

PVC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	15' & 45'	1
D1-2	2-6x6	0' & 30'	7
D2-1	6x6	475'	1
D2-2	6x6	475'	1
D4-1	6x6	120'	3,8
D4-2	2-6x6	0' & 15'	7
D4-3	2-6x6	0' & 15'	1
D5-1	2-6x6	15' & 45'	1
D5-2	2-6x6	0' & 30'	1
D6-1	6x6	475'	1
D6-2	6x6	475'	1
D8-1	6x6	120'	3,8
D8-2	6x6	120'	3,8
D8-3	2-6x6	0' & 15'	7
D8-4	2-6x6	0' & 15'	1

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

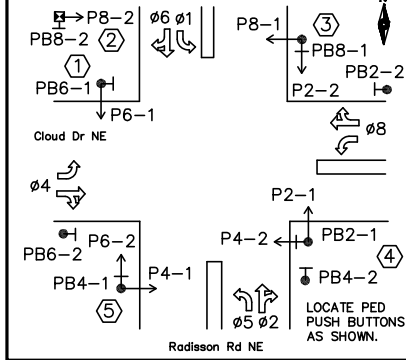
**LOOP DETECTORS FUNCTIONS:**

- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL
- IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)

**SIGNAL SYSTEM OPERATIONS:**

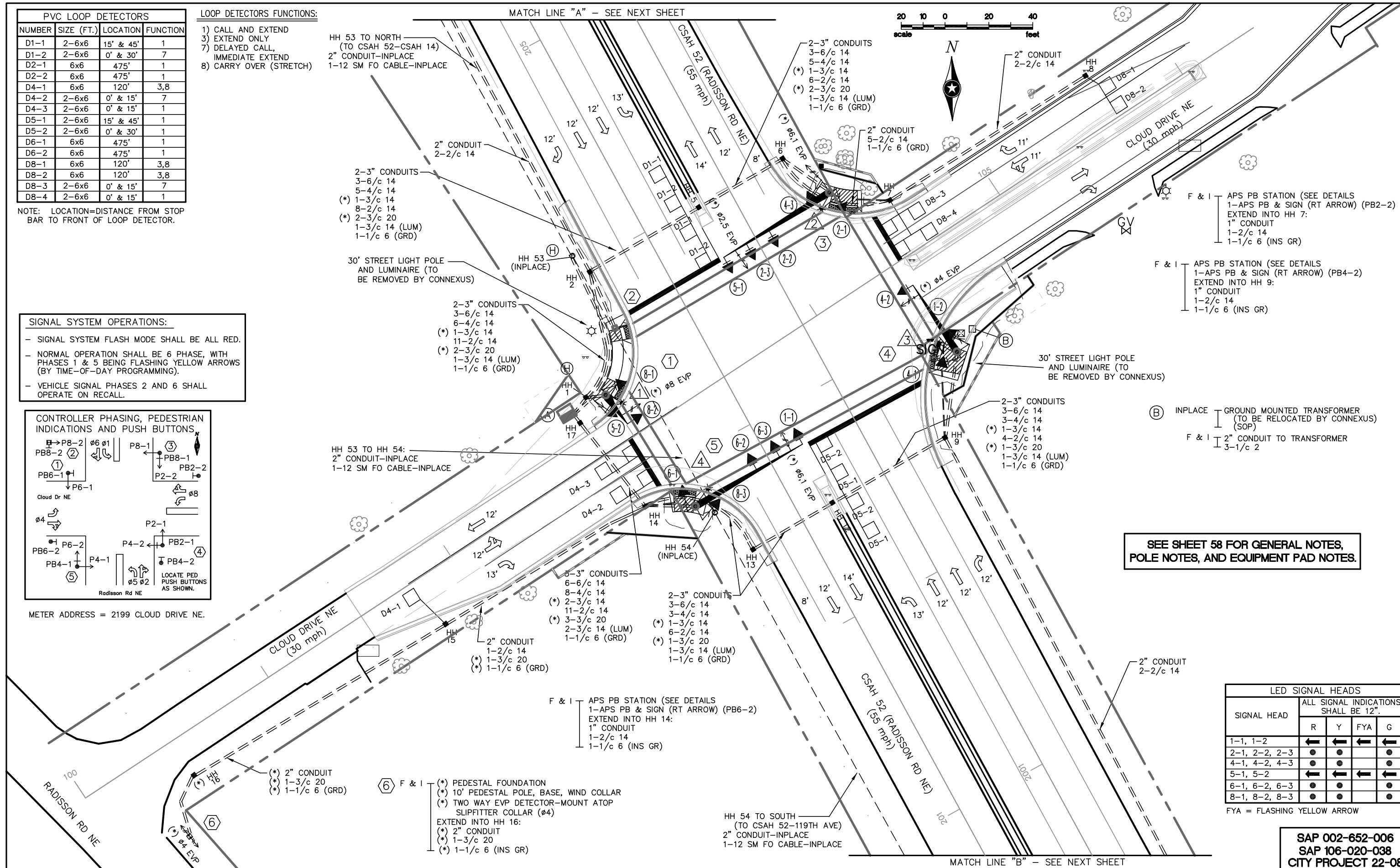
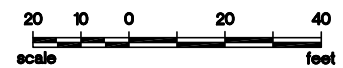
- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 6 PHASE, WITH PHASES 1 & 5 BEING FLASHING YELLOW ARROWS (BY TIME-OF-DAY PROGRAMMING).
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

**CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS**



METER ADDRESS = 2199 CLOUD DRIVE NE.

MATCH LINE "A" - SEE NEXT SHEET



F & I APS PB STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB2-2)  
EXTEND INTO HH 7:  
1" CONDUIT  
1-2/c 14  
1-1/c 6 (INS GR)

F & I APS PB STATION (SEE DETAILS)  
1-APS PB & SIGN (RT ARROW) (PB4-2)  
EXTEND INTO HH 9:  
1" CONDUIT  
1-2/c 14  
1-1/c 6 (INS GR)

(B) INPLACE GROUND MOUNTED TRANSFORMER  
(TO BE RELOCATED BY CONNEXUS)  
F & I 2" CONDUIT TO TRANSFORMER  
3-1/c 2

SEE SHEET 58 FOR GENERAL NOTES,  
POLE NOTES, AND EQUIPMENT PAD NOTES.

LED SIGNAL HEADS				
SIGNAL HEAD	ALL SIGNAL INDICATIONS SHALL BE 12".			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	●	●	●	●
4-1, 4-2, 4-3	●	●	●	●
5-1, 5-2	←	←	←	←
6-1, 6-2, 6-3	●	●	●	●
8-1, 8-2, 8-3	●	●	●	●

FYA = FLASHING YELLOW ARROW

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CITY PROJECT 22-08

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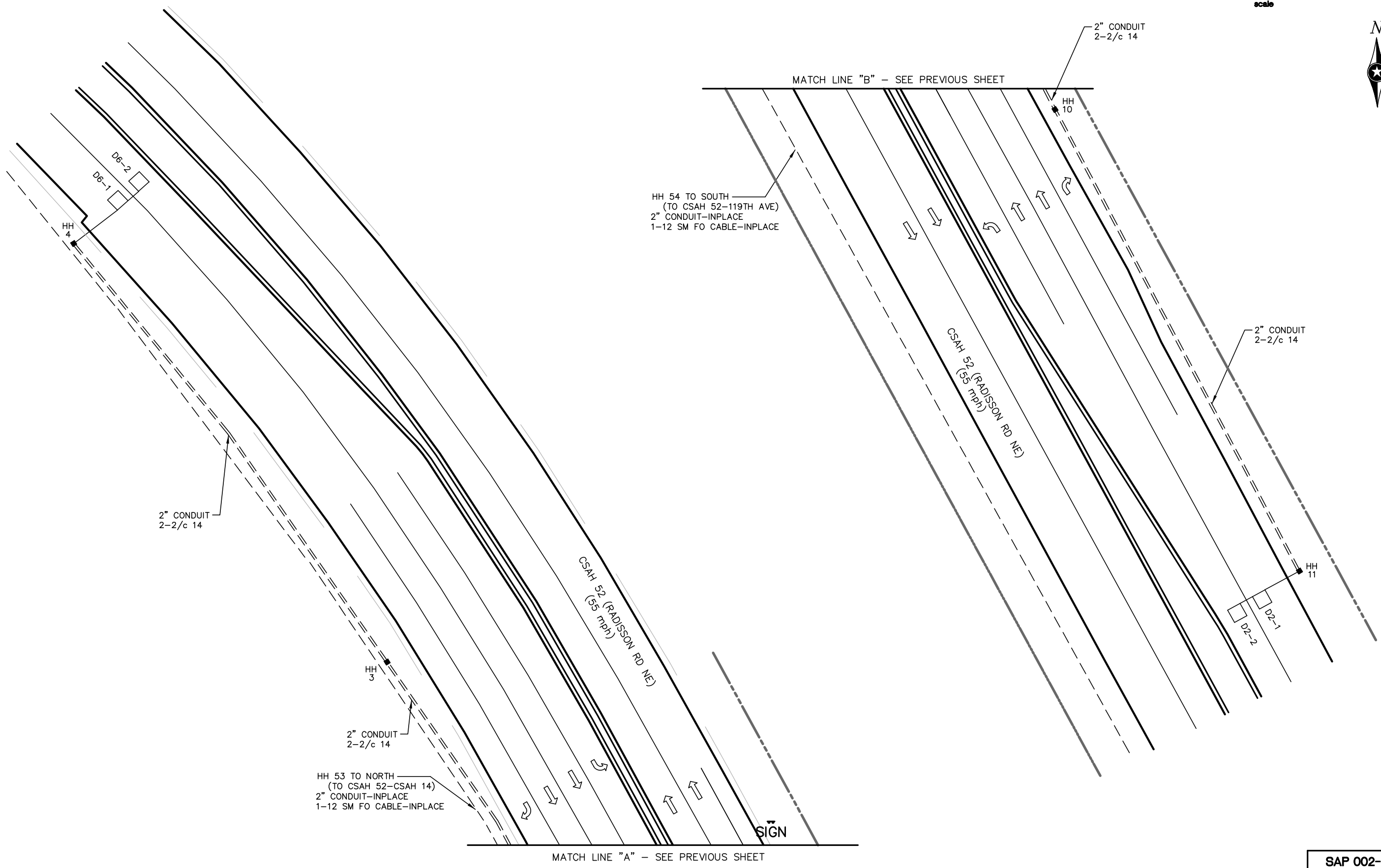
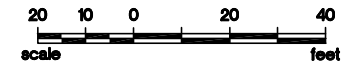
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

**SEH**

Name: John M. Gray, PE  
Lic. No. 22457  
Date: November 17, 2022

**CSAH 52 AT CLOUD DRIVE NE**  
ANOKA COUNTY, MINNESOTA  
CITY OF BLAINE

**TRAFFIC CONTROL SIGNAL SYSTEM**  
INTERSECTION LAYOUT  
CSAH 52 (RADISSON RD NE) AT CLOUD DR NE



HH 54 TO SOUTH  
(TO CSAH 52-119TH AVE)  
2" CONDUIT-INPLACE  
1-12 SM FO CABLE-INPLACE

HH 53 TO NORTH  
(TO CSAH 52-CSAH 14)  
2" CONDUIT-INPLACE  
1-12 SM FO CABLE-INPLACE

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Designed By	JMG						
Checked By	JMG						

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*John M. Gray*  
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Date: November 17, 2022  
Lic. No. 22457

**CSAH 52 AT CLOUD DRIVE NE**  
ANOKA COUNTY, MINNESOTA  
CITY OF BLAINE

**TRAFFIC CONTROL SIGNAL SYSTEM**  
**INTERSECTION LAYOUT MATCH LINES**  
CSAH 52 (RADISSON RD NE) AT CLOUD DR NE

**NOTES:**

- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, HANDHOLES, AND PUSH BUTTON STATIONS SHALL BE DETERMINED IN FIELD BY THE ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS (SEE SPECIAL PROVISIONS).
- 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE & CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
- 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (CONNEXUS). SEE SPECIAL PROVISIONS.
- 6) SEE SPECIAL PROVISIONS & DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF THE "TRAFFIC CONTROL SIGNAL SYSTEM" PAY ITEM).
- 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION LED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
- 8) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
- 9) SEE DETAILS, SPECIAL PROVISIONS & STATEMENT OF ESTIMATED QUANTITIES REGARDING BATTERY BACK-UP SIGNAL SERVICE CABINET TO BE FURNISHED AND INSTALLED BY CONTRACTOR (SEPARATE FROM ITEM NO. 2565 FOR THIS SIGNAL SYSTEM).
- 10) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) #12 AWG IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
- 11) (\*) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 12) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 13) ALL CABLES AND CONDUCTORS SHALL BE NEW (FURNISHED AND INSTALLED BY THE CONTRACTOR).
- 14) NO SPLICING IS ALLOWED ON ANY CABLE OR CONDUCTOR BETWEEN THE CONTROLLER/SERVICE CABINETS AND EACH POLE OR MAST ARM MOUNTED COMPONENT (EXCEPT THAT LOOP DETECTORS SPLICES ARE ALLOWED IN ADJACENT HANDHOLES ONLY).

(A) INSTALL — CONTROLLER AND CABINET (FURNISHED BY COUNTY)

F & I — EQUIPMENT PAD FOUNDATION  
 BBU SIGNAL SERVICE CABINET  
 BETWEEN CONTROLLER CABINET AND SERVICE CABINET:  
 METERED SIGNAL SERVICE  
 2" CONDUIT  
 3-1/c 6

CONTROLLER CABINET TO HH 1:  
 2-3" CONDUITS 3" CONDUIT  
 3-6/c 14 3-6/c 14  
 5-4/c 14 3-4/c 14  
 (\*) 1-3/c 14 (\*) 1-3/c 14  
 8-2/c 14 4-2/c 14  
 (\*) 2-3/c 20 (\*) 1-3/c 20  
 1-1/c 6 (GRD)

CONTROLLER CABINET TO HH 17:  
 3" CONDUIT 2-3" CONDUITS  
 3-6/c 14 3-6/c 14  
 3-4/c 14 5-4/c 14  
 (\*) 1-3/c 14 (\*) 1-3/c 14  
 6-2/c 14 5-2/c 14  
 (\*) 1-3/c 20 (\*) 2-3/c 20  
 1-1/c 6 (GRD)

F & I — SERVICE CABINET TO HH 1:  
 1.25" CONDUIT  
 UNMETERED STREET LIGHT SERVICE  
 2-3/c 14 (LUM)

SERVICE CABINET TO HH 17:  
 1.25" CONDUIT  
 UNMETERED STREET LIGHT SERVICE  
 2-3/c 14 (LUM)

STUB OUT 2" CONDUIT FROM SERVICE CABINET (FOR POWER CONNECTION BY CONNEXUS)

STUB OUT 2-3" CONDUITS FROM CONTROLLER CABINET TO EAST (CAP BOTH ENDS—FOR FUTURE USE)

CONTROLLER CABINET TO FO HH 53:  
 (\*\*) 2" CONDUIT  
 (\*\*) 1-6 SM FO PIGTAIL CABLE

① F & I — PA100 POLE FOUNDATION  
 TYPE PA100-A-15-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
 1-ANGLE MOUNT C.D. PED INDICATION-POLE MOUNTED AT 90 DEG (P6-1)  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB6-1)  
 TYPE D SIGN PANEL-OVERHEAD (D-1)  
 (\*) ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (ø8)  
 EXTEND INTO HH 1:  
 3" CONDUIT  
 3-6/c 14 (INCLUDING 1 SPARE)  
 2-4/c 14  
 (\*) 1-3/c 14  
 1-2/c 14  
 (\*) 1-3/c 20  
 1-3/c 14 (LUM)  
 2-1/c 6 (GRD)

② F & I — PEDESTAL FOUNDATION  
 13' PEDESTAL POLE, BASE, WIND COLLAR  
 1-STRAIGHT MOUNT C.D. PED INDICATION (P8-2)  
 1-APS PB, SIGN (RT ARROW), AND POLE SPACERS (PB8-2)  
 EXTEND INTO HH 2:  
 3" CONDUIT  
 1-4/c 14  
 1-2/c 14  
 2-1/c 6 (GRD)

③ F & I — PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB8-1)  
 R6-1L (ONE WAY LEFT) SIGN-POLE MOUNTED 0 DEG  
 R6-1R (ONE WAY RIGHT) SIGN-POLE MOUNTED 180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 5-1  
 TYPE D SIGN PANEL-OVERHEAD (D-2)  
 (\*) ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (ø2,5)  
 (\*) ONE WAY EVP DETECTOR-POLE MOUNTED 90 DEG (ø6,1)  
 EXTEND INTO HH 6:  
 3" CONDUIT  
 3-6/c 14 (INCLUDING 1 SPARE)  
 5-4/c 14  
 (\*) 1-3/c 14  
 1-2/c 14  
 (\*) 2-3/c 20  
 1-3/c 14 (LUM)  
 2-1/c 6 (GRD)

④ F & I — PA100 POLE FOUNDATION  
 TYPE PA100-A-35-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB2-1)  
 TYPE D SIGN PANEL-OVERHEAD (D-3)  
 (\*) ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (ø4)  
 EXTEND INTO HH 9:  
 3" CONDUIT  
 3-6/c 14 (INCLUDING 1 SPARE)  
 3-4/c 14  
 (\*) 1-3/c 14  
 1-2/c 14  
 (\*) 1-3/c 20  
 1-3/c 14 (LUM)  
 1-1/c 6 (GRD)

⑤ F & I — PA100 POLE FOUNDATION  
 TYPE PA100-A-55-D30-9 (DAVIT AT 350 DEG)  
 LUMINAIRE-LED  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG  
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG  
 1-APS PB, SIGN (LT ARROW) AND APS MAST ARM POLE ADAPTOR (PB4-1)  
 R6-1L (ONE WAY LEFT) SIGN-POLE MOUNTED 0 DEG  
 R6-1R (ONE WAY RIGHT) SIGN-POLE MOUNTED 180 DEG  
 R10-X12 SIGN PANEL-ADJACENT TO 1-1  
 TYPE D SIGN PANEL-OVERHEAD (D-4)  
 (\*) ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (ø6,1)  
 EXTEND INTO HH 14:  
 3" CONDUIT  
 3-6/c 14 (INCLUDING 1 SPARE)  
 5-4/c 14  
 (\*) 1-3/c 14  
 1-2/c 14  
 (\*) 1-3/c 20  
 1-3/c 14 (LUM)  
 2-1/c 6 (GRD)

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 SAP 106-020-038  
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Designed By	JMG						
Checked By	JMG						



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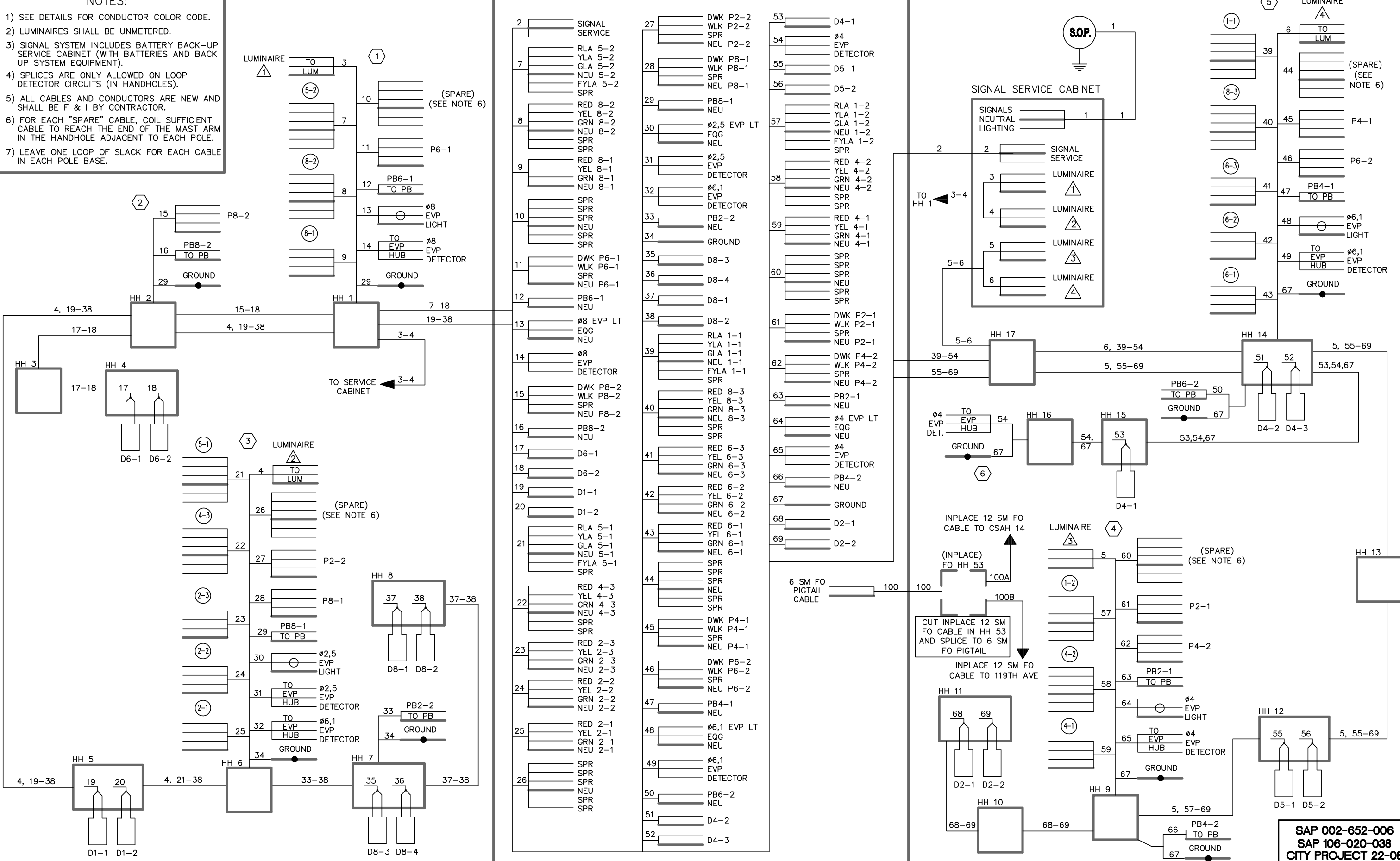
**CSAH 52 AT CLOUD DRIVE NE**  
 ANOKA COUNTY, MINNESOTA  
 CITY OF BLAINE

**TRAFFIC CONTROL SIGNAL SYSTEM**  
 SIGNAL SYSTEM NOTES  
 CSAH 52 (RADISSON RD NE) AT CLOUD DR NE

**NOTES:**

- 1) SEE DETAILS FOR CONDUCTOR COLOR CODE.
- 2) LUMINAIRES SHALL BE UNMETERED.
- 3) SIGNAL SYSTEM INCLUDES BATTERY BACK-UP SERVICE CABINET (WITH BATTERIES AND BACK UP SYSTEM EQUIPMENT).
- 4) SPLICES ARE ONLY ALLOWED ON LOOP DETECTOR CIRCUITS (IN HANDHOLES).
- 5) ALL CABLES AND CONDUCTORS ARE NEW AND SHALL BE F & I BY CONTRACTOR.
- 6) FOR EACH "SPARE" CABLE, COIL SUFFICIENT CABLE TO REACH THE END OF THE MAST ARM IN THE HANDHOLE ADJACENT TO EACH POLE.
- 7) LEAVE ONE LOOP OF SLACK FOR EACH CABLE IN EACH POLE BASE.

**CONTROLLER AND CABINET**



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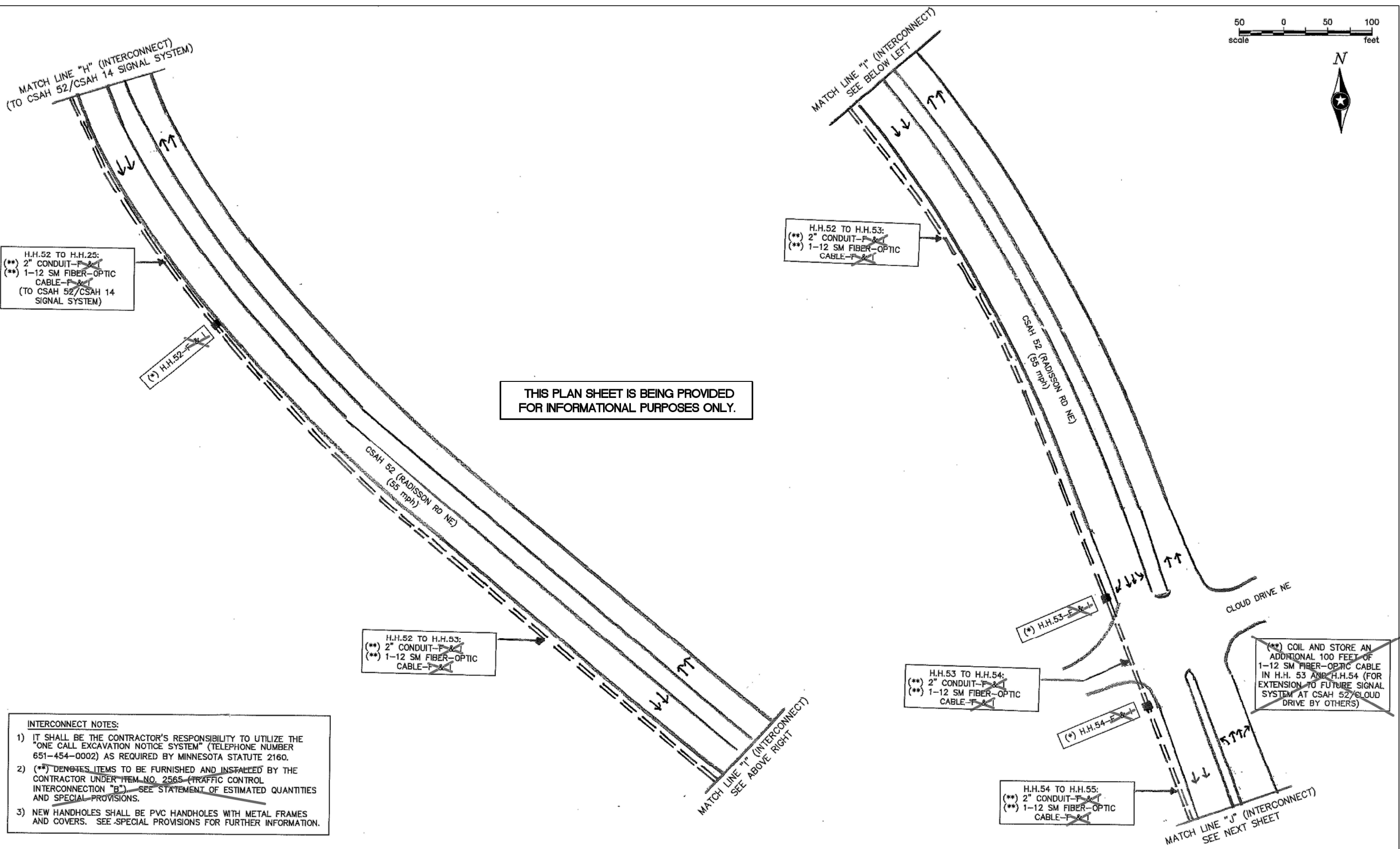
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**CSAH 52 AT CLOUD DRIVE NE**  
 ANOKA COUNTY, MINNESOTA  
 CITY OF BLAINE

**TRAFFIC CONTROL SIGNAL SYSTEM**  
 FIELD WIRING DIAGRAM  
 CSAH 52 (RADISSON RD NE) AT CLOUD DR NE

**SAP 002-652-006**  
**SAP 106-020-038**  
**CITY PROJECT 22-08**

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THIS PLAN SHEET IS BEING PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

- INTERCONNECT NOTES:**
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
  - 2) (\*\*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION "B"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
  - 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION.

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**CSAH 52 AT CLOUD DRIVE NE**  
 ANOKA COUNTY, MINNESOTA  
 CITY OF BLAINE

**INPLACE INTERCONNECT SYSTEM**  
 'FOR INFORMATION ONLY'  
 CSAH 52 (RADISSON RD NE) AT CLOUD DR NE

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