

PLOTTED/REVISED: 20-JUN-2018

PILOT NAME: T39706.sgl
PATH & FILENAME: Projects\DM_952A\00001Traffic\SIGNALS\39706 (Crusader Ave)\T39706.sgl.dgn

LED SIGNAL INDICATIONS

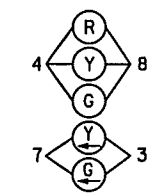
HEAD	R	Y	FYA	G	Y	G
1-1,1-2	←	←	←	←		
2-1,2-2,2-3	●	●	●	●		
4-1	●	●		●		
4-2,4-3	●	●	←	●	←	←
5-1,5-2	←	←	←	←		
6-1,6-2,6-3	●	●	●	●		
8-1	●	●		●		
8-2,8-3	●	●	←	●	←	←

-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONITE WITH BACKGROUND SHIELDS
-FYA DENOTES FLASHING YELLOW ARROW

5-SECTION CLUSTER SIGNAL INDICATIONS

SIGNAL HEAD PHASING

HEADS HEADS
4-2 & 4-3 8-2 & 8-3



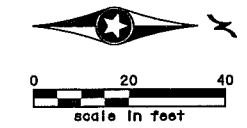
OVERLAP PHASE



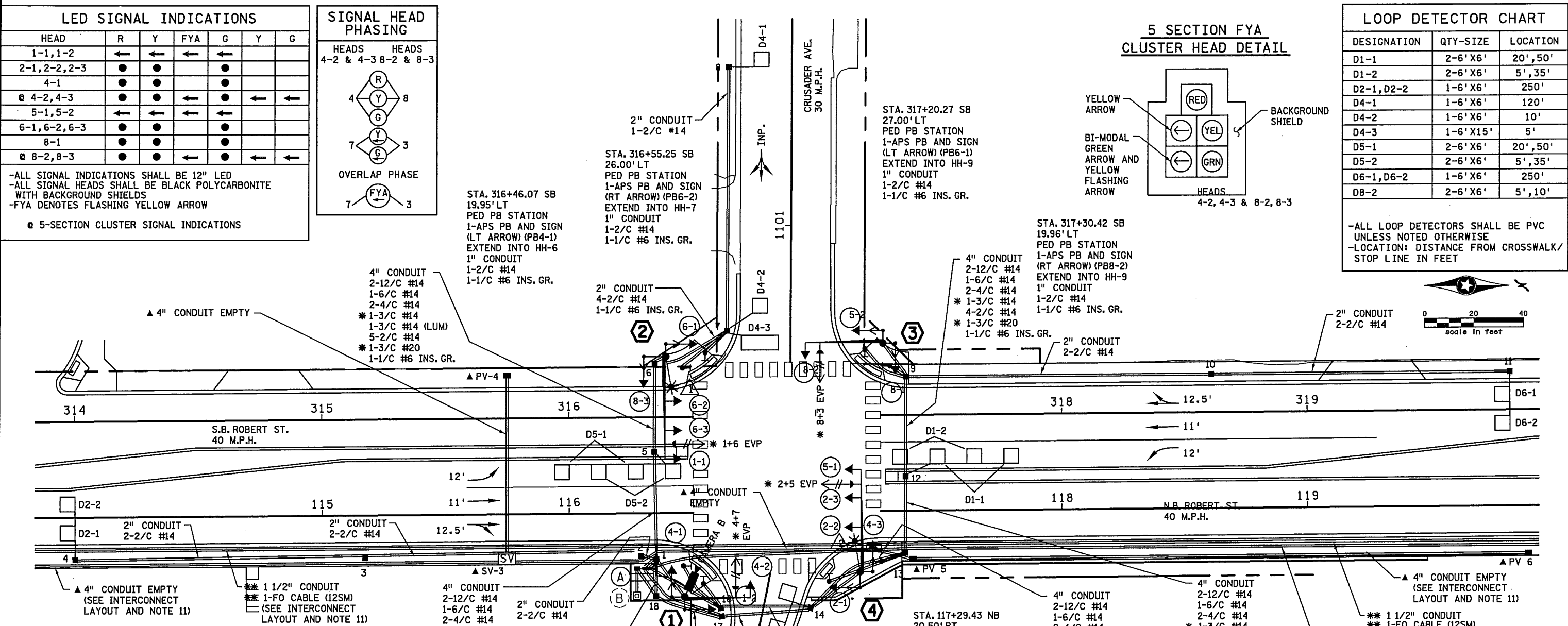
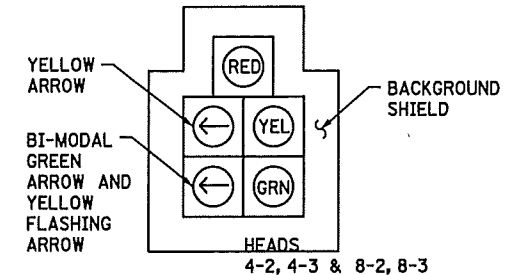
LOOP DETECTOR CHART

DESIGNATION	QTY-SIZE	LOCATION
D1-1	2-6'X6'	20',50'
D1-2	2-6'X6'	5',35'
D2-1,D2-2	1-6'X6'	250'
D4-1	1-6'X6'	120'
D4-2	1-6'X6'	10'
D4-3	1-6'X15'	5'
D5-1	2-6'X6'	20',50'
D5-2	2-6'X6'	5',35'
D6-1,D6-2	1-6'X6'	250'
D8-2	2-6'X6'	5',10'

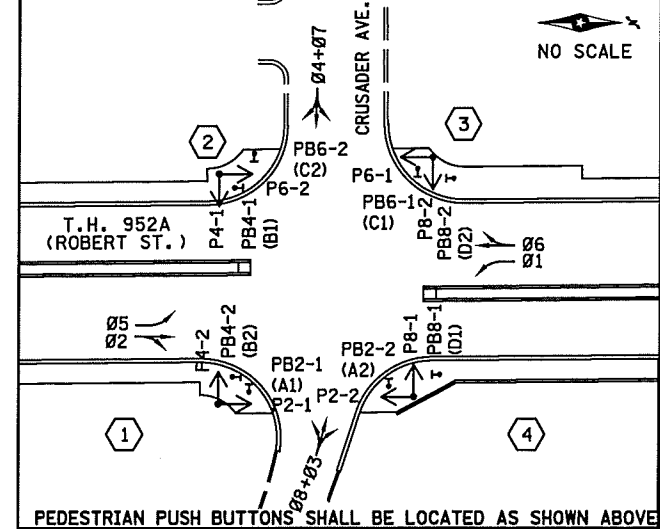
-ALL LOOP DETECTORS SHALL BE PVC UNLESS NOTED OTHERWISE
-LOCATION: DISTANCE FROM CROSSWALK/ STOP LINE IN FEET



5 SECTION FYA CLUSTER HEAD DETAIL



CONTROLLER PHASING, PEDESTRIAN INDICATIONS & PUSHBUTTON LAYOUT



SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASE(S) 1,4,5 AND 8 BEING FLASHING YELLOW LEFT TURN ARROW BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

06-2018	SJK	CLEANED UP PRINT	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. PrInt Name: ADRIAN S. POTTER Date 08/06/2014 License # 42785	STATE PROJECT NO. 173-010-007, 019-608-002 019-614-012, 019-673-007 STATE PROJECT NO. 1908-84 (T.H. 952A) COUNTY PROJECT NO. 97-136, 6-07 CITY PROJECT NO. 11-3	DRAWN BY R. W. SMITH DESIGNED BY R. W. SMITH CHECKED BY A. S. POTTER COMM. NO. 0107294		ENGINEERS PLANNERS DESIGNERS	CITY OF WEST ST. PAUL TRAFFIC SIGNAL PLANS AND DETAILS ROBERT STREET IMPROVEMENT PROJECT INTERSECTION LAYOUT SYSTEM "B" (SHEET 1 OF 2) T.H. 952A (ROBERT ST.) AT CRUSADER AVE.	SHEET 1070 OF 1320
NO	DATE	BY		CKD	APPR				

SYSTEM ID. NO. 1736943, 39706
T.E. NO. 5950
METER ADDRESS 1960 S. ROBERT ST.

PLOT NAME: T39706_sgl
 PATH & FILENAME: Projects\DM_ROS\952A\0000\Traffic\Signals\39706 (Crusader Ave)\T39706_sgl.dgn
 PLOTTED/REVISED: 20-JUN-2018

1 STA. 116+46.54 NB
 34.17' RT
 PA90 POLE FOUNDATION
 TYPE PA90-A-30
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED IND AT 90 AND 180 DEG
 1-ONE WAY EVP DETECTOR AND
 CONFIRMATORY LIGHT (PHASES 4+7)
 X-400 CAMERA EXTENSION
 INSTALL - IP CAMERA (STATE FURNISHED)
 1-R10-X12 SIGN ADJACENT TO HEAD (4-2)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT TO HH-1:
 2-12/C #14
 1-6/C #14
 2-4/C #14
 * 1-3/C #14
 1-3/C #14 (CAMERA B POWER)
 * 1-3/C #20
 1-CAT 6
 1-COAXIAL CABLE
 1-1/C #6 INS. GR.

3 STA. 317+27.58 SB
 29.28 LT
 PA90 POLE FOUNDATION
 TYPE PA90-A-30
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-ANGLE MOUNT SIGNALS AT 90
 AND 180 DEG
 2-ANGLE MOUNT C.D. PED IND AT 90
 AND 180 DEG
 1-ONE WAY EVP DETECTOR AND
 CONFIRMATORY LIGHT (PHASES 3+8)
 1-R10-X12 SIGN ADJACENT TO HEAD (8-2)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT TO HH-9:
 2-12/C #14
 1-6/C #14
 2-4/C #14
 * 1-3/C #14
 * 1-3/C #20
 1-1/C #6 INS. GR.

2 STA. 316+39.47 SB
 24.65' LT
 PA100 POLE FOUNDATION
 TYPE PA100-A-40-D35-8 (DAVIT AT 350 DEG)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNALS OVERHEAD
 AT 11' AND 23'
 2-ANGLE MOUNT SIGNALS AT 90
 AND 180 DEG
 2-ANGLE MOUNT C.D. PED IND AT 90
 AND 180 DEG
 1-ONE WAY EVP DETECTOR AND
 CONFIRMATORY LIGHT (PHASES 1+6)
 LUMINAIRE-LED (250W HPS REPLACEMENT)
 1-R10-X12 SIGN ADJACENT TO HEAD (1-1)
 1-TYPE D SIGN (D-3) (SEE SIGN DETAILS)
 3" CONDUIT TO HH-6:
 2-12/C #14
 1-6/C #14
 2-4/C #14
 * 1-3/C #14
 1-3/C #14 (LUM)
 * 1-3/C #20
 1-1/C #6 INS. GR.

4 STA. 117+17.92 NB
 24.60' RT
 PA100 POLE FOUNDATION
 TYPE PA100-A-40-D35-8 (DAVIT AT 350 DEG)
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNALS OVERHEAD
 AT 11' AND 23'
 2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG
 2-ANGLE MOUNT C.D. PED IND AT 90 AND 180 DEG
 1-ONE WAY EVP DETECTOR AND
 CONFIRMATORY LIGHT (PHASES 2+5)
 LUMINAIRE-LED (250W HPS REPLACEMENT)
 1-R10-X12 SIGN ADJACENT TO HEAD (5-1)
 1-TYPE D SIGN (D-3) (SEE SIGN DETAILS)
 3" CONDUIT TO HH-14:
 2-12/C #14
 1-6/C #14
 2-4/C #14
 * 1-3/C #14
 1-3/C #14 (LUM)
 * 1-3/C #20
 1-1/C #6 INS. GR.

(A) EQUIPMENT PAD (SEE DETAIL SHEET)
 SERVICE CABINET (SSB)
 INSTALL - CONTROLLER AND CABINET (STATE FURNISHED)

4" CONDUIT TO HH-1	4" CONDUIT TO HH-1
2-12/C #14	2-12/C #14
1-6/C #14	1-6/C #14
2-4/C #14	2-4/C #14
* 1-3/C #14	* 1-3/C #14
1-3/C #14 (CAMERA B POWER)	2-2/C #14
7-2/C #14	* 1-3/C #20
* 1-3/C #20	
1-CAT 6	
1-COAXIAL CABLE	
1-1/C #6 INS. GR.	

4" CONDUIT TO HH-16	4" CONDUIT TO HH-17
2-12/C #14	2-12/C #14
1-6/C #14	1-6/C #14
2-4/C #14	2-4/C #14
* 1-3/C #14	* 1-3/C #14
9-2/C #14	2-2/C #14
* 1-3/C #20	* 2-3/C #20
1-1/C #6 INS. GR.	

** 1 1/2" CONDUIT TO PV-8
 ** 1-FO PIGTAIL (65M)


2-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)
 3/4" CONDUIT STUBBED OUT (FOR TELEPHONE LINE)
 CONTROLLER CABINET TO SERVICE CABINET:
 2" CONDUIT
 2-1/C #6
 1-1/C #6 INS. GR.
 CONTROLLER CABINET TO SERVICE CABINET (COMMS):
 2" CONDUIT
 1-6PR #19
 SERVICE CABINET TO GROUND MOUNTED TRANSFORMER
 2" CONDUIT
 3-1/C #2
 2" CONDUIT TO HH-18:
 2-3/C #14 (LUM)

(B) SOP-INPLACE GROUND MOUNTED TRANSFORMER (XCEL ENERGY) (SEE NOTE 3)
 2" CONDUIT INTO SERVICE CABINET
 3-1/C #2

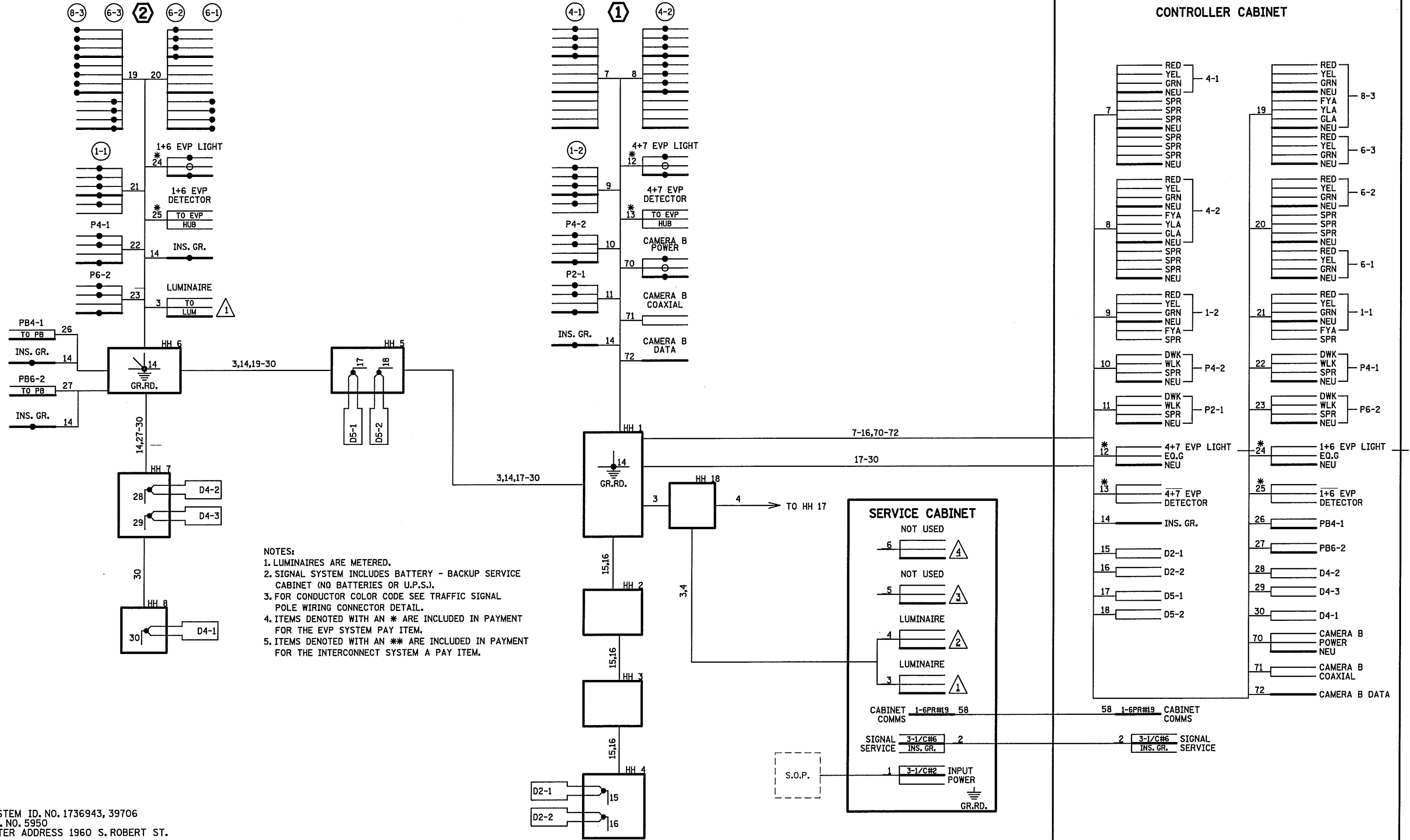
NOTES:

- SEE SPECIAL PROVISIONS FOR STATE FURNISHED MATERIALS.
- THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS, EQUIPMENT PAD, AND PEDESTRIAN CURB RAMPS SHALL BE DETERMINED IN THE FIELD BY MNDOT TRAFFIC OFFICE PERSONNEL.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM. GROUND MOUNTED TRANSFORMER SHALL BE INSTALLED FOR USE WITH CONSTRUCTION TEMPORARY SIGNAL AT THIS INTERSECTION.
- FOR TYPE D SIGNS SEE DETAIL SHEET. ALL SIGNS REQUIRED ARE INCIDENTAL.
- FOR PAVEMENT MARKINGS SEE PAVEMENT MARKING PLANS.
- FOR CONSTRUCTION OF PEDESTRIAN CURB RAMPS, CONCRETE WALK AND MEDIAN WORK, SEE ROADWAY PLANS.
- THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
- ALL NEW CONDUIT SHALL BE PVC - SCHEDULE 80 OR HDPE SCHEDULE 80 AND SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR AS SHOWN IN THE PLAN.
- ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
- ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT SYSTEM A PAY ITEM.
- SEE JOINT TRENCH DETAIL ON SHEET TSI17 FOR TYPICAL PLACEMENT OF INTERCONNECT CONDUIT.
- ITEMS DENOTED WITH A ▲ ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT SYSTEM B PAY ITEM.
- ALL HANDHOLES, SPLICE VAULTS, AND PULL BOXES LOCATED IN SIDEWALKS SHALL BE SET TO MATCH THE RUNNING SLOPE AND CROSS SLOPE OF THE SIDEWALK.

SYSTEM ID. NO. 1736943, 39706
 T.E. NO. 5950
 METER ADDRESS 1960 S. ROBERT ST.

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NO	DATE	BY	CKD	APPR		REVISION					

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 COUNTY PROJECT NO. 97-136, 6-07
 CITY PROJECT NO. 11-3

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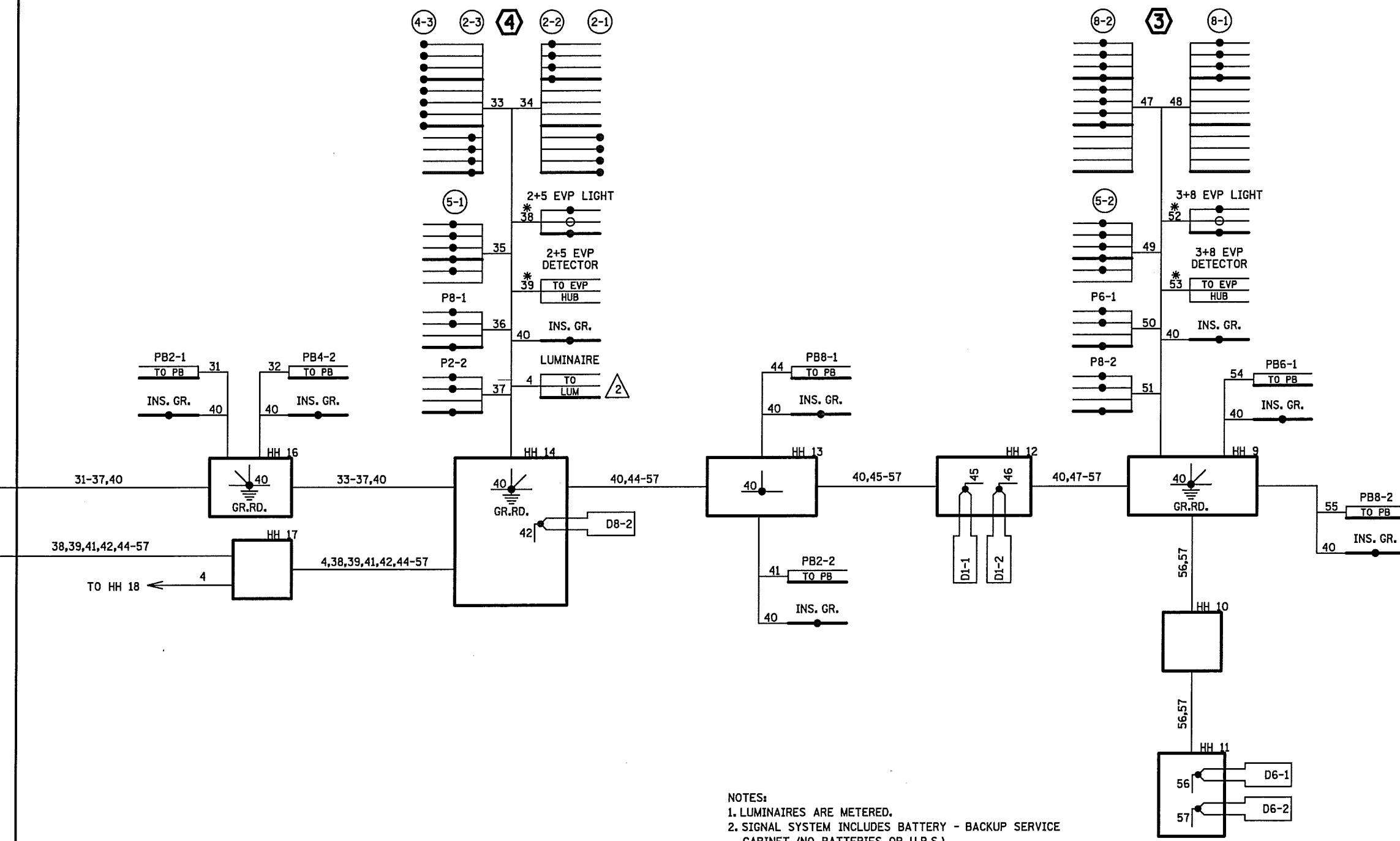
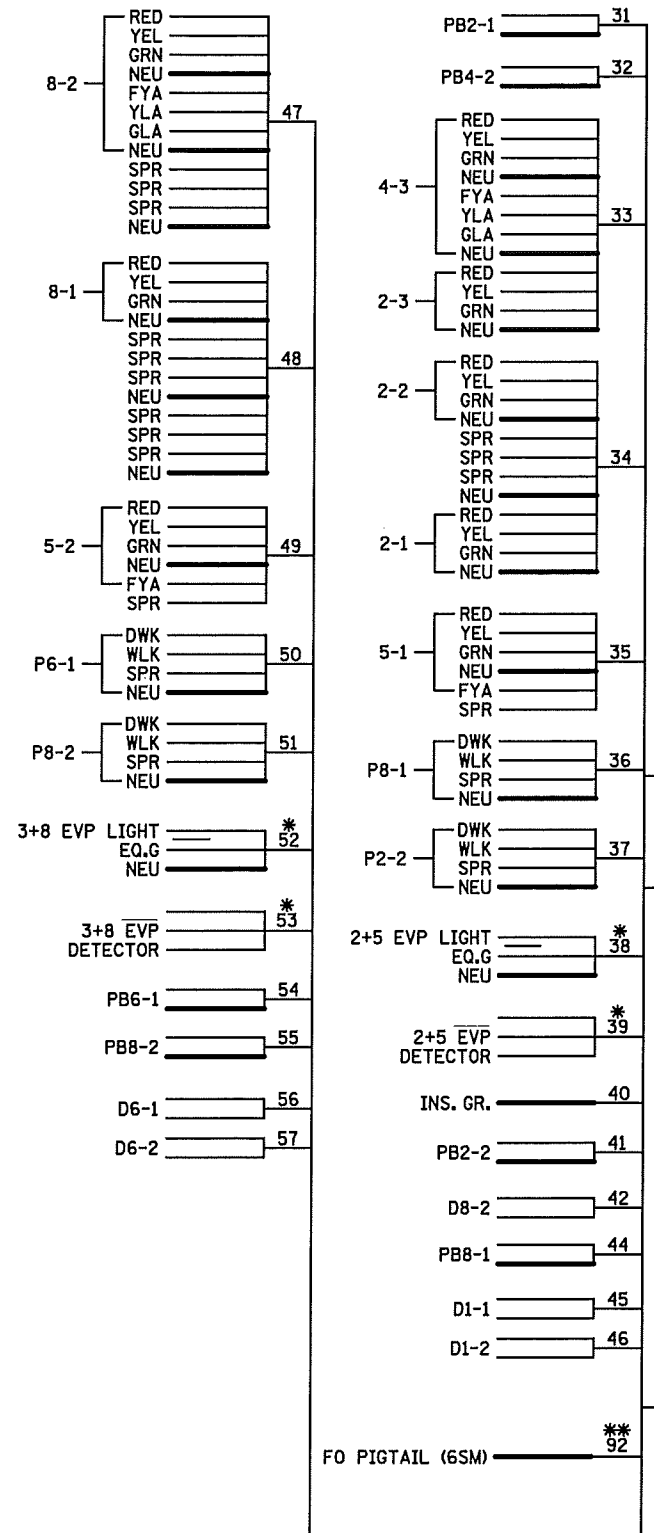


**ENGINEERS
 PLANNERS
 DESIGNERS**

CITY OF WEST ST. PAUL
 TRAFFIC SIGNAL PLANS AND DETAILS
ROBERT STREET IMPROVEMENT PROJECT
 FIELD WIRING DIAGRAM SYSTEM "B" (SHEET 1 OF 2)
 T.H. 952A (ROBERT ST.) AT CRUSADER AVE.

SHEET 1072 OF 1320

CONTROLLER CABINET



- NOTES:
- LUMINAIRES ARE METERED.
 - SIGNAL SYSTEM INCLUDES BATTERY - BACKUP SERVICE CABINET (NO BATTERIES OR U.P.S.).
 - FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
 - ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 - ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT SYSTEM A PAY ITEM.

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DRAWN BY R. W. SMITH
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CITY OF WEST ST. PAUL
 TRAFFIC SIGNAL PLANS AND DETAILS
 ROBERT STREET IMPROVEMENT PROJECT
 FIELD WIRING DIAGRAM SYSTEM "B" (SHEET 2 OF 2)
 T.H. 952A (ROBERT ST.) AT CRUSADER AVE.

SHEET
 1073
 OF
 1320