

NOTES:

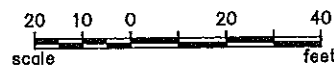
- 1) LOCATION OF FOUNDATIONS, LOOP DETECTORS, AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
- 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE, AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (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 D").
- 7) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION FILLED COUNTDOWN TIMER "HAND/WALKING PERSON" INDICATION.
- 8) ALL VEHICLE AND PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
- 9) EACH SIGNAL FACE SHALL HAVE A BACKGROUND SHIELD.
- 10) 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).
- 11) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
- 12) (*) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM "D"). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 13) (**) DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

F & NUMBER	N.M.C. LOOP DETECTORS SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	20' & 50'	1
D1-2	2-6x6	5' & 35'	1
D2-1	6x6	400'	1
D2-2	6x6	400'	1
D4-1	6x6	120'	3,8
D4-2	2-6x6	0' & 15'	7
D5-1	2-6x6	20' & 50'	1
D5-2	2-6x6	5' & 35'	1
D6-1	6x6	400'	1
D6-2	6x6	400'	1
D8-1	6x10	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.

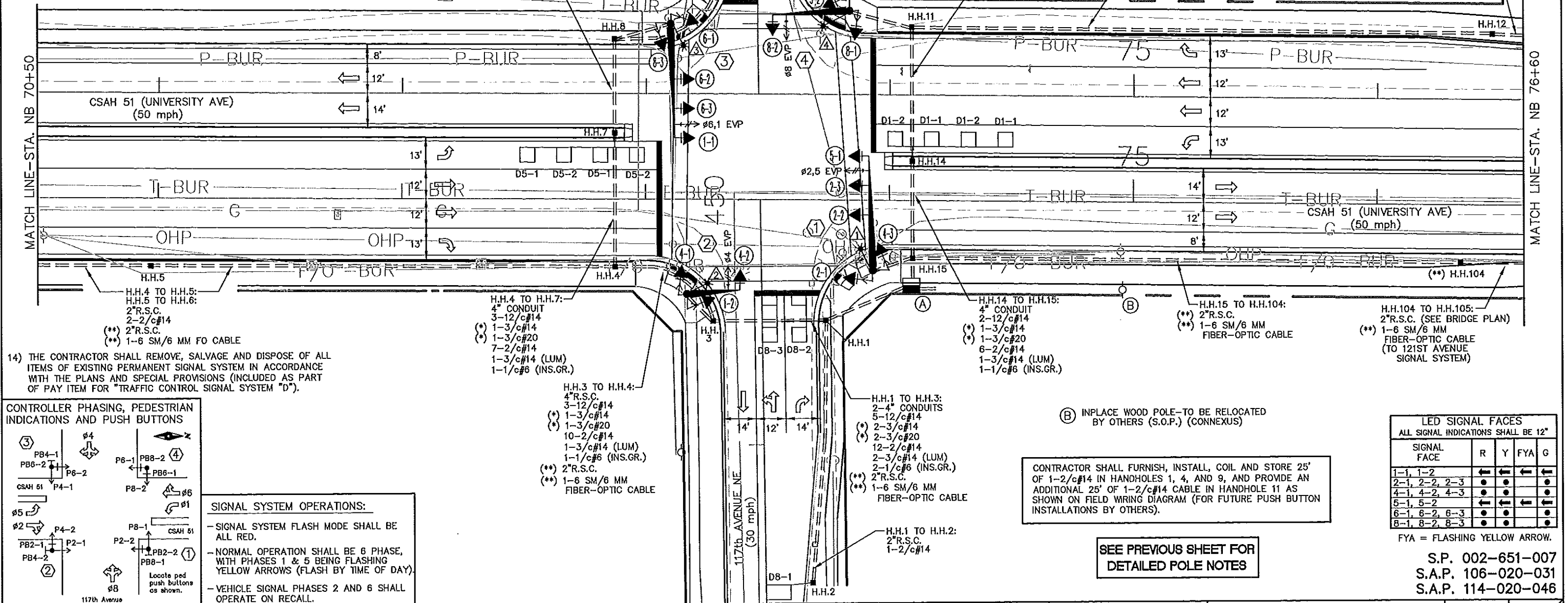
LOOP DETECTORS FUNCTIONS:

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



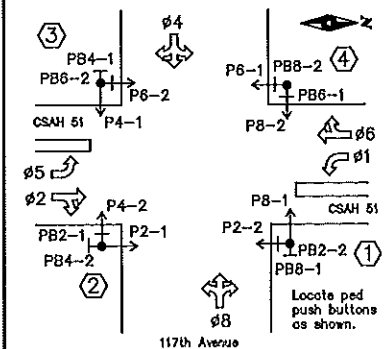
- (A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)
EQUIPMENT PAD FOUNDATION
BBU SIGNAL SERVICE CABINET
BETWEEN CONTROLLER CABINET AND SERVICE CABINET:
METERED SIGNAL SERVICE
2" R.S.C.
3-1/c#6
CONTROLLER CABINET TO H.H.1:
4" R.S.C.
2-12/c#14
(*) 1-3/c#14
(*) 1-3/c#20
6-2/c#14
1-1/c#6 (INS.GR.)
CONTROLLER CABINET TO H.H.15:
4" R.S.C.
3-12/c#14
(*) 1-3/c#14
(*) 1-3/c#20
2-2/c#14
1-1/c#6 (INS.GR.)

- SERVICE CABINET TO H.H.1:
2" R.S.C.
UNMETERED STREET LIGHT SERVICE
2-3/c#14 (LUM)
SERVICE CABINET TO H.H.15:
2" R.S.C.
UNMETERED STREET LIGHT SERVICE
2-3/c#14 (LUM)
STUB OUT 1-2" R.S.C. FROM SERVICE CABINET TO NORTH (FOR POWER CABLES BY CONNEXUS)
STUB OUT 3" R.S.C. FROM CONTROLLER CABINET TO WEST (THREAD AND CAP-FOR FUTURE USE)
STUB OUT 1" R.S.C. FROM CONTROLLER CABINET (FOR FUTURE PHONE LINE BY OTHERS)
CONTROLLER CABINET TO H.H.1:
(**) 2" R.S.C.
(**) 1-6 SM/6 MM FO CABLE
CONTROLLER CABINET TO H.H.15:
(**) 2" R.S.C.
(**) 1-6 SM/6 MM FO CABLE



14) THE CONTRACTOR SHALL REMOVE, SALVAGE AND DISPOSE OF ALL ITEMS OF EXISTING PERMANENT SIGNAL SYSTEM IN ACCORDANCE WITH THE PLANS AND SPECIAL PROVISIONS (INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM D").

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



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.

(B) INPLACE WOOD POLE-TO BE RELOCATED BY OTHERS (S.O.P.) (CONNEXUS)

CONTRACTOR SHALL FURNISH, INSTALL, COIL AND STORE 25' OF 1-2/c#14 IN HANDHOLES 1, 4, AND 9, AND PROVIDE AN ADDITIONAL 25' OF 1-2/c#14 CABLE IN HANDHOLE 11 AS SHOWN ON FIELD WIRING DIAGRAM (FOR FUTURE PUSH BUTTON INSTALLATIONS BY OTHERS).

SEE PREVIOUS 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, 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. 002-651-007
S.A.P. 106-020-031
S.A.P. 114-020-046

DRAWN BY: 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: December 17, 2013
Name: John M. Gray, PE
Lic. No.: 22457

ANOKA COUNTY
CITIES OF BLAINE AND COON RAPIDS

TRAFFIC SIGNAL SYSTEM 'D'
INTERSECTION LAYOUT
CSAH 51 (UNIVERSITY AVE) AT 117TH AVENUE

FILE NO. ANOK 125457
SIGNAL SHEET 20 OF 39

SIGNAL SYSTEM "D" POLE NOTES



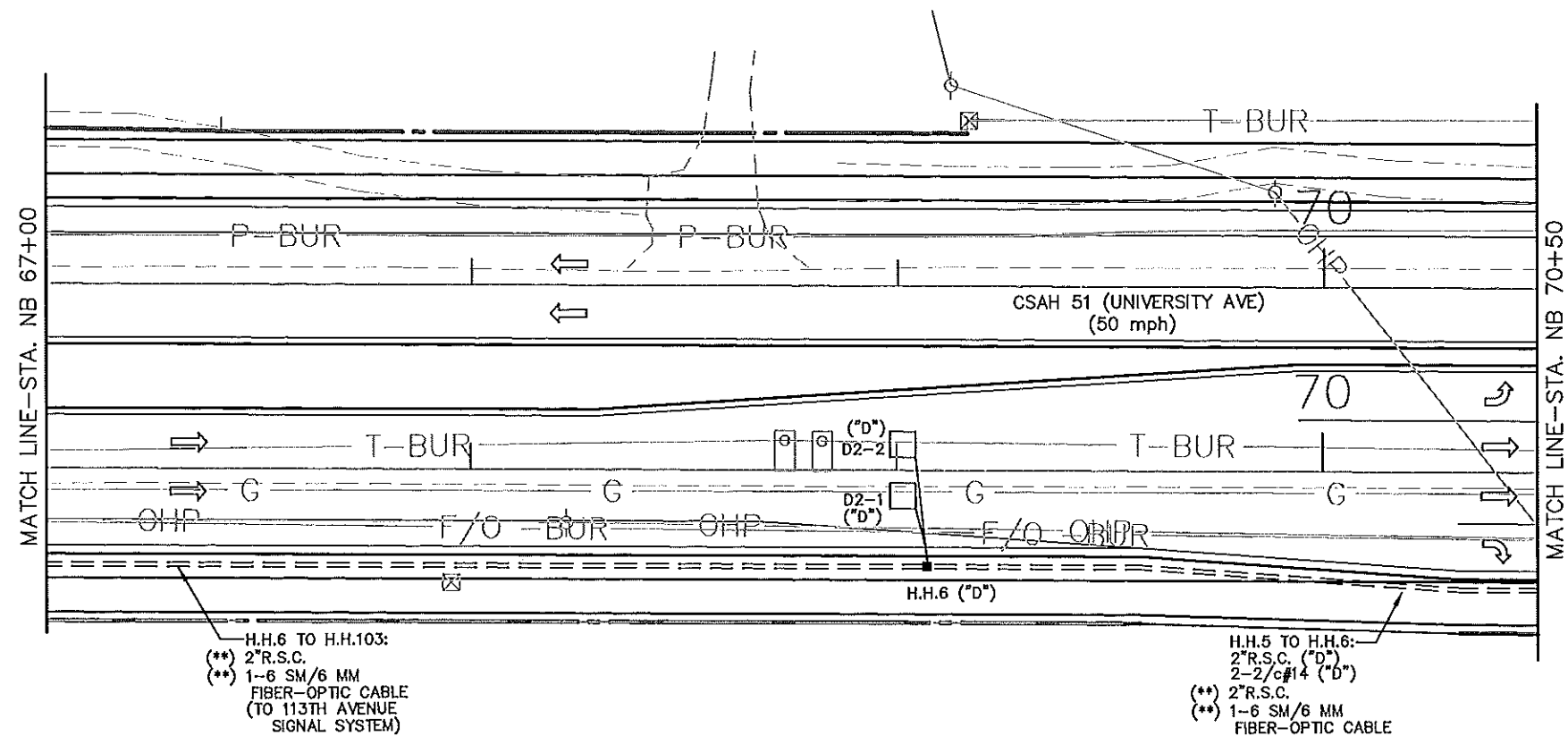
SEE NEXT SHEET FOR
SIGNAL SYSTEM 'D' LAYOUT

- ① PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVT AT 350 DEG)
LUMINAIRE-LED COBRAHEAD
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
2-R6-1 SIGN PANEL-POLE MOUNTED 0 DEG AND 180 DEG
R10-X12 SIGN PANEL-ADJACENT TO 5-1
TYPE D SIGN PANEL-OVERHEAD (D-8)
(* ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#2,5)
EXTEND INTO H.H.15:
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 (INS.GR.)

- ② PA85 POLE FOUNDATION
TYPE PA85-A-20-D40-9 (DAVT AT 350 DEG.)
LUMINAIRE-LED COBRAHEAD
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
TYPE D SIGN PANEL-OVERHEAD (D-9)
(* ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#4)
EXTEND INTO H.H.3:
3"R.S.C.
2-12/c#14
(* 1-3/c#14
(* 1-3/c#20
2-2/c#14
1-3/c#14 (LUM)
1-1/c#6 (INS.GR.)

- ③ PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVT AT 350 DEG)
LUMINAIRE-LED COBRAHEAD
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
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-10)
(* ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#6,1)
EXTEND INTO H.H.8:
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 (INS.GR.)

- ④ PA90 POLE FOUNDATION
TYPE PA90-A-30-D40-9 (DAVT AT 350 DEG)
LUMINAIRE-LED COBRAHEAD
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
TYPE D SIGN PANEL-OVERHEAD (D-11)
(* ONE WAY EVP DETECTOR & CONFIRMATORY LIGHT (#8)
EXTEND INTO H.H.11:
3"R.S.C.
2-12/c#14
(* 1-3/c#14
(* 1-3/c#20
2-2/c#14
1-3/c#14 (LUM)
1-1/c#6 (INS.GR.)



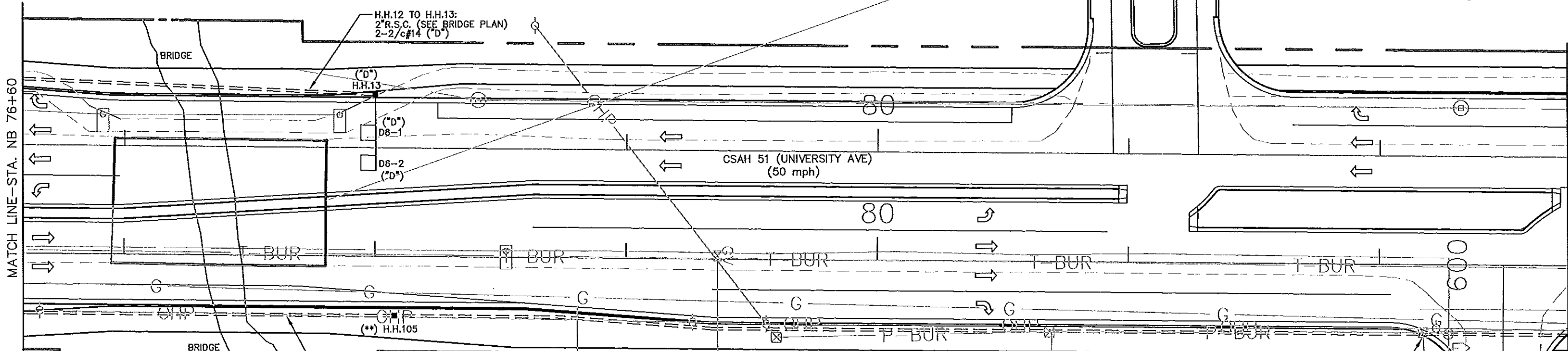
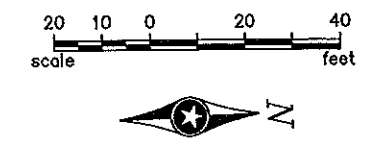
- INTERCONNECT NOTES:
- 1) IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THE "ONE CALL EXCAVATION NOTICE SYSTEM" (TELEPHONE NUMBER 651-454-0002) AS REQUIRED BY MINNESOTA STATUTE 2160.
 - 2) DISTANCE OFF SHOULDER OR CURB FOR INTERCONNECT CONDUIT SHALL BE 1-2 FEET.
 - 3) (** DENOTES ITEMS TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNDER ITEM NO. 2565 (TRAFFIC CONTROL INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
 - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MnDOT STANDARD PLATE NO. 8114.
 - 5) ITEMS DENOTED BY "D" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM D". SEE SPECIAL PROVISIONS.

H.H.6 TO H.H.103:
(**) 2"R.S.C.
(**) 1-6 SM/6 MM FIBER-OPTIC CABLE (TO 113TH AVENUE SIGNAL SYSTEM)

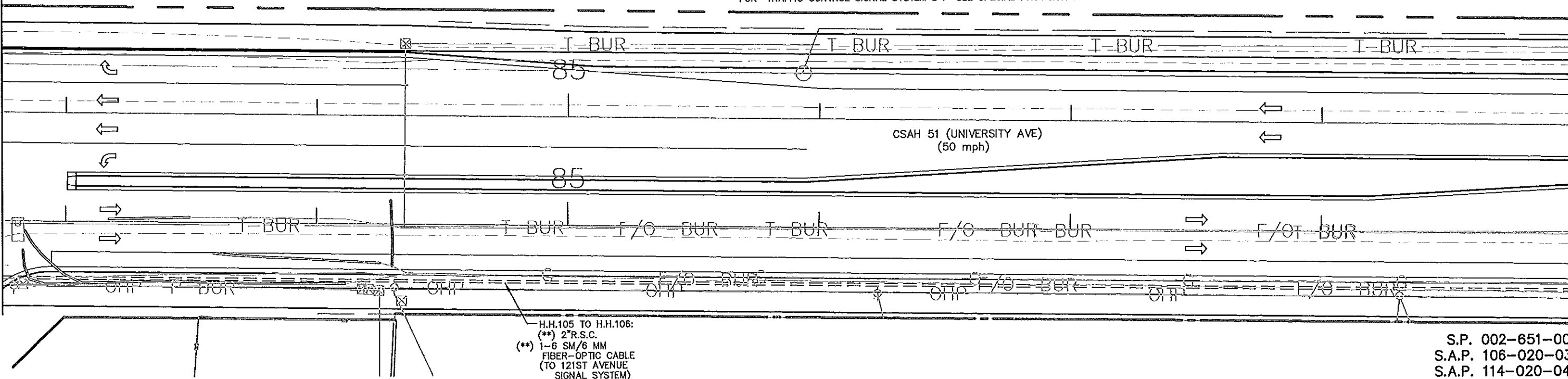
H.H.5 TO H.H.6:
(**) 2"R.S.C. ("D")
(**) 2-2/c#14 ("D")
(**) 2"R.S.C.
(**) 1-6 SM/6 MM FIBER-OPTIC CABLE

S.P. 002-651-007
S.A.P. 106-020-031
S.A.P. 114-020-046

DRAWN BY: JMG DESIGNER: JMG CHECKED BY: JMG	DESIGN TEAM 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. Name: John M. Gray, PE License No. 22457 Date: December 17, 2013	PHONE: (651) 490-2000 3535 VADNAIS CENTER DR. ST. PAUL, MN 55110	ANOKA COUNTY CITIES OF BLAINE AND COON RAPIDS	SIGNAL SYSTEM 'D'/INTERCONNECT INTERSECTION LAYOUT CSAH 51 (UNIVERSITY AVE) (113TH AVENUE TO 117TH AVENUE)	FILE NO. ANOKC 125457 SIGNAL SHEET 19 OF 39
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 - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MnDOT STANDARD PLATE NO. 8114.
 - 5) ITEMS DENOTED BY "D" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM D". SEE SPECIAL PROVISIONS.



H.H.12 TO H.H.13:
2" R.S.C. (SEE BRIDGE PLAN)
2-2/c#14 ("D")

H.H.104 TO H.H.105:
2" R.S.C. (SEE BRIDGE PLAN)
(**) 1-6 SM/6 MM
FIBER-OPTIC CABLE
(TO 117TH AVENUE
SIGNAL SYSTEM)

H.H.105 TO H.H.106:
(**) 2" R.S.C.
(**) 1-6 SM/6 MM
FIBER-OPTIC CABLE

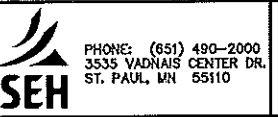
H.H.105 TO H.H.106:
(**) 2" R.S.C.
(**) 1-6 SM/6 MM
FIBER-OPTIC CABLE
(TO 121ST AVENUE
SIGNAL SYSTEM)

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

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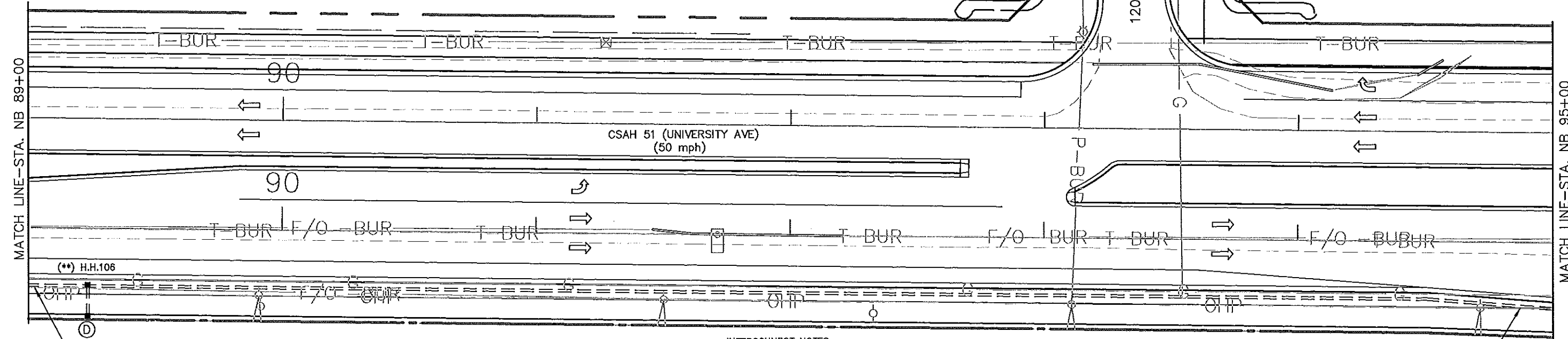
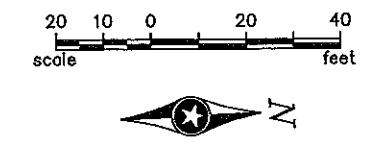


ANOKA COUNTY
CITIES OF BLAINE
AND COON RAPIDS

**SIGNAL SYSTEM 'D'/INTERCONNECT
INTERSECTION LAYOUT
CSAH 51 (UNIVERSITY AVE)
(117TH AVENUE TO 121ST AVENUE)**

FILE NO.
ANOKC 125457
SIGNAL SHEET
22 OF 39

S.P. 002-651-007
S.A.P. 106-020-031
S.A.P. 114-020-046



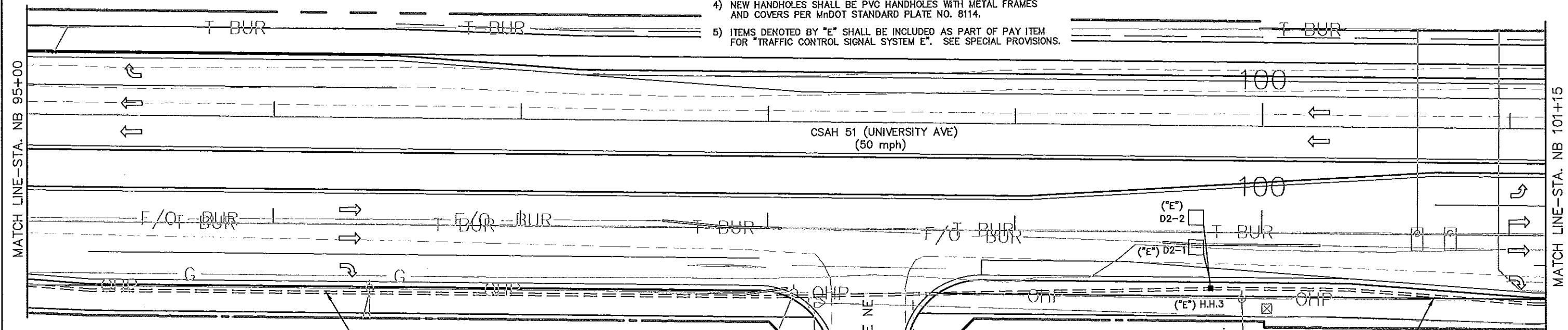
H.H.105 TO H.H.106:
 (***) 2" R.S.C.
 (***) 1-6 SM/6 MM FIBER-OPTIC CABLE (TO 117TH AVENUE SIGNAL SYSTEM)

Ⓧ (***) INTERCONNECT SPLICE CABINET (LOOP FIBER-OPTIC CABLE IN AND OUT OF CABINET TO H.H.106)
 (***) CABINET FOUNDATION EXTEND INTO H.H.106:
 (***) 2-2" R.S.C.
 (***) 2-6 SM/6 MM FIBER-OPTIC CABLES

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 INTERCONNECTION). SEE STATEMENT OF ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.
- 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS PER MnDOT STANDARD PLATE NO. 8114.
- 5) ITEMS DENOTED BY "E" SHALL BE INCLUDED AS PART OF PAY ITEM FOR "TRAFFIC CONTROL SIGNAL SYSTEM E". SEE SPECIAL PROVISIONS.

H.H.106 TO H.H.3 ("E"):
 (***) 2" R.S.C.
 (***) 1-6 SM/6 MM FIBER-OPTIC CABLE



H.H.3 ("E") TO H.H.106:
 (***) 2" R.S.C.
 (***) 1-6 SM/6 MM FIBER-OPTIC CABLE

H.H.2 TO H.H.3:
 2" R.S.C. ("E")
 2-2/c#14 ("E")
 (***) 2" R.S.C.
 (***) 1-6 SM/6 MM FIBER-OPTIC CABLE

S.P. 002-651-007
 S.A.P. 106-020-031
 S.A.P. 114-020-046

DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG

DESIGN TEAM	NO.	BY	DATE	REVISIONS

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 Date: December 17, 2013

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

ANOKA COUNTY
CITIES OF BLAINE
AND COON RAPIDS

SIGNAL SYSTEM 'E'/INTERCONNECT
INTERSECTION LAYOUT
CSAH 51 (UNIVERSITY AVE)
(117TH AVENUE TO 121ST AVENUE)

FILE NO.
 ANOKC 125457
 SIGNAL SHEET
 23 OF 39