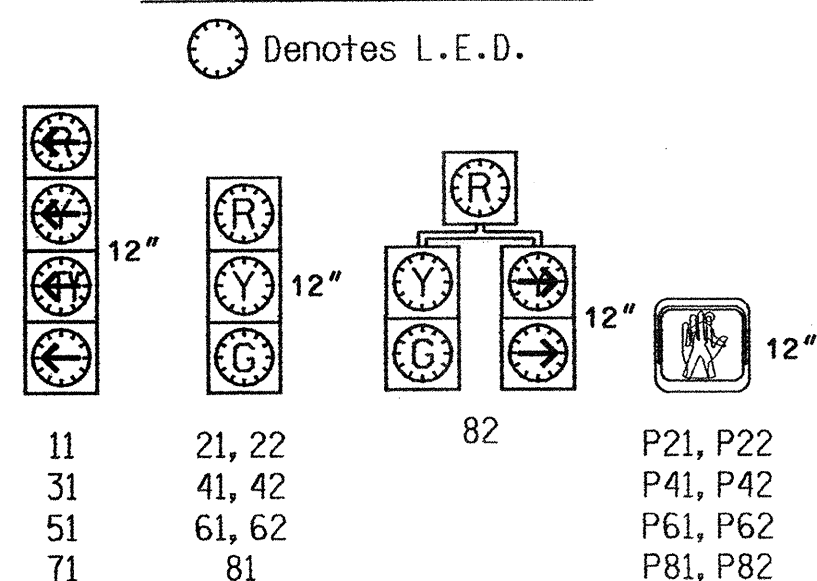


SIGNAL FACE I.D.



INDUCTIVE LOOPS				DETECTOR PROGRAMMING								
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CAB
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	*15	-	Y
1B	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
2A, 2B	6X6	70	3	Y	2	Y	Y	-	-	-	-	Y
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	*15	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	*15	-	Y
6A, 6B	6X6	70	4	Y	6	Y	Y	-	-	-	-	Y
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	*15	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	-	Y

8 Phase Fully Actuated With Railroad Preemption (Fayetteville City Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
- This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
- Phase 1 or phase 5 may be lagged.
- Phase 3 or phase 7 may be lagged.
- Relocate existing signs from existing mastarms.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- The Fayetteville City Traffic Engineer will determine the hours of use for each phasing plan.

- * Disable Delay During Alternate 1 or 2 Phasing Operation.
- ** Disable Delay During Alternate 2 Phasing Operation.
- # Disable Phase 2 or 6 Call For Loops 1A and 5A During Alternate 1 or 2 Phasing Operation.
- ## Disable Phase 4 or 8 Call For Loops 3A and 7A During Alternate 2 Phasing Operation.

2070 RAIL PREEMPTION

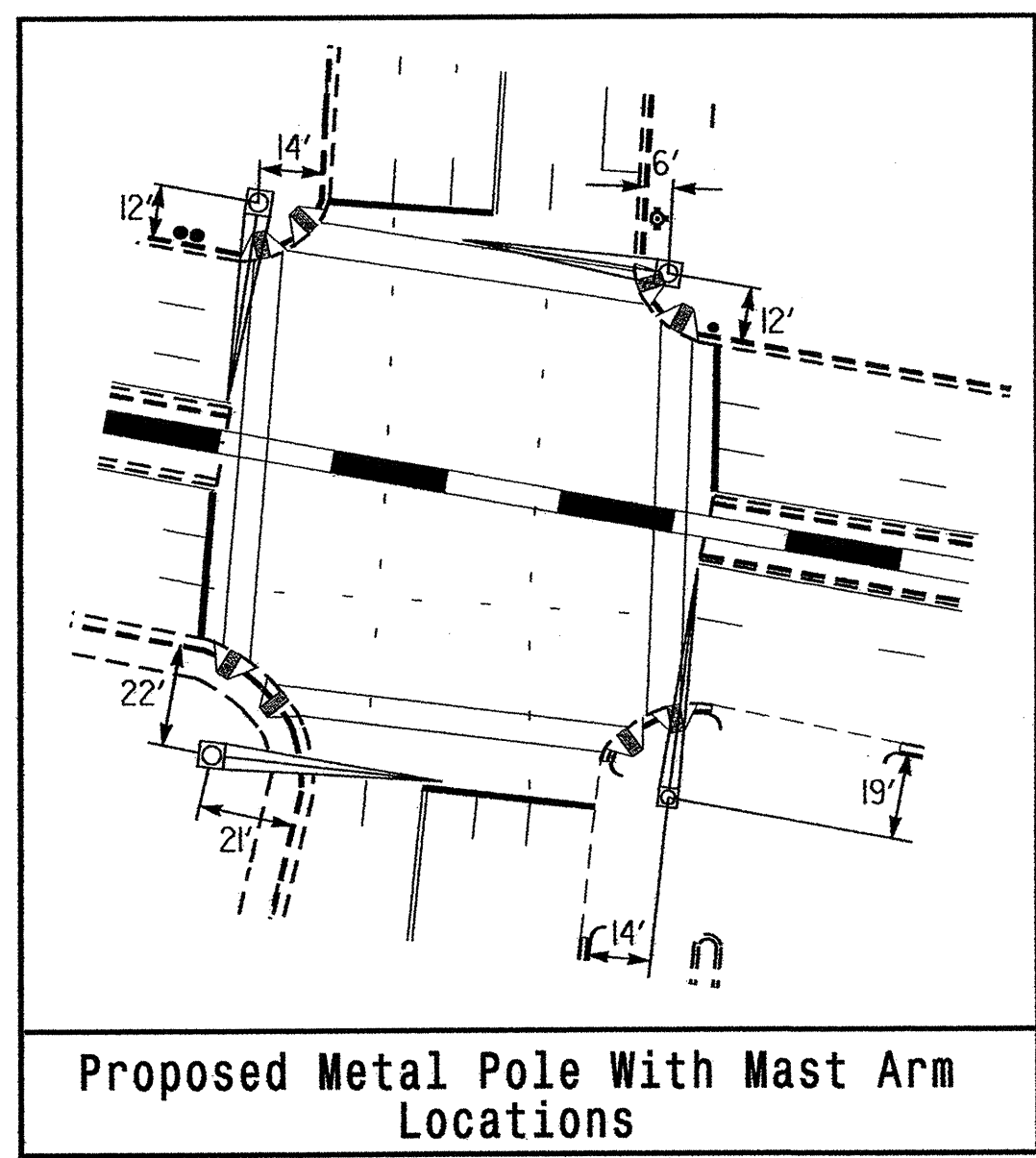
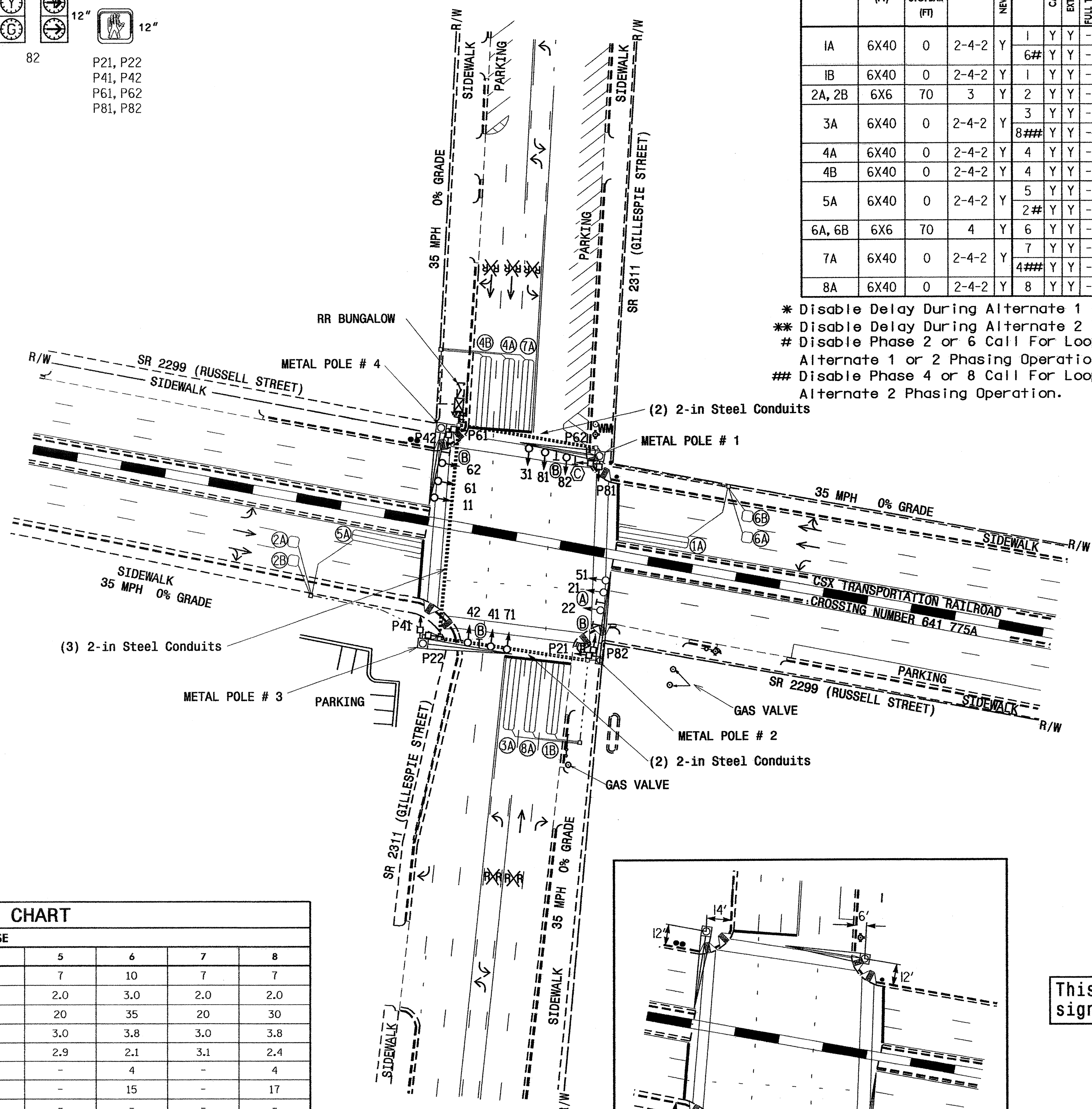
Interval 1 - Track Clearance Green	0.0
Interval 1 - Track Clearance Yellow	0.0
Interval 1 - Track Clearance Red	0.0
Interval 2 - Dwell Green	255
Interval 2 - Dwell Yellow	3.8
Interval 2 - Dwell Red	2.1
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Delay Time	0
Min Green Before Pre	1
Ped Clear Before Pre	10
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	10
Ped Clear Through Yellow	Y

* Time defaults to time used for phase during normal operation.

2070L TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1*	7	10	7	7	7	10	7	7
Extension 1*	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max Green 1*	20	35	20	30	20	35	20	30
Yellow Clearance	3.0	3.8	3.0	3.8	3.0	3.8	3.0	3.8
Red Clearance	2.8	2.1	3.2	2.4	2.9	2.1	3.1	2.4
Walk 1*	-	4	-	4	-	4	-	4
Don't Walk 1	-	15	-	18	-	15	-	17
Seconds Per Actuation*	-	-	-	-	-	-	-	-
Max Variable Initial*	-	-	-	-	-	-	-	-
Time Before Reduction*	-	-	-	-	-	-	-	-
Time To Reduce*	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.



This plan supersedes the plan signed and sealed on 1/12/07.

LEGEND

- | PROPOSED | EXISTING |
|----------|--|
| | Traffic Signal Head |
| | Modified Signal Head |
| | Sign |
| | Pedestrian Signal Head With Push Button & Sign |
| | Signal Pole with Guy |
| | Metal Pole with Mastarm |
| | Inductive Loop Detector |
| | Controller & Cabinet |
| | Junction Box |
| | 2-in Underground Conduit |
| | 2-in Steel Conduit |
| | Right of Way |
| | Directional Arrow |
| | Railroad Tracks |
| | Railroad Signal Mast & Flasher |
| | "LANES SHIFT" Arrows Sign |
| | Street Sign |
| | Right Arrow "ONLY" Sign (R3-5R) |

Signal Upgrade

Sheet 1 of 2

SR 2299 (Russell Street) at SR 2311 (Gillespie Street)

Division 6 Cumberland County Fayetteville

PLAN DATE: June 2008 REVIEWED BY: Sterling

PREPARED BY: Sterling REVIEWED BY:

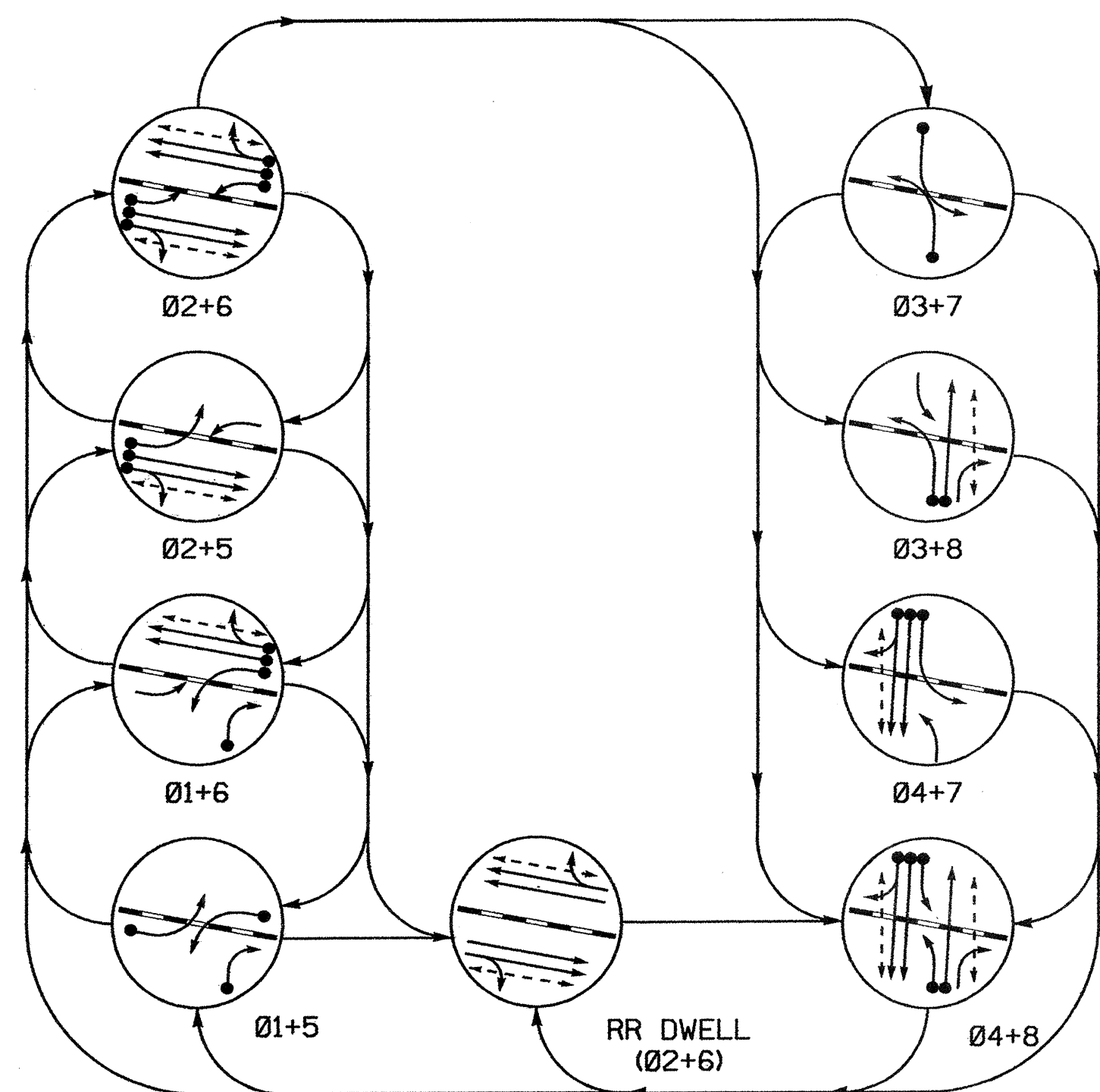
SCALE: 1"=40'

DATE: 6/19/08

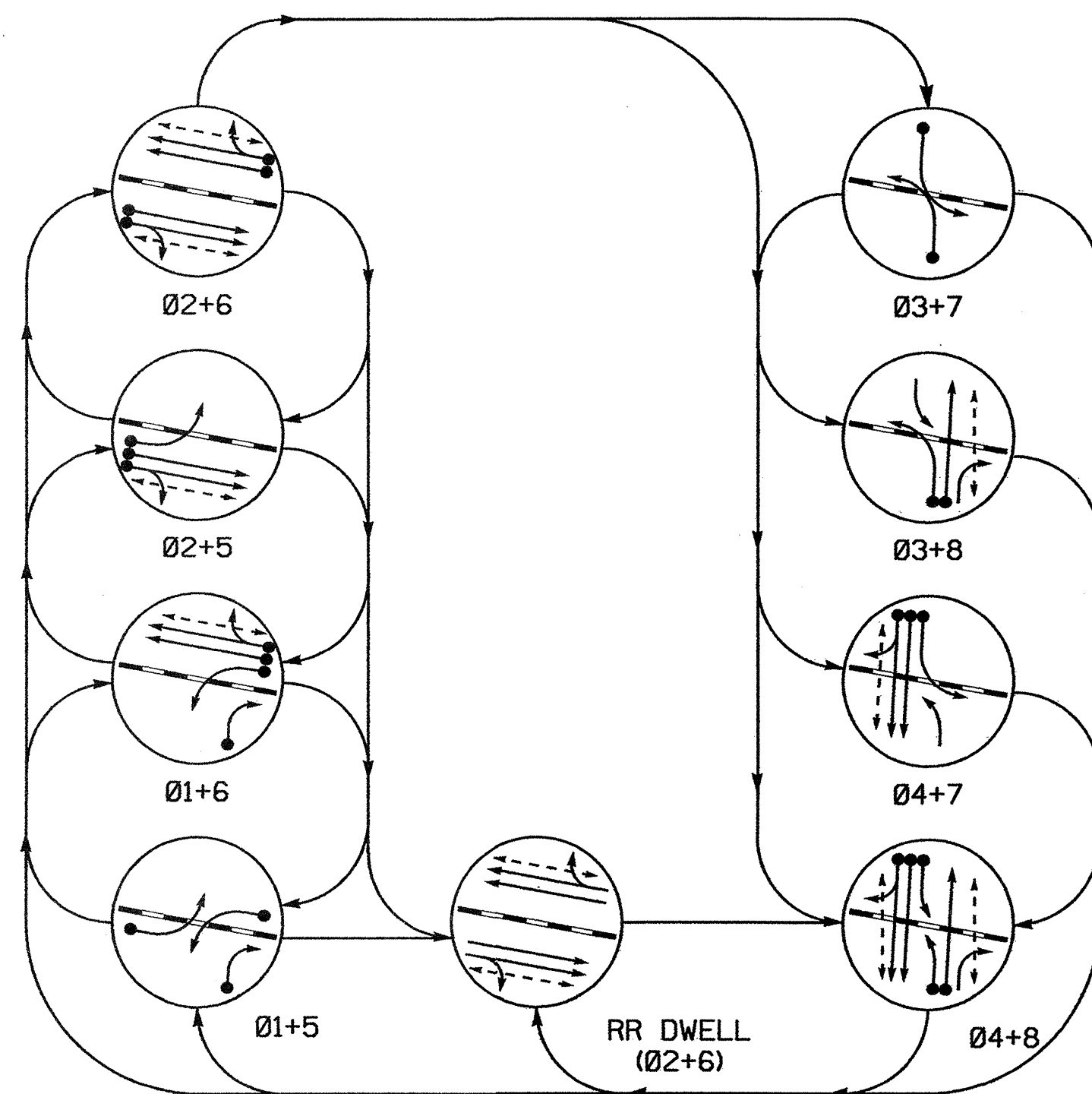
SIG. INVENTORY NO. 06-0014

30-JUN-2008 12:15 Signal Upgrade and State Seal... requests@nc-tls.com

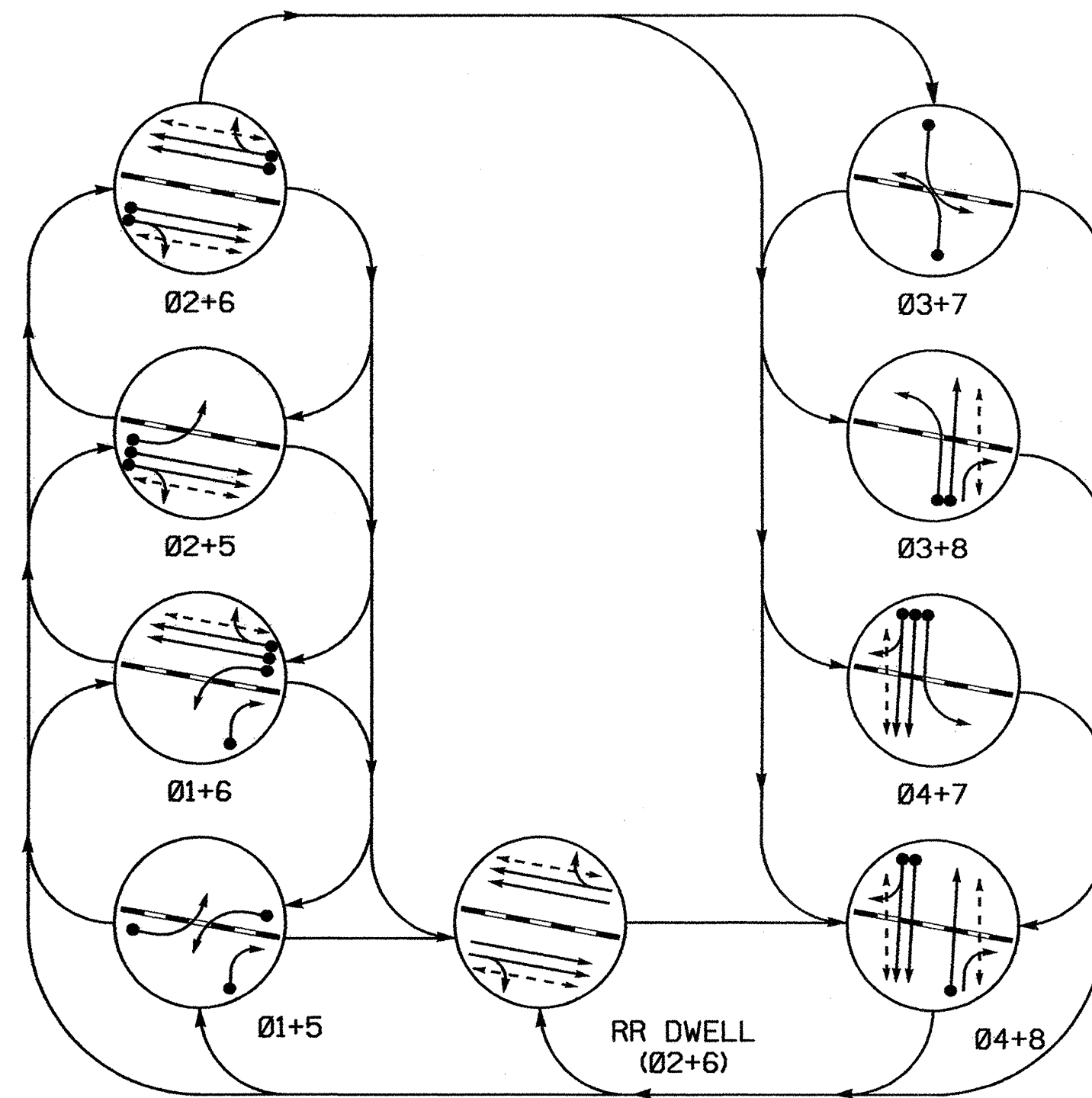
NORMAL PHASING DIAGRAM
(PROTECTED/PERMISSIVE MAIN)
(PROTECTED/PERMISSIVE SIDE)



ALTERNATE 1 PHASING DIAGRAM
(PROTECTED MAIN)
(PROTECTED/PERMISSIVE SIDE)



ALTERNATE 2 PHASING DIAGRAM
(PROTECTED MAIN)
(PROTECTED SIDE)



- NOTES**
1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
 2. This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
 3. Phase 1 or phase 5 may be lagged.
 4. Phase 3 or phase 7 may be lagged.
 5. Relocate existing signs from existing mastarms.
 6. Set all detector units to presence mode.
 7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
 8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
 9. Pavement markings are existing.
 10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
 11. The Fayetteville City Traffic Engineer will determine the hours of use for each phasing plan.

PHASING DIAGRAM DETECTION LEGEND

- ←● DETECTED MOVEMENT
- ← UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

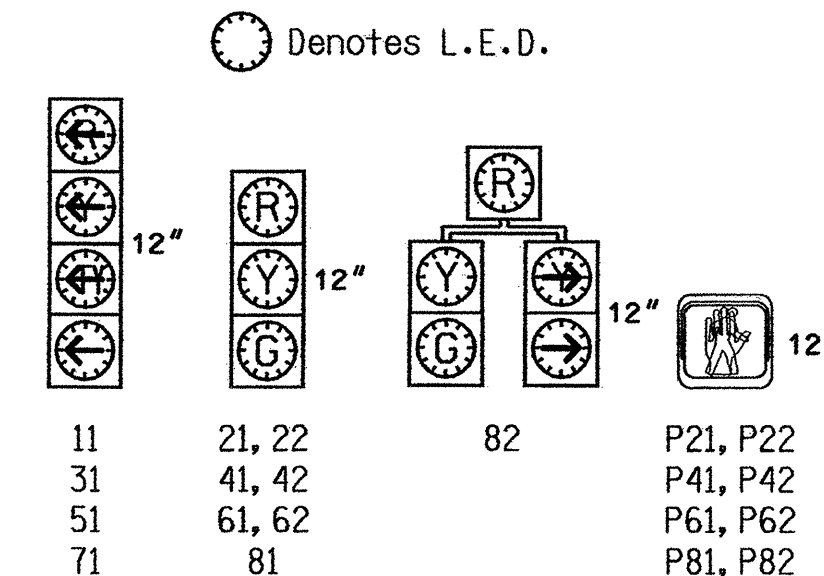
PHASING DIAGRAM DETECTION LEGEND

- ←● DETECTED MOVEMENT
- ← UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

PHASING DIAGRAM DETECTION LEGEND

- ←● DETECTED MOVEMENT
- ← UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.



NORMAL PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE										
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	RR DWELL (Ø2+6)	FL	HS
11	←	←	←	←	←	←	←	←	←	←	←
21, 22	R	R	G	G	R	R	R	R	G	Y	
31	←	←	←	←	←	←	←	←	←	←	←
41, 42	R	R	R	R	R	R	R	R	G	R	R
51	←	←	←	←	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	R	R	R	G	Y	
71	←	←	←	←	←	←	←	←	←	←	←
81	R	R	R	R	R	G	R	G	R	R	
82	R	R	R	R	R	G	R	G	R	R	
P21, P22	DW	DW	W	W	DW	DW	DW	DW	W	DRK	
P41, P42	DW	DW	DW	DW	DW	DW	DW	DW	W	DW	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	W	DRK	
P81, P82	DW	DW	DW	DW	W	DW	W	DW	DRK		

←Y = FLASHING YELLOW ARROW

ALTERNATE 1 PHASING TABLE OF OPERATION

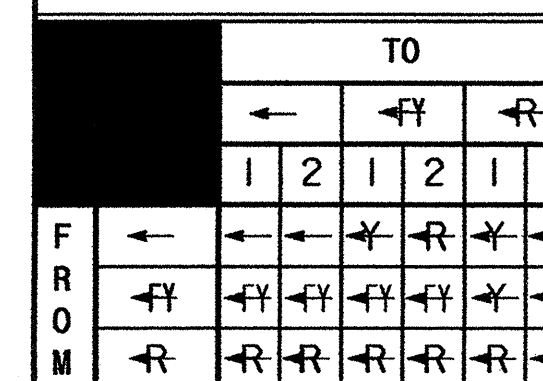
SIGNAL FACE	PHASE										
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	RR DWELL (Ø2+6)	FL	HS
11	←	←	←	←	←	←	←	←	←	←	←
21, 22	R	R	G	G	R	R	R	R	G	Y	
31	←	←	←	←	←	←	←	←	←	←	←
41, 42	R	R	R	R	R	R	R	R	G	R	R
51	←	←	←	←	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	R	R	R	G	Y	
71	←	←	←	←	←	←	←	←	←	←	←
81	R	R	R	R	R	G	R	G	R	R	
82	R	R	R	R	R	G	R	G	R	R	
P21, P22	DW	DW	W	W	DW	DW	DW	DW	W	DRK	
P41, P42	DW	DW	DW	DW	DW	DW	DW	DW	W	DW	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	W	DRK	
P81, P82	DW	DW	DW	DW	W	DW	W	DW	DRK		

←Y = FLASHING YELLOW ARROW

ALTERNATE 2 PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE										
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	RR DWELL (Ø2+6)	FL	HS
11	←	←	←	←	←	←	←	←	←	←	←
21, 22	R	R	G	G	R	R	R	R	G	Y	
31	←	←	←	←	←	←	←	←	←	←	←
41, 42	R	R	R	R	R	R	R	R	G	R	R
51	←	←	←	←	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	R	R	R	G	Y	
71	←	←	←	←	←	←	←	←	←	←	←
81	R	R	R	R	R	G	R	G	R	R	
82	R	R	R	R	R	G	R	G	R	R	
P21, P22	DW	DW	W	W	DW	DW	DW	DW	W	DRK	
P41, P42	DW	DW	DW	DW	DW	DW	DW	DW	W	DW	DRK
P61, P62	DW	W	DW	W	DW	DW	DW	DW	W	DRK	
P81, P82	DW	DW	DW	DW	W	DW	W	DW	DRK		

STANDARD SIGNAL FACE CLEARANCES FOR 4 SECTION LEFT TURN SIGNAL



←Y = FLASHING YELLOW ARROW

This plan supersedes the plan signed and sealed on 1/12/07.

Signal Upgrade

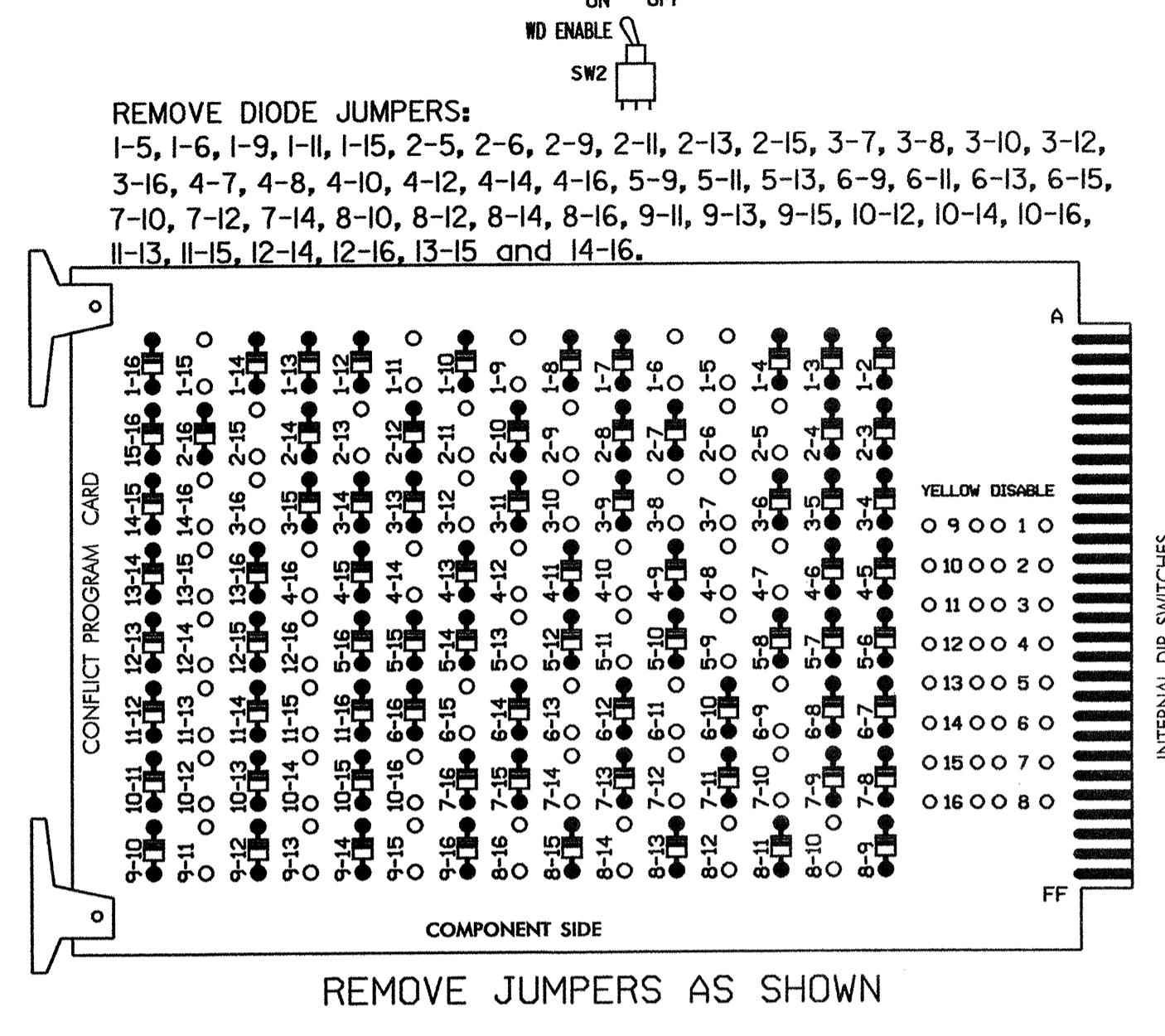
Sheet 2 of 2

Prepared in the Offices of:

SR 2299 (Russell Street) at SR 2311 (Gillespie Street)
 Division 6 Cumberland County Fayetteville
 PLAN DATE: December 2006 REVIEWED BY:
 PREPARED BY: Sterling REVIEWED BY:
 REVISIONS: INIT. DATE
 SCALE: 1" = 40'
 SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026486
 ENGINEER: ROBERT J. ZELMBE
 SIGNATURE: [Signature] DATE: 6/19/08
 S.I.G. INVENTORY NO. 06-0014

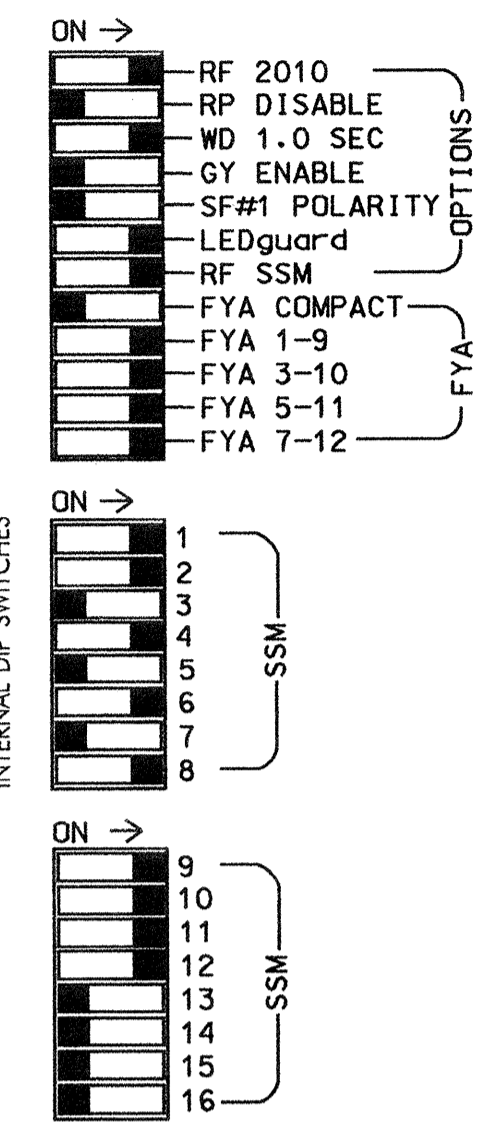
EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.



- ### NOTES
- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
 - Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,5,7, 13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
 - Program phases 2 and 6, on the controller unit, for Start Up In Green.
 - Enable Simultaneous Gap-Out, on the controller unit, for all phases.
 - Program phases 4 and 8, on the controller unit, for Dual Entry.
 - Program phases 2, 4, 6 and 8 for 'STARTUP PED CALL'.
 - The cabinet and controller are part of the Fayetteville System.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

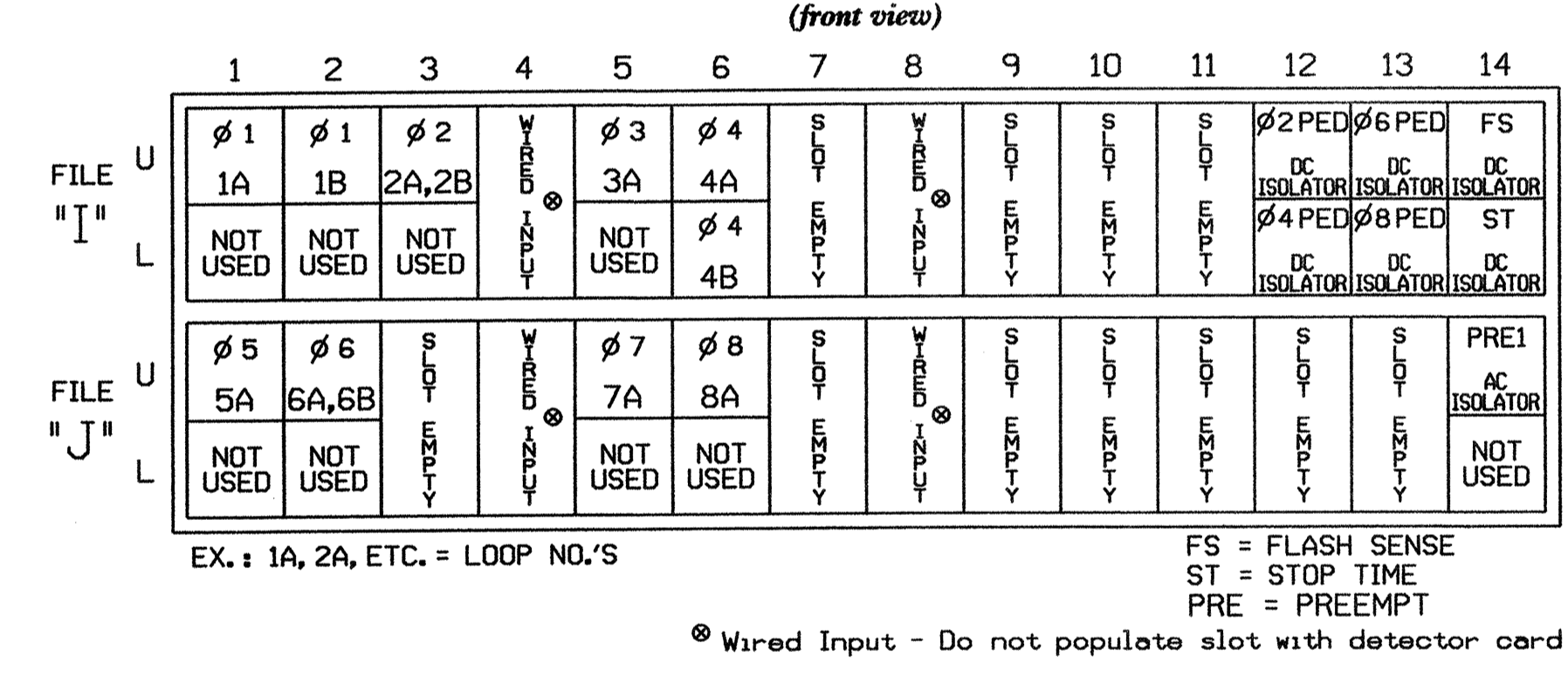
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14	
PHASE	1*	2	2 PED	3*	4	4 PED	5*	6	6 PED	7*	8	8 PED	OLA*	OLB*	SPARE	OLC*	OLD*	SPARE	
SIGNAL HEAD NO.	11	82	21,22	P21, P22	31	41,42	P41, P42	51	61,62	P61, P62	71	81,82	P81, P82	11	31	NU	51	71	NU
RED	*	128			101			134			107								
YELLOW		129		*	102		*	135		*	108								
GREEN		130			103			136			109								
RED ARROW															A121	A124	A114	A101	
YELLOW ARROW		126													A122	A125	A115	A102	
FLASHING YELLOW ARROW															A123	A126	A116	A103	
GREEN ARROW	127	127			118			133			124								
Hand					113			104			119								
Walker					115			106			121								

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 * See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

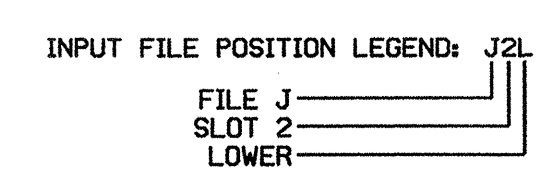


INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A ¹	TB2-1,2	I1U	56	18	1	1	Y	Y			15
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			15
2A,2B	TB2-9,10	I3U	63	25	32	2	Y	Y			
3A ²	TB4-5,6	I5U	58	20	3	3	Y	Y			15
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
5A ³	TB3-1,2	J1U	55	17	5	5	Y	Y			15
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
7A ⁴	TB5-5,6	J5U	57	19	7	7	Y	Y			15
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2	PED				
P41,P42	TB8-5,6	I12L	69	31	PED 4	4	PED				
P61,P62	TB8-7,9	I13U	68	30	PED 6	6	PED				
P81,P82	TB8-8,9	I13L	70	32	PED 8	8	PED				

- Add jumper from I1-W to J4-W, on rear of input file.
- Add jumper from I5-W to J8-W, on rear of input file.
- Add jumper from J1-W to I4-W, on rear of input file.
- Add jumper from J5-W to I8-W, on rear of input file.

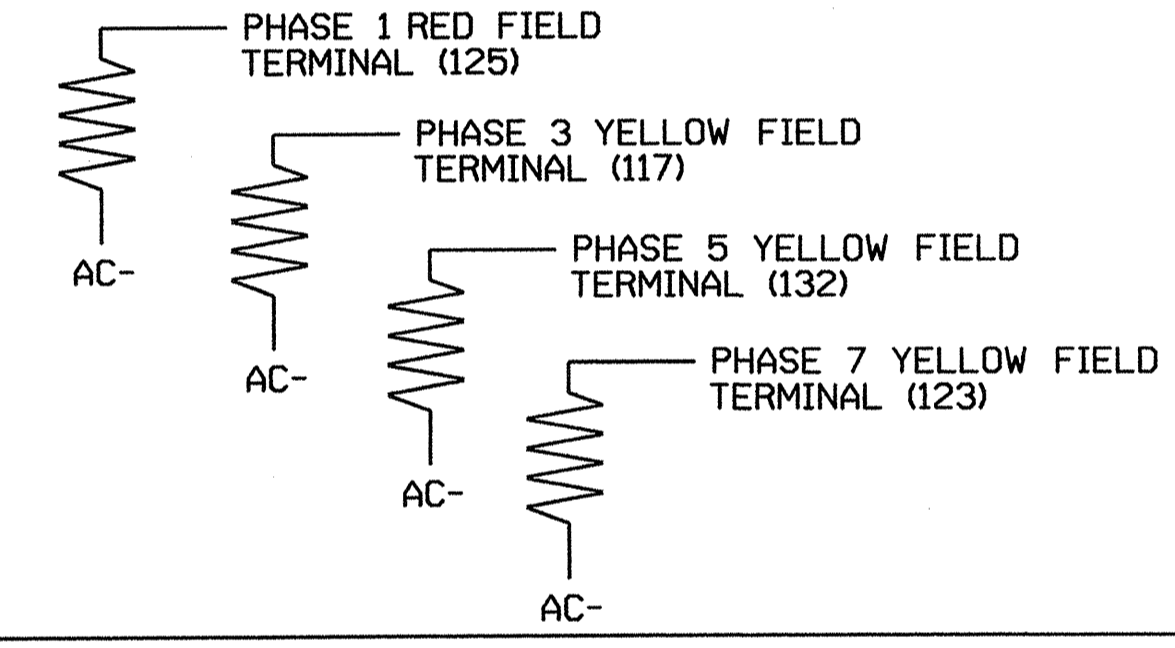
NOTE:
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



EQUIPMENT INFORMATION

CONTROLLER.....CONTRACTOR SUPPLIED 2070L
 CABINET.....CONTRACTOR SUPPLIED 332 /W/ AUX
 SOFTWARE.....ECONOLITE OASIS 3.00.92A or later approved
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S2P,S3,S4,S4P,S5,S6,S6P,S7,S8,S8P,S9,S10,S12 AND S13.
 PHASES USED.....1,2,3,4,5,6,7,8,2 PED,4 PED,6 PED and 8 PED.
 OVERLAP "A".....1+2
 OVERLAP "B".....3+4
 OVERLAP "C".....5+6
 OVERLAP "D".....7+8

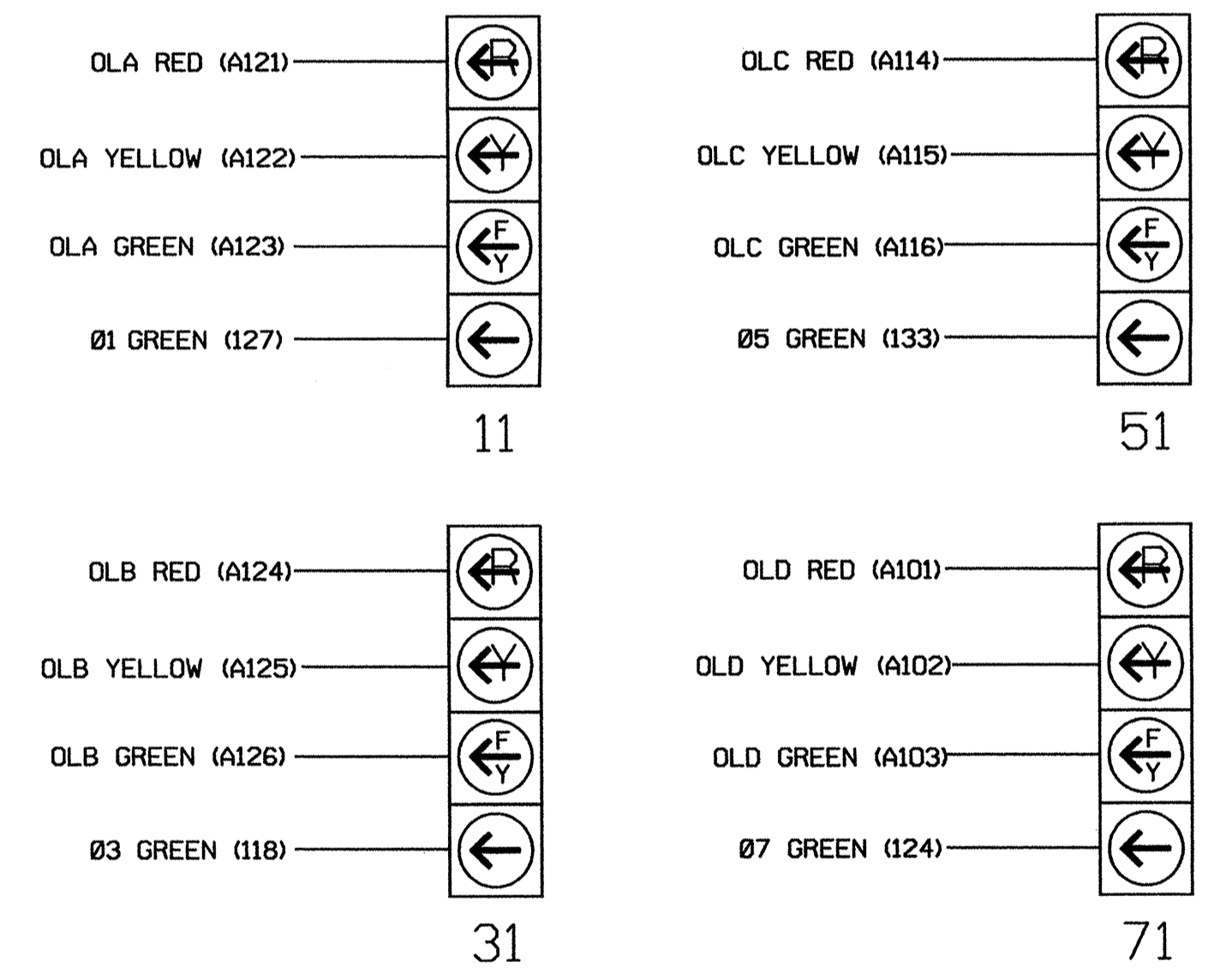
FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:
 THE CHANGES LISTED BELOW TIE ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.
 1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
 2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
 3. REMOVE FLASHER UNIT 2.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0014
 DESIGNED: June 2008
 SEALED: 06-19-08
 REVISED: N/A

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE
 1. The sequence display for these signals require special logic programming. See sheet 3 of 6 for programming instructions.

This Electrical Detail supersedes the detail sealed on 01/24/07.

Signal Upgrade - Sheet 1 of 6

Prepared in the Offices of: 122 N. McDowell St., Raleigh, NC 27603	SR 2299 (Russell Street) at SR 2311 (Gillespie Street)		SEAL JOHN T. ROWLEY ENGINEER No. 008453
	Division 06 PLAN DATE: June 2008 PREPARED BY: James Peterson	Cumberland Co. Fayetteville REVIEWED BY: JWR REVIEWED BY:	
	REVISIONS INIT. DATE	DATE	

SIG. INVENTORY NO. 06-0014

RAILROAD PREEMPTION PROGRAMMING DETAIL
(program controller as shown below)

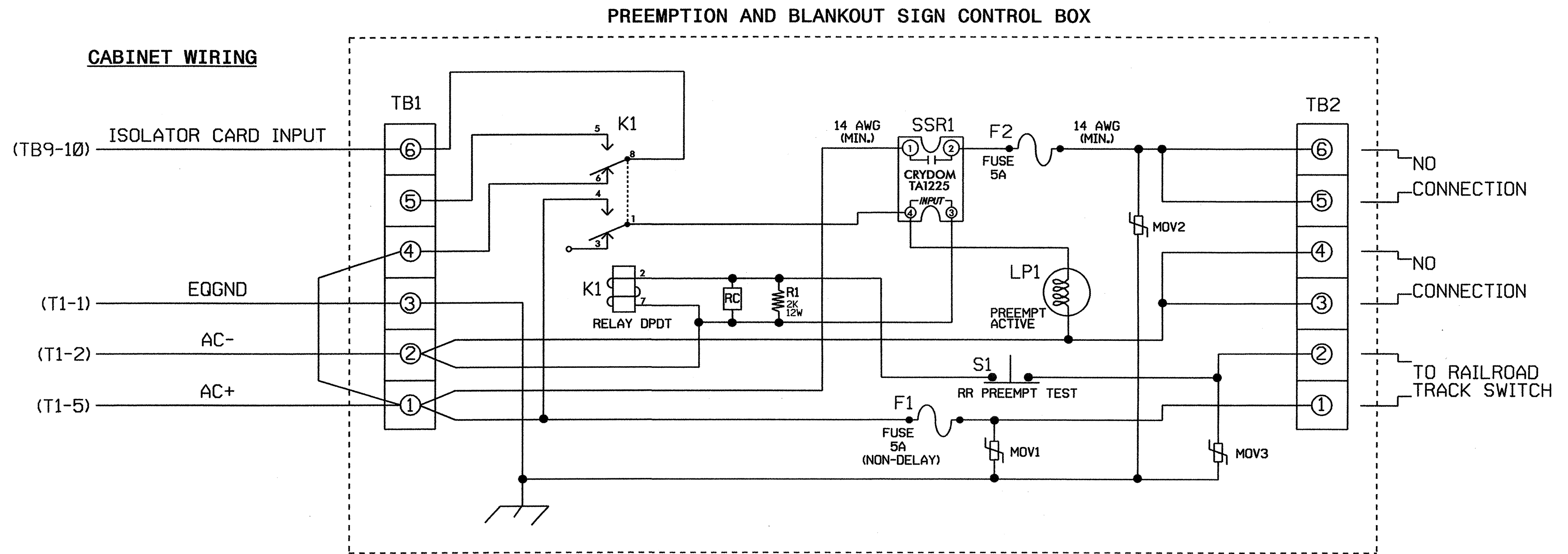
From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions).

PREEMPTION #1	INTERVAL/TIMING	SETTINGS (NEXT:1-10)	CLEAR/DWELL PHASES	
GRN	YEL	RED	12345678910111213141516	
1	0	0.0	0.0	
2	255	3.8	2.1	X X
3	0	0.0	0.0	
4	0	0.0	0.0	
5	1	0.0	0.0	X X

EXIT CALLS	OPTIONS
PRIORITY (Y/N TO SELECT)	HIGH
DELAY TIMER (0-255 SEC)	0
MIN GREEN BEFORE PRE (0= DEFAULT)...	1
PED CLEAR BEFORE PRE (0= DEFAULT)...	10
YELLOW CLEAR BEFORE PRE (0= DEFAULT)...	0.0
RED CLEAR BEFORE PRE (0= DEFAULT)...	0.0
DWELL MIN TIMER (0-255 SEC)	10
DWELL MAX TIMER (0=OFF,1-255MIN)	0
DWELL HOLD-OVER TIMER (0-255)	0
LATCH CALL?	N
LINK TO NEXT PREEMPT?	N
ENABLE BACKUP PROTECTION?	N
HOLD CLEAR 1 PHASES DURING DELAY? ..	N
FAST GREEN FLASH DWELL PHASES?	N
PED CLEARANCE THROUGH YELLOW?	Y
INHIBIT OVERLAP GREEN EXTENSION? ..	N
SERVICE DURING SOFTWARE FLASH?	N
REST IN RED DURING DWELL INTERVAL? ..	N
FLASH DWELL INTERVAL?	N
ALLOW PEDS IN DWELL INTERVAL?	Y
RE-TIME DWELL INTERVAL?	N
OVERLAPS:	ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW	
OMIT OVERLAPS:	X X

RAILROAD PREEMPTION WIRING DETAIL

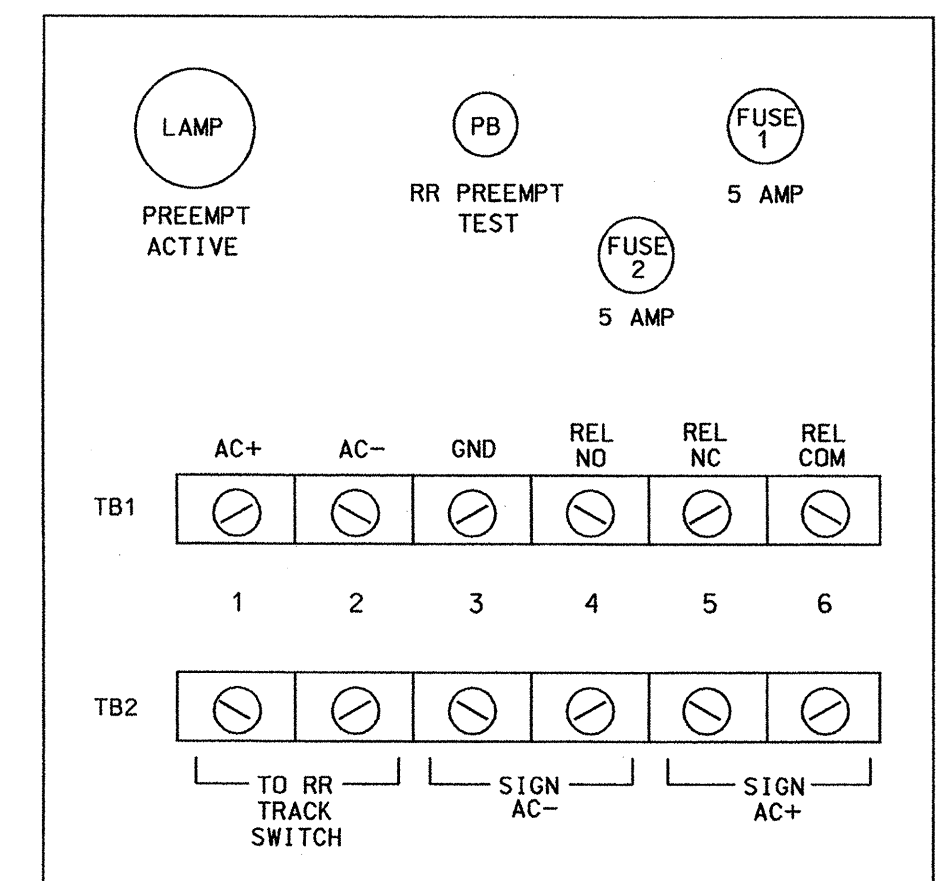
(wire as shown below)



NOTES

- Relay K1 is shown in the energized (Preempt not active) normal operation state.
- Relay K1 is a DPDT with 120VAC coil. Potter & Brumfield KRP11AG with octal base or approved equivalent.
- Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output. Crydom TA1225 or approved equivalent.
- AC Isolator Card shall activate preemption upon removal of AC+ from the input (as shown above). To accomplish this set invert dip switch on AC Isolator Card.
- Resistor is valued at 2K ohm, 12 watt. Clarostat part no. VPR10F-2K or approved equivalent.
- RC network is valued at .1 microfarad, 100 ohm.
- If replacement movs are needed, GE part no. V150LA20A may be used.
- Preemption and Blankout Sign Control Box is a Control Technologies part no. 2299-101 or approved equivalent.
- IMPORTANT!!** A jumper must be added between input file terminals J14-E and J14-K if not already present. Also, terminal TB9-12 (on input panel) shall be connected to AC neutral (jumper may have to be added).

FRONT VIEW



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0014
DESIGNED: June 2008
SEALED: 06-19-08
REVISED: N/A

This Electrical Detail supersedes the detail sealed on 01/24/07.

Signal Upgrade - Sheet 2 of 6

	<p>SR 2299 (Russell Street) at SR 2311 (Gillespie Street)</p>	
	<p>Division 6 Cumberland County Fayetteville</p>	<p>Division 6 Cumberland County Fayetteville</p>
<p>PLANNED BY: June 2008</p>	<p>REVIEWED BY: JWP</p>	<p>DATE: _____</p>
<p>PREPARED BY: James Peterson</p>	<p>REVIEWED BY: _____</p>	<p>DATE: _____</p>
<p>REVISIONS</p>	<p>INIT.</p>	<p>DATE</p>
<p>122 N. McDowell St., Raleigh, NC 27603</p>	<p>Signature: John T. Rowe</p>	<p>DATE: 6-30-08</p>

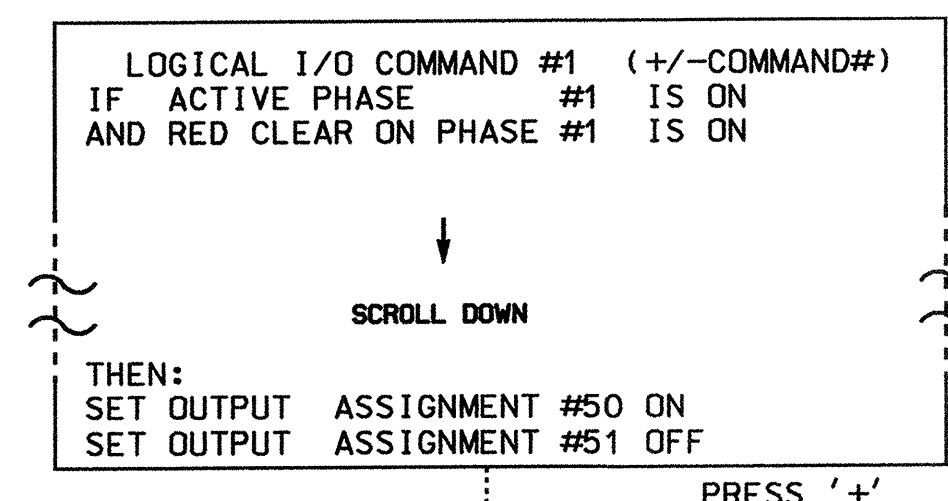
SIG. INVENTORY NO. 06-0014

27 JUN 2008 08:30
 JWP/jwp
 27 JUN 2008 08:30
 JWP/jwp

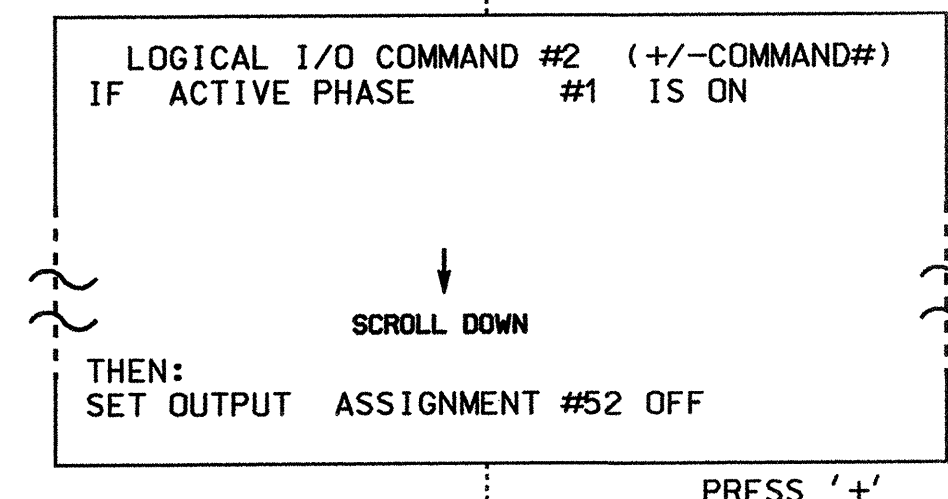
LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

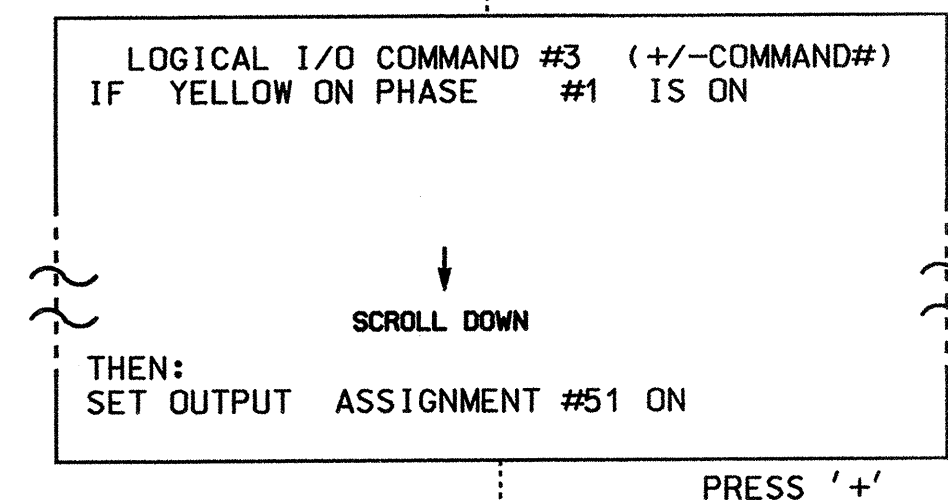
- FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, AND 12.
- FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).



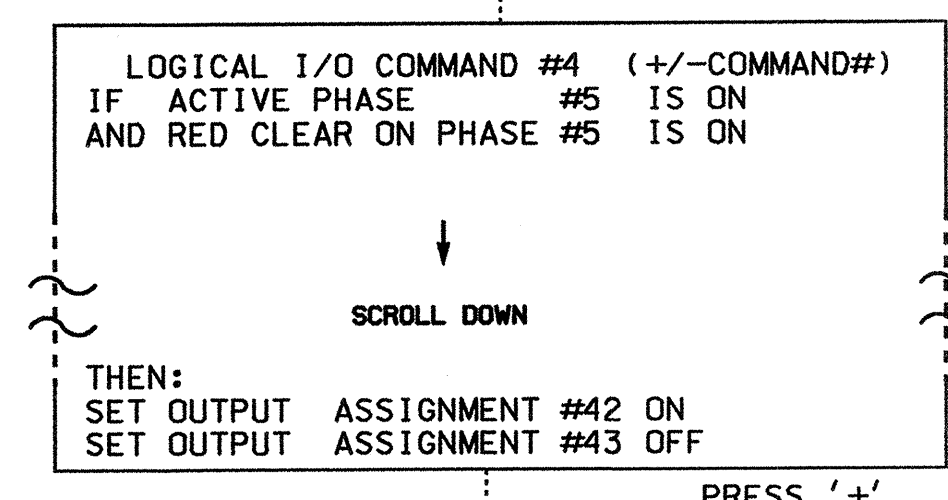
NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).



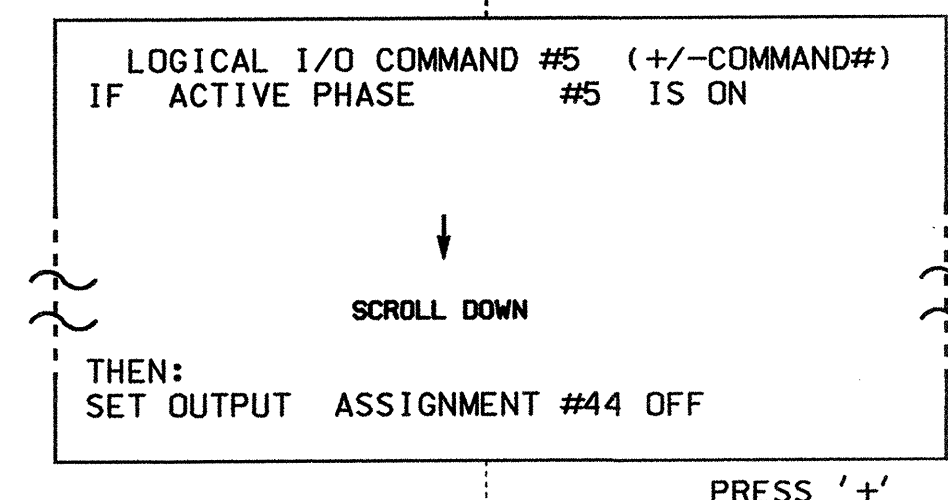
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).



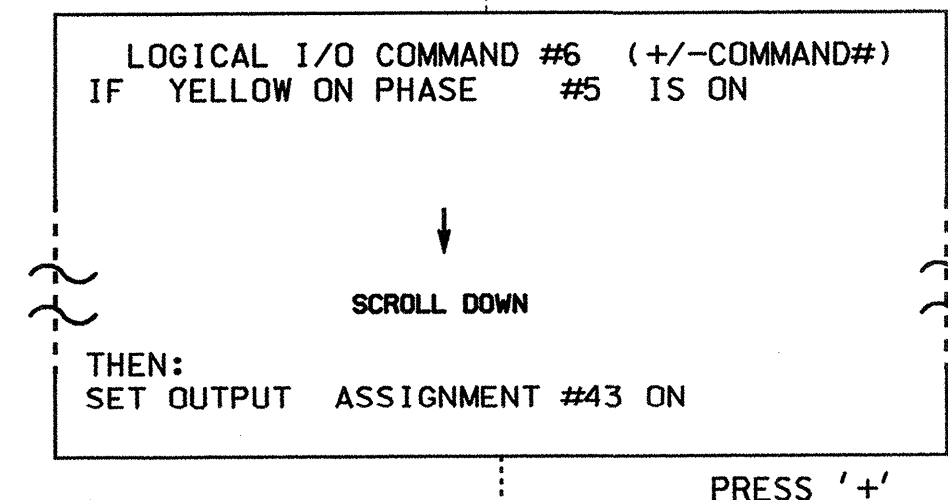
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).



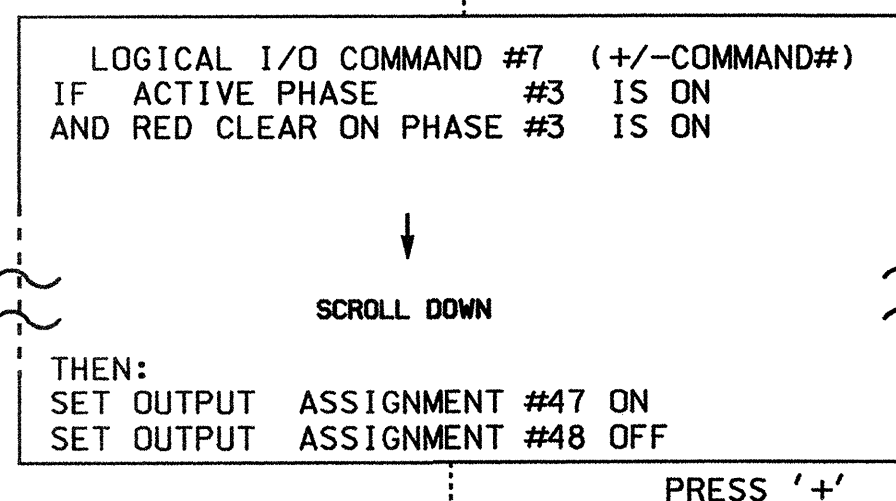
NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).



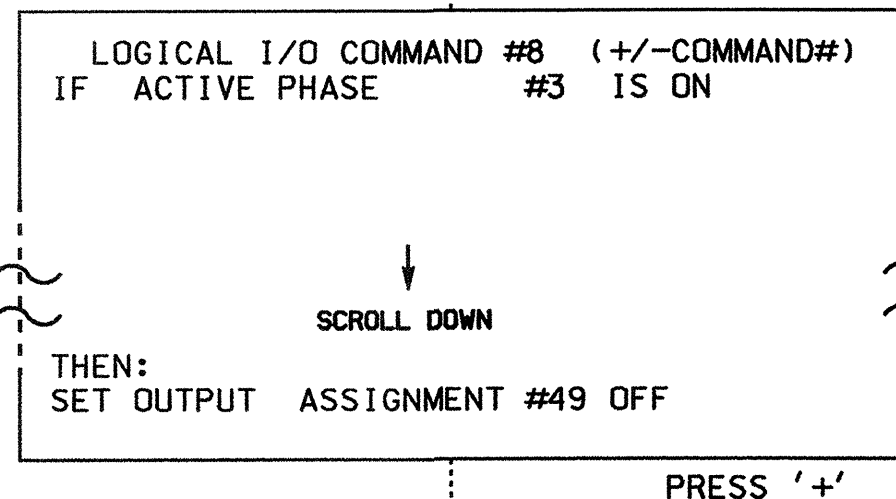
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).



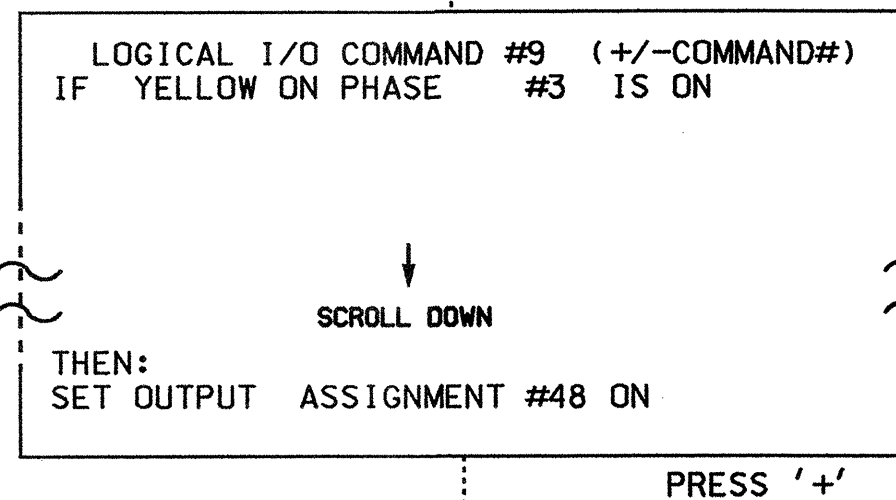
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).



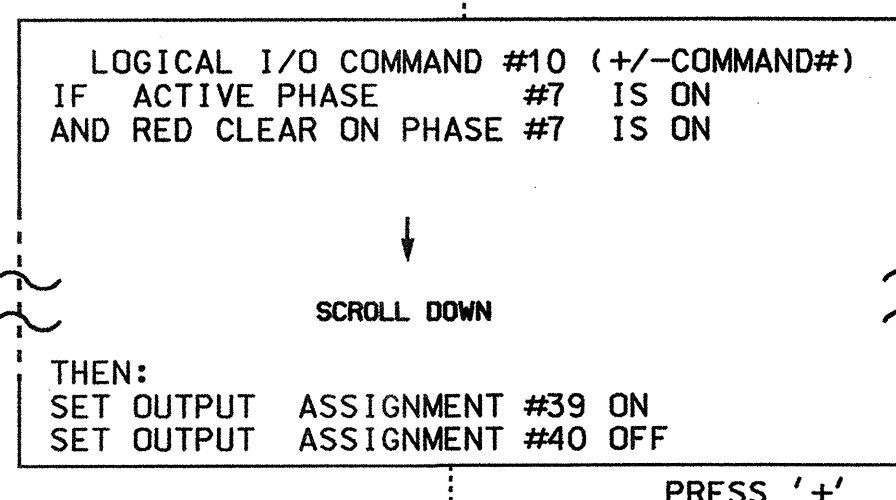
NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).



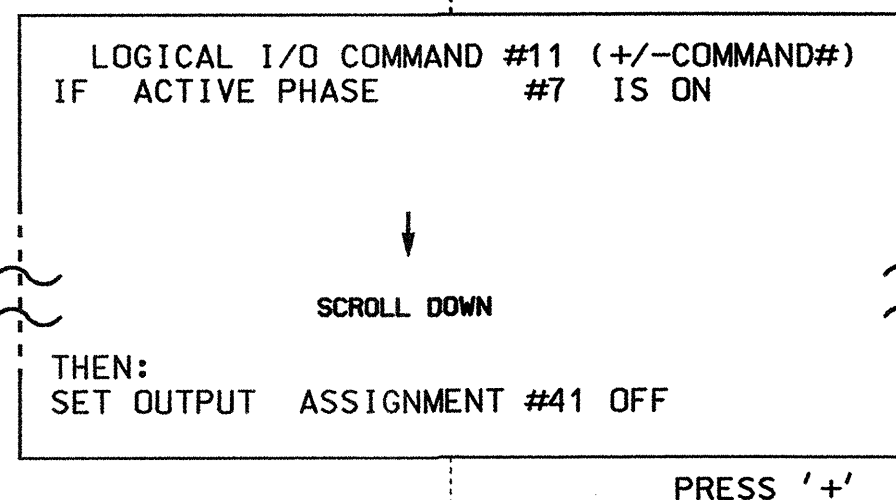
NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).



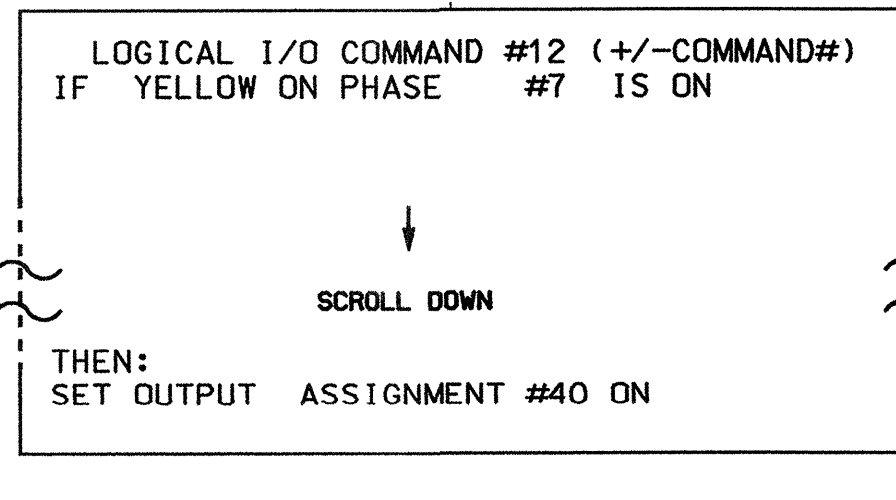
NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).



NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).



NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).



NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE: :12345678910111213141516
VEH OVL PARENTS: :XX
VEH OVL NOT VEH: :
VEH OVL NOT PED: :
VEH OVL GRN EXT: :
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

PRESS '+'

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
PHASE: :12345678910111213141516
VEH OVL PARENTS: :XX
VEH OVL NOT VEH: :
VEH OVL NOT PED: :
VEH OVL GRN EXT: :
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

PRESS '+'

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE: :12345678910111213141516
VEH OVL PARENTS: :XX
VEH OVL NOT VEH: :
VEH OVL NOT PED: :
VEH OVL GRN EXT: :
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

PRESS '+'

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
PHASE: :12345678910111213141516
VEH OVL PARENTS: :XX
VEH OVL NOT VEH: :
VEH OVL NOT PED: :
VEH OVL GRN EXT: :
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)...0

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

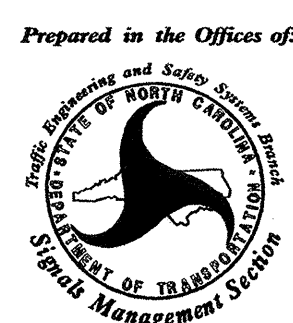
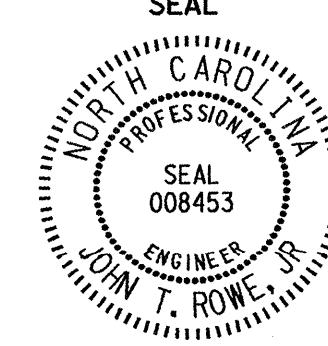
USE TO INTERPRET LOGIC PROCESSOR

- OUTPUT 39 = Overlap D Red
- OUTPUT 40 = Overlap D Yellow
- OUTPUT 41 = Overlap D Green
- OUTPUT 42 = Overlap C Red
- OUTPUT 43 = Overlap C Yellow
- OUTPUT 44 = Overlap C Green
- OUTPUT 47 = Overlap B Red
- OUTPUT 48 = Overlap B Yellow
- OUTPUT 49 = Overlap B Green
- OUTPUT 50 = Overlap A Red
- OUTPUT 51 = Overlap A Yellow
- OUTPUT 52 = Overlap A Green

This Electrical Detail supersedes
the detail sealed on 01/24/07.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-0014
DESIGNED: June 2008
SEALED: 06-19-08
REVISED: N/A

Signal Upgrade - Sheet 3 of 6

 Prepared in the Offices of: North Carolina Department of Transportation Signal Management Section 122 N. McDowell St., Raleigh, NC 27603	SR 2299 (Russell Street) at SR 2311 (Gillespie Street)	SEAL 								
	Division 06 Cumberland Co. Fayetteville PLAN DATE: June 2008 REVIEWED BY: JWR PREPARED BY: James Peterson REVIEWED BY:	REVISIONS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DATE	INIT.	DATE				
NO.	DATE	INIT.	DATE							

FYA-PPLT SIGNAL OUTPUT PAGE ASSIGNMENT PROGRAMMING DETAIL FOR SIGNALS 11 & 51

(program controller as shown below)

OUTPUT ASSIGNMENTS FOR SIGNAL HEAD 51

MAKE THE FOLLOWING CHANGES ON OUTPUT PAGES 2 AND 3

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS 'NEXT' FOR PAGE 2, WITH CURSOR IN 'OUTPUT ASSIGNMENT#' POSITION ENTER "42"

```

PAGE:3  C1 PIN:88  VEHICLE OVERLAP
PAGE:2  C1 PIN:88  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....42
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

ENTER A "Y" FOR VEHICLE PHASE.
THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

```

PAGE:3  C1 PIN:88  VEHICLE OVERLAP
PAGE:2  C1 PIN:88  VEHICLE OVERLAP
SELECT VEHICLE PHASE (1-16).....5
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
    
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.
PRESS THE 'ENT' KEY AFTER INPUTING DATA. THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```

PAGE:3  C1 PIN:88  VEHICLE PHASE
PAGE:2  C1 PIN:88  VEHICLE PHASE
OUTPUT ASSIGNMENT #.....42
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

PRESS "+" KEY FOR OUTPUT 43

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```

PAGE:3  C1 PIN:89  VEHICLE PHASE
PAGE:2  C1 PIN:89  VEHICLE PHASE
OUTPUT ASSIGNMENT #.....43
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

ENTER A "Y" FOR VEHICLE PHASE.
THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

```

PAGE:3  C1 PIN:89  VEHICLE OVERLAP
PAGE:2  C1 PIN:89  VEHICLE OVERLAP
SELECT VEHICLE PHASE (1-16).....5
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
    
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.
PRESS THE 'ENT' KEY AFTER INPUTING DATA. THEN 'ESC'.

PRESS "+" KEY FOR OUTPUT 44

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'NOT ENABLED' AS SHOWN BELOW.

```

PAGE:3  C1 PIN:90  NOT ENABLED
PAGE:2  C1 PIN:90  NOT ENABLED
OUTPUT ASSIGNMENT #.....44
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

ENTER A "Y" FOR NOT ENABLED (THIS WILL DISABLE THE OUTPUT)

THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

```

PAGE:3  C1 PIN:90  VEHICLE OVERLAP
PAGE:2  C1 PIN:90  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....44
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

STEP 1

STEP 2

STEP 3

NOTE: THIS PROGRAMMING APPLIES FOR OUTPUT PAGES 2 AND 3. OUTPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR ALTERNATE 1 & 2 PHASING OPERATION.

OUTPUT ASSIGNMENTS FOR SIGNAL HEAD 11

MAKE THE FOLLOWING CHANGES ON OUTPUT PAGES 2 AND 3

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS 'NEXT' FOR PAGE 2, WITH CURSOR IN 'OUTPUT ASSIGNMENT#' POSITION ENTER "50"

```

PAGE:3  C1 PIN:97  VEHICLE OVERLAP
PAGE:2  C1 PIN:97  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....50
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

ENTER A "Y" FOR VEHICLE PHASE.
THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

```

PAGE:3  C1 PIN:97  VEHICLE OVERLAP
PAGE:2  C1 PIN:97  VEHICLE OVERLAP
SELECT VEHICLE PHASE (1-16).....1
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
    
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.
PRESS THE 'ENT' KEY AFTER INPUTING DATA. THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```

PAGE:3  C1 PIN:97  VEHICLE PHASE
PAGE:2  C1 PIN:97  VEHICLE PHASE
OUTPUT ASSIGNMENT #.....50
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

PRESS "+" KEY FOR OUTPUT 51

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

```

PAGE:3  C1 PIN:98  VEHICLE PHASE
PAGE:2  C1 PIN:98  VEHICLE PHASE
OUTPUT ASSIGNMENT #.....51
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

ENTER A "Y" FOR VEHICLE PHASE.
THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

```

PAGE:3  C1 PIN:98  VEHICLE OVERLAP
PAGE:2  C1 PIN:98  VEHICLE OVERLAP
SELECT VEHICLE PHASE (1-16).....1
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
    
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.
PRESS THE 'ENT' KEY AFTER INPUTING DATA. THEN 'ESC'.

PRESS "+" KEY FOR OUTPUT 52

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'NOT ENABLED' AS SHOWN BELOW.

```

PAGE:3  C1 PIN:99  NOT ENABLED
PAGE:2  C1 PIN:99  NOT ENABLED
OUTPUT ASSIGNMENT #.....52
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

ENTER A "Y" FOR NOT ENABLED (THIS WILL DISABLE THE OUTPUT)

THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

```

PAGE:3  C1 PIN:99  VEHICLE OVERLAP
PAGE:2  C1 PIN:99  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.....52
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0.0
MODE (0=SOLID,1=FLASH)...0
SELECT ASSIGNMENT:
NOT ENABLED.....Y
VEHICLE PHASE.....Y
PEDESTRIAN PHASE.....Y
VEHICLE OVERLAP.....Y
PEDESTRIAN OVERLAP.....Y
WATCHDOG.....
DETECTOR RESET.....
ADVANCE BEACON.....
OUT OF PHASE FLASHER.....
CONTROLLER FLASH.....
RUN FREE.....
RESERVED.....
PREEMPT.....
SOFT PREEMPT.....
ANY PREEMPT.....
COORDINATION PLAN.....
OFFSET.....
PHASE CHECK.....
PHASE ON.....
PHASE NEXT.....
    
```

STEP 4

STEP 5

STEP 6

This Electrical Detail supersedes the detail sealed on 01/24/07.

Signal Upgrade - Sheet 4 of 6

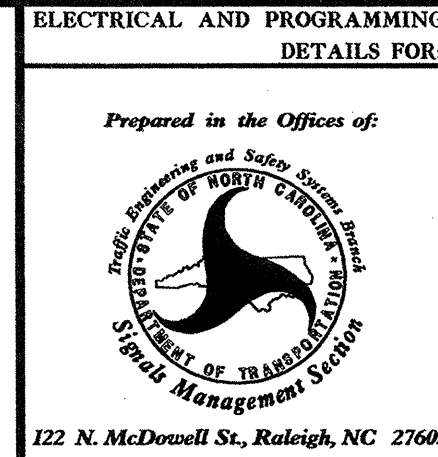
AFTER PAGE 2 IS PROGRAMMED, PRESS THE "NEXT" KEY TO GO TO PAGE 3, DUPLICATE THESE SETTINGS ON PAGE 3.

NOTE: THE OUTPUT ASSIGNMENT CHANGES, SHOWN ABOVE, ARE NECESSARY FOR THE TIME OF DAY OPERATION OF SIGNAL HEADS 11 AND 51. IN ALTERNATE PHASING 1 & 2 (PROTECTED ONLY) OPERATION, THE RED ARROW CONTROL IS SWITCHED TO THE LEFT TURN PHASE RED. THE SOLID YELLOW ARROW CONTROL IS SWITCHED TO THE LEFT TURN PHASE YELLOW. IN ADDITION, THE FLASHING YELLOW ARROW IS SWITCHED OFF BY DISABLING THE OVERLAP GREEN OUTPUT.

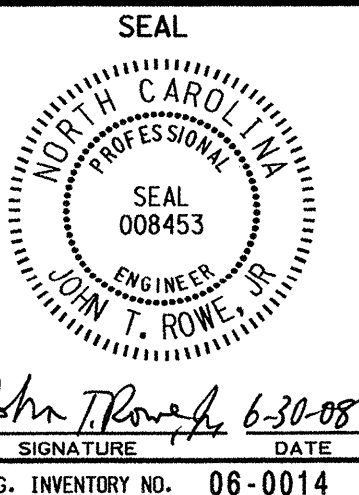
ALL OF THESE OUTPUT CHANGES ARE ACCOMPLISHED ON OUTPUT PAGES 2 AND 3. THEREFORE IN ALTERNATE PHASING 1 MODE THE OUTPUT PAGE IS SWITCHED TO 2, AND DURING ALTERNATE PHASING 2 MODE THE OUTPUT PAGE IS SWITCHED TO 3. THE OUTPUT PAGE CHANGE IS ACCOMPLISHED BY THE CONTROLLERS TOD EVENT SCHEDULER.

IN NORMAL PHASING (PPLT) MODE THE STANDARD, DEFAULT, OUTPUT ASSIGNMENTS ARE USED WHICH ARE DESIGNATED ON OUTPUT PAGE 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0014
DESIGNED: June 2008
SEALED: 06-19-08
REVISED: N/A



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 2299 (Russell Street) at SR 2311 (Gillespie Street)	
Division 06	Cumberland Co.	Fayetteville	
PLAN DATE: June 2008	REVIEWED BY: JLP		
PREPARED BY: James Peterson	REVIEWED BY:		
REVISIONS	INIT.	DATE	



6-30-08
SIGNATURE DATE
SIG. INVENTORY NO. 06-0014

(program controller as shown below)

OUTPUT ASSIGNMENTS FOR SIGNAL HEAD 71

MAKE THE FOLLOWING OUTPUT ASSIGNMENT CHANGES ON PAGE 3 ONLY.

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS 'NEXT' TWICE FOR PAGE 3, WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION ENTER "39"

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

PAGE:3 C1 PIN:85 VEHICLE PHASE OUTPUT ASSIGNMENT #.....39 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

ENTER A "Y" FOR VEHICLE PHASE. THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

PAGE:3 C1 PIN:85 VEHICLE OVERLAP SELECT VEHICLE PHASE (1-16).....7 SELECT COLOR(0=RED,1=YEL,2=GRN).....0

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

PRESS "+" KEY FOR OUTPUT 40

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

PAGE:3 C1 PIN:86 VEHICLE PHASE OUTPUT ASSIGNMENT #.....40 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

ENTER A "Y" FOR VEHICLE PHASE. THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

PAGE:3 C1 PIN:86 VEHICLE OVERLAP SELECT VEHICLE PHASE (1-16).....7 SELECT COLOR(0=RED,1=YEL,2=GRN).....1

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

PRESS "+" KEY FOR OUTPUT 41

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'NOT ENABLED' AS SHOWN BELOW.

PAGE:3 C1 PIN:87 NOT ENABLED OUTPUT ASSIGNMENT #.....41 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

ENTER A "Y" FOR NOT ENABLED (THIS WILL DISABLE THE OUTPUT) THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR NOT ENABLED (THIS WILL DISABLE THE OUTPUT)

PAGE:3 C1 PIN:85 VEHICLE OVERLAP OUTPUT ASSIGNMENT #.....39 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

PAGE:3 C1 PIN:86 VEHICLE OVERLAP OUTPUT ASSIGNMENT #.....40 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

PAGE:3 C1 PIN:87 VEHICLE OVERLAP OUTPUT ASSIGNMENT #.....41 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

OUTPUT ASSIGNMENTS FOR SIGNAL HEAD 31

MAKE THE FOLLOWING OUTPUT ASSIGNMENT CHANGES ON PAGE 3 ONLY.

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). PRESS 'NEXT' TWICE FOR PAGE 3, WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION ENTER "47"

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

PAGE:3 C1 PIN:94 VEHICLE PHASE OUTPUT ASSIGNMENT #.....47 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

ENTER A "Y" FOR VEHICLE PHASE. THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

PAGE:3 C1 PIN:94 VEHICLE OVERLAP SELECT VEHICLE PHASE (1-16).....3 SELECT COLOR(0=RED,1=YEL,2=GRN).....0

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

PRESS "+" KEY FOR OUTPUT 48

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE PHASE' AS SHOWN BELOW.

PAGE:3 C1 PIN:95 VEHICLE PHASE OUTPUT ASSIGNMENT #.....48 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

ENTER A "Y" FOR VEHICLE PHASE. THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

PAGE:3 C1 PIN:95 VEHICLE OVERLAP SELECT VEHICLE PHASE (1-16).....3 SELECT COLOR(0=RED,1=YEL,2=GRN).....1

WHEN A 'Y' IS ENTERED FOR 'VEHICLE PHASE' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN. PRESS THE 'ENT' KEY AFTER INPUTING DATA, THEN 'ESC'.

PRESS "+" KEY FOR OUTPUT 49

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'NOT ENABLED' AS SHOWN BELOW.

PAGE:3 C1 PIN:96 NOT ENABLED OUTPUT ASSIGNMENT #.....49 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

ENTER A "Y" FOR NOT ENABLED (THIS WILL DISABLE THE OUTPUT) THE OUTPUT IS SET AS AN OVERLAP BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR NOT ENABLED (THIS WILL DISABLE THE OUTPUT)

PAGE:3 C1 PIN:94 VEHICLE OVERLAP OUTPUT ASSIGNMENT #.....47 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

PAGE:3 C1 PIN:95 VEHICLE OVERLAP OUTPUT ASSIGNMENT #.....48 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

PAGE:3 C1 PIN:96 VEHICLE OVERLAP OUTPUT ASSIGNMENT #.....49 FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0 DUTY CYCLE (0=DEFAULT) (0 - 100%)...0 MODE (0=SOLID,1=FLASH)...0 SELECT ASSIGNMENT: NOT ENABLED...Y VEHICLE PHASE.....Y PEDESTRIAN PHASE.....Y VEHICLE OVERLAP.....Y PEDESTRIAN OVERLAP.....Y WATCHDOG..... DETECTOR RESET..... ADVANCE BEACON..... OUT OF PHASE FLASHER..... CONTROLLER FLASH..... RUN FREE..... RESERVED..... PREEMPT..... SOFT PREEMPT..... ANY PREEMPT..... COORDINATION PLAN..... OFFSET..... PHASE CHECK..... PHASE ON..... PHASE NEXT.....

This Electrical Detail supersedes the detail sealed on 01/24/07.

Signal Upgrade - Sheet 5 of 6

OUTPUT PROGRAMMING COMPLETE

NOTE: THE OUTPUT ASSIGNMENT CHANGES, SHOWN ABOVE, ARE NECESSARY FOR THE TIME OF DAY OPERATION OF SIGNAL HEADS 31 AND 71. IN ALTERNATE 2 PHASING (PROTECTED ONLY) OPERATION, THE RED ARROW CONTROL IS SWITCHED TO THE LEFT TURN PHASE RED. THE SOLID YELLOW ARROW CONTROL IS SWITCHED TO THE LEFT TURN PHASE YELLOW. IN ADDITION, THE FLASHING YELLOW ARROW IS SWITCHED OFF BY DISABLING THE OVERLAP GREEN OUTPUT. ALL OF THESE OUTPUT CHANGES ARE ACCOMPLISHED ON OUTPUT PAGE 3. THEREFORE IN ALTERNATE PHASING 2 MODE (PROTECTED ONLY), THE PAGE IS SWITCHED TO "3" BY THE CONTROLLER TOD EVENT SCHEDULING. IN NORMAL PHASING (PPLT) MODE AND ALTERNATE PHASING 1 THE STANDARD, DEFAULT, OUPUT ASSIGNMENTS ARE USED WHICH ARE DESIGNATED ON OUTPUT PAGE 1 AND OUTPUT PAGE 2.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0014 DESIGNED: June 2008 SEALED: 06-19-08 REVISED: N/A

Professional Engineer Seal for John H. Rowley, Sr., No. 008453, State of North Carolina. Includes project details for SR 2299 and SR 2311, prepared by James Peterson, dated June 2008.

**TOD EVENT SCHEDULING PROGRAMMING DETAIL
TO CALL ALTERNATE 1 PHASING OPERATION**

(program controller as shown below)

THIS EVENT SCHEDULING DETAIL SHOWS THE TOD PROGRAMMING STEPS NECESSARY FOR THE CONTROLLER TO OPERATE THE "ALTERNATE PHASING 1" AS SHOWN ON THE SIGNAL PLANS.

FROM MAIN MENU PRESS "B" (SCHEDULING)

EVENT NO.	EVENT TYPE	DESCRIPTION OF OPERATION
1	CHANGE OUTPUT PAGE (1-4).....2	MODIFIES CONTROL CIRCUITS FOR SIGNAL HEADS 11 and 51.
2	SET INPUT OFF (1-64).....10	DISABLES PHASE 6 CALL ON LOOP 1A.
3	SET INPUT OFF (1-64).....9	DISABLES PHASE 2 CALL ON LOOP 5A.
4	DISABLE DET STRETCH / DELAY (1-64)..1	DELAY IS DISABLED FOR DETECTOR 1 (PHASE 1, LOOP 1A).
5	DISABLE DET STRETCH / DELAY (1-64)..5	DELAY IS DISABLED FOR DETECTOR 5 (PHASE 5, LOOP 5A).

NOTE: THE EVENTS ABOVE WILL ALLOW SIGNALS 11 AND 51 TO OPERATE IN THE PROTECTED ONLY MODE, WHILE SIGNALS 31 AND 71 CONTINUE TO OPERATE IN THE PROTECTED/PERMISSIVE MODE.

ALL EVENTS SHOWN ABOVE SHALL BE PROGRAMMED TO START AND STOP ON THE SAME TIMES AND DATES.

CONTINUING TO THE NEXT EVENT

**TOD EVENT SCHEDULING PROGRAMMING DETAIL
TO CALL ALTERNATE 2 PHASING OPERATION**

(program controller as shown below)

THIS EVENT SCHEDULING DETAIL SHOWS THE TOD PROGRAMMING STEPS NECESSARY FOR THE CONTROLLER TO OPERATE THE "ALTERNATE PHASING 2" AS SHOWN ON THE SIGNAL PLANS.

EVENT NO.	OASIS EVENT TYPE	DESCRIPTION OF OPERATION
6	CHANGE OUTPUT PAGE (1-4).....3	MODIFIES CONTROL CIRCUITS FOR SIGNAL HEADS 11, 51, 31, AND 71.
7	SET INPUT OFF (1-64).....10	DISABLES PHASE 6 CALL ON LOOP 1A.
8	SET INPUT OFF (1-64).....9	DISABLES PHASE 2 CALL ON LOOP 5A.
9	DISABLE DET STRETCH / DELAY (1-64)..1	DELAY IS DISABLED FOR DETECTOR 1 (PHASE 1, LOOP 1A).
10	DISABLE DET STRETCH / DELAY (1-64)..5	DELAY IS DISABLED FOR DETECTOR 5 (PHASE 5, LOOP 5A).
11	SET INPUT OFF (1-64).....12	DISABLES PHASE 8 CALL ON LOOP 3A.
12	SET INPUT OFF (1-64).....11	DISABLES PHASE 4 CALL ON LOOP 7A.
13	DISABLE DET STRETCH / DELAY (1-64)..3	DELAY IS DISABLED FOR DETECTOR 3 (PHASE 3, LOOP 3A).
14	DISABLE DET STRETCH / DELAY (1-64)..7	DELAY IS DISABLED FOR DETECTOR 7 (PHASE 7, LOOP 7A).

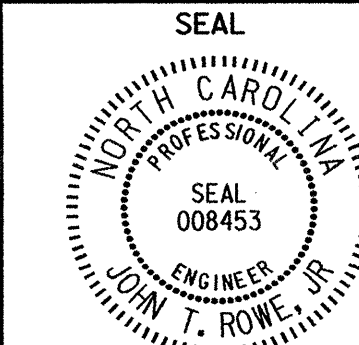
NOTE: THE EVENTS ABOVE WILL ALLOW SIGNALS 11, 51, 31 AND 71 TO OPERATE IN THE PROTECTED ONLY MODE.

ALL EVENTS SHOWN ABOVE SHALL BE PROGRAMMED TO START AND STOP ON THE SAME TIMES AND DATES.

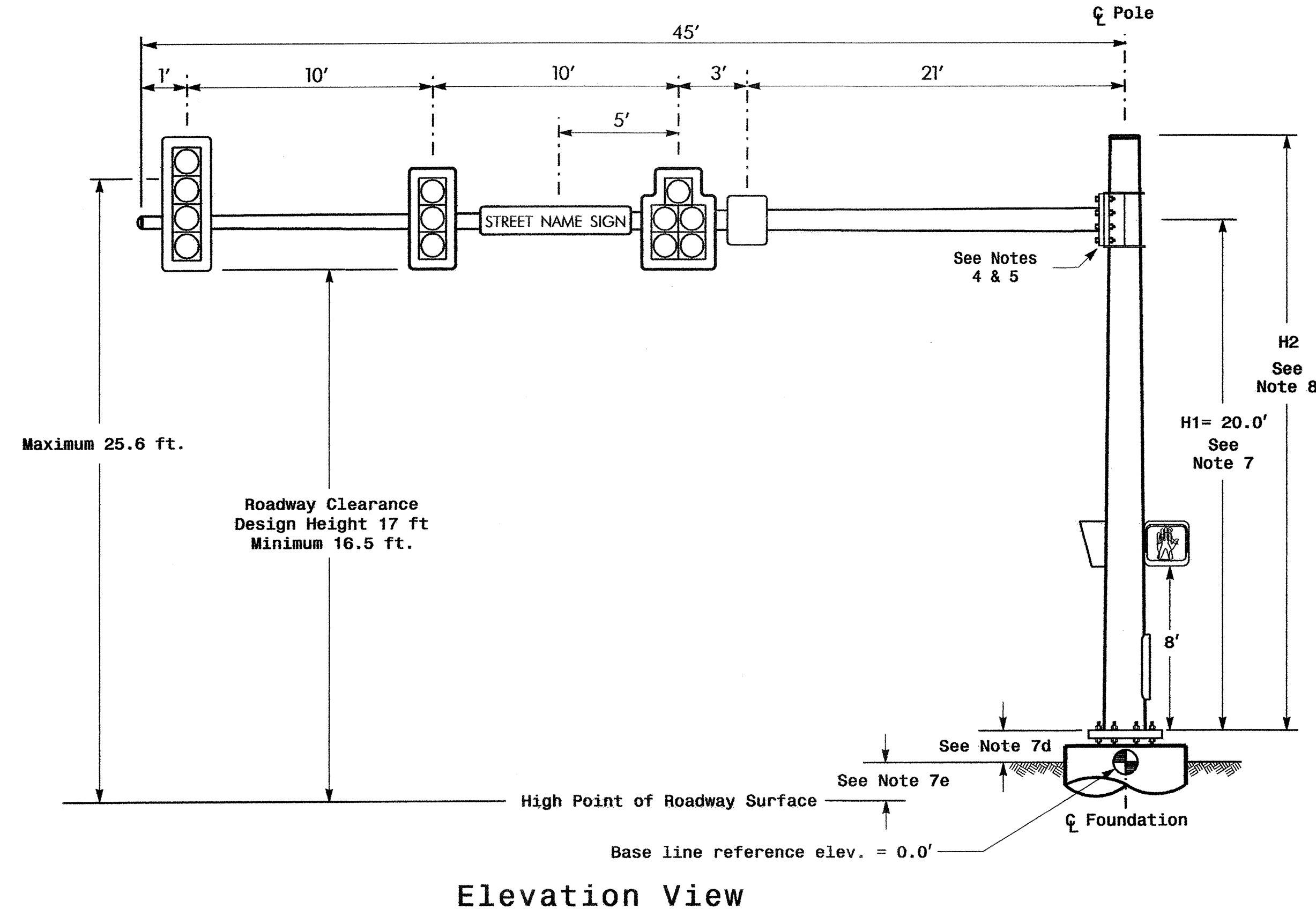
This Electrical Detail supersedes the detail sealed on 01/24/07.

Signal Upgrade - Sheet 6 of 6

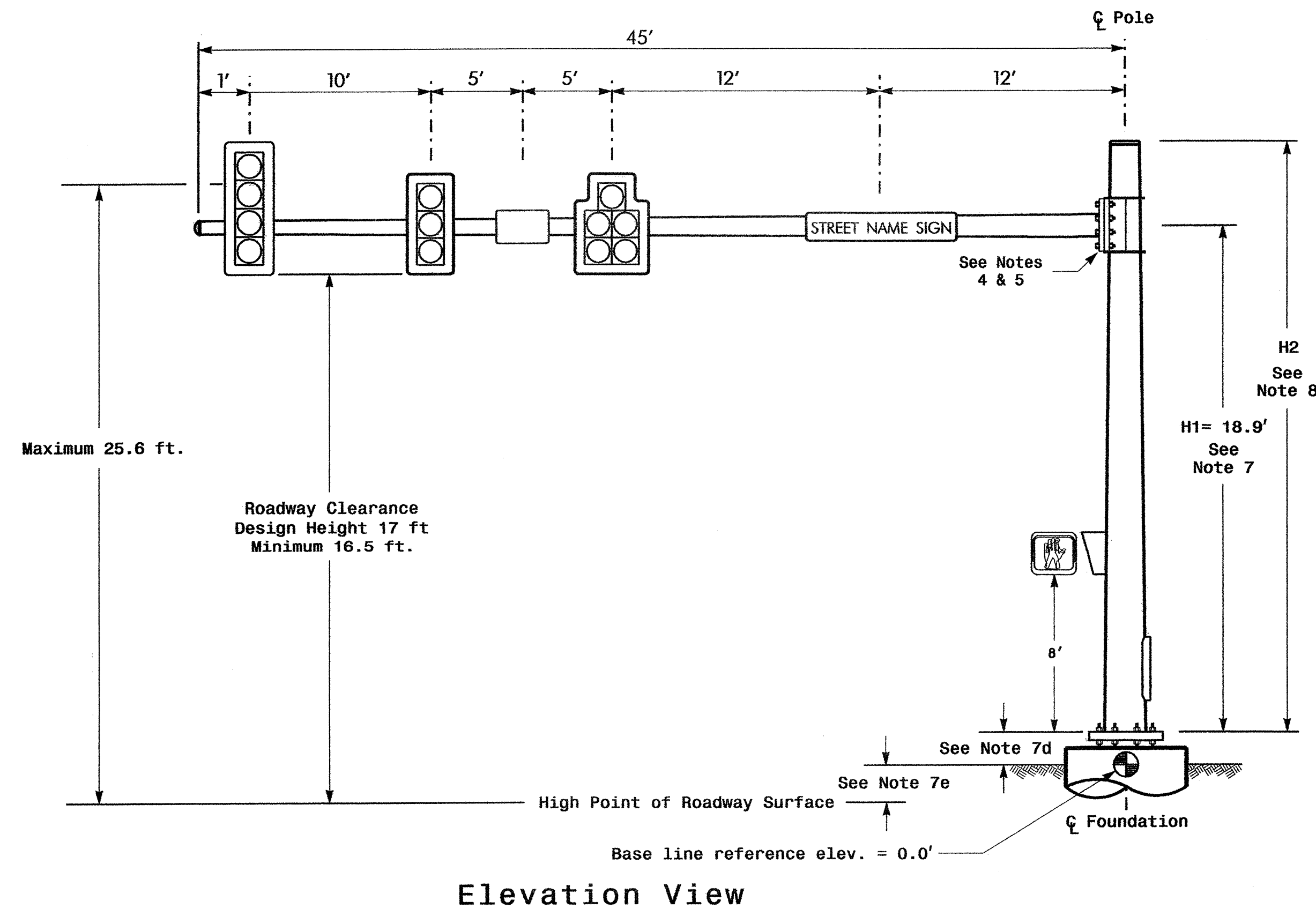
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0014
DESIGNED: June 2008
SEALED: 06-19-08
REVISED: N/A

	SR 2299 (Russell Street) at SR 2311 (Gillespie Street)	
	Division 06 Cumberland Co. Fayetteville	
	PLAN DATE: June 2008	REVIEWED BY: <i>MLW</i>
	PREPARED BY: James Peterson	REVIEWED BY:
REVISIONS	INIT.	DATE
122 N. McDowell St., Raleigh, NC 27603	<i>John T. Rowe</i>	6-30-08
SIG. INVENTORY NO. 06-0014		

Design Loading for METAL POLE NO. 1



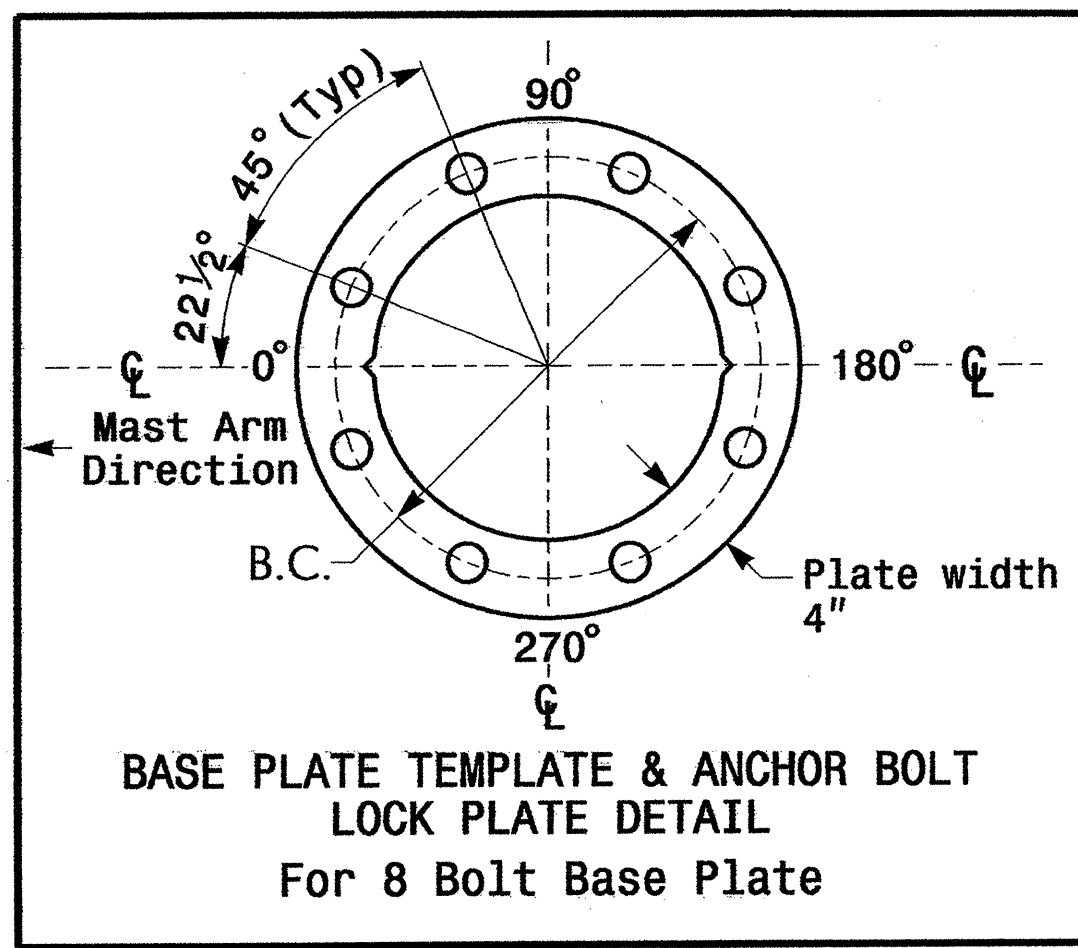
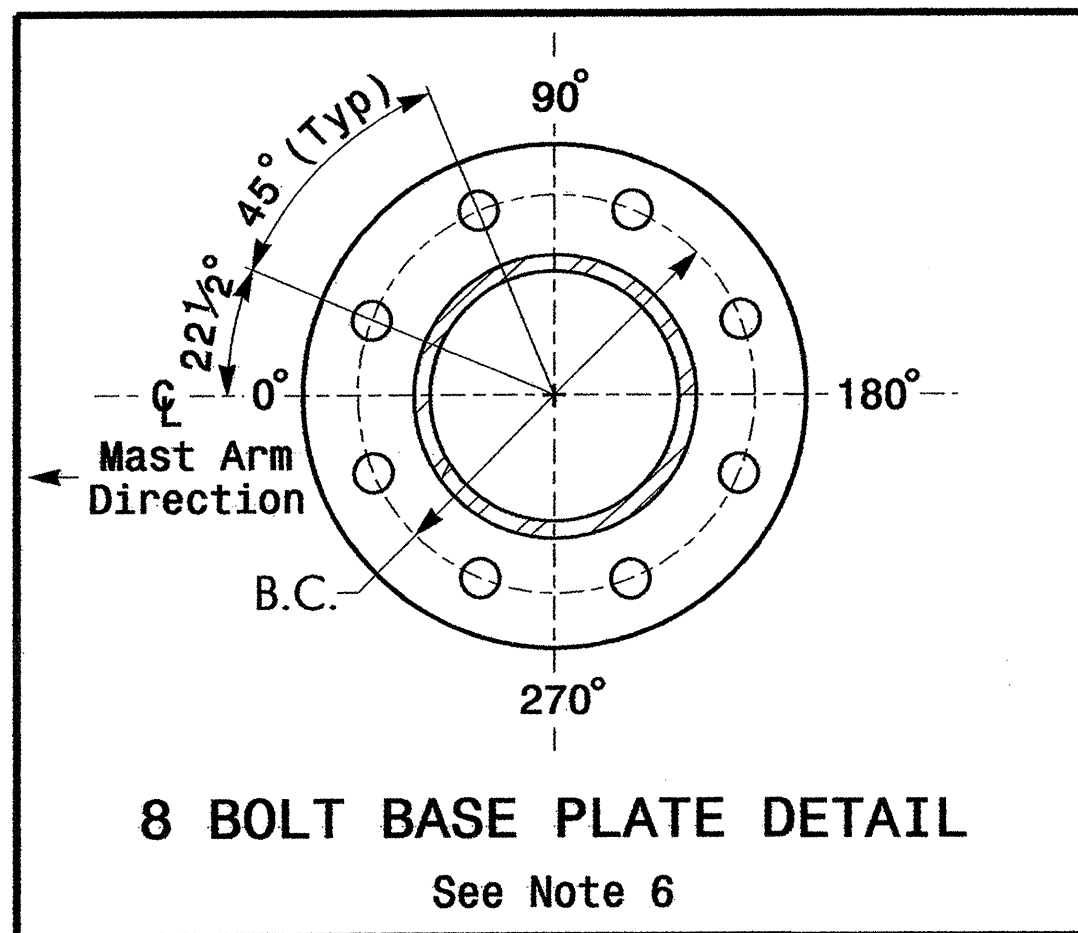
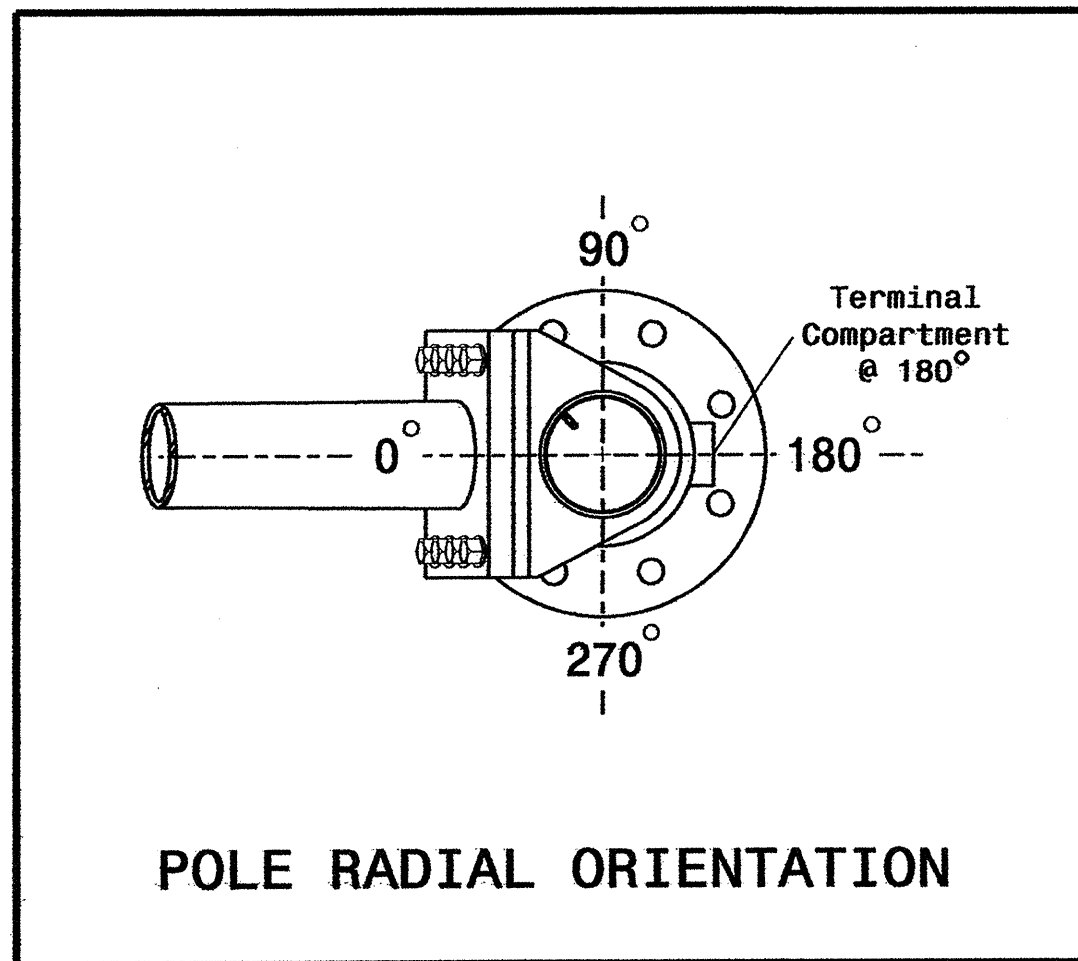
Design Loading for METAL POLE NO. 2



SPECIAL NOTE
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1	Pole 2
Baseline reference point at ϕ Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+0.98 ft.	-0.19 ft.
Elevation difference at Edge of travelway or face of curb	+/-0.0 ft.	+/-0.0 ft.



MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	SIGNAL HEAD 12"-5 SECTION-WITH BACKPLATE AND ASTRO-BRAC	16.3 S.F.	42.0" W X 56.0" L	103 LBS
	SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE AND ASTRO-BRAC	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE AND ASTRO-BRAC	9.3 S.F.	25.5" W X 52.5" L	60 LBS
	PEDESTRIAN SIGNAL HEAD WITH MOUNTING HARDWARE	2.2 S.F.	18.5" W X 17.0" L	21 LBS
	SIGN RIGID MOUNTED WITH ASTRO-SIGN-BRAC	7.5 S.F.	30.0" W X 36.0" L	17 LBS
	SIGN RIGID MOUNTED WITH ASTRO-SIGN-BRAC	10.0 S.F.	48.0" W X 30.0" L	22 LBS
	STREET NAME SIGN RIGID MOUNTED WITH ASTRO-SIGN-BRAC	12.0 S.F.	18.0" W X 96.0" L	27 LBS

Design Reference Material

- NOTES**
- Design the traffic signal structure and foundation in accordance with:
 - The 4th Edition 2001 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
 - The 2006 NCDOT "Standard Specifications for Roads and Structures". The latest addenda to these specifications can be found in the traffic signal project special provisions.
 - The 2006 NCDOT Roadway Standard Drawings.
 - The traffic signal project plans and special provisions.
 - The NCDOT "Metal Pole Standards" located at the following NCDOT website: <http://www.ncdot.org/doh/preconstruct/traffic/itss/ws/mpoles/poles.htm>

Design Requirements

- Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "Design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
- Maximum allowable CSR for all signal supports is 0.9.
- The camber design for mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
- A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This is a high strength connection. Use Direct Tension Indicators (ASTM F959) for each bolt.
- Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- The mast arm attachment height (H1) shown is based on the following design assumptions:
 - Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
 - Signal heads attached to the mast arm are rigid mounted and vertically centered on the arm.
 - The roadway clearance height for design is as shown in the elevation views.
 - The top of the pole base plate is .75 feet above the ground elevation.
 - Refer to the Elevation Data chart for elevation differences between the proposed foundation ground level and the high point on the roadway.
- The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
 - Mast arm attachment height (H1) plus 2 feet, or
 - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- If pole location adjustments are required, the contractor must gain approval from the engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signals & Geometrics Structural Engineer for assistance at (919) 773-2800.
- The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

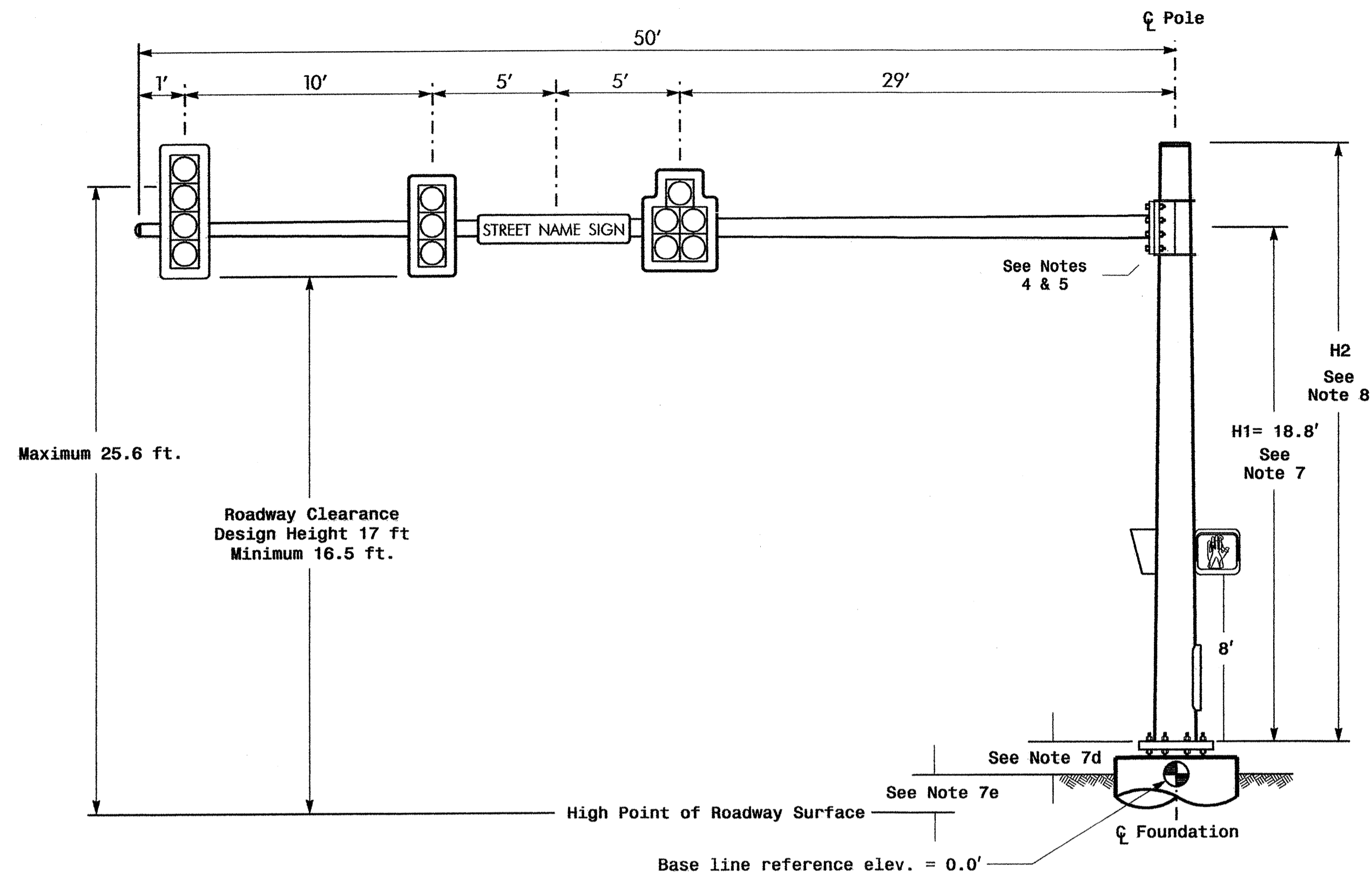
This plan supersedes the plan signed and sealed on 2/6/07.

NCDOT Wind Zone 3 (110 mph)

30-JUL-2008 15:20
s:\projects\signal\workgroups\alexander\wlv_requests\06-0014\060014_sigs\m1-2_20080630.dgn
rzleng

 Prepared in the Offices of: Traffic Engineering and Safety Services Signals and Geometrics 759 N. Greenfield Pkwy, Garner, NC 27529	SR 2299 (Russell Street) at SR 2311 (Gillespie Street)			SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 026486 ROBERT J. ZIEMBA ENGINEER 6/30/08
	Division 6 Cumberland County Fayetteville PLAN DATE: June 2008 REVIEWED BY: PREPARED BY: Sterling REVIEWED BY:			
SCALE 0 N/A N/A	REVISIONS INIT. DATE			SIGNATURE DATE
SIG. INVENTORY NO. 06-0014				

Design Loading for METAL POLE NO. 3



Elevation View

SPECIAL NOTE

The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 3	Pole 4
Baseline reference point at Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	-.28 ft.	+.65 ft.
Elevation difference at Edge of travelway or face of curb	+/-0.0 ft.	+/-0.0 ft.

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	SIGNAL HEAD 12"-5 SECTION-WITH BACKPLATE AND ASTRO-BRAC	16.3 S.F.	42.0" W X 56.0" L	103 LBS
	SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE AND ASTRO-BRAC	11.5 S.F.	25.5" W X 66.0" L	74 LBS
	SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE AND ASTRO-BRAC	9.3 S.F.	25.5" W X 52.5" L	60 LBS
	PEDESTRIAN SIGNAL HEAD WITH MOUNTING HARDWARE	2.2 S.F.	18.5" W X 17.0" L	21 LBS
	STREET NAME SIGN RIGID MOUNTED WITH ASTRO-SIGN-BRAC	12.0 S.F.	18.0" W X 96.0" L	27 LBS

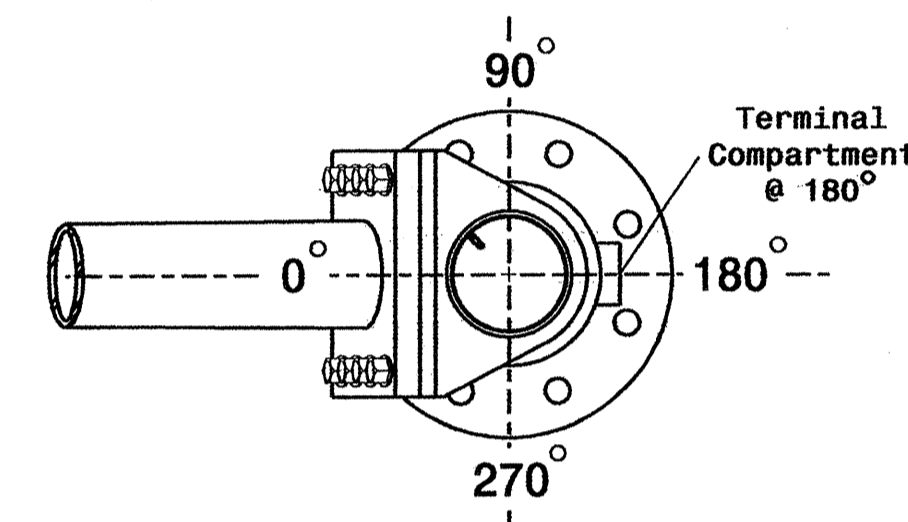
NOTES

Design Reference Material

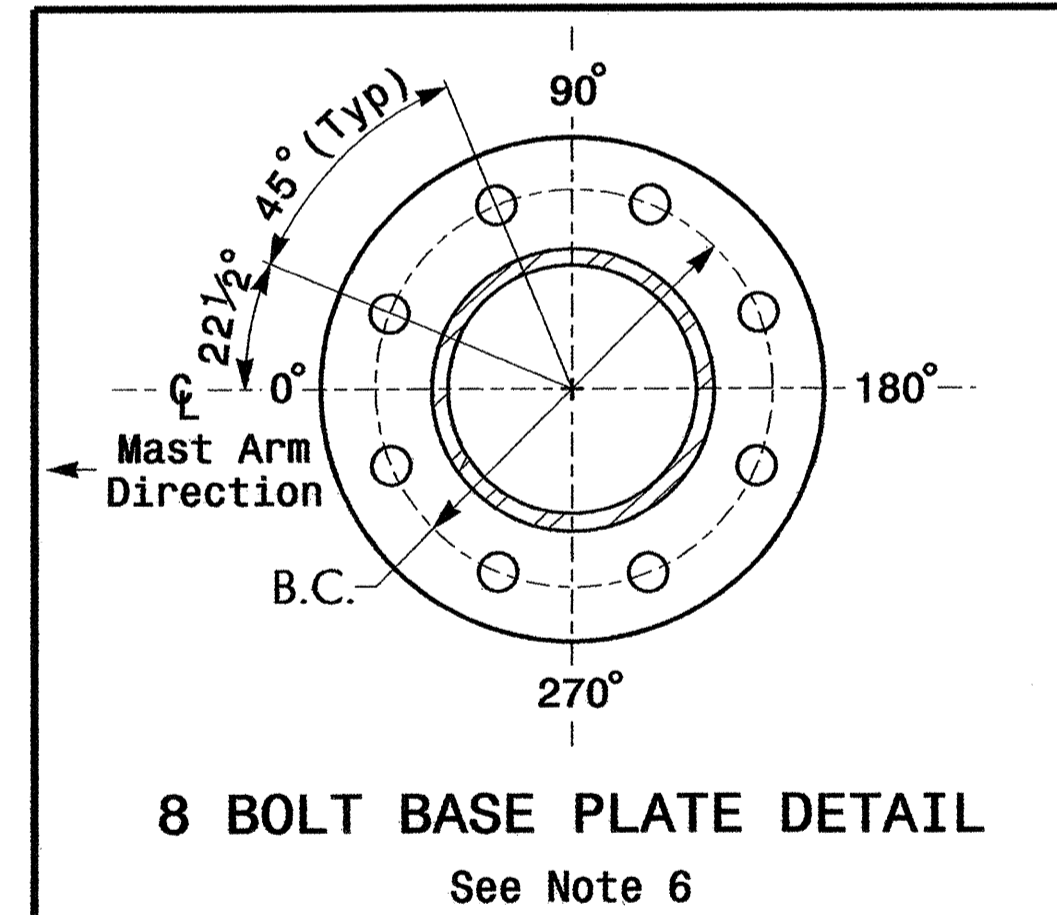
- Design the traffic signal structure and foundation in accordance with: The 4th Edition 2001 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions. The 2006 NCDOT "Standard Specifications for Roads and Structures". The latest addenda to these specifications can be found in the traffic signal project special provisions. The 2006 NCDOT Roadway Standard Drawings. The traffic signal project plans and special provisions. The NCDOT "Metal Pole Standards" located at the following NCDOT website: <http://www.ncdot.org/doh/preconstruct/traffic/itss/ws/mpoles/ poles.htm>

Design Requirements

- Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "Design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
- Maximum allowable CSR for all signal supports is 0.9.
- The camber design for mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
- A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This is a high strength connection. Use Direct Tension Indicators (ASTM F959) for each bolt.
- Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
- The mast arm attachment height (H1) shown is based on the following design assumptions:
 - Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
 - Signal heads attached to the mast arm are rigid mounted and vertically centered on the arm.
 - The roadway clearance height for design is as shown in the elevation views.
 - The top of the pole base plate is .75 feet above the ground elevation.
 - Refer to the Elevation Data chart for elevation differences between the proposed foundation ground level and the high point on the roadway.
- The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
 - Mast arm attachment height (H1) plus 2 feet, or
 - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
- If pole location adjustments are required, the contractor must gain approval from the engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signals & Geometrics Structural Engineer for assistance at (919) 773-2800.
- The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
- The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

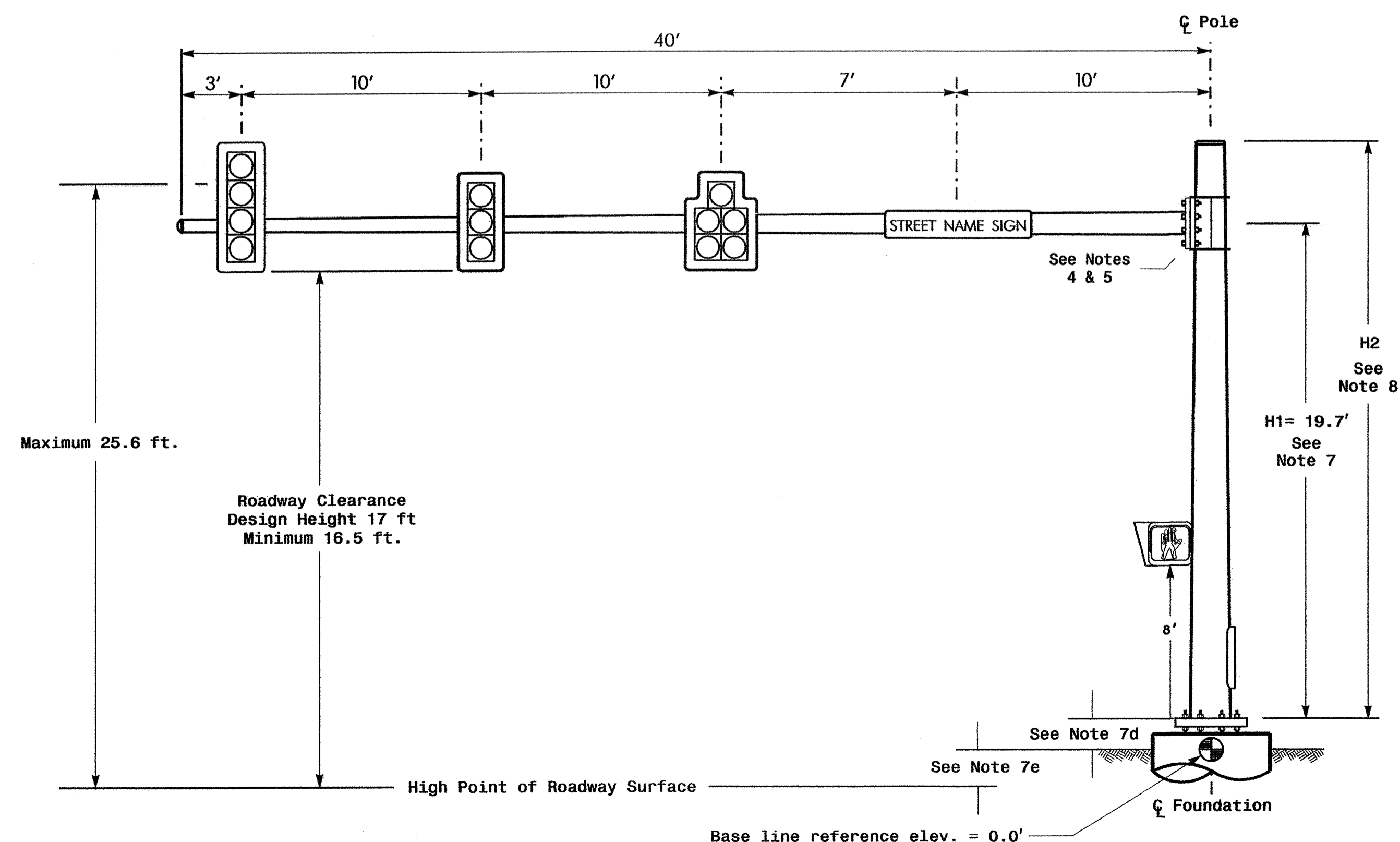


POLE RADIAL ORIENTATION

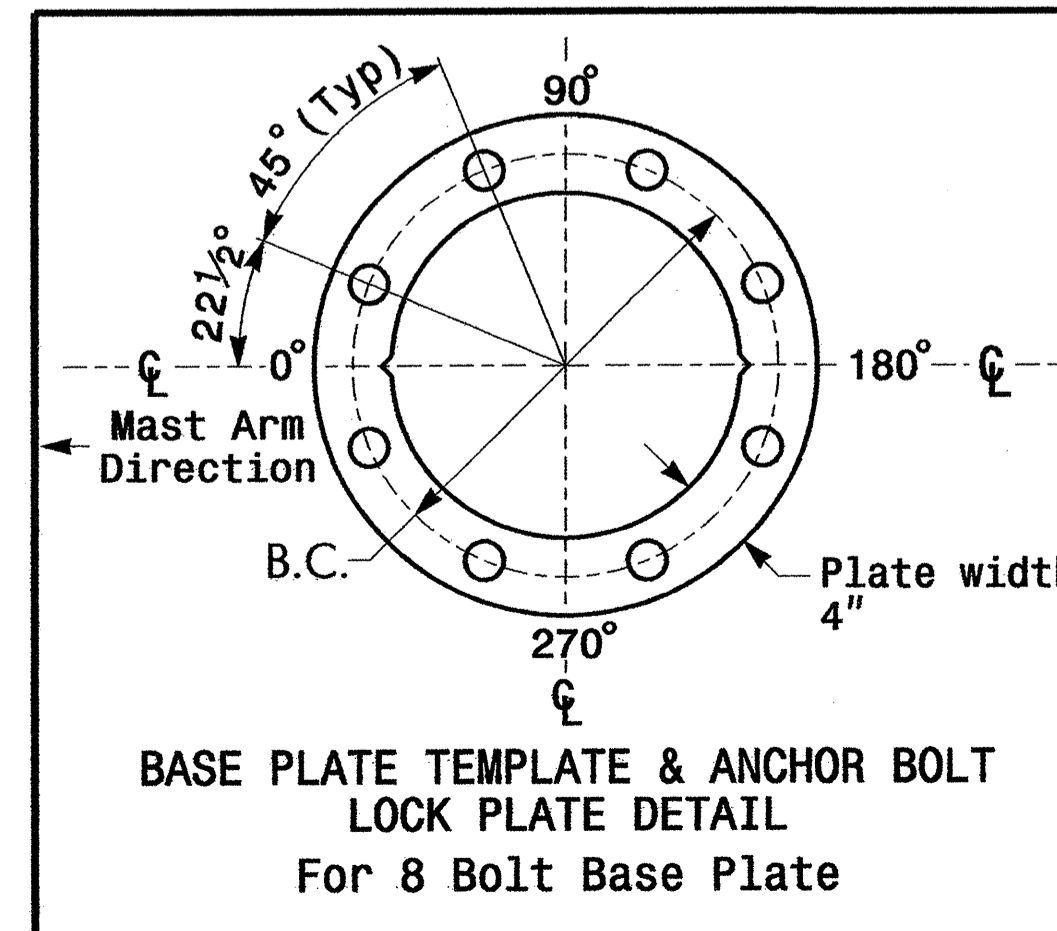


8 BOLT BASE PLATE DETAIL
See Note 6

Design Loading for METAL POLE NO. 4



Elevation View



BASE PLATE TEMPLATE & ANCHOR BOLT
LOCK PLATE DETAIL
For 8 Bolt Base Plate

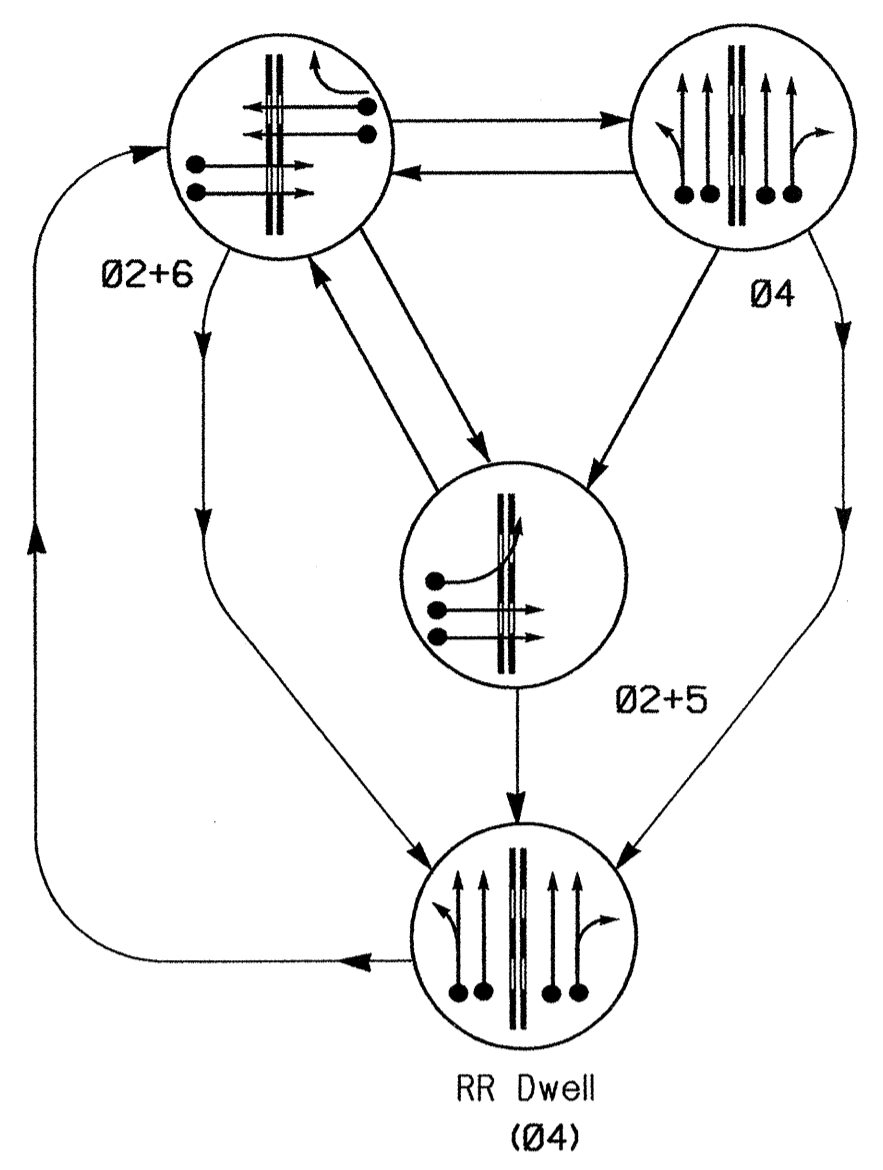
This plan supersedes the plan signed and sealed on 2/6/07.

NCDOT Wind Zone 3 (110 mph)

<p>750 N. Greenfield Pkwy, Greensboro, NC 27429</p>	<p>SR 2299 (Russell Street) at SR 2311 (Gillespie Street)</p>		
	<p>Division 6 Cumberland County Fayetteville</p> <p>PLAN DATE: June 2008 REVIEWED BY:</p> <p>PREPARED BY: Sterling REVIEWED BY:</p>	<p>REVISIONS</p> <p>INIT. DATE</p>	
<p>SCALE: 0 N/A</p> <p>N/A</p>	<p>SIG. INVENTORY NO. 06-0014</p>		

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PHASING DIAGRAM



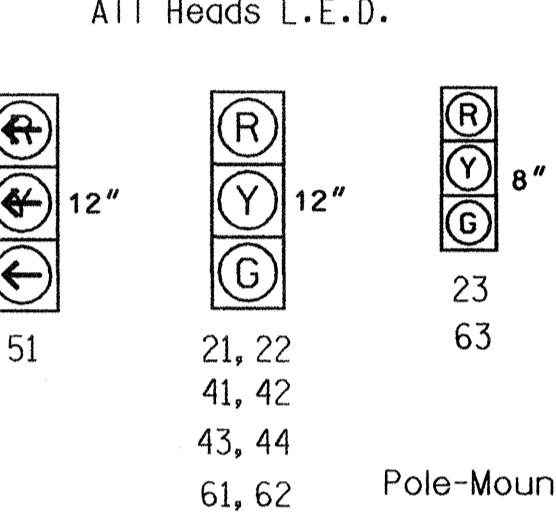
PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- ◄ UNDETECTED MOVEMENT (OVERLAP)
- ◄ UNSIGNALIZED MOVEMENT
- ◄ PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE				
	Ø 2+5	Ø 2+6	Ø 4	RR Dwell	FLUSH
21, 22	G	G	R	R	Y
23	G	G	R	R	Y
41, 42	R	R	G	G	R
43, 44	R	R	G	G	R
51	-	-	-	-	-
61, 62	R	G	R	R	Y
63	R	G	R	R	Y

SIGNAL FACE I.D.



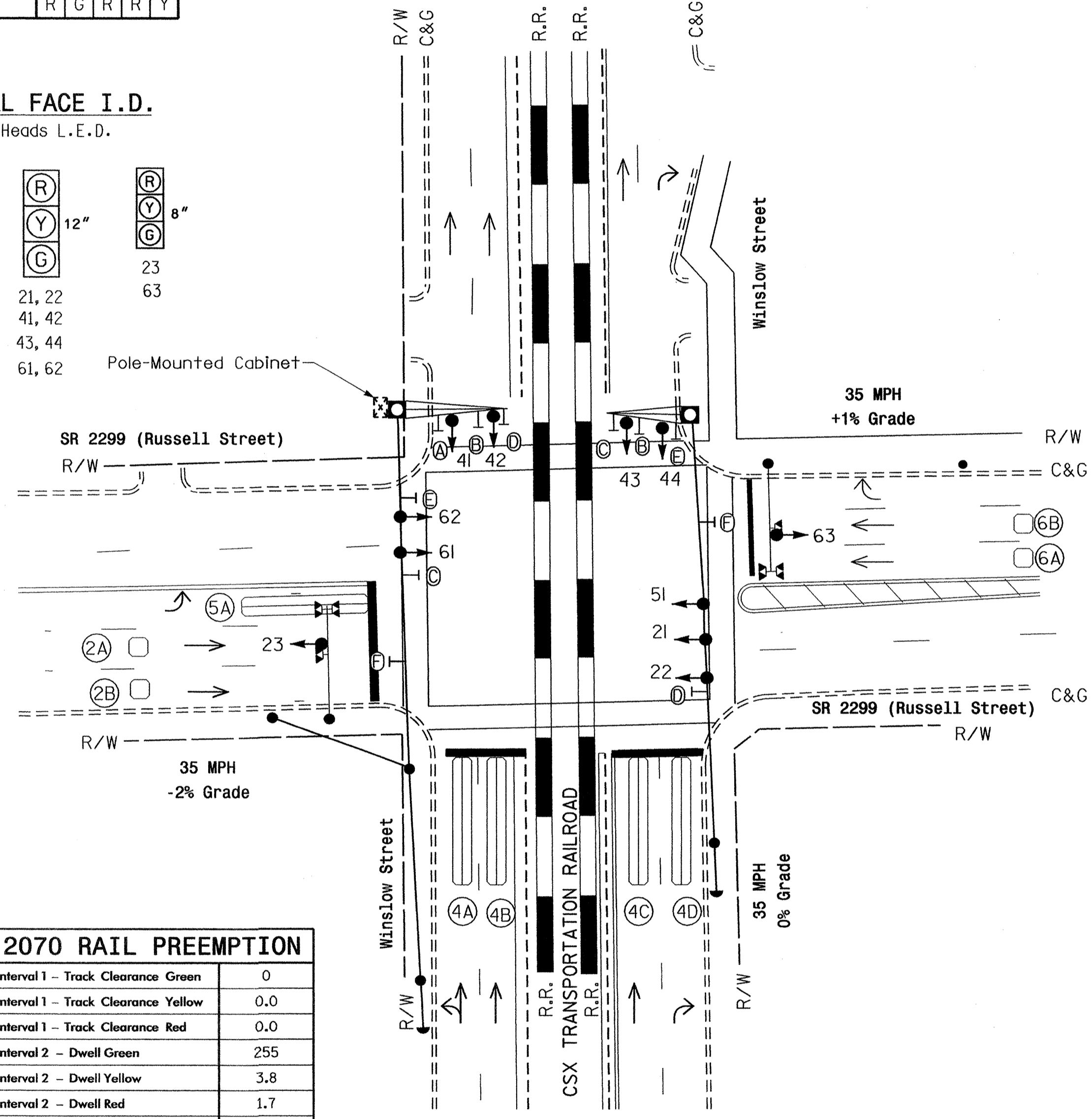
2070L LOOP & DETECTOR INSTALLATION

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING					
				NEW LOOP	PHASE	CALLING	EXTENSION	STRETCH TIME	DELAY TIME
2A,2B	6X6	70	4	Y	2	Y	Y		
4A	6X40	0	2-4-2	Y	4	Y	Y		
4B	6X40	0	2-4-2	Y	4	Y	Y		
4C	6X40	0	2-4-2	Y	4	Y	Y		
4D	6X40	0	2-4-2	Y	4	Y	Y		
5A	6X40	0	2-4-2	Y	5	Y	Y		
6A,6B	6X6	70	4	Y	6	Y	Y		

3 Phase Fully Actuated W/RR Preemption City of Fayetteville Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated July 2006 and "Standard Specifications for Roads and Structures" dated July 2006.
2. This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
3. Set all detector units to presence mode.
4. Phase 5 may be lagged.
5. Pavement markings are existing.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



2070L TIMING CHART

FEATURE	PHASE			
	2	4	5	6
Min Green 1 *	15	8	7	15
Extension 1 *	3.0	2.0	2.0	3.0
Max Green 1 *	30	20	20	30
Yellow Clearance	4.0	3.8	3.0	3.8
Red Clearance	2.1	1.7	3.1	2.3
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

2070 RAIL PREEMPTION

Interval 1 - Track Clearance Green	0
Interval 1 - Track Clearance Yellow	0.0
Interval 1 - Track Clearance Red	0.0
Interval 2 - Dwell Green	255
Interval 2 - Dwell Yellow	3.8
Interval 2 - Dwell Red	1.7
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Delay Time	0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	10
Ped Clear Through Yellow	N

* Time defaults to time used for phase during normal operation.

LEGEND

PROPOSED	EXISTING
○ → Traffic Signal Head	● → N/A
○ → Modified Signal Head	○ → N/A
○ → Pedestrian Signal Head With Push Button & Sign	○ → N/A
○ → Signal Pole with Guy	○ → N/A
○ → Signal Pole with Sidewalk Guy	○ → N/A
○ → Inductive Loop Detector	○ → N/A
○ → Controller & Cabinet	○ → N/A
○ → Junction Box	○ → N/A
○ → 2-in Underground Conduit	○ → N/A
N/A → Right of Way	N/A → N/A
→ Directional Arrow	→ Directional Arrow
→ Pavement Marking Arrow	→ Pavement Marking Arrow
○ → Metal Pole with Mastarm	○ → Metal Pole with Mastarm
N/A → Railroad Cantilever	N/A → Railroad Cantilever
(A) *COMB.LEFT/THRU ARROW SIGN (R3-6)	(A) *COMB.LEFT/THRU ARROW SIGN (R3-6)
(B) THROUGH ARROW 'ONLY' SIGN (R3-5A)	(B) THROUGH ARROW 'ONLY' SIGN (R3-5A)
(C) 'NO LEFT TURN' SIGN (R3-2A)	(C) 'NO LEFT TURN' SIGN (R3-2A)
(D) 'NO RIGHT TURN' SIGN (R3-1A)	(D) 'NO RIGHT TURN' SIGN (R3-1A)
(E) Right Arrow 'ONLY' Sign (R3-5R)	(E) Right Arrow 'ONLY' Sign (R3-5R)
(F) 'DO NOT STOP ON TRACKS' Sign (R8-8)	(F) 'DO NOT STOP ON TRACKS' Sign (R8-8)

This plan supersedes plan sealed 9/30/2008

Signal Upgrade

Prepared in the Offices of:

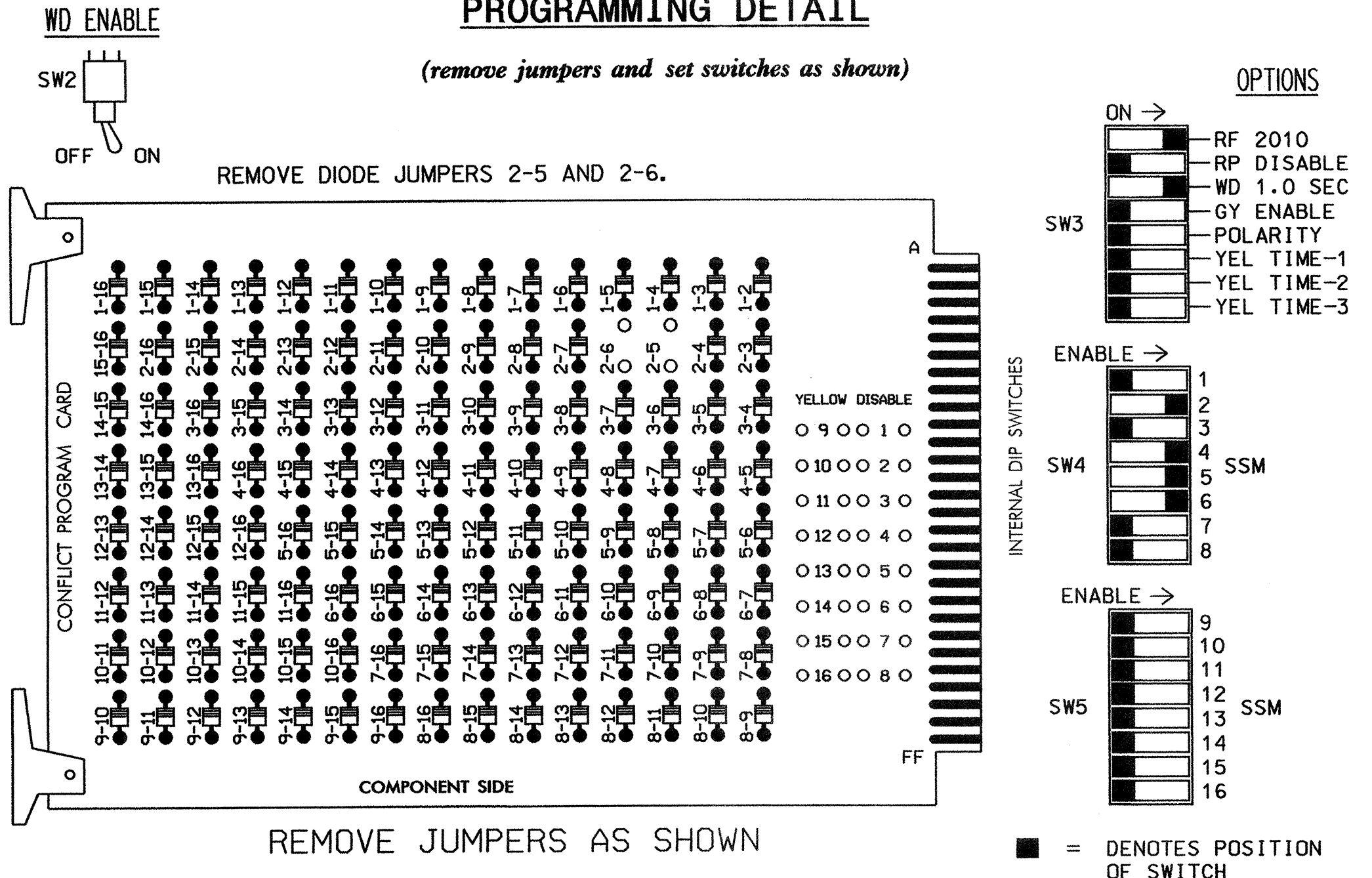
SR 2299 (Russell Street) At Winslow Street
 Division 6 Cumberland County Fayetteville
 PLAN DATE: SEPTEMBER 2008 REVIEWED BY:
 PREPARED BY: MONIF BAZZARIE REVIEWED BY:
 REVISIONS: _____ INIT. DATE
 SCALE: 1"=30'
 DATE: 10/16/08
 SIG. INVENTORY NO. 00-0011

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EDI MODEL 2010ECL-8HCK CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 1,3,7, 8,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phases 2 and 6, on the controller unit, for Start Up In Green.
- Program phases 2 and 6, on the controller unit, for Yellow Flash.
- Enable Simultaneous Gap-Out, on the controller unit, for all phases.
- The cabinet and controller are part of the City of Fayetteville Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....EAGLE 2070L ATC
 CABINET.....SAFETRAN 336
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S4,S5,S6
 PHASES USED.....2,4,5,6
 OVERLAPS.....NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21, 22,23	NU	NU	41,42, 43,44	NU	51	61, 62,63	NU	NU	NU	NU
RED		128			101			134				
YELLOW		129			102			135				
GREEN		130			103			136				
RED ARROW								131				
YELLOW ARROW								132				
GREEN ARROW								133				

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	2A,2B	4A	4C	5A	NOT USED	RR1 AC ISOLATOR	S	S	S	S	FS DC ISOLATOR			
L	6A,6B	4B	4D	NOT USED	NOT USED	NOT USED	Y	Y	Y	Y	ST DC ISOLATOR			

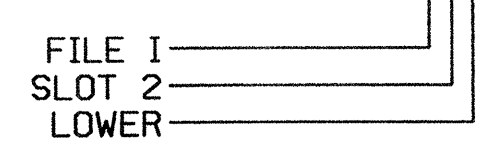
EX. : 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME
 RR = RAILROAD PREEMPT

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A,2B	TB21-3,4	I2U	39	1	2	2	Y	Y			
4A	TB21-5,6	I3U	58	20	3	4	Y	Y			
4B	TB23-5,6	I3L	49	11	24	4	Y	Y			
4C	TB21-7,8	I4U	41	3	4	4	Y	Y			
4D	TB23-7,8	I4L	45	7	14	4	Y	Y			
5A	TB21-9,10	I5U	55	17	5	5	Y	Y			
6A,6B	TB23-3,4	I2L	43	5	12	6	Y	Y			

INPUT FILE POSITION LEGEND: I2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0011
 DESIGNED: September 2008
 SEALED: 10/16/08
 REVISED: N/A

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 10/14/08

Signal Upgrade - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SR 2299 (Russell Street) at Winslow Street

Division 6 Cumberland County Fayetteville

PLAN DATE: October 2008 REVIEWED BY: T. J. J. J.

PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS INIT. DATE

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN

Signature: George C. Brown 10/16/08

SIG. INVENTORY NO. 06-0011

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RAILROAD PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions).

PREEMPTION #1	SETTINGS (NEXT:1-10)
INTERVAL/TIMING	CLEAR/DWELL PHASES
GRN YEL RED	12345678910111213141516
1 0 0.0 0.0	
2 255 3.8 1.7	X
3 0 0.0 0.0	
4 0 0.0 0.0	
5 1 0.0 0.0	X X

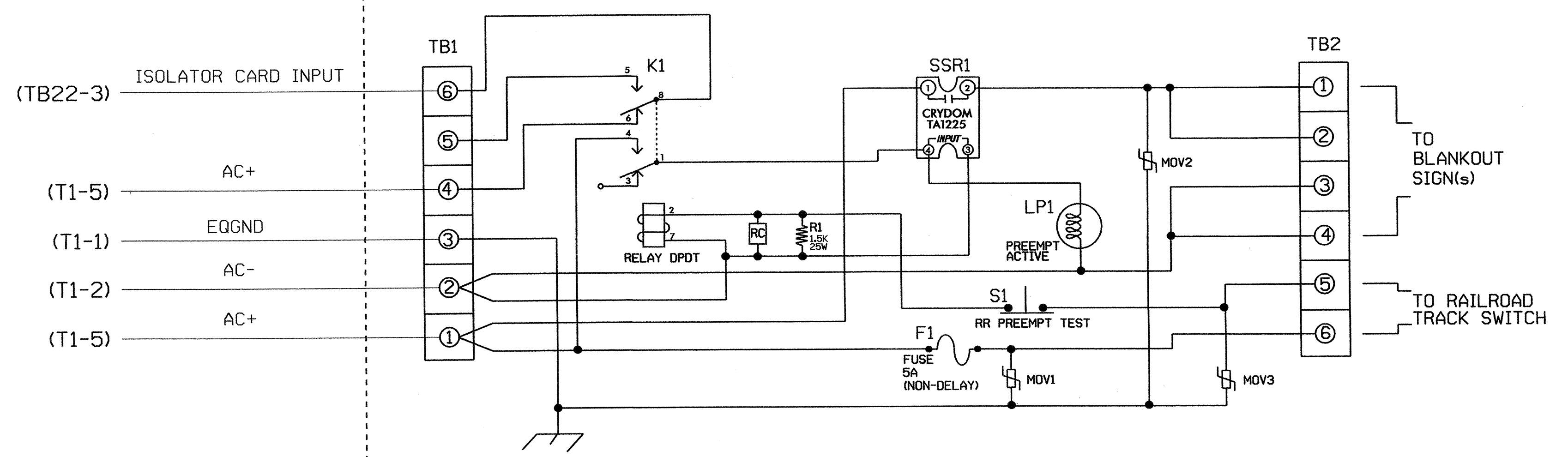
EXIT CALLS	OPTIONS
PRIORITY (Y/N TO SELECT)	HIGH
DELAY TIMER (0-255 SEC)	0
MIN GREEN BEFORE PRE (0= DEFAULT)...	1
PED CLEAR BEFORE PRE (0= DEFAULT)...	0
YELLOW CLEAR BEFORE PRE (0= DEFAULT)...	0
RED CLEAR BEFORE PRE (0= DEFAULT)...	0
DWELL MIN TIMER (0-255 SEC)	10
DWELL MAX TIMER (0=OFF,1-255MIN) ...	0
DWELL HOLD-OVER TIMER (0-255)	0
LATCH CALL?	N
LINK TO NEXT PREEMPT?	N
ENABLE BACKUP PROTECTION?	N
HOLD CLEAR 1 PHASES DURING DELAY? ..	N
FAST GREEN FLASH DWELL PHASES?	N
PED CLEARANCE THROUGH YELLOW?	N
INHIBIT OVERLAP GREEN EXTENSION? ..	N
SERVICE DURING SOFTWARE FLASH?	N
REST IN RED DURING DWELL INTERVAL? ..	N
FLASH DWELL INTERVAL?	N
ALLOW PEDS IN DWELL INTERVAL?	N
RE-TIME DWELL INTERVAL?	N
OVERLAPS:	ABCDEFGHIJKLMN
DWELL INT FLASH YELLOW	
OMIT OVERLAPS:	

RAILROAD PREEMPTION WIRING DETAIL

(wire as shown below)

CABINET WIRING

PREEMPTION AND BLANKOUT SIGN CONTROL BOX

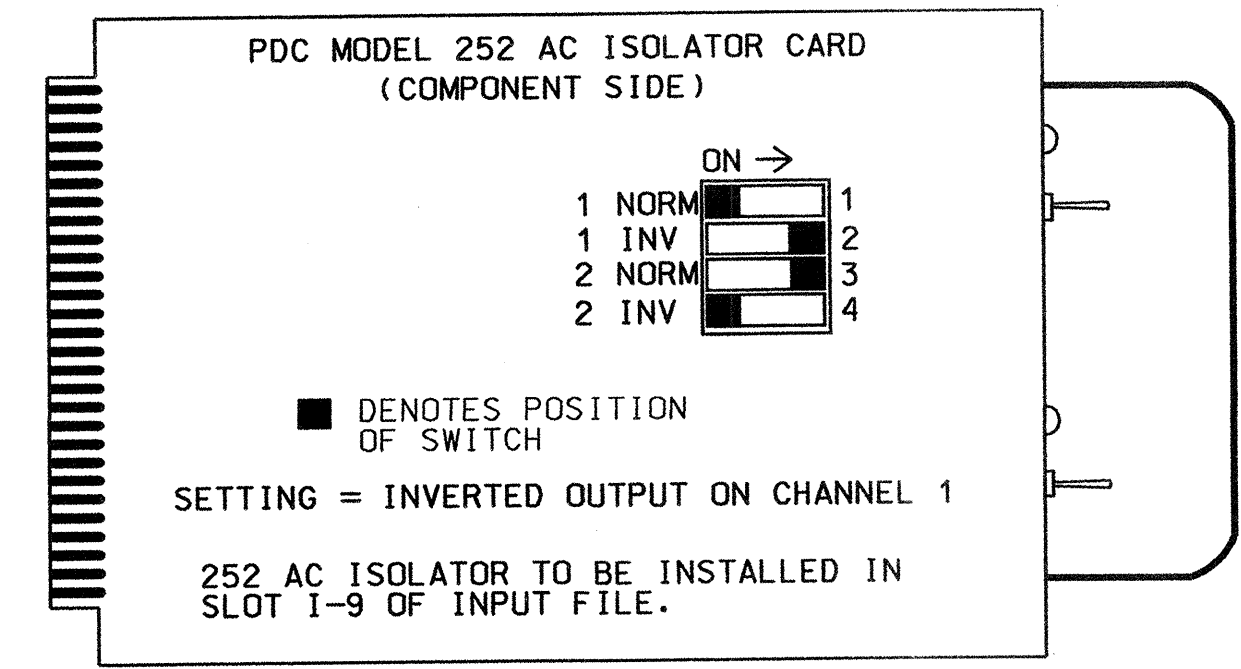


NOTES

1. RELAY K1 IS SHOWN IN THE ENERGIZED (PREEMPT NOT ACTIVE) NORMAL OPERATION STATE.
2. RELAY K1 IS A DPDT WITH 120VAC COIL OMRON MK2P-3 WITH OCTAL BASE (OR EQUIVALENT).
3. RELAY SSR1 IS A SPST (NORMALLY OPEN) SOLID STATE RELAY WITH AC INPUT AND AC (25 AMP) OUTPUT. CRYDOM TA1225 OR EQUIVALENT.
4. AC ISOLATOR CARD SHALL ACTIVATE PREEMPTION UPON REMOVAL OF AC+ FROM THE INPUT (AS SHOWN ABOVE). TO ACCOMPLISH THIS SET INVERT DIP SWITCH ON AC ISOLATOR CARD (SEE DETAIL THIS SHEET).
5. IMPORTANT!! ADD A JUMPER FROM I9-E TO AC NEUTRAL.

PREEMPT 1 AC ISOLATOR (MODEL 252) OUTPUT PROGRAMMING DETAIL

(set DIP switches as shown below)



NOTE: IF ANOTHER MANUFACTURER TYPE OF AC ISOLATOR IS USED, OUTPUT PROGRAMMING IS LIKELY NOT TO EQUATE TO THAT SHOWN ABOVE.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0011
 DESIGNED: September 2008
 SEALED: 10/16/08
 REVISED: N/A

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 10/14/08

Signal Upgrade - Sheet 2 of 2

Prepared in the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 2299 (Russell Street) at Winslow Street		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 022013 GEORGE C. BROWN
	Division 6 PLAN DATE: October 2008 PREPARED BY: C. Strickland	Cumberland County REVIEWED BY: T. Sogel REVIEWED BY:	

Signature: George C. Brown, Date: 10/16/08
 SIG. INVENTORY NO. 06-0011

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