

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	(future)	---	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	2-6x6	0' & 15'	7
D8-3	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)

125' OF 1-2/c 14 CABLE SHALL BE COILED AND STORED IN HH 1 (FOR FUTURE LOOP DETECTOR D4-1 BY OTHERS)

(B) GROUND MOUNTED TRANSFORMER (SOP)
(ANOKA MUNICIPAL POWER)



F & I VAULT 100 TO VAULT 101:
(**) 1.5" CONDUIT
(**) 1-12 SM FO CABLE

F & I APS PB STATION (SEE DETAILS)
1-APS PB & SIGN (RT ARROW) (PB6-2)
EXTEND INTO HH 1:
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) (PB8-2)
EXTEND INTO HH 3:
1" CONDUIT
1-2/c 14
1-1/c 6 (INS GR)

F & I - (**) FO PULL VAULT 100

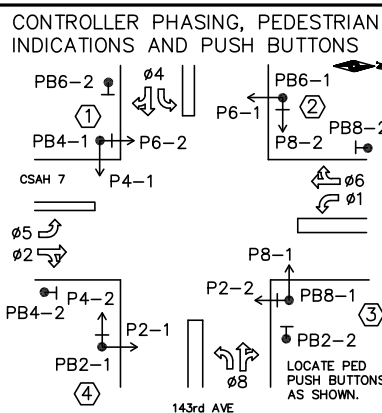
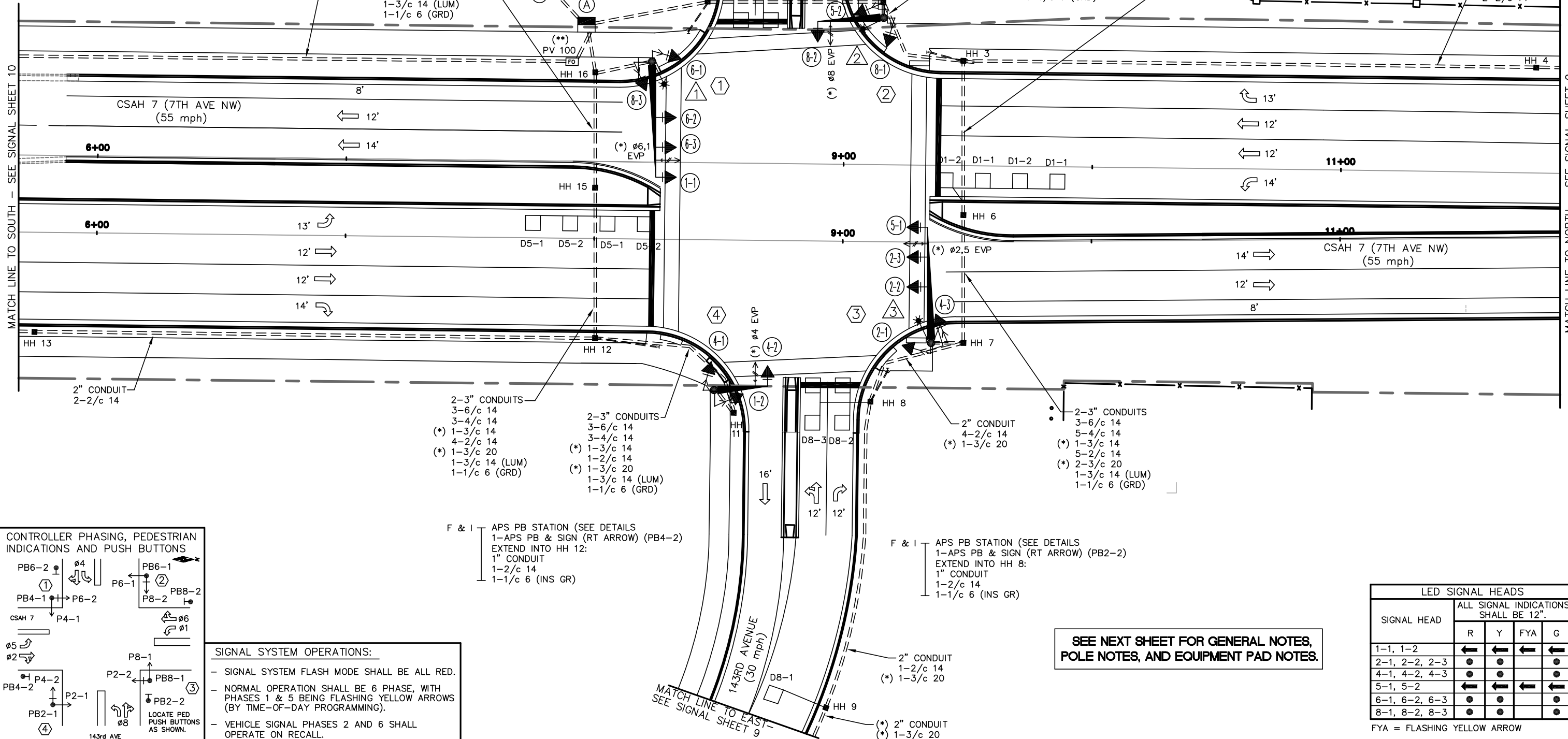
2-3" CONDUITS
3-6/c 14
3-4/c 14
(*) 1-3/c 14
(*) 1-3/c 20
1-3/c 14 (LUM)
1-1/c 6 (GRD)

3-3" CONDUITS
6-6/c 14
8-4/c 14
(*) 2-3/c 14
11-2/c 14
(*) 3-3/c 20
2-3/c 14 (LUM)
1-1/c 6 (GRD)

2-3" CONDUITS
3-6/c 14
5-4/c 14
(*) 1-3/c 14
(*) 10-2/c 14
(*) 2-3/c 20
1-3/c 14 (LUM)
1-1/c 6 (GRD)

2-3" CONDUITS
3-6/c 14
5-4/c 14
(*) 1-3/c 14
(*) 7-2/c 14
(*) 2-3/c 20
1-3/c 14 (LUM)
1-1/c 6 (GRD)

2" CONDUIT
2-2/c 14



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.

SEE NEXT SHEET 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

DRAWN BY: JMG	1	JMG	12/22
DESIGNER: JMG			
CHECKED BY: JMG			
DESIGN TEAM	NO.	BY	DATE

REVISIONS			
NO.	BY	DATE	

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
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ANOKA COUNTY, MN
CITIES OF ANDOVER, ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
INTERSECTION LAYOUT
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO.
HAKAN 165435
SIGNAL SHEET
8 OF 13

S8
S13

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 CITY AND 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 (CITY OF ANOKA). 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 INO. 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).

① F & I PA100 POLE FOUNDATION
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 AND SIGN (LT ARROW) (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-1)
(* ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (#6,1)
EXTEND INTO HH 16:
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)
INSTALL TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)
(FURNISHED BY CITY) 1-APS MAST ARM POLE ADAPTOR

② F & I PA100 POLE FOUNDATION
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 AND SIGN (LT ARROW) (PB6-1)
R6-1L (ONE WAY LEFT) SIGN-POLE MOUNTED 0 DEG
R6-1R (ONE WAY RIGHT) SIGN-POLE MOUNTED 180 DEG
TYPE D SIGN PANEL-OVERHEAD (D-2)
(* ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (#8)
EXTEND INTO HH 2:
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)
2-1/c 6 (GRD)
INSTALL TYPE PA100-A-25-D30-9 (DAVIT AT 350 DEG)
(FURNISHED BY CITY) 1-APS MAST ARM POLE ADAPTOR

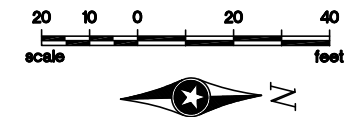
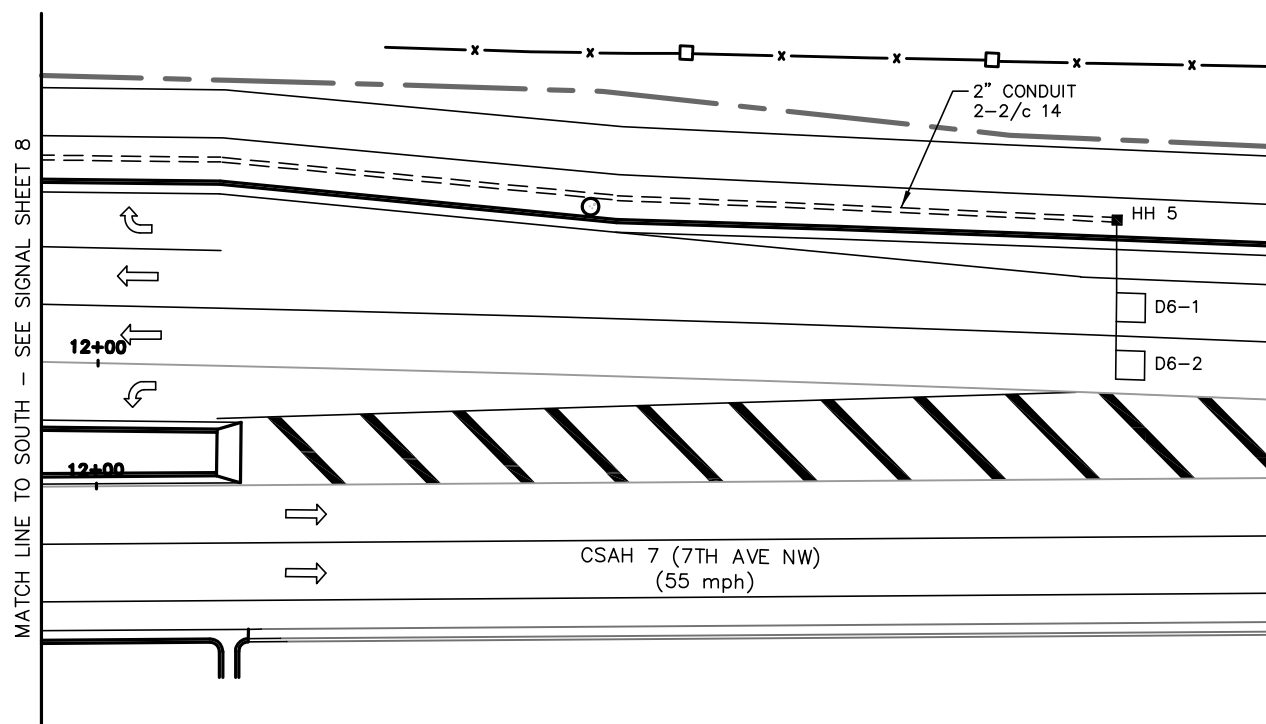
③ F & I PA100 POLE FOUNDATION
LUMINAIRE-LED
1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
2-STRAIGHT MOUNT SIGNALS-OVERHEAD AT 11' & 23'
2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG AND 180 DEG
2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED 90 DEG AND 180 DEG
1-APS PB AND SIGN (LT ARROW) (PB8-1)
R6-1L (ONE WAY LEFT) 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-3)
(* ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (#2,5)
EXTEND INTO HH 7:
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)
INSTALL TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)
(FURNISHED BY CITY) 1-APS MAST ARM POLE ADAPTOR

④ F & I PA100 POLE FOUNDATION
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 AND SIGN (LT ARROW) (PB2-1)
R6-1L (ONE WAY LEFT) SIGN-POLE MOUNTED 0 DEG
R6-1R (ONE WAY RIGHT) SIGN-POLE MOUNTED 180 DEG
TYPE D SIGN PANEL-OVERHEAD (D-4)
(* ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (#4)
EXTEND INTO HH 11:
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 (COIL 40" IN BASE)
2-1/c 6 (GRD)
INSTALL TYPE PA100-A-20
(FURNISHED BY CITY) 1-APS MAST ARM POLE ADAPTOR

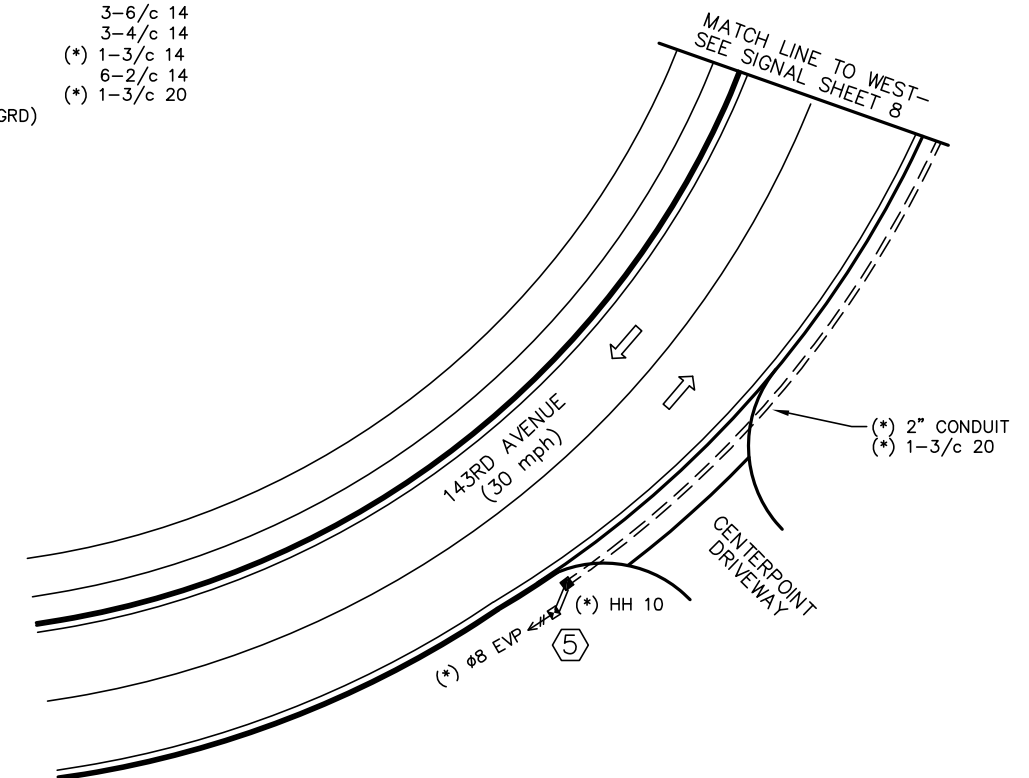
(A) INSTALL CONTROLLER AND CABINET
(FURNISHED BY COUNTY)

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:
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
5-2/c 14 10-2/c 14
(* 1-3/c 20 (* 2-3/c 20
1-1/c 6 (GRD)
CONTROLLER CABINET TO HH 16:
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
1-2/c 14 6-2/c 14
(* 1-3/c 20 (* 1-3/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 16:
1.25" CONDUIT
UNMETERED STREET LIGHT SERVICE
2-3/c 14 (LUM)
STUB OUT 2" CONDUIT FROM SERVICE CABINET (FOR POWER CONNECTION BY ANOKA MUNICIPAL POWER)
STUB OUT 2-3" CONDUITS FROM CONTROLLER CABINET TO SOUTH (THREAD AND CAP-FOR FUTURE USE)
CONTROLLER CABINET TO FO VAULT 100:
(**) 2" CONDUIT
(**) 1-12 SM FO CABLE



⑤ F & I (* PEDESTAL FOUNDATION
(* 10" PEDESTAL POLE, BASE, WIND COLLAR
(* ONE WAY EVP DETECTOR-MOUNT ATOP SLIPFITTER COLLAR (#8)
EXTEND INTO HH 10:
(* 2" CONDUIT
(* 1-3/c 20
(* 1-1/c 6 (GRD-TO HH 10)



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DESIGNER: JMG
CHECKED BY: JMG
DESIGN TEAM

1	JMG	12/22
NO.	BY	DATE

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REVISIONS		

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.

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Lic. No. 22457
Date: May 9, 2022

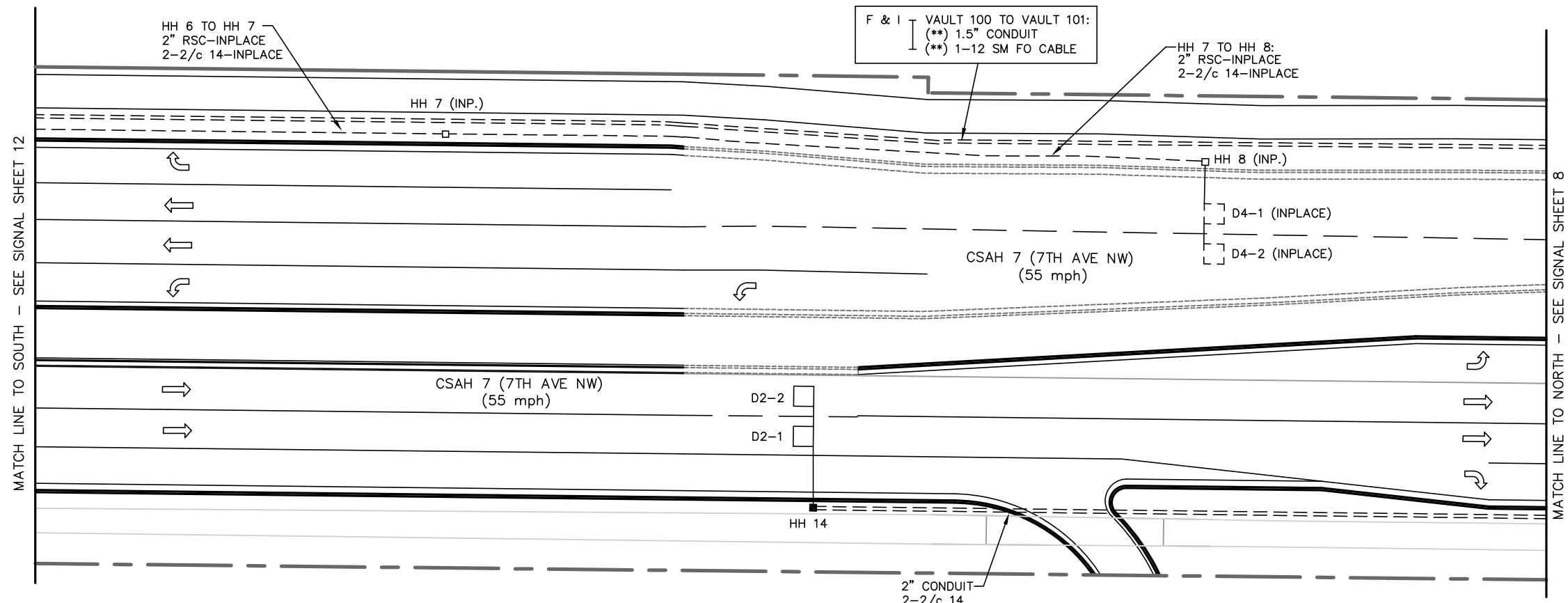
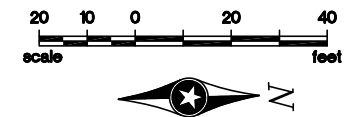
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ANOKA COUNTY, MN
CITIES OF ANDOVER, ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
SIGNAL SYSTEM NOTES
CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO. HAKAN 165435
SIGNAL SHEET 9 OF 13

S9
S13



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) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE AS DETERMINED IN THE FIELD BY THE ENGINEER.
- 3) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 5) ALL COMPONENTS OF THE CSAH 7/CSAH 116 SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE AND IN OPERATION AT ALL TIMES.

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 DESIGNER: JMG
 CHECKED BY: JMG
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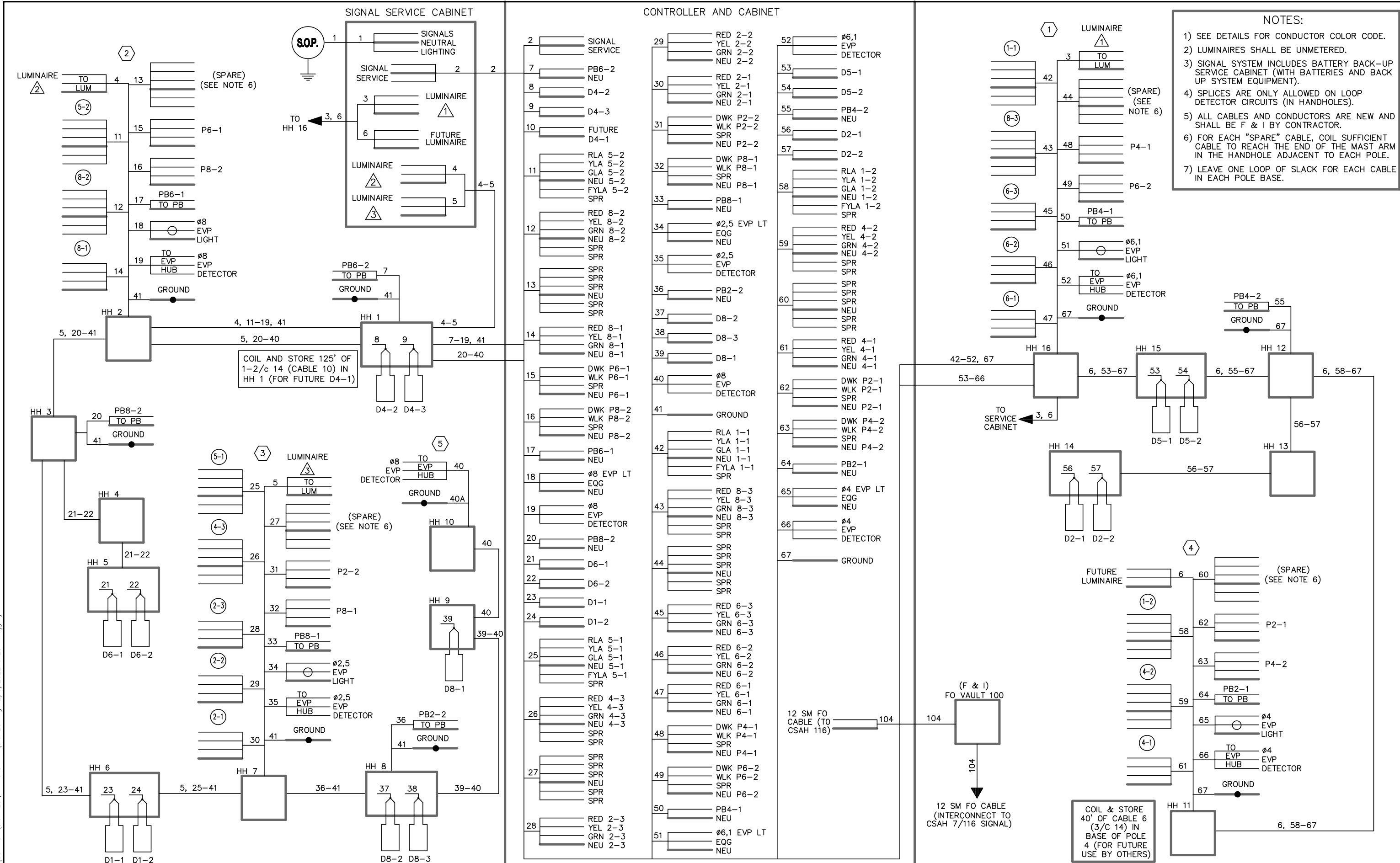
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**ANOKA COUNTY, MN
 CITIES OF ANDOVER, ANOKA**

**TRAFFIC CONTROL SIGNAL SYSTEM
 MATCH LINE FOR INTERCONNECT
 CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE**

FILE NO.
 HAKAN 165435
 SIGNAL SHEET
 10 OF 13

**S10
 S13**



- NOTES:**
- 1) SEE DETAILS FOR CONDUCTOR COLOR CODE.
 - 2) LUMINAIRES SHALL BE UNMETRED.
 - 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.

DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG

NO.	BY	DATE	REVISIONS
1	JMG	12/22	RECORD DRAWING

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ANOKA COUNTY, MN
CITIES OF ANDOVER, ANOKA

TRAFFIC CONTROL SIGNAL SYSTEM
FIELD WIRING DIAGRAM
 CSAH 7 (7TH AVENUE NW) AT 143RD AVENUE

FILE NO. HAKAN 165435
 SIGNAL SHEET 11 OF 13
S11
S13