

PLOTTED/REVISED: 5-JUN-2019

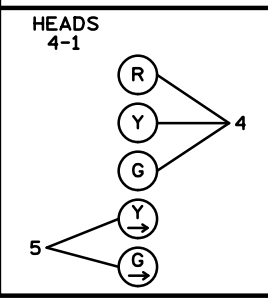
DISTRICT #: Metro  
I/PLOT NAME: t20050\_sgl  
PATH & FILENAME: Projects\DM\_R05\003\0000\Traffic\Signal\20050\20050\_sgl.dgn

### SIGNAL HEAD CHART

| FACE               | R | Y | FYA | G | Y | G |
|--------------------|---|---|-----|---|---|---|
| 1-1, 1-2           | ← | ← | ←   | ← |   |   |
| 2-1, 2-2, 2-3      | ● | ● |     | ● |   |   |
| 4-1                | ● | ● |     | ● | → | → |
| 4-2, 4-3, 4-4      | ● | ● |     | ● |   |   |
| 5-1, 5-2           | ← | ← | ←   | ← |   |   |
| 6-1, 6-2, 6-3      | ● | ● |     | ● |   |   |
| 8-1, 8-2, 8-3, 8-4 | ● | ● |     | ● |   |   |

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

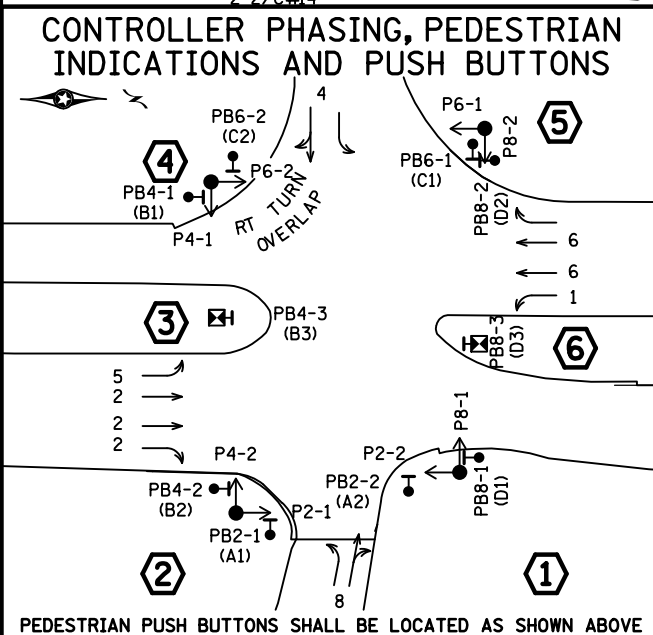
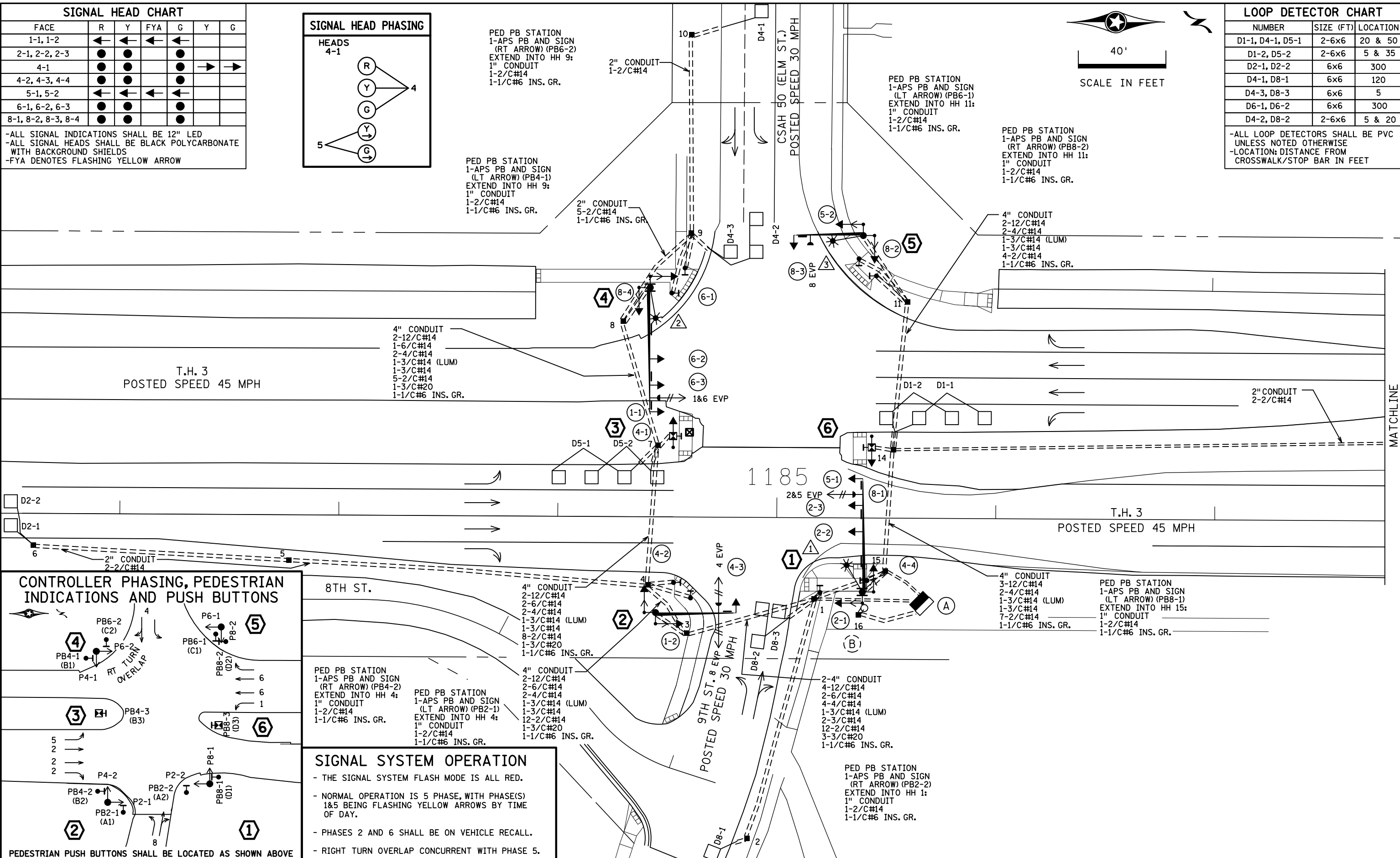
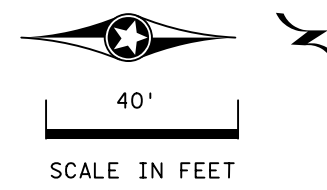
### SIGNAL HEAD PHASING



### LOOP DETECTOR CHART

| NUMBER           | SIZE (FT) | LOCATION |
|------------------|-----------|----------|
| D1-1, D4-1, D5-1 | 2-6x6     | 20 & 50  |
| D1-2, D5-2       | 2-6x6     | 5 & 35   |
| D2-1, D2-2       | 6x6       | 300      |
| D4-1, D8-1       | 6x6       | 120      |
| D4-3, D8-3       | 6x6       | 5        |
| D6-1, D6-2       | 6x6       | 300      |
| D4-2, D8-2       | 2-6x6     | 5 & 20   |

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



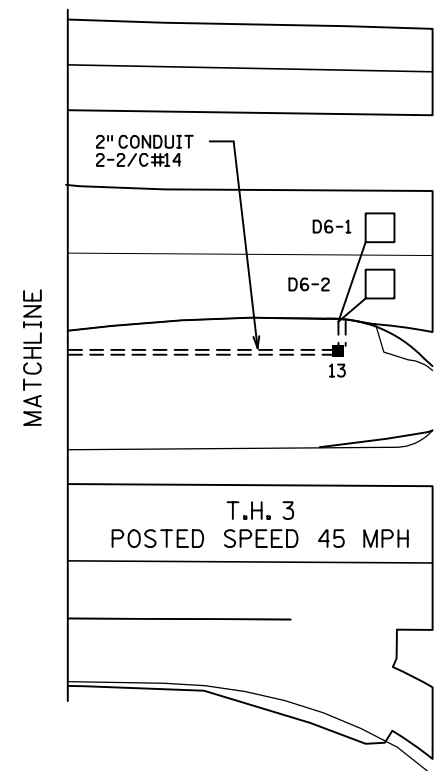
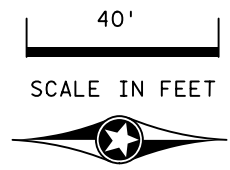
### SIGNAL SYSTEM OPERATION

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

|         |                |                |           |                            |           |  |                              |             |               |
|---------|----------------|----------------|-----------|----------------------------|-----------|--|------------------------------|-------------|---------------|
| BY: SJK | DATE: 05/23/19 | OPERATION PLAN | REVISIONS | SYSTEM ID: 1734955         | T.E. 6476 | S.A.P. NO. 019-650-018, 019-674-009                          | DRAWN BY: BAM                | CKD BY: CDB | DATE: 1/15/16 |
|         |                |                |           | METER ADDRESS: 277 8TH ST. |           | CERTIFIED BY: _____  | LIC. NO. 19863 DATE: 2/10/16 |             |               |
|         |                |                |           | MASTER ID: 20050           | T.E.      | STATE PROJ. NO. 1920-41 (T.H.3) SHEET NO. SS6 OF SS20 SHEETS |                              |             |               |

### INTERSECTION LAYOUT T.H. 3 AT CSAH 50 (ELM ST.)/9TH ST. IN FARMINGTON, DAKOTA COUNTY

DISTRICT #: Metro  
 PLOT NAME: t20050.sgl  
 PATH & FILENAME: Projects\DM\_R05\003\0000\Traffic\Signals\20050\20050.sgl.dgn  
 PLOTTED/REVISED: 5-JUN-2019



- (B) SOP-45 FOOT WOOD POLE  
2" CONDUIT, RISER AND WEATHERHEAD  
TO HH 16 WITH 3-1/C#2
  
- (A) EQUIPMENT PAD  
CONTROLLER, CELLULAR MODEM  
AND CABINET  
SERVICE EQUIPMENT (PAD MOUNTED)  
CABINET TO HH 1:  
2-4" CONDUITS  
4-12/C#14  
2-6/C#14  
4-4/C#14  
2-3/C#14  
3-3/C#20  
16-2/C#14  
1-1/C#6 INS. GR.
- CABINET TO HH 15:  
4" CONDUITS  
5-12/C#14  
1-6/C#14  
4-4/C#14  
2-3/C#14  
1-3/C#20  
8-2/C#14  
1-1/C#6 INS. GR.
  
- STUB OUTS (THREAD AND CAP BOTH ENDS)  
1-3" CONDUIT  
2-2" CONDUIT  
1-1-1/2" CONDUIT (FUTURE USE)
  
- 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  
1-6 PR.#19
  
- SERVICE CABINET TO HH 16:  
2" CONDUIT  
3-1/C#2
  
- SERVICE CABINET TO HH 1:  
2" CONDUIT  
3-3/C#14 (LUM)
  
- HH 1 TO HH 15:  
2" CONDUIT  
2-3/C#14 (LUM)

- (4) PA100 POLE FOUNDATION  
TYPE PA100-A-55-D40-9 (DAVIT AT 350°)  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0°  
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23'  
2-ANGLE MOUNT SIGNALS AT 90° AND 180°  
2-ANGLE MOUNT C.D. PED HEADS  
AT 90° AND 180°  
1-ONE WAY EVP DETECTOR AND  
CONFIRMATORY LIGHT (PHASES 1&6)  
LUMINAIRE - LED  
1-R10-X12 SIGN ADJACENT TO HEAD 1-1  
2-TYPE D SIGN (D-4 WEST CSAH 50) (D-5 ELM ST)  
2-TYPE R6-1 (ONE WAY) SIGNS  
EXTEND INTO HH 8:  
3" CONDUIT  
2-12/C#14  
1-6/C#14  
2-4/C#14  
1-3/C#14 (LUM)  
1-3/C#14  
1-3/C#20  
1-1/C#6 INS. GR.

- (3) PEDESTAL FOUNDATION  
15' PEDESTAL POLE PLUS BASE-TYPE 5A  
(ALL ALUMINUM BRACKETING COMPONENTS)  
1-APS PB AND SIGN (DBL ARROW) (PB4-3)  
EXTEND INTO HH 7:  
3" CONDUIT  
1-6/C#14  
1-2/C#14  
2-1/C#6 INS. GR.

- (2) PA90 POLE FOUNDATION  
TYPE PA90-A-35  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0°  
2-ANGLE MOUNT SIGNALS AT 90° AND 180°  
2-ANGLE MOUNT C.D. PED HEAD AT 90° AND 180°  
1-ONE WAY EVP DETECTOR AND  
CONFIRMATORY LIGHT (PHASE 4)  
1-ONE WAY EVP DETECTOR (PHASE 8)  
1-TYPE D SIGN (D-3 MN 3)  
EXTEND INTO HH 3:  
3" CONDUIT  
2-12/C#14  
2-4/C#14  
1-3/C#14  
2-3/C#20  
1-1/C#6 INS. GR.

- (5) PA90 POLE FOUNDATION  
TYPE PA90-A-30-D40-9 (DAVIT AT 350°)  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0°  
2-ANGLE MOUNT SIGNALS AT 90° AND 180°  
2-ANGLE MOUNT C.D. PED HEADS  
AT 90° AND 180°  
1-ONE WAY CONFIRMATORY LIGHT (PHASES 8)  
LUMINAIRE - LED  
1-TYPE D SIGN (D-6 MN 3)  
EXTEND INTO HH 11:  
3" CONDUIT  
2-12/C#14  
2-4/C#14  
1-3/C#14 (LUM)  
1-3/C#14  
1-1/C#6 INS. GR.

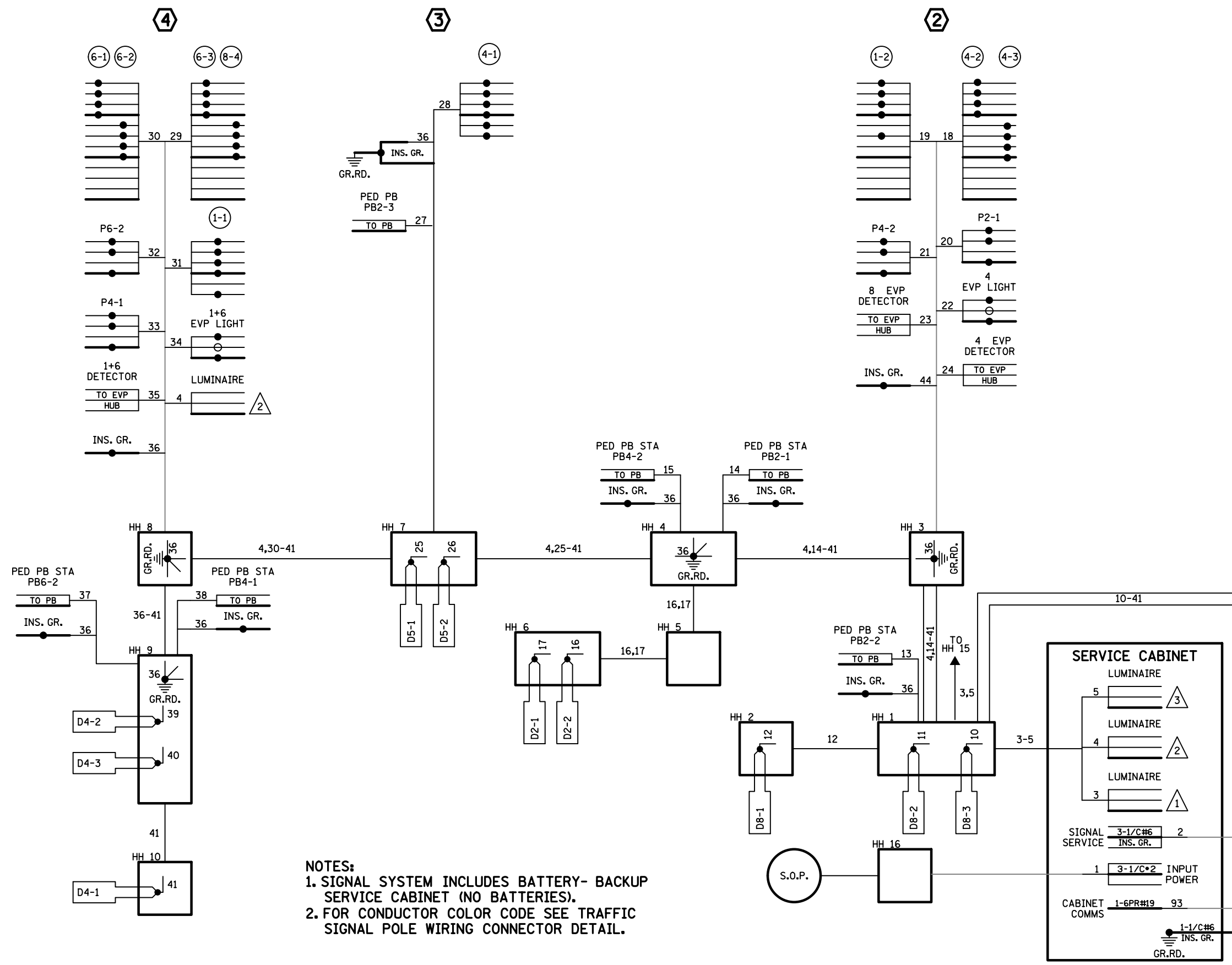
- (6) PEDESTAL FOUNDATION  
15' PEDESTAL POLE PLUS BASE-TYPE 5A  
(ALL ALUMINUM BRACKETING COMPONENTS)  
1-APS PB AND SIGN (DBL ARROW) (PB8-3)  
S&I: SIGN R3-4 (NO U-TURN) FROM EXISTING PEDESTAL  
EXTEND INTO HH 14:  
3" CONDUIT  
1-12/C#14  
1-2/C#14  
2-1/C#6 INS. GR.

- (1) PA100 POLE FOUNDATION  
TYPE PA100-A-50-D40-9 (DAVIT AT 350°)  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0°  
2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'  
2-ANGLE MOUNT SIGNALS AT 90° AND 180°  
2-ANGLE MOUNT C.D. PED HEADS  
AT 90° AND 180°  
1-ONE WAY EVP DETECTOR AND  
CONFIRMATORY LIGHT (PHASES 2&5)  
LUMINAIRE - LED  
1-R10-X12 SIGN ADJACENT TO HEAD 5-1  
2-TYPE D SIGN (D-1 WEST COUNTY 50) (D-2 ELM ST)  
2-TYPE R6-1 (ONE WAY) SIGNS  
EXTEND INTO HH 15:  
3" CONDUIT  
2-12/C#14  
1-6/C#14  
2-4/C#14  
1-3/C#14 (LUM)  
1-3/C#14  
1-3/C#20  
1-1/C#6 INS. GR.

|     |          |                |                            |           |  |  |                |               |               |
|-----|----------|----------------|----------------------------|-----------|--|--|----------------|---------------|---------------|
| BY  | DATE     | REVISIONS      | SYSTEM ID: 1734955         | T.E. 6476 | <b>POLE NOTES/MATCHLINE</b><br><b>T.H. 3 AT CSAH 50 (ELM ST.)/9TH ST.</b><br><b>IN FARMINGTON, DAKOTA COUNTY</b> | S.A.P. NO. 019-650-018, 019-674-009                          | DRAWN BY: BAM  | CKD BY: CDB   | DATE: 1/25/16 |
| SJK | 05/23/19 | OPERATION PLAN | METER ADDRESS: 277 8TH ST. |           |  | CERTIFIED BY _____   | LIC. NO. 19863 | DATE: 1/25/16 |               |
|     |          |                | MASTER ID: 20050           | T.E.      |  | STATE PROJ. NO. 1920-41 (T.H.3) SHEET NO. SS7 OF SS20 SHEETS |                |               |               |

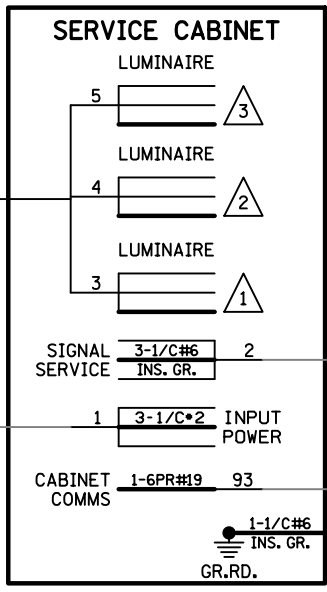
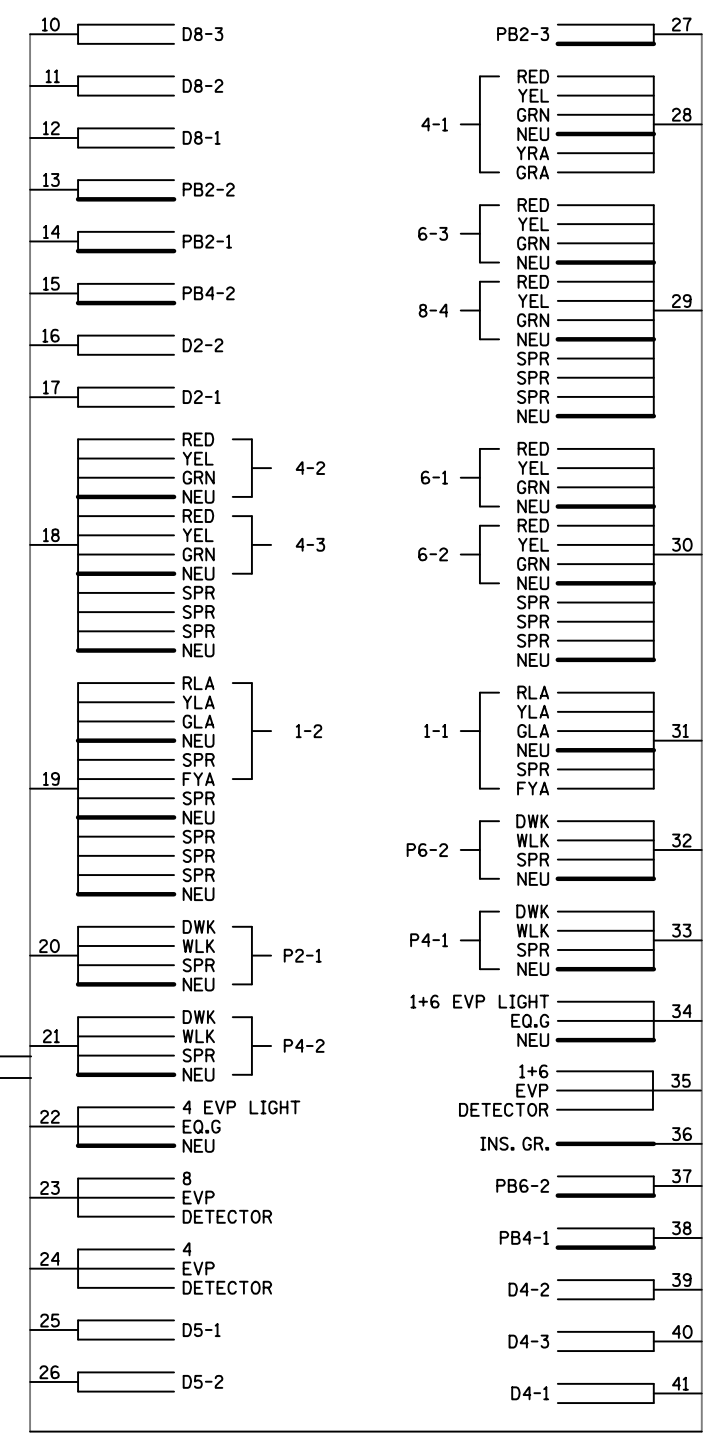
DISTRICT #: Metro  
 PLOT NAME: t20050.sgl  
 PATH & FILENAME: Projects\DM\_R0S\003\0000\Traffic\SIGNALS\20050\20050.sgl.dgn

PLOTTED/REVISED: 5-JUN-2019



**NOTES:**  
 1. SIGNAL SYSTEM INCLUDES BATTERY- BACKUP SERVICE CABINET (NO BATTERIES).  
 2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.

### CONTROLLER CABINET

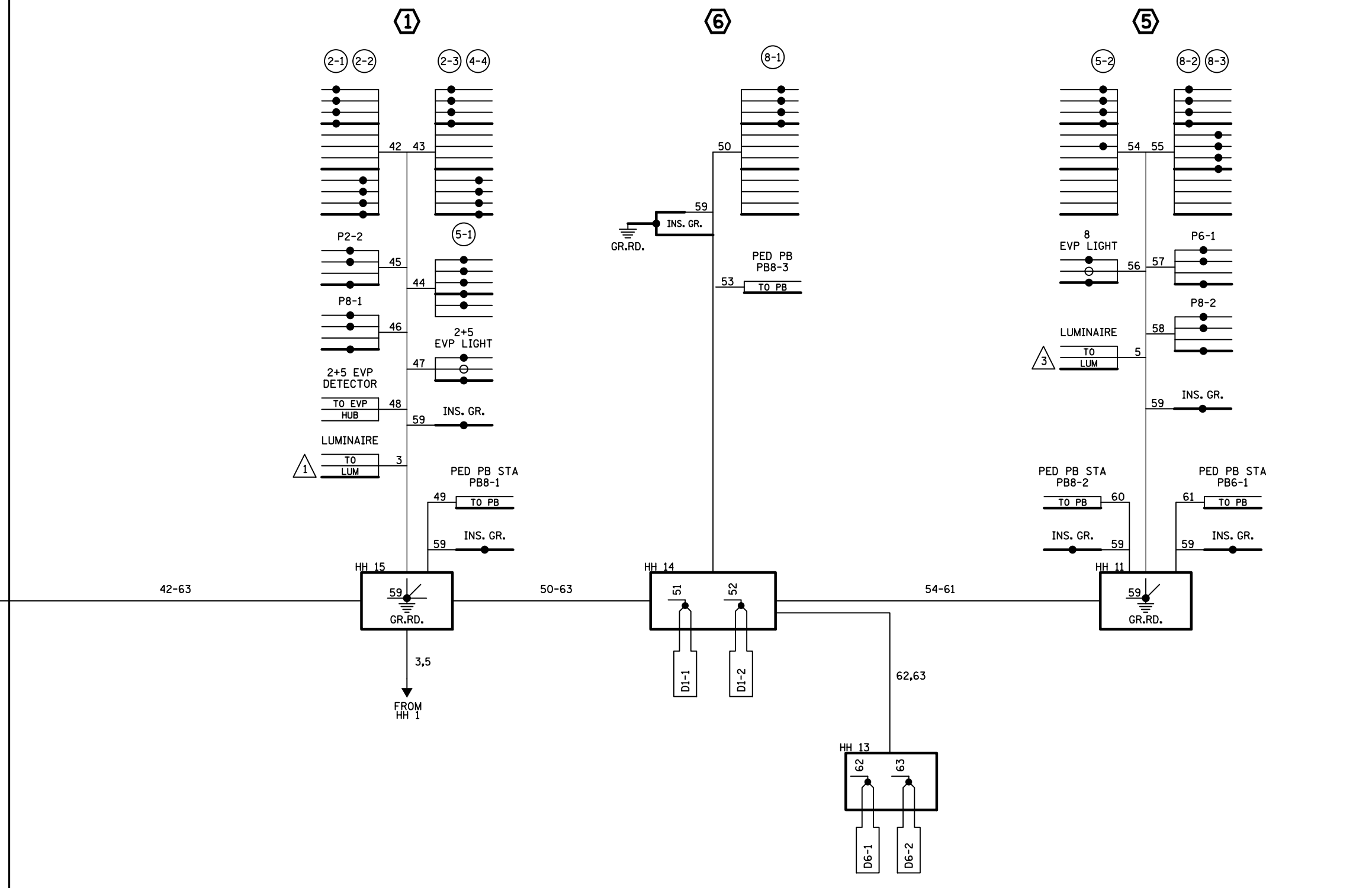
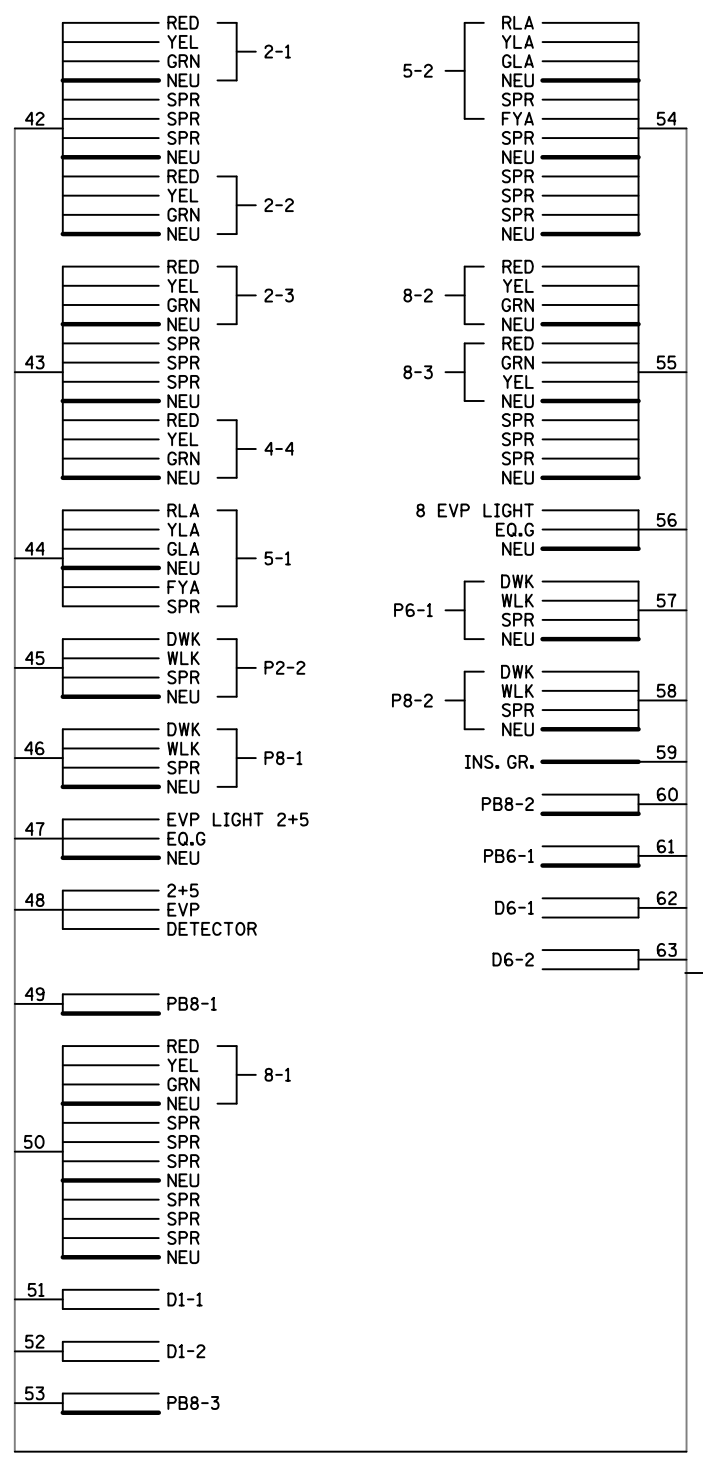


|     |          |                |                            |           |  |                                |                |               |
|-----|----------|----------------|----------------------------|-----------|--|--------------------------------|----------------|---------------|
| BY  | DATE     | REVISIONS      | SYSTEM ID: 1734955         | T.E. 6476 | S.A.P. NO. 019-650-018, 019-674-009                          | DRAWN BY: BAM                  | CKD BY: CDB    | DATE: 12/4/15 |
| SJK | 05/23/19 | OPERATION PLAN | METER ADDRESS: 277 8TH ST. |           | CERTIFIED BY _____   | LICENSED PROFESSIONAL ENGINEER | LIC. NO. 19863 | DATE: 12/4/15 |
|     |          |                | MASTER ID: 20050           | T.E.      | STATE PROJ. NO. 1920-41 (T.H.3) SHEET NO. SS8 OF SS20 SHEETS |                                |                |               |

**WIRING DIAGRAM (1 OF 2)**  
**T.H. 3 AT CSAH 50 (ELM ST.)/9TH ST.**  
**IN FARMINGTON, DAKOTA COUNTY**

DISTRICT #: Metro  
 PLOT NAME: t20050.sgl  
 PATH & FILENAME: Projects\DM\_R0S\003\0000\Traffic\Signal\20050\20050.sgl.dgn  
 PLOTTED/REVISED: 5-JUN-2019

### CONTROLLER CABINET



**NOTES:**  
 1. SIGNAL SYSTEM INCLUDES BATTERY- BACKUP SERVICE CABINET (NO BATTERIES).  
 2. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.

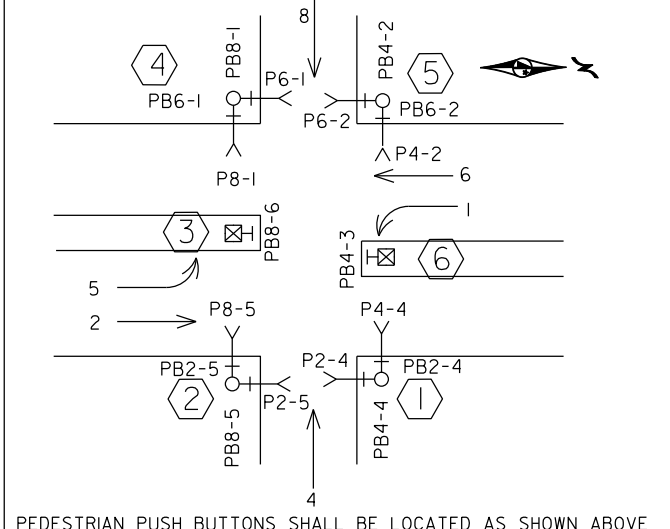
|         |                |                           |                            |           |   |   |                |               |               |
|---------|----------------|---------------------------|----------------------------|-----------|---|---|----------------|---------------|---------------|
| BY: SJK | DATE: 05/23/19 | REVISIONS: OPERATION PLAN | SYSTEM ID: 1734955         | T.E. 6476 | <b>WIRING DIAGRAM (2 OF 2)</b><br><b>T.H. 3 AT CSAH 50 (ELM ST.)/9TH ST.</b><br><b>IN FARMINGTON, DAKOTA COUNTY</b> | S.A.P. NO. 019-650-018, 019-674-009                                 | DRAWN BY: BAM  | CKD BY: CDB   | DATE: 12/4/15 |
|         |                |                           | METER ADDRESS: 277 8TH ST. |           |   | CERTIFIED BY: _____   | LIC. NO. 19863 | DATE: 12/4/15 |               |
|         |                |                           | MASTER ID: 20050           | T.E.      |   | <b>STATE PROJ. NO. 1920-41 (T.H.3) SHEET NO. SS9 OF SS20 SHEETS</b> |                |               |               |

PLOTTED/REVISED: \$\$\$@DATE@\$\$\$

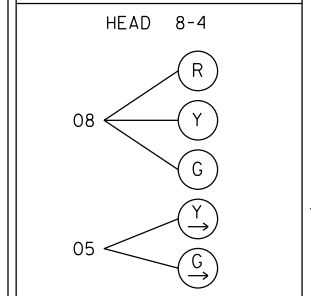
| LOOP DETECTORS |             |          |
|----------------|-------------|----------|
| NUMBER         | SIZE (FEET) | LOCATION |
| D1-1           | 2-6X6       | 5, 35    |
| D2-1           | 6X6         | 250      |
| D2-2           | 6X6         | 250      |
| D4-1           | 6X6         | 5        |
| D4-2           | 6X20        | 5        |
| D4-3           | 6X6         | 120      |
| D5-1           | 2-6X6       | 5, 35    |
| D6-1           | 6X6         | 250      |
| D6-2           | 6X6         | 250      |
| D8-1           | 6X6         | 180      |
| D8-2           | 2-6X6       | 30       |
| D8-3           | 2-6X6       | 30       |
| D8-4           | 6X10        | 5        |
| D8-5           | 6X10        | 5        |

| SIGNAL HEAD CHART        |       |   |   |          |      |      |  |
|--------------------------|-------|---|---|----------|------|------|--|
| ALL SIGNAL HEADS ARE 12" |       |   |   |          |      |      |  |
| FACE                     | LED R | Y | G | LED RLTA | YLTA | GLTA |  |
| I-1                      |       |   |   | ←        | ←    | ←    |  |
| I-2                      |       |   |   | ←        | ←    | ←    |  |
| 2-1                      | ○     | ○ | ○ |          |      |      |  |
| 2-2                      | ○     | ○ | ○ |          |      |      |  |
| 2-3                      | ○     | ○ | ○ |          |      |      |  |
| 4-1                      | ○     | ○ | ○ |          |      |      |  |
| 4-2,4-3                  | ○     | ○ | ○ |          |      |      |  |
| 4-4,4-5                  | ○     | ○ | ○ |          |      |      |  |
| 5-1                      |       |   |   | ←        | ←    | ←    |  |
| 5-2                      |       |   |   | ←        | ←    | ←    |  |
| 6-3                      | ○     | ○ | ○ |          |      |      |  |
| 8-1                      | ○     | ○ | ○ |          |      |      |  |
| 8-2                      | ○     | ○ | ○ |          |      |      |  |
| 8-3                      | ○     | ○ | ○ |          |      |      |  |
| 8-4                      | ○     | ○ | ○ |          |      |      |  |

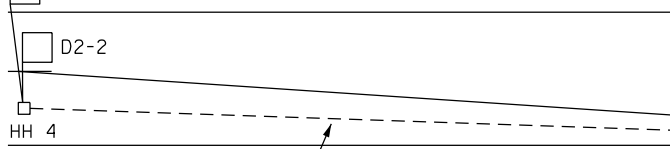
**CONTROLLER PHASING, PED. INDICATIONS AND PUSH BUTTONS**



**SIGNAL HEAD PHASING**



45 MPH  
N.B. T.H. 3



**SIGNAL SYSTEM OPERATION**  
 - THE SIGNAL SYSTEM FLASH MODE IS ALL RED.  
 - NORMAL OPERATION IS 5 PHASE, WITH PHASES 1 AND 5 BEING PROTECTED LEFT TURN PHASES.

(A) CABINET FOUNDATION  
 CONTROLLER AND CABINET  
 EXTEND TO HH 1  
 4" IMC  
 4-12/C#12  
 7-3/C#12  
 1-5/C#12  
 11-2/C#14  
 1-3/C#20  
 1-5/C#24

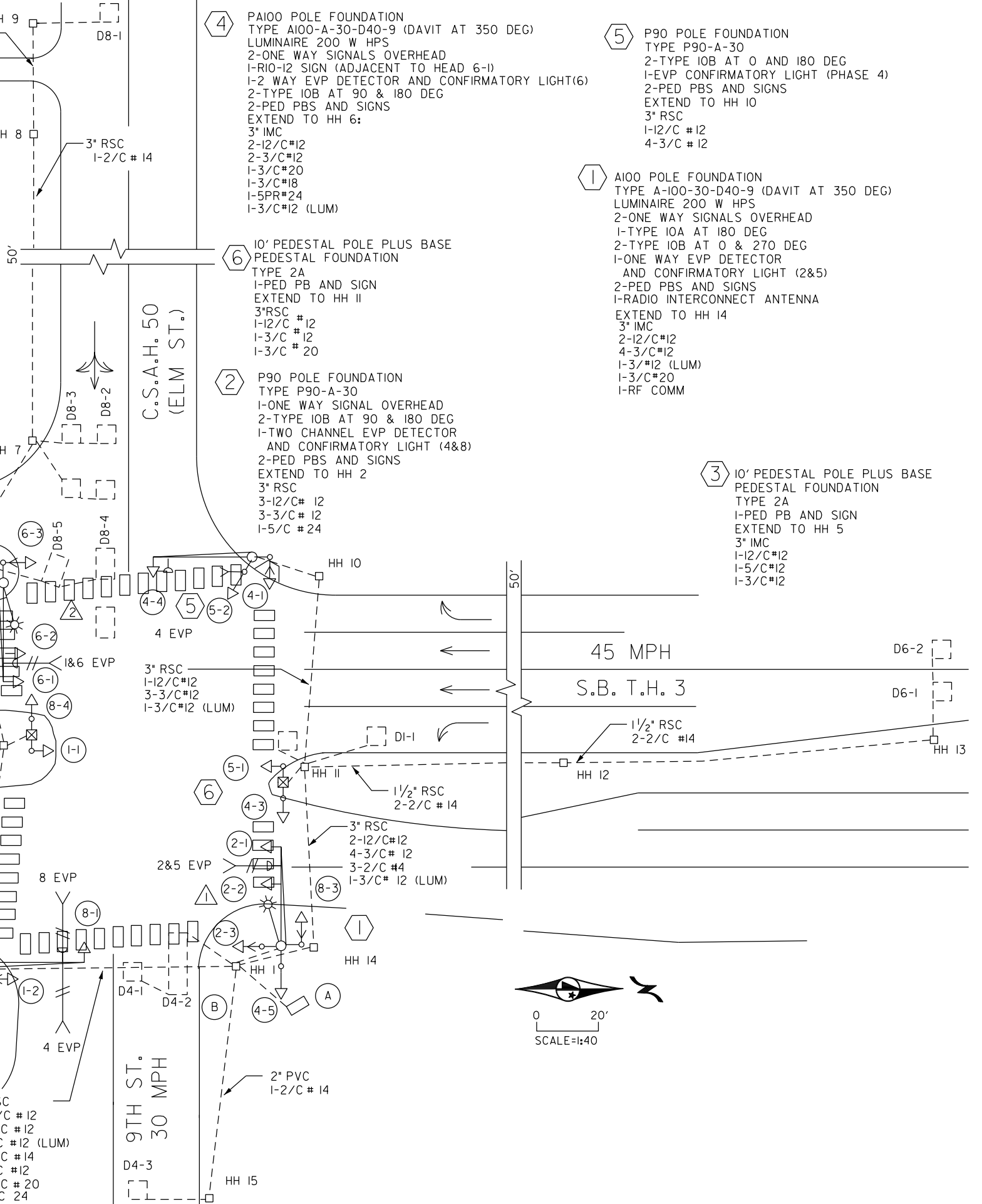
EXTEND TO HH 14  
 4" IMC  
 4-12/C#12  
 8-3/C#12  
 3-2/C#14  
 1-3/C#20  
 1-RF COMM

(B) 3" IMC STUBBED OUT AND CAPPED  
 BETWEEN HH 1 AND HH 14  
 2" IMC  
 1-3/C#2 (LUM)  
 45' WOOD POLE  
 SERVICE EQUIPMENT  
 EXTEND TO HH 1  
 2" IMC  
 2-1/C#6  
 2-3/C#12 (LUM)  
 1-1/C#6 BR. GR.

3" RSC WITH:  
 3-2/C#14#

4" RSC  
 2-12/C#12  
 2-3/C#12  
 1-3/C#12 (LUM)  
 5-2/C#14  
 1-3/C#20  
 1-5/C#24

4" RSC  
 3-12/C#12  
 3-3/C#12  
 1-3/C#12 (LUM)  
 6-2/C#14  
 1-5/C#12  
 1-3/C#20  
 1-5/C#24



(4) PA100 POLE FOUNDATION  
 TYPE A100-A-30-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE 200 W HPS  
 2-ONE WAY SIGNALS OVERHEAD  
 1-R10-12 SIGN (ADJACENT TO HEAD 6-1)  
 1-2 WAY EVP DETECTOR AND CONFIRMATORY LIGHT(6)  
 2-TYPE IOB AT 90 & 180 DEG  
 2-PED PBS AND SIGNS  
 EXTEND TO HH 6:  
 3" IMC  
 2-12/C#12  
 2-3/C#12  
 1-3/C#20  
 1-3/C#18  
 1-5PR#24  
 1-3/C#12 (LUM)

(5) P90 POLE FOUNDATION  
 TYPE P90-A-30  
 2-TYPE IOB AT 0 AND 180 DEG  
 1-EVP CONFIRMATORY LIGHT (PHASE 4)  
 2-PED PBS AND SIGNS  
 EXTEND TO HH 10  
 3" RSC  
 1-12/C#12  
 4-3/C#12

(1) A100 POLE FOUNDATION  
 TYPE A-100-30-D40-9 (DAVIT AT 350 DEG)  
 LUMINAIRE 200 W HPS  
 2-ONE WAY SIGNALS OVERHEAD  
 1-TYPE IOA AT 180 DEG  
 2-TYPE IOB AT 0 & 270 DEG  
 1-ONE WAY EVP DETECTOR  
 AND CONFIRMATORY LIGHT (2&5)  
 2-PED PBS AND SIGNS  
 1-RADIO INTERCONNECT ANTENNA  
 EXTEND TO HH 14  
 3" IMC  
 2-12/C#12  
 4-3/C#12  
 1-3/#12 (LUM)  
 1-3/C#20  
 1-RF COMM

(6) 10' PEDESTAL POLE PLUS BASE  
 PEDESTAL FOUNDATION  
 TYPE 2A  
 1-PED PB AND SIGN  
 EXTEND TO HH 11  
 3" RSC  
 1-12/C#12  
 1-3/C#12  
 1-3/C#20

(2) P90 POLE FOUNDATION  
 TYPE P90-A-30  
 1-ONE WAY SIGNAL OVERHEAD  
 2-TYPE IOB AT 90 & 180 DEG  
 1-TWO CHANNEL EVP DETECTOR  
 AND CONFIRMATORY LIGHT (4&8)  
 2-PED PBS AND SIGNS  
 EXTEND TO HH 2  
 3" RSC  
 3-12/C#12  
 3-3/C#12  
 1-5/C#24

(3) 10' PEDESTAL POLE PLUS BASE  
 PEDESTAL FOUNDATION  
 TYPE 2A  
 1-PED PB AND SIGN  
 EXTEND TO HH 5  
 3" IMC  
 1-12/C#12  
 1-5/C#12  
 1-3/C#12



DISTRICT #: \$\$\$@DISTRICT@\$\$  
 I/PLOT NAME: \$\$\$@I/PLOT\$NAME@\$\$\$  
 PATH & FILENAME: \$\$\$@PATH\$FILENAME@\$\$\$

| BY  | DATE     | REVISIONS                               |
|-----|----------|---|
| SJK | 04-13-05 | ADDED HEAD 4-5 & CORRECTED STREET NAMES |
| EJA | 03-18-15 | UPDATED PLAN                            |

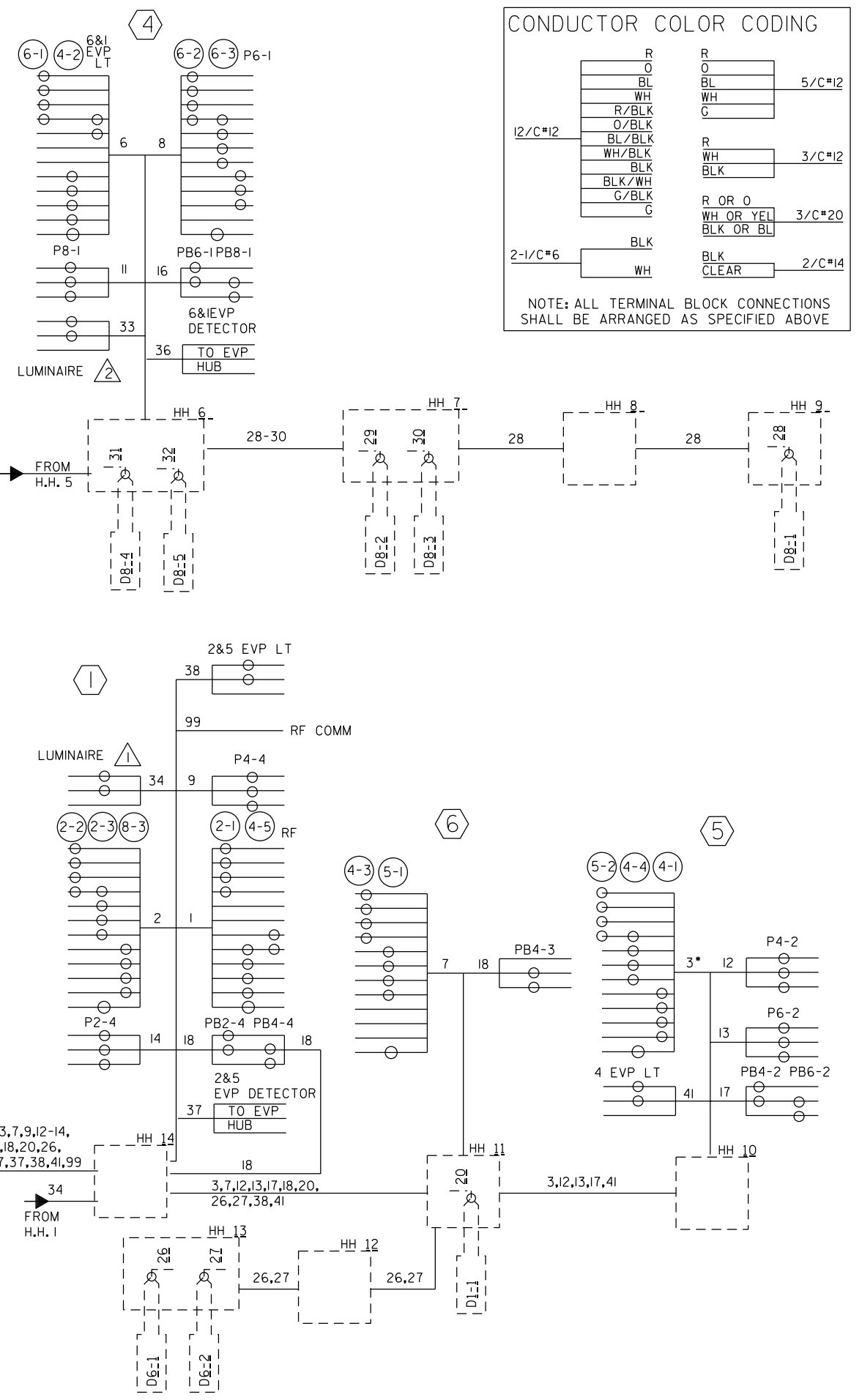
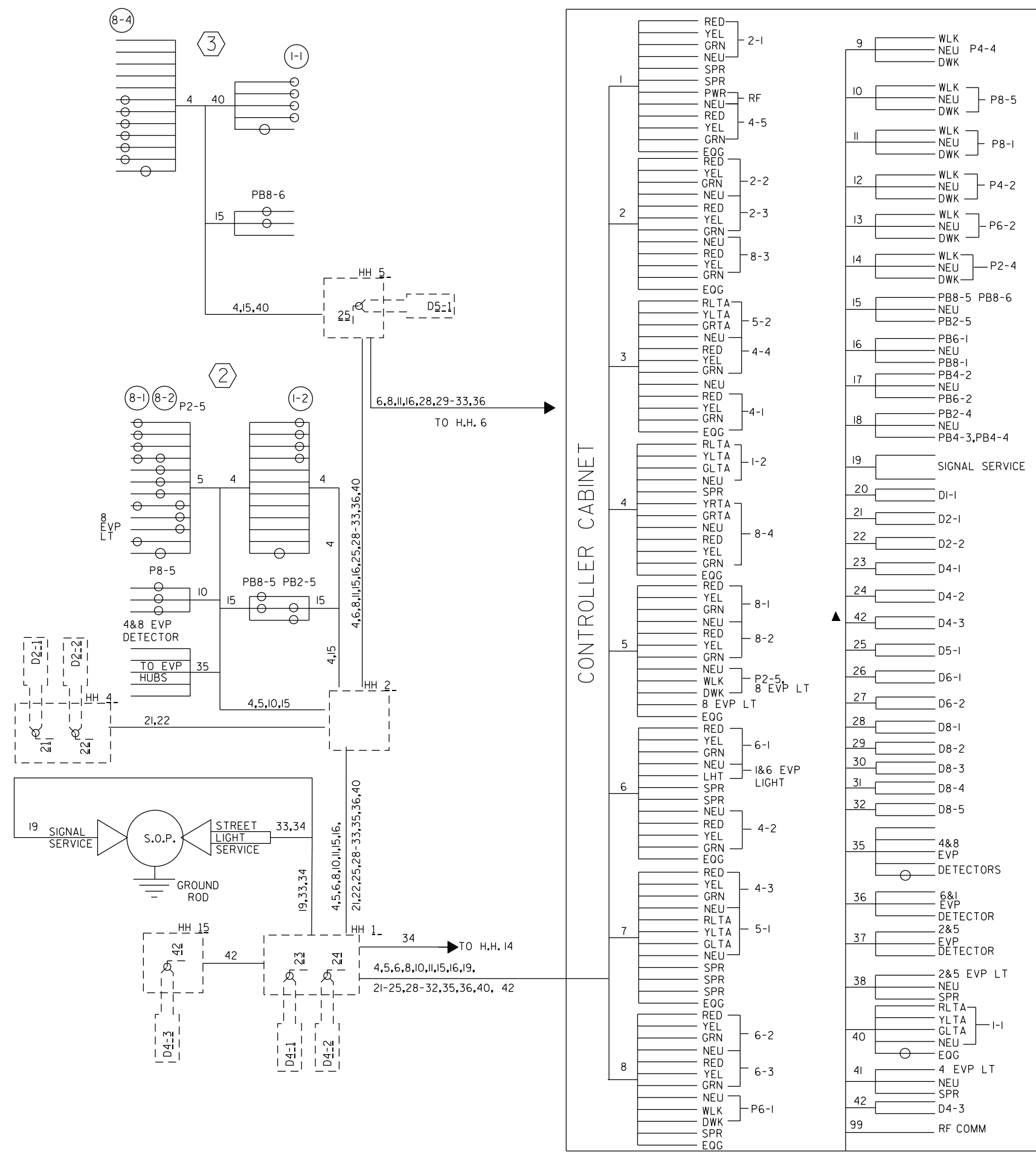
SYSTEM ID: 20050 T.E. \_\_\_\_\_  
 METER ADDRESS: 277 8TH ST  
 MASTER ID: \_\_\_\_\_ T.E. \_\_\_\_\_

INTERSECTION LAYOUT  
 TH3 AT CSAH 50 (ELM ST) / 9TH ST  
 IN FARMINGTON, DAKOTA COUNTY

S.A.P. NO. \_\_\_\_\_ DRAWN BY: \_\_\_\_\_ CKD BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CERTIFIED BY: \_\_\_\_\_ LIC. NO. \_\_\_\_\_ DATE: \_\_\_\_\_  
 STATE PROJ. NO. \_\_\_\_\_ (T.H. 3) SHEET NO. 1 OF 2 SHEETS

PLOTTED/REVISED: \$\$\$@DATE@\$\$\$

DISTRICT #: \$\$\$DISTRICT@\$\$  
 IPLOT NAME: \$\$\$IPLOT\$NAME@\$\$  
 PATH & FILENAME: \$\$\$@PATH\$FILENAME@\$\$\$



**CONDUCTOR COLOR CODING**

|         |           |
|---------|-----------|
| R       | R         |
| O       | O         |
| BL      | BL        |
| WH      | WH        |
| R/BLK   | 5/C*12    |
| O/BLK   |           |
| BL/BLK  |           |
| WH/BLK  | R         |
| BLK     | WH        |
| BLK/WH  | 3/C*12    |
| G/BLK   | BLK       |
| C       | R OR O    |
|         | WH OR YEL |
|         | 3/C*20    |
|         | BLK OR BL |
| 2-1/C*6 | BLK       |
|         | BLK CLEAR |
|         | 2/C*14    |

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

| BY  | DATE     | REVISIONS                               |
|-----|----------|---|
| SJK | 04-13-05 | ADDED HEAD 4-5 & CORRECTED STREET NAMES |
| EJA | 03-18-15 | UPDATED PLAN                            |

SYSTEM ID: 20050 T.E. \_\_\_\_\_  
 METER ADDRESS: 277 8TH ST  
 MASTER ID: \_\_\_\_\_ T.E. \_\_\_\_\_

**WIRING DIAGRAM**  
 TH3 AT CSAH 50 (ELM ST) / 9TH ST  
 IN FARMINGTON, DAKOTA COUNTY

|                                |                 |                         |             |
|--------------------------------|-----------------|-------------------------|-------------|
| S.A.P. NO. _____               | DRAWN BY: _____ | CKD BY: _____           | DATE: _____ |
| CERTIFIED BY: _____            | LIC. NO. _____  | DATE: _____             |             |
| STATE PROJ. NO. _____ (T.H. 3) |                 | SHEET NO. 2 OF 2 SHEETS |             |