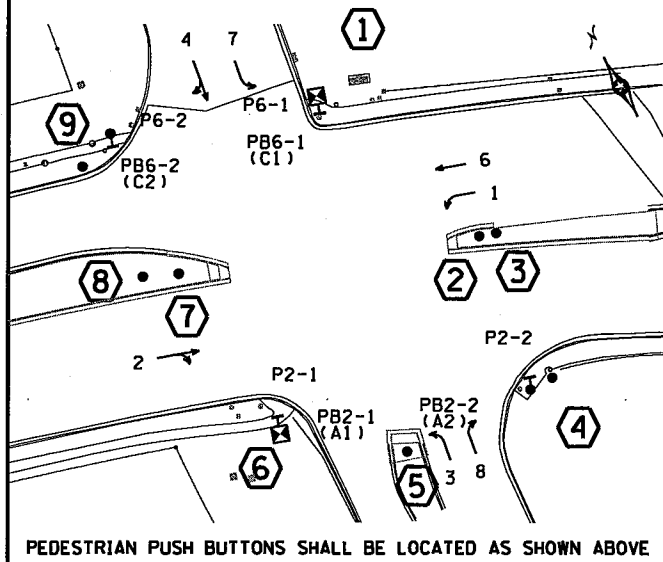


CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL HEAD CHART

FACE	R	Y	FYA	G
1-1, 1-2, 1-3	←	←	←	←
2-1, 2-2, 2-3	●	●	●	●
3-1, 3-2, 3-3	←	←	←	←
4-1, 4-2, 4-3	●	●	●	●
4-4, 4-5	●	●	●	●
6-1, 6-2, 6-3, 6-4	●	●	●	●
7-1, 7-2, 7-3, 7-4	←	←	←	←
8-1, 8-2, 8-3	●	→	→	→

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

INPLACE 2" NMC 1-FO CABLE (36 SMFO)

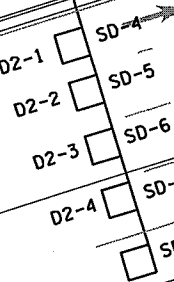
PED PB STATION
 1-APS PB AND SIGN WITH APS PUSHBUTTON MOUNTING SPACERS (RT ARROW) (PB 6-2)
 EXTEND INTO HH 15
 1" CONDUIT
 1-2/C #14
 1-1/C #6 INS. GR.

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 7 PHASE, WITH PHASE(S) 1, 3, 7 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.
- PHASES 8 AND 1 OVERLAP.

INPLACE 2" NMC 1-FO CABLE (36 SMFO)

2" CONDUIT 5-2/C #14



CSAH 42 EB POSTED SPEED 40 MPH

2" CONDUIT 2-6/C #14
 2-2/C #14
 1-3/C #20
 1-1/C #6 INS. GR.

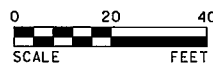
4" CONDUIT (DIRECTIONAL BORE)
 2-6/C #14
 2-2/C #14
 1-3/C #20
 1-1/C #6 INS. GR.

bmi.tbl
 H:\DACC\142110983\CAD\MS\plans\Signal\cd1981130_s001.dgn

pdf-f and W.plt of g
 12:12:29 PM

mikel
 11/18/2016

TAMS ID: 1735267
 20573



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.

NAME: *Bryan* LIC. NO.: 43354 DATE: 07-12-2016

DESIGNED RTA
 DRAWN SJP
 CHECKED BTN



BOLTON & MENK, INC.
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN WILLMAR, MN
 CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN
 AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

REV.	BY	DATE

LOOP DETECTOR CHART

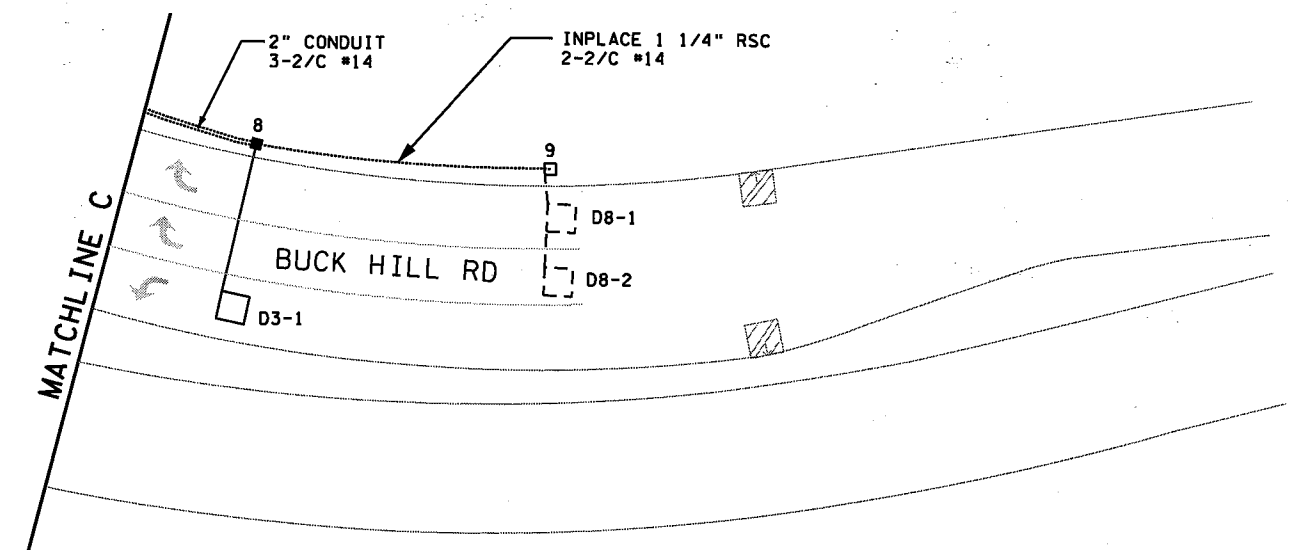
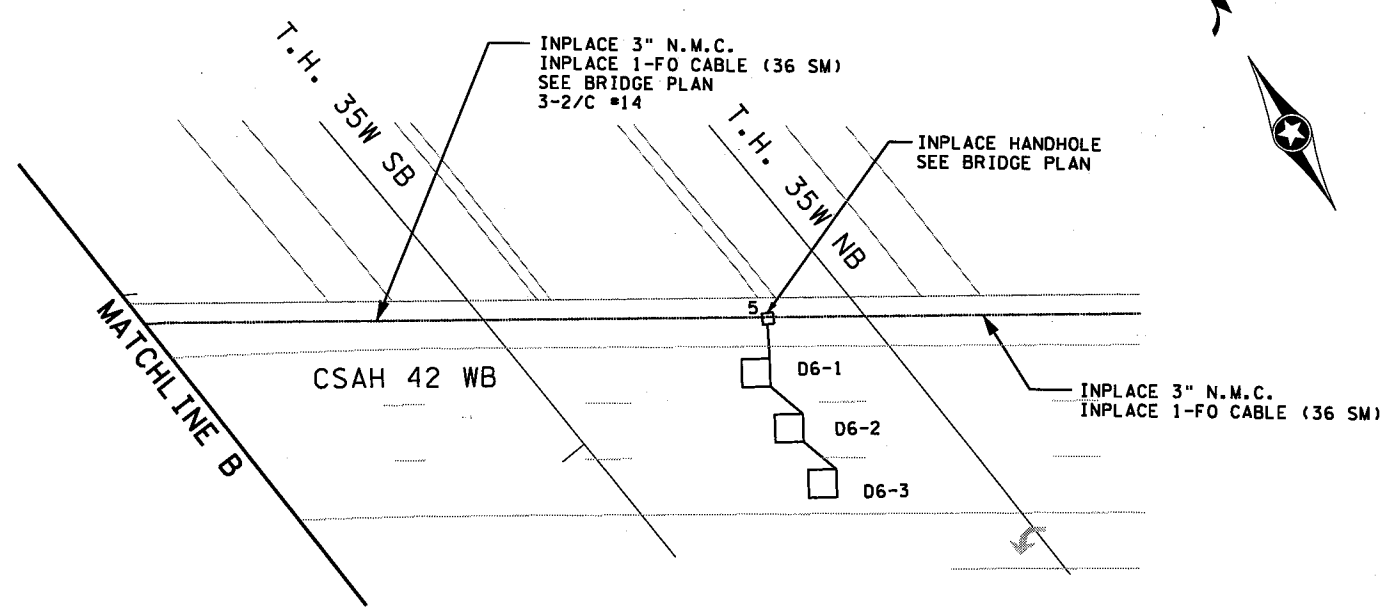
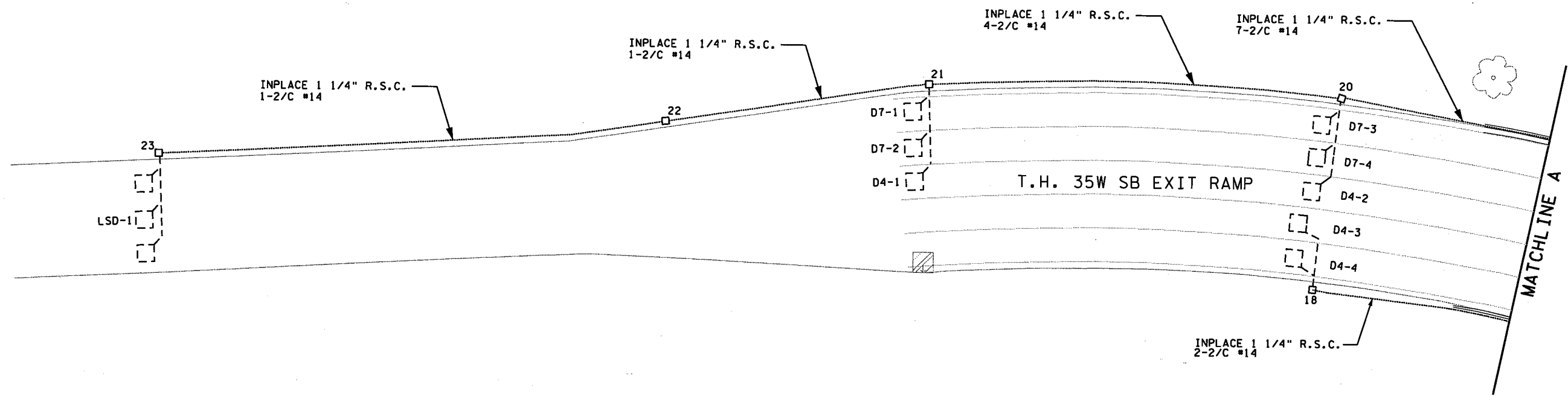
NUMBER	SIZE	LOCATION	TYPE
D1-1, D1-3	2-6X6	20 & 50	PVC
D1-2, D1-4	2-6X6	5 & 35	PVC
D2-1, D2-2, D2-3	6X6	250	PVC
D2-4, SD-8	6X6	250	PVC
D3-1	6X6	120	PVC
D3-2	2-6X6	20 & 50	PVC
D3-3	2-6X6	5 & 35	PVC
D4-1	---	---	INPLACE
D4-2, D4-3, D4-4	---	---	INPLACE
D4-5	2-6X6	0, 15	PVC
D4-6, D4-7	6X10	0	PVC
D6-1, D6-2, D6-3	6X6	250	PVC
D7-1, D7-2	---	---	INPLACE
D7-3, D7-4	---	---	INPLACE
D7-5, D7-7	2-6X6	15, 45	PVC
D7-6, D7-8	2-6X6	0, 30	PVC
D8-1, D8-2	---	---	INPLACE
D8-3	2-6X10	5 & 20	PVC
D8-4	2-6X6	5 & 20	PVC
SD-1, SD-2, SD-3	---	---	INPLACE
LSD-1	---	---	INPLACE

-LOCATION: DISTANCE FROM CROSSWALK/STOP BAR IN FEET

SIGNAL LAYOUT

S.P. 1981-129 (T.H. 35W)
 S.A.P. 019-642-060 / S.A.P. 179-020-041
SIGNAL PLAN

SHEET 55 OF 82



bmi.tbi
 H:\DAG0\T4210983\CAD\MS\plans\Signal\cd1981130_sl002.dgn
 pdf-B and W.pitcfcg
 12:31:05 PM
 7/12/2016

SYSTEM ID: 20573
 METER ADDRESS:
 TE:

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.
 NAME: *Bryan A. ...* LIC. NO. 43354 DATE 07-12-2016

DESIGNED RTA
 DRAWN
 CHECKED
 BTN

PERFORMANCE DRIVEN DESIGN.
 LHBcorp.com 21 W. Superior St., Ste. 500 | Duluth, MN 55802 | 218.727.8446

BOLTON & MENK, INC.
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN WILLMAR, MN
 CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN
 AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

REV.	BY	DATE

SIGNAL LAYOUT
 S.P. 1981-129 (T.H. 35W)
 S.A.P. 019-642-060 / S.A.P. 179-020-041
 SIGNAL PLAN

SHEET
 56
 OF
 82

- ① PEDESTAL FOUNDATION
 10' PEDESTAL POLE PLUS BASE
 1-STRAIGHT MOUNT CD PED HEAD AT 270
 1-APS PB WITH APS PUSHBUTTON MOUNTING SPACERS
 AND SIGN (LT ARROW) (PB 6-1)
 WITH PEDESTAL MOUNT ADAPTOR
 1-R9-3 SIGN FACING POLE 2
 3" CONDUIT TO HH 2
 1-4/C #14
 1-2/C #14
 1-1/C #6 INS. GR.

- ② PA100 POLE FOUNDATION
 X=508495.9903, Y=199926.5073
 TYPE PA100-A-55
 ① INSTALL CAMERA AND X6-350/CAM 400 EXTENSION (AT 10 DEG)
 1-TWO-WAY ANGLE MOUNT SIGNALS OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 12 AND 25'
 2-ANGLE MOUNT SIGNALS AT 0 DEG AND 180 DEG
 * 1-ONE WAY EVP CONFIRMATORY LIGHT (PHASES 3+8)
 1-LED LUMINAIRE
 2-R9-3 SIGNS FACING PEDESTAL 1 AND POLE 4
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 6:
 3-12/C #14
 2-3/C #14
 * 1-3/C #14
 1-CAT 6 CABLE
 1-COAXIAL CABLE
 1-1/C #6 INS. GR.

- ③ PA100 POLE FOUNDATION
 X=508503.9969, Y=199923.4612
 TYPE PA100-A-50
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 3-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23' AND 36.5'
 * 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 2)
 1-TYPE D SIGN (D-2) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 6:
 2-12/C #14
 * 1-3/C #14
 * 1-3/C #20
 1-1/C #6 INS. GR.

- ④ PA85 POLE FOUNDATION
 X=508482.4281, Y=199845.5034
 TYPE PA85-D40-9 (DAVIT AT 335 DEG)
 2-ANGLE MOUNT SIGNALS AT 90 DEG AND 180 DEG
 1-ANGLE MOUNT CD PED HEAD AT 180 DEG
 1-LED LUMINAIRE
 1-R9-3 SIGN FACING POLE 2
 3" CONDUIT TO HH 7:
 1-12/C #14
 1-4/C #14
 1-3/C #14
 1-1/C #6 INS. GR.

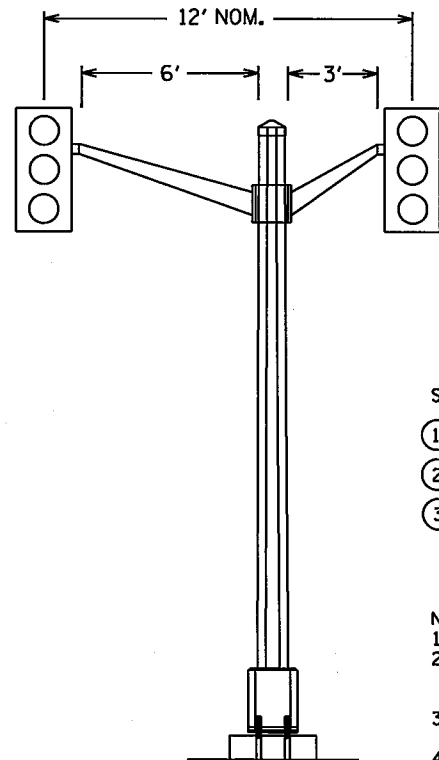
- ⑤ PA85 POLE FOUNDATION
 X=508404.5999, Y=199850.5799
 TYPE PA85-AHST-3/6-203
 2-ANGLE MOUNT SIGNALS OVERHEAD AT 0'
 * 1-ONE WAY EVP DETECTOR (PHASES 3+8) MOUNTED ON LONGER ARM AT 3' FROM END OF ARM.
 3" CONDUIT TO HH 10:
 2-6/C #14
 * 1-3/C #20
 1-1/C #6 INS. GR.

- ⑥ PEDESTAL FOUNDATION
 14' PEDESTAL POLE PLUS BASE
 2-ANGLE MOUNT SIGNALS AT 90 DEG AND 180 DEG
 1-ANGLE MOUNT CD PED HEAD AT 90
 1-APS PB WITH APS PUSHBUTTON MOUNTING SPACERS
 AND SIGN (LT ARROW) (PB 2-1)
 WITH PEDESTAL MOUNT ADAPTOR
 1-R9-3 SIGN FACING POLE 7
 3" CONDUIT TO HH 12:
 1-12/C #14
 1-4/C #14
 1-2/C #14
 1-1/C #6 INS. GR.

- ⑦ PA100 POLE FOUNDATION
 X=508352.0786, Y=199984.5461
 TYPE PA100-A-55-D40-9 (DAVIT AT 10 DEG)
 1-TWO-WAY ANGLE MOUNT SIGNALS OVERHEAD AT 0'
 2-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11' AND 23'
 * 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 4+7)
 1-LED LUMINAIRE
 1-R10-11b SIGN MOUNTED ADJACENT TO HEAD 4-2
 2-R9-3 SIGNS ONE FACING PEDESTAL 6 AND ONE FACING POLE 9
 1-TYPE SPECIAL SIGN WITH R10-20gP POLE MOUNTED FACING T.H. 35W SOUTHBOUND RAMP RIGHT TURN LANES
 1-TYPE SPECIAL SIGN WITH R10-20gP MAST ARM MOUNTED (SEE SIGN DETAILS)
 1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 13:
 2-12/C #14
 1-3/C #14
 * 1-3/C #14
 * 1-3/C #20
 1-1/C #6 INS. GR.

- ⑧ PA100 POLE FOUNDATION
 X=508332.4048, Y=199993.2224
 TYPE PA100-A-50
 1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'
 4-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11', 23', 35' AND 46'
 * 1-ANGLE MOUNT SIGNAL AT 270 DEG
 1-ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT (PHASE 1+6) AT 19'
 1-R10-11b SIGN
 1-TYPE D SIGN (D-3) (SEE SIGN DETAILS)
 3" CONDUIT TO HH 13:
 * 3-12/C #14
 * 1-3/C #14
 1-3/C #20
 1-1/C #6 INS. GR.

- ⑨ PA85 POLE FOUNDATION
 X=508337.9616, Y=200063.2605
 TYPE PA85-D40-9 (DAVIT AT 325 DEG)
 2-ANGLE MOUNT SIGNALS AT 90 DEG AND 180 DEG
 1-ANGLE MOUNT CD PED HEAD AT 180 DEG
 1-LED LUMINAIRE
 1-R9-3 SIGN FACING POLE 7
 3" CONDUIT TO HH 15:
 1-12/C #14
 1-4/C #14
 1-3/C #14
 1-1/C #6 INS. GR.
- Ⓐ EQUIPMENT PAD (SEE DETAIL SHEET)
 SERVICE CABINET (SSB)
 CONTROLLER AND CABINET (COUNTY FURNISHED)
 (FACE DOOR TOWARD INTERSECTION)
- | | |
|----------------------|----------------------|
| 2-4" CONDUIT TO HH 1 | 2-4" CONDUIT TO HH 2 |
| 7-12/C #14 | 6-12/C #14 |
| 2-6/C #14 | 2-4/C #14 |
| 2-4/C #14 | * 2-3/C #14 |
| * 2-3/C #14 | 1-3/C #14 |
| 28-2/C #14 | 14-2/C #14 |
| * 3-3/C #20 | * 1-3/C #20 |
| 1-1/C #6 INS. GR. | 1-CAT 6 CABLE |
| | 1-COAXIAL CABLE |
| | 1-1/C #6 INS. GR. |



SPECIFIC NOTES:

- ① SALVAGE X6-350/CAM 400 EXTENSION AND CAMERA FROM EXISTING SIGNAL POLE.
- ② POLES NO. 5 AND 8 HAVE NON-STANDARD EVP MOUNTING LOCATIONS.
- ③ MAST ARMS ON POLES NO. 3 AND 8 HAVE NON-STANDARD HUB MOUNTING LOCATIONS.

NOTES:

1. SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
2. THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS, PB STATIONS, EQUIPMENT PAD, AND PEDESTRIAN CURB RAMPS SHALL BE VERIFIED IN THE FIELD BY STATE TRAFFIC OFFICE PERSONNEL.
3. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE CONNECTION OF THE POWER FOR THE TRAFFIC SIGNAL SYSTEM.
4. FOR TYPE D SIGNS SEE DETAIL SHEET. ALL SIGNAL SIGNING IS INCIDENTAL.
5. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUITS UNDER THE ROADWAYS REQUIRE BORING.
6. 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.
7. ALL ITEMS ARE FURNISH AND INSTALL UNLESS NOTED OTHERWISE.
8. DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
9. SALVAGE CCTV CAMERA AND MOUNT FROM EXISTING SYSTEM. INSTALL ON POLE 2 OF REVISED SIGNAL SYSTEM.
10. INPLACE FO CABLE SHALL BE DISCONNECTED FROM CABINET AT CSAH 42/TH 35W NORTHBOUND ENTRANCE RAMP INTERSECTION AND PULLED BACK TO SPLICE VAULT AT CSAH 42/TH 35W SOUTHBOUND EXIT RAMP INTERSECTION AS NEEDED FOR CONSTRUCTION AND STAGING.
11. THE PHASING OF THE EXISTING LOOP DETECTORS ON THE TH 35W EXIT RAMP BEING REUSED AS PART OF THE REVISED SIGNAL SYSTEM HAS BEEN REVISED.
12. THE PHASING OF THE EXISTING LOOP DETECTORS ON BUCK HILL ROAD THAT ARE BEING REUSED HAVE BEEN REVISED.
13. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE FIBER OPTIC SYSTEM (SEE DIVISION S2).

- Ⓑ SOP-GROUND MOUNTED TRANSFORMER
 2" CONDUIT INTO SERVICE CABINET
 3-1/C #2

- * 1-FO PIGTAIL (6SM) FROM CABINET TO FO SV (DAKOTA COUNTY TO CONNECT FO IN CABINET)
 CONTROLLER CABINET TO SERVICE CABINET:
 2" CONDUIT
 2-1/C #6
 1-1/C #6 INS. GR.
 SERVICE CABINET TO HH 2:
 2" CONDUIT
 4-3/C #14 (LUM)
 SERVICE CABINET TO EXTERNAL GR. RD.:
 1" CONDUIT
 1-1/C #6 INS. GR.
 (SEE EQUIPMENT PAD LAYOUT)
 HH 2 TO HH 1:
 2" CONDUIT
 2-3/C #14 (LUM)

bmi:tbl
 H:\DACON\T42110983\CAD\MS\plans\Signal\cd1981130_sl003.dgn

pdf-B and W.plt:cf9
 12:18:20 PM

mikela
 11/18/2016

SYSTEM ID: 20573
 METER ADDRESS:
 TE:

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.

NAME: *Byron* LIC. NO. 43354 DATE: 07-12-2016

DESIGNED
 RTA
 DRAWN
 SJP
 CHECKED
 BTN



BOLTON & MENK, INC.
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN WILLMAR, MN
 CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN
 AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

REV.	BY	DATE

SIGNAL NOTES

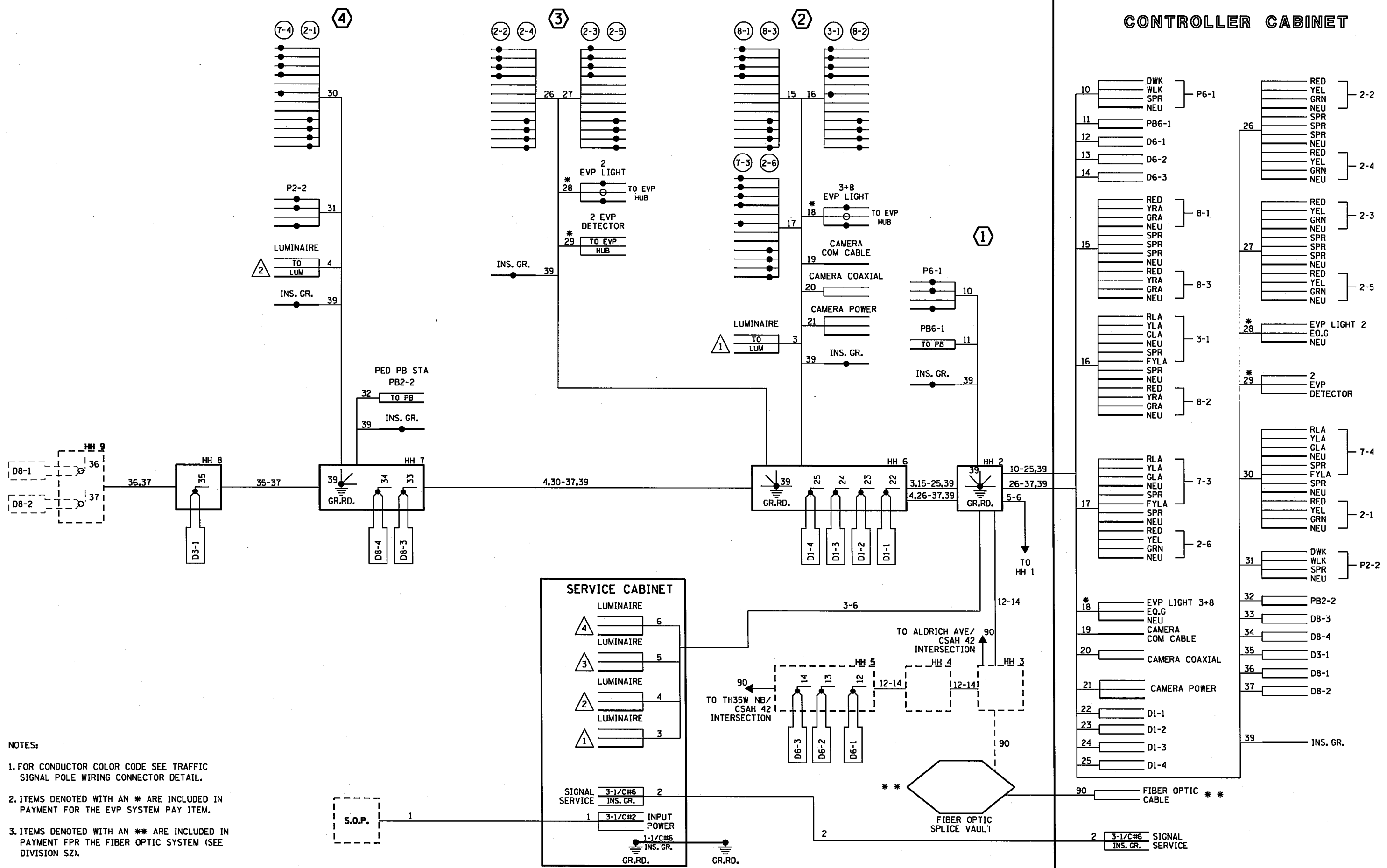
S.P. 1981-129 (T.H. 35W)

S.A.P. 019-642-060 / S.A.P. 179-020-041

SIGNAL PLAN

SHEET
 OF
 57
 82

bmi.tbl
 H:\DADO\T42110983\CAD\MS\plans\Signal\cd1981130_wd001.dgn
 pdf-B and W.pitafg
 12:17:41 PM
 mikela
 11/18/2016



- NOTES:
1. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
 2. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
 3. ITEMS DENOTED WITH AN ** ARE INCLUDED IN PAYMENT FOR THE FIBER OPTIC SYSTEM (SEE DIVISION S2).

CONTROLLER CABINET

SERVICE CABINET

PERMANENT SIGNAL WIRING DIAGRAM

SYSTEM ID: 20573
 METER ADDRESS:
 TE:

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.
 NAME: *Byron* LIC. NO. 43354 DATE 07-12-2016

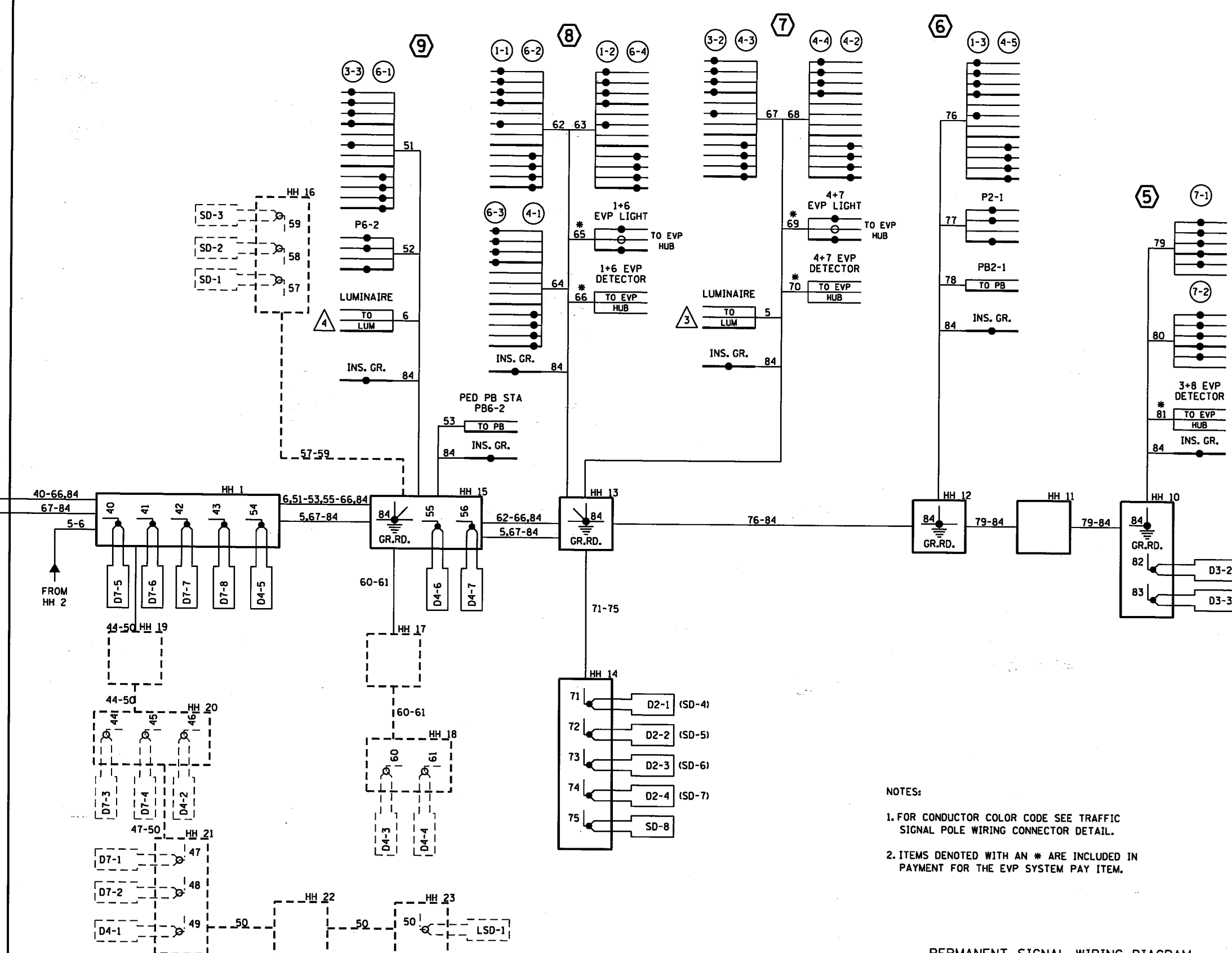
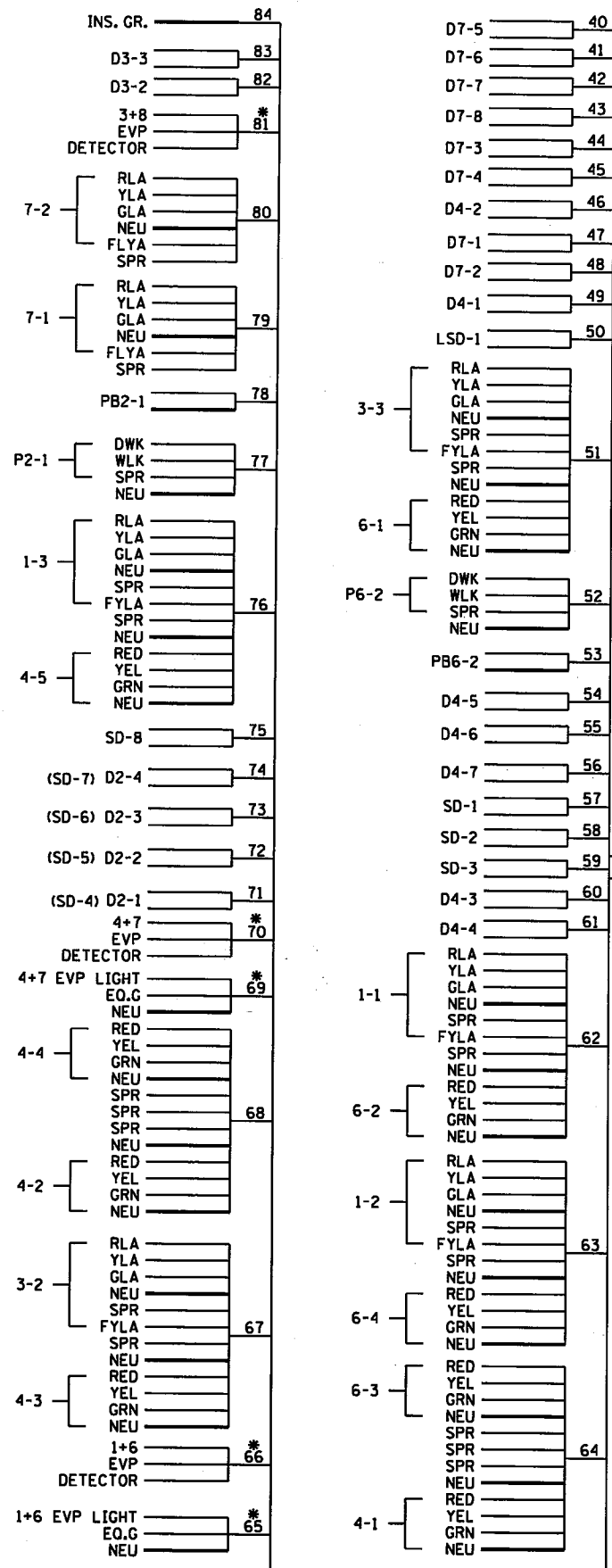
DESIGNED RTA
 DRAWN SJP
 CHECKED BTN

BOLTON & MENK, INC.
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN WILLMAR, MN
 CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN
 AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

REV.	BY	DATE

S.P. 1981-129 (T.H. 35W)
 S.A.P. 019-642-060 / S.A.P. 179-020-041
SIGNAL PLAN

CONTROLLER CABINET



NOTES:
 1. FOR CONDUCTOR COLOR CODE SEE TRAFFIC SIGNAL POLE WIRING CONNECTOR DETAIL.
 2. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.

PERMANENT SIGNAL WIRING DIAGRAM

triciala 7/12/2016
 pdf-B and W.plt:fcfg 12:31:07 PM
 bmi.tbl
 H:\NADACO\T42110983\CAD\MS\plans\Signal\cd1981130_wd002.dgn

SYSTEM ID: 20573
 METER ADDRESS:
 TE:

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.
 NAME: *Bryan* LIC. NO. 43354 DATE: 07-12-2016

DESIGNED RTA
 DRAWN SJP
 CHECKED BTN

LB
 PERFORMANCE DRIVEN DESIGN
 Lbcorp.com 21 W. Superior St., Ste. 500 | Duluth, MN 55802 | 218.727.8448

BOLTON & MENK, INC.
 CONSULTING ENGINEERS & SURVEYORS
 MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN WILLMAR, MN
 CHASKA, MN RAMSEY, MN MAPLEWOOD, MN BAXTER, MN ROCHESTER, MN
 AMES, IA SPENCER, IA DES MOINES, IA FARGO, ND

REV.	BY	DATE

S.P. 1981-129 (T.H. 35W)
 S.A.P. 019-642-060 / S.A.P. 179-020-041

SIGNAL PLAN

SHEET 59 OF 82

DETECTION CHART

DET. NO.	PHASE	SIZE	FUNCTION (1)	LOCATION (1)
(1) D1-1	1	4-6' X 6'	1	0'
(1) D1-2	1	4-6' X 6'	1	9'
D2-1	2	6' X 6'	1	280'
SD-4				
D2-2	2	6' X 6'	1	290'
SD-5				
D2-3	2	6' X 6'	1	280'
SD-6				
D3-1	3	6' X 6'	2	250'
D3-2	3	2-6' X 6'	2	250'
D3-3	3	2-6' X 6'	1	120'
D3-4	3	6' X 6'	1	120'
D3-5	3	2-6' X 6'	1	120'
D3-6	3	2-6' X 6'	1	20'
D3-7	3	6' X 6'	1	20'
D3-8	3	2-6' X 6'	1	20'
D4-1	4	6' X 6'	1	20'
D4-2	4	2-6' X 6'	1	20'
D4-3	4	6' X 6'	1	160'
D4-4	4	2-6' X 6'	1	160'
(4) D6-1	6	3-6' X 6'	1	305'
SD-1				
SD-2				
SD-3				
SD-7				

- (1) MULTIPLE LOOP DETECTOR
 (2) LOOP DETECTOR FUNCTIONS:
 1 - CALL AND EXTEND
 2 - EXTEND ONLY
 3 - LOCAL SPLIT DEMAND
 (3) LOCATION: DISTANCE FROM STOP BAR TO DETECTOR LOCATED IN BRIDGE DECK - See Bridge Plan
 (4) LOCATION: DISTANCE FROM STOP BAR TO DETECTOR LOCATED IN BRIDGE DECK - See Bridge Plan

(A) CONTROLLER & CABINET
 EXTEND INTO H.H. 1 (See Note No. 2)
 2 - 4" R.S.C.
 6 - 12/c #12
 4 - 3/c #12
 2 - 3/c #20
 16 - 2/c #14
 1 - 6pr. #19

(B) PAD MOUNTED SERVICE EQUIPMENT
 EXTEND INTO CONTROLLER CABINET
 2" R.S.C.
 2 - 1/c #6
 1 - 1/c #6 (BARE)
 EXTEND INTO H.H. 1
 2" R.S.C.
 2 - 1/c #10
 EXTEND INTO H.H. 12
 2" R.S.C.
 2 - 1/c #10
 EXTEND TO S.O.P.
 DAKOTA ELECTRIC TRANSFORMER
 (See Detail Sheet No. 69)
 2" R.S.C.
 3 - 1/c #2

(7) TYPE P100-A35-D40-12 (MID MAST ARM MOUNT AT 18')
 P100 POLE FOUNDATION
 2 - ONE WAY SIGNALS (OVERHEAD)
 2 - TYPE 10B - POLE MOUNTED AT 0' & 270'
 2 - PEDESTRIAN PUSH BUTTONS & SIGNS
 LUMINAIRE BY OTHERS (200 WATT H.P.S. AT 350' w/P.E.C.)
 ONE WAY E.V.P. DETECTOR & LIGHT
 EXTEND INTO H.H. 4
 3" R.S.C.
 2 - 12/c #12
 4 - 3/c #12
 1 - 3/c #20
 2 - 1/c #10

4" R.S.C.
 3 - 12/c #12
 3 - 3/c #12
 1 - 3/c #20
 4 - 2/c #14

1 1/2" R.S.C.
 1 - 2/c #14

(1) TYPE 18
 1 - PEDESTRIAN PUSH BUTTON & SIGN
 EXTEND INTO H.H. 1
 2" R.S.C.
 1 - 12/c #12
 1 - 3/c #12

(2) TYPE A100 - B45 (MID MAST ARM MOUNT AT 16')
 A100 POLE FOUNDATION
 2 - ONE WAY SIGNALS (OVERHEAD)
 TYPE 10A - POLE MOUNTED AT 315'
 ONE WAY E.V.P. DETECTOR & LIGHT
 EXTEND INTO H.H. 15
 3" R.S.C.
 1 - 12/c #12
 1 - 3/c #12
 1 - 3/c #20

(5) TYPE 4B
 2 - PEDESTRIAN PUSH BUTTONS & SIGNS
 EXTEND INTO H.H. 11
 2" R.S.C.
 1 - 12/c #12
 1 - 3/c #12

3" R.S.C.
 1 - 12/c #12
 1 - 3/c #12

3" R.S.C.
 3 - 12/c #12
 1 - 3/c #12
 1 - 3/c #20
 2 - 1/c #10
 4 - 2/c #14

3" R.S.C.
 1 - 12/c #12
 1 - 3/c #12

(4) TYPE 4B
 1 - PEDESTRIAN PUSH BUTTON & SIGN
 EXTEND INTO H.H. 17
 2" R.S.C.
 1 - 12/c #12
 1 - 3/c #12

(6) TYPE A100-A50-A20
 (A50 AT 0', A20 AT 270')
 (MID MAST ARM MOUNT ON A50 AT 21')
 A100 POLE FOUNDATION
 3 - ONE WAY SIGNALS (OVERHEAD)
 2 - TYPE 10B - POLE MOUNTED AT 0' & 270'
 1 - PEDESTRIAN PUSH BUTTON & SIGN
 ONE WAY E.V.P. DETECTOR & LIGHT
 EXTEND INTO H.H. 8
 3" R.S.C.
 2 - 12/c #12
 2 - 3/c #12
 1 - 3/c #20

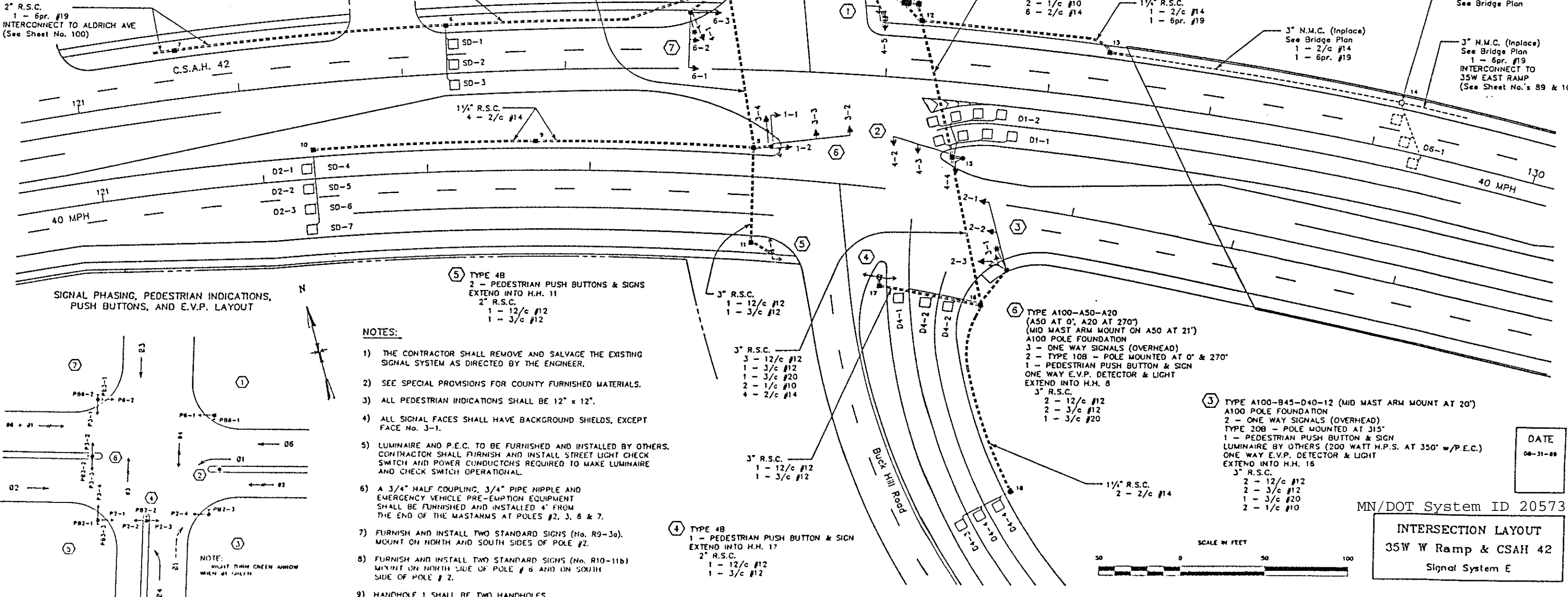
(3) TYPE A100-B45-D40-12 (MID MAST ARM MOUNT AT 20')
 A100 POLE FOUNDATION
 2 - ONE WAY SIGNALS (OVERHEAD)
 TYPE 20B - POLE MOUNTED AT 315'
 1 - PEDESTRIAN PUSH BUTTON & SIGN
 LUMINAIRE BY OTHERS (200 WATT H.P.S. AT 350' w/P.E.C.)
 ONE WAY E.V.P. DETECTOR & LIGHT
 EXTEND INTO H.H. 16
 3" R.S.C.
 2 - 12/c #12
 2 - 3/c #12
 1 - 3/c #20
 2 - 1/c #10

FACE NO.	PHASE
4-3	(R) 84
4-4	(Y) 81 + 84
	(G) 81 + 84

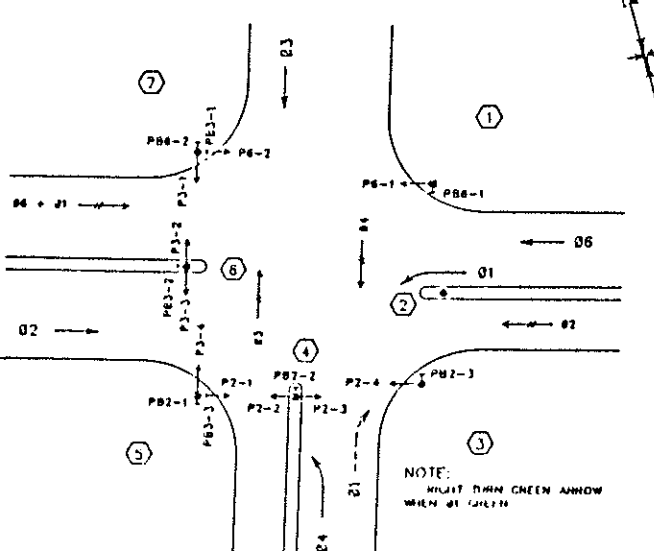
SIGNAL INDICATION CHART										
FACE NO.	PHASE	FLASH	RED	YEL	GRN	RLTA	YLTA	GLTA	YRTA	GRTA
1-1	1		RED							
1-2	1		RED			12"	12"	12"		
2-1	2		RED	12"	12"	12"				
2-2	2		RED	12"	12"	12"				
2-3	2		RED	12"	12"	12"				
3-1	3		RED	12"	12"	12"			12"	
3-2	3		RED	12"	12"	12"			12"	
3-3	3		RED	12"	12"	12"			12"	
3-4	3		RED	12"	12"	12"			12"	
4-1	4		RED	12"	12"				12"	
4-2	4		RED	12"	12"				12"	
4-3	1 & 4		RED	12"					12"	12"
4-4	1 & 4		RED	12"					12"	12"
4-5	4		RED	12"	12"				12"	12"
5-1	5		RED	12"	12"	12"				
5-2	5		RED	12"	12"	12"				
5-3	5		RED	12"	12"	12"				

*) SEE FACE DETAIL AT LEFT

2" R.S.C.
 1 - 6pr. #19
 INTERCONNECT TO ALDRICH AVE
 (See Sheet No. 100)



SIGNAL PHASING, PEDESTRIAN INDICATIONS, PUSH BUTTONS, AND E.V.P. LAYOUT



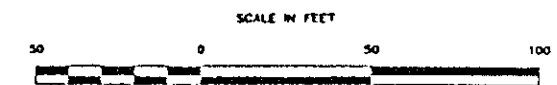
NOTES:

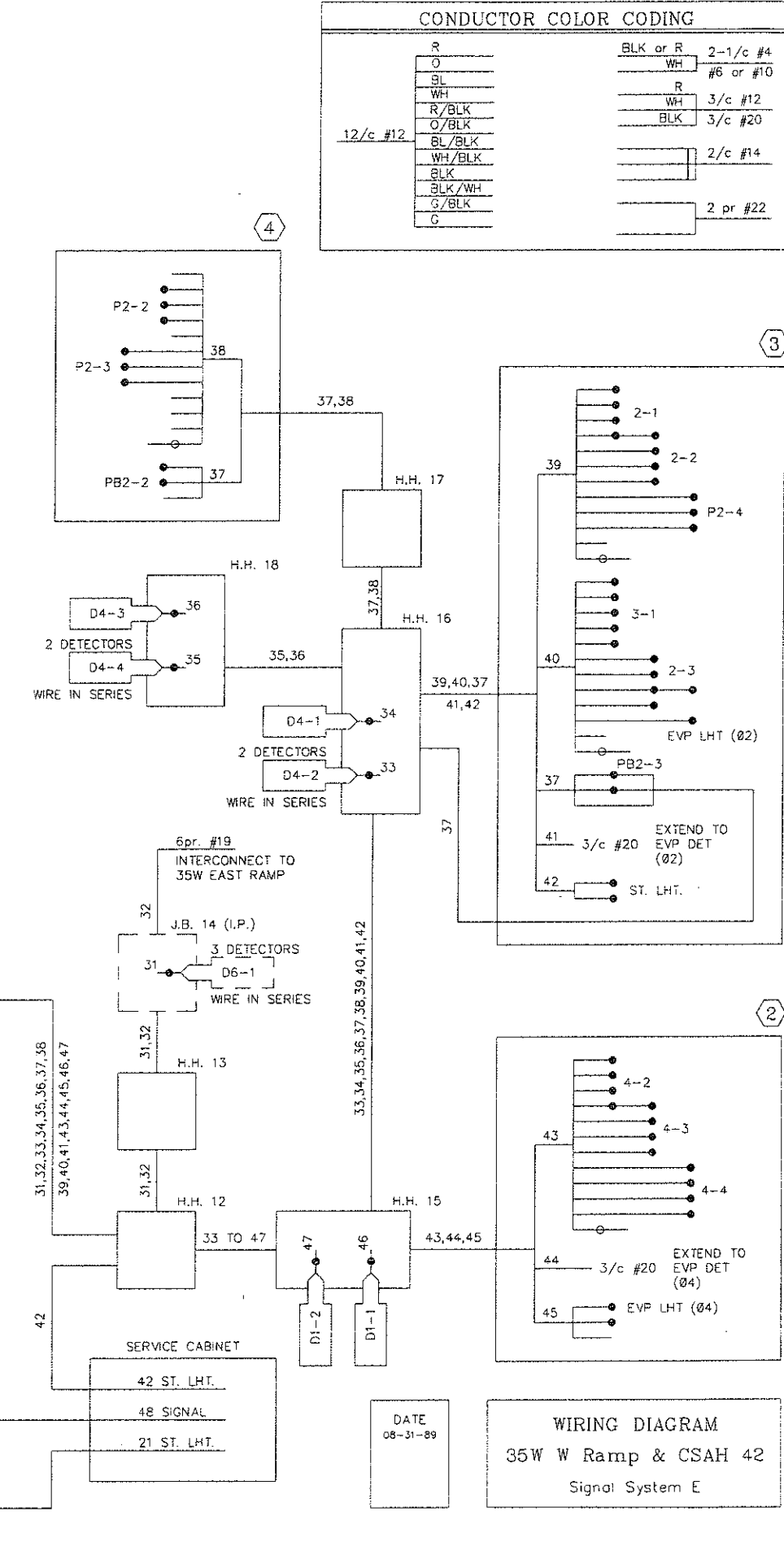
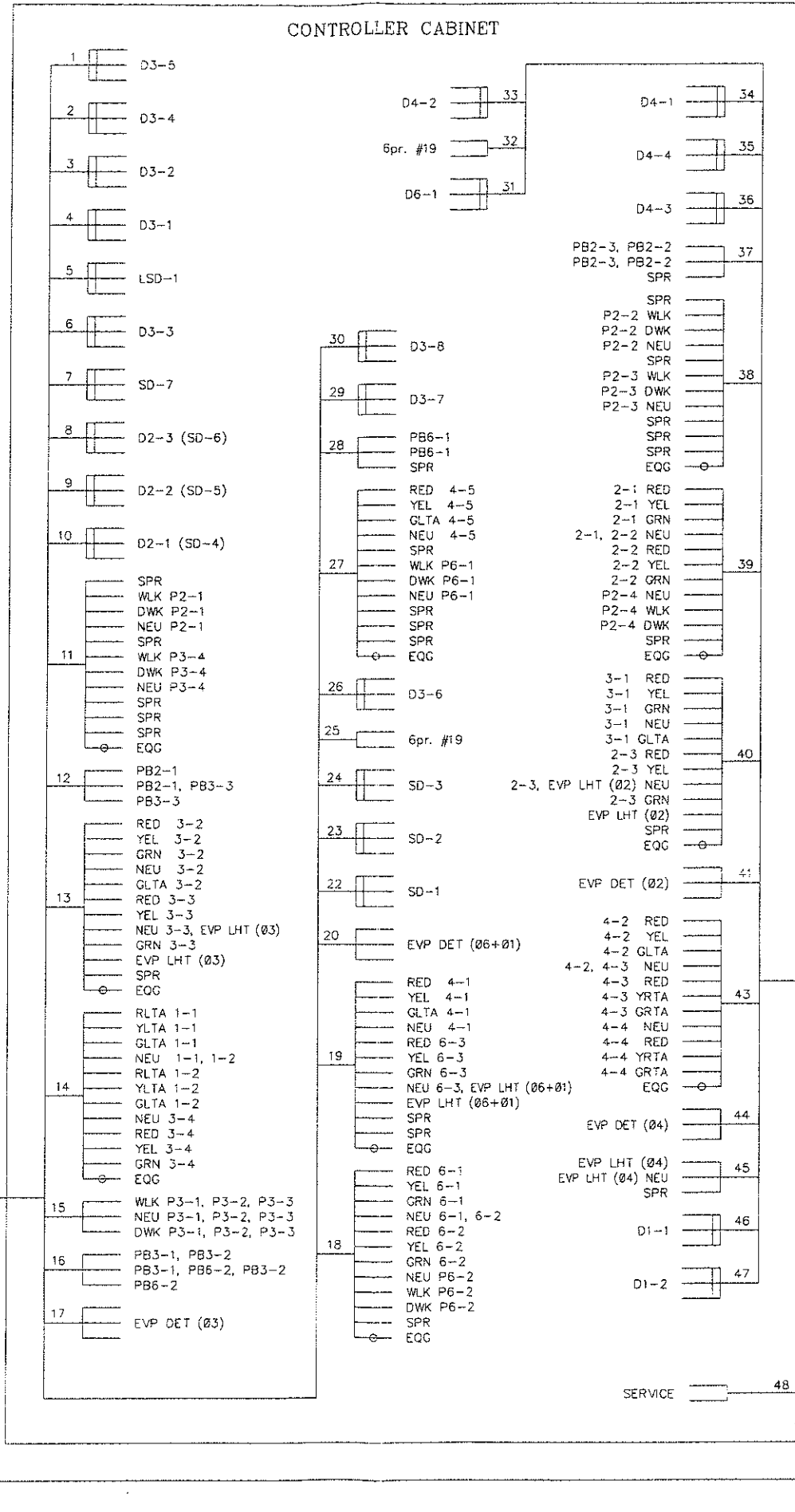
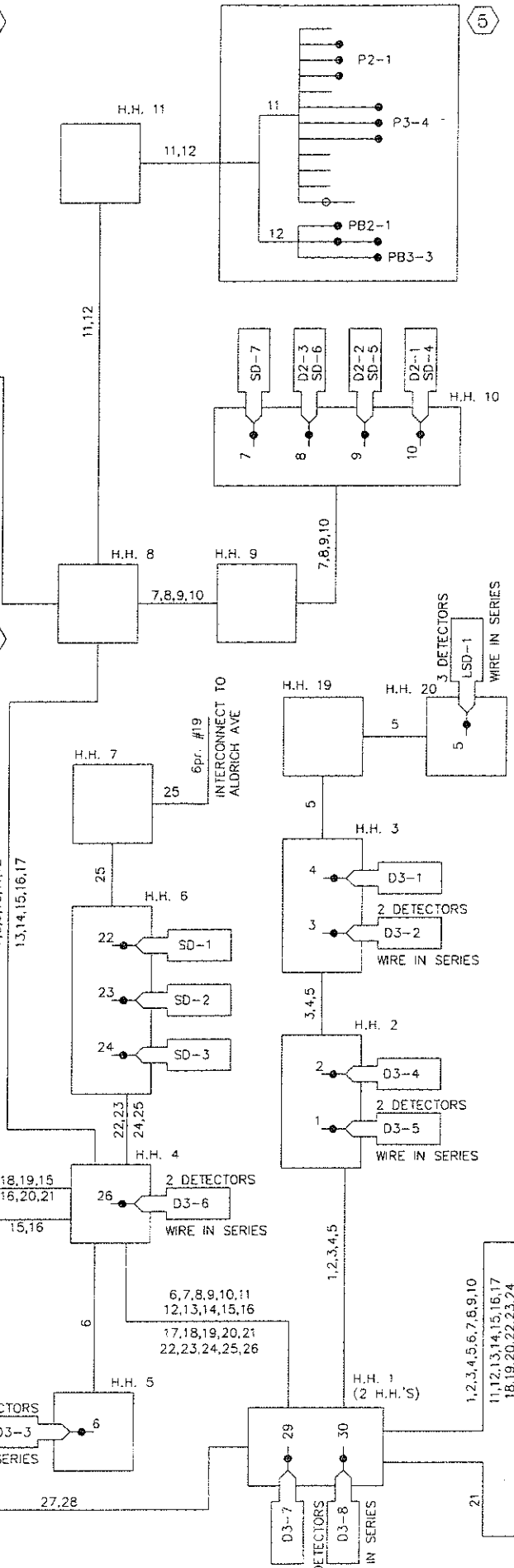
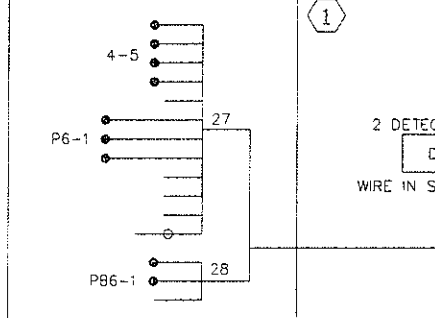
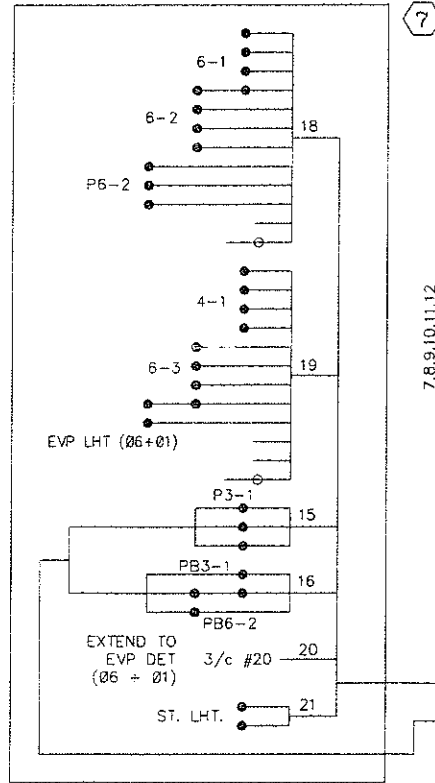
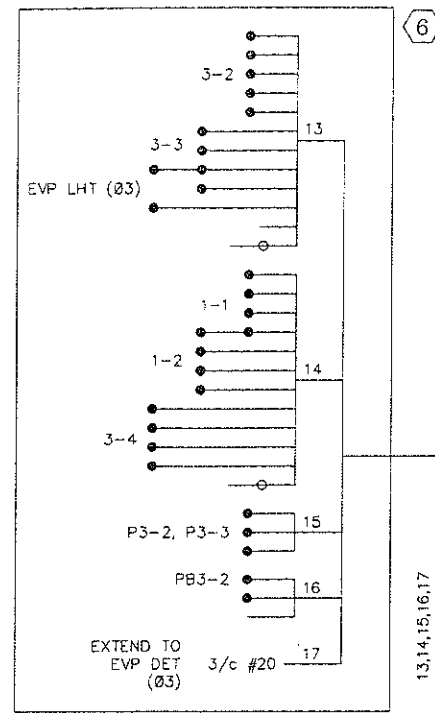
- 1) THE CONTRACTOR SHALL REMOVE AND SALVAGE THE EXISTING SIGNAL SYSTEM AS DIRECTED BY THE ENGINEER.
- 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
- 3) ALL PEDESTRIAN INDICATIONS SHALL BE 12" X 12".
- 4) ALL SIGNAL FACES SHALL HAVE BACKGROUND SHIELDS, EXCEPT FACE NO. 3-1.
- 5) LUMINAIRE AND P.E.C. TO BE FURNISHED AND INSTALLED BY OTHERS. CONTRACTOR SHALL FURNISH AND INSTALL STREET LIGHT CHECK SWITCH AND POWER CONDUCTORS REQUIRED TO MAKE LUMINAIRE AND CHECK SWITCH OPERATIONAL.
- 6) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND EMERGENCY VEHICLE PRE-EMPTION EQUIPMENT SHALL BE FURNISHED AND INSTALLED 4' FROM THE END OF THE MASTARMS AT POLES #2, 3, 6 & 7.
- 7) FURNISH AND INSTALL TWO STANDARD SIGNS (No. R9-3a). MOUNT ON NORTH AND SOUTH SIDES OF POLE #2.
- 8) FURNISH AND INSTALL TWO STANDARD SIGNS (No. R10-11b) MOUNT ON NORTH SIDE OF POLE # 6 AND ON SOUTH SIDE OF POLE # 2.
- 9) HANDHOLE 1 SHALL BE TWO HANDHOLES.

DATE
 08-31-88

MN/DOT System ID 20573

INTERSECTION LAYOUT
 35W W Ramp & CSAH 42
 Signal System E





CONDUCTOR COLOR CODING		
R	BLK or R	2-1/c #4
O	WH	#6 or #10
BL	R	3/c #12
WH	WH	3/c #20
R/BLK	BLK	2/c #14
O/BLK		
BL/BLK		
WH/BLK		
BLK		
BLK/WH		
G/BLK		
G		2 pr #22

WIRING DIAGRAM
35W W Ramp & CSAH 42
Signal System E