

NOTES:

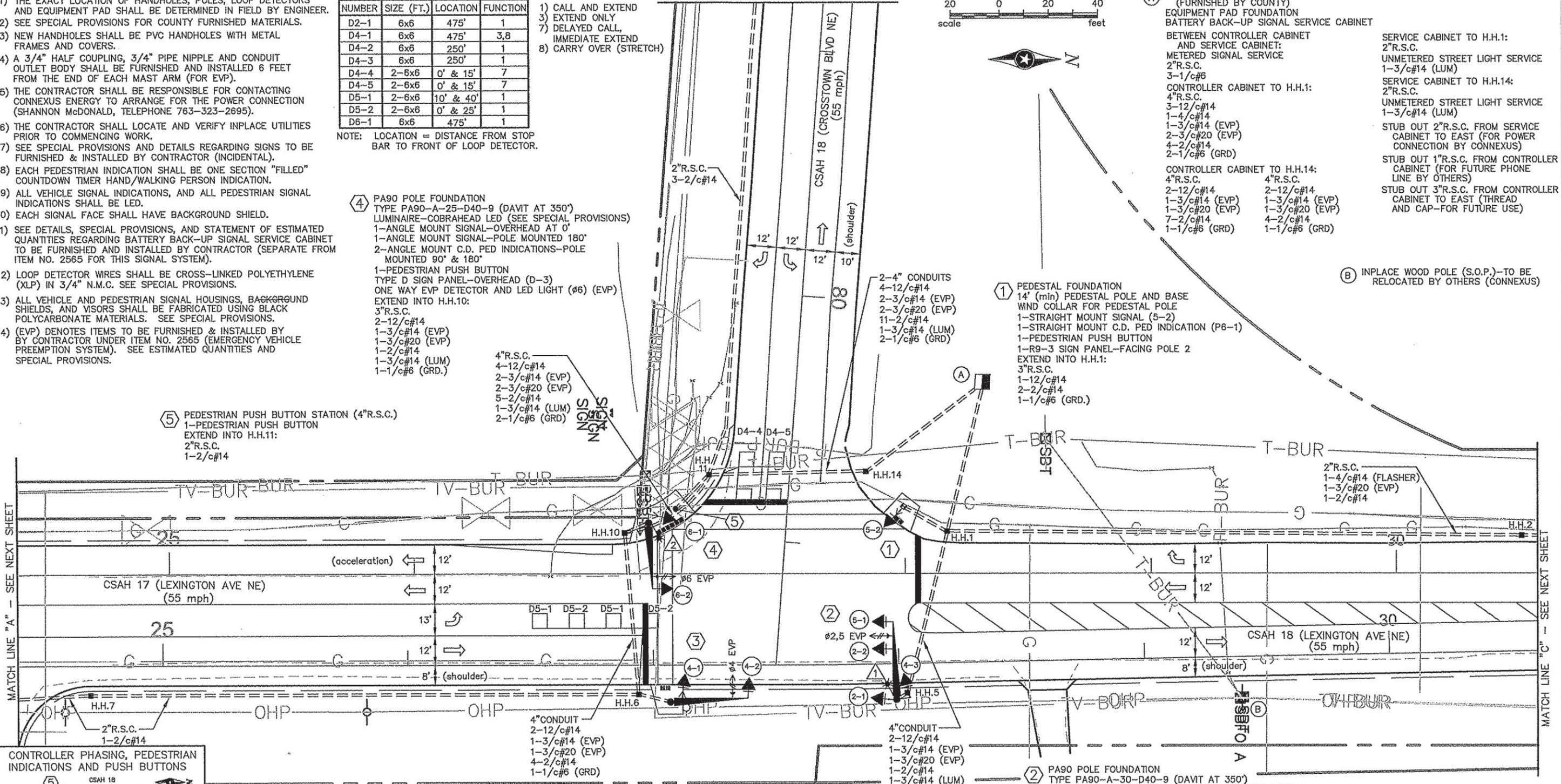
- 1) THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS AND EQUIPMENT PAD SHALL BE DETERMINED IN FIELD BY ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 3) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
- 4) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
- 5) THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING CONNEXUS ENERGY TO ARRANGE FOR THE POWER CONNECTION (SHANNON McDONALD, TELEPHONE 763-323-2695).
- 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) (EVP) DENOTES ITEMS TO BE FURNISHED & INSTALLED BY CONTRACTOR UNDER ITEM NO. 2565 (EMERGENCY VEHICLE PREEMPTION SYSTEM). SEE ESTIMATED QUANTITIES AND SPECIAL PROVISIONS.

N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D2-1	6x6	475'	1
D4-1	6x6	475'	3,8
D4-2	6x6	250'	1
D4-3	6x6	250'	1
D4-4	2-6x6	0' & 15'	7
D4-5	2-6x6	0' & 15'	7
D5-1	2-6x6	10' & 40'	1
D5-2	2-6x6	0' & 25'	1
D6-1	6x6	475'	1

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

LOOP DETECTORS FUNCTIONS: MATCH LINE "B" - SEE NEXT SHEET

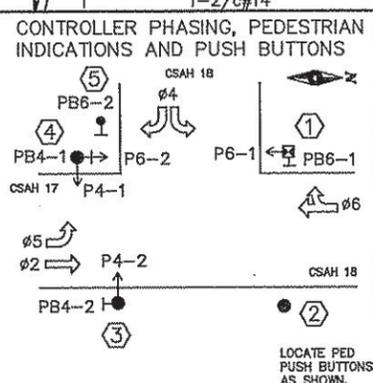
- 1) CALL AND EXTEND
- 3) EXTEND ONLY
- 7) DELAYED CALL, IMMEDIATE EXTEND
- 8) CARRY OVER (STRETCH)



- (A) INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY)**
 EQUIPMENT PAD FOUNDATION
 BATTERY BACK-UP 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.
 3-12/c#14
 1-4/c#14
 1-3/c#14 (EVP)
 2-3/c#20 (EVP)
 4-2/c#14
 2-1/c#6 (GRD)
- CONTROLLER CABINET TO H.H.14:
 4"R.S.C.
 2-12/c#14
 1-3/c#14 (EVP)
 1-3/c#20 (EVP)
 7-2/c#14
 1-1/c#6 (GRD)
- 4"R.S.C.
 4"R.S.C.
 2-12/c#14
 1-3/c#14 (EVP)
 1-3/c#20 (EVP)
 4-2/c#14
 1-1/c#6 (GRD)

- SERVICE CABINET TO H.H.1:
 2"R.S.C.
 UNMETERED STREET LIGHT SERVICE
 1-3/c#14 (LUM)
- SERVICE CABINET TO H.H.14:
 2"R.S.C.
 UNMETERED STREET LIGHT SERVICE
 1-3/c#14 (LUM)
- STUB OUT 2"R.S.C. FROM SERVICE CABINET TO EAST (FOR POWER CONNECTION BY CONNEXUS)
- STUB OUT 1"R.S.C. FROM CONTROLLER CABINET (FOR FUTURE PHONE LINE BY OTHERS)
- STUB OUT 3"R.S.C. FROM CONTROLLER CABINET TO EAST (THREAD AND CAP-FOR FUTURE USE)

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



SIGNAL SYSTEM OPERATIONS:

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASE 5 BEING A PROTECTED LEFT TURN PHASE (ALSO CAPABLE OF BEING FLASHING YELLOW ARROW-FLASH BY TIME OF DAY).
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

- (3) PA90 POLE FOUNDATION**
 TYPE PA90-A-30
 LUMINAIRE-COBRAHEAD LED (SEE SPECIAL PROVISIONS)
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 1-ANGLE MOUNT SIGNAL-POLE MOUNTED 0'
 1-ANGLE MOUNT C.D. PED INDICATION-POLE MOUNTED 0'
 1-PEDESTRIAN PUSH BUTTON
 TYPE D SIGN PANEL-OVERHEAD (D-2)
 ONE WAY EVP DETECTOR AND LED LIGHT (#4) (EVP)
 EXTEND INTO H.H.6:
 3"R.S.C.
 2-12/c#14
 1-3/c#14 (EVP)
 1-3/c#20 (EVP)
 1-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD.)

- (2) PA90 POLE FOUNDATION**
 TYPE PA90-A-30-D40-9 (DAVIT AT 350')
 LUMINAIRE-COBRAHEAD LED (SEE SPECIAL PROVISIONS)
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 10'
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 270°
 1-R9-3 SIGN PANEL-FACING POLE 1
 R10-X12 SIGN PANEL-ADJACENT TO 5-1
 TYPE D SIGN PANEL-OVERHEAD (D-1)
 ONE WAY EVP DETECTOR AND LED LIGHT (#2,5) (EVP)
 EXTEND INTO H.H.5:
 3"R.S.C.
 2-12/c#14
 1-3/c#14 (EVP)
 1-3/c#20 (EVP)
 1-2/c#14
 1-3/c#14 (LUM)
 1-1/c#6 (GRD.)

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

FYA = FLASHING YELLOW ARROW.

DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG

NO.	BY	DATE	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.

John M. Gray, PE
 Name: John M. Gray, PE
 Licens. No. 22457
 Date: January 29, 2013

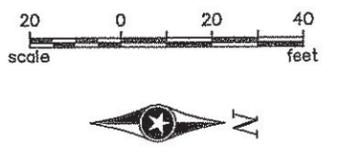
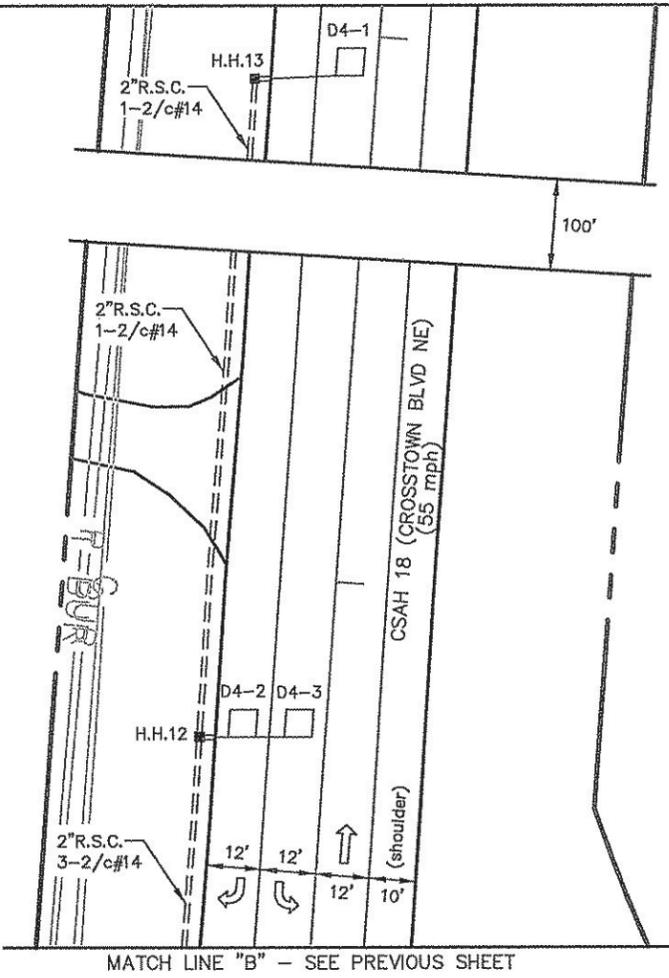
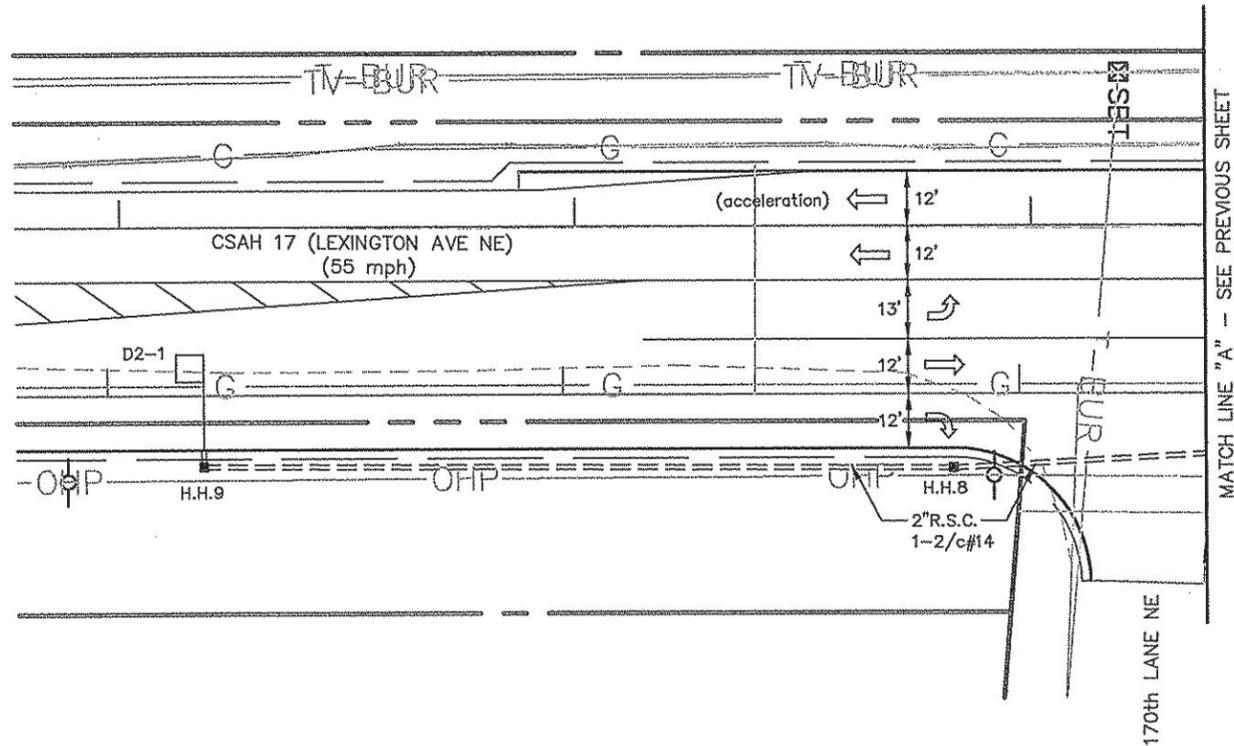
SEH
 PHONE: (651) 490-2000
 3535 VADNAIS CENTER DR.
 ST. PAUL, MN 55110

ANOKA COUNTY, MINNESOTA
 CITY OF HAM LAKE

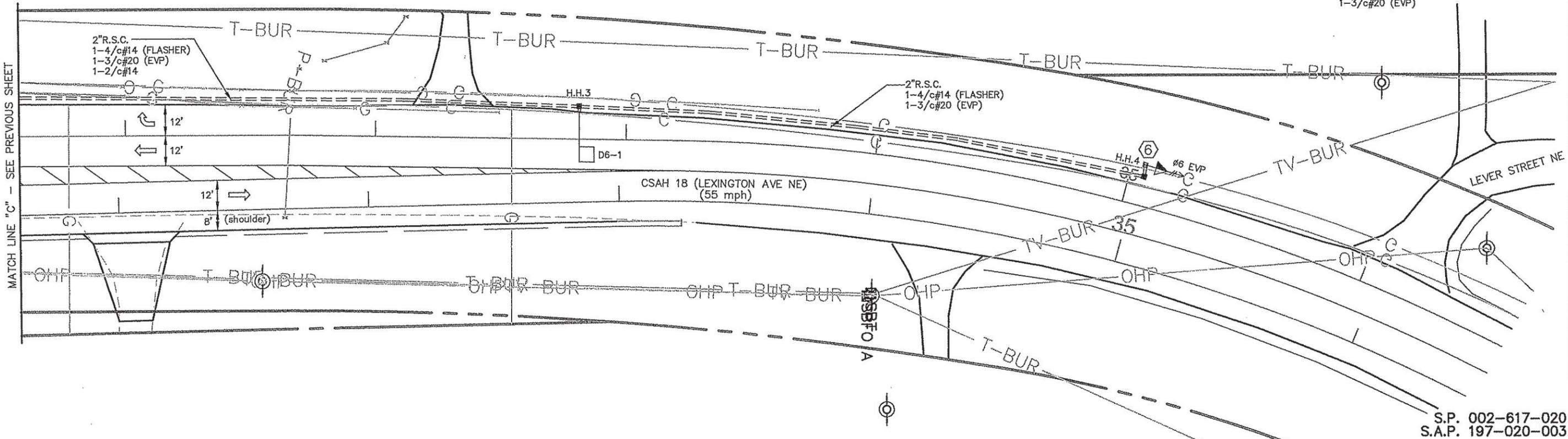
TRAFFIC SIGNAL SYSTEM INTERSECTION LAYOUT
 CSAH 17-18 (LEXINGTON AVE NE)
 AT CSAH 18 (CROSTOWN BLVD NE)

FILE NO. ANOKC 122264
 SIGNAL SHEET 6 OF 8
55
70

S.P. 002-617-020
 S.A.P. 197-020-003



- ⑥ PEDESTAL FOUNDATION
- 15' PEDESTAL POLE AND BASE
- WIND COLLAR FOR PEDESTAL POLE
- 1-12" LED YELLOW FLASHER (WITH ALL REQUIRED BRACKETING AND MOUNTING HARDWARE - SEE DETAILS)
- 1-ONE WAY EVP DETECTOR (#6)-MOUNT ON TOP OF SLIPFITTER COLLAR (EVP)
- W3-3 SIGN PANEL-POLE MOUNTED EXTEND INTO H.H.4:
- 2"R.S.C.
- 1-4/c#14
- 1-3/c#20 (EVP)



DRAWN BY: JMG
 DESIGNER: JMG
 CHECKED BY: JMG

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

ANOKA COUNTY, MINNESOTA
 CITY OF HAM LAKE

TRAFFIC SIGNAL SYSTEM INTERSECTION LAYOUT
 CSAH 17-18 (LEXINGTON AVE NE)
 AT CSAH 18 (CROSSTOWN BLVD NE)

FILE NO. ANOKG 122264
 SIGNAL SHEET 7 OF 8
56
70

S.P. 002-617-020
 S.A.P. 197-020-003

