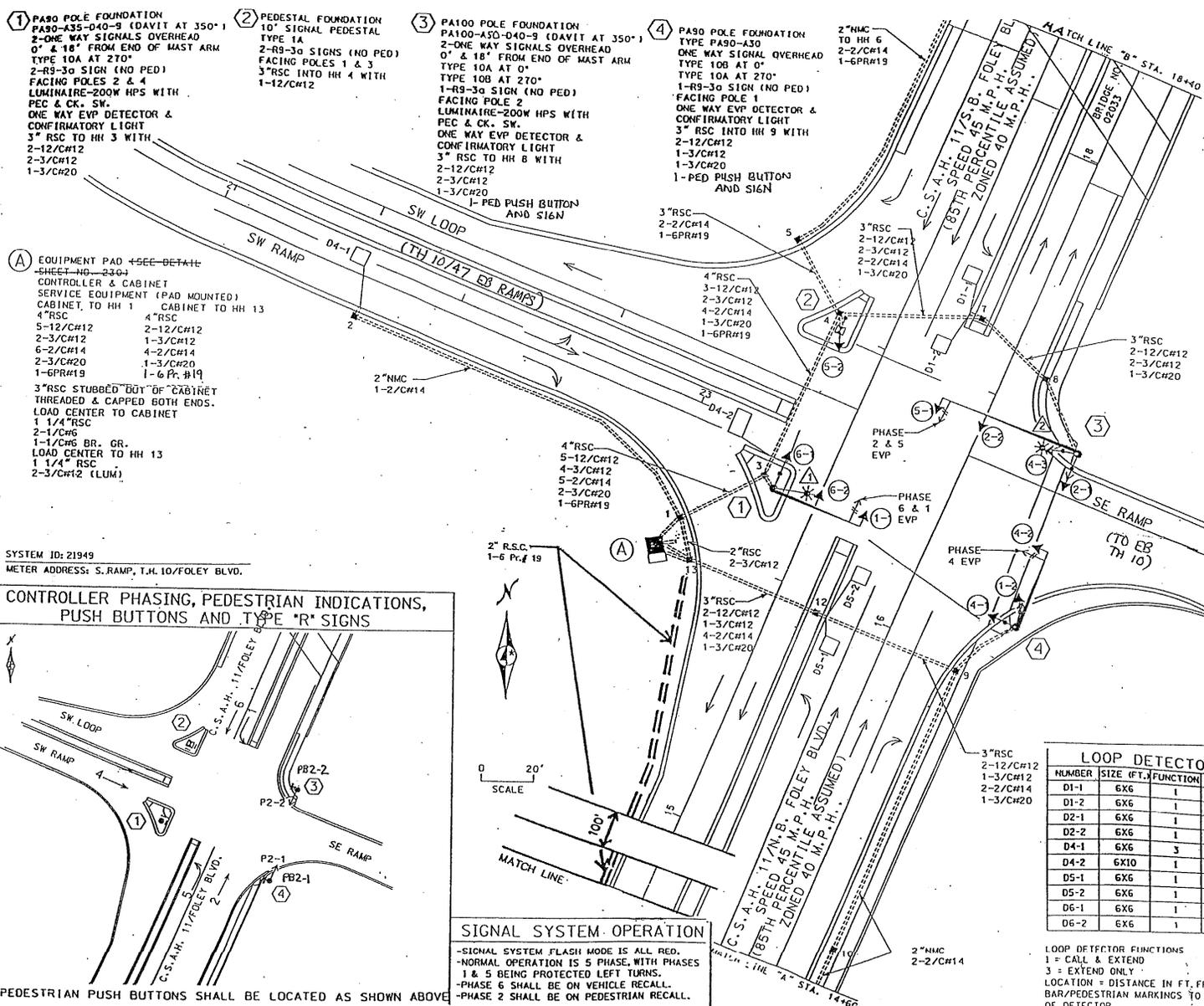


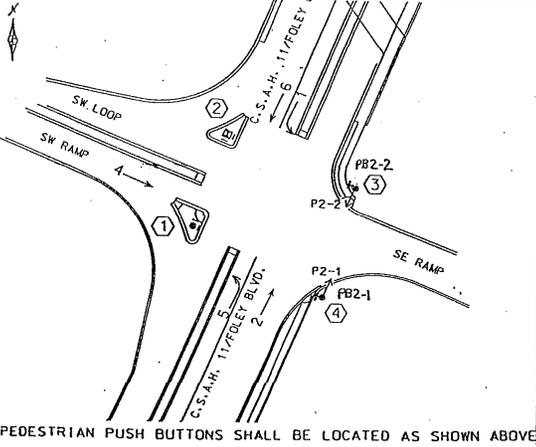
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- LED RETROFIT-SYSTEM "Z" NOTES:**
- 1) ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
 - 2) CONTRACTOR SHALL REMOVE THE INPLACE "HAND/WALKING PERSON" LENS FROM EACH INPLACE ONE SECTION PED SIGNAL INDICATION, AND SHALL FURNISH & INSTALL A NEW **COUNTDOWN TIMER LED "HAND/WALKING PERSON" LENS** IN ITS PLACE.
 - 3) CONTRACTOR SHALL PROTECT AND MAINTAIN EACH INPLACE ONE SECTION PEDESTRIAN SIGNAL HOUSING & VISOR WHEN REMOVING AND REPLACING EACH LENS, AND SHALL REPLACE THE COMPLETE PEDESTRIAN SIGNAL INDICATION UNIT (HOUSING, VISOR, AND LENS SHOULD ANY DAMAGE BE DONE TO THE UNIT BY CONTRACTOR DURING WORK ON THIS PROJECT (INCIDENTAL).
 - 4) IN LIEU OF THE LENS REPLACEMENT WORK DESCRIBED ABOVE, THE CONTRACTOR ALSO HAS THE OPTION OF REMOVING EACH INPLACE ONE SECTION PEDESTRIAN SIGNAL INDICATION (HOUSING, VISOR AND LENS) AND REPLACING THEM WITH NEW ONE SECTION PEDESTRIAN SIGNAL INDICATIONS (HOUSING, VISOR, AND LED LENSES), AT NO ADDITIONAL COST TO THE PROJECT.
 - 5) CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MODIFICATIONS TO INPLACE POLE MOUNTED BRACKETING ON EACH TRAFFIC SIGNAL POLE TO ACCOMMODATE INSTALLATION OF NEW ONE SECTION PEDESTRIAN SIGNAL INDICATIONS (INCLUDING THE REPLACEMENT OF THE POLE MOUNTED BRACKETING IF NEEDED TO ACCOMMODATE EACH PEDESTRIAN SIGNAL INDICATION INSTALLATION) (INCIDENTAL).
 - 6) ANY DAMAGE TO INPLACE TRAFFIC SIGNAL POLES OR VEHICLE SIGNAL HEADS & BRACKETING DUE TO WORK ON THIS PROJECT SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE CITY.
 - 7) IF NEW PEDESTRIAN HOUSINGS AND VISORS ARE USED, THEY SHALL BE FABRICATED USING NEW POLYCARBONATE MATERIALS.
 - 8) CONTRACTOR SHALL REMOVE ALL INPLACE INCANDESCENT "YELLOW" AND "GREEN" VEHICLE SIGNAL INDICATION LENSES, AND SHALL FURNISH AND INSTALL NEW LED INDICATIONS IN THEIR PLACE. RED INDICATIONS ARE ALREADY LED AND SHALL BE MAINTAINED AND REUSED INPLACE.
 - 9) CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER.
 - 10) SEE STATEMENT OF ESTIMATED QUANTITIES FOR BID ITEMS FOR WORK AT THIS SIGNAL SYSTEM.

SYSTEM ID: 21949
METER ADDRESS: S. RAMP, T.H. 10/FOLEY BLVD.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS, PUSH BUTTONS AND TYPE "R" SIGNS



SIGNAL SYSTEM OPERATION

- SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 5 PHASE, WITH PHASES 1 & 5 BEING PROTECTED LEFT TURNS.
- PHASE 6 SHALL BE ON VEHICLE RECALL.
- PHASE 2 SHALL BE ON PEDESTRIAN RECALL.

LOOP DETECTORS

NUMBER	SIZE (FT.)	FUNCTION	LOCATION
D1-1	6X6	I	40
D1-2	6X6	I	10
D2-1	6X6	I	300
D2-2	6X6	I	300
D4-1	6X6	3	180
D4-2	6X10	I	20
D5-1	6X6	I	40
D5-2	6X6	I	10
D6-1	6X6	I	300
D6-2	6X6	I	300

RECORD PLAN
FOR LED PROJECT
(PLANS CONFIRMED
FOR PROJECT WORK ONLY)
DATE: MG, 08-10-10

LED SIGNAL FACES

SIGNAL FACE	ALL 12"		
	R	Y	G
1-1, 1-2	←	←	←
2-1, 2-2	○	○	○
4-1, 4-2, 4-3	○	○	○
5-1, 5-2	←	←	←
6-1, 6-2	○	○	○

LOOP DETECTOR FUNCTIONS

- 1 = CALL & EXTEND
- 3 = EXTEND ONLY

LOCATION = DISTANCE IN FT. FROM STOP BAR/PEDESTRIAN MARKINGS TO FRONT OF DETECTOR

○ ← = INPLACE LED INDICATION, REUSE INPLACE.

S.P. 114-030-10
CITY PROJECT NO. 09-18

DRAWN BY: JMG
DESIGNER: JMG
CHECKED BY: JMG

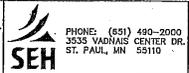
1 JMG 6/10 RECORD DRAWING FOR PROJECT

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.

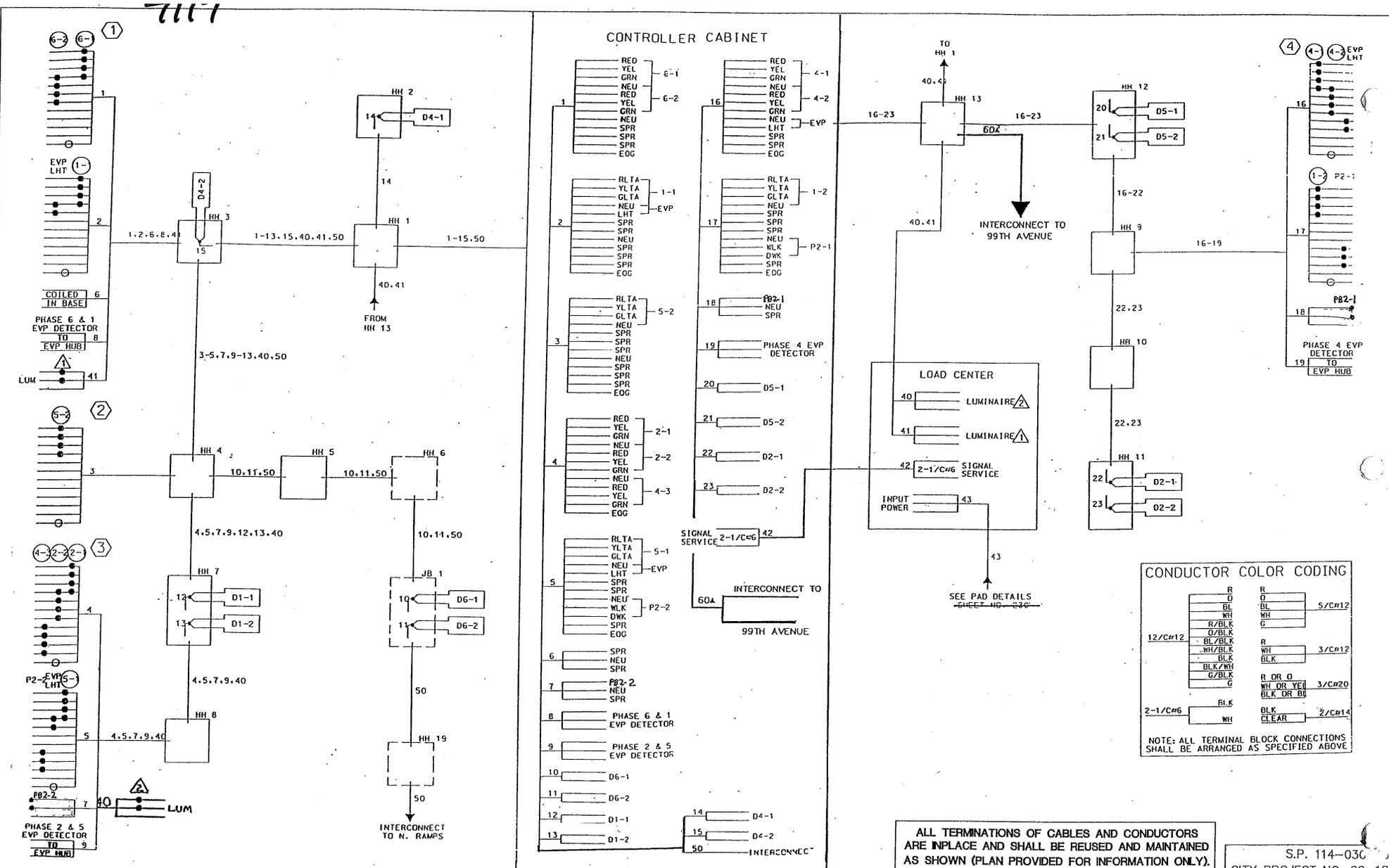
JMG
Date: May 16, 2009 Name: John M. Gray, PE Lic. No. 22457



COON RAPIDS,
MINNESOTA

LED RETROFIT-SYSTEM "Z" INTERSECTION LAYOUT
CSAH 11 AT TH 10 SOUTH RAMP

FILE NO. 107418
60
DATE 05/18/2009
131



ALL TERMINATIONS OF CABLES AND CONDUCTORS ARE IN PLACE AND SHALL BE REUSED AND MAINTAINED AS SHOWN (PLAN PROVIDED FOR INFORMATION ONLY).

S.P. 114-03C
CITY PROJECT NO. 09-18

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.

JMG
Name: John M. Gray, PE
Date: May 15, 2009
Lic. No.: 22457

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

COON RAPIDS, MINNESOTA

LED RETROFIT-SYSTEM 'Z'
FIELD WIRING DIAGRAM
CSAH 11 AT TH 10 SOUTH RAMPS

FILE NO. 107418
DATE 05/18/2009
61
131