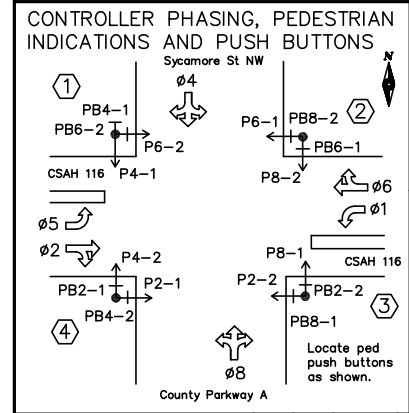
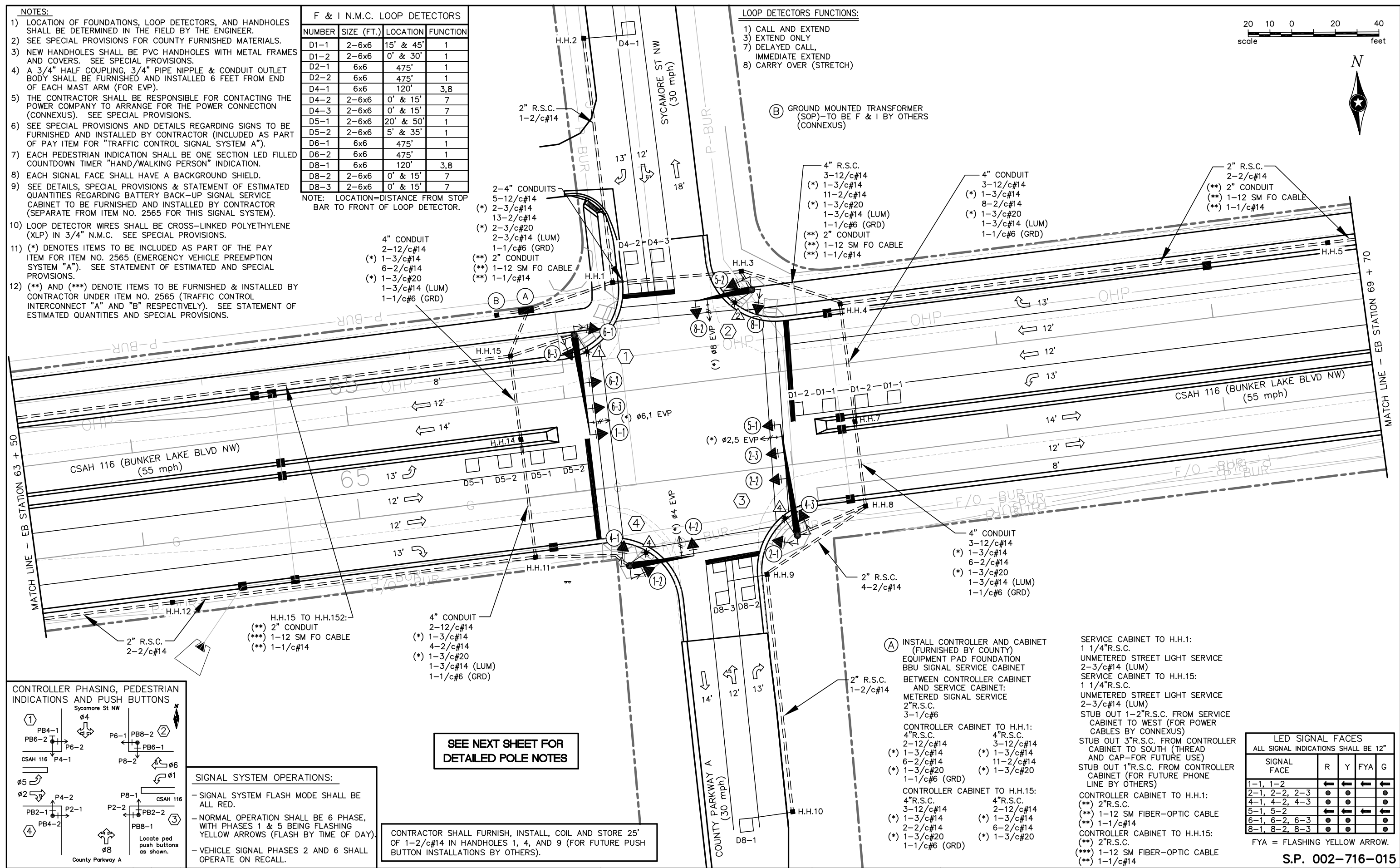
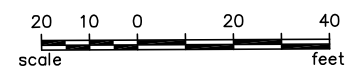


- NOTES:**
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS.
 - 4) A 3/4" HALF COUPLING, 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 (CONNEXUS). 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 A").
 - 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) 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 "A"). SEE STATEMENT OF ESTIMATED AND SPECIAL PROVISIONS.
 - 12) (**) AND (***) DENOTE ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT "A" AND "B" RESPECTIVELY). SEE STATEMENT OF ESTIMATED QUANTITIES 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'	1
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'	7
D5-1	2-6x6	20' & 50'	1
D5-2	2-6x6	5' & 35'	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'	7

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 (FLASH BY TIME OF DAY).
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

SEE NEXT SHEET FOR DETAILED POLE NOTES

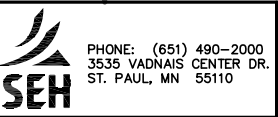
CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLES 1, 4, AND 9 (FOR FUTURE PUSH BUTTON INSTALLATIONS BY OTHERS).

DRAWN BY: LC/JMG
 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.

Date: February 19, 2016 Name: John M. Gray, PE Lic. No. 22457



ANOKA COUNTY
CITY OF ANDOVER

TRAFFIC CONTROL SIGNAL SYSTEM "A"
INTERSECTION LAYOUT
CSAH 116 AT SYCAMORE ST/COUNTY PKWY A

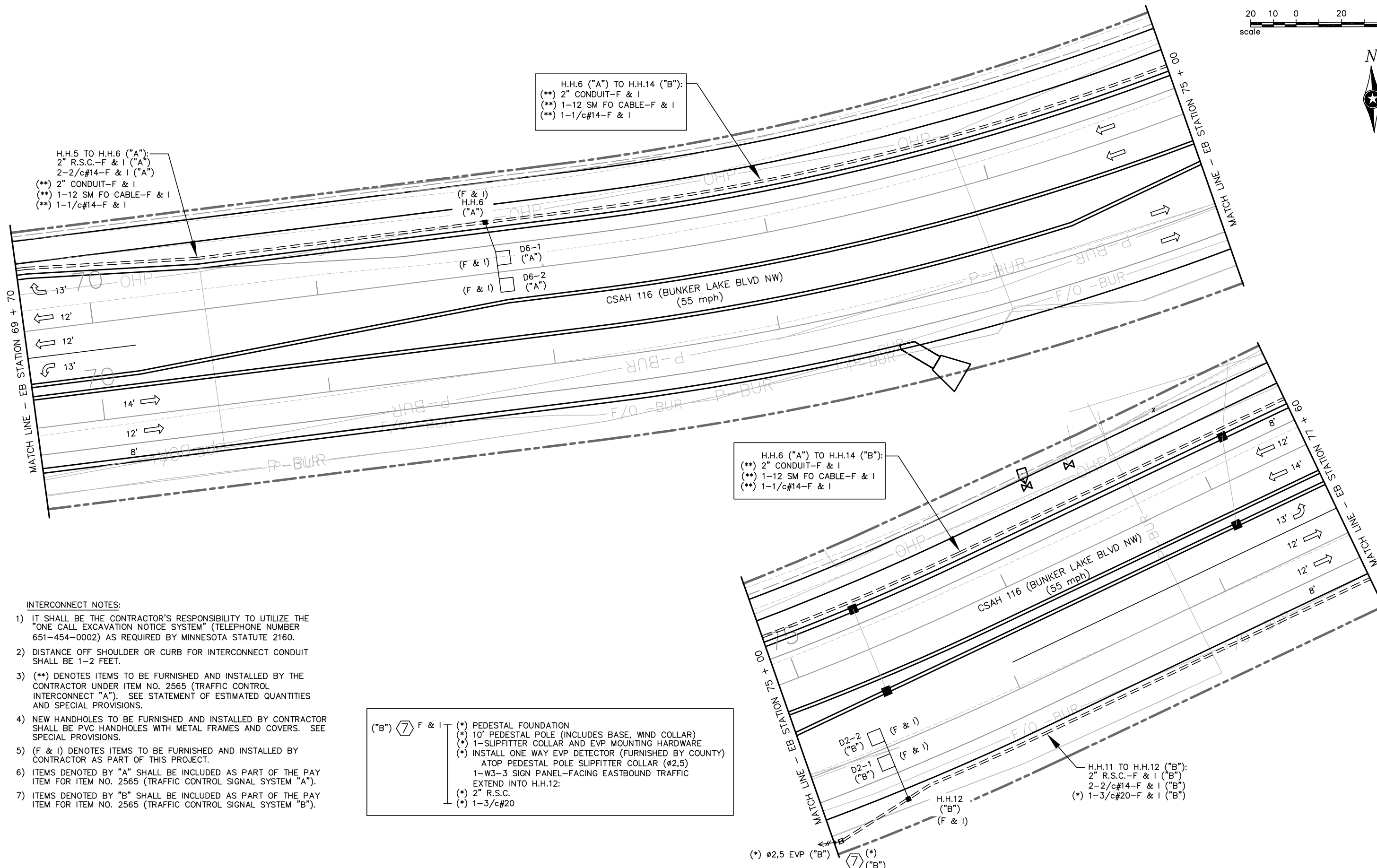
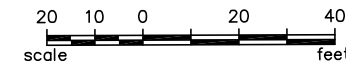
FILE NO. ANOKC 132658
 SIGNAL SHEET 11 OF 32
352
482

LED SIGNAL FACES
ALL SIGNAL INDICATIONS SHALL BE 12"

SIGNAL FACE	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.

S.P. 002-716-015



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 "A"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) NEW HANDHOLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS.
- 5) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 6) ITEMS DENOTED BY "A" SHALL BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM "A").
- 7) ITEMS DENOTED BY "B" SHALL BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM "B").

(*) PEDESTAL FOUNDATION
 (*) 10' PEDESTAL POLE (INCLUDES BASE, WIND COLLAR)
 (*) 1-SLIPFITTER COLLAR AND EVP MOUNTING HARDWARE
 (*) INSTALL ONE WAY EVP DETECTOR (FURNISHED BY COUNTY)
 ATOP PEDESTAL POLE SLIPFITTER COLLAR (Ø2,5)
 1-W3-3 SIGN PANEL-FACING EASTBOUND TRAFFIC
 EXTEND INTO H.H.12:
 (*) 2" R.S.C.
 (*) 1-3/c#20

DRAWN BY: LC/JMG
 DESIGNER: JMG
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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John M. Gray
 Name: John M. Gray, PE
 Lic. No. 22457
 Date: February 19, 2016

SEH
 PHONE: (651) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

ANOKA COUNTY
 CITY OF ANDOVER

TRAFFIC CONTROL SIGNAL SYSTEMS 'A-B'
INTERSECTION LAYOUT
 CSAH 116 (SYCAMORE ST TO PRAIRIE ROAD)

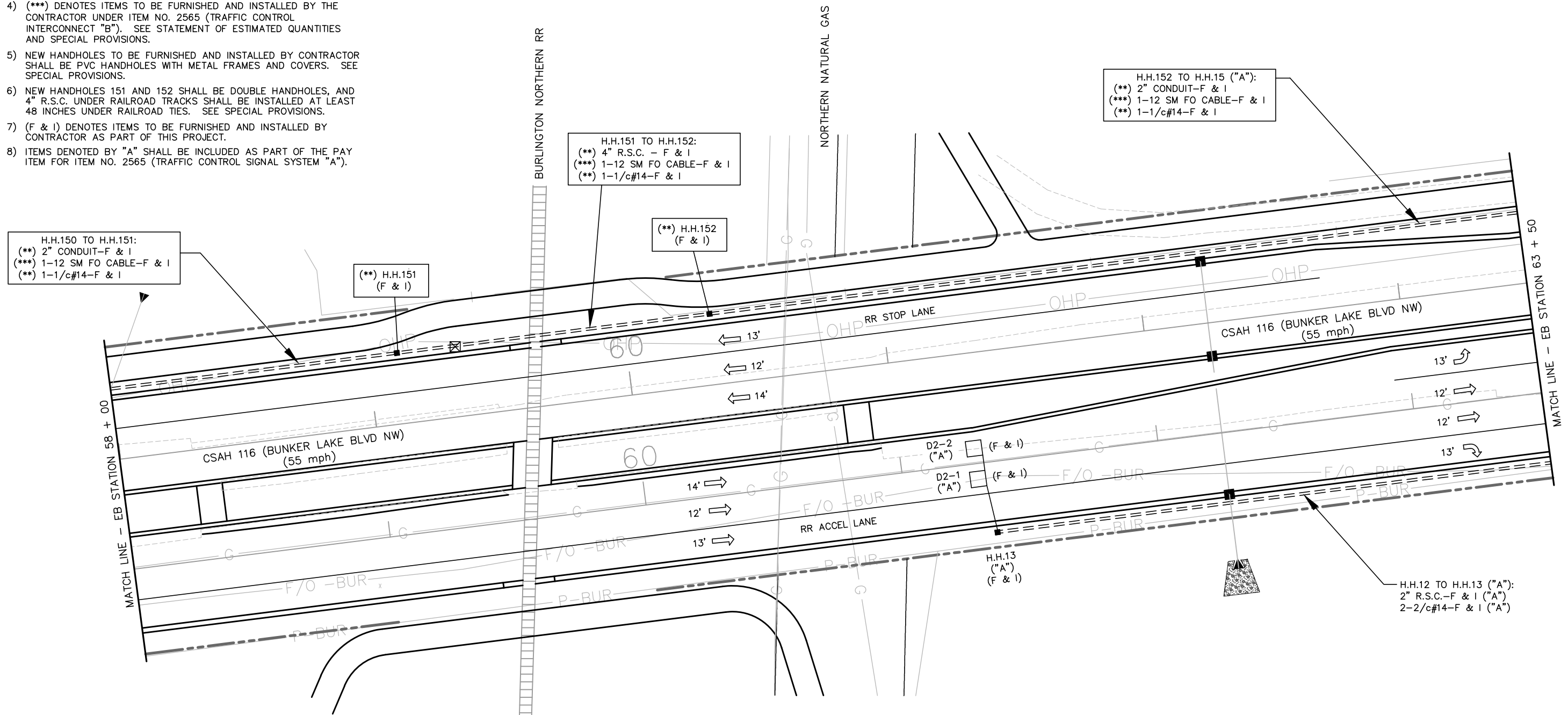
FILE NO.
 ANOKC 132658
 SIGNAL SHEET
 14 OF 32

355
482

S.P. 002-716-015

INTERCONNECT NOTES:

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- 3) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT "A"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (***) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT "B"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 5) NEW HANDHOLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS.
- 6) NEW HANDHOLES 151 AND 152 SHALL BE DOUBLE HANDHOLES, AND 4" R.S.C. UNDER RAILROAD TRACKS SHALL BE INSTALLED AT LEAST 48 INCHES UNDER RAILROAD TIES. SEE SPECIAL PROVISIONS.
- 7) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.
- 8) ITEMS DENOTED BY "A" SHALL BE INCLUDED AS PART OF THE PAY ITEM FOR ITEM NO. 2565 (TRAFFIC CONTROL SIGNAL SYSTEM "A").



S.P. 002-716-015

DRAWN BY: LC/JMG
 DESIGNER: JMG
 CHECKED BY: JMG

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ANOKA COUNTY
 CITY OF ANDOVER

TRAFFIC SIGNAL SYSTEM 'A'/INTERCONNECT
INTERSECTION LAYOUT
 CSAH 116 (CRANE ST TO SYCAMORE ST)

FILE NO. ANOKC 132658
 SIGNAL SHEET 10 OF 32
351
482

CSAH 116, STA. 43+00.00
BEGIN FULL CONSTRUCTION

H.H.148 TO H.H.149:
H.H.149 TO H.H.150:
(**) 2" CONDUIT-F & I
(***) 1-12 SM FO CABLE-F & I
(**) 1-1/c#14-F & I

(**) H.H.149
(F & I)

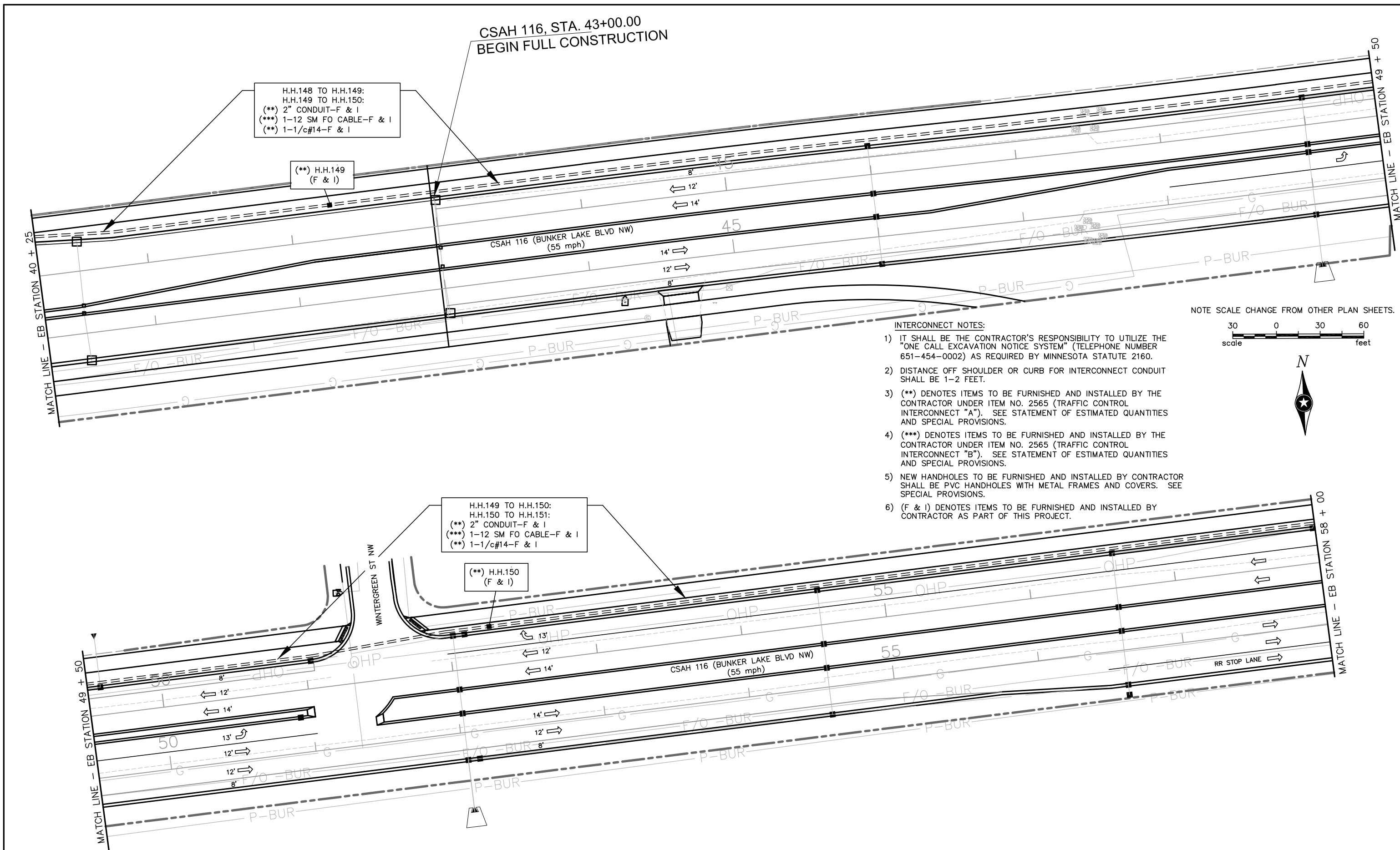
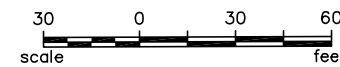
H.H.149 TO H.H.150:
H.H.150 TO H.H.151:
(**) 2" CONDUIT-F & I
(***) 1-12 SM FO CABLE-F & I
(**) 1-1/c#14-F & I

(**) H.H.150
(F & I)

INTERCONNECT NOTES:

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- 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 "A"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (***) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT "B"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 5) NEW HANDHOLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS.
- 6) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.

NOTE SCALE CHANGE FROM OTHER PLAN SHEETS.



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

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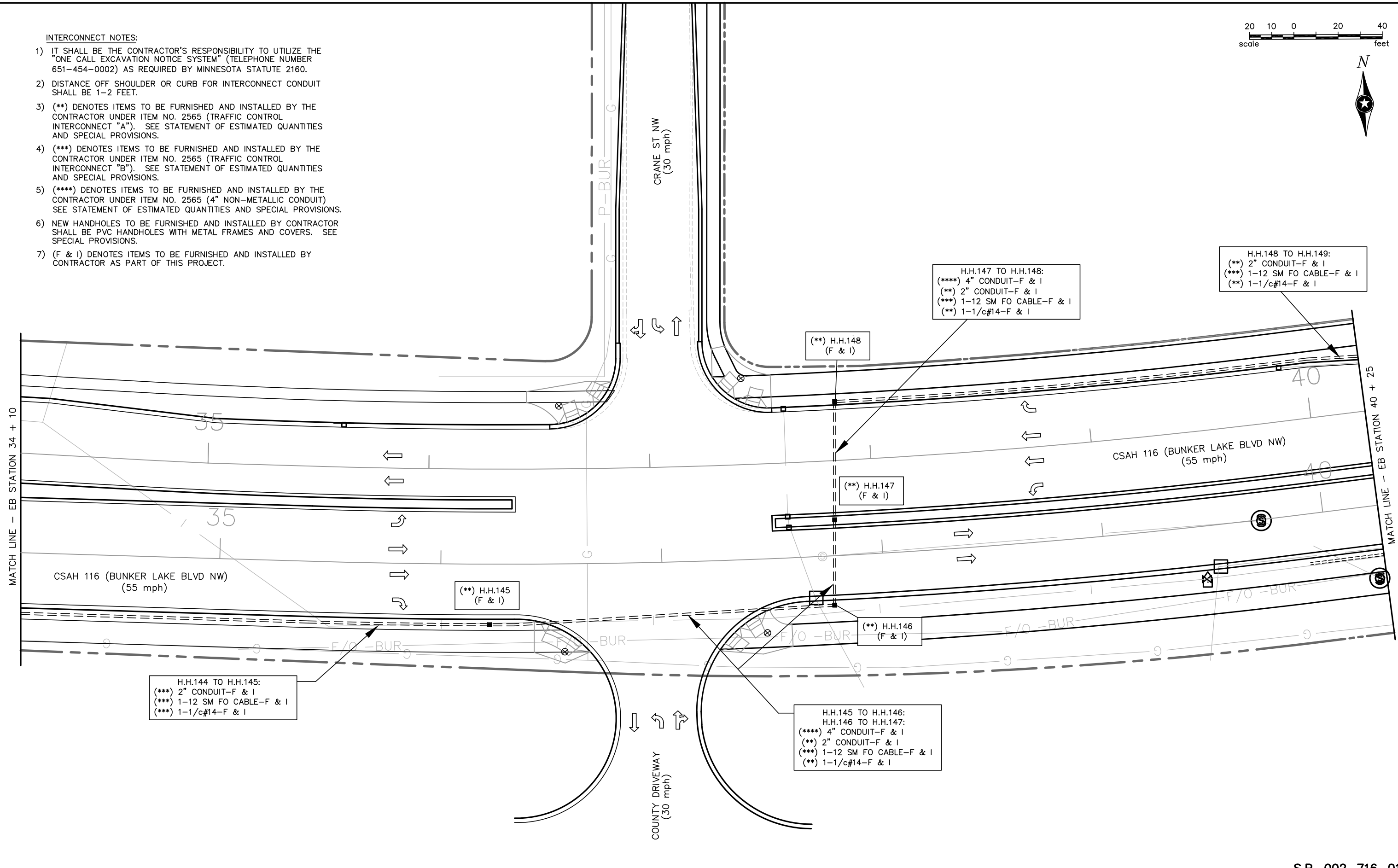
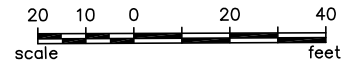
ANOKA COUNTY
CITY OF ANDOVER

TRAFFIC CONTROL INTERCONNECT
INTERSECTION LAYOUT
CSAH 116 (CRANE ST TO SYCAMORE ST)

S.P. 002-716-015
FILE NO. ANOKA 132658
SIGNAL SHEET 350
9 OF 32 482

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 "A"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) (***) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECT "B"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 5) (****) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (4" NON-METALLIC CONDUIT) SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 6) NEW HANDHOLES TO BE FURNISHED AND INSTALLED BY CONTRACTOR SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS. SEE SPECIAL PROVISIONS.
- 7) (F & I) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY CONTRACTOR AS PART OF THIS PROJECT.



DRAWN BY: LC/JMG			
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ANOKA COUNTY
 CITY OF ANDOVER

**TRAFFIC CONTROL INTERCONNECT
 INTERSECTION LAYOUT**
 CSAH 116 AT CRANE ST/HIGHWAY DRIVEWAY

FILE NO. ANOK 132658
 SIGNAL SHEET 8 OF 32
349
482

S.P. 002-716-015

- ① PA100 POLE FOUNDATION
 TYPE PA100-A-45-D30-9 (DAVIT AT 350 DEG)
 LUMINAIRE-LED SHOEBOX
 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
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG AND 180 DEG
 R10-X12 SIGN PANEL-ADJACENT TO 1-1
 TYPE D SIGN PANEL-OVERHEAD (D-1)
 (*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION
 LIGHT (FURNISHED BY COUNTY (Ø6,1)
 (*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY
 FURNISHED DETECTOR AND CONFIRMATION LIGHT)
 EXTEND INTO H.H.15:
 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)

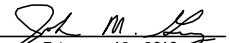
- ② PA85 POLE FOUNDATION
 TYPE PA85-A-25-D30-9 (DAVIT AT 350 DEG.)
 LUMINAIRE-LED SHOEBOX
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90 DEG
 AND 180 DEG
 2-ANGLE MOUNT C.D. PED INDICATIONS-POLE MOUNTED
 90 DEG AND 180 DEG
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 TYPE D SIGN PANEL-OVERHEAD (D-2)
 (*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION
 LIGHT (FURNISHED BY COUNTY (Ø8)
 (*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY
 FURNISHED DETECTOR AND CONFIRMATION LIGHT)
 EXTEND INTO H.H.3:
 3"R.S.C.
 2-12/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 PA100 POLE FOUNDATION
 TYPE PA100-A-50-D30-9 (DAVIT AT 350 DEG)
 LUMINAIRE-LED SHOEBOX
 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
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 2-R6-1 SIGN PANELS-POLE MOUNTED 0 DEG AND 180 DEG
 R10-X12 SIGN PANEL-ADJACENT TO 5-1
 TYPE D SIGN PANEL-OVERHEAD (D-3)
 (*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION
 LIGHT (FURNISHED BY COUNTY (Ø2,5)
 (*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY
 FURNISHED DETECTOR AND CONFIRMATION LIGHT)
 EXTEND INTO H.H.8:
 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)

- ④ PA90 POLE FOUNDATION
 TYPE PA90-A-30-D30-9 (DAVIT AT 350 DEG)
 LUMINAIRE-LED SHOEBOX
 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
 2-PEDESTRIAN PUSH BUTTONS & SIGNS (R10-3e)
 TYPE D SIGN PANEL-OVERHEAD (D-4)
 (*) INSTALL ONE WAY EVP DETECTOR & LED CONFIRMATION
 LIGHT (FURNISHED BY COUNTY (Ø4)
 (*) ONE WAY EVP MOUNTING HARDWARE (FOR COUNTY
 FURNISHED DETECTOR AND CONFIRMATION LIGHT)
 EXTEND INTO H.H.11:
 3"R.S.C.
 2-12/c#14
 (*) 1-3/c#14
 2-2/c#14
 (*) 1-3/c#20
 1-3/c#14 (LUM)
 1-1/c#6 (GRD)

S.P. 002-716-015

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

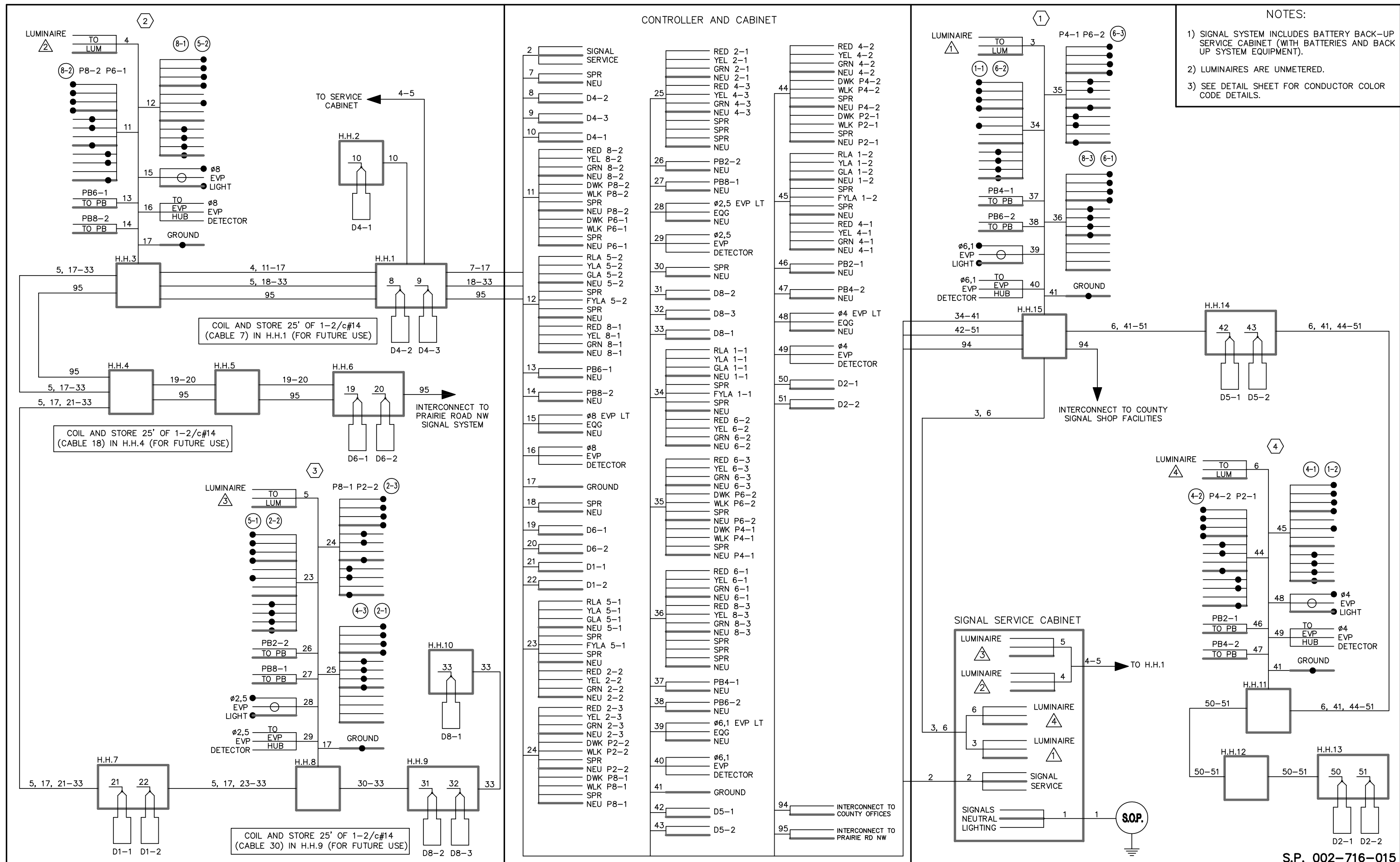
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 Lic. No. 22457

 PHONE: (651) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

ANOKA COUNTY
 CITY OF ANDOVER

TRAFFIC CONTROL SIGNAL SYSTEM 'A'
 INTERSECTION LAYOUT
 CSAH 116 AT SYCAMORE ST/COUNTY PKWY A

FILE NO. ANOKC 132658	353
SIGNAL SHEET 12 OF 32	482



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 FOR CONDUCTOR COLOR CODE DETAILS.

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

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.
 Date: February 19, 2016 Name: John M. Gray, PE Lic. No. 22457

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

ANOKA COUNTY
 CITY OF ANDOVER

TRAFFIC CONTROL SIGNAL SYSTEM 'A'
 FIELD WIRING DIAGRAM
 CSAH 116 AT SYCAMORE ST/COUNTY PKWY A

FILE NO. ANOKC 132658
 SIGNAL SHEET 13 OF 32
 354
 482

S.P. 002-716-015