

**LOOP DETECTOR REPLACEMENT NOTES:**

- ALL ITEMS OF SIGNAL SYSTEM ARE INPLACE AND SHALL BE REUSED AND MAINTAINED INPLACE, UNLESS OTHERWISE NOTED ON PLANS.
- CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING HANDHOLES IN THE VICINITY OF CONSTRUCTION, AND SHALL ADJUST HANDHOLES 3, 4, 5, 6, 7, 8 AND 9 AS NECESSARY TO MATCH FINISHED SURROUNDING GRADE AFTER ALL ROAD CONSTRUCTION HAS BEEN COMPLETED (INCIDENTAL).
- LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLP) IN 3/4" NMC. NEW LOOP DETECTORS D2-1, D5-1, D5-2, AND D6-1 SHALL BE FURNISHED, INSTALLED AND MADE OPERATIONAL BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AND THE ANOKA COUNTY HIGHWAY DEPARTMENT. SEE DETAILS AND SPECIAL PROVISIONS.
- ANY DAMAGE TO INPLACE TRAFFIC SIGNAL FACILITIES (CONDUIT, CABLES, HANDHOLES, SIGNAL POLES, ETC.) SHALL BE REPAIRED BY CONTRACTOR TO THE SATISFACTION OF THE ENGINEER, AT NO EXPENSE TO THE CITY.
- CONTRACTOR SHALL MAINTAIN OPERATION OF THE SIGNAL SYSTEM AT ALL TIMES, EXCEPT AS OTHERWISE APPROVED BY THE ENGINEER AND THE COUNTY.
- SEE STATEMENT OF ESTIMATED QUANTITIES FOR BID ITEMS FOR WORK AT THIS SIGNAL SYSTEM.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL EXISTING LOOP DETECTOR SPLICE KITS (FOR LOOP DETECTORS D2-1, D5-1, D5-2, AND D6-1), AND SHALL FURNISH AND INSTALL NEW LOOP DETECTOR SPLICE KITS IN THE ADJACENT HANDHOLE AS CALLED FOR IN THE SPECIAL PROVISIONS.
- NEW LOOP DETECTORS TO BE FURNISHED AND INSTALLED BY CONTRACTOR ARE BOXED IN AND DENOTED BY F & I (FURNISH AND INSTALL).

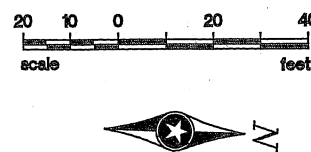
N.M.C. LOOP DETECTORS				
NUMBER	SIZE (FT.)	LOCATION	FUNCTION	STATUS
D2-1	6x6	300'	1	F & I
D4-1	6x12	120'	3,8	INPLACE
D4-2	2-6x6	0' & 15'	7	INPLACE
D4-3	2-6x6	0' & 15'	7	INPLACE
D5-1	2-6x6	20' & 50'	1	F & I
D5-2	2-6x6	5' & 35'	1	F & I
D6-1	6x6	300'	1	F & I

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

**LOOP DETECTORS FUNCTIONS:**

- CALL AND EXTEND
- EXTEND ONLY
- DELAYED CALL, IMMEDIATE EXTEND
- CARRY OVER (STRETCH)

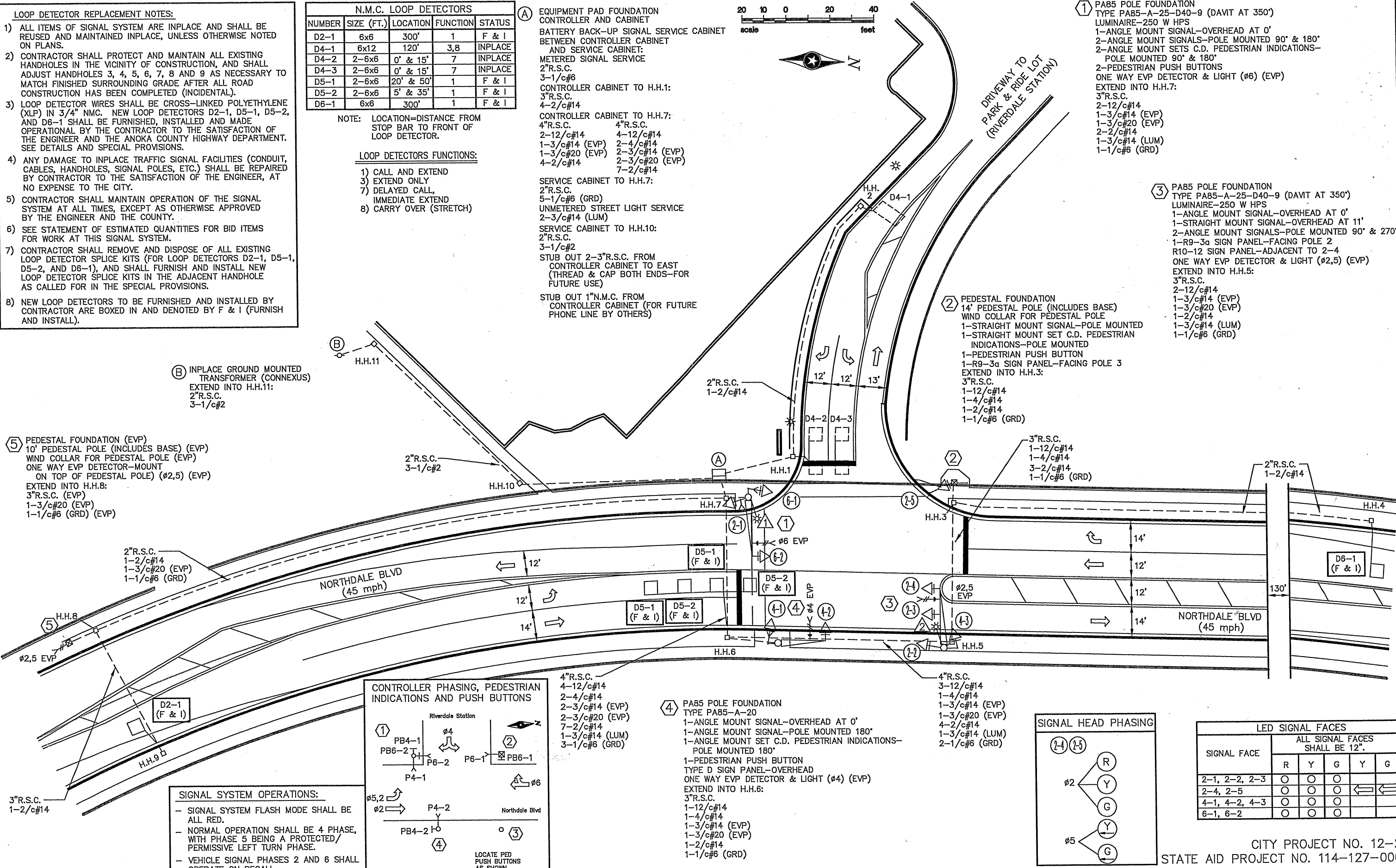
**(A) EQUIPMENT PAD FOUNDATION**  
 CONTROLLER AND CABINET  
 BATTERY BACK-UP SIGNAL SERVICE CABINET  
 BETWEEN CONTROLLER CABINET AND SERVICE CABINET:  
 METERED SIGNAL SERVICE  
 2"R.S.C.  
 3-1/c#6  
 CONTROLLER CABINET TO H.H.1:  
 3"R.S.C.  
 4-2/c#14  
 CONTROLLER CABINET TO H.H.7:  
 4"R.S.C.  
 2-12/c#14 4-12/c#14  
 1-3/c#14 (EVP) 2-4/c#14  
 1-3/c#20 (EVP) 2-3/c#14 (EVP)  
 4-2/c#14 2-3/c#20 (EVP)  
 7-2/c#14  
 SERVICE CABINET TO H.H.7:  
 2"R.S.C.  
 5-1/c#6 (GRD)  
 UNMETERED STREET LIGHT SERVICE  
 2-3/c#14 (LUM)  
 SERVICE CABINET TO H.H.10:  
 2"R.S.C.  
 3-1/c#2  
 STUB OUT 2-3"R.S.C. FROM CONTROLLER CABINET TO EAST (THREAD & CAP BOTH ENDS-FOR FUTURE USE)  
 STUB OUT 1"N.M.C. FROM CONTROLLER CABINET (FOR FUTURE PHONE LINE BY OTHERS)



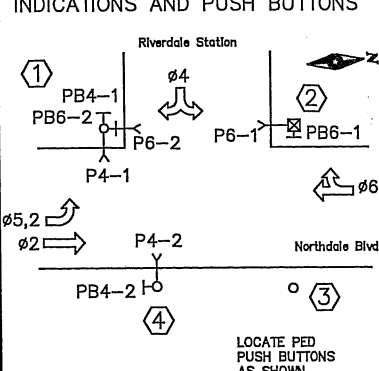
- (1) PA85 POLE FOUNDATION**  
 TYPE PA85-A-25-D40-9 (DAVIT AT 350')  
 LUMINAIRE-250 W HPS  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 180'  
 2-ANGLE MOUNT SETS C.D. PEDESTRIAN INDICATIONS-POLE MOUNTED 90° & 180'  
 2-PEDESTRIAN PUSH BUTTONS  
 ONE WAY EVP DETECTOR & LIGHT (#6) (EVP)  
 EXTEND INTO H.H.7:  
 3"R.S.C.  
 2-12/c#14  
 1-3/c#14 (EVP)  
 1-3/c#20 (EVP)  
 2-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (GRD)
- (2) PEDESTAL FOUNDATION**  
 14' PEDESTAL POLE (INCLUDES BASE)  
 WIND COLLAR FOR PEDESTAL POLE  
 1-STRAIGHT MOUNT SIGNAL-POLE MOUNTED  
 1-STRAIGHT MOUNT SET C.D. PEDESTRIAN INDICATIONS-POLE MOUNTED  
 1-PEDESTRIAN PUSH BUTTON  
 1-R9-3a SIGN PANEL-FACING POLE 3  
 EXTEND INTO H.H.3:  
 3"R.S.C.  
 1-12/c#14  
 1-4/c#14  
 1-2/c#14  
 1-1/c#6 (GRD)
- (3) PA85 POLE FOUNDATION**  
 TYPE PA85-A-25-D40-9 (DAVIT AT 350')  
 LUMINAIRE-250 W HPS  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 1-STRAIGHT MOUNT SIGNAL-OVERHEAD AT 11'  
 2-ANGLE MOUNT SIGNALS-POLE MOUNTED 90° & 270'  
 1-R9-3a SIGN PANEL-FACING POLE 2  
 R10-12 SIGN PANEL-ADJACENT TO 2-4  
 ONE WAY EVP DETECTOR & LIGHT (#2,5) (EVP)  
 EXTEND INTO H.H.5:  
 3"R.S.C.  
 2-12/c#14  
 1-3/c#14 (EVP)  
 1-3/c#20 (EVP)  
 1-2/c#14  
 1-3/c#14 (LUM)  
 1-1/c#6 (GRD)

- (5) PEDESTAL FOUNDATION (EVP)**  
 10' PEDESTAL POLE (INCLUDES BASE) (EVP)  
 WIND COLLAR FOR PEDESTAL POLE (EVP)  
 ONE WAY EVP DETECTOR-MOUNT ON TOP OF PEDESTAL POLE (#2,5) (EVP)  
 EXTEND INTO H.H.8:  
 3"R.S.C. (EVP)  
 1-3/c#20 (EVP)  
 1-1/c#6 (GRD) (EVP)

- (B) INPLACE GROUND MOUNTED TRANSFORMER (CONNEXUS)**  
 EXTEND INTO H.H.11:  
 2"R.S.C.  
 3-1/c#2



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

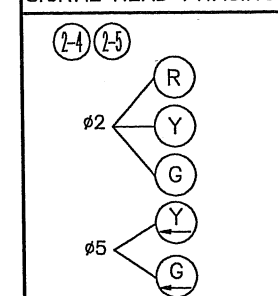


**SIGNAL SYSTEM OPERATIONS:**

- SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED.
- NORMAL OPERATION SHALL BE 4 PHASE, WITH PHASE 5 BEING A PROTECTED/PERMISSIVE LEFT TURN PHASE.
- VEHICLE SIGNAL PHASES 2 AND 6 SHALL OPERATE ON RECALL.

- (4) PA85 POLE FOUNDATION**  
 TYPE PA85-A-20  
 1-ANGLE MOUNT SIGNAL-OVERHEAD AT 0'  
 1-ANGLE MOUNT SIGNAL-POLE MOUNTED 180'  
 1-ANGLE MOUNT SET C.D. PEDESTRIAN INDICATIONS-POLE MOUNTED 180'  
 1-PEDESTRIAN PUSH BUTTON  
 TYPE D SIGN PANEL-OVERHEAD  
 ONE WAY EVP DETECTOR & LIGHT (#4) (EVP)  
 EXTEND INTO H.H.6:  
 3"R.S.C.  
 1-12/c#14  
 1-4/c#14  
 1-3/c#14 (EVP)  
 1-3/c#20 (EVP)  
 1-2/c#14  
 1-1/c#6 (GRD)

**SIGNAL HEAD PHASING**



**LED SIGNAL FACES**

SIGNAL FACE	ALL SIGNAL FACES SHALL BE 12"				
	R	Y	G	Y	G
2-1, 2-2, 2-3	○	○	○	○	○
2-4, 2-5	○	○	○	←	←
4-1, 4-2, 4-3	○	○	○	○	○
6-1, 6-2	○	○	○	○	○

DESIGNED BY: JMG	1	JMG	10/12
CHECKED BY: JMG			
DATE	NO.	BY	DATE

REVISIONS			
NO.	BY	DATE	DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN 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: John M. Gray, PE  
 L.I.C. No. 22457  
 Date: February 15, 2012

**SEH**  
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**COON RAPIDS, MINNESOTA**

**LOOP DETECTOR REPLACEMENT INTERSECTION LAYOUT**  
 NORTHDALE BLVD AT RIVERDALE STATION

FILE NO. COONR 118929  
 SIGNAL SHEET 9 OF 15

CITY PROJECT NO. 12-2  
 STATE AID PROJECT NO. 114-127-006

