

NOTES:

- 1) THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD SHALL BE DETERMINED IN FIELD BY ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
- 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM, AND ALSO 30 FEET FROM END OF MAST ARM 4 (FOR EVP).
- 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION.
- 6) THE CONTRACTOR SHALL LOCATE AND VERIFY INPLACE UTILITIES PRIOR TO COMMENCING WORK.
- 7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED & INSTALLED BY CONTRACTOR (INCIDENTAL).
- 8) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION "FILLED" COUNTDOWN TIMER HAND/WALKING PERSON INDICATION.
- 9) ALL VEHICLE SIGNAL INDICATIONS, AND ALL PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
- 10) EACH SIGNAL FACE SHALL HAVE BACKGROUND SHIELD.
- 11) SEE DETAILS, SPECIAL PROVISIONS, AND 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).
- 12) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
- 13) ALL VEHICLE AND PEDESTRIAN SIGNAL HOUSINGS, BACKGROUND SHIELDS, AND VISORS SHALL BE FABRICATED USING BLACK POLYCARBONATE MATERIALS. SEE SPECIAL PROVISIONS.
- 14) (*) DENOTES ITEMS TO BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 15) CONTRACTOR SHALL COIL & STORE AN EXTRA 25' OF 1-2/c#14 IN HANDHOLE 12 (FOR FUTURE USE BY OTHERS). SEE FIELD WIRING DIAGRAM FOR FURTHER INFORMATION.

PVC LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	1
D2-1	6x6	400'	1
D3-1	2-6x6	20' & 50'	1
D3-2	2-6x6	5' & 35'	7
D4-1	6x6	300'	3,8
D4-2	2-6x6	5' & 20'	7
D4-3	2-6x6	5' & 20'	1
D5-1	2-6x6	15' & 45'	1
D5-2	2-6x6	0' & 30'	1
D6-1	6x6	475'	1
D7-1	2-6x6	20' & 50'	1
D7-2	2-6x6	5' & 35'	7
D8-1	6x6	300'	3,8
D8-2	2-6x6	5' & 20'	7
D8-3	2-6x6	5' & 20'	1

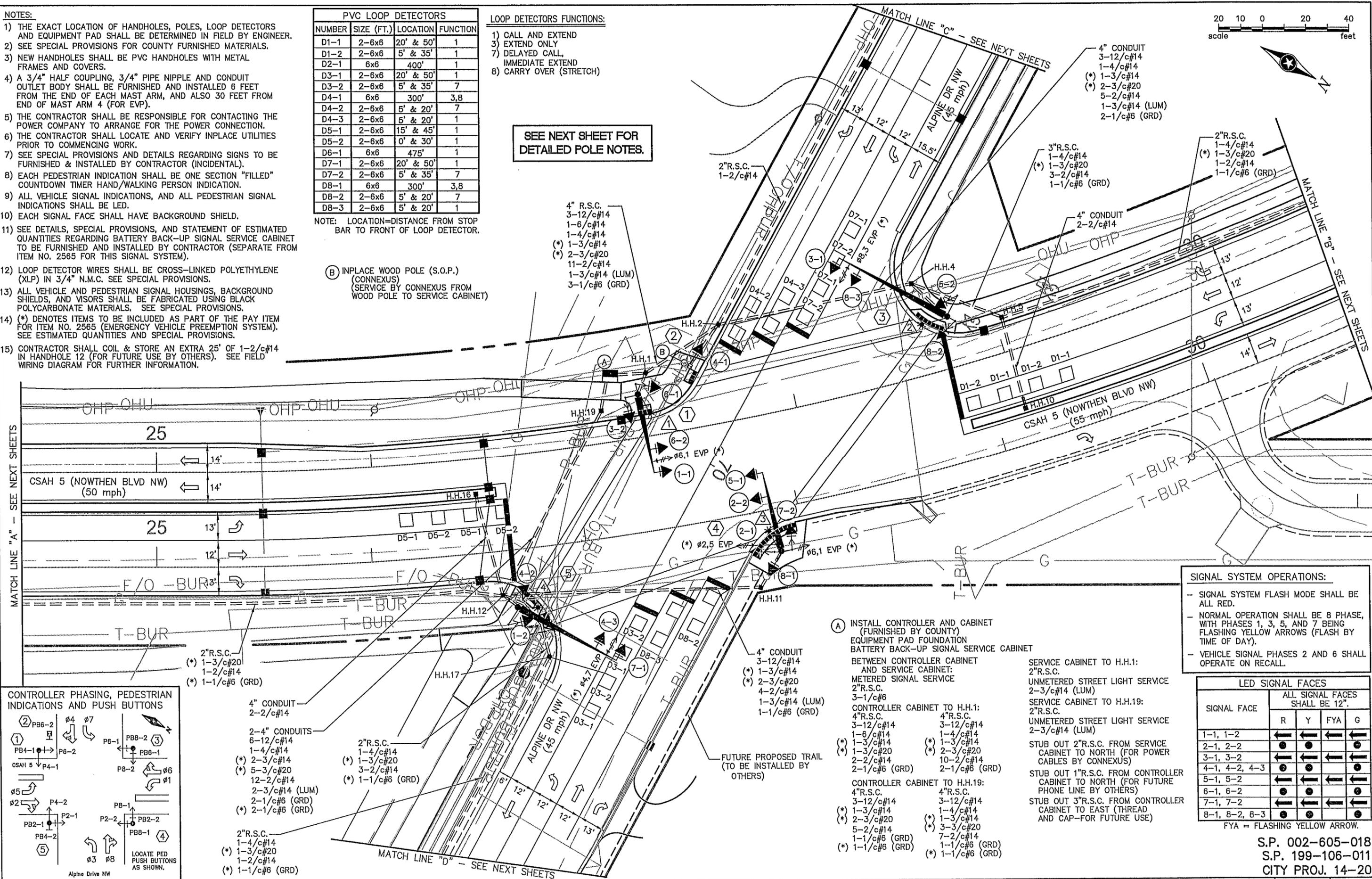
NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

(B) INPLACE WOOD POLE (S.O.P.) (CONNEXUS) (SERVICE BY CONNEXUS FROM WOOD POLE TO SERVICE CABINET)

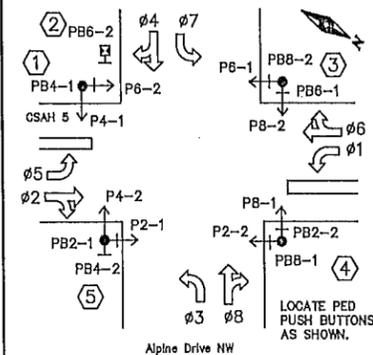
LOOP DETECTORS FUNCTIONS:

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

SEE NEXT SHEET FOR DETAILED POLE NOTES.



CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATIONS:

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

LED SIGNAL FACES

SIGNAL FACE	ALL SIGNAL FACES SHALL BE 12"			
	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2	●	●	●	●
3-1, 3-2	←	←	←	←
4-1, 4-2, 4-3	←	←	←	←
5-1, 5-2	←	←	←	←
6-1, 6-2	●	●	●	●
7-1, 7-2	←	←	←	←
8-1, 8-2, 8-3	←	←	←	←

FYA = FLASHING YELLOW ARROW.

S.P. 002-605-018
S.P. 199-106-011
CITY PROJ. 14-20

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DESIGNER: JMG			
CHECKED BY: JMG			
DESIGN TEAM			

REVISIONS			
NO.	BY	DATE	DESCRIPTION

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.

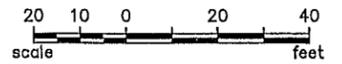
John M. Gray
Name: John M. Gray, PE
Date: April 24, 2014
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3535 VADNAIS CENTER DR.
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ANOKA COUNTY,
MINNESOTA
CITY OF RAMSEY

TRAFFIC SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 5 (NOWTHEN BLVD NW)
AT ALPINE DRIVE NW

FILE NO.
ANOKC 124471
SHEET
SG6 OF S12
99
148

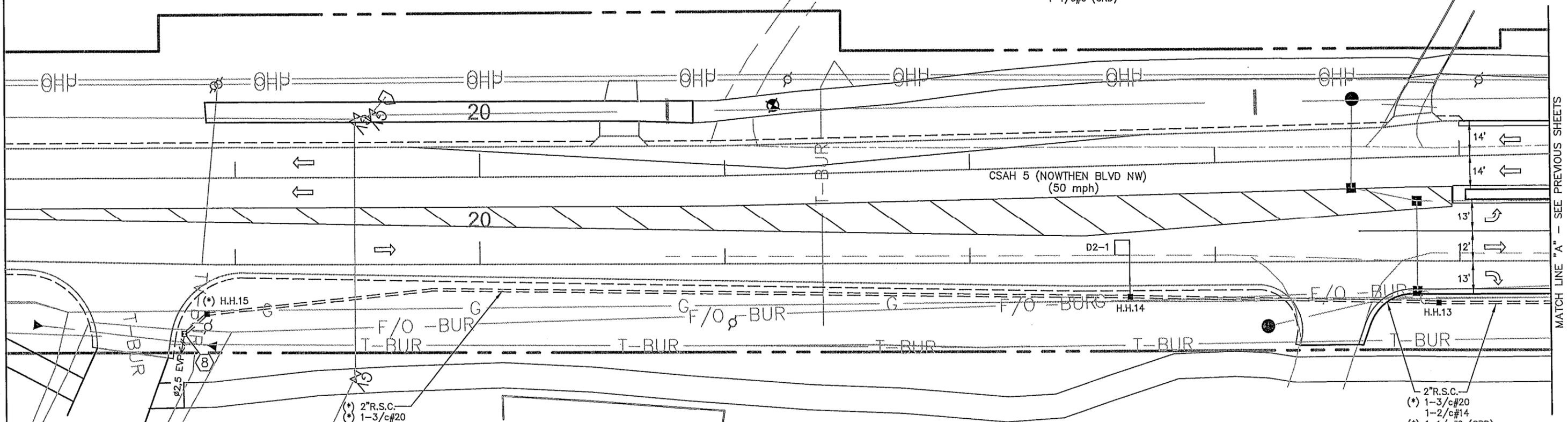


- ① PA90 POLE FOUNDATION
INSTALL TYPE PA90-A-35-D30-9 (DAVIT AT 350')
(FURNISHED BY COUNTY)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 180'
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90° & 180'
1-PEDESTRIAN PUSH BUTTON
2-R6-1 SIGN PANELS-POLE MOUNTED 0° & 180'
R10-X12 SIGN PANEL-ADJACENT TO 1-1
TYPE D SIGN PANEL-OVERHEAD (D-1)
(* INSTALL ONE WAY EVP DETECTOR (FURNISHED BY COUNTY) (#6,1)
(* ONE WAY EVP LED CONFIRMATION LIGHT AND MOUNTING BRACKET (#6,1)
EXTEND INTO H.H.1:
3"R.S.C.
3-12/c#14
(* 1-3/c#14
(* 1-3/c#20
1-2/c#14
1-3/c#14 (LUM)
1-1/c#6 (GRD)

- ② PEDESTAL FOUNDATION
12' PEDESTAL POLE (INCLUDES BASE)
WIND COLLAR FOR PEDESTAL POLE
1-STRAIGHT MOUNT SIGNAL-FACING EB TRAFFIC
1-PEDESTRIAN PUSH BUTTON
EXTEND INTO H.H.2:
3"R.S.C.
1-6/c#14
1-2/c#14
1-1/c#6 (GRD)

- ③ PA100 POLE FOUNDATION
INSTALL TYPE PA100-A-55-D30-9 (DAVIT AT 350')
(FURNISHED BY COUNTY)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 180'
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90° & 180'
2-PEDESTRIAN PUSH BUTTONS
R10-X12 SIGN PANEL-ADJACENT TO 3-1
TYPE D SIGN PANEL-OVERHEAD (D-2)
(* INSTALL ONE WAY EVP DETECTOR (FURNISHED BY COUNTY) (#8,3)
(* ONE WAY EVP LED CONFIRMATION LIGHT AND MOUNTING BRACKET (#8,3)
EXTEND INTO H.H.4:
3"R.S.C.
3-12/c#14
(* 1-3/c#14
(* 1-3/c#20
2-2/c#14
1-3/c#14 (LUM)
1-1/c#6 (GRD)

- ④ PA90 POLE FOUNDATION
INSTALL TYPE PA90-A-35-D30-9 (DAVIT AT 350')
(FURNISHED BY COUNTY)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
3-ANGLE MOUNT SIGNALS-POLE MOUNTED 90°, 180°, 270'
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90° & 270'
2-PEDESTRIAN PUSH BUTTONS
2-R6-1 SIGN PANELS-POLE MOUNTED 0° & 180'
R10-X12 SIGN PANEL-ADJACENT TO 5-1
TYPE D SIGN PANEL-OVERHEAD (D-3)
(* INSTALL 2-ONE WAY EVP DETECTORS (FURNISHED BY COUNTY) (#2,5, AND #6,1)
(* ONE WAY EVP LED CONFIRMATION LIGHT & MOUNTING BRACKET (#2,5)-30' FROM END OF MAST ARM
(* EVP MOUNTING BRACKET AND HARDWARE-MAST ARM POLE MOUNTED AT 90° (#6,1)
EXTEND INTO H.H.11:
3"R.S.C.
3-12/c#14
(* 1-3/c#14
(* 2-3/c#20
1-2/c#14
1-3/c#14 (LUM)
1-1/c#6 (GRD)



- ⑧ (* PEDESTAL FOUNDATION
(* 12' PEDESTAL POLE (INCLUDES BASE)
(* WIND COLLAR FOR PEDESTAL POLE
(* INSTALL ONE WAY EVP DETECTOR (FURNISHED BY COUNTY) (#2,5)
(* EVP MOUNTING HARDWARE-FOR MOUNTING OF EVP DETECTOR ATOP PEDESTAL POLE (#2,5)
EXTEND INTO H.H.15:
(* 2"R.S.C.
(* 1-3/c#20
(* 1-1/c#6 (GRD)

- ⑤ PA100 POLE FOUNDATION
INSTALL TYPE PA100-A-50-D30-9 (DAVIT AT 350')
(FURNISHED BY COUNTY)
LUMINAIRE-COBRAHEAD LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 180'
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90° & 180'
2-PEDESTRIAN PUSH BUTTONS
R10-X12 SIGN PANEL-ADJACENT TO 7-1
TYPE D SIGN PANEL-OVERHEAD (D-4)
(* INSTALL ONE WAY EVP DETECTOR (FURNISHED BY COUNTY) (#4,7)
(* ONE WAY EVP LED CONFIRMATION LIGHT AND MOUNTING BRACKET (#4,7)
EXTEND INTO H.H.12:
3"R.S.C.
3-12/c#14
(* 1-3/c#14
(* 1-3/c#20
2-2/c#14
1-3/c#14 (LUM)
1-1/c#6 (GRD)

S.P. 002-605-018
S.P. 199-106-011
CITY PROJ. 14-20

DRAWN BY:	JMG
DESIGNER:	JMG
CHECKED BY:	JMG
DESIGN TEAM	

NO.	BY	DATE	REVISIONS

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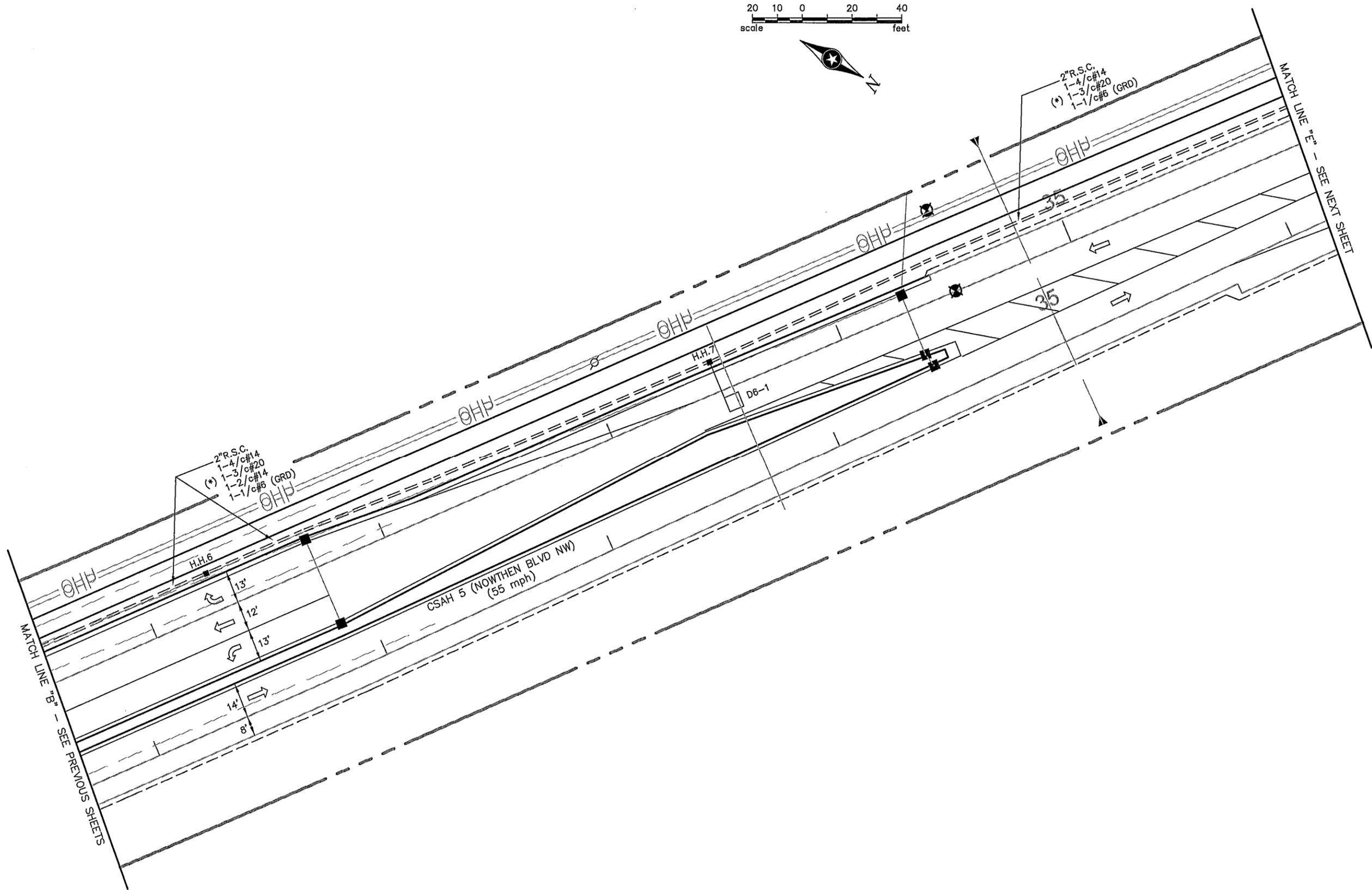
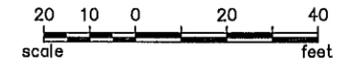
John M. Gray
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Date: April 24, 2014

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ANOKA COUNTY, MINNESOTA
CITY OF RAMSEY

TRAFFIC SIGNAL SYSTEM INTERSECTION LAYOUT
CSAH 5 (NOWTHEN BLVD NW) AT ALPINE DRIVE NW

FILE NO. ANOKC 124471	100
SHEET SG7 OF S12	
148	



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 CITY PROJ. 14-20

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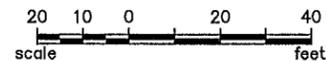
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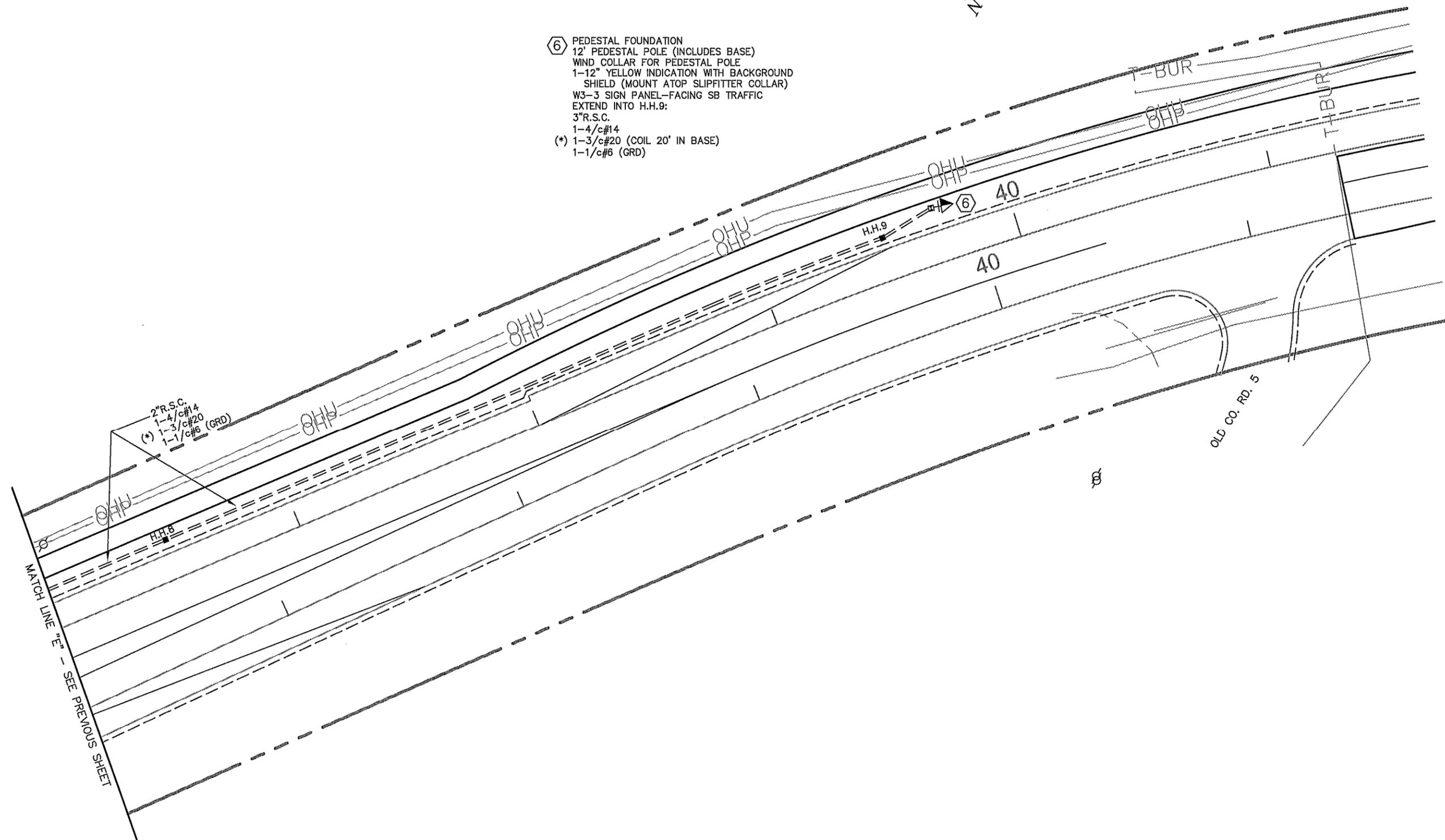
**ANOKA COUNTY,
 MINNESOTA
 CITY OF RAMSEY**

**TRAFFIC SIGNAL SYSTEM
 INTERSECTION LAYOUT
 CSAH 5 (NOWTHEN BLVD NW)
 AT ALPINE DRIVE NW**

FILE NO. ANOKC 124471	101 148
SHEET SGB OF S12	



- ⑥ PEDESTAL FOUNDATION
- 12' PEDESTAL POLE (INCLUDES BASE)
- WIND COLLAR FOR PEDESTAL POLE
- 1-12" YELLOW INDICATION WITH BACKGROUND SHIELD (MOUNT ATOP SLIPFITTER COLLAR)
- W3-3 SIGN PANEL-FACING SB TRAFFIC
- EXTEND INTO H.H.9:
- 3"R.S.C.
- 1-4/c#14
- (*) 1-3/c#20 (COIL 20' IN BASE)
- 1-1/c#6 (GRD)



2"R.S.C.
1-4/c#14
(*) 1-3/c#20 (GRD)
1-1/c#6

MATCH LINE "E" - SEE PREVIOUS SHEET

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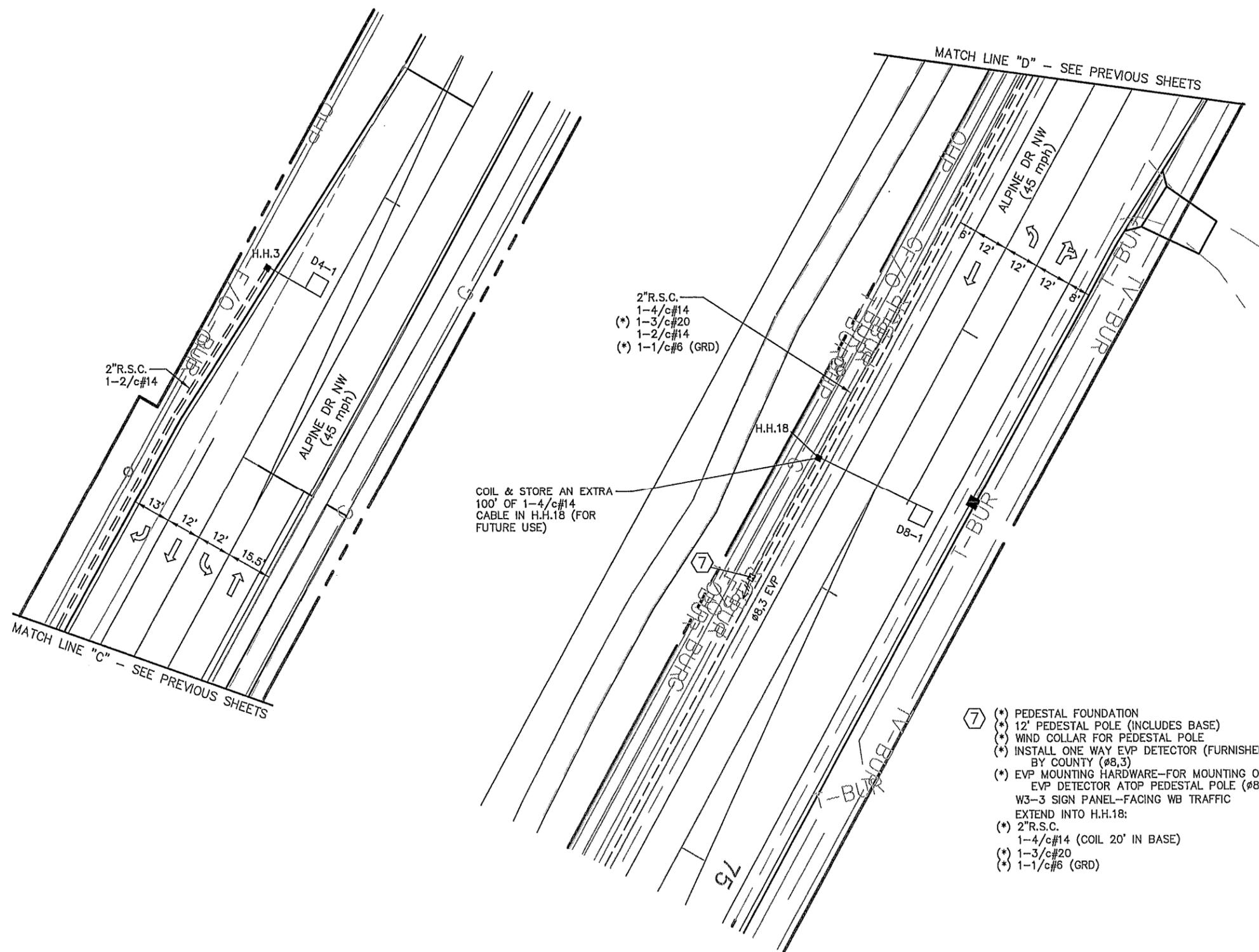
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CITY OF RAMSEY

TRAFFIC SIGNAL SYSTEM INTERSECTION LAYOUT
CSAH 5 (NOWTHEN BLVD NW) AT ALPINE DRIVE NW

FILE NO. ANOKC 124471	102
SHEET SG9 OF S12	148



- (*) PEDESTAL FOUNDATION
- (*) 12' PEDESTAL POLE (INCLUDES BASE)
- (*) WIND COLLAR FOR PEDESTAL POLE
- (*) INSTALL ONE WAY EVP DETECTOR (FURNISHED BY COUNTY (#8,3))
- (*) EVP MOUNTING HARDWARE—FOR MOUNTING OF EVP DETECTOR ATOP PEDESTAL POLE (#8,3)
- W3-3 SIGN PANEL—FACING WB TRAFFIC
- EXTEND INTO H.H.18:
- (*) 2" R.S.C.
- 1-4/c#14 (COIL 20' IN BASE)
- (*) 1-3/c#20
- (*) 1-1/c#6 (GRD)

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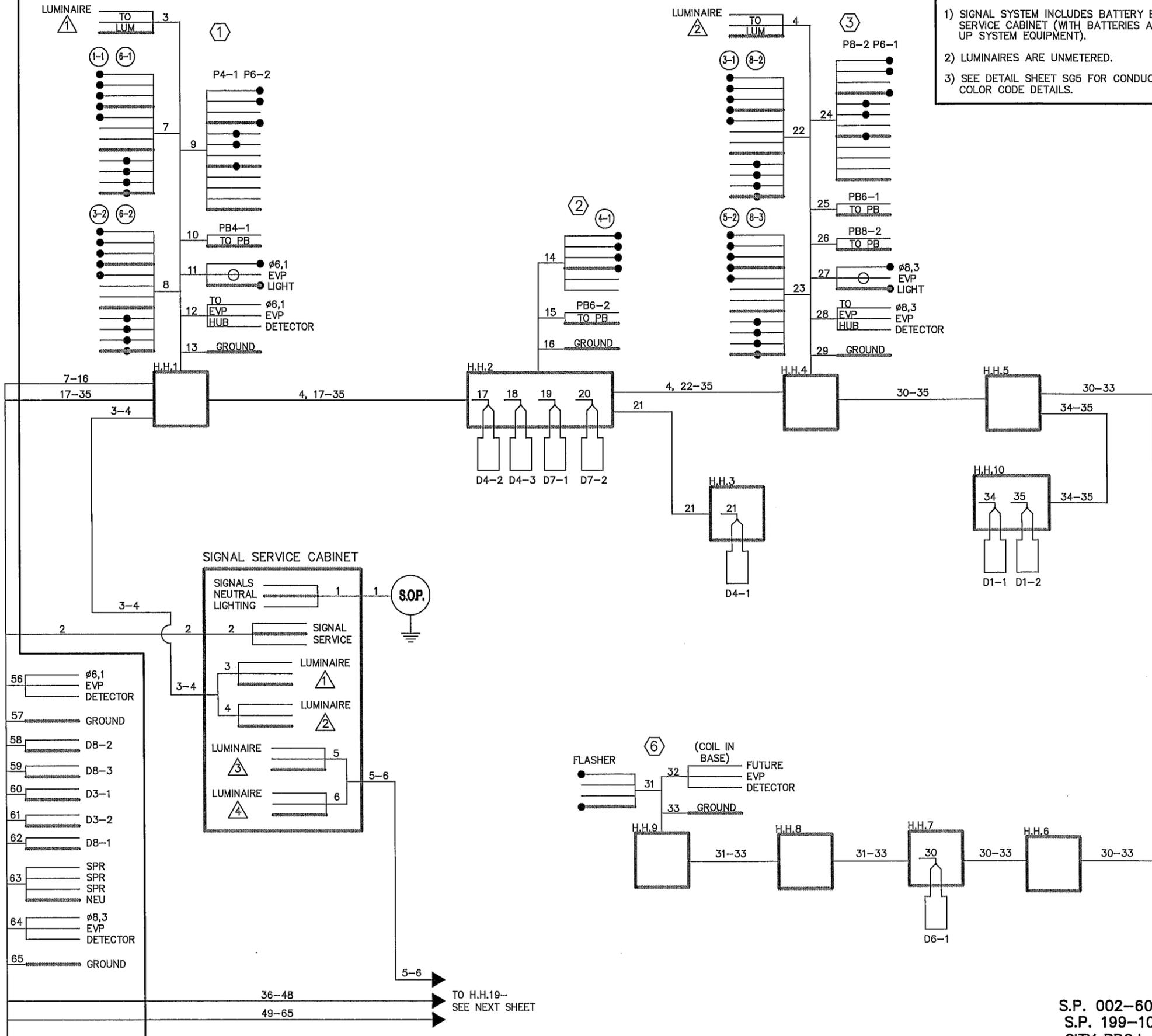
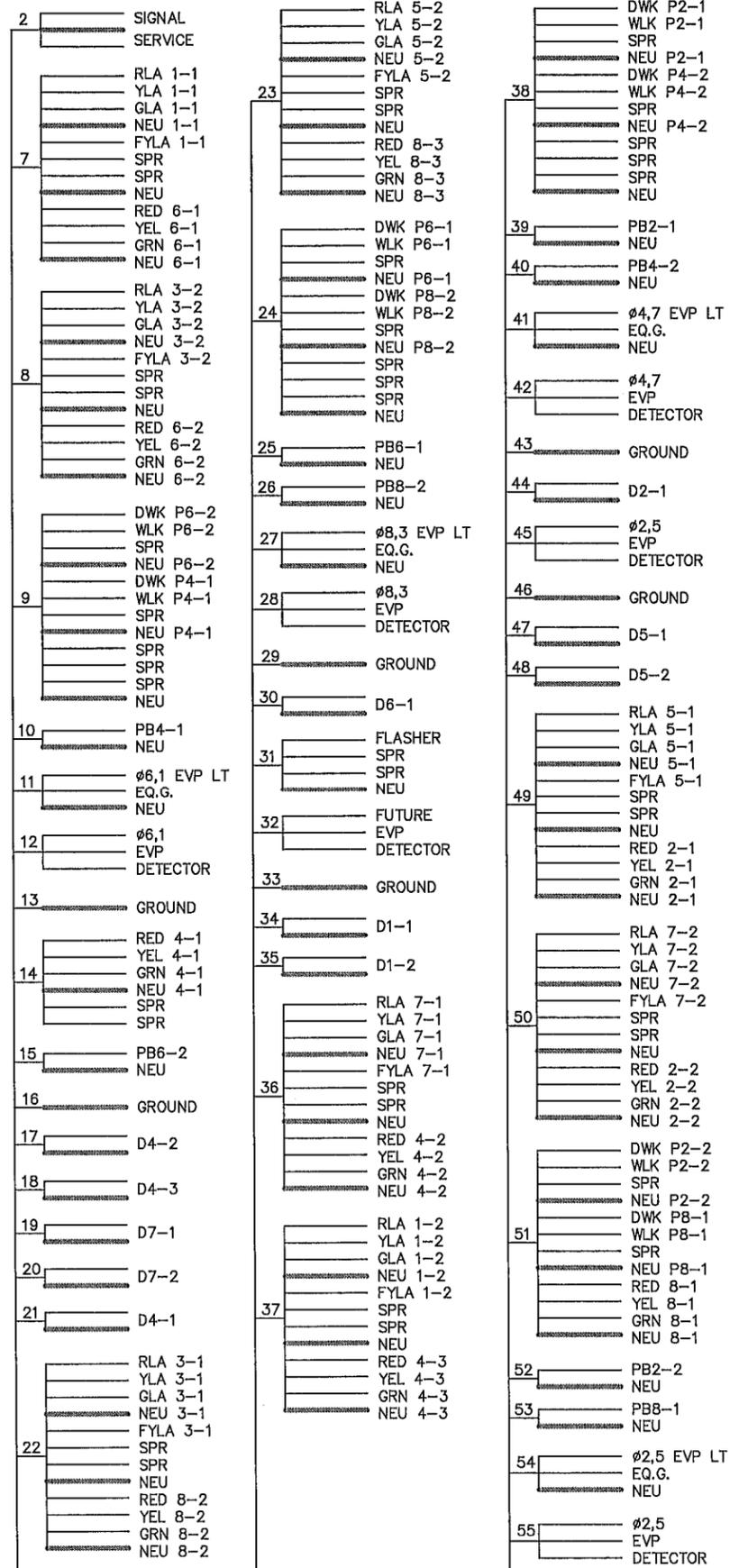
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ANOKA COUNTY, MINNESOTA
CITY OF RAMSEY

TRAFFIC SIGNAL SYSTEM INTERSECTION LAYOUT
CSAH 5 (NOWTHEN BLVD NW) AT ALPINE DRIVE NW

FILE NO. ANOKC 124471	103
SHEET SG10 OF S12	148

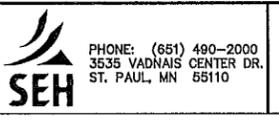
CONTROLLER AND CABINET



NOTES:
 1) SIGNAL SYSTEM INCLUDES BATTERY BACK-UP SERVICE CABINET (WITH BATTERIES AND BACK UP SYSTEM EQUIPMENT).
 2) LUMINAIRES ARE UNMETERED.
 3) SEE DETAIL SHEET SG5 FOR CONDUCTOR COLOR CODE DETAILS.

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 CITY OF RAMSEY

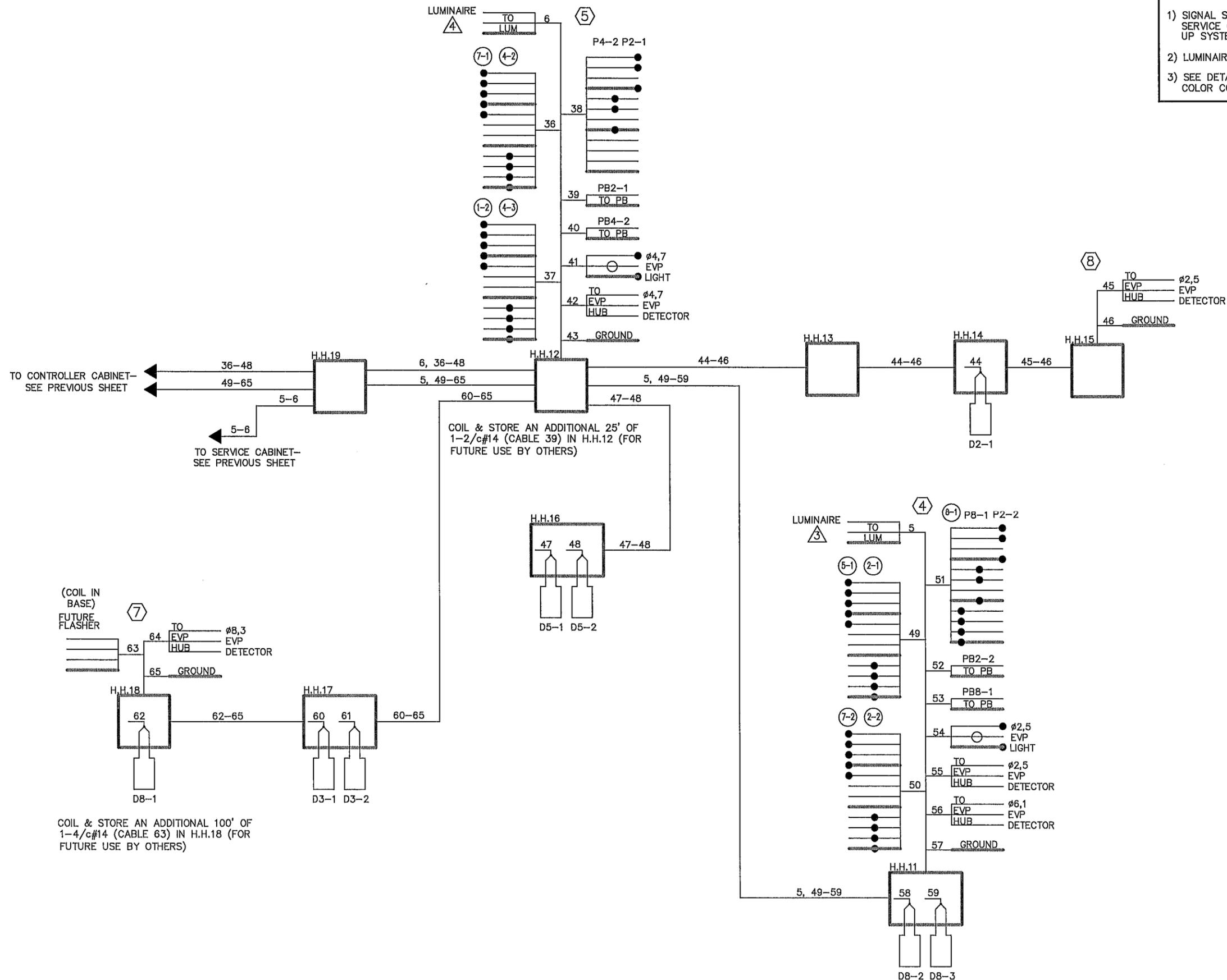
TRAFFIC SIGNAL SYSTEM
 FIELD WIRING DIAGRAM
 CSAH 5 (NOWTHEN BLVD NW)
 AT ALPINE DRIVE NW

FILE NO. ANOKC 124471
 SHEET SG11 OF S12
 104
 148

S.P. 002-605-018
 S.P. 199-106-011
 CITY PROJ. 14-20

NOTES:

- 1) SIGNAL SYSTEM INCLUDES BATTERY BACK-UP SERVICE CABINET (WITH BATTERIES AND BACK UP SYSTEM EQUIPMENT).
- 2) LUMINAIRES ARE UNMETERED.
- 3) SEE DETAIL SHEET SG5 FOR CONDUCTOR COLOR CODE DETAILS.



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ANOKA COUNTY, MINNESOTA
 CITY OF RAMSEY

TRAFFIC SIGNAL SYSTEM
 FIELD WIRING DIAGRAM
 CSAH 5 (NOWTHEN BLVD NW)
 AT ALPINE DRIVE NW

FILE NO. ANOKC 124471
 SHEET SG12 OF S12
105
148