

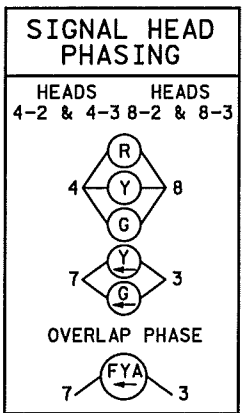
PLOTTED/REVISED: 22-JUN-2018

DISTRICT #: Metro
I/PLOT NAME: T20770.sgl
PATH & FILENAME: Projects\DM_R05\952A\0000\Traffic\Signals\20770 (Bernard) S\T20770.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 | ● | ● | ← | ● | ← | ← |

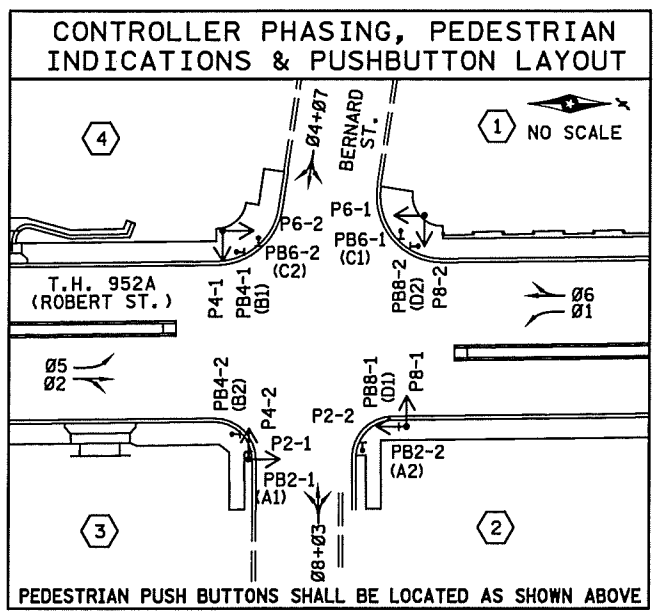
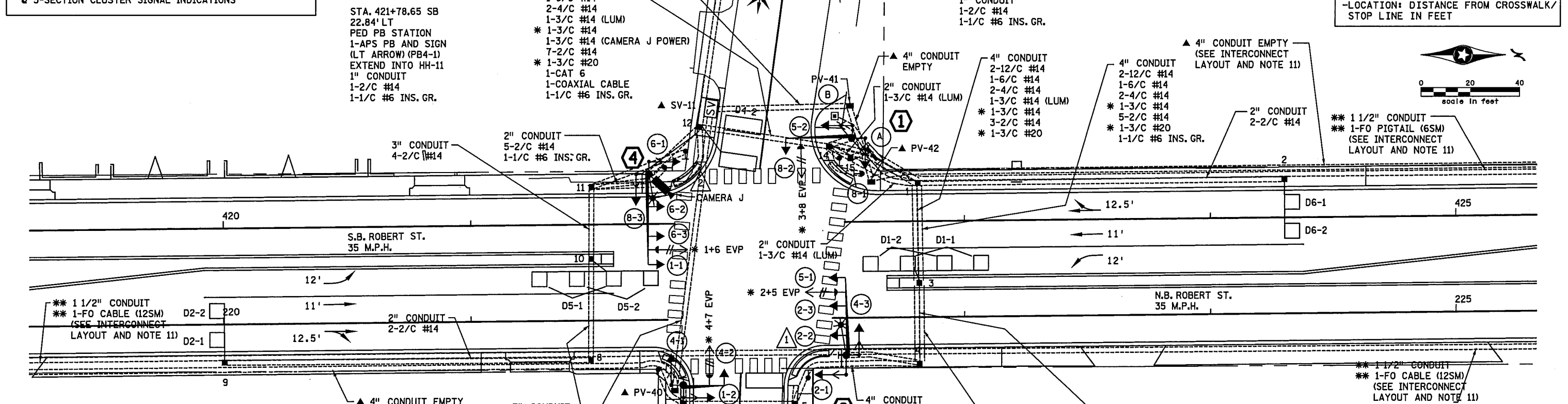
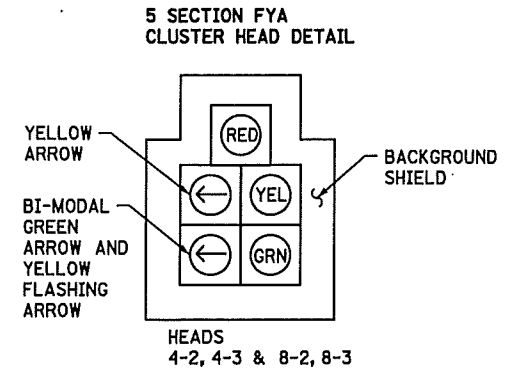
-ALL SIGNAL INDICATIONS SHALL BE 12" LED
-ALL SIGNAL HEADS SHALL BE BLACK POLYCARBONITE WITH BACKGROUND SHIELDS
-FYA DENOTES FLASHING YELLOW ARROW
■ 5-SECTION CLUSTER SIGNAL INDICATIONS



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' | 180' |
| D4-1 | 1-6' X15' | 120' |
| D4-2 | 2-6' X15' | 0', 15' |
| D5-1 | 2-6' X6' | 20', 50' |
| D5-2 | 2-6' X6' | 5', 35' |
| D6-1, D6-2 | 1-6' X6' | 180' |
| D8-1 | 1-6' X6' | 120' |
| D8-2 | 2-6' X6' | 0', 15' |

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



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 ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.



| NO | DATE | BY | CRD | APPR | REVISION |
|----|------|----|-----|------|----------|
| | | | | | |

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: **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 "J" (SHEET 1 OF 2)
T.H. 952A (ROBERT ST.) AT BERNARD ST.

SHEET 1118 OF 1320

SYSTEM ID. NO. 1735370, 20770
T.E. NO. 5958
METER ADDRESS: 998 S. ROBERT ST.

PLOTTED/REVISED: 22-JUN-2018

DISTRICT *: Metro
IPLOT NAME: T20770.sgl
PATH & FILENAME: Projects\DM_R05\952A\0000\TrafficSignals\20770 (Bernard) SINT20770.sgl.dgn

① STA. 422+54.61 SB
34.01' LT
PA85 POLE FOUNDATION
TYPE PA85-A-25
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-14:
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. 222+51.95 NB
15.15' RT
PA90 POLE FOUNDATION
TYPE PA90-A-30-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-11) (SEE SIGN DETAILS)
1-APS PB AND SIGN (LT ARROW) (PB8-1)
3" CONDUIT TO HH-4:
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
1-2/C #14
1-1/C #6 INS. GR.

Ⓐ EQUIPMENT PAD (SEE DETAIL SHEET)
SERVICE CABINET (SSB)
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 |
| 4-2/C #14 | 1-2/C #14 |
| * 1-3/C #20 | * 1-3/C #20 |
| 1-1/C #6 INS. GR. | 1-1/C #6 INS. GR. |

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

** 1 1/2" CONDUIT TO PV-44
** 1-FO PIGTAIL (6SM)

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 NEW GROUND MOUNT TRANSFORMER
2" CONDUIT
3-1/C #2
2" CONDUIT TO HH-15:
2-3/C #14 (LUM)

Ⓑ SOP - GROUND MOUNT TRANSFORMER (XCEL ENERGY)
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.
- 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#TS17 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. 1735370, 20770
T.E. NO. 5958
METER ADDRESS: 998 S. ROBERT ST.

| | | | | |
|---------|------|----|-----|---------------|
| 06-2018 | SJK | | | AS-BUILT PLAN |
| NO | DATE | BY | CKD | APPR |
| | | | | REVISION |

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. 173-010-001, 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

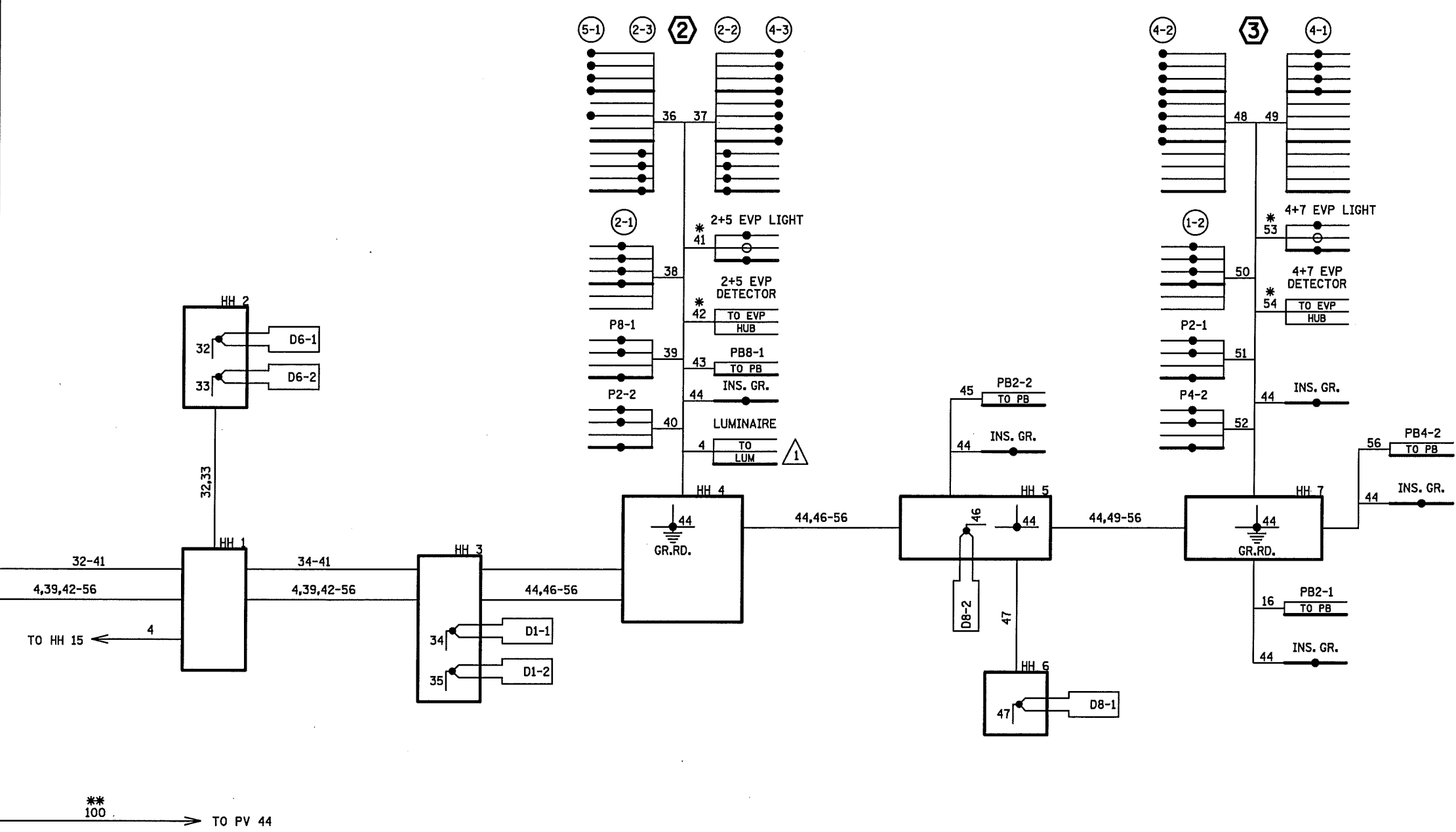
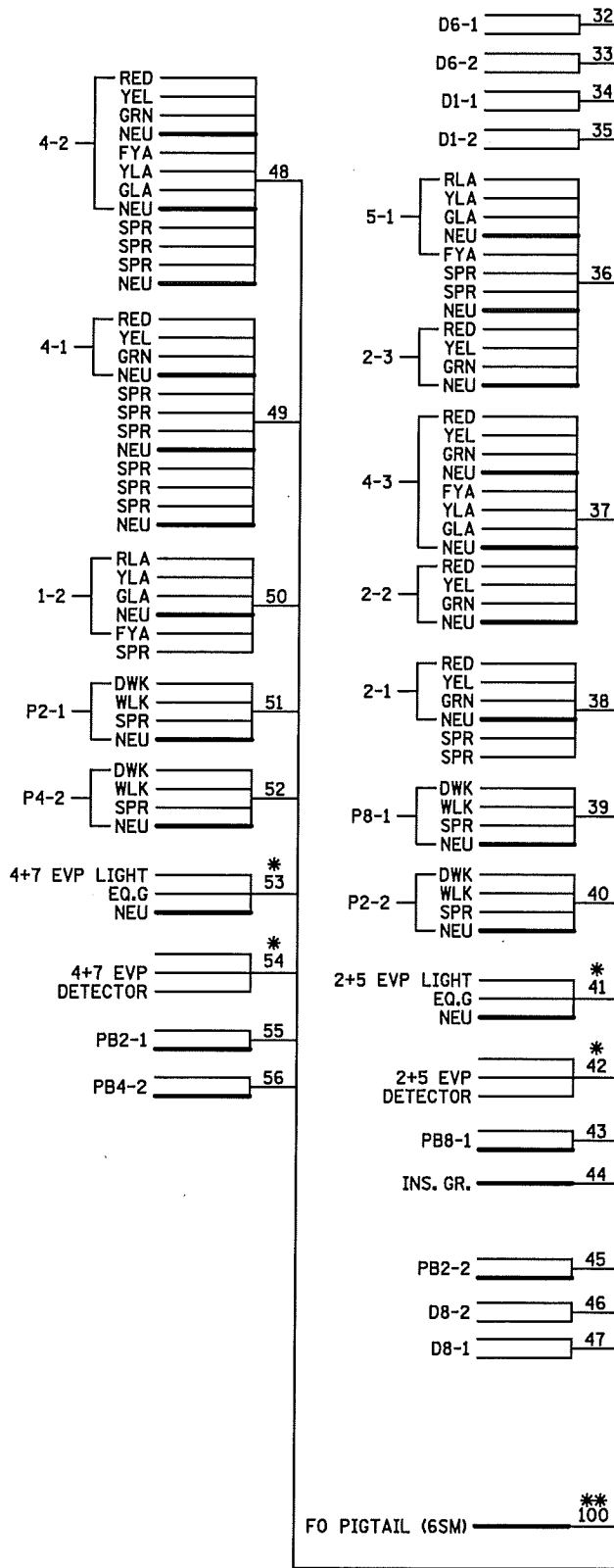


ENGINEERS
PLANNERS
DESIGNERS

CITY OF WEST ST. PAUL
TRAFFIC SIGNAL PLANS AND DETAILS
ROBERT STREET IMPROVEMENT PROJECT
INTERSECTION LAYOUT SYSTEM "J" (SHEET 2 OF 2)
T.H. 952A (ROBERT ST.) AT BERNARD ST.

SHEET
1119
OF
1320

CONTROLLER CABINET



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

SYSTEM ID. NO. 1735370, 20770
 T.E. NO. 5958
 METER ADDRESS: 998 S. ROBERT ST.

DISTRICT #: Metro
 IPLOT NAME: T20770.sgl
 PATH & FILENAME: Projects\DM_FOS\952A\0000\Traffic\Signals\20770 (Bernard) SNT20770.sgl.dgn
 PLOTTED/REVISED: 22-JUN-2018

| | | | |
|---------|------|----|---------------|
| 06-2018 | SJK | | AS-BUILT PLAN |
| NO | DATE | BY | CKD |
| | | | APPR |
| | | | REVISION |

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



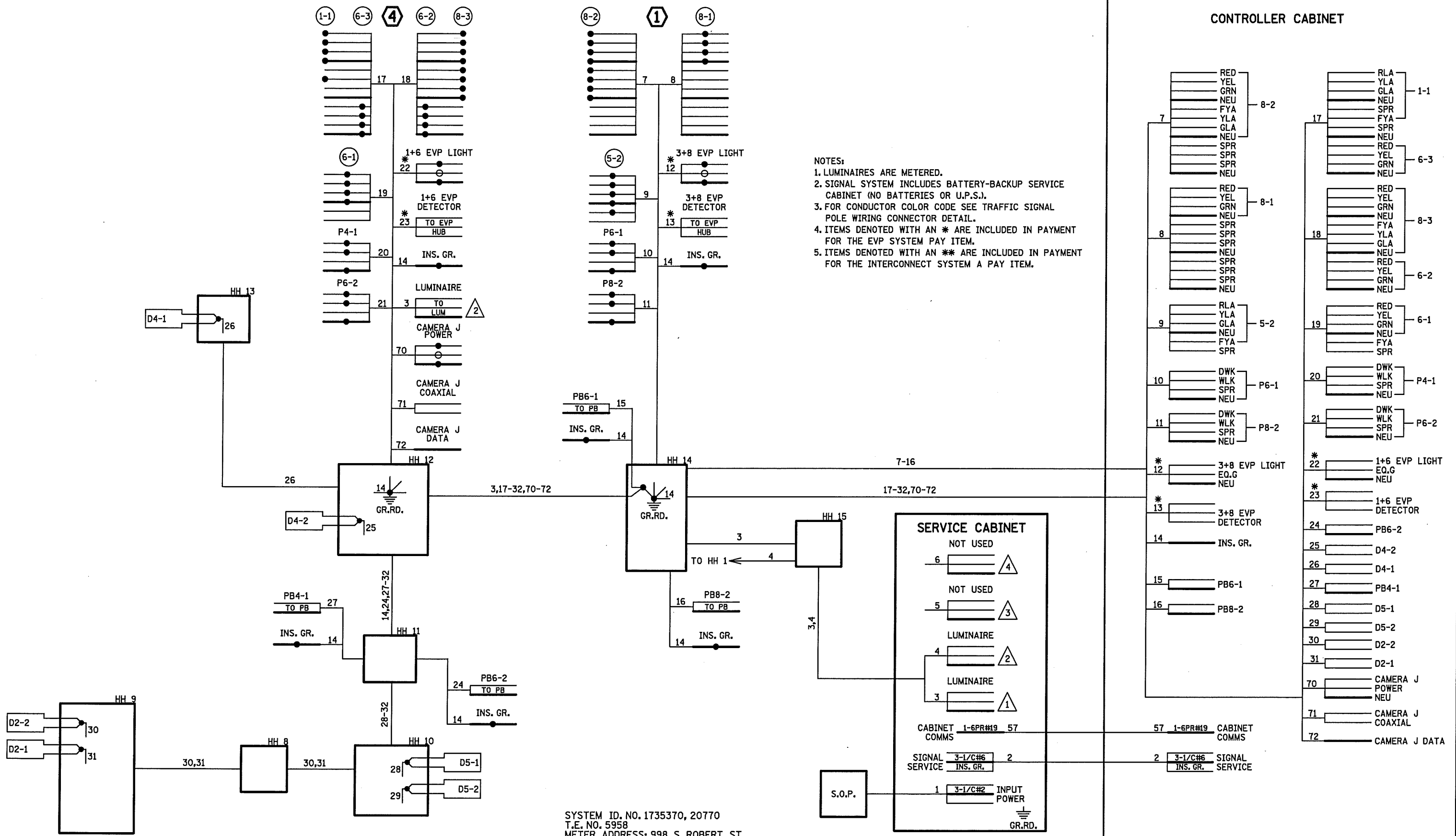
ENGINEERS
 PLANNERS
 DESIGNERS

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

SHEET
 1121
 OF
 1320

PLOTTED/REVISED: 22-JUN-2018

DISTRICT: Metro
IPLOT NAME: T20770.sgl
PATH & FILENAME: Projects\DM_ROS_952A\0000T\Traffic\Signal\20770 (Bernard St)\T20770.sgl.dgn



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

SYSTEM ID. NO. 1735370, 20770
 T.E. NO. 5958
 METER ADDRESS: 998 S. ROBERT ST.

| | | | |
|---------|------|----|---------------|
| 06-2018 | SJK | | AS-BUILT PLAN |
| NO | DATE | BY | CKD APPR |
| | | | REVISION |

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
 FIELD WIRING DIAGRAM SYSTEM "J" (SHEET 1 OF 2)
 T.H. 952A (ROBERT ST.) AT BERNARD ST.

SHEET
1120
OF
1320