

PLOTTED/REVISED: 2/11/2016

DISTRICT #: METRO  
PLOT NAME: layout  
PATH & FILENAME: IP\_PWP-d078165\NT20746\_sgl.dgn

SIGNAL HEAD CHART				
FACE	R	Y	FYA	G
1-1, 1-2	←	←	←	←
2-1, 2-2, 2-3	○	○		○
4-1, 4-2	○	○		○
6-1, 6-2	○	○		○
8-1, 8-2, 8-3	○	○		○

-ALL SIGNAL INDICATIONS ARE 12" LEDS  
-ALL SIGNAL HEADS ARE BLACK POLYCARBONITE WITH BACKGROUND SHIELDS

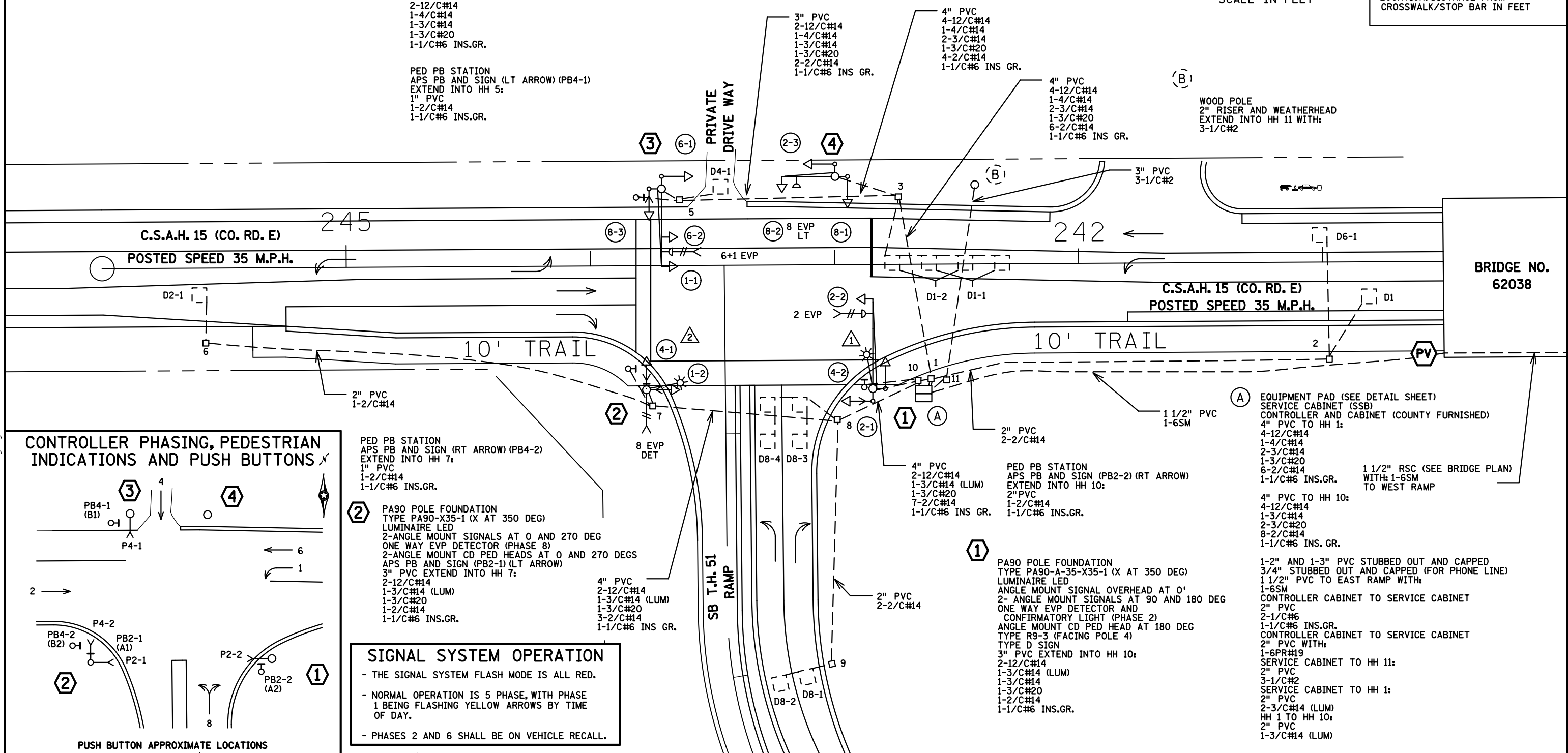
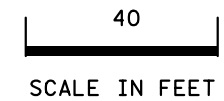
**3** PA90 POLE FOUNDATION  
TYPE PA90-A-30  
ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEGS  
ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 6+1)  
ANGLE MOUNT CD PED HEAD AT 90 DEG  
R10-X12 SIGN (ADJACENT TO HEAD 1-1)  
TYPE D SIGN  
3" PVC EXTEND INTO HH 5:  
2-12/C#14  
1-4/C#14  
1-3/C#14  
1-3/C#20  
1-1/C#6 INS.GR.

PED PB STATION  
APS PB AND SIGN (LT ARROW) (PB4-1)  
EXTEND INTO HH 5:  
1" PVC  
1-2/C#14  
1-1/C#6 INS.GR.

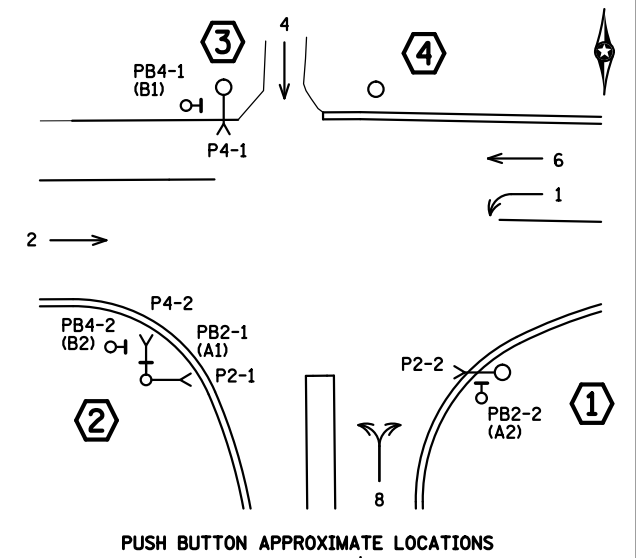
**4** PA85 POLE FOUNDATION  
TYPE PA85-A-15-5'EXTENSION  
ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEGS  
ONE WAY EVP CONFIRMATORY LIGHT (PHASE 8)  
TYPE R9-3 SIGN (FACING POLE 1)  
TYPE D SIGN  
3" PVC EXTEND INTO HH 4:  
2-12/C#14  
1-3/C#14  
1-1/C#6 INS.GR.

LOOP DETECTOR CHART		
NUMBER	SIZE (FT)	LOCATION
D1-1	2-6X6	20 & 50
D1-2	2-6X6	0 & 35
D2-1	6X6	180
D4-1	6X6	5
D6-1	6X6	180
D8-1	6X6	120
D8-2	6X6	120
D8-3	2-6X6	5 & 20
D8-4	2-6X6	5 & 20
D1	6X6	200

-ALL LOOP DETECTORS ARE PVC  
-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET



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



**2** PA90 POLE FOUNDATION  
TYPE PA90-X35-1 (X AT 350 DEG)  
LUMINAIRE LED  
2-ANGLE MOUNT SIGNALS AT 0 AND 270 DEG  
ONE WAY EVP DETECTOR (PHASE 8)  
2-ANGLE MOUNT CD PED HEADS AT 0 AND 270 DEGS  
APS PB AND SIGN (PB2-1) (LT ARROW)  
3" PVC EXTEND INTO HH 7:  
2-12/C#14  
1-3/C#14 (LUM)  
1-3/C#20  
1-3/C#14  
1-2/C#14  
1-1/C#6 INS.GR.

4" PVC  
2-12/C#14  
1-3/C#14 (LUM)  
1-3/C#20  
3-2/C#14  
1-1/C#6 INS.GR.

PED PB STATION  
APS PB AND SIGN (RT ARROW) (PB4-2)  
EXTEND INTO HH 7:  
1" PVC  
1-2/C#14  
1-1/C#6 INS.GR.

**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 5 PHASE, WITH PHASE 1 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

BY	DATE	REVISIONS
EJA	02-11-16	AS-BUILT OF SP 6216-130 SIGNAL REPLACEMENT

SYSTEM ID: 20746 T.E.  
METER ADDRESS: 1340 CO.RD.E  
MASTER ID: T.E.

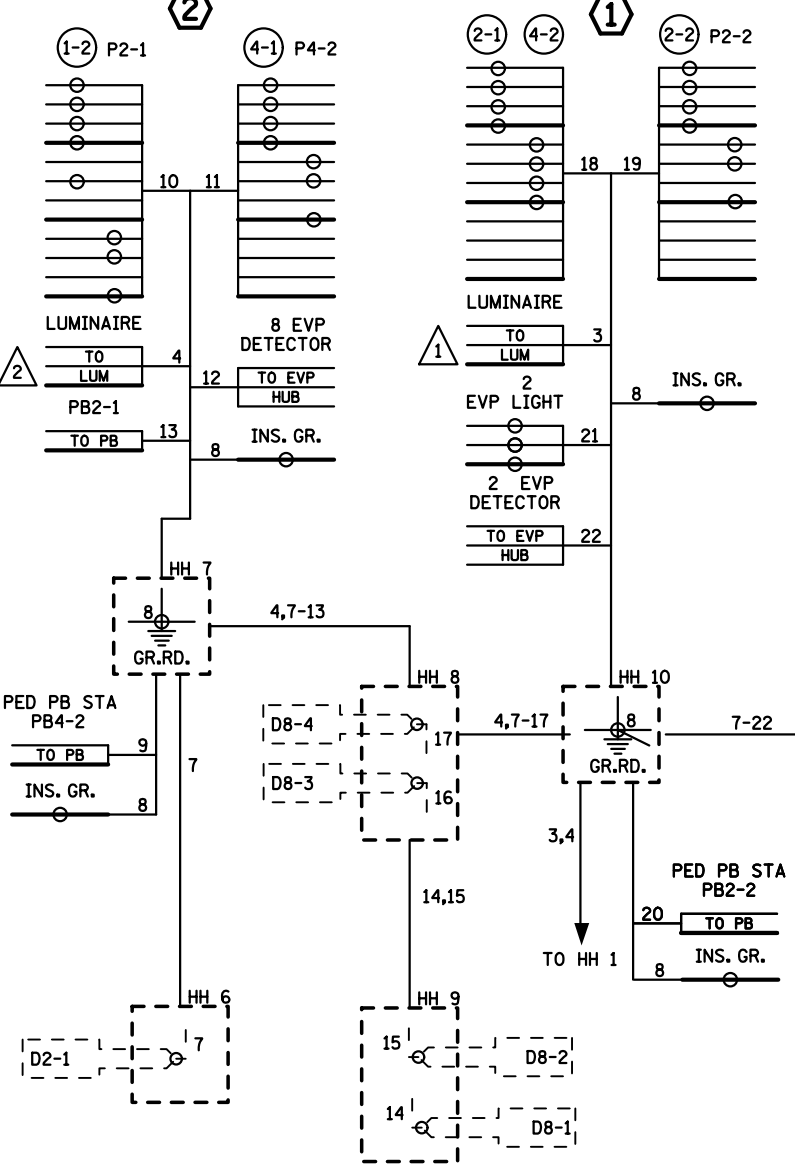
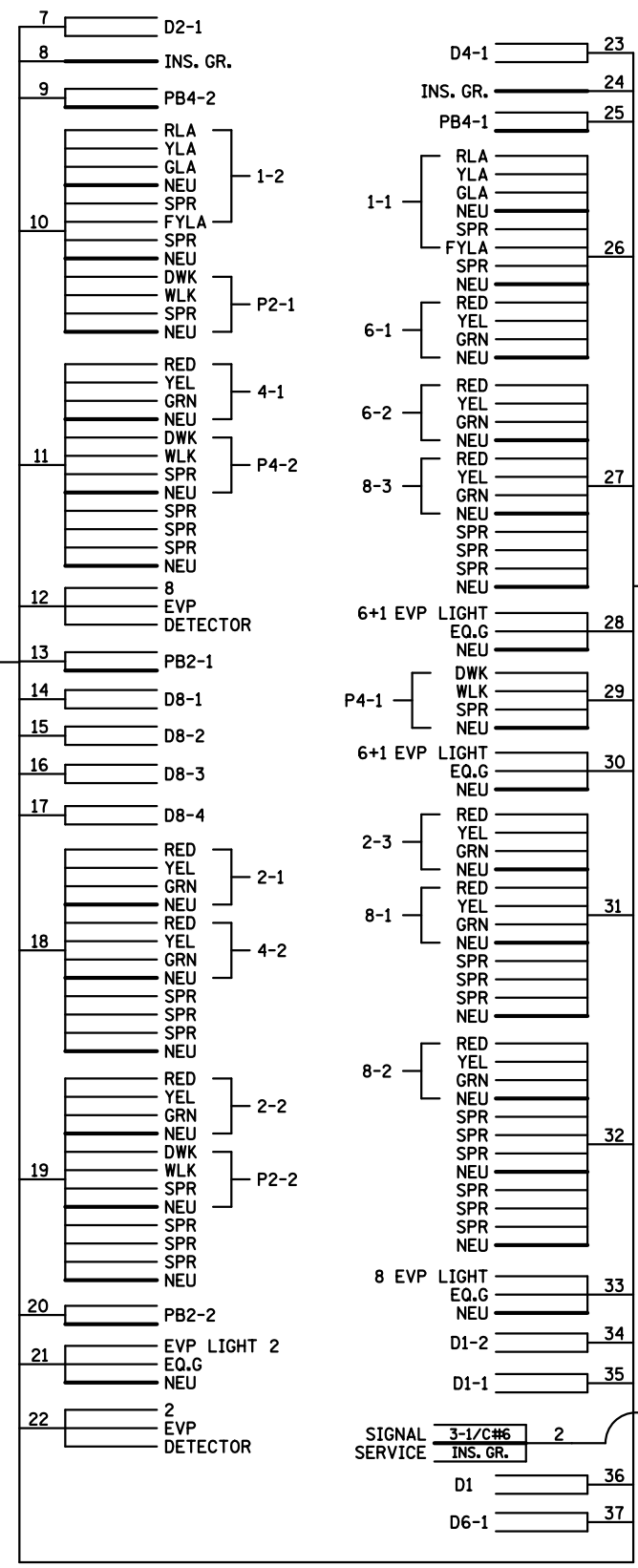
**INTERSECTION LAYOUT**  
T.H. 51 AT C.S.A.H. 15 (CO. RD. E) W. RAMP  
IN ARDEN HILLS, RAMSEY COUNTY

S.A.P. NO. \_\_\_\_\_ DRAWN BY: SJK CKD BY: EJA DATE: 08-26-14  
CERTIFIED BY \_\_\_\_\_ LIC. NO. \_\_\_\_\_ DATE: \_\_\_\_\_  
STATE PROJ. NO. (T.H. 51) SHEET NO. 1 OF 3 SHEETS

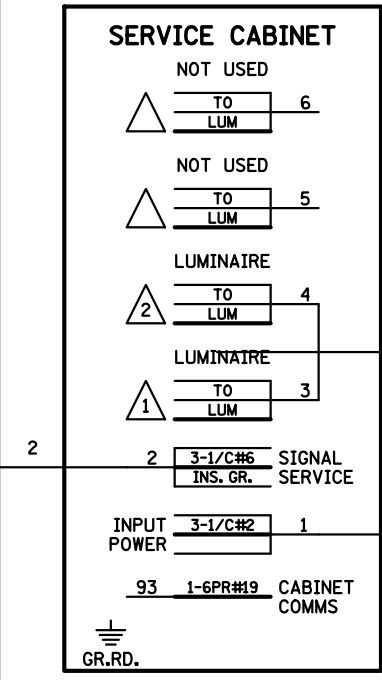
PLOTTED/REVISED: 2/11/2016

DISTRICT #: METRO  
IPLOT NAME: wiring diagram  
PATH & FILENAME: IP\_PWP-d0781651N20746\_sgl.dgn

### CONTROLLER CABINET



**NOTES:**  
1. SIGNAL SYSTEM INCLUDES BATTERY- BACKUP SERVICE CABINET (WITH BATTERIES AND U.P.S.).



CONDUCTOR COLOR CODE (14 GAUGE)			
TO SIGNAL CABINET		TO DEVICE	
1/C#6 G	R	R	RED
6PR#19	O	O	YEL
COAXIAL CABLE (6SM)	BL	BL	GRN
	WH	WH	NEU
	BLK/R	BLK/R	YLA/FYA HEADS
	BLK	BLK	GLA
3-1/C#2 R	BLK/R	BLK/R	RED/DWK
3-1/C#0 WH	BLK	BLK	YEL/WLK
INPUT POWER	WH	WH	GRN/SPR
	G	WH	NEU
3-1/C#6 BLK	R	R	RED
SIGNAL SERVICE	BLK	BLK	YEL
	WH	WH	GRN
	G	WH	NEU
R	BLK	BLK	EVP LIGHT
O	WH	WH	LUM/VIDEO CAMERA
BL	G	BLK	
WH	BLK	BLK	
R/BLK	WH	WH	
O/BLK	BLK	BLK	
BL/BLK	WH	WH	
WH/BLK	BLK	BLK	
BLK	WH OR CLR	WH OR CLR	
BLK/WH	R OR O	R OR O	PED PUSH BUTTON
BLK/R	WH OR YEL	WH OR YEL	(If Required)
WH/R	BLK OR BL	BLK OR BL	

NOTE: ALL POLE CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE.

6SM FIBER OPTIC 90 90 1-6SM FIBER OPTIC CABLE TO EAST RAMP

BY	DATE	REVISIONS
EJA	02-11-16	AS-BUILT OF SP 6216-130 SIGNAL REPLACEMENT

SYSTEM ID: 20746 T.E.  
METER ADDRESS: 1340 CO.RD.E  
MASTER ID: T.E.

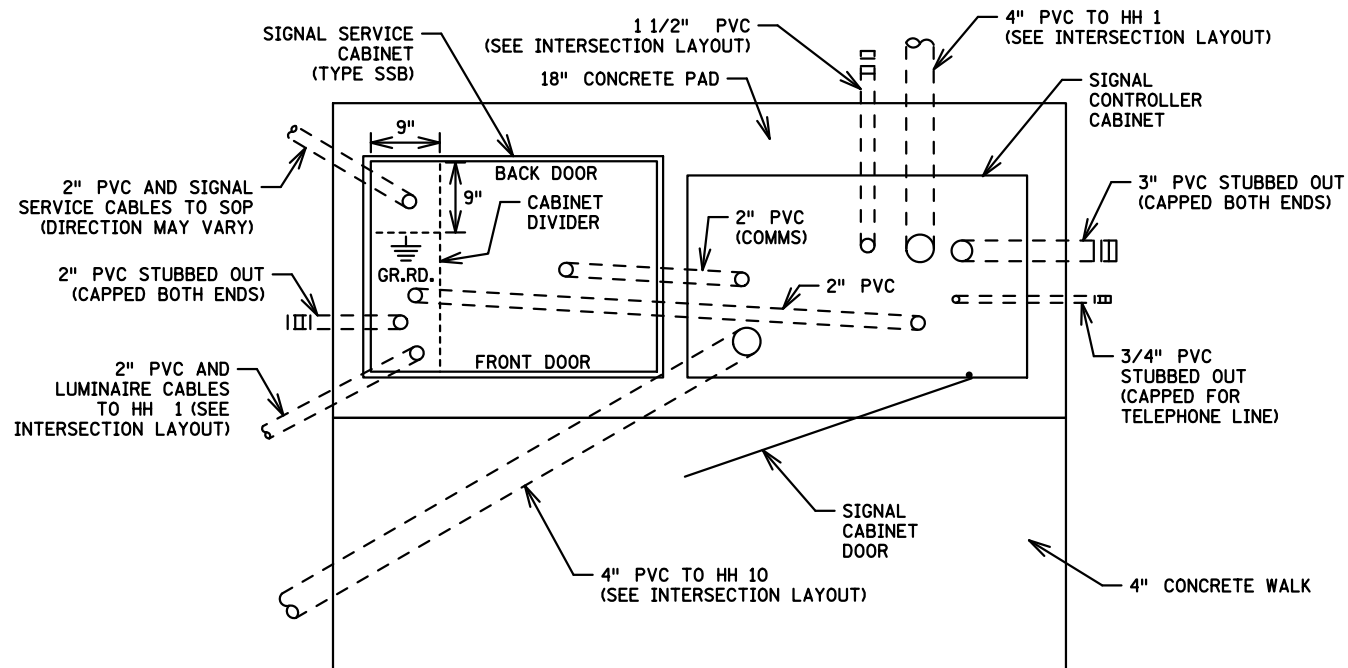
**WIRING DIAGRAM**  
T.H. 51 AT C.S.A.H. 15 (CO. RD. E) W. RAMP  
IN ARDEN HILLS, RAMSEY COUNTY

S.A.P. NO. \_\_\_\_\_ DRAWN BY: SJK CKD BY: EJA DATE: 08-26-14  
CERTIFIED BY \_\_\_\_\_ LIC. NO. \_\_\_\_\_ DATE: \_\_\_\_\_  
STATE PROJ. NO. \_\_\_\_\_ (T.H. 51) SHEET NO. 2 OF 3 SHEETS

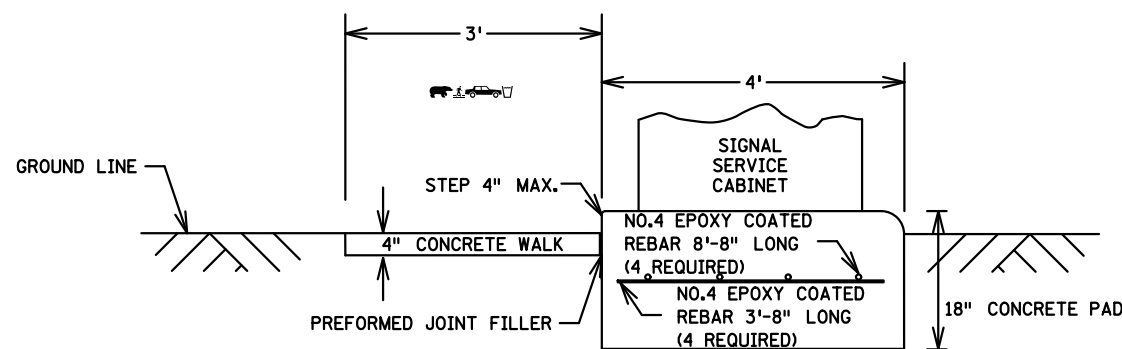
# TYPICAL PAD WITH CONTROLLER CABINET AND SERVICE CABINET

SEE INTERSECTION LAYOUT FOR CABLE INFORMATION (NOT TO SCALE)

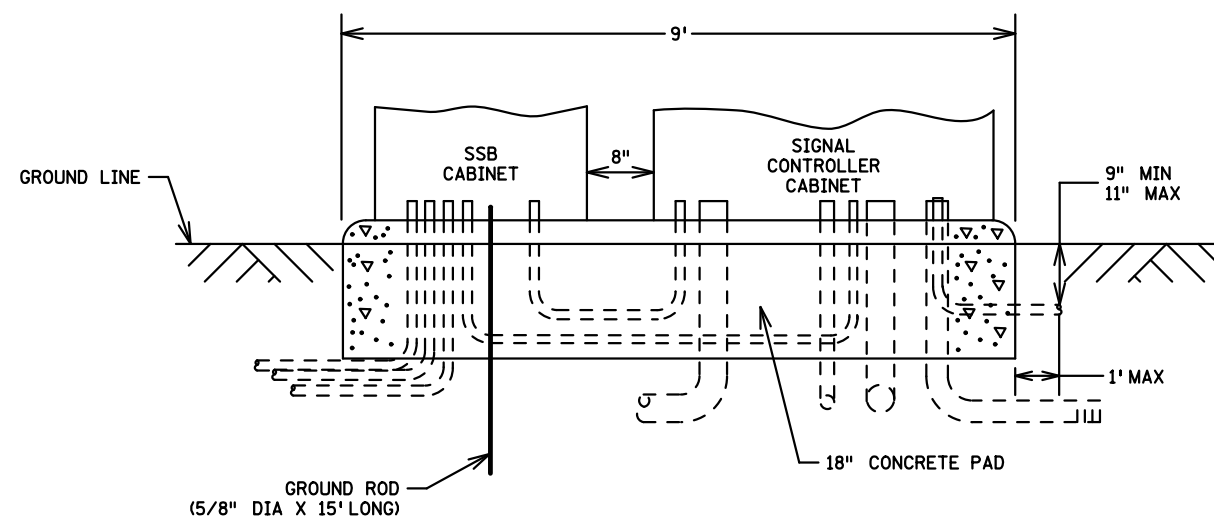
## PLAN VIEW



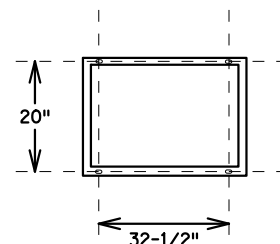
## SIDE VIEW



## FRONT VIEW

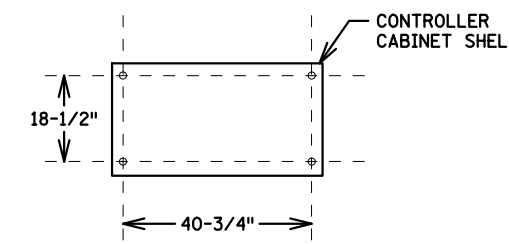


### S.S.B. SERVICE CABINET BOLT PATTERN



DIMENSION SHOWN ARE CENTER ROD TO CENTER ROD

### CONTROLLER CABINET TYPE "P" & "R" BOLT PATTERN



DIMENSION SHOWN ARE CENTER ROD TO CENTER ROD

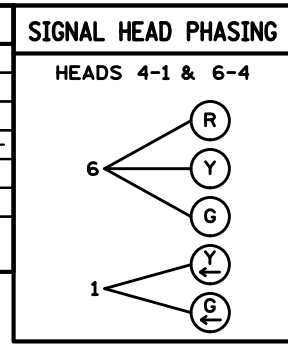
PLOTTED/REVISED: 2/11/2016

DISTRICT #: METRO  
IPLOT NAME: system a controller cabinet  
PATH & FILENAME: IP\_PWP-d078165\N\20746\_sgl.dgn

BY	DATE	REVISIONS	SYSTEM ID: 20746	T.E.	S.A.P. NO.	DRAWN BY: SJK	CKD BY: EJA	DATE: 08-26-14
EJA	02-11-16	AS-BUILT OF SP 6216-130 SIGNAL REPLACEMENT	METER ADDRESS: 1340 CO RD E		CERTIFIED BY _____			LIC. NO. _____ DATE: _____
			MASTER ID:	T.E.	STATE PROJ. NO.	(T.H. 51)	SHEET NO.	3 OF 3 SHEETS
			<b>EQUIPMENT PAD LAYOUT</b> T.H. 51 AT C.S.A.H. 15 (CO. RD. E) W. RAMP IN ARDEN HILLS, RAMSEY COUNTY					

PLOTTED/REVISED: 5/13/2014

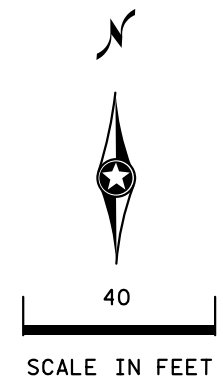
SIGNAL HEAD CHART					
FACE	R	Y	G	Y	G
2-1, 2-2	○	○	○		
4-1, 4-2, 4-3	○	○	○		
6-1, 6-4	○	○	○	←	←
6-2, 6-3	○	○	○		
8-1, 8-2, 8-3	○	○	○		



-ALL SIGNAL INDICATIONS ARE 12" LED  
-ALL SIGNAL HEADS HAVE BACKGROUND SHIELDS

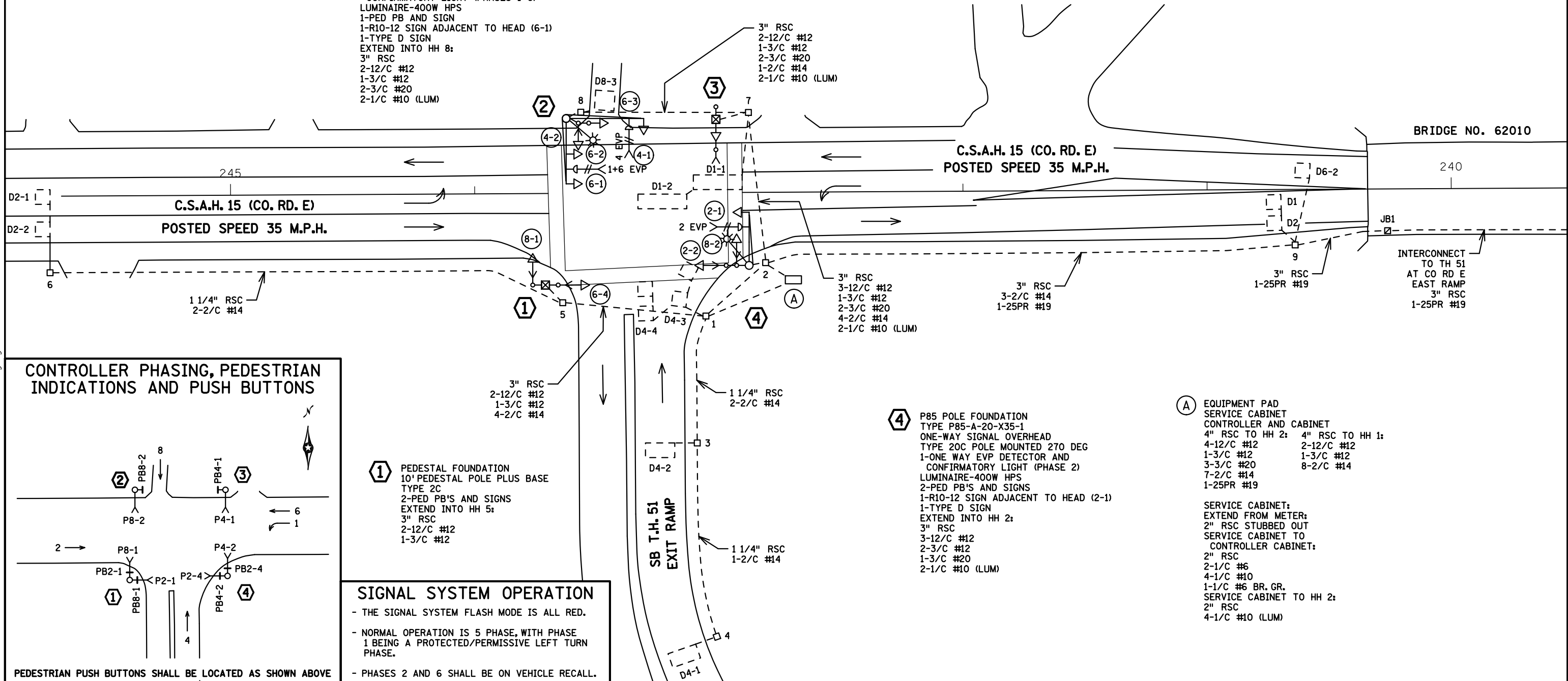
LOOP DETECTOR CHART			
NUMBER	SIZE (FT)	LOCATION	TYPE
D1-1	6x20	-20	SAW
D1-2	6x20	-45	SAW
D2-1, D2-2	6x6	200	SAW
D4-1	6x12	150	PVC
D4-2	6x12	65	PVC
D4-3	6x20	-5	PVC
D4-4	6x20	0	PVC
D6-2	6x6	225	SAW
D8-3	8x8		SAW
D1, D2	6x6		PVC

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

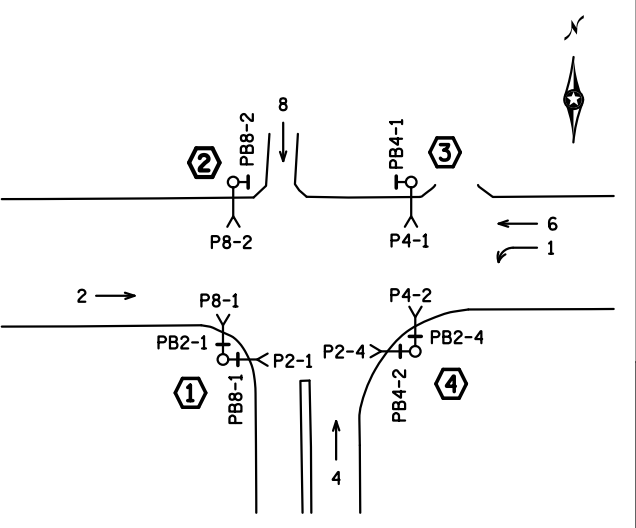


**2** P85 POLE FOUNDATION  
TYPE P85-A-25-30-X35-1  
2-ONE-WAY SIGNALS OVERHEAD AT 0' AND 11'  
TYPE 20B POLE MOUNTED 270 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASES 1+6)  
LUMINAIRE-400W HPS  
1-PED PB AND SIGN  
1-R10-12 SIGN ADJACENT TO HEAD (6-1)  
1-TYPE D SIGN  
EXTEND INTO HH 8:  
3" RSC  
2-12/C #12  
1-3/C #12  
2-3/C #20  
2-1/C #10 (LUM)

**3** PEDESTAL FOUNDATION  
10' PEDESTAL POLE PLUS BASE  
TYPE 1C  
1-PED PB AND SIGN  
EXTEND INTO HH 7:  
3" RSC  
1-12/C #12  
2-3/C #12



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



**1** PEDESTAL FOUNDATION  
10' PEDESTAL POLE PLUS BASE  
TYPE 2C  
2-PED PB'S AND SIGNS  
EXTEND INTO HH 5:  
3" RSC  
2-12/C #12  
1-3/C #12

**4** P85 POLE FOUNDATION  
TYPE P85-A-20-X35-1  
ONE-WAY SIGNAL OVERHEAD  
TYPE 20C POLE MOUNTED 270 DEG  
1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2)  
LUMINAIRE-400W HPS  
2-PED PB'S AND SIGNS  
1-R10-12 SIGN ADJACENT TO HEAD (2-1)  
1-TYPE D SIGN  
EXTEND INTO HH 2:  
3" RSC  
3-12/C #12  
2-3/C #12  
1-3/C #20  
2-1/C #10 (LUM)

**A** EQUIPMENT PAD  
SERVICE CABINET  
CONTROLLER AND CABINET  
4" RSC TO HH 2: 4" RSC TO HH 1:  
4-12/C #12 2-12/C #12  
1-3/C #12 1-3/C #12  
3-3/C #20 8-2/C #14  
7-2/C #14  
1-25PR #19

SERVICE CABINET:  
EXTEND FROM METER:  
2" RSC STUBBED OUT  
SERVICE CABINET TO  
CONTROLLER CABINET:  
2" RSC  
2-1/C #6  
4-1/C #10  
1-1/C #6 BR. GR.  
SERVICE CABINET TO HH 2:  
2" RSC  
4-1/C #10 (LUM)

**SIGNAL SYSTEM OPERATION**

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

PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

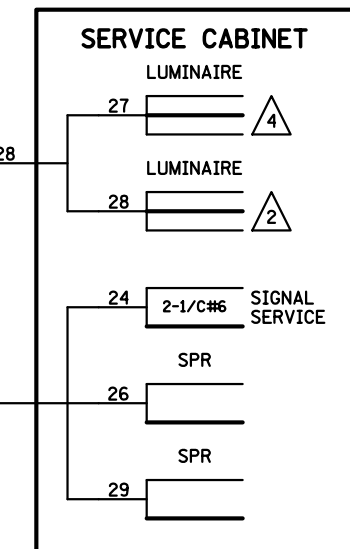
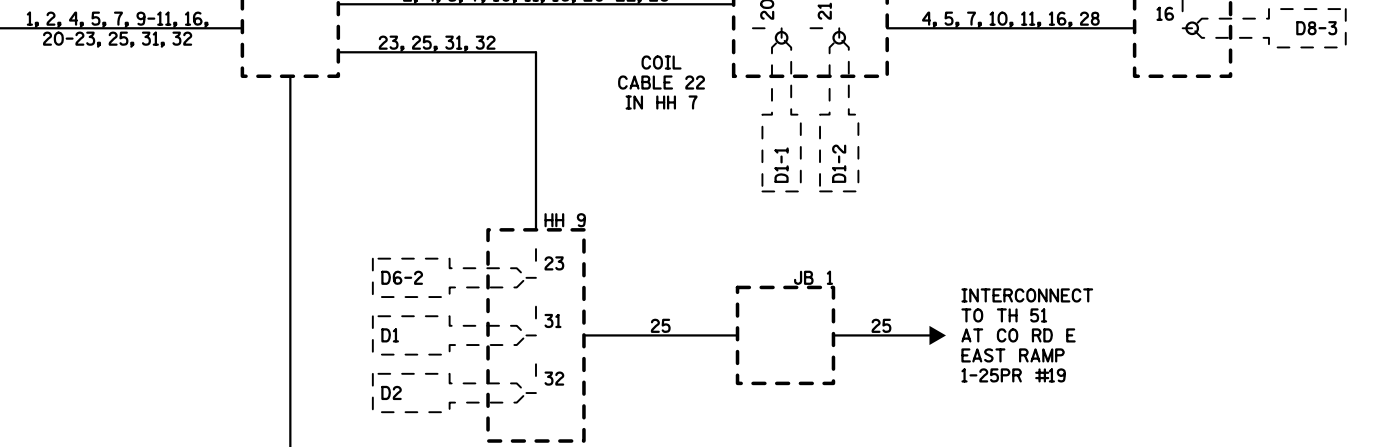
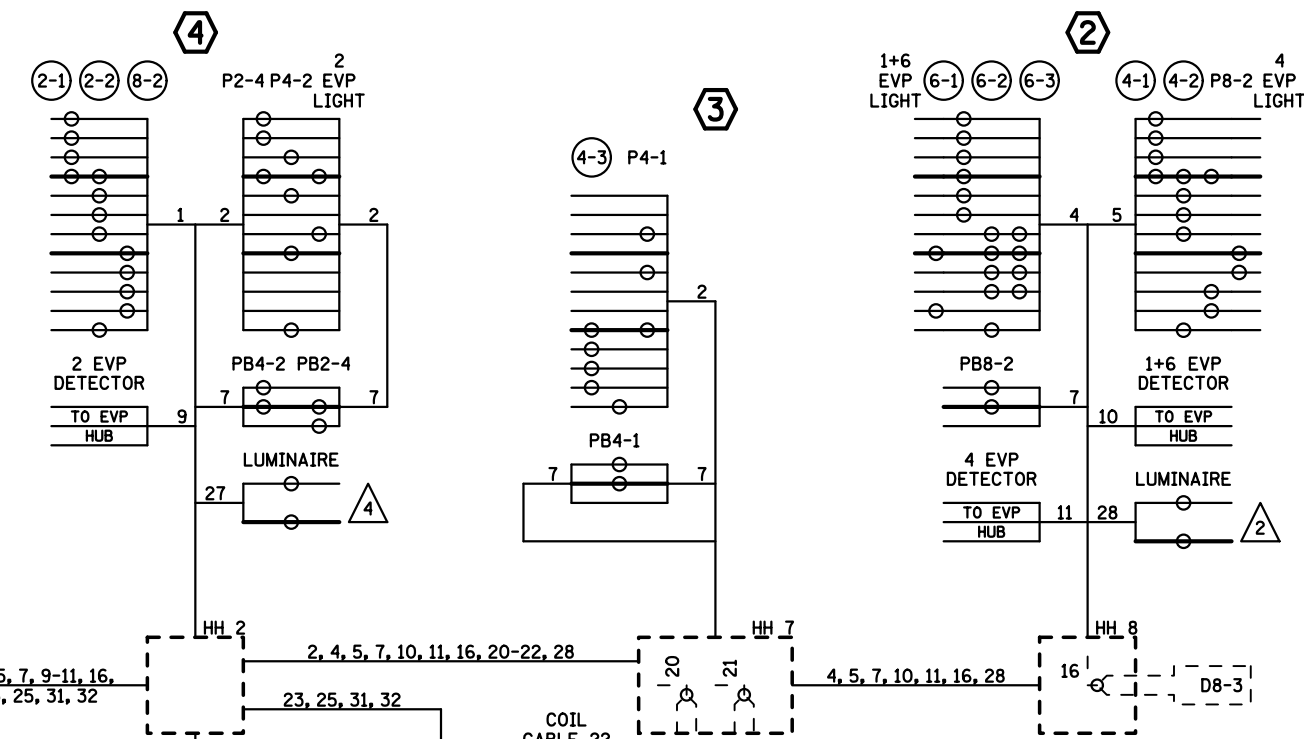
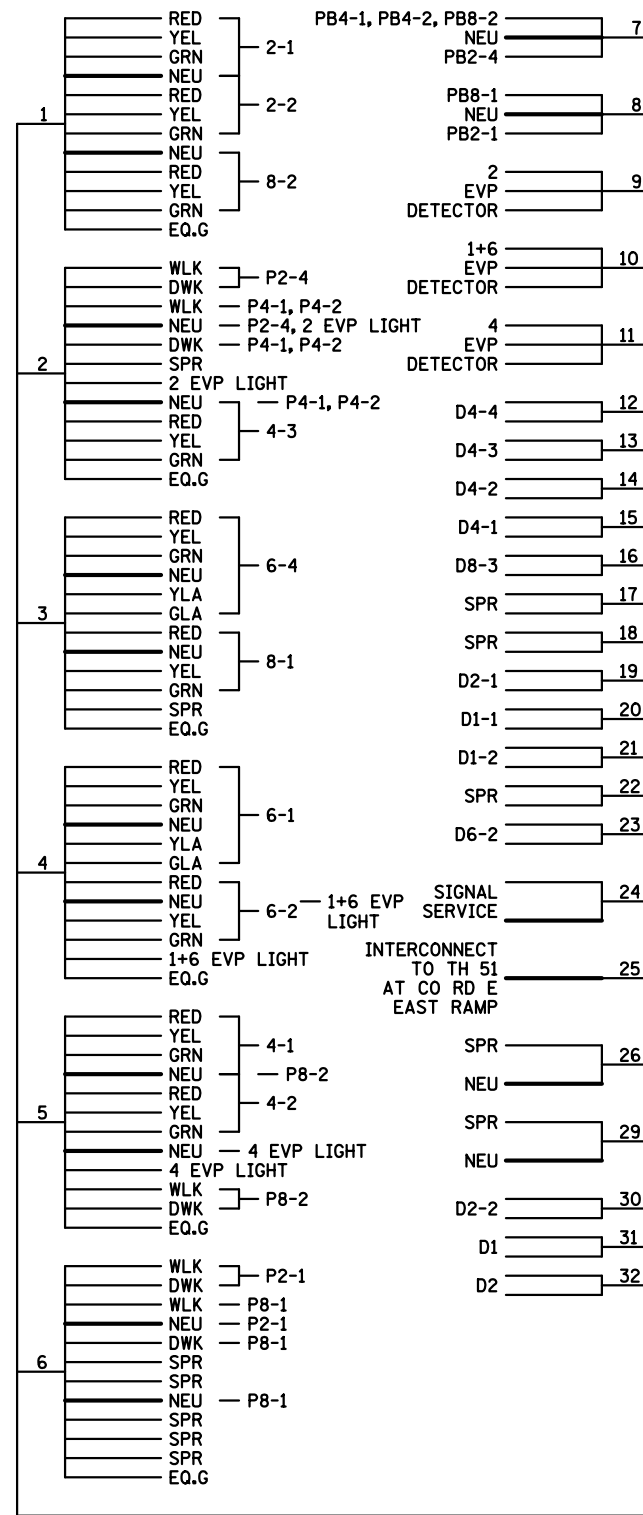
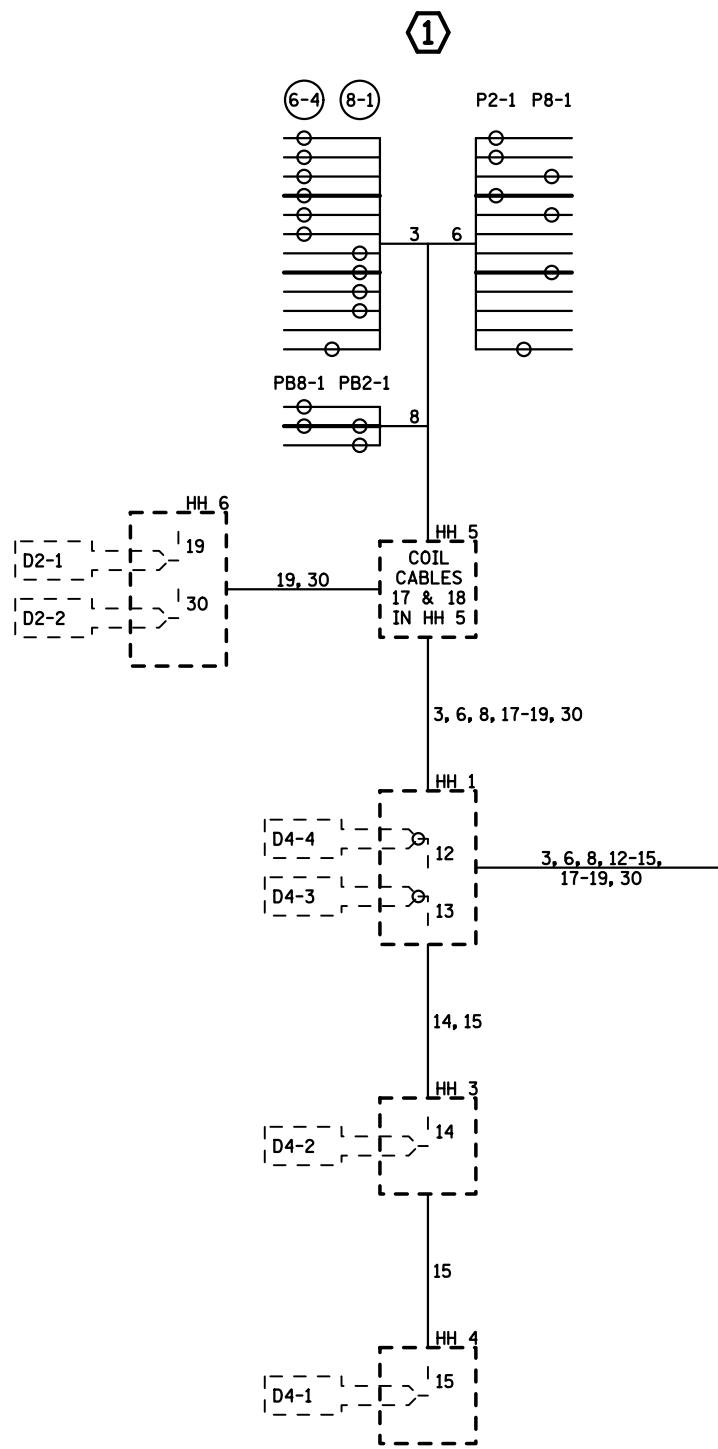
BY: GDS	DATE: 05-13-14	REVISIONS: AS-BUILT (UPDATE PLAN)	SYSTEM ID: 20746	T.E.	INTERSECTION LAYOUT TRAFFIC CONTROL SIGNAL SYSTEM T.H. 51 AT C.S.A.H. 15 (CO. RD. E) W. RAMP IN ARDEN HILLS, RAMSEY COUNTY	S.A.P. NO.	DRAWN BY:	CKD BY:	DATE:
			METER ADDRESS:	T.E.		CERTIFIED BY: _____ LICENSED PROFESSIONAL ENGINEER	LIC. NO. _____	DATE: _____	
			MASTER ID:		STATE PROJ. NO. (T.H. 51)	SHEET NO. 1 OF 2 SHEETS			

DISTRICT #: METRO  
PLOT NAME: layout  
PATH & FILENAME: IP\_PWP-d078165\N20746LW\_sgl.dgn

PLOTTED/REVISED: 5/13/2014

DISTRICT #: METRO  
IPLOT NAME: wiring  
PATH & FILENAME: IP\_PWP-d078165\T20746LW\_sgl.dgn

# CONTROLLER CABINET



CONDUCTOR COLOR CODING	
R	R OR O
O	3/C#20 WH OR YEL
BL	BLK OR BL
WH	
R/BLK	R
O/BLK	3/C#12 WH
BL/BLK	BLK
WH/BLK	
BLK	BLK
BLK/WH	2-1/C#6 WH
G/BLK	2-1/C#10 WH
G	
25PR#19	2/C#14 BLK CLR

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

BY	DATE	REVISIONS
GDS	05-13-14	AS-BUILT (UPDATE PLAN)

SYSTEM ID: 20746 T.E.

METER ADDRESS:

MASTER ID: T.E.

**FIELD WIRING DIAGRAM**

**TRAFFIC CONTROL SIGNAL SYSTEM**

**T.H. 51 AT C.S.A.H. 15 (CO. RD. E) W. RAMP**

**IN ARDEN HILLS, RAMSEY COUNTY**

S.A.P. NO.

CERTIFIED BY \_\_\_\_\_ LIC. NO. \_\_\_\_\_ DATE: \_\_\_\_\_

STATE PROJ. NO. (T.H. 51)

DRAWN BY: CKD BY: DATE:

SHEET NO. 2 OF 2 SHEETS