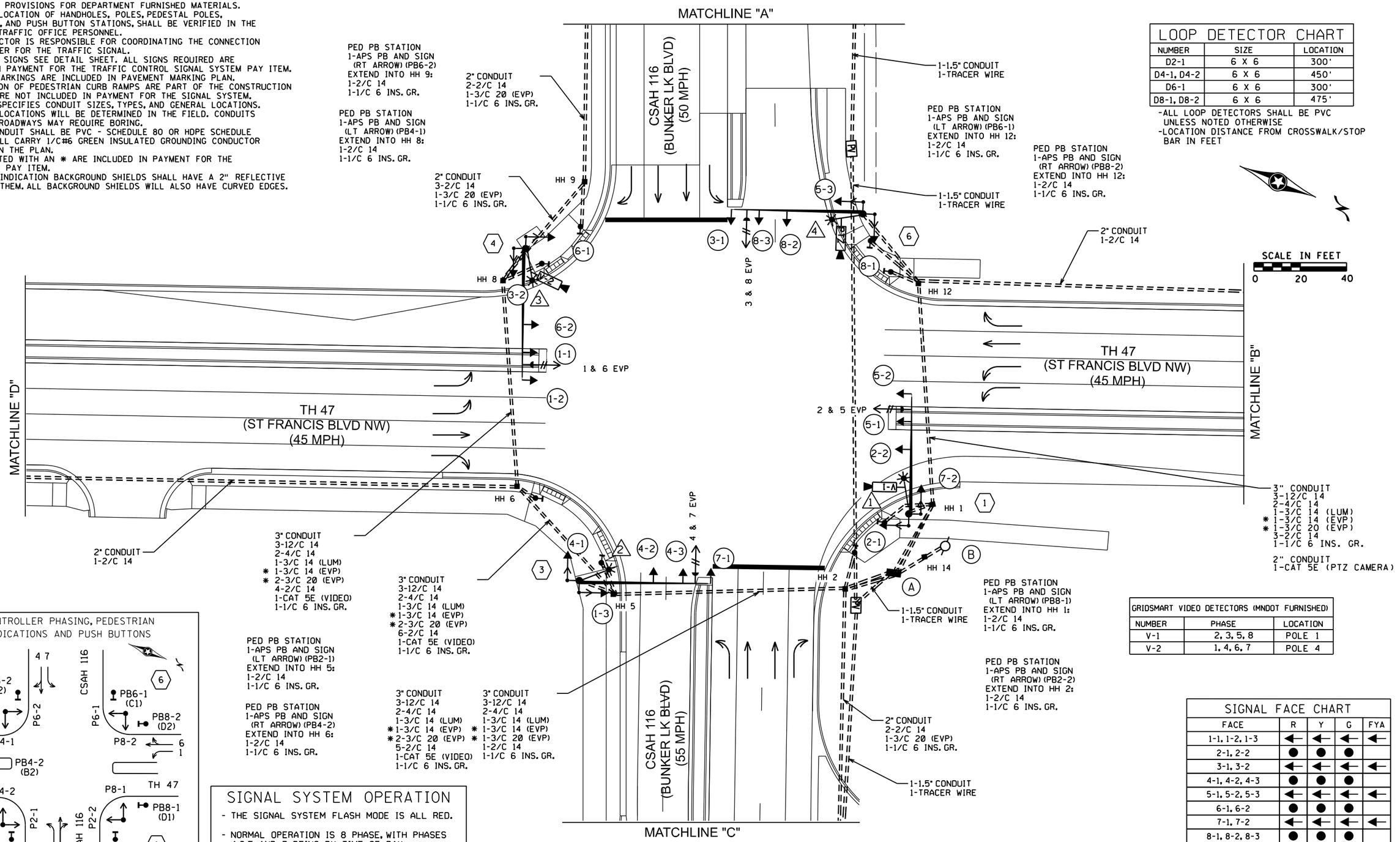
NOTES:
1. SEE SPECIAL PROVISIONS FOR DEPARTMENT FURNISHED MATERIALS.
2. THE EXACT LOCATION OF HANDHOLES, POLES, PEDESTAL POLES, DETECTORS, AND PUSH BUTTON STATIONS, SHALL BE VERIFIED IN THE FIELD BY TRAFFIC OFFICE PERSONNEL.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL.
4. FOR TYPE D SIGNS SEE DETAIL SHEET. ALL SIGNS REQUIRED ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL SIGNAL SYSTEM PAY ITEM.
5. PAVEMENT MARKINGS ARE INCLUDED IN PAVEMENT MARKING PLAN.
6. CONSTRUCTION OF PEDESTRIAN CURB RAMPS ARE PART OF THE CONSTRUCTION PLAN AND ARE NOT INCLUDED IN PAYMENT FOR THE SIGNAL SYSTEM.
7. 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.
8. 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.
9. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
10. ALL SIGNAL INDICATION BACKGROUND SHIELDS SHALL HAVE A 2" REFLECTIVE BORDER ON THEM. ALL BACKGROUND SHIELDS WILL ALSO HAVE CURVED EDGES.



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

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

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

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.

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 #: 1736055

NO.	DATE	BY	CHK	REVISIONS

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

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE
DATE: 8/25/2020 LICENSE NO. 40945

wsb

ANOKA COUNTY

CSAH 116 & TH 47 INTERSECTION IMPROVEMENTS
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

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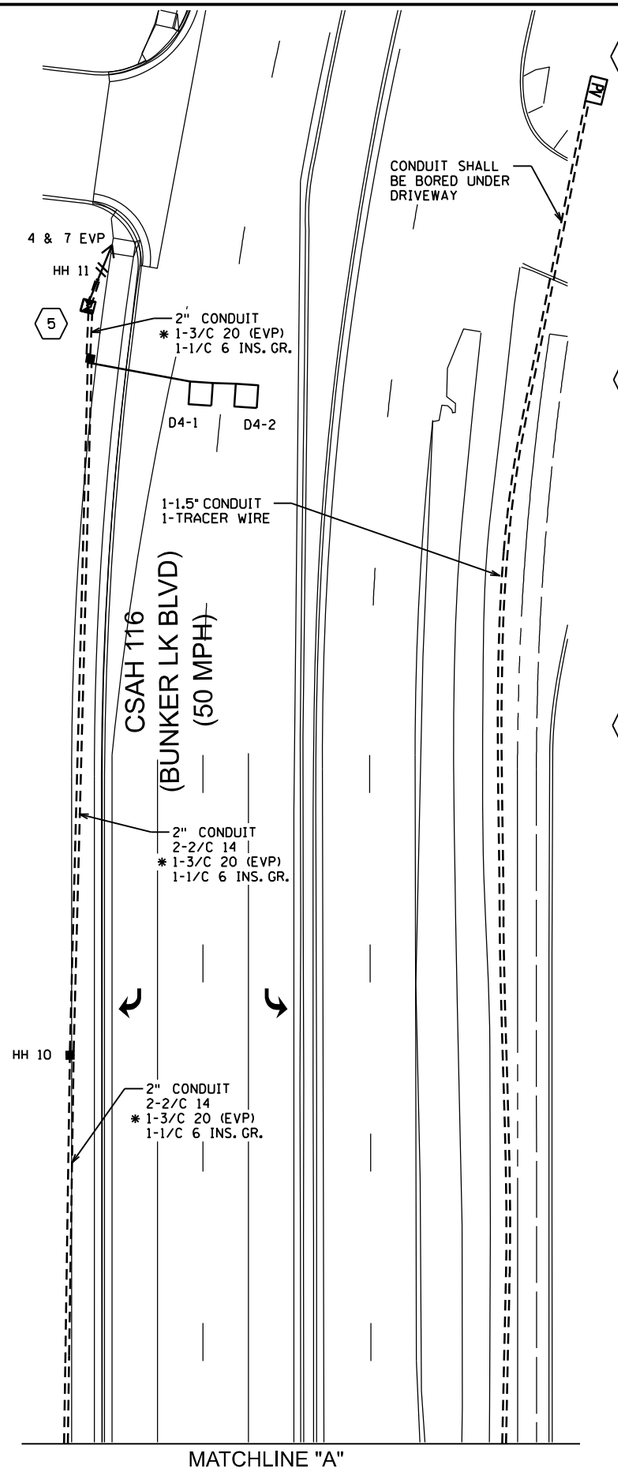
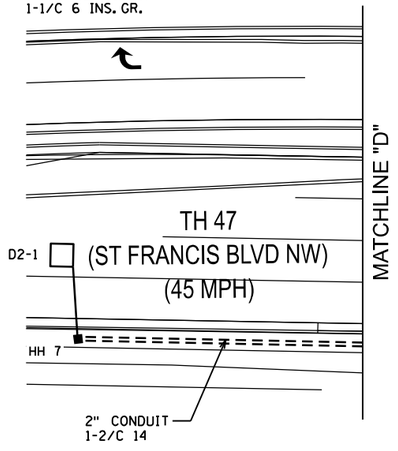


1 PA100 POLE FOUNDATION
TYPE PA100-A-50-D40-9 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
2-ANGLE MOUNT C.D. PED INDS AT 90 AND 180 DEG
LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 2 & 5)
1-VIDEO CAMERA (MOUNTED ON LUMINAIRE EXTENSION)
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 (VIDEO)
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 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)
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)
1-1/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 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-VIDEO CAMERA (MOUNTED ON LUMINAIRE EXTENSION)
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-CAT 5E (VIDEO)
1-1/C 6 INS. GR.



6 PA100 POLE FOUNDATION
TYPE PA100-A-55-X6-350/CAM 400 (DAVIT AT 350 DEG)
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
2-STRAIGHT MOUNT 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-PTZ CAMERA AND EQUIPMENT (MNDOT FURNISHED)
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 (PTZ CAMERA)
1-1/C 6 INS. GR.

5 PEDESTAL FOUNDATION
10' PEDESTAL POLE PLUS BASE
1-ONE WAY EVP DETECTOR (PHASE 4 & 7)
EXTEND INTO HH 11:
3" CONDUIT
* 1-3/C 20 (EVP)
1-1/C 6 INS. GR.

A EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET (SSB) BATTERY BACKUP SYSTEM AND BATTERIES CONTROLLER AND CABINET

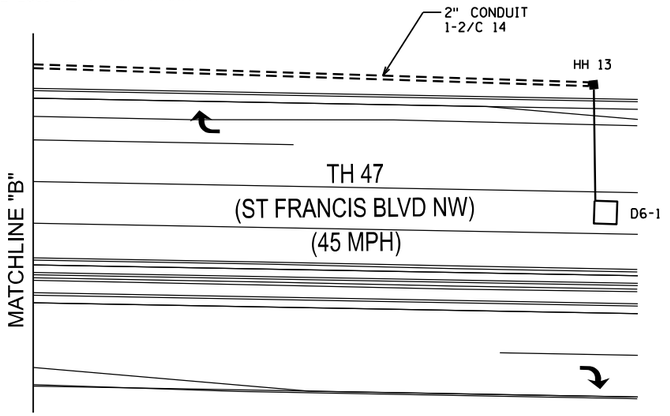
3" CONDUIT TO HH 1:
3-12/C 14
2-4/C 14
* 1-3/C 14 (EVP)
* 1-3/C 20 (EVP)
3-2/C 14
1-CAT 5E (VIDEO)
1-1/C 6 INS. GR.
3" CONDUIT TO HH 1:
3-12/C 14
2-4/C 14
* 1-3/C 14 (EVP)
* 1-3/C 20 (EVP)
1-2/C 14

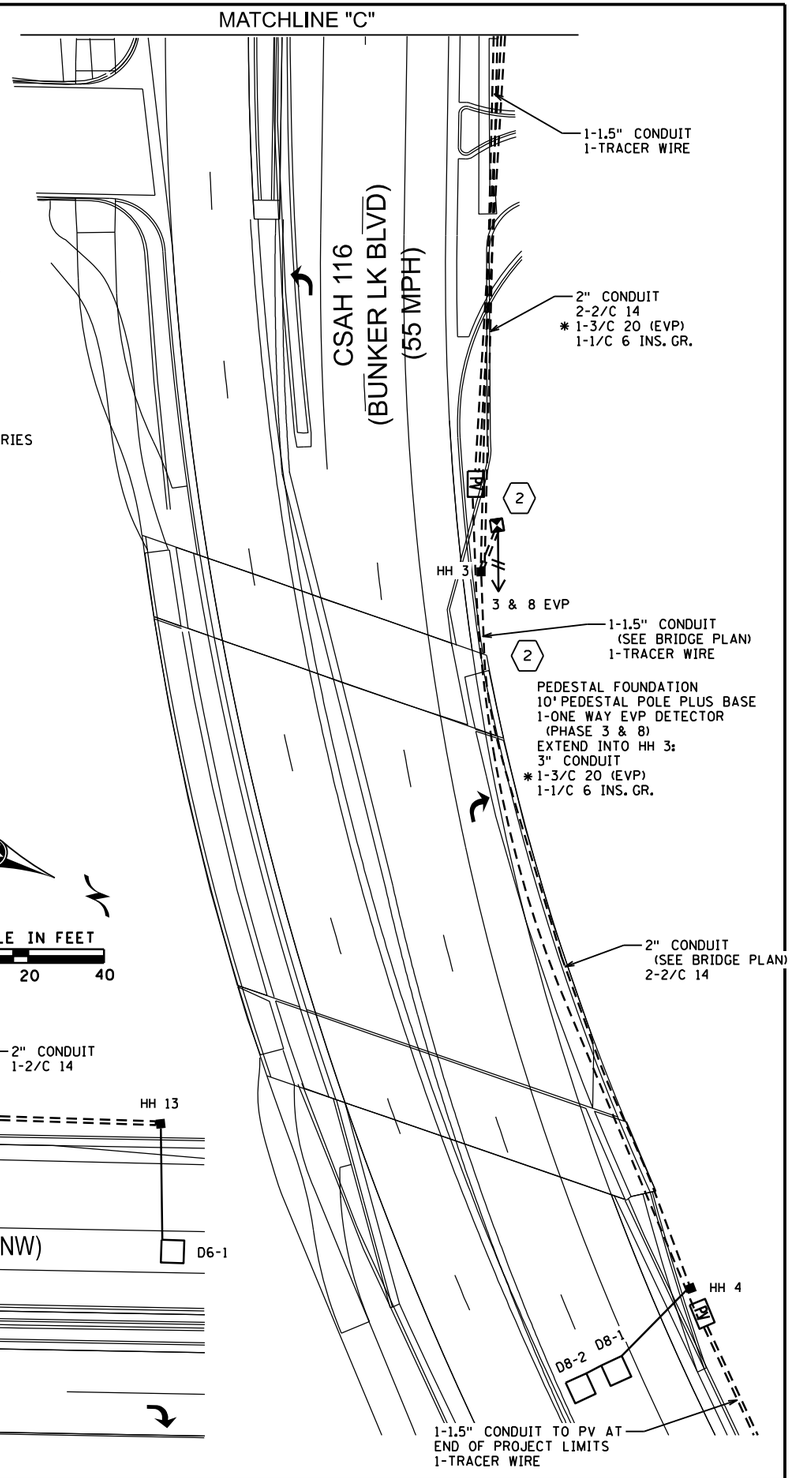
3" CONDUIT TO HH 2:
3-12/C 14
2-4/C 14
* 1-3/C 14 (EVP)
* 2-3/C 20 (EVP)
6-2/C 14
1-CAT 5E (VIDEO)
1-1/C 6 INS. GR.
3" CONDUIT TO HH 2:
3-12/C 14
2-2/C 14
* 1-3/C 14 (EVP)
* 2-3/C 20 (EVP)
4-2/C 14

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)

SCALE IN FEET
0 20 40





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NO.	DATE	BY	CHK	REVISIONS

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

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
CERTIFIED BY: Sean Delmore
LICENSED PROFESSIONAL ENGINEER - SEAN DELMORE, PE
DATE: 8/25/2020 LICENSE NO. 40945

wsb

ANOKA COUNTY

CSAH 116 & TH 47 INTERSECTION IMPROVEMENTS
ANOKA COUNTY HIGHWAY DEPARTMENT

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

SHEET 202 OF 206 SHEETS

CABINET CONTROLLER

LED LUMINAIRE
SERVICE CABINET
PTZ CAMERA
VIDEO CAMERA 1
CAMERA 2
3 & 8 EVP DETECTOR
2 & 5 EVP DETECTOR
4 & 7 EVP DETECTOR
1 & 6 EVP DETECTOR
PED PB STA PB8-1
PED PB STA PB8-2
PED PB STA PB6-1
PED PB STA PB2-1
PED PB STA PB2-2
PED PB STA PB4-1
PED PB STA PB4-2
PED PB STA PB6-2
INS. GR.
GR.RD.
HH 1
HH 2
HH 3
HH 4
HH 5
HH 6
HH 7
HH 8
HH 9
HH 10
HH 11
HH 12
HH 13
HH 14
SOP
TO SERVICE CABINET
TO HH 2
TO EVP HUB
TO PB
P6-1
P8-1
P8-2
P2-1
P2-2
P4-1
P4-2
D6-1
D8-1
D8-2
D2-1
D4-1
D4-2

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#: 1736055

DATE: 8/25/2020 2:20:3 PM
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NO.	DATE	BY	CHK	REVISIONS

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

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
CERTIFIED BY: LICENSED PROFESSIONAL ENGINEER • SEAN DELMORE, PE
DATE: 8/25/2020 LICENSE NO. 40945

wsb

ANOKA COUNTY

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

SHEET 203 OF 206 SHEETS