

PLOTTED/REVISED: 6-APR-2023

DISTRICT #: Metro  
PLOT NAME: Sheet\_54  
FILENAME: Projects\DM\_FOS\21200007TrafficSignals\47.71.101 ENGLER BLVD ER-173652N\Pending\T173652L.sgl.dgn

### SIGNAL HEAD CHART

FACE	R	Y	G	RLTA	YLTA	GLTA	FYA
2-1, 2-2, 2-3	○	○	○				
4-1	○	○	○				
4-2	○	○	○			←	
4-3	○	○	○		←	←	
5-1, 5-2, 5-3	←	←	←				←
6-1, 6-2, 6-3	○	○	○				

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

### LOOP DETECTOR CHART

NUMBER	SIZE (FT)	LOCATION
D2-1, D2-2	6x6	486
D4-1	6x6	180
D4-2	2-6x6	-5 & 10
D4-3	2-6x6	5 & 20
D5-1, D5-3	6x6	55
D5-2, D5-4	3-6x6	10, 25 & 40

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

(2) PA90 POLE FOUNDATION  
 (W/1" PVC STUB OUT & 5/8" x 15' GROUND ROD)  
 TYPE PA90-A-30-D40-9 (DAVIT AT 350 DEG)  
 1-PAIR SWING AWAY HINGES  
 2-ONE WAY SIGNALS OVERHEAD AT 0' & 13'  
 2-ONE-WAY SIGNALS AT 45 AND AT 225 DEG  
 1-CD PED HEAD AT 225 DEG  
 ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 6)  
 LUMINAIRE-250W HPS  
 1-TYPE R9-3 SIGN (FACING SOUTH)  
 1-SIGN (D-22) 212 EAST RIGHT  
 3" PVC INTO HH 8:  
 2-12/C#12  
 4-3/C#12  
 1-3/C#20  
 1-2/C#14  
 1-1/C#6 INS. GR.

PED PB STATION  
 1-APS PB AND SIGN (RT ARROW) (PB6-2)  
 EXTEND INTO HH 8:  
 1" PVC  
 1-2/C #14

(3) PEDESTAL FOUNDATION  
 13' PEDESTAL POLE PLUS BASE  
 1-PEDESTAL MOUNTED ONE-WAY SIGNAL AT 45 DEG  
 1-ANGLE MOUNTED SIGNAL AT 90 DEG  
 1-CD PED HEAD AT 45 DEG  
 1-TYPE R9-3 SIGN (FACING POLE 4)  
 2" PVC INTO HH 9:  
 1-12/C#12  
 2-3/C#12  
 1-2/C#14  
 1-1/C#6 INS. GR.

PED PB STATION  
 1-APS PB AND SIGN (LT ARROW) (PB6-1)  
 EXTEND INTO HH 9:  
 1" PVC  
 1-2/C #14

(4) PA100 POLE FOUNDATION  
 (W/1" PVC STUB OUT & 5/8" x 15' GROUND ROD)  
 TYPE PA100-A-45-D40-9 (DAVIT AT 350 DEG)  
 1-TWO WAY SIGNAL OVERHEAD AT 0'  
 2-ONE-WAY SIGNALS AT 45 AND 225 DEG  
 1-ANGLE MOUNT SIGNAL AT 90 DEG  
 ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4)  
 LUMINAIRE-250W HPS  
 2-TYPE R9-3 SIGNS (FACING POLES 1 & 3)  
 1-SIGN (D-31) ENGLER BLVD  
 3" PVC INTO HH 12:  
 2-12/C#12  
 2-3/C#12  
 1-3/C#20  
 1-1/C#6 INS. GR.

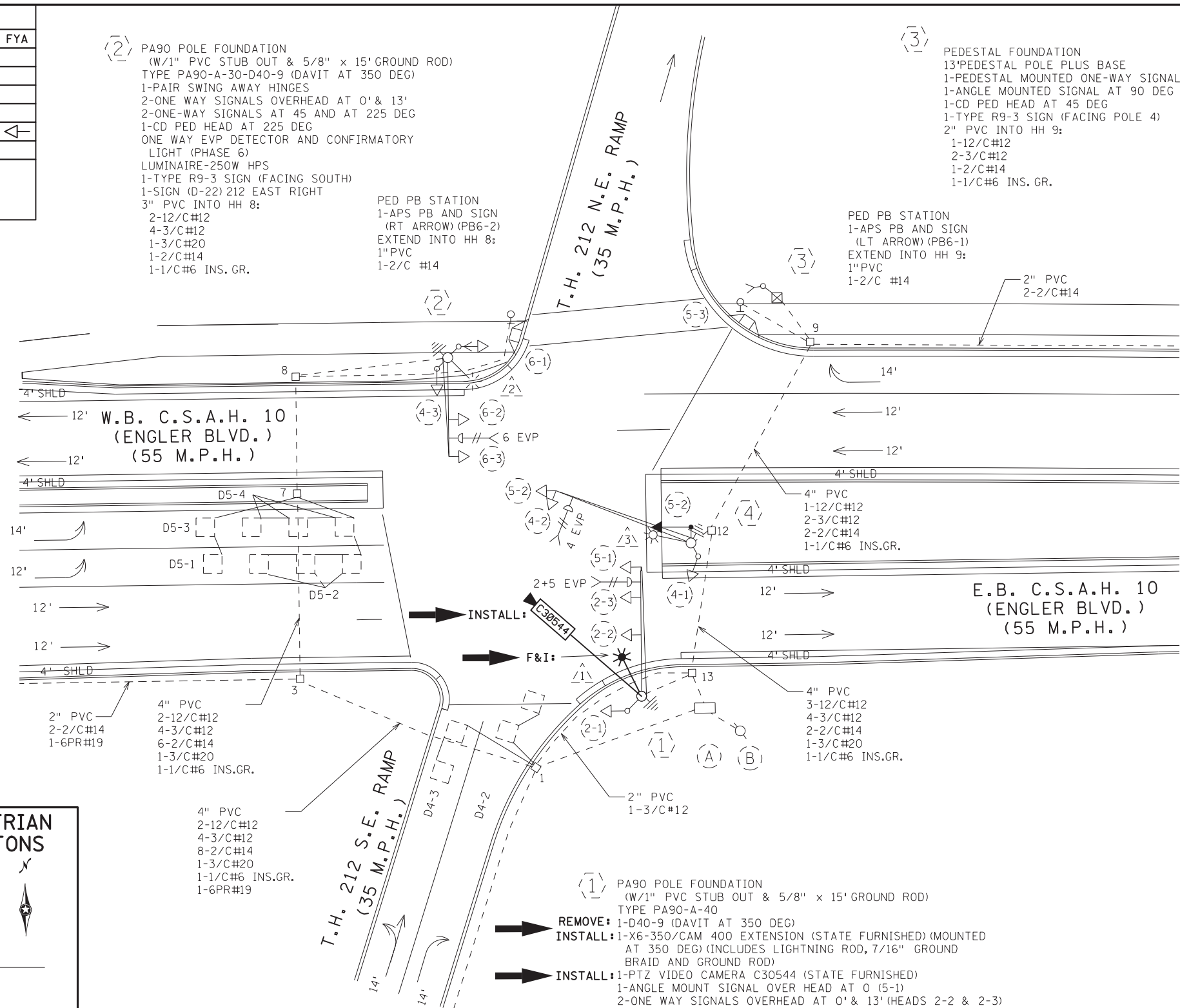
(A) EQUIPMENT PAD - TYPE 1 (SIGNAL)  
 CONTROLLER AND CABINET  
 SERVICE CABINET  
 3/4" PVC FOR FUTURE PHONE DROP  
 4" PVC TO HH 1:  
 2-12/C#12  
 3-3/C#12  
 11-2/C#14  
 1-3/C#20  
 1-1/C#6 BR. GR.  
 1-6PR#19

4" PVC TO HH 13:  
 5-12/C#12  
 4-3/C#12  
 2-2/C#14  
 2-3/C#20  
 1-1/C#6 BR. GR.  
 1-1/C#6 BR. GR.

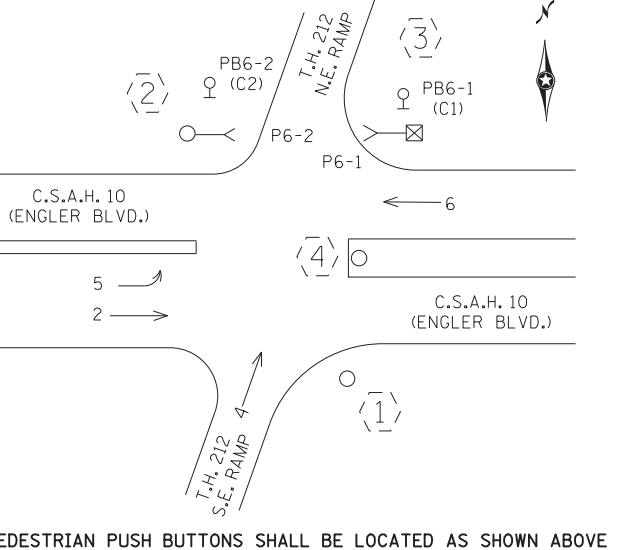
F&I: 1-COM CABLE (CAT 5E) (PTZ)  
 1-1/C#6 BR. GR.

3" PVC STUBBED OUT (CAPPED BOTH ENDS)  
 2" PVC TO SERVICE CABINET  
 2-1/C#6  
 1-1/C#6 INS. GR.  
 SERVICE CABINET TO HH 13:  
 2" PVC  
 3-3/C#12

(B) SOP - WOOD POLE & TRANSFORMER (BY MVEC)  
 (120/240 V, SINGLE PHASE, 15 KVA)  
 2" PVC RISER, WEATHER HEAD AND PVC TO SERVICE CABINET  
 3-1/C#2



### CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



### SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 - NORMAL OPERATION IS 4 PHASE, WITH PHASE 5 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.

- REMOVE: 1-D40-9 (DAVIT AT 350 DEG)
- INSTALL: 1-X6-350/CAM 400 EXTENSION (STATE FURNISHED) (MOUNTED AT 350 DEG) (INCLUDES LIGHTNING ROD, 7/16" GROUND BRAID AND GROUND ROD)
- INSTALL: 1-PTZ VIDEO CAMERA C30544 (STATE FURNISHED)
- INSTALL: 1-ANGLE MOUNT SIGNAL OVER HEAD AT 0 (5-1)
- INSTALL: 2-ONE WAY SIGNALS OVERHEAD AT 0' & 13' (HEADS 2-2 & 2-3)
- INSTALL: 1-ONE-WAY SIGNAL AT 225 DEG
- INSTALL: ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2+5)
- REMOVE: 1-SIGN (D-20) 212 EAST LEFT
- REMOVE: LUMINAIRE-250W HPS
- F&I: 1-LUMINAIRE-LED (FOR 40' MOUNTING HEIGHT)
- F&I: 1-R10-X12 SIGN ADJACENT TO HEAD (5-1)
- F&I: 2-TYPE R9-3 SIGNS (FACING POLE 4 & WEST) AND AT 270°
- F&I: 3" PVC INTO HH 13:  
 2-12/C#12  
 2-3/C#12  
 1-3/C#20
- F&I: 1-COM CABLE (CAT 5E) (PTZ)  
 2-1/C#6 INS. GR.

**GENERAL DESCRIPTION OF THE SIGNAL REVISION WORK:**

- THE REVISE SIGNAL SYSTEM WORK CONSISTS OF INSTALLING A PTZ CAMERA WITH X6-350/CAM 400 EXTENSION. THE WORK INCLUDES F&I LED LUMINAIRE, AND F&I CAT5E CABLE (PTZ).
- ALL ITEMS ARE INPLACE UNLESS OTHERWISE INDICATED.
- INDICATES SIGNAL REVISION WORK TO BE COMPLETED.

BY	DATE	REVISIONS

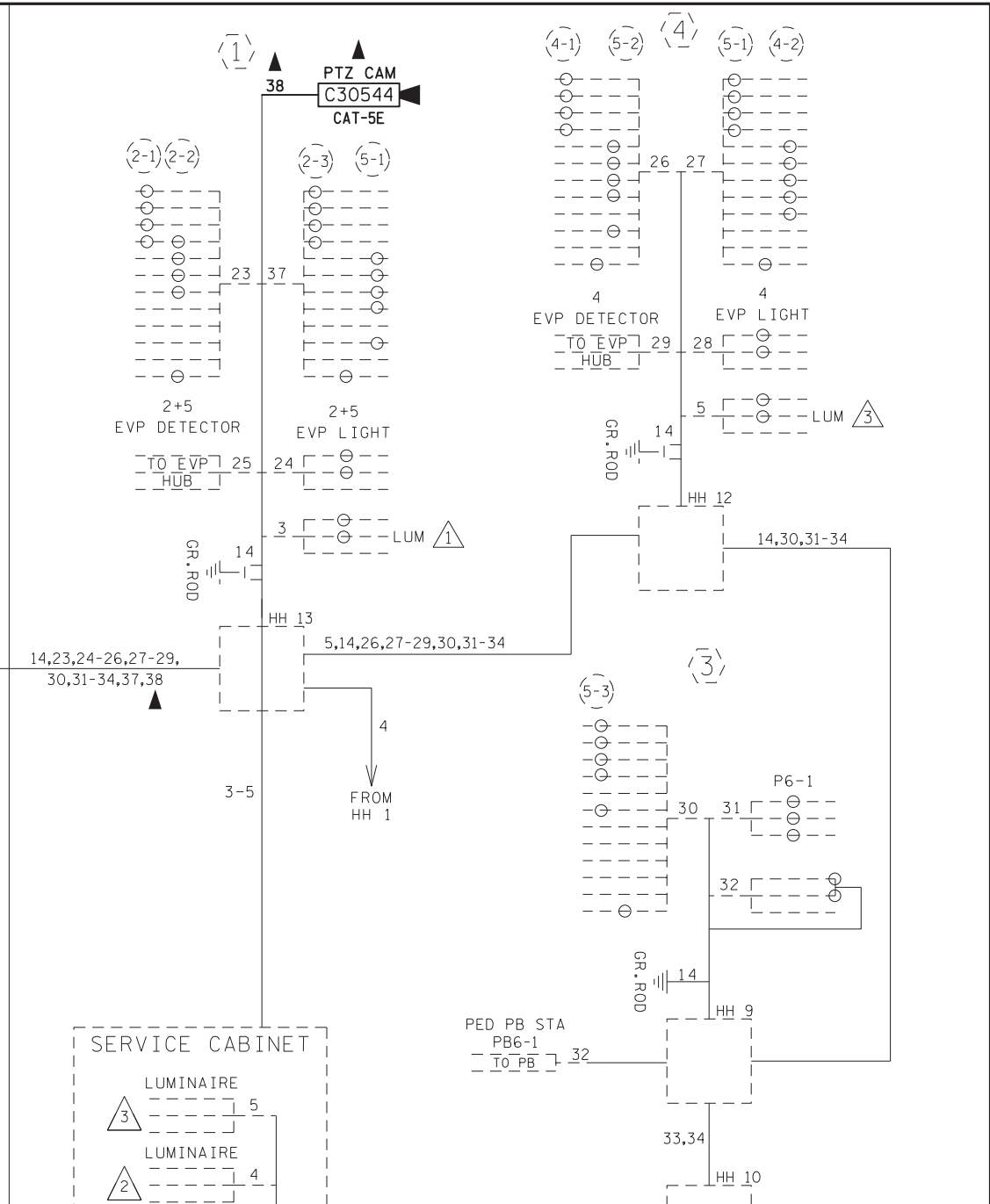
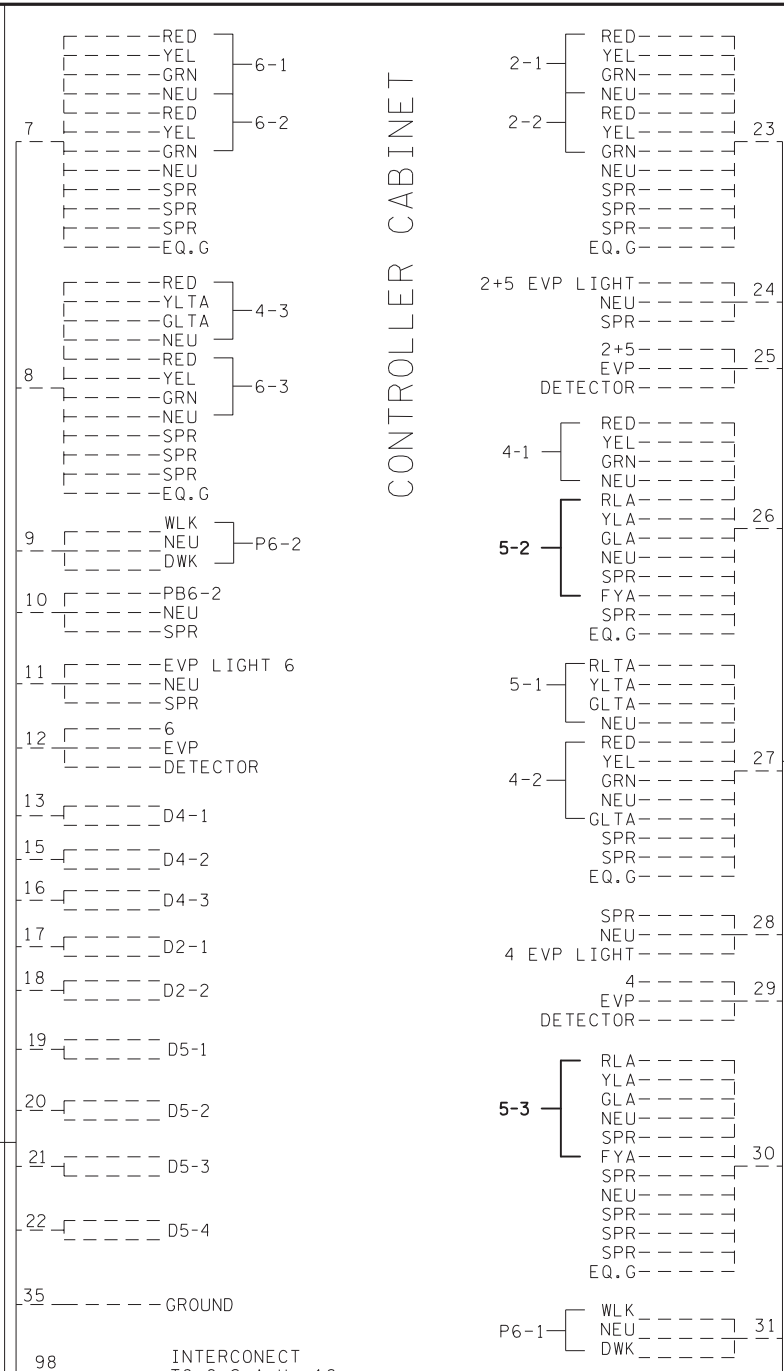
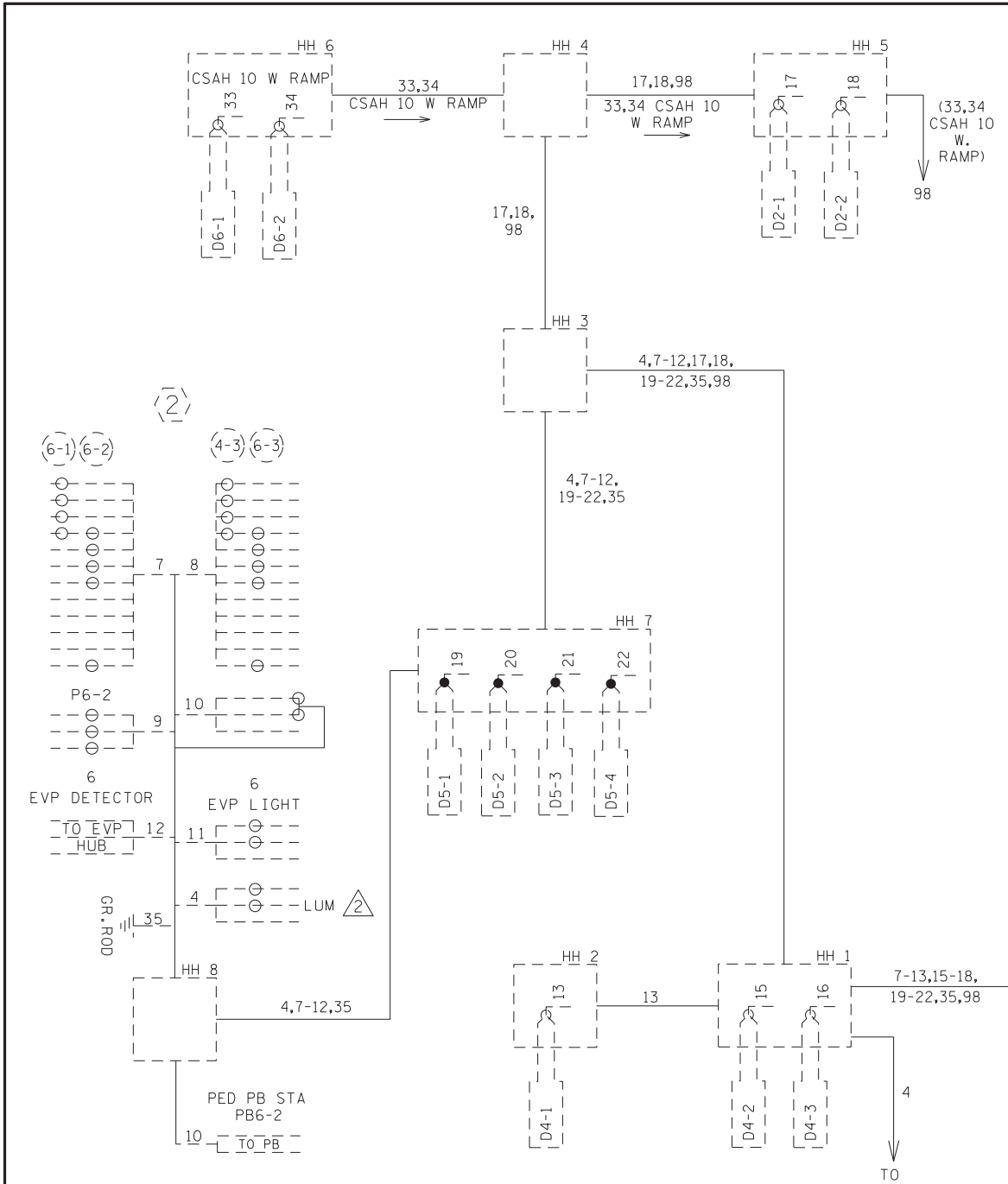
SYSTEM ID: 1736521 T.E. 92831  
 METER ADDRESS: 4100 ENGLER BLVD  
 OLD SYSTEM ID: 38431

**REVISE SIGNAL SYSTEM "0"  
 INTERSECTION LAYOUT  
 TH 212 AT ENGLER BLVD EAST RAMP  
 IN CHASKA, CARVER COUNTY**

S.A.P. NO. \_\_\_\_\_ DRAWN BY: HRL CKD BY: CDB DATE: 03/31/23  
 CERTIFIED BY Gregory Kern LIC. NO. 26829 DATE: 04/04/23  
 STATE PROJ. NO. 8825-1025 (T.H. 999) SHEET NO. 54 OF 121 SHEETS

PLOTTED/REVISED: 6-APR-2023

DISTRICT #: Metro  
PLOT NAME: Street\_55  
FILENAME: Projects\DM\_FOS\21200007TrafficSignals\Hr.71.101 ENGLER BLVD ER-173652N\Pending\T173652L\_sgl.dgn



CONDUCTOR COLOR CODE	
TO SIGNAL CABINET	TO DEVICE
3/C#20 R OR O WH OR YEL BLK OR BL	12/C#12 R O BL WH R/BLK O/BLK BL/BLK WH/BLK BLK BLK/WH G/BLK G
2/C#14 BLK CLR	7/C#14 CABLE R O BL WH Y BLK BRN
2-1/C BLK WH	5/C#14 CABLE R O BL WH BLK
6PR#19	4/C#14 CABLE R O BL WH BLK
1-1/C #6 INS. GR. GREEN	2/C#14 CABLE R O BL WH

BY	DATE	REVISIONS

SYSTEM ID: 1736521 T.E. 92831  
 METER ADDRESS: 4100 ENGLER BLVD  
 OLD SYSTEM ID: 38431

**REVISE SIGNAL SYSTEM "0"**  
**FIELD WIRING DIAGRAM**  
**TH 212 AT ENGLER BLVD EAST RAMP**  
**IN CHASKA, CARVER COUNTY**

S.A.P. NO. \_\_\_\_\_ DRAWN BY: HRL CKD BY: CDB DATE: 03/31/23  
 CERTIFIED BY: *Gregory Kern* LIC. NO. 26829 DATE: 04/04/23  
 STATE PROJ. NO. 8825-1025 (T.H.999) SHEET NO. 55 OF 121 SHEETS

PLOTTED/REVISED: 23-NOV-2022

DISTRICT \*: Metro  
PLOT NAME: layout  
FILENAME: Projects\DM\_FOS\212\00007\Traffic\Signal\47.71.101\ENGLER BLVD ER-173652\T173652L.sgl.dgn

**SIGNAL HEAD CHART**

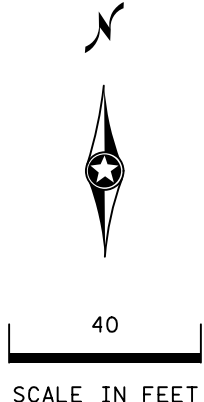
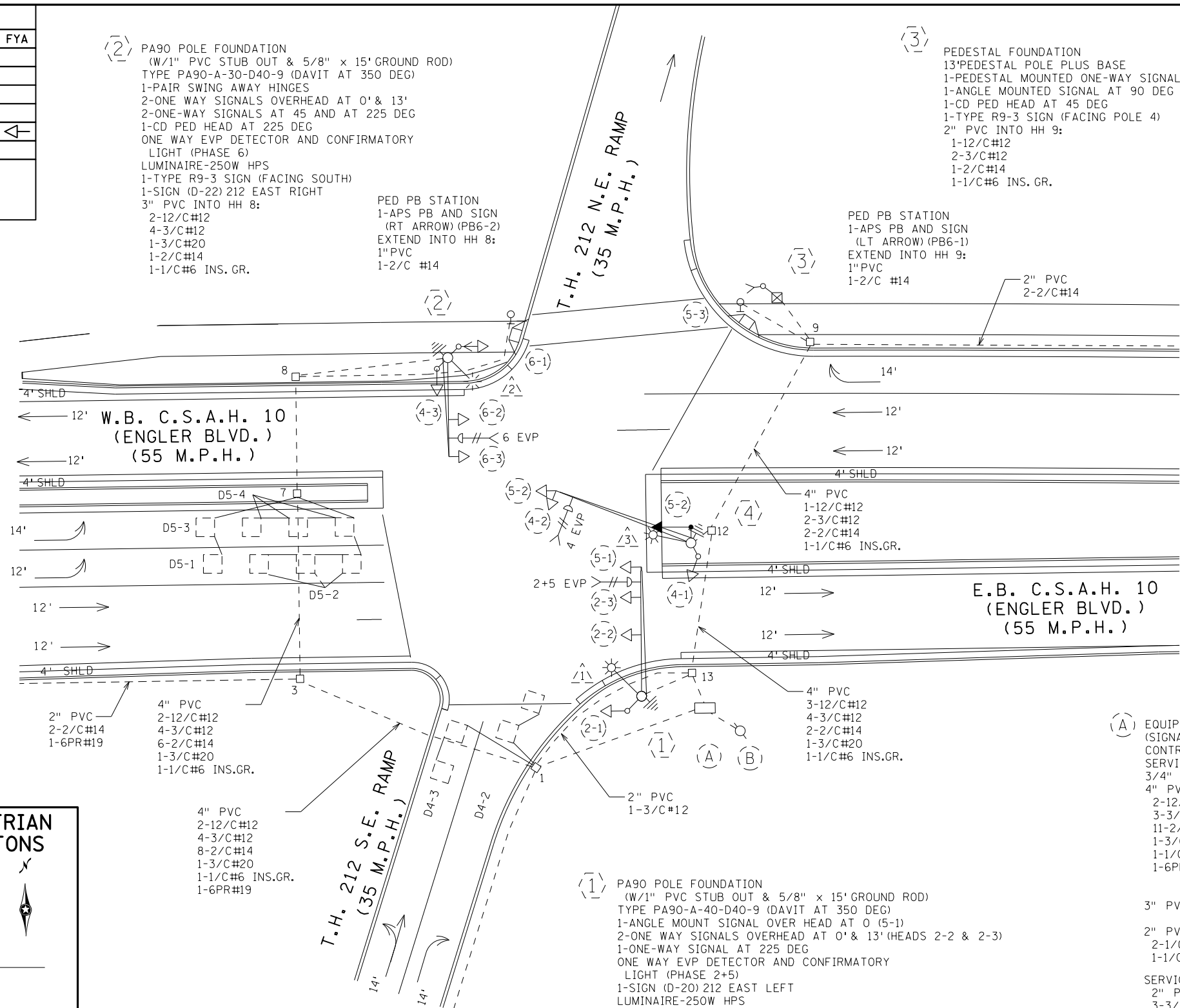
FACE	R	Y	G	RLTA	YLTA	GLTA	FYA
2-1, 2-2, 2-3	○	○	○				
4-1	○	○	○				
4-2	○	○	○			←	
4-3	○	○	○		←	←	
5-1, 5-2, 5-3	←	←	←				←
6-1, 6-2, 6-3	○	○	○				

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

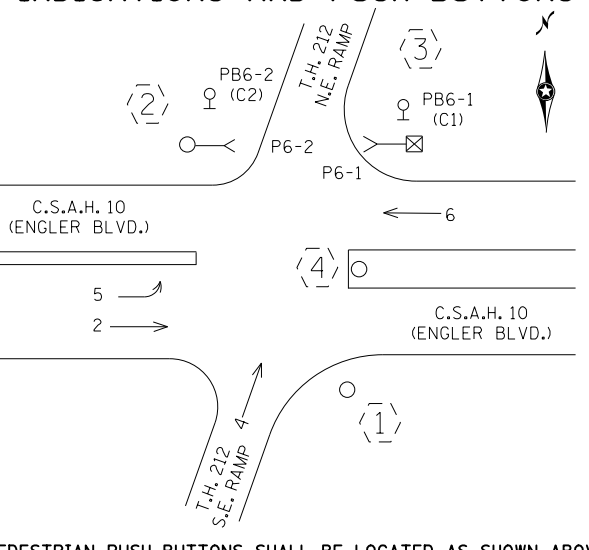
**LOOP DETECTOR CHART**

NUMBER	SIZE (FT)	LOCATION
D2-1, D2-2	6x6	486
D4-1	6x6	180
D4-2	2-6x6	-5 & 10
D4-3	2-6x6	5 & 20
D5-1, D5-3	6x6	55
D5-2, D5-4	3-6x6	10, 25 & 40

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



**CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS**



**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 - NORMAL OPERATION IS 4 PHASE, WITH PHASE 5 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.

BY	DATE	REVISIONS
SJK	11/23/22	AS-BUILT PLAN FROM SP 1017-106

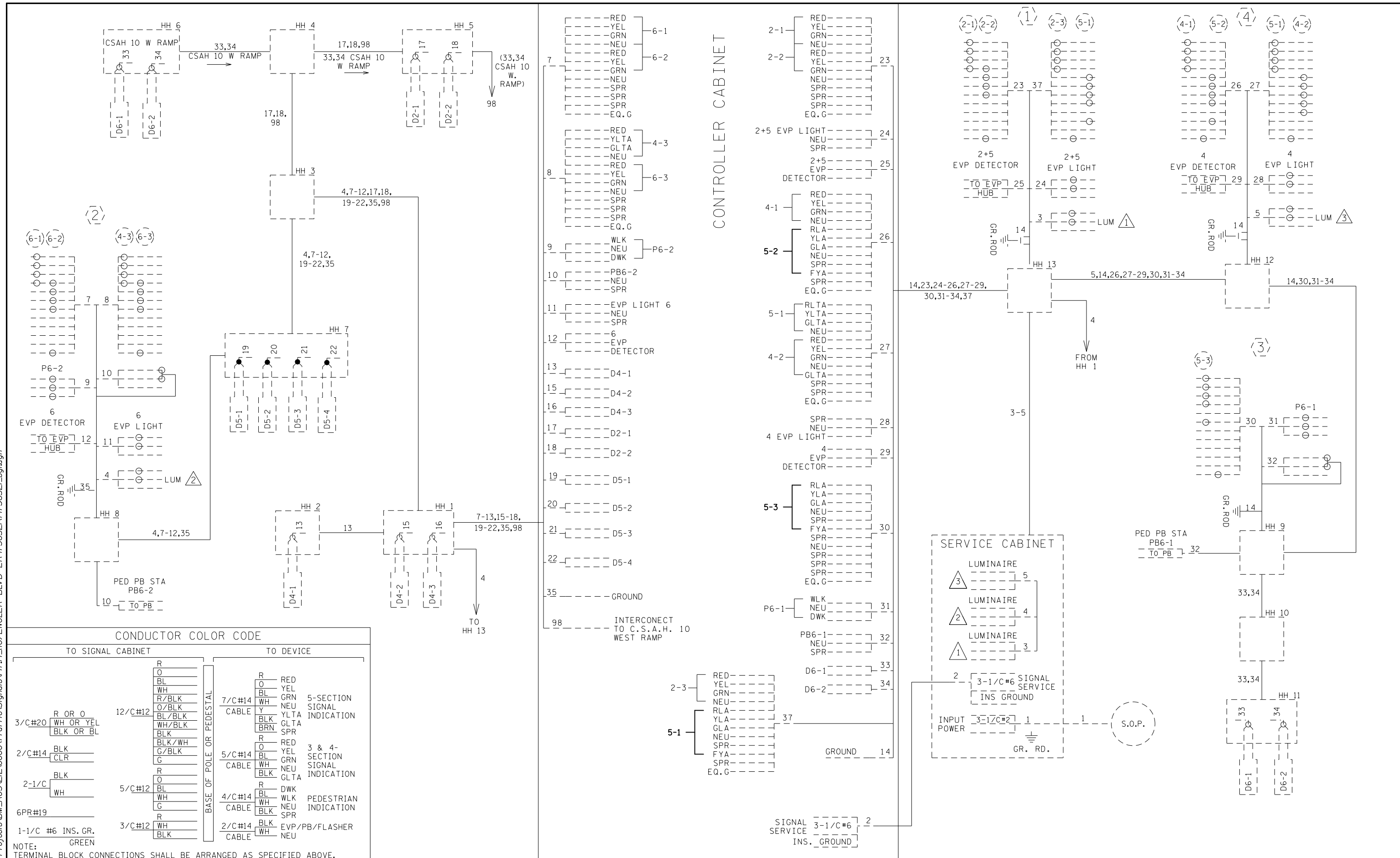
SYSTEM ID: 1736521 T.E.  
 METER ADDRESS: 4100 ENGLER BLVD  
 OLD SYSTEM ID:

**INTERSECTION LAYOUT**  
**TH 212 AT ENGLER BLVD EAST RAMP**  
**IN CHASKA, CARVER COUNTY**

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO. 1017-106 (T.H.212) SHEET NO. 1 OF 2 SHEETS			

PLOTTED/REVISED: 23-NOV-2022

DISTRICT \*: Metro  
PLOT NAME: wiring diagram  
FILENAME: Projects\DM\_FOS\2100007\Traffic\Signals\Hr.71\101 ENGLER BLVD ER-173652\NT173652L.sgl.dgn



CONDUCTOR COLOR CODE	
TO SIGNAL CABINET	TO DEVICE
3/C#20 R OR O WH OR YEL BLK OR BL	12/C#12 R O BL WH R/BLK O/BLK BL/BLK WH/BLK BLK BLK/WH G/BLK G
2/C#14 BLK CLR	7/C#14 CABLE R O BL WH Y BLK BRN
2-1/C BLK WH	5/C#14 CABLE R O BL WH BLK
6PR#19	4/C#14 CABLE R O BL WH BLK
1-1/C #6 INS. GR. GREEN	2/C#14 CABLE R O BL WH

BY	DATE	REVISIONS
SJK	11/23/22	AS-BUILT PLAN FROM SP 1017-106

SYSTEM ID: 1736521 T.E.  
METER ADDRESS: 4100 ENGLER BLVD  
OLD SYSTEM ID:

**FIELD WIRING DIAGRAM  
TH 212 AT ENGLER BLVD EAST RAMP  
IN CHASKA, CARVER COUNTY**

S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
CERTIFIED BY _____	LIC. NO. _____	DATE: _____	
STATE PROJ. NO. 1017-106 (T.H.212) SHEET NO. 2 OF 2 SHEETS			

PLOTTED/REVISED: 1/30/2015

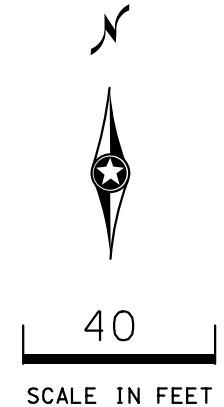
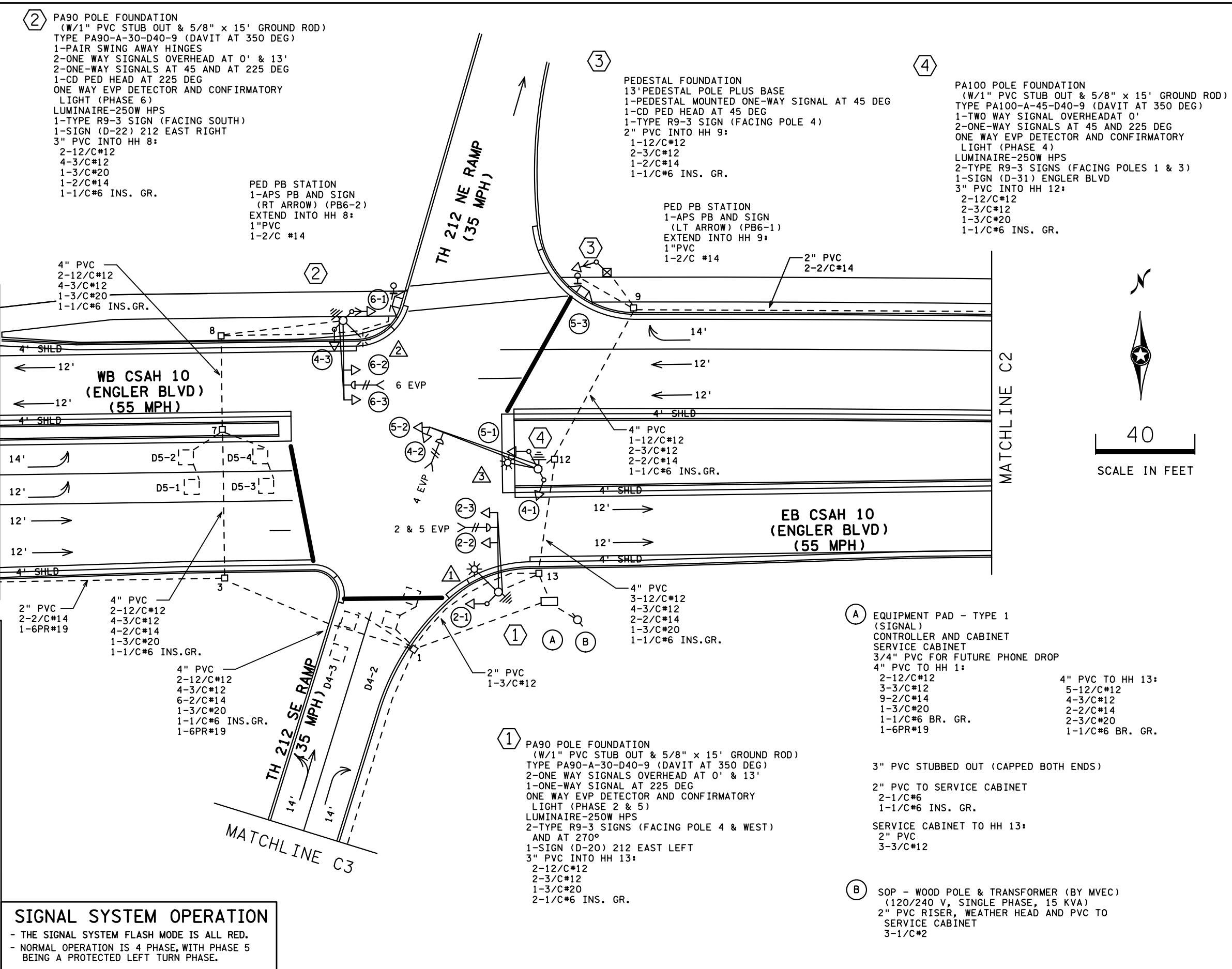
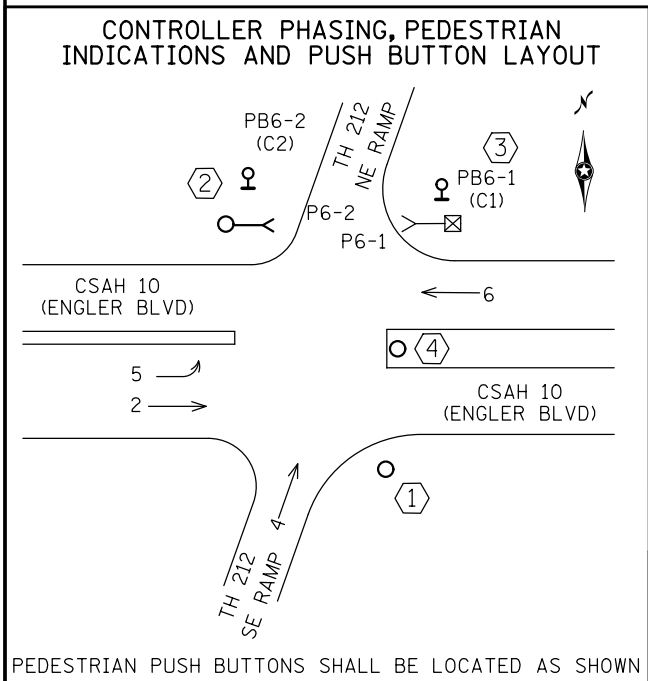
DISTRICT #: METRO  
 IPLOT NAME: layout  
 PATH & FILENAME: IP\_PWP-d078496AT38431\_SGL.dgn

SIGNAL HEAD CHART						
FACE	R	Y	G	RLTA	YLTA	GLTA
2-1, 2-2, 2-3	○	○	○			
4-1	○	○	○			
4-2	○	○	○			◀
4-3	○					◀ ◀
5-1, 5-2, 5-3				◀	◀	◀
6-1, 6-2, 6-3	○	○	○			

-ALL SIGNAL INDICATIONS ARE 12" LEDS  
 -ALL SIGNAL FACES HAVE A BACKGROUND SHIELD  
 -ALL SIGNAL HEADS ARE BLACK POLYCARBONATE

LOOP DETECTORS		
DESIGNATION	NO. OF LOOPS	LOCATION
D2-1, D2-2	1	486
D5-1, D5-2	1	40
D5-3, D5-4	1	10
D6-1, D6-2	1	475
D4-1	1	180
D4-2	2	-5 & 10
D4-3	2	5 & 20

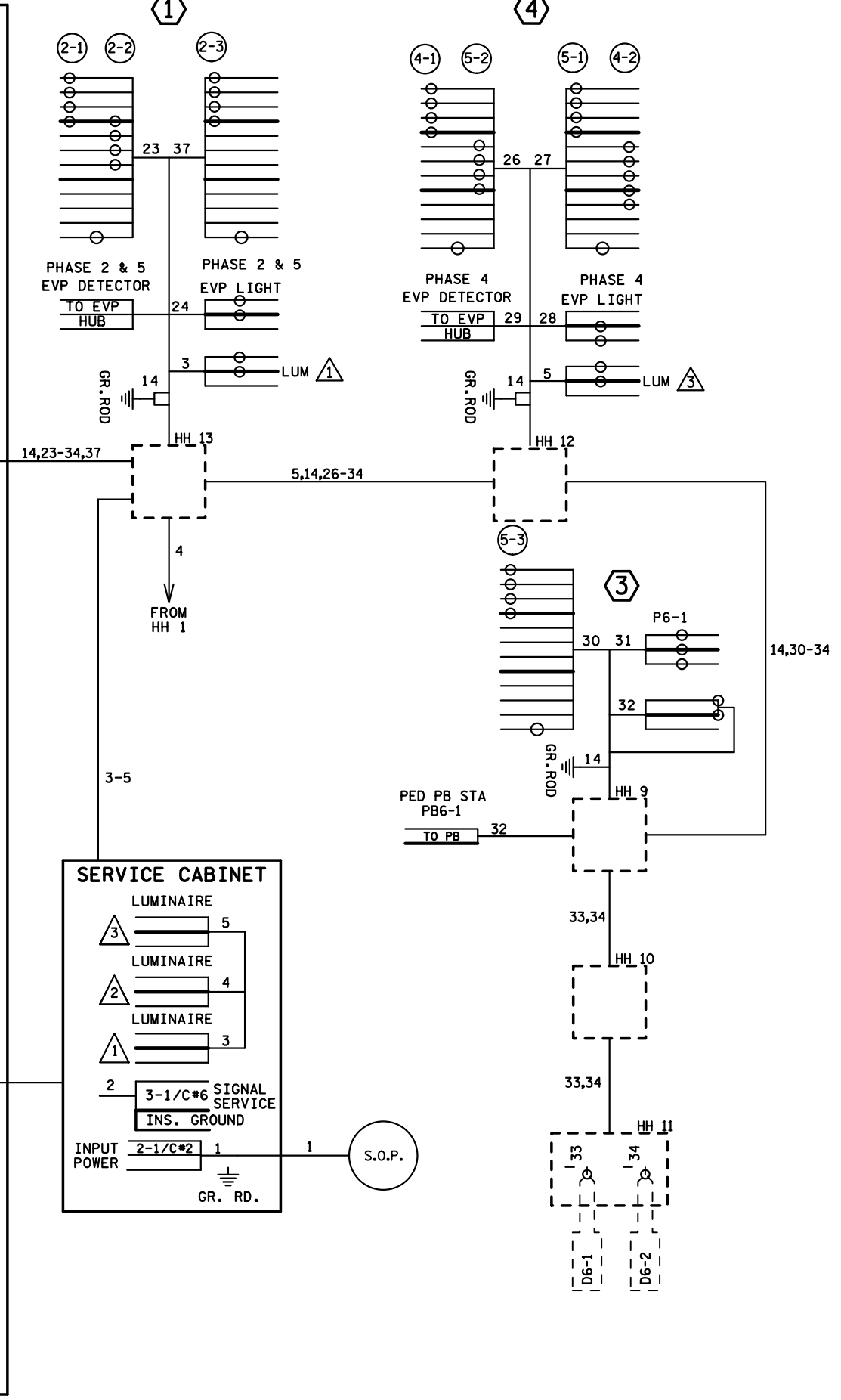
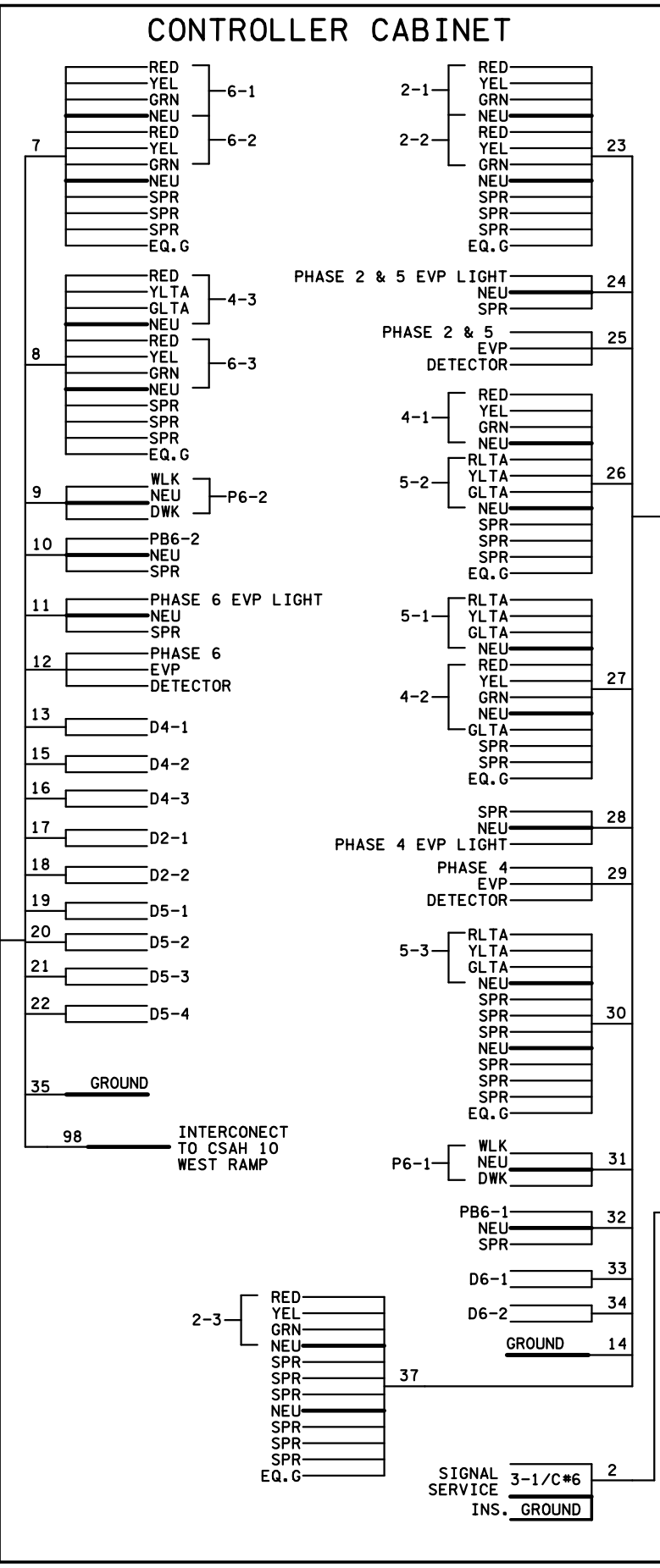
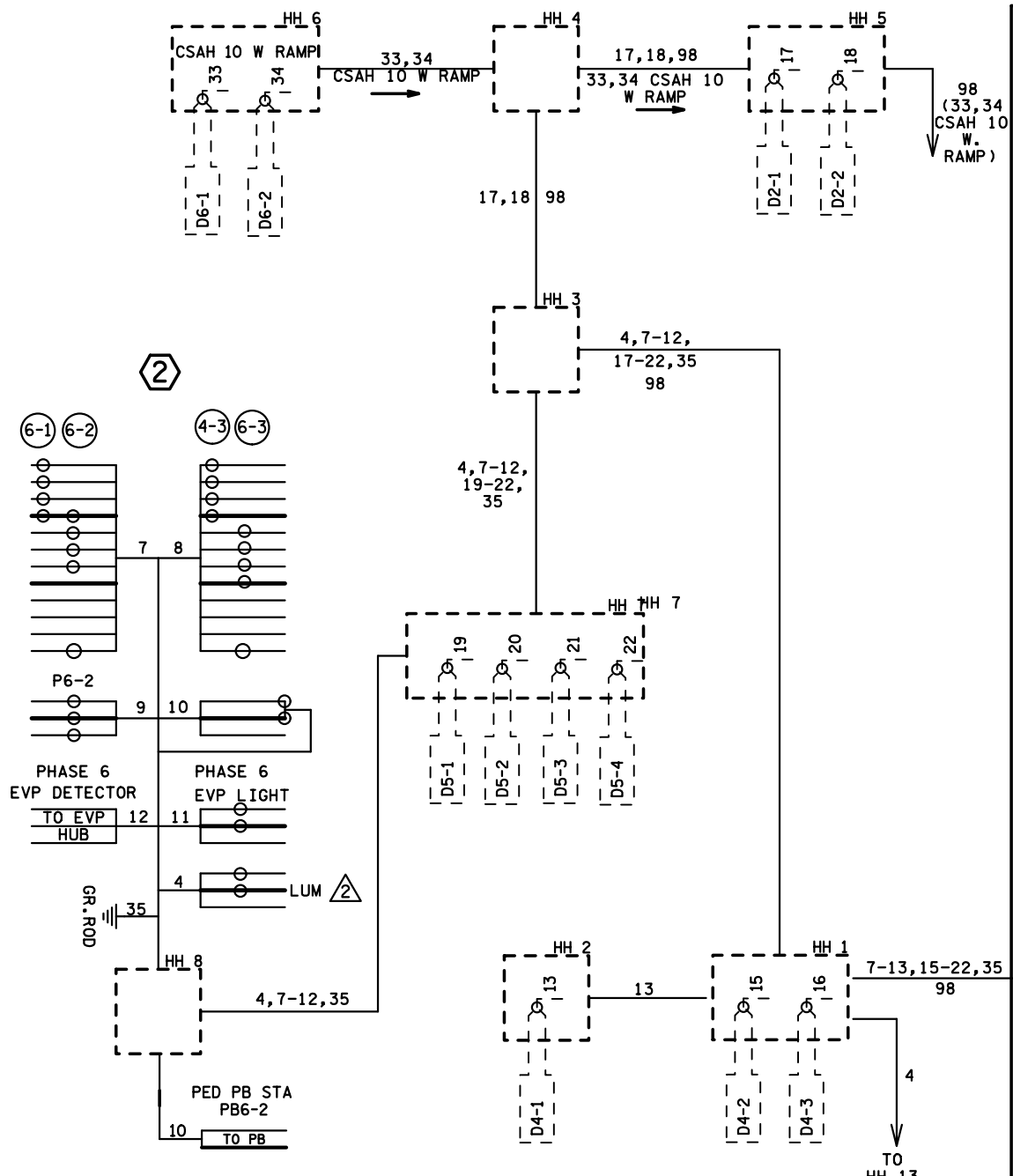
-ALL LOOP DETECTORS ARE 6' X 6' PVC  
 -LOCATION: DISTANCE FROM CROSSWALK/ STOP LINE IN FEET



BY: EJA	DATE: 1-30-15	REVISIONS: AS-BUILT OF SP 8825-473 APS & CD PEDS	SYSTEM ID: 38431	T.E.	<b>INTERSECTION LAYOUT</b> <b>TH 212 AT</b> <b>CSAH 10 (ENGLER BLVD) EAST RAMPS</b> <b>IN CHASKA, CARVER COUNTY</b>	S.A.P. NO.	DRAWN BY: CDB	CKD BY: CDB	DATE: 10-28-13
			METER ADDRESS: 4100 ENGLER BLVD	T.E.		CERTIFIED BY: _____	LIC. NO. _____	DATE: 2/11/14	
			MASTER ID: 38511			STATE PROJ. NO.	SHEET NO. 1 OF 3 SHEETS		

PLOTTED/REVISED: 1/30/2015

DISTRICT #: METRO  
IPLOT NAME: wire  
PATH & FILENAME: IP\_PWP-d078496AT38431\_SGL.dgn



#### CONDUCTOR COLOR CODE

TO SIGNAL CABINET		TO DEVICE	
3/C#20	R OR O WH OR YEL BLK OR BL	12/C#12	R O BL WH R/BLK O/BLK BL/BLK WH/BLK BLK BLK/WH G/BLK
2/C#14	BLK CLR	5/C#14	R O BL WH BLK
2-1/C	BLK WH	4/C#14	R BL WH G
6PR#19		2/C#14	R BLK WH
1-1/C #6	INS. GR. GREEN		

BASE OF POLE OR PEDESTAL

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

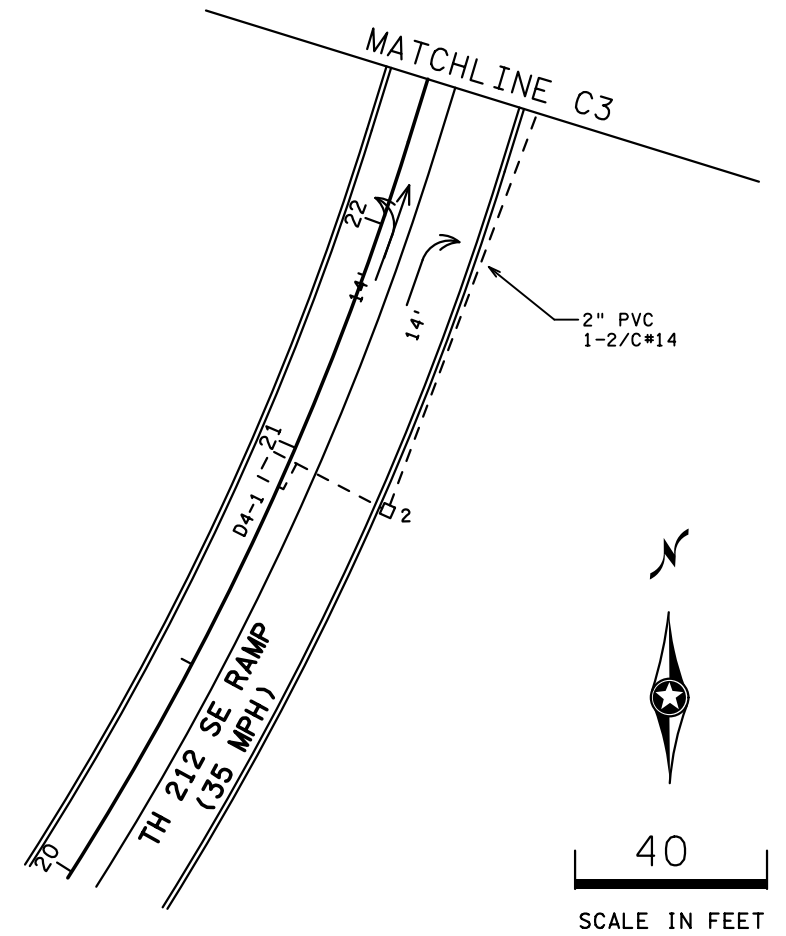
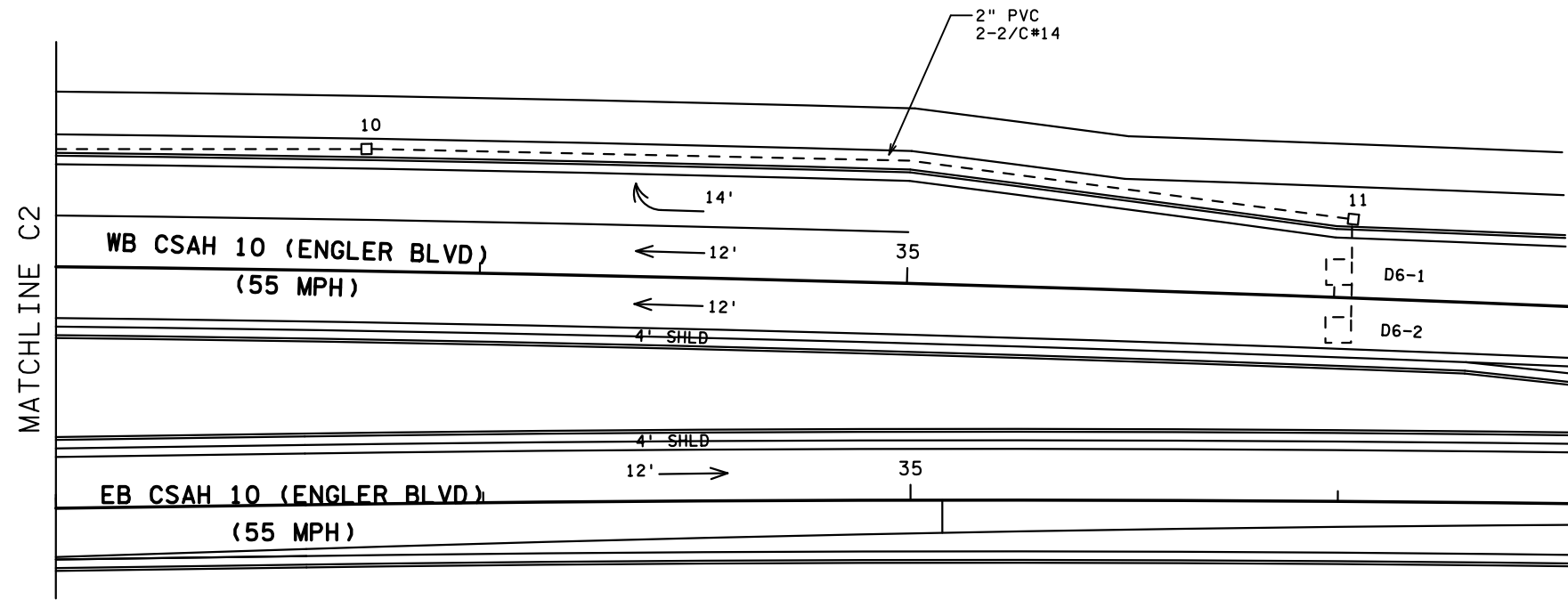
SYSTEM ID: 38431 T.E.  
METER ADDRESS: 4100 ENGLER BLVD  
MASTER ID: 38511 T.E.

### WIRING DIAGRAM TH 212 AT CSAH 10 (ENGLER BLVD) EAST RAMPS IN CHASKA, CARVER COUNTY

S.A.P. NO. \_\_\_\_\_ DRAWN BY: CDB CKD BY: CDB DATE: 10-28-13  
CERTIFIED BY \_\_\_\_\_ LIC. NO. \_\_\_\_\_ DATE: 2/11/14  
STATE PROJ. NO. \_\_\_\_\_ SHEET NO. 3 OF 3 SHEETS

PLOTTED/REVISED: 1/30/2015

DISTRICT \*: METRO  
 IPLOT NAME: matchline  
 PATH & FILENAME: IP\_PWP\d0784964\38431\_SGL.dgn

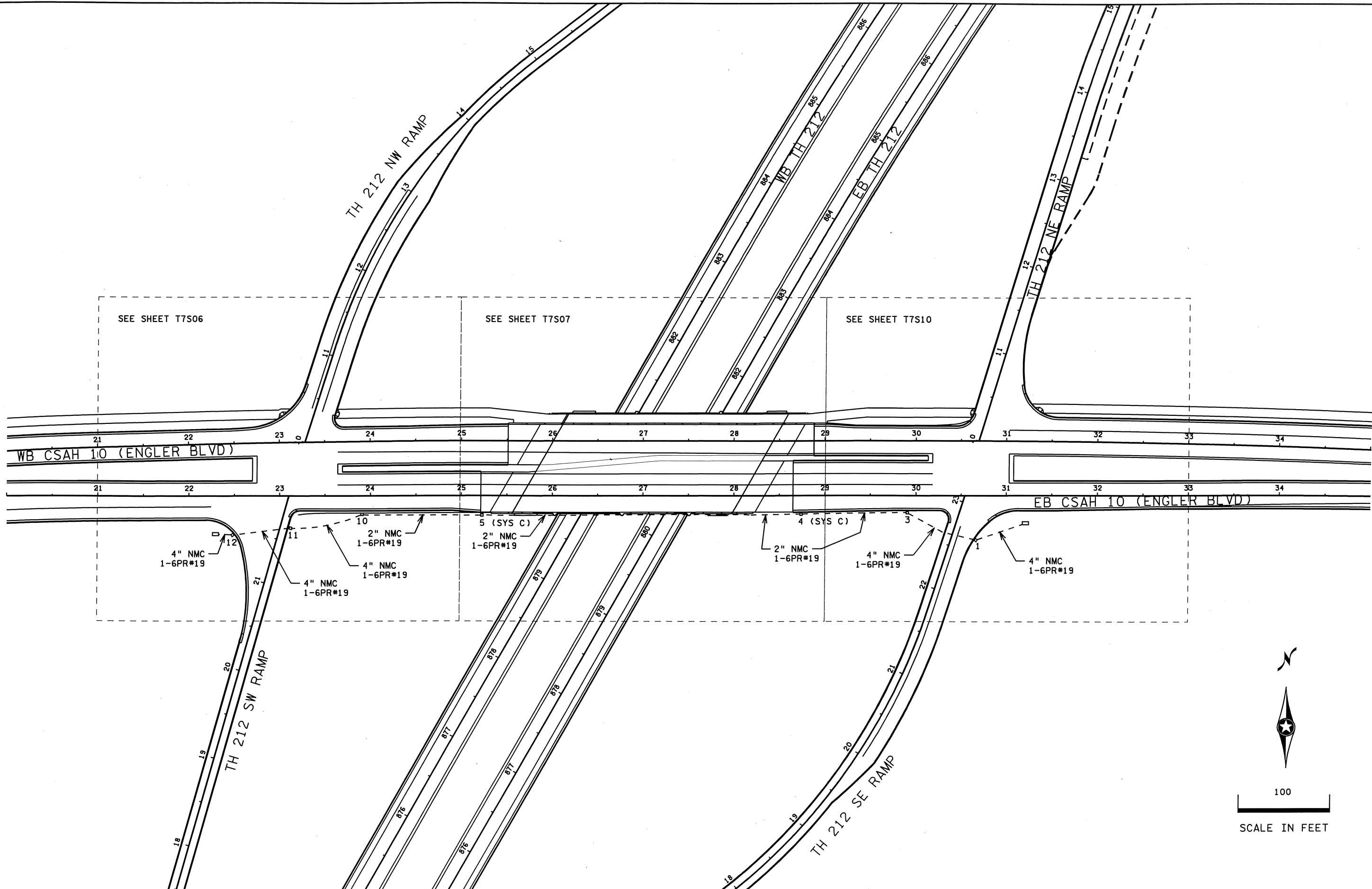


BY	DATE	REVISIONS	SYSTEM ID: 38431	T.E.	S.A.P. NO.	DRAWN BY: CDB	CKD BY: CDB	DATE: 10-28-13
EJA	1-30-15	AS-BUILT OF SP 8825-473 APS & CD PEDS	METER ADDRESS: 4100 ENGLER BLVD		CERTIFIED BY _____	LIC. NO. _____	DATE: 2/11/14	
			MASTER ID: 38511	T.E.	STATE PROJ. NO.	SHEET NO.	2 OF	3 SHEETS
			<b>MATCHLINE LAYOUT</b> <b>TH 212 AT</b> <b>CSAH 10 (ENGLER BLVD) EAST RAMPS</b> <b>IN CHASKA, CARVER COUNTY</b>					



PLOTTED/REVISED: 4/22/2009

DISTRICT #: METRO  
 IPLOT NAME: Interconnect  
 PATH & FILENAME: S:\TRAFFIC\Signal Design\Plans\TH 212\384301\384301\_sgl.dgn



0	3/13/06	KEL	PJZ	RJG	INITIAL RELEASE FOR CONSTRUCTION
1	10/8/08	KAS	RJG	RJG	AS-BUILT PLANS
2	4/22/09	GDS	EJA	EJA	FINAL AS-BUILT PLANS
NO	DATE	BY	CKD	APPR	REVISION
*FILEA*					

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.  
 Pr Int Name: ROBERT J GREEN  
 Date \_\_\_\_\_ License # 22793

MN/DOT RELEASED FOR CONSTRUCTION  
 Date \_\_\_\_\_ MnDOT



**TH 212 DESIGN BUILD (SP 1017-12)**  
 TRAFFIC CONTROL INTERCONNECT  
 CSAH 10 (ENGLER BLVD)  
 CSAH 10 STA 20+00 TO STA 35+00

SHEET T7S74 OF T7S77