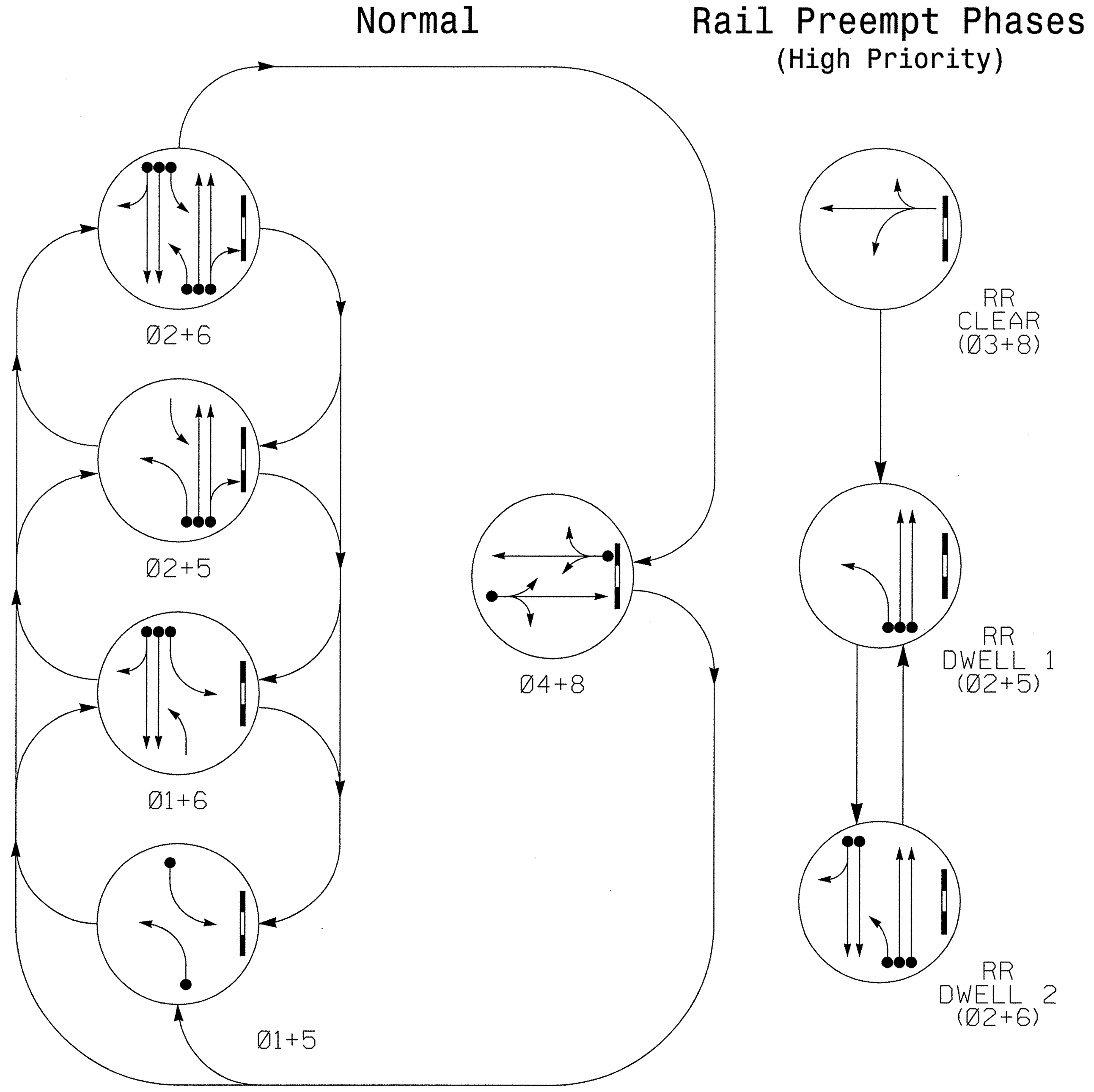
DCN: 0160DEL_P10b2

PROJECT REFERENCE NO.	SHEET NO.
P-5206B	Sig. 1

PHASING DIAGRAM

Normal — Rail Preempt Phases (High Priority)



PHASING DIAGRAM DETECTION LEGEND

- ◄——● DETECTED MOVEMENT
- ◄—— UNDETECTED MOVEMENT (OVERLAP)
- ◄– – UNSIGNALIZED MOVEMENT
- <– – –> PEDESTRIAN MOVEMENT

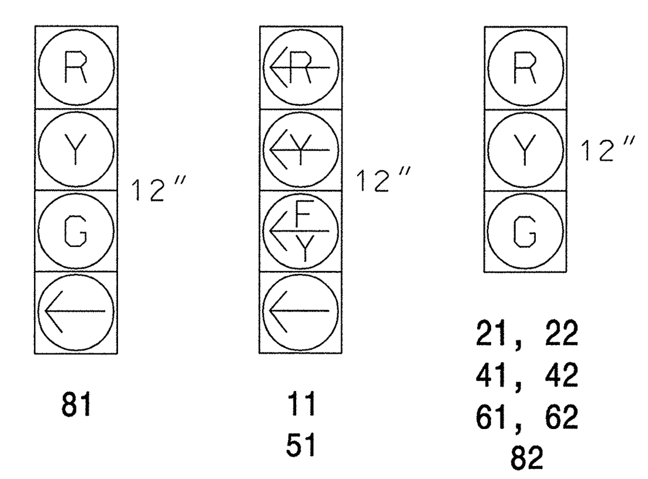
TABLE OF OPERATION

SIGNAL FACE	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	RR Clear	Dw Rel 1	Dw Rel 2	FLASH
11	←	←	←FY	←FY	←R	←R	←R	←R	←Y
21, 22	R	R	G	G	R	R	G	G	Y
41, 42	R	R	R	R	G	R	R	R	R
51	←	←FY	←	←FY	←R	←R	←	←FY	←Y
61, 62	R	G	R	G	R	R	R	G	Y
81	R	R	R	R	G	G ←	R	R	R
82	R	R	R	R	G	G	R	R	R
Sign A	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	*

* See Note 5.
←FY = Flashing Yellow Arrow

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

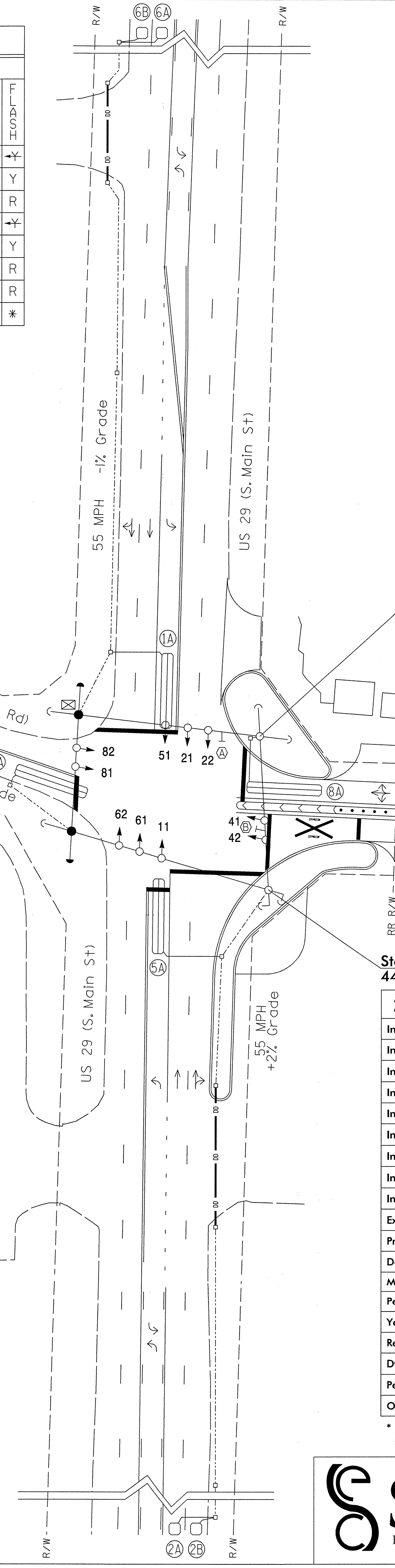
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
					6	Y	Y	Y	-	3	-	Y
2A	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	420	6	Y	2	Y	Y	-	-	-	-	Y
4A	6X40	+5	2-4-2	Y	4	Y	Y	-	-	10	-	Y
5A	6X40	+5	2-4-2	Y	5	Y	Y	-	-	15	-	Y
					2	Y	Y	Y	-	3	-	Y
6A	6X6	420	5	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	420	5	Y	6	Y	Y	-	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	Y

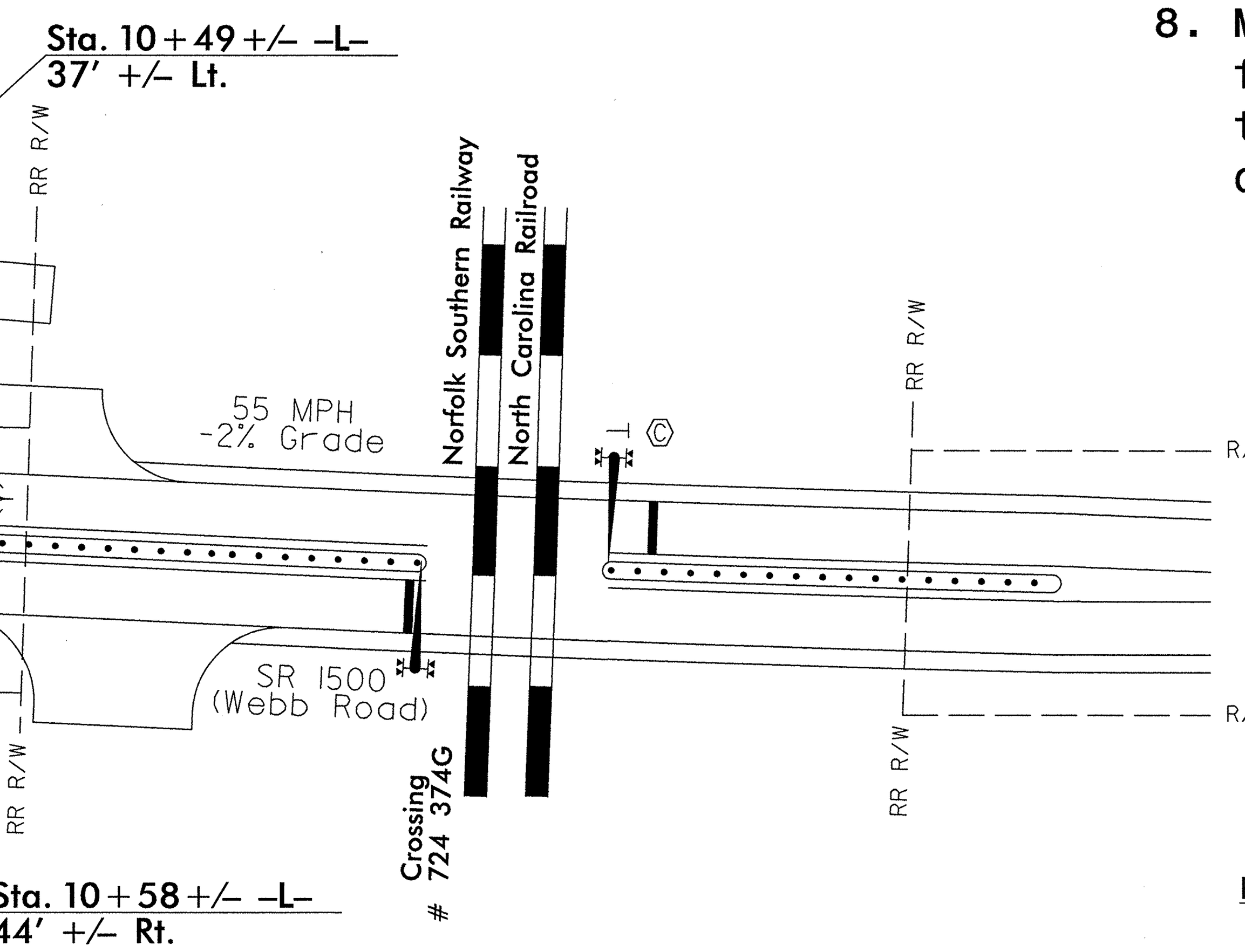
(Column groups: INDUCTIVE LOOPS — Loop to New Loop; DETECTOR PROGRAMMING — Phase to Delay Time.)

5 Phase
Fully Actuated
W/RR Preemption (Isolated)

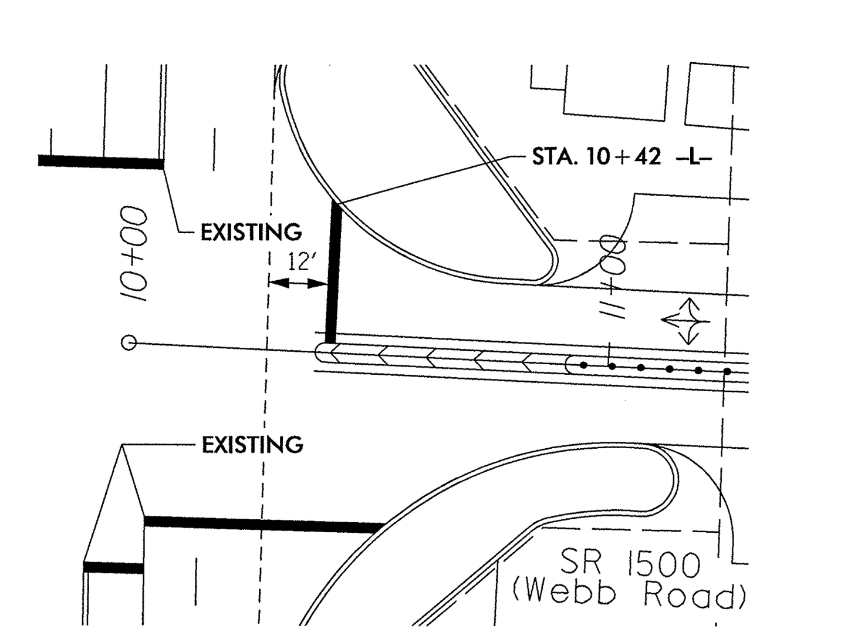
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 "Standard Specifications for Roads and Structures" dated January 2012.
2. This location contains railroad preemption phasing. Do not program signal for late night flashing operation.
3. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Ensure flashing operation does not alter operation of blankout signs.
6. Program parent phases for Overlap "P" for all phases used in normal operation.
7. Pavement markings are existing unless otherwise shown.
8. Min. Green 2 time has been included for RR exit phase to allow vehicles to clear railroad tracks and reach detection loops.



STOP BAR LOCATIONS



OASIS 2070L TIMING CHART

FEATURE	1	2	4	5	6	8
Min Green 1 *	7	14	7	7	14	7
Min Green 2 *	7	14	7	7	14	22
Extension 1 *	1.0	6.0	2.0	1.0	6.0	2.0
Max Green 1 *	20	60	30	20	60	30
Yellow Clearance	3.0	5.3	4.1	3.0	5.3	5.4
Red Clearance	2.1	1.0	1.6	2.3	1.0	1.0
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	1.5	-
Max Variable Initial *	-	45	-	-	45	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL	-
Vehicle Call Memory	-	YELLOW	-	-	YELLOW	-
Dual Entry	-	-	ON	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON

(PHASE)

* 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	35
Interval 1 – Track Clearance Yellow	5.4
Interval 1 – Track Clearance Red	1.0
Interval 2 – Dwell Green	255
Interval 2 – Dwell Yellow	0.0*
Interval 2 – Dwell Red	0.0*
Interval 5 – Exit Green	1
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	4, 8
Priority	High
Delay Time	0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	5.3
Red Clear Before Pre	1.0
Dwell Min Time	14
Ped Clear Through Yellow	N
Omit Overlaps	A, P

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

This signal was designed for advanced preemption.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head With Push Button & Sign	■
○—)	Signal Pole with Guy	●—◗
○┐	Signal Pole with Sidewalk Guy	●┐
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
- - - - -	2-in Underground Conduit	-·-·-·-
N/A	Right of Way	– – – –
→	Directional Arrow	→
— DD —	Directional Drill	N/A
N/A	Railroad Tracks	▬▭
N/A	Railroad Gate and Flasher	◄▬
Ⓐ	"NO RIGHT TURN - TRAIN" L.E.D. Blankout Sign	Ⓐ
Ⓑ	"ONCOMING TRAFFIC MAY HAVE EXTENDED GREEN" Sign (W25-2)	Ⓑ
Ⓒ	"DO NOT STOP ON TRACKS" Sign (R8-8)	Ⓒ

Signal Upgrade

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License #: C-2197

Prepared in the Offices of: Transportation Mobility and Safety Division, State of North Carolina Department of Transportation, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40 1"=40'

US 29 (S. Main Street) at SR 1500 (Roseman Rd / Webb Rd)

Division 9 Rowan County N of China Grove

PLAN DATE:	April 2013	REVIEWED BY:	J Hochanadel
PREPARED BY:	M Copple	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 28430 ENGINEER JEFFREY P. HOCHANADEL

[illegible] 4/17/13
SIGNATURE DATE

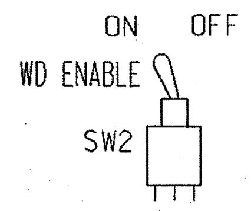
SIG. INVENTORY NO. 09-0564

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

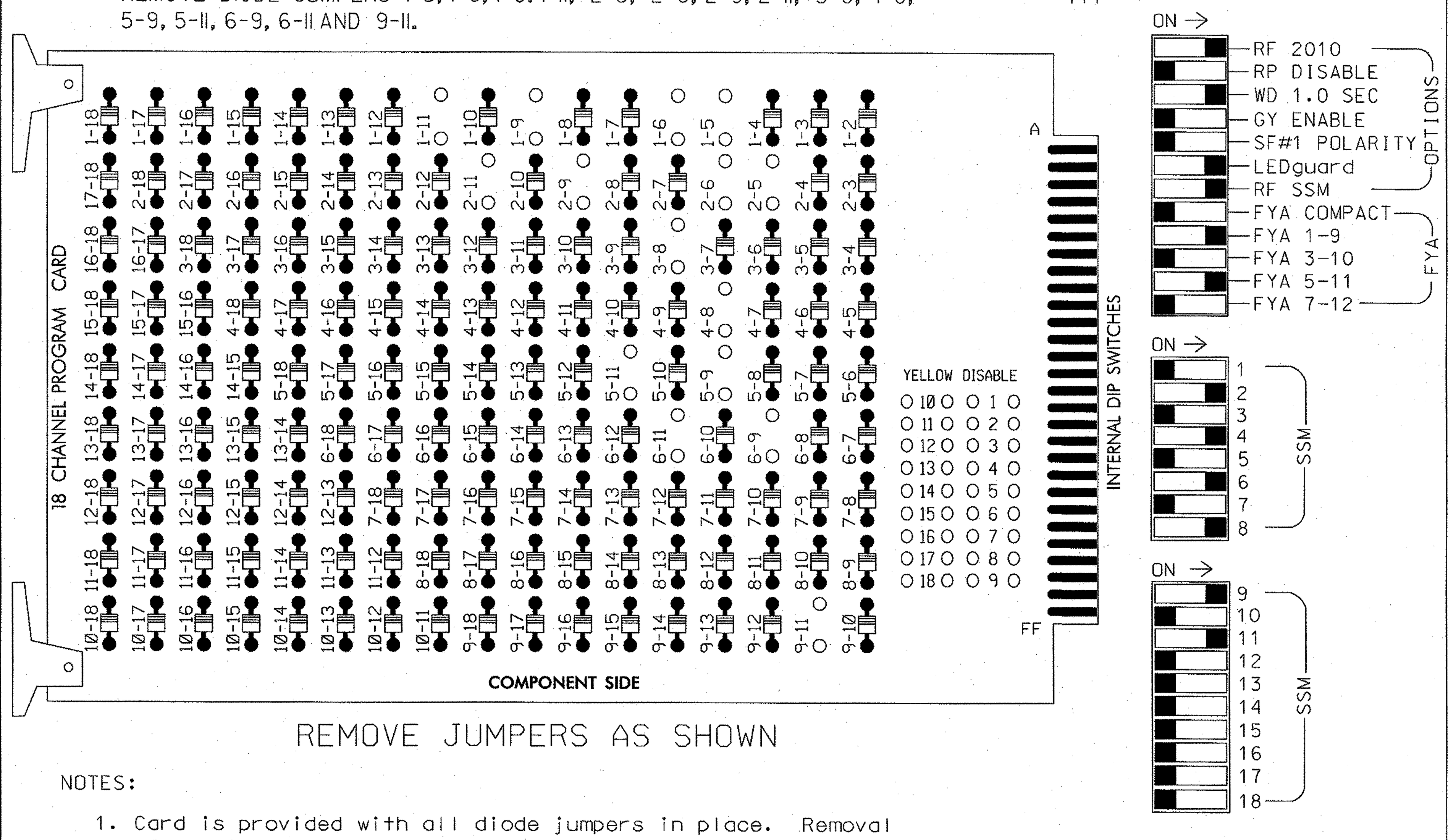
DCN: 0160DEL_P10b2

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 3-8, 4-8, 5-9, 5-11, 6-9, 6-11 AND 9-11.



REMOVE JUMPERS AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

1. 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.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Inital and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash, overlap 1 as a Wag Overlaps.

EQUIPMENT INFORMATION

CONTROLLER..............2070L
CABINET.................332 /W/ AUX
SOFTWARE................ECONOLITE OASIS 3.03.26E (OR LATEST APPROVED VERSION)
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUTFILE
LOAD SWITCHES USED......S1,S2,S4,S5,S7,S8,S11,AUX S1, AUX S4
PHASES USED.............1,2,3*,4,5,6,8
OVERLAP A...............1+2
OVERLAP C...............5+6
OVERLAP P...............1+2+4+5+6+8

*USED DURING PREEMPT ONLY

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
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★	21,22	NU	81	41,42	NU	51★	61,62	NU	NU	81,82	NU	11★	NU	NU	51★	NU	NU
RED		128			101			134			107							
YELLOW	*	129		*	102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127			118			133											

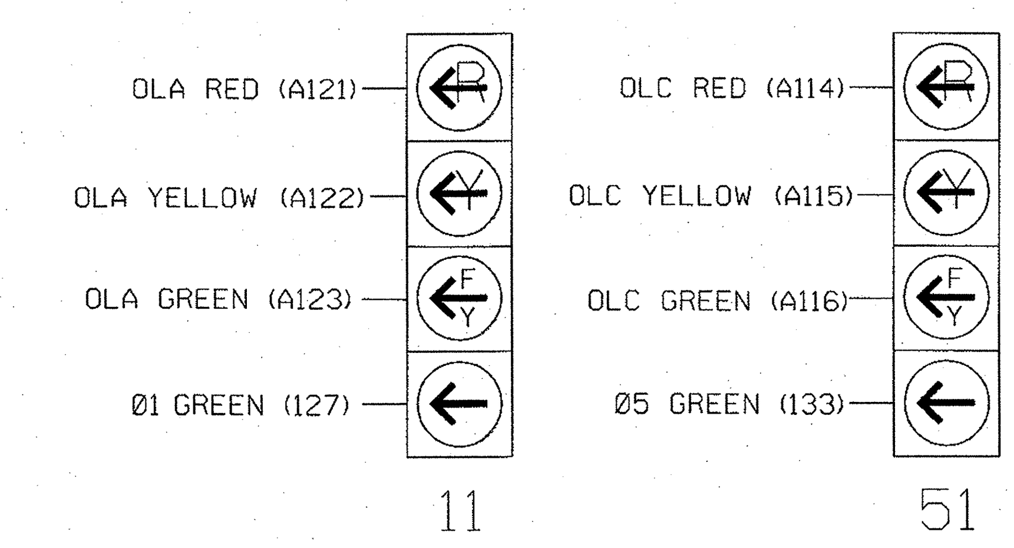
NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. THE SEQUENCE DISPLAY FOR THIS SIGNAL REQUIRES SPECIAL LOGIC PROGRAMMING. SEE SHEET 2 OF 4 FOR PROGRAMMING INSTRUCTIONS.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø2 2A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2 2B				NOT USED								ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø6 6A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	Ø8 8A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE1 AC ISOLATOR
	L	NOT USED	Ø6 6B				NOT USED								NOT USED

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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

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
	–	J4U	48	10	26	6	Y	Y	Y	–	3
2A	TB2-5,6	I2U	39	1	2	2	Y	Y	–	–	–
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	–	–	–
4A	TB4-9,10	I6U	41	3	4	4	Y	Y	–	–	10
5A[2]	TB3-1,2	J1U	55	17	5	5	Y	Y	–	–	15
	–	I4U	47	9	22	2	Y	Y	Y	–	3
6A	TB3-5,6	J2U	40	2	6	6	Y	Y	–	–	–
6B	TB3-7,8	J2L	44	6	16	6	Y	Y	–	–	–
8A	TB5-9,10	J6U	42	4	8	8	Y	Y	–	–	10

NOTES:

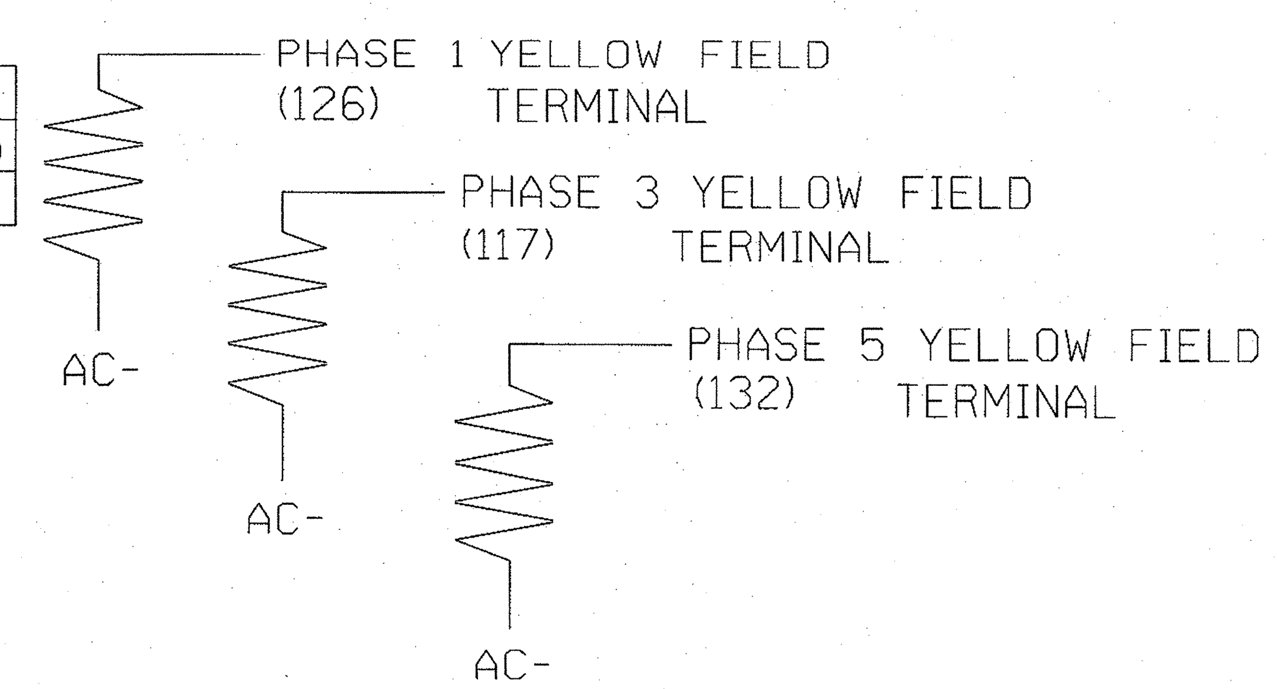
[1] Add Jumper from I1-W to J4-W on rear of input file.

[2] Add Jumper from J1-W to I4-W on rear of input file.

LOAD RESISTOR INSTALLATION DETAIL

ACCEPTABLE VALUES

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



PREEMPT ONLY PHASE OMIT NOTE

(program controller as shown below)

From Main Menu press '2' (Phase Control). Then '1' (Phase Control Functions). Program Phase 3 for 'Omit Phase' and Phases 1,2,4,5,6 and 8 for 'Startup Calls'. This is to prevent Phase 3 from being served when not in Preempt.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0564
DESIGNED: APRIL 2013
SEALED: 4/17/2013
REVISED:

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
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License #: C-2197

PROJECT REFERENCE NO. P-5206B | SHEET NO. Sig. 2

Signal Upgrade - Sheet 1 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 29 (S. Main Street) at SR 1500 (Roseman Rd / Webb Rd)

Division 9 | Rowan County | N of China Grove

PLAN DATE: April 2013 | REVIEWED BY: M Copple
PREPARED BY: C Lawson | REVIEWED BY:

REVISIONS | INIT. | DATE

Traffic Engineering and Safety Systems Branch – State of North Carolina Department of Transportation – Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 027... ENGINEER MATTHEW B. COPPLE 4/17/13
SIGNATURE | DATE
SIG. INVENTORY NO. 09-0564

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

DCN: 0160DEL_P10b2

PROJECT REFERENCE NO.	SHEET NO.
P-5206B	Sig. 3

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE AND
TO CALL MIN 2 ON PHASE 8 DURING PREEMPT EXIT INTERVAL

(program controller as shown below)

1. 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 AND 7.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
LOGICAL I/O COMMAND #1   (+/-COMMAND#)
IF  ACTIVE PHASE         #1   IS ON
AND RED CLEAR ON PHASE #1    IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #50 ON
SET OUTPUT  ASSIGNMENT #51 OFF
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #2   (+/-COMMAND#)
IF  ACTIVE PHASE         #1   IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #52 OFF
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #3   (+/-COMMAND#)
IF  YELLOW ON PHASE      #1   IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #51 ON
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #4   (+/-COMMAND#)
IF  ACTIVE PHASE         #5   IS ON
AND RED CLEAR ON PHASE #5    IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #42 ON
SET OUTPUT  ASSIGNMENT #43 OFF
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #5   (+/-COMMAND#)
IF  ACTIVE PHASE         #5   IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #44 OFF
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #6   (+/-COMMAND#)
IF  YELLOW ON PHASE      #5   IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #43 ON
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #7   (+/-COMMAND#)
IF ACTIVE PREEMPTION #1 IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #64 ON
```

NOTE: LOGIC TO CALL PHASE 8 MIN 2 TIME DURING RR PREEMPT EXIT INTERVAL 5.

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

INPUT 64 = TIME MIN. 2 ON PHASE 8 (SEE INPUT PROGRAMMING DETAIL ON ELECTRICAL DETAIL SHEET 4 OF 4).

OUTPUT REFERENCE SCHEDULE

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

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?...Y
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 '+' TWICE

```
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?...Y
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 '-' THREE TIMES

```
PAGE 1: VEHICLE OVERLAP 'P' SETTINGS
PHASE:           |12345678910111213141516
VEH OVL PARENTS: |XX XXX X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED   _ YELLOW   _ GREEN
FLASH COLORS:  _ RED   _ YELLOW   _ 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
```

OVERLAP PROGRAMMING COMPLETE

The utilization of overlap P ensures consistent clearance timing during transition to preemption.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN:09-0564
DESIGNED: APRIL 2013
SEALED: 4/17/2013
REVISED:

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License #: C-2197

Signal Upgrade - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Traffic Engineering and Safety Systems Branch — State of North Carolina Department of Transportation — Signals Management Section
750 N. Greenfield Pkwy, Garner, NC 27529

US 29 (S. Main Street) at SR 1500 (Roseman Rd / Webb Rd)

Division 9	Rowan County	N of China Grove	
PLAN DATE: April 2013		REVIEWED BY: M Copple	
PREPARED BY: C Lawson		REVIEWED BY:	
REVISIONS		INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 27... MATTHEW B. COPPLE 4/17/13
SIGNATURE DATE
SIG. INVENTORY NO. 09-0564

$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

DCN: 0160DEL_P10b2

PROJECT REFERENCE NO.	SHEET NO.
P-5206B	Sig. 4

RAILROAD PREEMPTION PROGRAMMING DETAIL

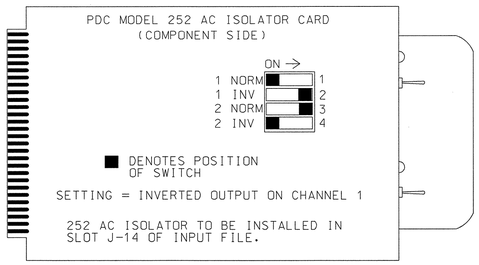
(program controller as shown below)

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

```
   PREEMPTION  #1  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |123456789101112131415 16
1  35  5.4  1.0  |  X     X
2 255  0.0  0.0  |  X   XX
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).5.3
RED CLEAR BEFORE PRE (0= DEFAULT)....1.0
DWELL MIN TIMER (0-255 SEC) .........14
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:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           | X              X
```

PREEMPT 1 AC ISOLATOR (MODEL 252) OUTPUT PROGRAMMING DETAIL

(set DIP switches as shown below)

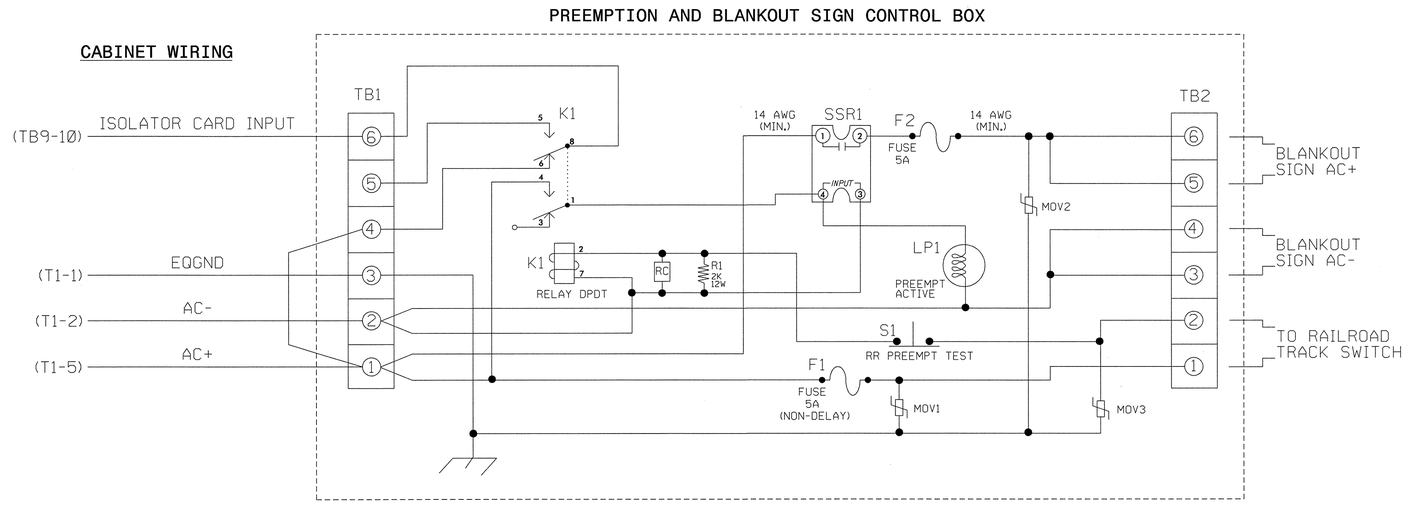


NOTE: IF ANOTHER MANUFACTURER TYPE OF AC ISOLATOR IS USED, OUTPUT PROGRAMMING IS LIKELY NOT TO EQUATE TO THAT SHOWN ABOVE.

RAILROAD PREEMPTION WIRING DETAIL

(wire as shown below)

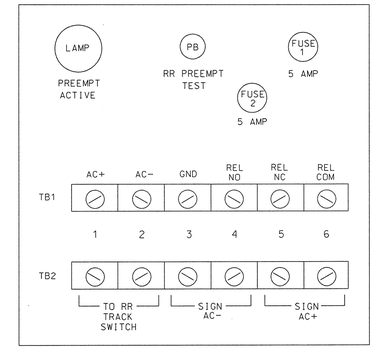
CABINET WIRING



NOTES

1. Relay K1 is shown in the energized (Preempt not active) normal operation state.
2. Relay K1 is a DPDT with 120VAC coil with octal base.
3. Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output.
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.
5. 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:09-0564
DESIGNED: APRIL 2013
SEALED: 4/17/2013
REVISED:

SEPI ENGINEERING & CONSTRUCTION
1025 Wade Avenue
Raleigh, NC 27605
Tel:919-789-9977
Fax:919-789-9591
License #: C-2197

Signal Upgrade - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Public Engineering and Safety Systems Branch — North Carolina Department of Transportation — Signals Management Section

750 N. Greenfield Pkwy, Garner, NC 27529

US 29 (S. Main Street) at SR 1500 (Roseman Rd / Webb Rd)

Division 9 | Rowan County | N of China Grove

PLAN DATE:	April 2013	REVIEWED BY:	M Copple
PREPARED BY:	C Lawson	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 27711 ENGINEER — MATTHEW B. COPPLE

4/17/13

SIGNATURE | DATE

SIG. INVENTORY NO. 09-0564

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
P-5206B	Sig. 5

DCN: 0160DEL_P10b2

PROGRAMMING DETAIL TO ASSIGN INPUT 64 TO CALL "TIME MIN 2" ON PHASE 8

(program controller as shown below)

1. FROM MAIN MENU PRESS '5' (INTPUTS).
2. WITH CURSOR IN "INPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE INPUT ASSIGNMENT NUMBER 64, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

STEP 1

```
PAGE:1  C1 PIN:0    NOT ENABLED
INPUT ASSIGNMENT #.................64
DEBOUNCE TIME (0-25.5 SEC)..........0.0
DELAY TIME (0-25.5 SEC)............ 0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED.........................Y
VEHICLE DETECTOR (1-64).............
PEDESTRIAN DETECTOR (1-16)..........
ALTERNATE PED DETECTOR (1-16).......
PREEMPT (1-10)......................
INVERTED PREEMPT (1-10).............
STOP TIME (Y/N).....................
FLASH SENSE (Y/N)...................
DOOR OPEN (Y/N).....................
MANUAL CONTROL ENABLE (Y/N).........
MANUAL CONTROL ADVANCE (Y/N)........
SPECIAL FUNCTION ALARM (1-8)........
TOD HOUR SYNCHRONIZATION (0-23).....
FORCE OFF RING (1-4)................
HOLD PHASES (1-16)..................
PLAN (65=FLSH,66=FREE).._  OFFSET#..
CHANGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4)......
CHANGE PHASE CONTROL PAGE (1-4).....
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4).............
CHANGE OUTPUT PAGE (1-4)............
OVERRIDE PHASE CONTROL FUNCTION (Y).Y
```

SCROLL DOWN TO VIEW ALL DATA

EXISTING DEFAULT PROGRAMMING (IGNORE FOR NOW)

SELECT "Y" FOR "OVERRIDE PHASE CONTROL FUNCTION"

STEP 2

AFTER SELECTION IS MADE, THE PHASE CONTROL FUNCTIONS TABLE APPEARS. FIND "TIME MIN 2" NEAR THE TOP OF THE SCREEN, THEN SELECT PHASE 8 FOR "TIME MIN 2."

AFTER SELECTION IS MADE PRESS "ESC"

SCREEN NOW APPEARS AS SHOWN TO THE RIGHT.

(PROGRAMMING COMPLETE)

STEP 3

```
PAGE:1  C1 PIN:0    OVERRIDE PHASE CONTRO
INPUT ASSIGNMENT #.................64
DEBOUNCE TIME (0-25.5 SEC)..........0.0
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED.........................
VEHICLE DETECTOR (1-64).............
PEDESTRIAN DETECTOR (1-16)..........
ALTERNATE PED DETECTOR (1-16).......
PREEMPT (1-10)......................
INVERTED PREEMPT (1-10).............
STOP TIME (Y/N).....................
FLASH SENSE (Y/N)...................
DOOR OPEN (Y/N).....................
MANUAL CONTROL ENABLE (Y/N).........
MANUAL CONTROL ADVANCE (Y/N)........
SPECIAL FUNCTION ALARM (1-8)........
TOD HOUR SYNCHRONIZATION (0-23).....
FORCE OFF RING (1-4)................
HOLD PHASES (1-16)..................
PLAN (65=FLSH,66=FREE).._  OFFSET#..
CHANGE PHASE SEQUENCE PAGE (1-12)...
CHANGE PHASE TIMING PAGE (1-4)......
CHANGE PHASE CONTROL PAGE (1-4).....
CHANGE OVERLAP CONTROL PAGE (1-4)...
CHANGE INPUT PAGE (1-4).............
CHANGE OUTPUT PAGE (1-4)............
OVERRIDE PHASE CONTROL FUNCTION (Y).Y
```

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DESIGNED: APRIL 2013
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Signal Upgrade - Sheet 4 of 4

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PLAN DATE:	April 2013	REVIEWED BY:	M Copple
PREPARED BY:	C Lawson	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 27771 ENGINEER MATTHEW B. COPPLE — 4/17/13

SIGNATURE | DATE

SIG. INVENTORY NO. 09-0564

$$$$SYSTIME$$$$
$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$