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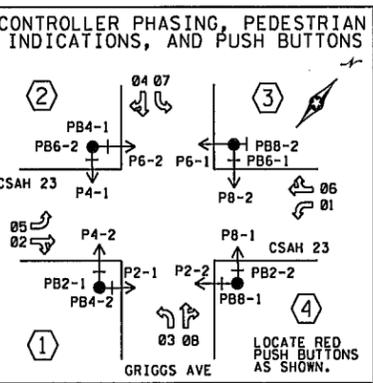
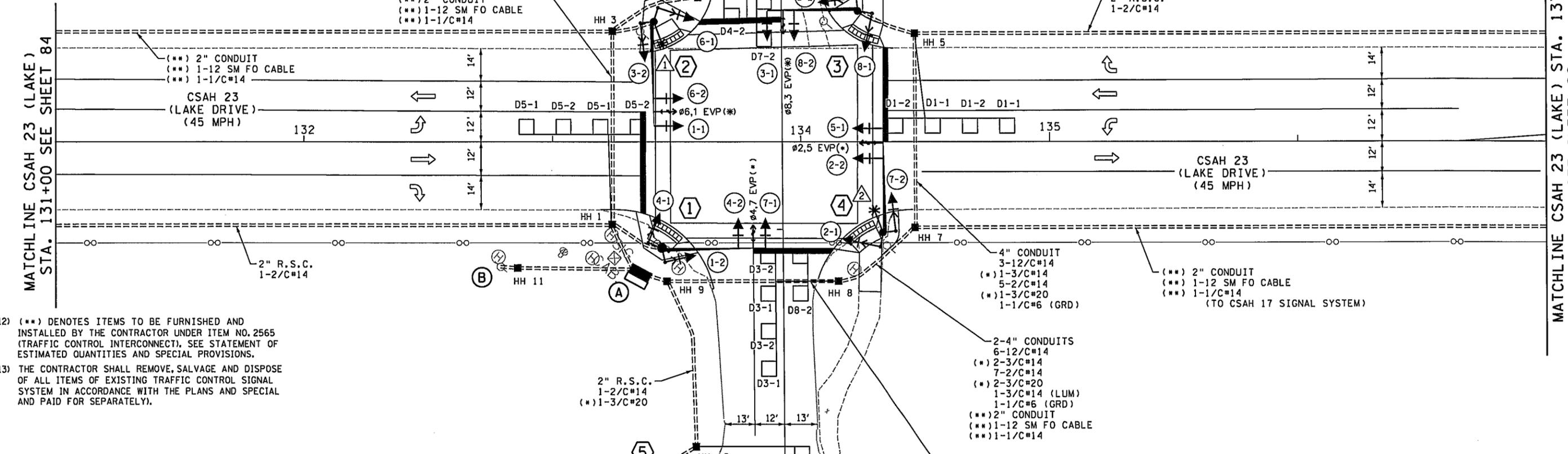
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 2/13/2018
 (USERNAME)

- NOTES:**
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE 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 END OF EACH MAST ARM (FOR EVP).
 - 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE POWER COMPANY TO ARRANGE FOR THE POWER CONNECTION (XCEL ENERGY). SEE SPECIAL PROVISIONS.
 - 6) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNS TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM").
 - 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION LED FILLED 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 AND SPECIAL PROVISIONS.

F & I N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	15' & 45'	1
D1-2	2-6x6	0' & 30'	7
D2-1	6x6	300'	1
D3-1	2-6x6	15' & 45'	7
D3-2	2-6x6	0' & 30'	7
D4-1	6x6	15'	7
D4-2	6x6	0'	7
D5-1	2-6x6	15' & 45'	1
D5-2	2-6x6	0' & 30'	7
D6-1	6x6	300'	1
D7-1	2-6x6	10' & 40'	7
D7-2	2-6x6	-5' & 25'	7
D8-1	6x6	80'	3,8
D8-2	2-6x6	0' & 15'	7

- LOOP DETECTORS FUNCTIONS:**
- 1) CALL AND EXTEND
 - 3) EXTEND ONLY
 - 7) DELAYED CALL, IMMEDIATE EXTEND
 - 8) CARRY OVER (STRETCH)

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



SIGNAL SYSTEM OPERATIONS:

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

CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/C#14 IN HANDHOLE 4 (FOR FUTURE PUSH BUTTON INSTALLATION BY OTHERS).

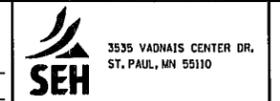
SEE NEXT SHEET FOR DETAILED POLE NOTES.

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

FYA = FLASHING YELLOW ARROW.

DESIGN TEAM			
DRAWN BY:	DESIGNER:	CHECKED BY:	
SAS	JMG	JMG	
NO.	BY	DATE	REVISIONS

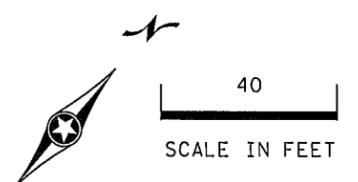
I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 Certified By: *John M. Gray, PE* Lic. No. 22457
 Printed Name: JOHN M. GRAY, PE Date: 9/19/2017



ANOKA COUNTY, MN
CSAH 23
 S.A.P. 002-623-017, S.A.P. 244-020-002

TRAFFIC SIGNAL SYSTEM "A"
INTERSECTION LAYOUT
 CSAH 23 (LAKE DRIVE) AT GRIGGS AVENUE

FILE NO. **81**
 ANOKC141617
 SGL6
 OF SGL19 **94**



MATCHLINE CSAH 23 (LAKE) STA. 137+00
 SEE SHEET 90

MATCHLINE CSAH 23 (LAKE)
 STA. 131+00 SEE SHEET 84

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6/29/2017 PM

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MATCHLINE CSAH 23 (LAKE) STA 137+00

MATCHLINE CSAH 23 (LAKE) STA 144+60

MATCHLINE CSAH 23 (LAKE) STA. 144+60

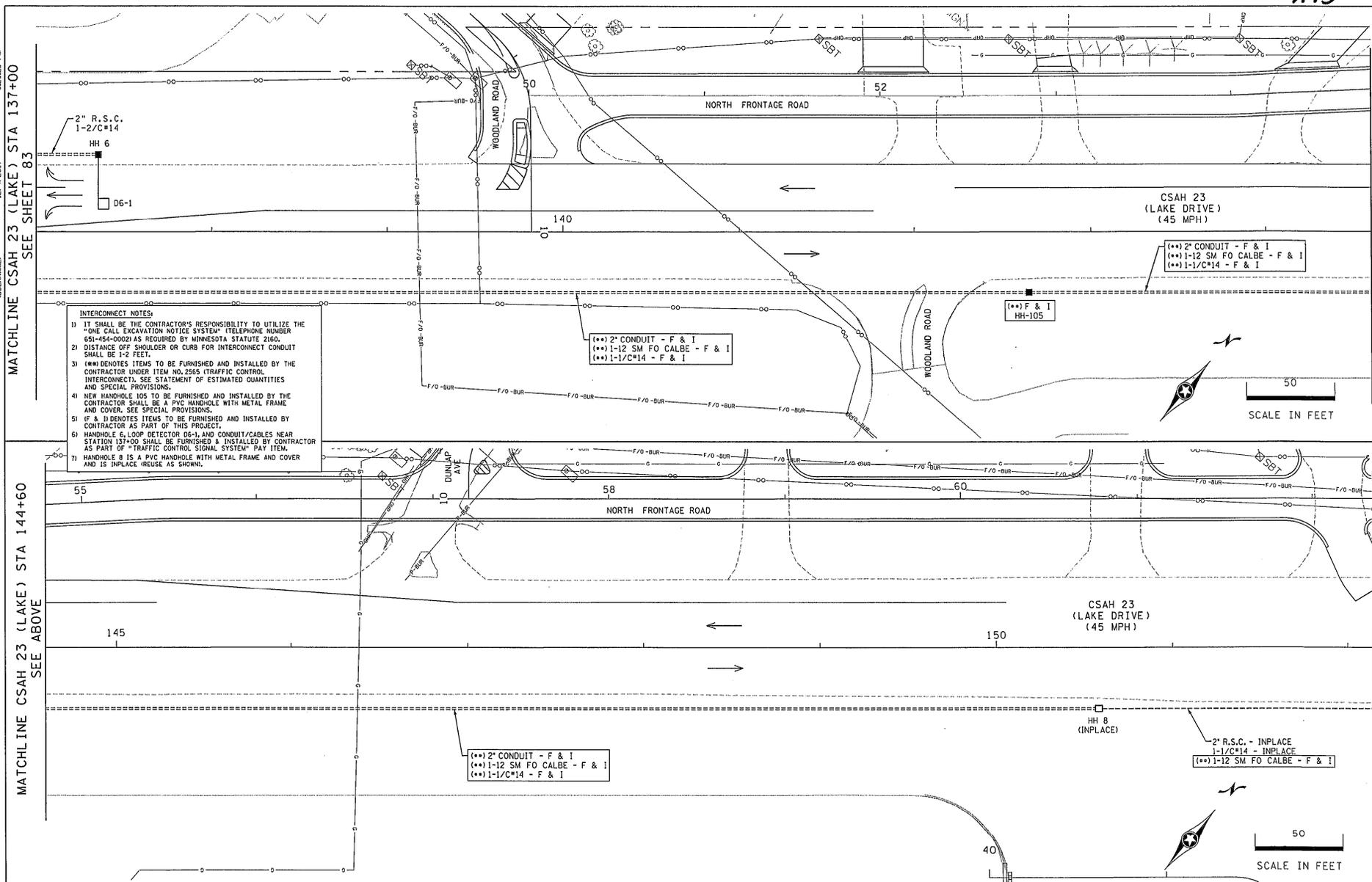
MATCHLINE "A" - SEE CSAH 23/CSAH 17

SEE SHEET 83

SEE ABOVE

SEE SHEET 93

INTERSECTION LAYOUT



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 1-2 FEET.
- 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) NEW HANDHOLE IDS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE A PVC HANDHOLE WITH METAL FRAME AND COVER. SEE SPECIAL PROVISIONS.
- 5) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 6) HANDHOLE 6, LOOP DETECTOR DE-1, AND CONDUIT/CABLES NEAR STATION 137+00 SHALL BE FURNISHED & INSTALLED BY CONTRACTOR AS PART OF "TRAFFIC CONTROL SIGNAL SYSTEM" PAY ITEM.
- 7) HANDHOLE 8 IS A PVC HANDHOLE WITH METAL FRAME AND COVER AND IS INPLACE (REUSE AS SHOWN).

(***) 2" CONDUIT - F & I
 (***) 1-12 SM FO CALBE - F & I
 (***) 1-1/2" C*14 - F & I

(***) 2" CONDUIT - F & I
 (***) 1-12 SM FO CALBE - F & I
 (***) 1-1/2" C*14 - F & I

(***) F & I
 HH-105

(***) 2" CONDUIT - F & I
 (***) 1-12 SM FO CALBE - F & I
 (***) 1-1/2" C*14 - F & I

2" R.S.C. - INPLACE
 1-1/2" C*14 - INPLACE
 (***) 1-12 SM FO CALBE - F & I

DESIGN TEAM			
DRAWN BY:	SAS		
DESIGNER:	JMG		
CHECKED BY:	JMG		
	NO.	BY	DATE
			REVISIONS

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.

Printed Name: JOHN M. GRAY, PE Date: 2/13/2017

SEH 3535 VAUGHAN CENTER DR. ST. PAUL, MN 55110

ANOKA COUNTY, MN
CSAH 23
 S.A.P. 002-623-017

TRAFFIC CONTROL INTERCONNECT INTERSECTION LAYOUT
 CSAH 23 (LAKE) FROM STA 137+00 TO STA 151+90

FILE NO. ANOKC141617	92
SGL15 OF SGL19	96

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② PA100 POLE FOUNDATION
 TYPE PA100-A-40-D30-9 (DAVIT AT 350 DEG)
 LUMINAIRE-LED
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
 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
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 1-1
 TYPE D SIGN PANEL-OVERHEAD (D-2)
 (*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (FURNISHED BY COUNTY (#6,1))
 (*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY FURNISHED DETECTOR AND CONFIRMATION LIGHT)
 EXTEND INTO H.H.3:
 3" R.S.C.
 3-12/c#14
 (*) 1-3/c#14
 2-2/c#14
 (*) 1-3/c#20
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

③ PA90 POLE FOUNDATION
 TYPE PA90-A-35
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
 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
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 3-1
 TYPE D SIGN PANEL-OVERHEAD (D-3)
 (*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (FURNISHED BY COUNTY (#8,3))
 (*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY FURNISHED DETECTOR AND CONFIRMATION LIGHT)
 EXTEND INTO H.H.5:
 3" R.S.C.
 3-12/c#14
 (*) 1-3/c#14
 2-2/c#14
 (*) 1-3/c#20
 1-1/c#6 (GRD)

① PA100 POLE FOUNDATION
 TYPE PA100-A-40
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
 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
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 7-1
 TYPE D SIGN PANEL-OVERHEAD (D-1)
 (*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (FURNISHED BY COUNTY (#4,7))
 (*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY FURNISHED DETECTOR AND CONFIRMATION LIGHT)
 EXTEND INTO H.H.1:
 3" R.S.C.
 3-12/c#14
 (*) 1-3/c#14
 2-2/c#14
 (*) 1-3/c#20
 2-1/c#6 (GRD)

④ PA100 POLE FOUNDATION
 TYPE PA100-A-40-D30-9 (DAVIT AT 350 DEG)
 LUMINAIRE-LED
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'
 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
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 R10-X12 SIGN PANEL-ADJACENT TO 5-1
 TYPE D SIGN PANEL-OVERHEAD (D-4)
 (*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION LIGHT (FURNISHED BY COUNTY (#2,5))
 (*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY FURNISHED DETECTOR AND CONFIRMATION LIGHT)
 EXTEND INTO H.H.7:
 3" R.S.C.
 3-12/c#14
 (*) 1-3/c#14
 2-2/c#14
 (*) 1-3/c#20
 1-3/c#14 (LUM)
 2-1/c#6 (GRD)

⑤ (*) PEDESTAL FOUNDATION
 (*) 10' PEDESTAL POLE, BASE, WIND COLLAR
 (*) INSTALL ONE WAY EVP DETECTOR (FURNISHED BY COUNTY (#8,3)) ATOP PEDESTAL POLE
 (*) ONE WAY EVP MOUNTING HARDWARE (INCLUDING SLIP-FITTER COLLAR) (FOR COUNTY FURNISHED DETECTOR)
 EXTEND INTO H.H.10:
 (*) 2" R.S.C.
 (*) 1-3/c#20

DESIGN TEAM			
DRAWN BY:	SAS		
DESIGNER:	JMG		
CHECKED BY:	JMG		
NO.	BY	DATE	REVISIONS

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 Licensed Professional Engineer
 Printed Name: JOHN M. GRAY, PE Date: 9/19/2017



ANOKA COUNTY, MN
 CSAH 23
 S.A.P. 002-623-017, S.A.P. 244-020-002

TRAFFIC SIGNAL SYSTEM "A"
 INTERSECTION LAYOUT
 CSAH 23 (LAKE DRIVE) AT GRIGGS AVENUE

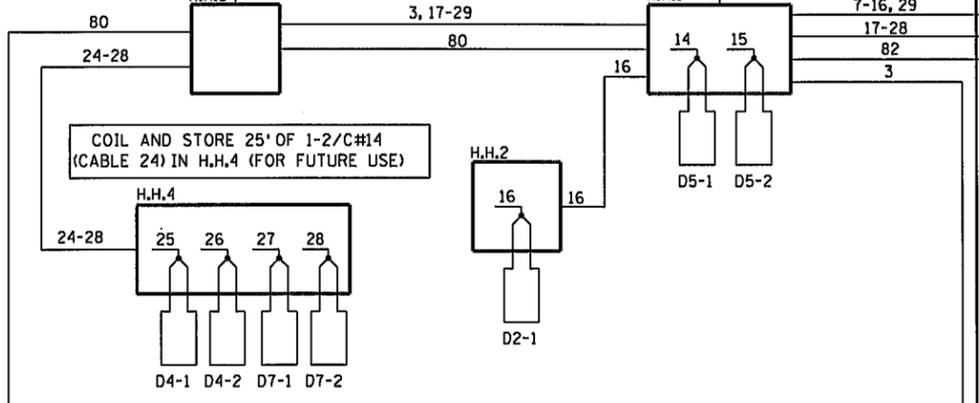
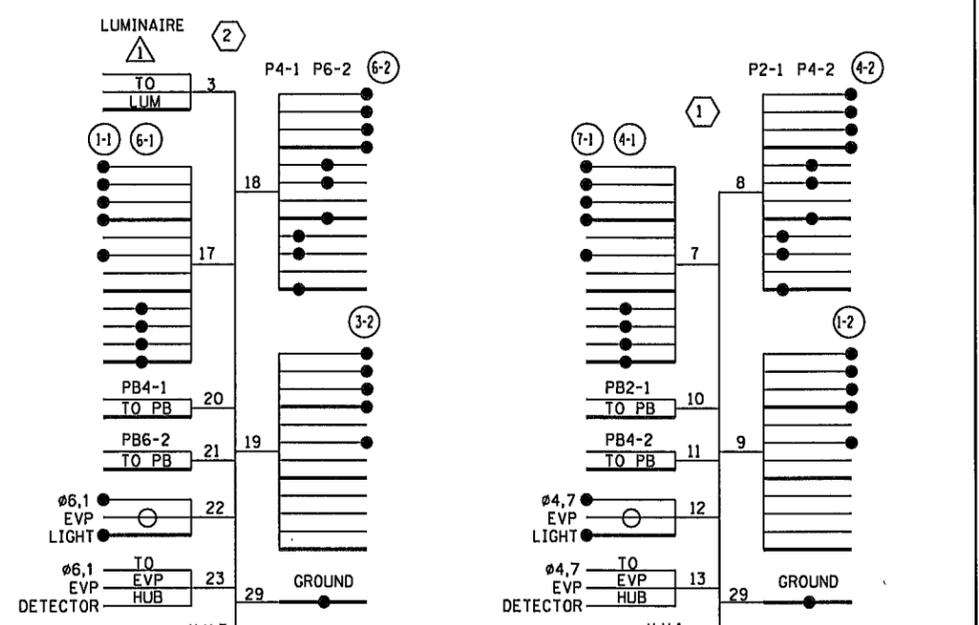
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SGL7 OF SGL19	94

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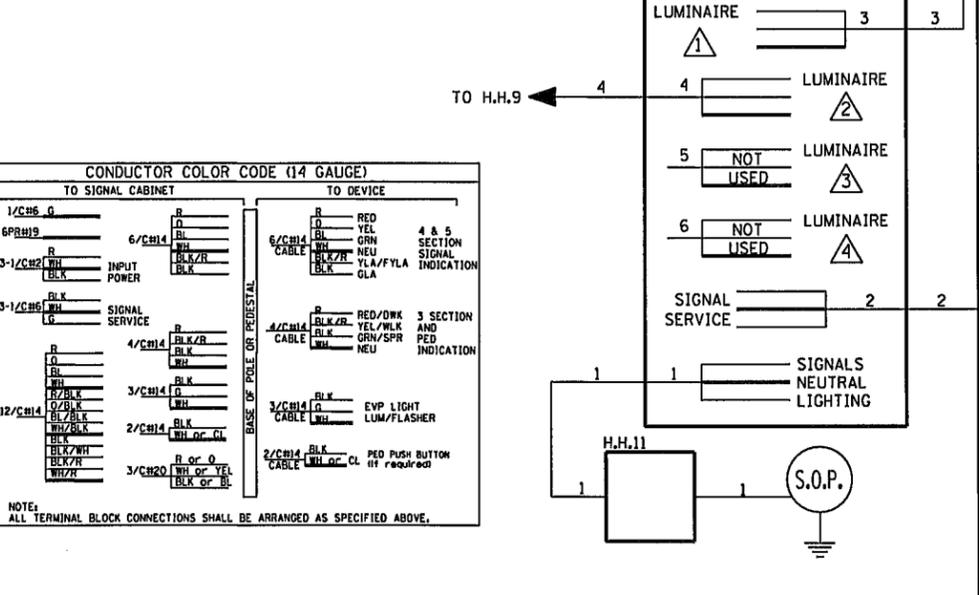
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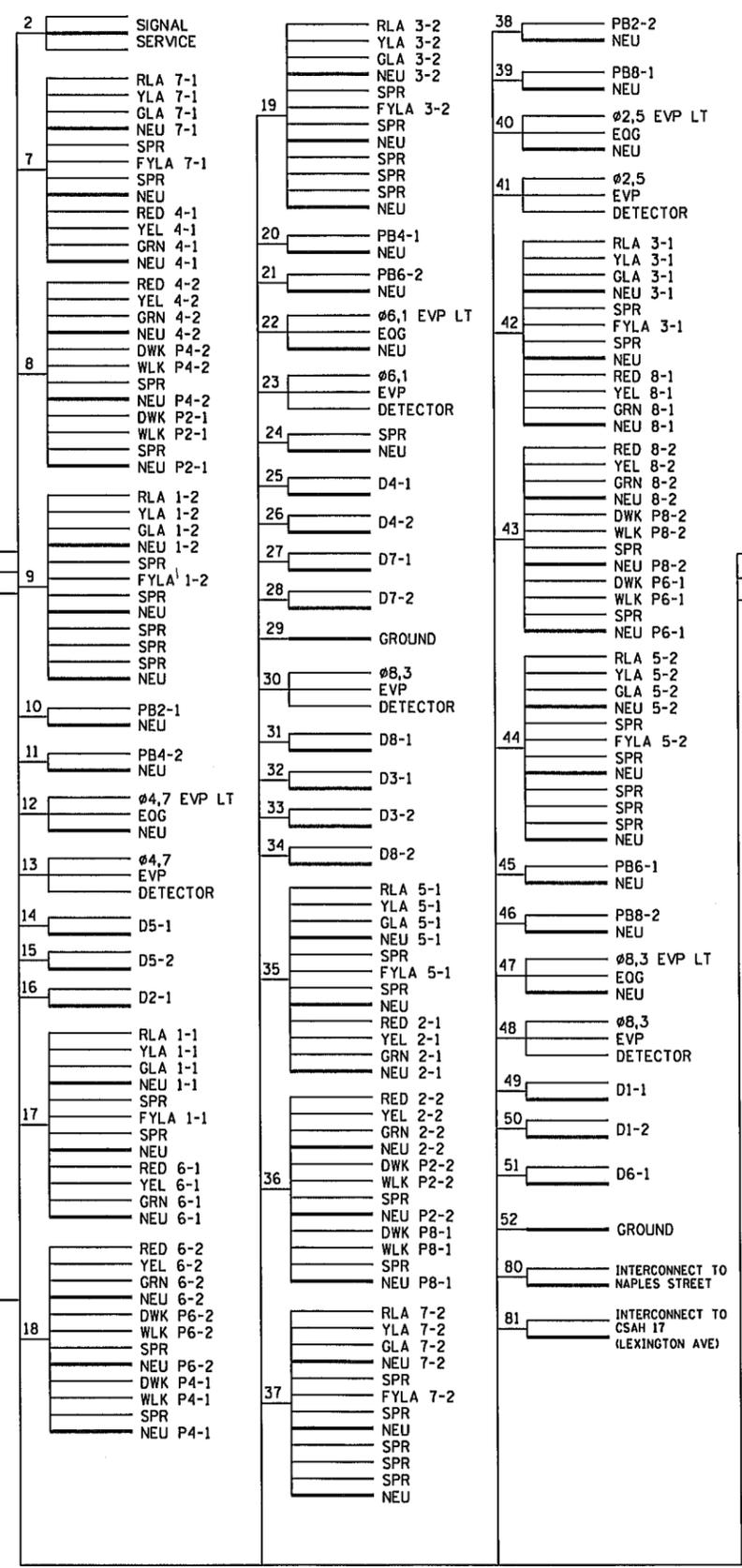
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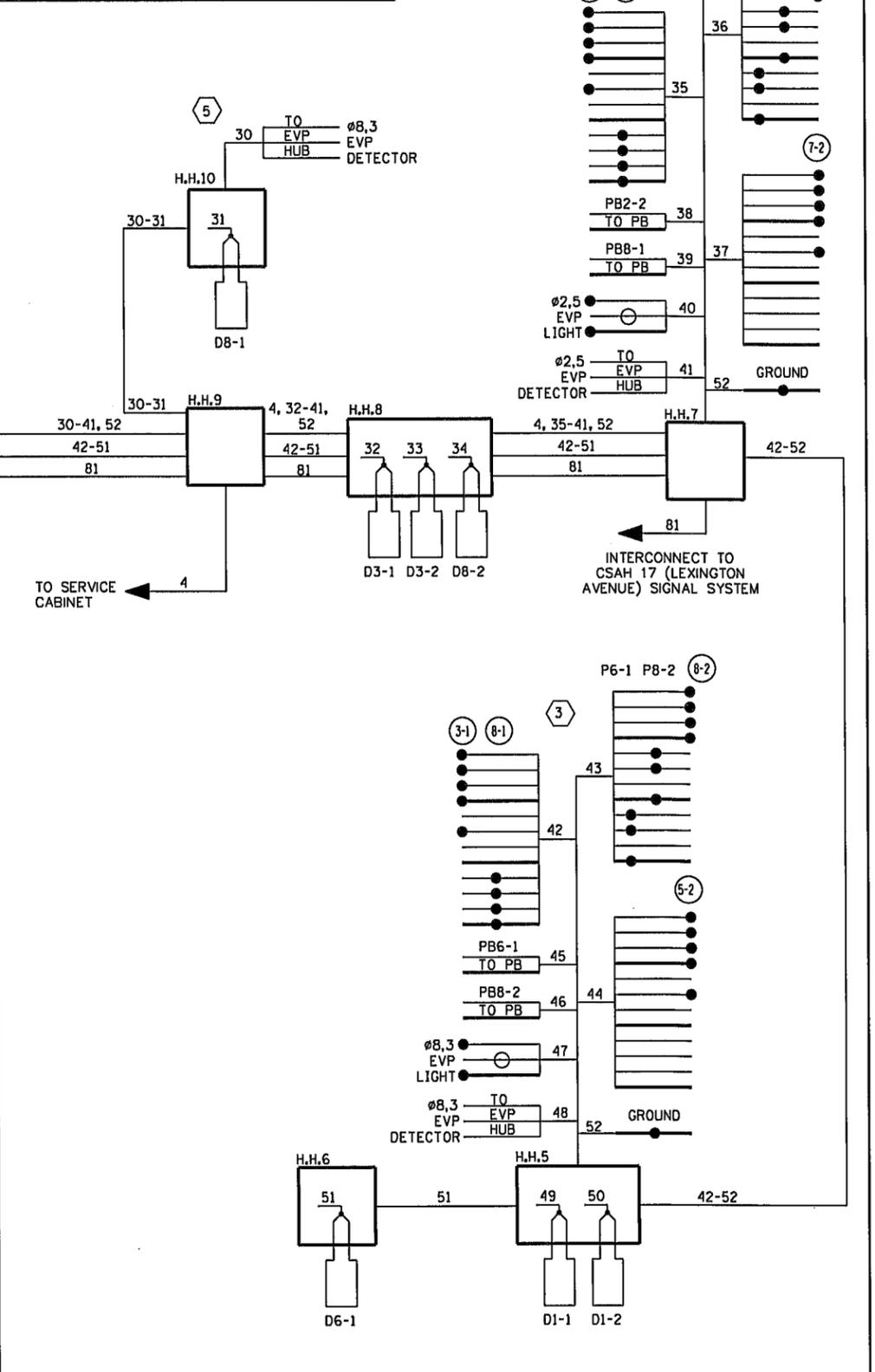
INTERCONNECT TO NAPLES STREET SIGNAL SYSTEM



CONTROLLER AND CABINET



NOTES:
 1) SIGNAL SYSTEM INCLUDES BATTERY BACK-UP SERVICE CABINET (WITH BATTERIES AND BACK UP SYSTEM EQUIPMENT).
 2) LUMINAIRES ARE UNMETERED.



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DRAWN BY:	SAS		
DESIGNER:	JMG		
CHECKED BY:	JMG		
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ANOKA COUNTY, MN
CSAH 23
 S.A.P. 002-623-017, S.A.P. 244-020-002

TRAFFIC SIGNAL SYSTEM "A"
FIELD WIRING DIAGRAM
 CSAH 23 (LAKE DRIVE) AT GRIGGS AVENUE

FILE NO.	83
ANOKC141617	
SGL8	94
OF SGL19	