

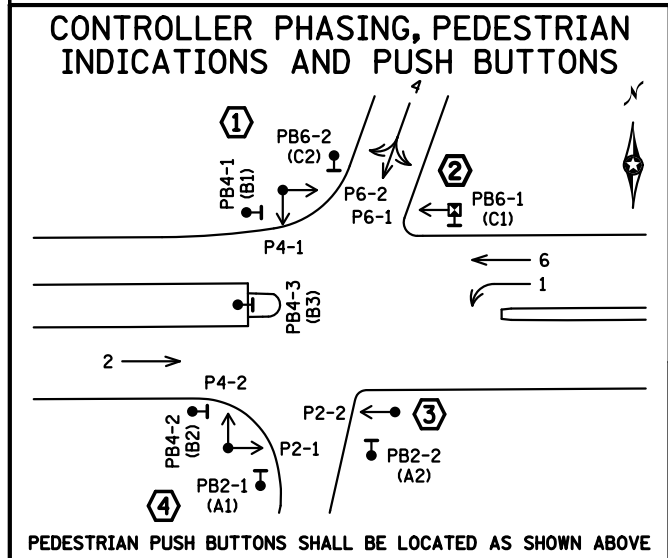
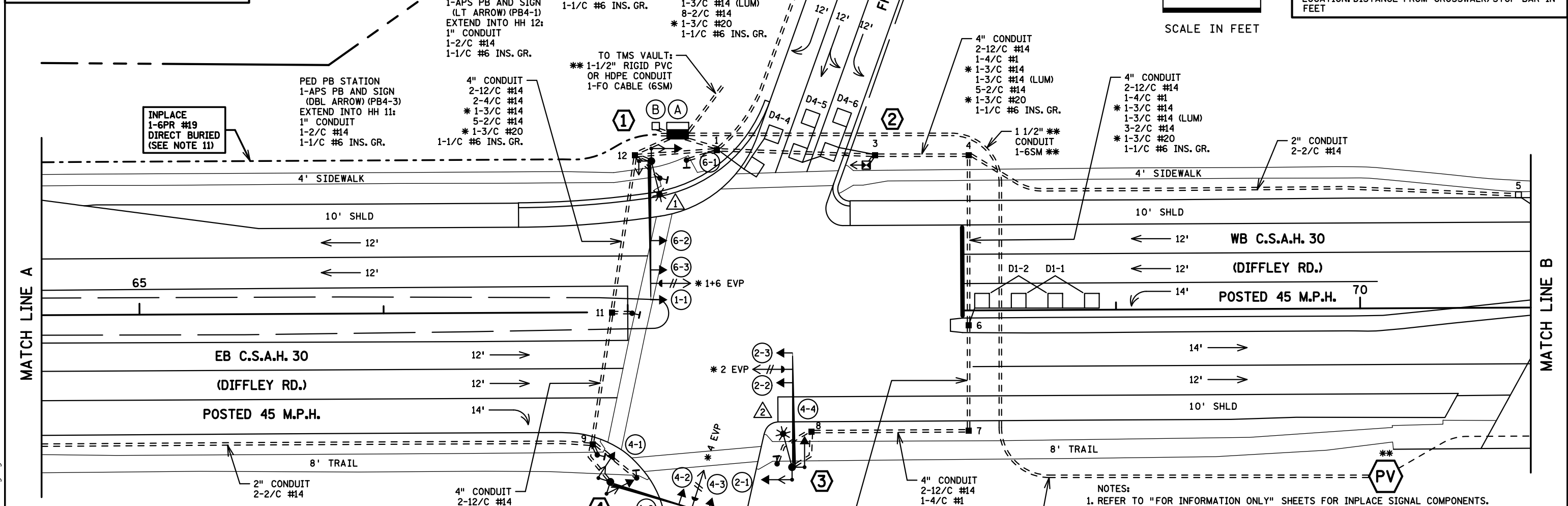
PLOTTED/REVISED: 1/4/2016

SIGNAL HEAD CHART					
FACE	R	Y	FYA	G	G
1-1, 1-2	←	←	←	←	
2-1, 2-2, 2-3	●	●	●	●	
4-1	●	●	●	●	
4-2	●	●	●	←	
4-3, 4-4	●	←	←	←	
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	TYPE	STATUS	
D1-1	2-6x6	20 & 50	PVC	F & I	
D1-2	2-6x6	5 & 35	PVC	F & I	
D2-1, D2-2	6x6	300	PVC	INPLACE	
D4-1, D4-2, D4-3	6x6	120	PVC	F & I	
D4-4	2-6x6	0 & 15	PVC	F & I	
D4-5, D4-6	2-6x6	5 & 20	PVC	F & I	
D6-1, D6-2	6x6	245	PVC	INPLACE	

-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 4 PHASE, WITH PHASE 1 BEING FLASHING YELLOW ARROWS BY TIME OF DAY.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

- ### NOTES:
- REFER TO "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
  - THE EXACT LOCATION OF HANDHOLES, POLES, LOOP DETECTORS, PED PB STATIONS AND EQUIPMENT PAD SHALL BE VERIFIED 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 MAST ARM SIGNS SEE DETAIL SHEET. ALL SIGNS REQUIRED ARE INCIDENTAL.
  - CROSSWALK PAVEMENT MARKINGS ARE PAID FOR AND ARE INCLUDED WITH THE STRIPING PLAN.
  - CONSTRUCTION OF PEDESTRIAN CURB RAMPS AND CONCRETE WALK ARE INCLUDED IN THE ROADWAY PORTION OF THE PLAN.
  - PUSH BUTTON STATIONS ARE SHOWN IN THEIR GENERAL LOCATION. SEE THE PEDESTRIAN RAMP DETAILS IN THE ROADWAY SECTION OF THE PLAN FOR EXACT LOCATIONS INCLUDING COORDINATES.
  - 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.
  - REMOVAL OF THE INPLACE SIGNAL SYSTEM IS INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL SIGNAL SYSTEM A PAY ITEM.
  - PULLBACK 1-6PR #19 INTERCONNECT CABLE FROM INPLACE CONTROLLER CABINET AND REINSTALL TO NEW CONTROLLER CABINET IN NEW 2" CONDUIT STUB OUT.
  - (ER) INDICATES T.H. 35E EAST RAMP.
  - ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM A PAY ITEM.
  - ITEMS DENOTED WITH AN \*\* ARE INCLUDED IN PAYMENT FOR THE INTERCONNECT SYSTEM PAY ITEM.

BY	DATE	REVISIONS

SYSTEM ID: 20534 T.E. 6397  
 METER ADDRESS: 1785 DIFFLEY RD  
 MASTER ID: T.E.

**INTERSECTION LAYOUT**  
**TRAFFIC CONTROL SIGNAL SYSTEM A**  
**T.H. 35E AT C.S.A.H. 30 (DIFFLEY RD.)**  
**WEST RAMP IN EAGAN, DAKOTA COUNTY**

S.A.P. NO. 019-630-016 DRAWN BY:GDS CKD BY:EJA DATE:10-12-15  
 CERTIFIED BY: *Michael P. Gubinsky* LIC. NO. 19863 DATE: 01-04-16  
 LICENSED PROFESSIONAL ENGINEER  
 STATE PROJ. NO. 1982-172 (T.H. 35E) SHEET NO. SS8 OF SS20 SHEETS

PLOTTED/REVISED: 12/21/2015

- ① PA100 POLE FOUNDATION  
TYPE PA100-A-55-D30-9 (DAVIT AT 350 DEG)  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
2-STRAIGHT MOUNT SIGNALS OVERHEAD AT 11' AND 23'  
1-ANGLE MOUNT SIGNAL AT 180 DEG  
2-ANGLE MOUNT C. D. PED HEADS  
AT 90 AND 180 DEG  
\* 1-ONE WAY EVP DETECTOR AND  
CONFIRMATORY LIGHT (PHASES 1+6)  
LUMINAIRE-LED  
1-R10-X12 SIGN ADJACENT TO HEAD (1-1)  
1-TYPE D SIGN (D-1) (SEE SIGN DETAILS)  
3" CONDUIT TO HH 12:  
2-12/C #14  
2-4/C #14  
\* 1-3/C #14  
1-3/C #14 (LUM)  
\* 1-3/C #20  
1-1/C #6 INS. GR.

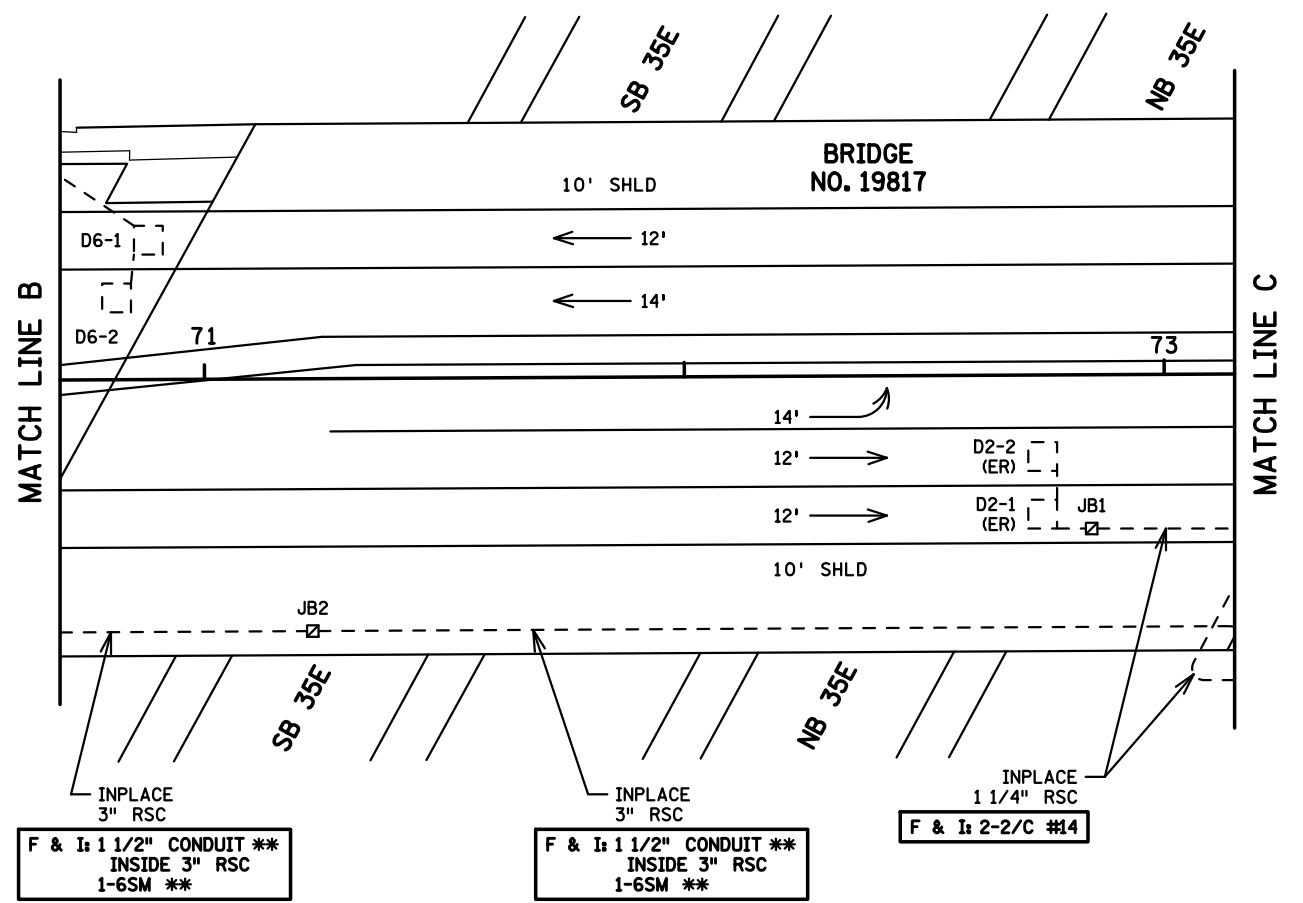
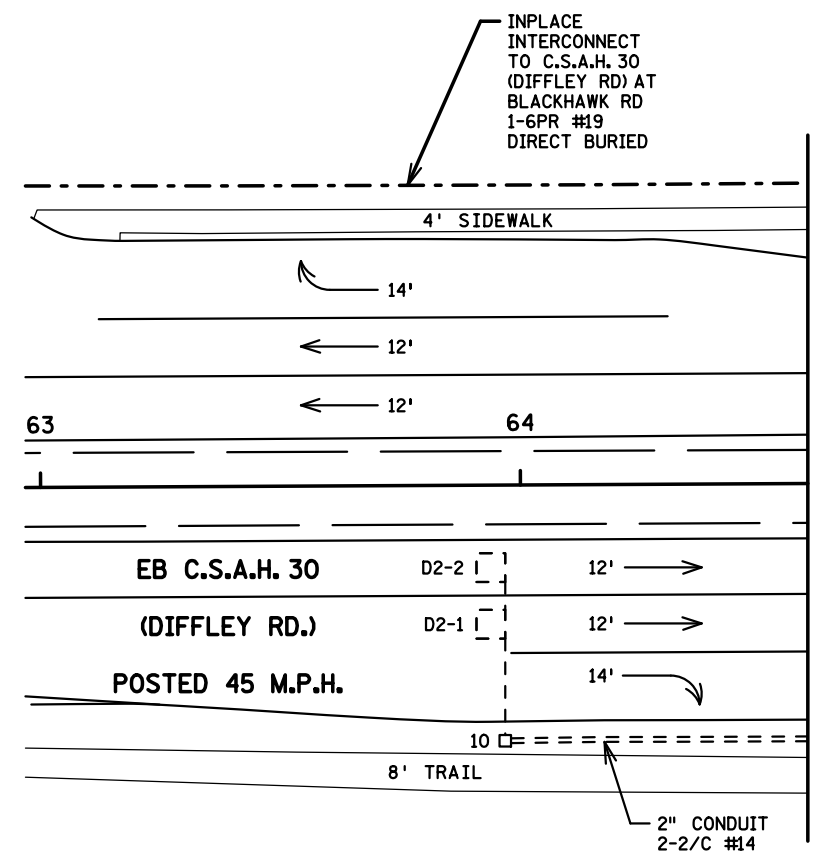
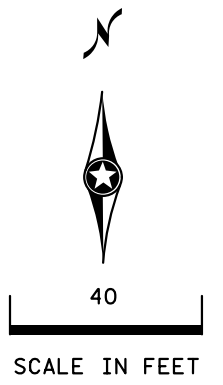
- ② PEDESTAL FOUNDATION  
10' PEDESTAL POLE PLUS BASE  
1-STRAIGHT MOUNT C. D. PED HEAD AT 180 DEG  
1-APS PB AND SIGN (LT ARROW) (PB6-1)  
1-R9-3 SIGN (NO PEDS) FACING POLE 3  
1-R6-1L SIGN (ONE WAY)  
1-R6-1R SIGN (ONE WAY)  
3" CONDUIT TO HH 3:  
1-4/C #14  
1-2/C #14  
1-1/C #6 INS. GR.

- ③ PA100 POLE FOUNDATION  
TYPE PA100-A-45-D40-9 (DAVIT AT 350 DEG)  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
1-ANGLE MOUNT C. D. PED HEAD AT 180 DEG  
\* 1-ONE WAY EVP DETECTOR AND  
CONFIRMATORY LIGHT (PHASE 2)  
LUMINAIRE-LED  
1-R9-3 SIGN (NO PEDS) FACING POLE 2  
1-TYPE D SIGN (D-2) (SEE SIGN DETAILS)  
3" CONDUIT TO HH 8:  
2-12/C #14  
1-4/C #14  
\* 1-3/C #14  
1-3/C #14 (LUM)  
\* 1-3/C #20  
1-1/C #6 INS. GR.

- ④ PA100 POLE FOUNDATION  
TYPE PA100-A-40  
1-ANGLE MOUNT SIGNAL OVERHEAD AT 0'  
1-STRAIGHT MOUNT SIGNAL OVERHEAD AT 11'  
2-ANGLE MOUNT SIGNALS AT 90 AND 180 DEG  
2-ANGLE MOUNT C. D. PED HEADS AT 90 AND 180 DEG  
\* 1-ONE WAY EVP DETECTOR AND  
CONFIRMATORY LIGHT (PHASE 4)  
1-R6-1L SIGN (ONE WAY)  
1-R6-1R SIGN (ONE WAY)  
3" CONDUIT TO HH 9:  
2-12/C #14  
2-4/C #14  
\* 1-3/C #14  
\* 1-3/C #20  
1-1/C #6 INS. GR.

- Ⓐ EQUIPMENT PAD (SEE DETAIL SHEET)  
SERVICE CABINET (SSB)  
CONTROLLER AND CABINET (STATE FURNISHED)  
4" CONDUIT TO HH 12: 4" CONDUIT TO HH 1:  
4-12/C #14 2-12/C #14  
4-4/C #14 2-4/C #14  
\* 2-3/C #14 \* 1-3/C #14  
6-2/C #14 13-2/C #14  
\* 2-3/C #20 \* 1-3/C #20  
1-1/C #6 INS. GR. 1-1/C #6 INS. GR.
- GROUND WIRE AND GROUND ROD - MIN 8' OUT FROM PAD  
1-2" AND 1-3" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)  
3/4" CONDUIT STUBBED OUT (FOR TELEPHONE LINE)  
\*\* 1-1/2" CONDUIT STUB OUT FOR FO PIGTAIL FROM TMS VAULT  
(SEE TMS PLAN)  
\*\* 1-1/2" CONDUIT TO PULL VAULT TO EAST RAMP:  
\*\* 1-6SM FO PIGTAIL WITH FIELD TERMINATED ENDS  
\*\* 2" CONDUIT STUBBED OUT:  
INSTALL 1-6PR #19 (DIRECT BURIED) (FROM BLACKHAWK RD)  
(SEE NOTE 11)  
CONTROLLER CABINET TO SERVICE CABINET:  
2-1/C #6  
1-1/C #6 INS. GR.  
CONTROLLER CABINET TO SERVICE CABINET (COMMS):  
2" CONDUIT (FOR FUTURE USE)  
1-6PR #19  
SERVICE CABINET  
1-2" CONDUIT STUBBED OUT (CAPPED BOTH ENDS)  
SERVICE CABINET TO SOP:  
2" CONDUIT  
3-1/C #2  
SERVICE CABINET TO HH 12:  
2" CONDUIT  
2-3/C #14 (LUM)  
SERVICE CABINET TO EXTERNAL GR. RD.:  
1" CONDUIT  
1-1/C #6 INS. GR.  
(SEE EQUIPMENT PAD LAYOUT)  
HH 12 TO HH 1:  
2" CONDUIT  
1-3/C #14 (LUM)

- Ⓑ SOP-GROUND MOUNTED TRANSFORMER  
(DAKOTA ELECTRIC ASSOCIATION)  
2" CONDUIT INTO SERVICE CABINET:  
3-1/C #2



DISTRICT #: METRO  
IPLOT NAME: match lines & notes A  
PATH & FILENAME: IP\_PWP-d0783820T20534\_sgl.dgn

BY	DATE	REVISIONS

SYSTEM ID: 20534 T.E. 6397  
METER ADDRESS: 1785 DIFFLEY RD  
MASTER ID: T.E.

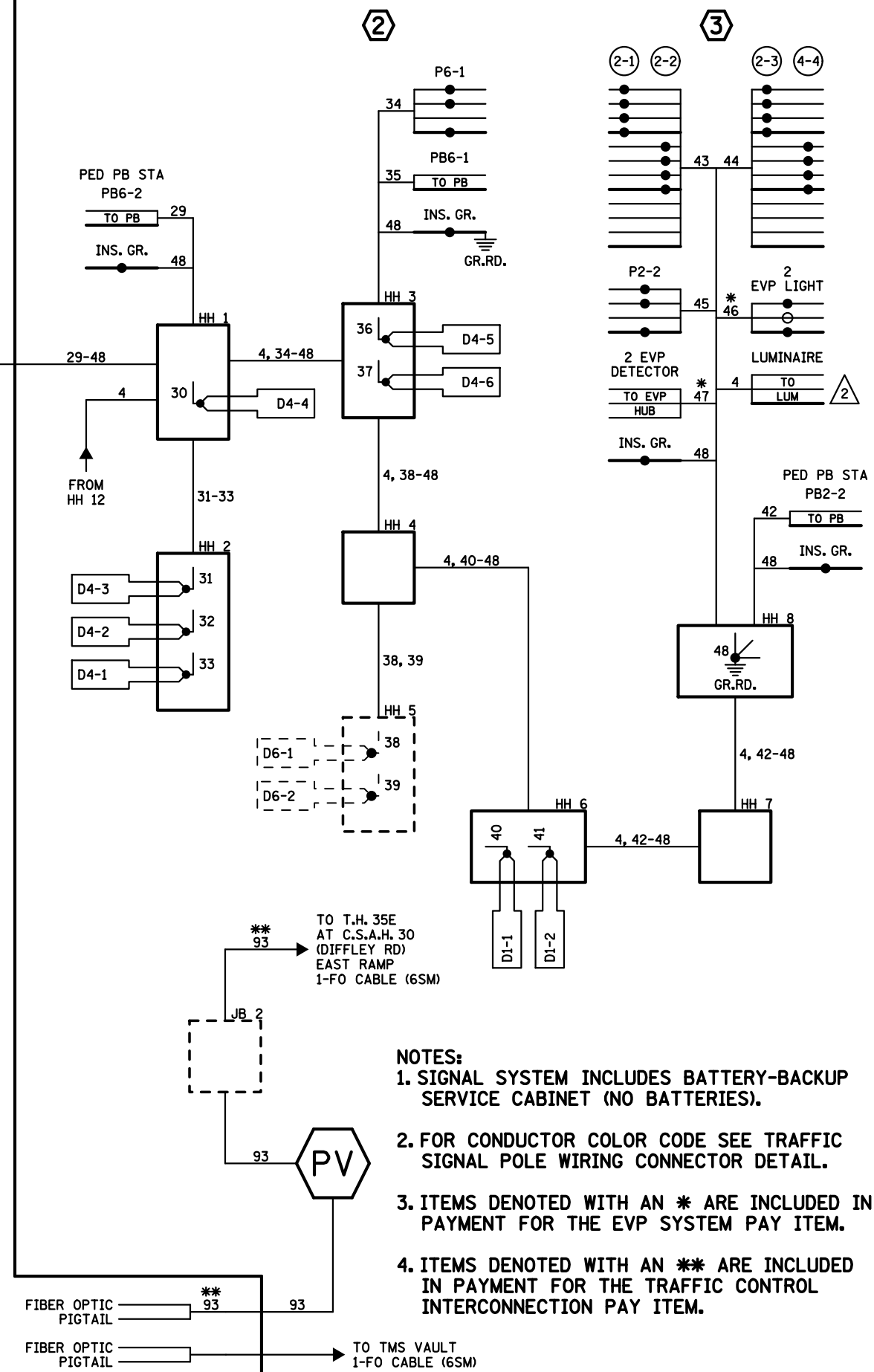
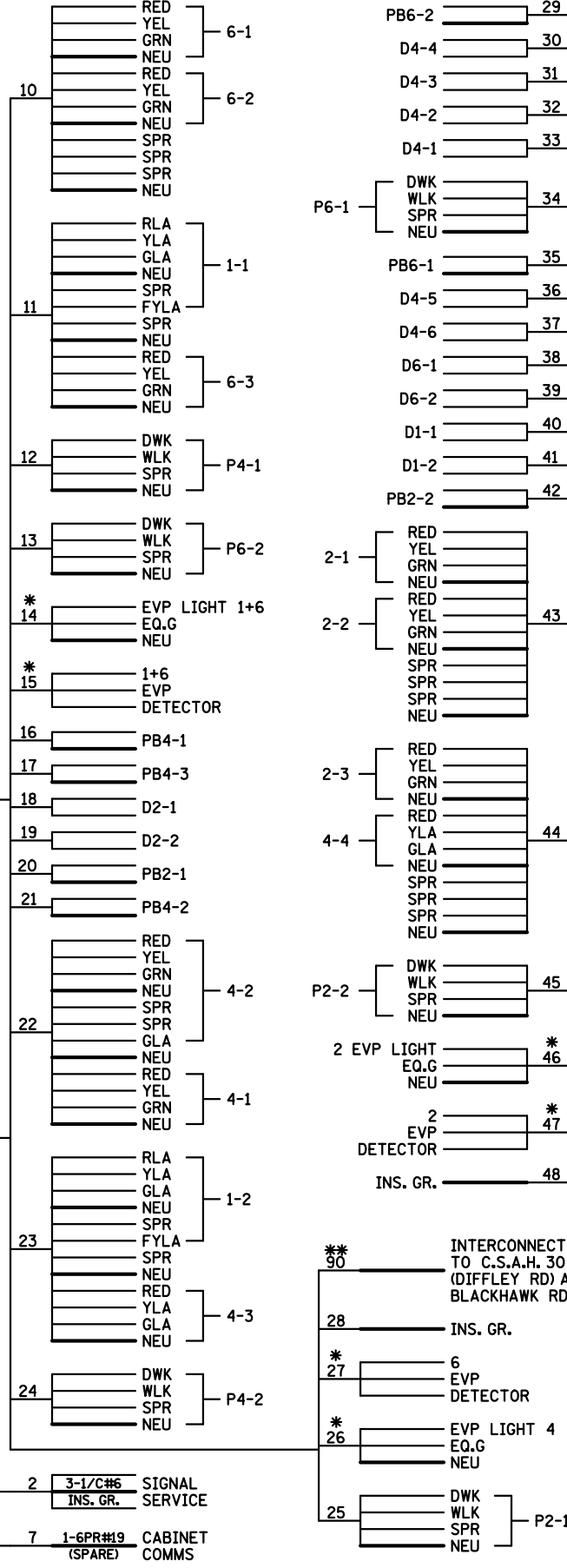
**MATCH LINES AND INTERSECTION NOTES**  
TRAFFIC CONTROL SIGNAL SYSTEM A  
T.H. 35E AT C.S.A.H. 30 (DIFFLEY RD.)  
WEST RAMP IN EAGAN, DAKOTA COUNTY

S.A.P. NO. 019-630-016  
DRAWN BY: GDS CKD BY: EJA DATE: 10-12-15  
CERTIFIED BY: *Michael P. Gubinsky* LIC. NO. 19863 DATE: 10-13-15  
STATE PROJ. NO. 1982-172 (T.H. 35E) SHEET NO. SS9 OF SS20 SHEETS

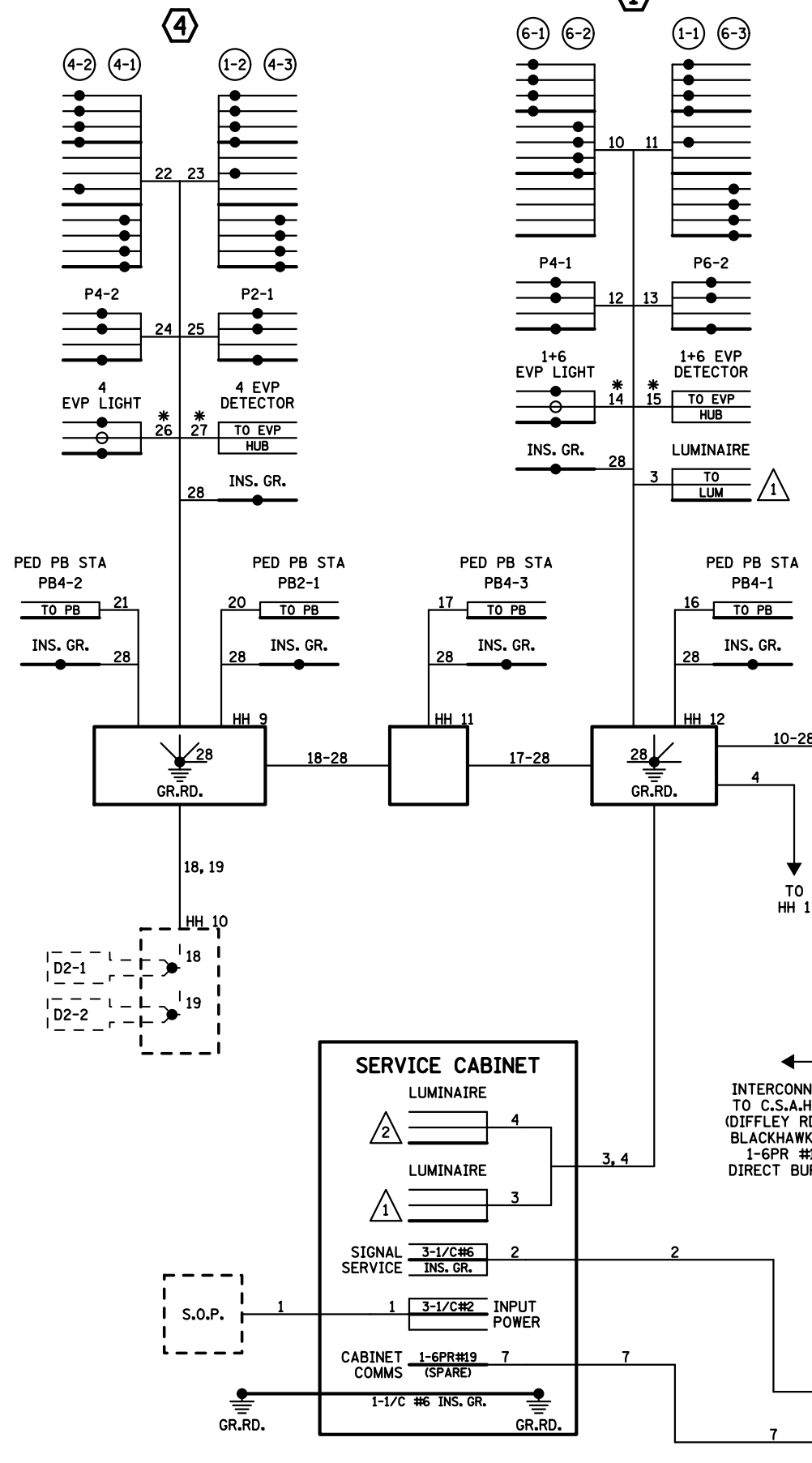
PLOTTED/REVISED: 12/21/2015

DISTRICT #: METRO  
IPLOT NAME: wiring A  
PATH & FILENAME: IP\_PWP-d0783820T20534\_sgl.dgn

### 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.
  3. ITEMS DENOTED WITH AN \* ARE INCLUDED IN PAYMENT FOR THE EVP SYSTEM PAY ITEM.
  4. ITEMS DENOTED WITH AN \*\* ARE INCLUDED IN PAYMENT FOR THE TRAFFIC CONTROL INTERCONNECTION PAY ITEM.



BY	DATE	REVISIONS	SYSTEM ID: 20534	T.E. 6397	S.A.P. NO. 019-630-016	DRAWN BY:GDS	CKD BY:EJA	DATE:10-12-15
			METER ADDRESS: 1785 DIFFLEY RD		CERTIFIED BY: <i>Michael P. Dubinsky</i>	LIC. NO. 19863	DATE: 10-13-15	
			MASTER ID:	T.E.	STATE PROJ. NO. 1982-172 (T.H.35E) SHEET NO. SS10 OF SS20 SHEETS			

**FIELD WIRING DIAGRAM**  
**TRAFFIC CONTROL SIGNAL SYSTEM A**  
**T.H. 35E AT C.S.A.H. 30 (DIFFLEY RD.)**  
**WEST RAMP IN EAGAN, DAKOTA COUNTY**

LOOP DETECTORS			
NUMBER	SIZE	TYPE	LOCATION
D1-1	4-6X6	PVC	5'
D2-1	2-6' X 6'	PVC	300'
D4-1	6' X 6'	SAWED	240'
D4-2	6' X 6'	SAWED	120'
D4-3	6' X 20'	SAWED	5'
D6-1	2-6' X 6'	SAWED	300'

LOCATION = DISTANCE FROM STOP LINE TO DETECTOR

**LOOP DETECTOR FUNCTIONS**

- 1 CALL AND EXTEND
- 2 EXTEND ONLY

② TYPE A100-45-D40-9 (DAVIT AT 350 DEG)  
 A100 POLE FOUNDATION  
 2-ONE WAY SIGNALS OVERHEAD  
 TYPE 10C POLE MOUNTED AT 270 DEG  
 ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT PHASE 6&1  
 LUMINAIRE 200 WATT HPS WITH PEC AND CHECK SWITCH  
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
 EXTEND INTO HH 4:  
 3" IMC  
 1-12/C#12  
 6-3/C#12  
 1-3/C#20  
 2-1/C#10

③ EQUIPMENT PAD  
 TRANSFORMER AND SERVICE EQUIPMENT  
 EXTEND INTO H.H.17:  
 2" I.M.C.  
 3-1/C#6  
 1-1/C#6 BR.GR.  
 EXTEND INTO H.H.5:  
 2" I.M.C.  
 2-1/C#4  
 1-1/C#6 BR.GR.  
 4-1/C#10

PEDESTRIAN PUSH BUTTON STATION  
 1-PEDESTRIAN PUSH BUTTON AND SIGN  
 EXTEND INTO H.H. 6:  
 1 1/4" R.S.C.  
 1-3/C #12

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

LIGHTING PAD  
 SERVICE PANEL TYPE T1  
 TRANSFORMER  
 EXTEND FROM TRANSFORMER TO H.H.17:  
 2" I.M.C.  
 3-1/C#6  
 1-1/C#6 BR.GR.

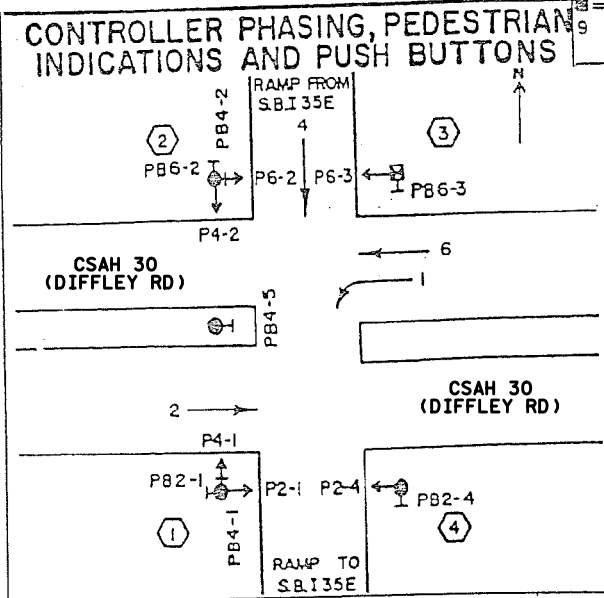
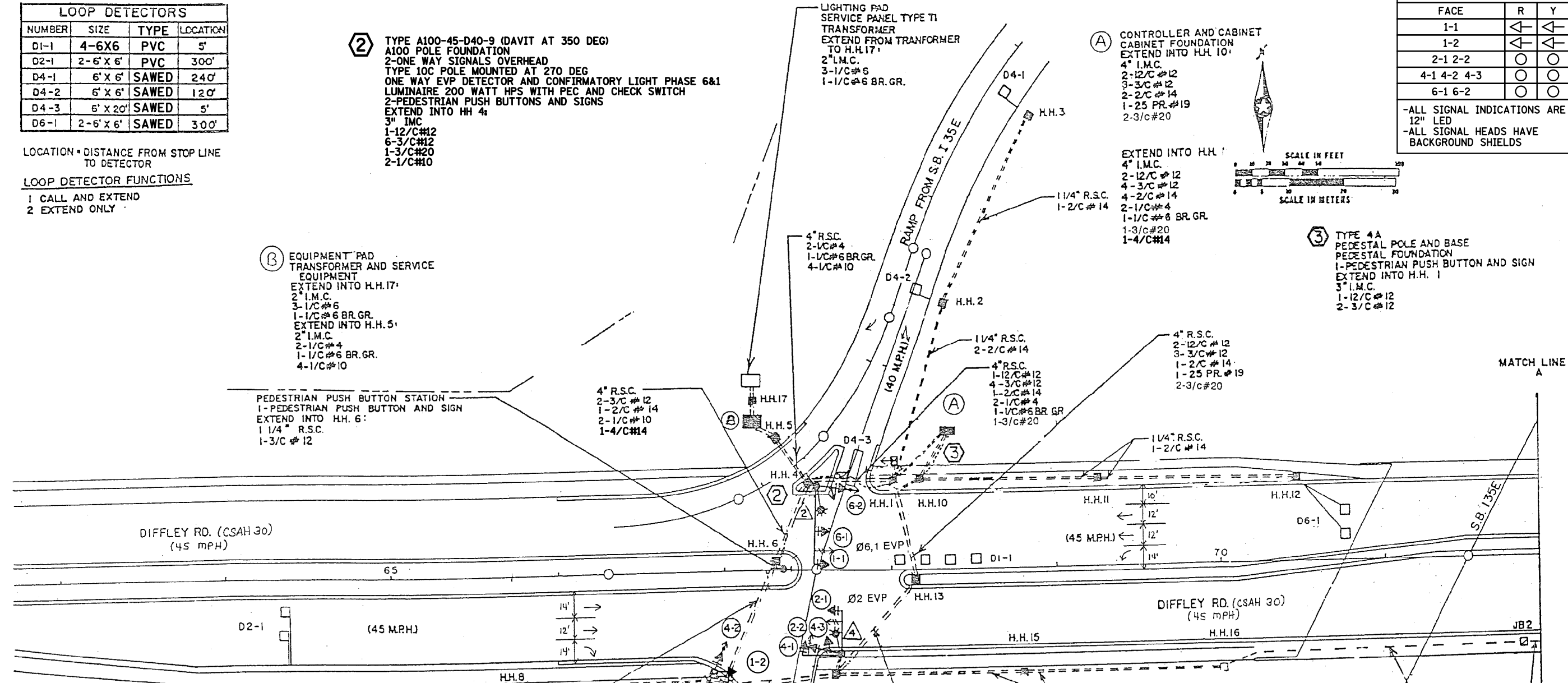
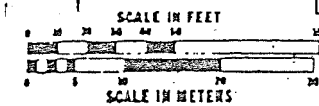
① CONTROLLER AND CABINET  
 CABINET FOUNDATION  
 EXTEND INTO H.H. 10:  
 4" I.M.C.  
 2-12/C #12  
 3-3/C #12  
 2-2/C #14  
 1-25 PR.#19  
 2-3/C#20

EXTEND INTO H.H. 1:  
 4" I.M.C.  
 2-12/C #12  
 4-3/C #12  
 4-2/C #14  
 2-1/C#4  
 1-1/C#6 BR.GR.  
 1-3/c#20  
 1-4/C#14

③ TYPE 4A  
 PEDESTAL POLE AND BASE  
 PEDESTAL FOUNDATION  
 1-PEDESTRIAN PUSH BUTTON AND SIGN  
 EXTEND INTO H.H. 1  
 3" I.M.C.  
 1-12/C #12  
 2-3/C #12

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

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



**SIGNAL SYSTEM OPERATION**

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 4 PHASE, WITH PHASE 1 BEING A PROTECTED LEFT TURN
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

① TYPE 2C  
 PEDESTAL AND POLE BASE  
 PEDESTAL FOUNDATION  
 2-PEDESTRIAN PUSH BUTTONS AND SIGNS  
 EXTEND INTO HH 7:  
 3" IMC  
 1-12/C#12  
 3-3/C#12  
 1-25 PR.#19  
 2-3/C#20

④ TYPE A100-20-25-D40-9 (DAVIT AT 350 DEG)  
 A100 POLE FOUNDATION  
 2-ONE WAY SIGNALS OVERHEAD  
 TYPE 20B POLE MOUNTED AT 270 DEG  
 ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT PHASE 2  
 ONE WAY EVP DETECTOR AND CONFIRMATORY LIGHT PHASE 4  
 LUMINAIRE 200 WATT HPS WITH PEC AND CHECK SWITCH  
 1-PEDESTRIAN PUSH BUTTON AND SIGN  
 EXTEND INTO HH 14:  
 3" IMC  
 3-12/C#12  
 5-3/C#12  
 2-3/C#20  
 2-1/C#10

PLOTTED/REVISED: 3/11/2013

DISTRICT #: METRO  
 IPLOT NAME: LAYOUT  
 PATH & FILENAME: IP\_PWP-d0783820\20534\LR\_sgl.dgn

BY: EJA	DATE: 03-11-13	REVISIONS: AS-BUILT OF TE 5711	SYSTEM ID: 20534	T.E. 5711	INTERSECTION LAYOUT I-35E AT CSAH 30 (DIFFLEY ROAD) WEST RAMP IN EAGAN, DAKOTA COUNTY	S.A.P. NO.	DRAWN BY: SJK	CKD BY: EJA	DATE:
			METER ADDRESS: 1785 DIFFLEY RD	MASTER ID:		CERTIFIED BY: _____	LIC. NO. _____	DATE: _____	STATE PROJ. NO. (T.H.35E) SHEET NO. 1 OF 2 SHEETS





CSAH 30 & Blackhawk Rd

CSAH 30 & I-35E West Ramps  
T.E. No.: 2645  
T.E. No. (master): 2646

CONTROLLER & CABINET  
(Inplace)

DIRECT BURIED (Inp.)  
1 - 6pr. #19

3" R.S.C. (Inp.)  
1 - 6pr. #19

DIRECT BURIED (Inp.)  
1 - 6pr. #19

4" R.S.C. (Inplace)  
ADD 1 - 6pr. #19

CONTROLLER & CABINET (Inplace-  
Remove and Salvage)  
CONTROLLER, MASTER CONTROLLER,  
& CABINET (Install state furnished  
materials)

4" I.M.C. (Inplace)  
ADD 1 - 6pr. #19

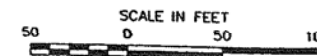
CSAH 30 Diffley Rd

Blackhawk Rd.

Ramp to S.B. I-35E

Ramp from S.B. I-35E

NOTE: See Inplace Signal System  
Sheet for Details



DATE  
02-03-90  
06-29-01

SIGNAL SYSTEM  
CSAH 30 & Blackhawk Rd  
Interconnect Detail

Certified by *Krist M. Sebastian*  
LICENSED ENGINEER

Lic. No. 41091

Date: 06-29-01

Dakota County Highway Department

Project Number: 30-11 S.A.P. 19-630-07 M.S.A.P. 195-109-06

Sheet 23 of 30 Sheets