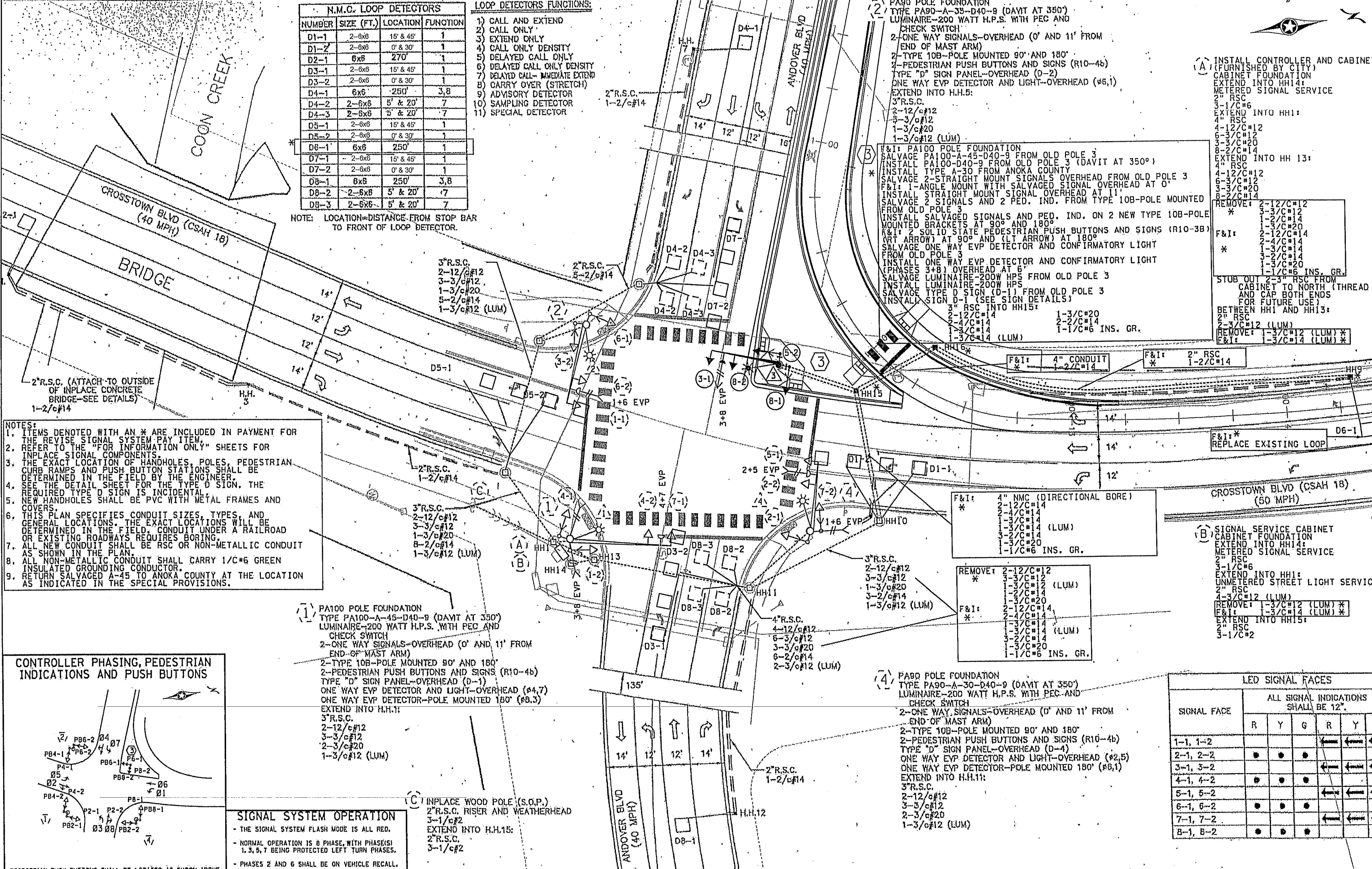


N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-6x6	15' & 45'	1
D1-2	2-6x6	0' & 30'	1
D2-1	6x6	270'	1
D3-1	2-6x6	15' & 45'	1
D3-2	2-6x6	0' & 30'	1
D4-1	6x6	250'	3,8
D4-2	2-6x6	5' & 20'	7
D4-3	2-6x6	5' & 20'	7
D5-1	2-6x6	15' & 45'	1
D5-2	2-6x6	0' & 30'	1
D6-1	6x6	250'	1
D7-1	2-6x6	15' & 45'	1
D7-2	2-6x6	0' & 30'	1
D8-1	6x6	250'	3,8
D8-2	2-6x6	5' & 20'	7
D8-3	2-6x6	5' & 20'	7

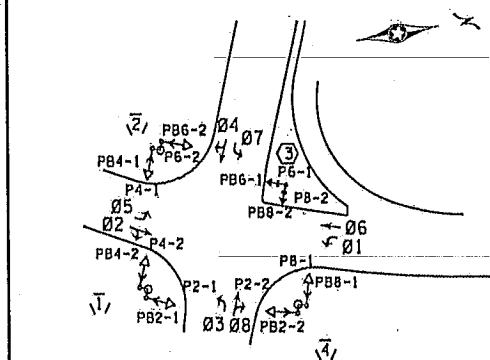
- LOOP DETECTORS FUNCTIONS:
- 1) CALL AND EXTEND
 - 2) CALL ONLY
 - 3) EXTEND ONLY
 - 4) CALL ONLY DENSITY
 - 5) DELAYED CALL ONLY
 - 6) DELAYED CALL ONLY DENSITY
 - 7) DELAYED CALL- IMMEDIATE EXTEND
 - 8) CARRY OVER (STRETCH)
 - 9) ADVISORY DETECTOR
 - 10) SAMPLING DETECTOR
 - 11) SPECIAL DETECTOR

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



- NOTES:
1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE REVISE SIGNAL SYSTEM PAY ITEM.
 2. REFER TO THE "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
 3. THE EXACT LOCATION OF HANDHOLES, POLES, PEDESTRIAN CURB RAMPS AND PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 4. SEE THE DETAIL SHEET FOR THE TYPE D SIGN. THE REQUIRED TYPE D SIGN IS INCIDENTAL.
 5. NEW HANDHOLES SHALL BE PVC WITH METAL FRAMES AND COVERS.
 6. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUIT UNDER A RAILROAD OR EXISTING ROADWAYS REQUIRES BORING.
 7. ALL NEW CONDUIT SHALL BE RSC OR NON-METALLIC CONDUIT AS SHOWN IN THE PLAN.
 8. ALL NON-METALLIC CONDUIT SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR.
 9. RETURN SALVAGED A-45 TO ANOKA COUNTY AT THE LOCATION AS INDICATED IN THE SPECIAL PROVISIONS.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 8 PHASE, WITH PHASES 1, 3, 5, 7 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

(1) PA100 POLE FOUNDATION
TYPE PA100-A-45-D40-9 (DAVIT AT 350°)
LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
2-ONE WAY SIGNALS-OVERHEAD (0' AND 11' FROM END-OF MAST ARM)
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
TYPE "D" SIGN PANEL-OVERHEAD (D-1)
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (#4,7)
ONE WAY EVP DETECTOR-POLE MOUNTED 180° (#8,3)
EXTEND INTO H.H.11:
3" R.S.C.
2-12/c#12
3-3/c#12
1-3/c#20
2-3/c#20
1-3/c#12 (LUM)

(C) INPLACE WOOD POLE (S.O.P.)
2" R.S.C. RISER AND WEATHERHEAD
3-1/c#2
EXTEND INTO H.H.15:
2" R.S.C.
3-1/c#2

(4) PA90 POLE FOUNDATION
TYPE PA90-A-30-D40-9 (DAVIT AT 350°)
LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
2-ONE WAY SIGNALS-OVERHEAD (0' AND 11' FROM END-OF MAST ARM)
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
TYPE "D" SIGN PANEL-OVERHEAD (D-4)
ONE WAY EVP DETECTOR AND LIGHT-OVERHEAD (#2,5)
ONE WAY EVP DETECTOR-POLE MOUNTED 180° (#6,1)
EXTEND INTO H.H.11:
3" R.S.C.
2-12/c#12
3-3/c#12
2-3/c#20
1-3/c#12 (LUM)

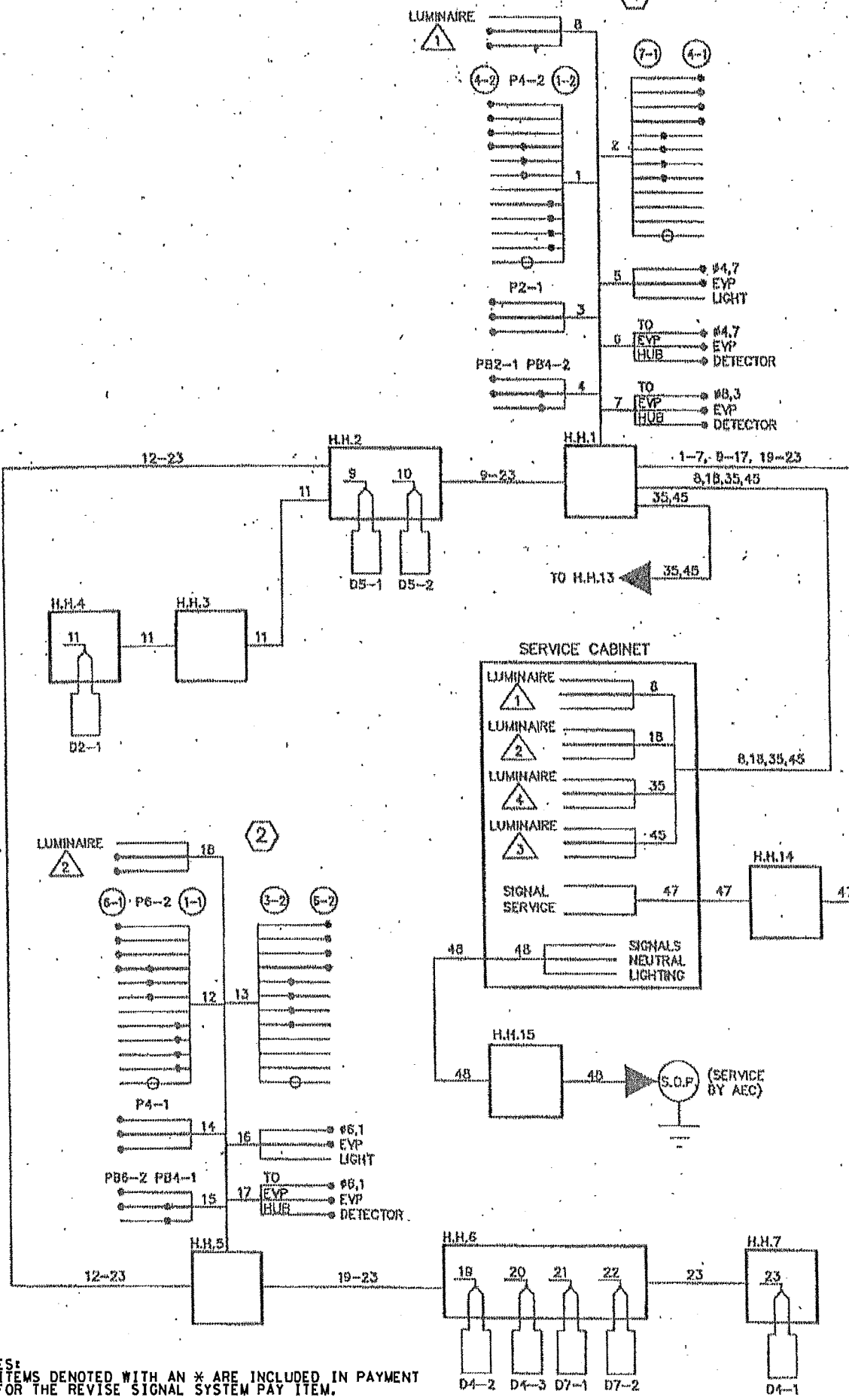
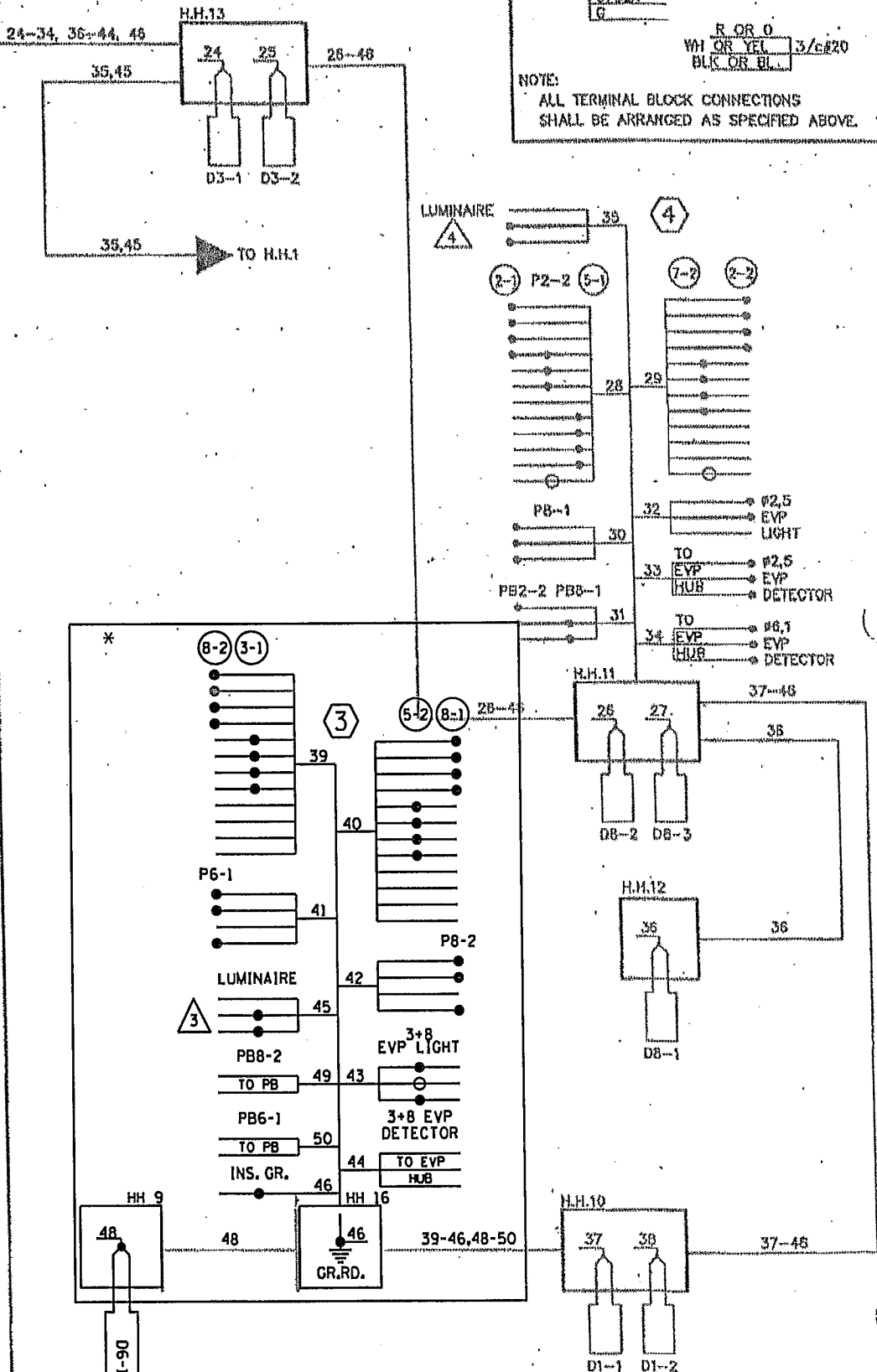
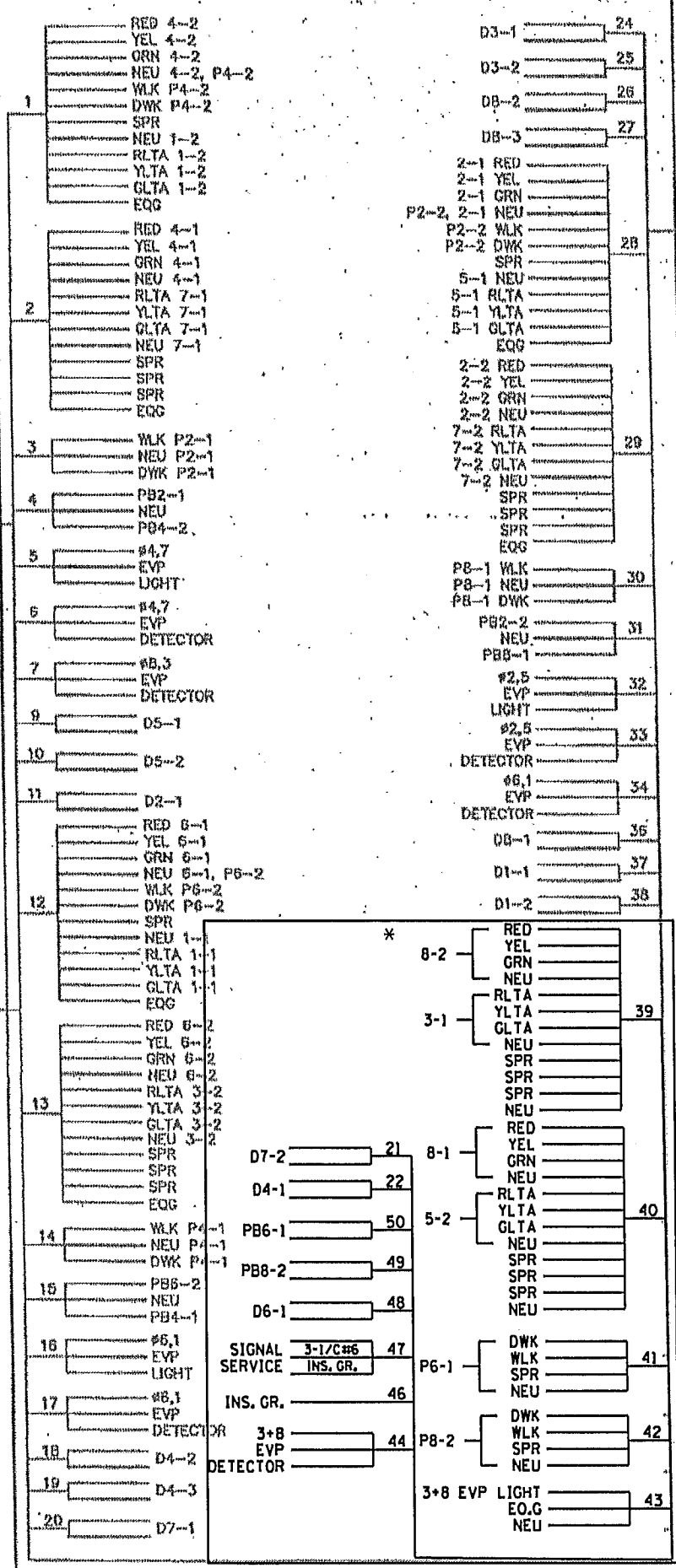
LED SIGNAL FACES						
SIGNAL FACE	ALL SIGNAL INDICATIONS SHALL BE 12"					
	R	Y	G	R	Y	G
1-1, 1-2				←	←	←
2-1, 2-2	•	•	•			
3-1, 3-2				←	←	←
4-1, 4-2	•	•	•			
5-1, 5-2				←	←	←
6-1, 6-2	•	•	•			
7-1, 7-2				←	←	←
8-1, 8-2	•	•	•			

CONTROLLER CABINET

CONDUCTOR COLOR COING

R	BLK	
0	WH	2-1/6#5
BL		
WH		
R/BLK	R	
D/BLK	WH	3/6#12
BL/BLK	BLK	
Y/BLK		
BLK/WH	BLK	2/6#14
BLK/CLEAR	CLEAR	
G		
R OR O		
WH OR YEL		3/6#20
BLK OR BL		

NOTE:
ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.



NOTES:
1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE REVISE SIGNAL SYSTEM PAY ITEM.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT 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.

BRYAN J. NEMETH
LIC. NO. 43354 DATE 03-10-2014

BOLTON & MENK, INC.
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN MAPLEWOOD, MN
BAXTER, MN ROCHESTER, MN AMES, IA SPENCER, IA

SAP 198-110-003, CITY OF ANDOVER, MN (CITY NO. 12-37A)
CROSSTOWN BOULEVARD RIGHT TURN LANE
SHEET 27 OF 34
SIGNAL PLAN

bmt.tbi
B and W.pltcfq
4/7/2014