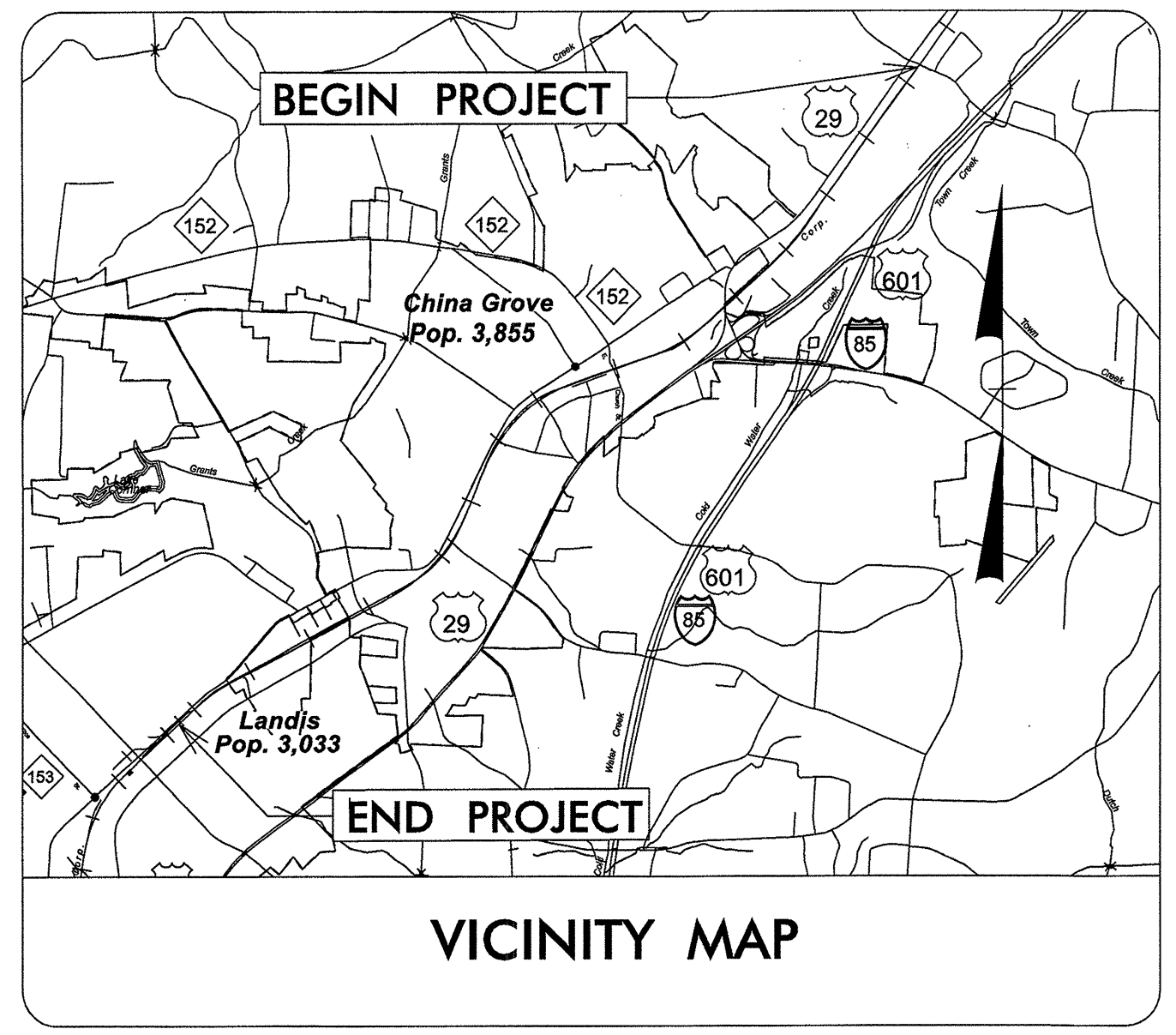


DCN:  
0164DEL\_P10b2

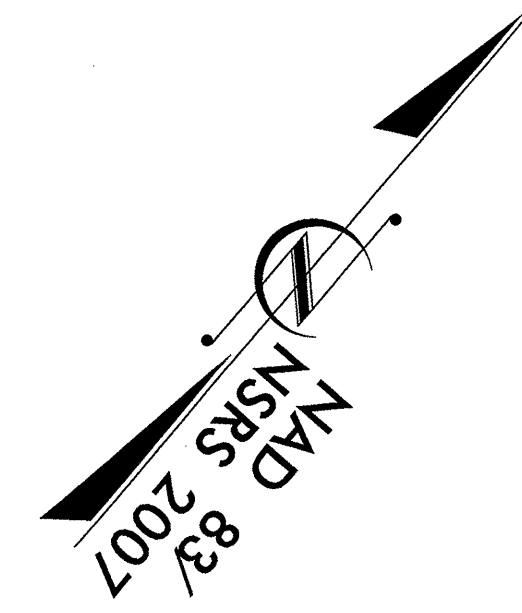
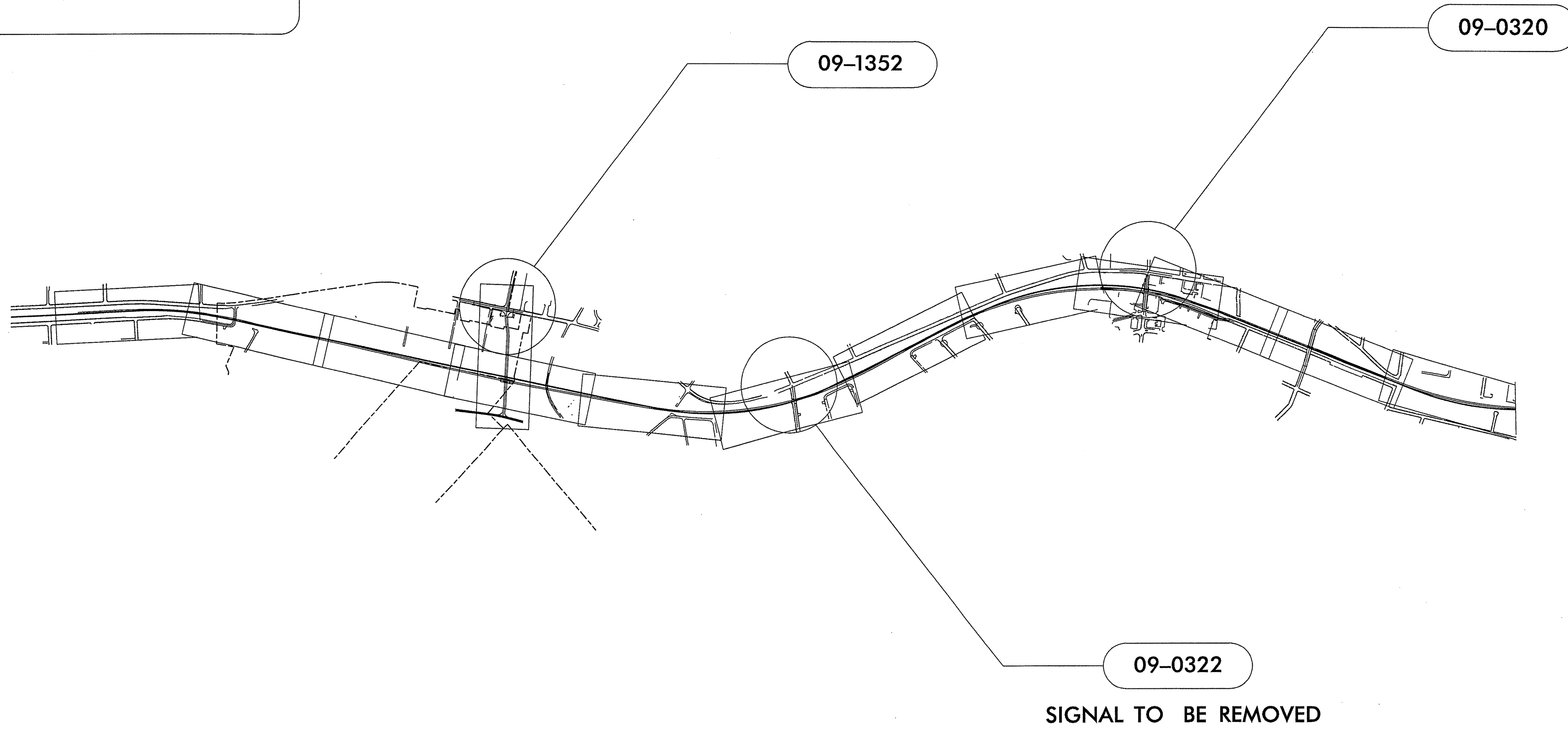


STATE OF NORTH CAROLINA  
NCDOT RAIL DIVISION

# ROWAN COUNTY

**LOCATION: NCRANS MAINLINE REID TO NORTH KANNAPOLIS  
RAILROAD ROADBED (MP 337.0 TO MP 348.3)**

**TYPE OF WORK: TRAFFIC SIGNALS**



**TIP PROJECT: P-5206C**

**PLANS PREPARED BY:**

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

JEFFREY P. HOCHANADEL, P.E. - PROJECT ENGINEER  
MATTHEW B. COPPLE, PE - DESIGN ENGINEER  
CLIFF LAWSON, E.I. - DESIGN ENGINEER

**INDEX OF PLANS**

SHEET NUMBER	SIGNAL INV. NUMBER	LOCATION / DESCRIPTION
1	-	TITLE SHEET
2 - 3	09-1352	SR 2739 (S. MAIN STREET) AT SR 1211 (KIMBALL ROAD)
4 - 8	09-0320	SR 2739 (MAIN STREET) AT CENTERVIEW STREET
N/A	09-0322	SR 2739 (S. MAIN STREET) AT THOM STREET **SIGNAL TO BE REMOVED**

**LEGEND**

##-#### SIGNAL INVENTORY NUMBER

**PLANS PREPARED FOR:**

TRANSPORTATION MOBILITY AND SAFETY DIVISION  
ROBERT J. ZIEMBA, P.E. - CENTRAL REGION SIGNALS ENGINEER  
GEORGE C. BROWN, P.E. - SIGNAL EQUIPMENT DESIGN ENGINEER



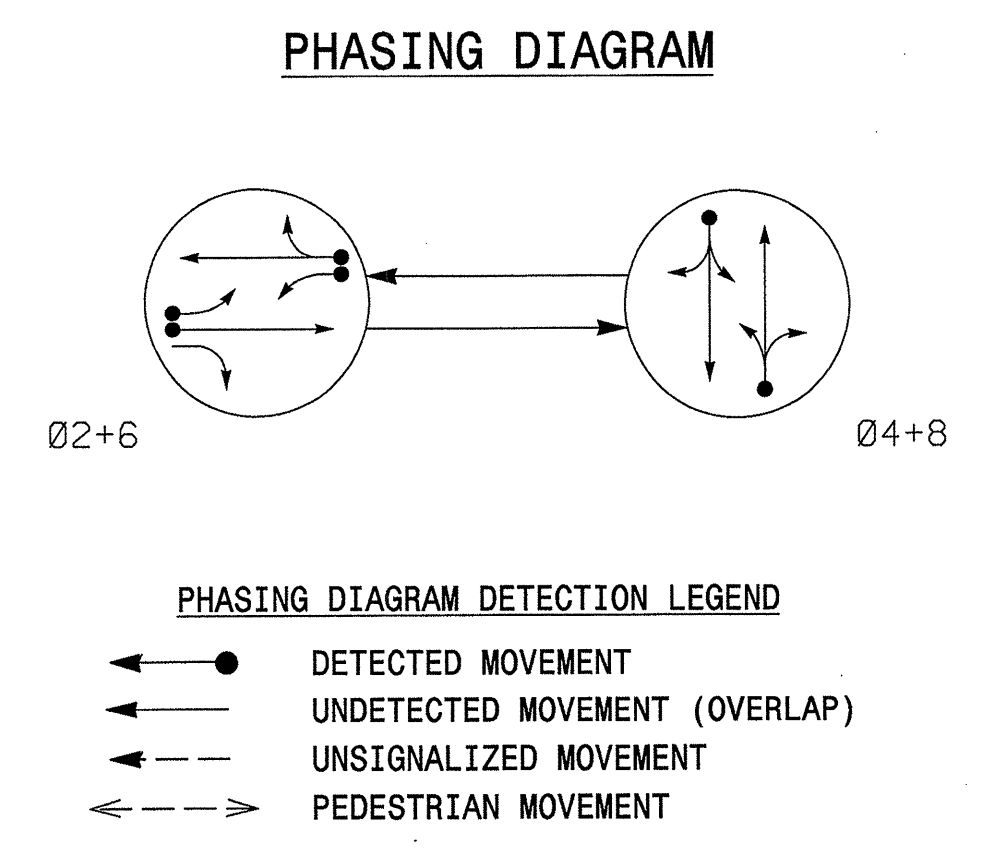
ALL DIMENSIONS IN THESE PLANS ARE IN FEET UNLESS OTHERWISE NOTED

SEAL

4/17/13  
SIGNATURE DATE

\$\$\$SYTIME\$\$\$  
 \$\$\$DCN\$\$\$  
 \$\$\$USERNAME\$\$\$  
 \$\$\$\$\$\$

DCN: 0164DEL\_P10b2



### TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04+8	FLASH
21	Y	Y	Y
22, 23	G	R	Y
41, 42	R	G	R
61	Y	Y	Y
62, 63	G	R	Y
81, 82	R	G	R

Y = Flashing Yellow Arrow

### OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

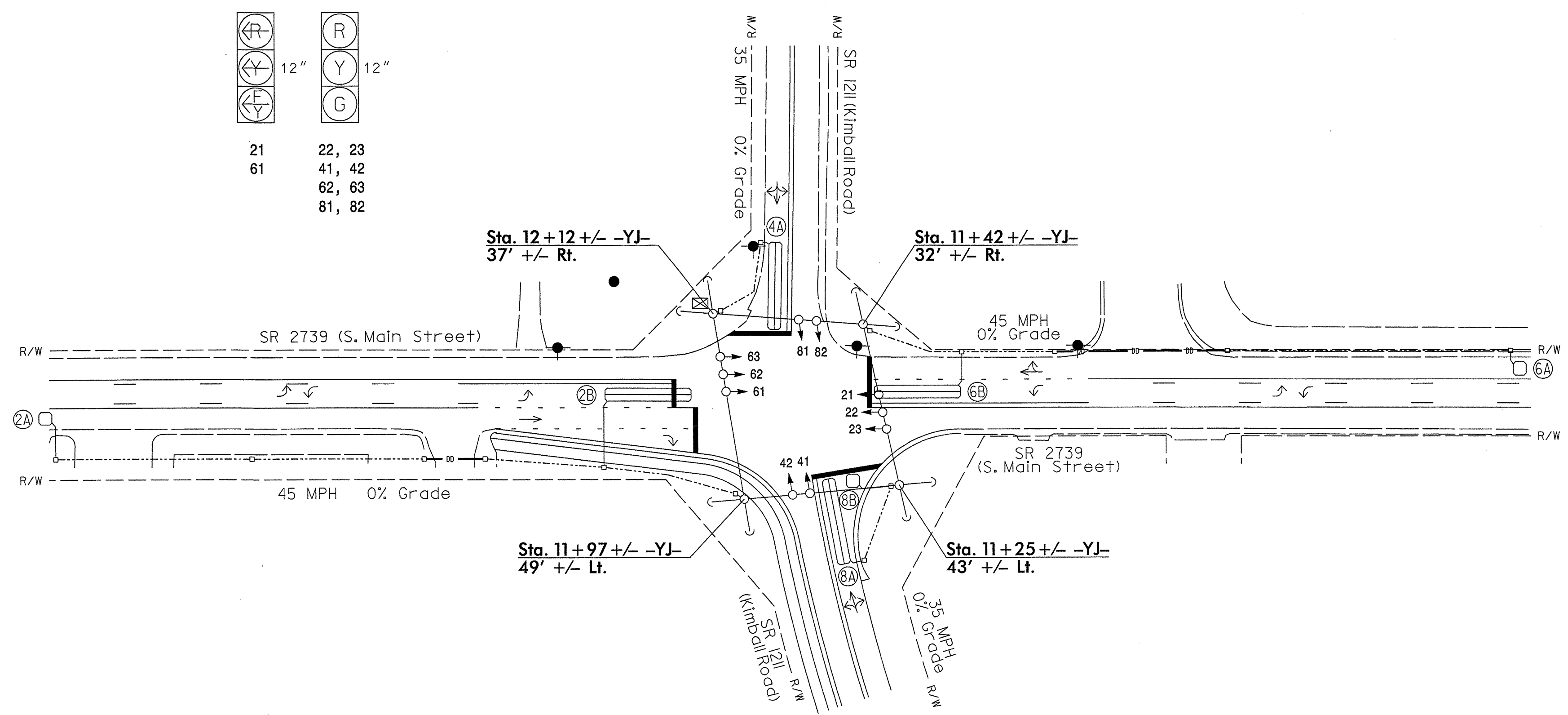
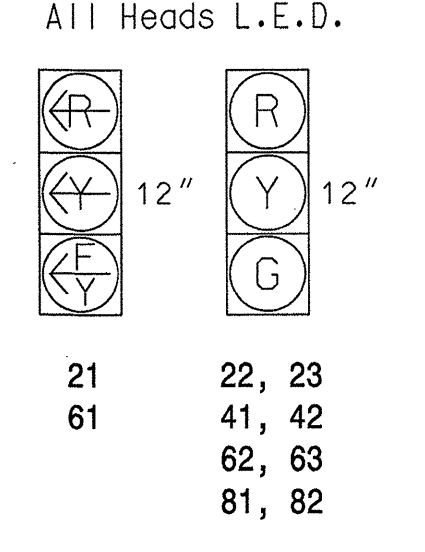
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	300	5	Y	2	Y	Y	-	-	-	-	Y
2B	6X40	0	2-4-2	Y	2	Y	Y	-	-	3	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	10	-	Y
6A	6X6	300	5	Y	6	Y	Y	-	-	-	-	Y
6B	6X40	0	2-4-2	Y	6	Y	Y	-	-	3	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	Y
8B	6X6	0	4	Y	8	Y	Y	-	-	15	-	Y

2 Phase Fully Actuated (Isolated)

**NOTES**

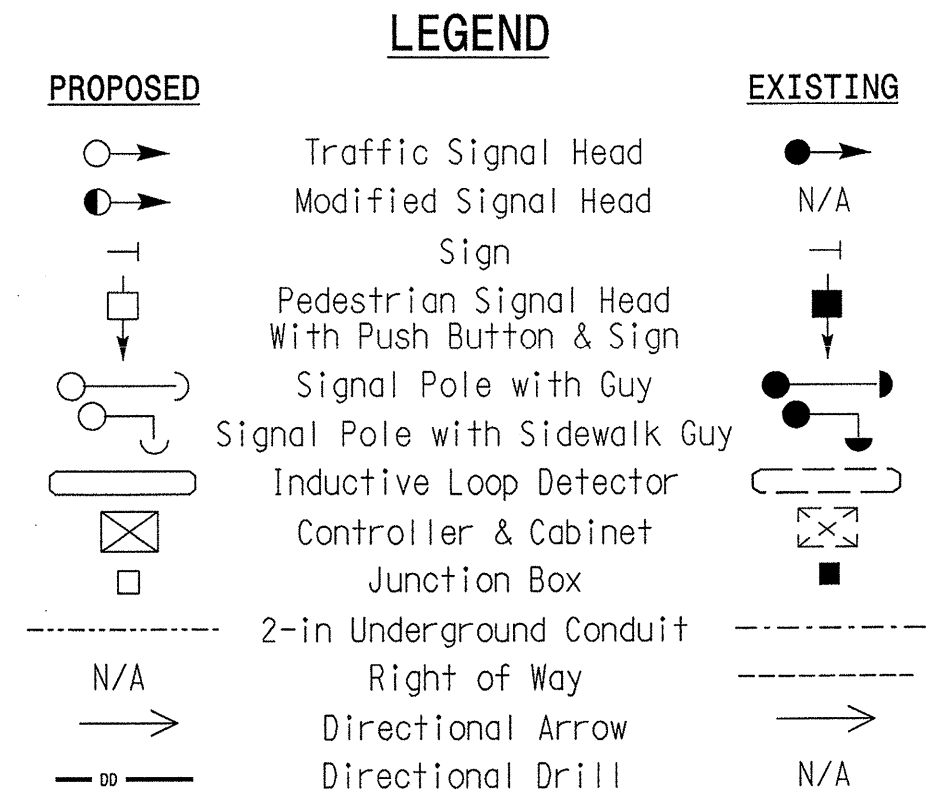
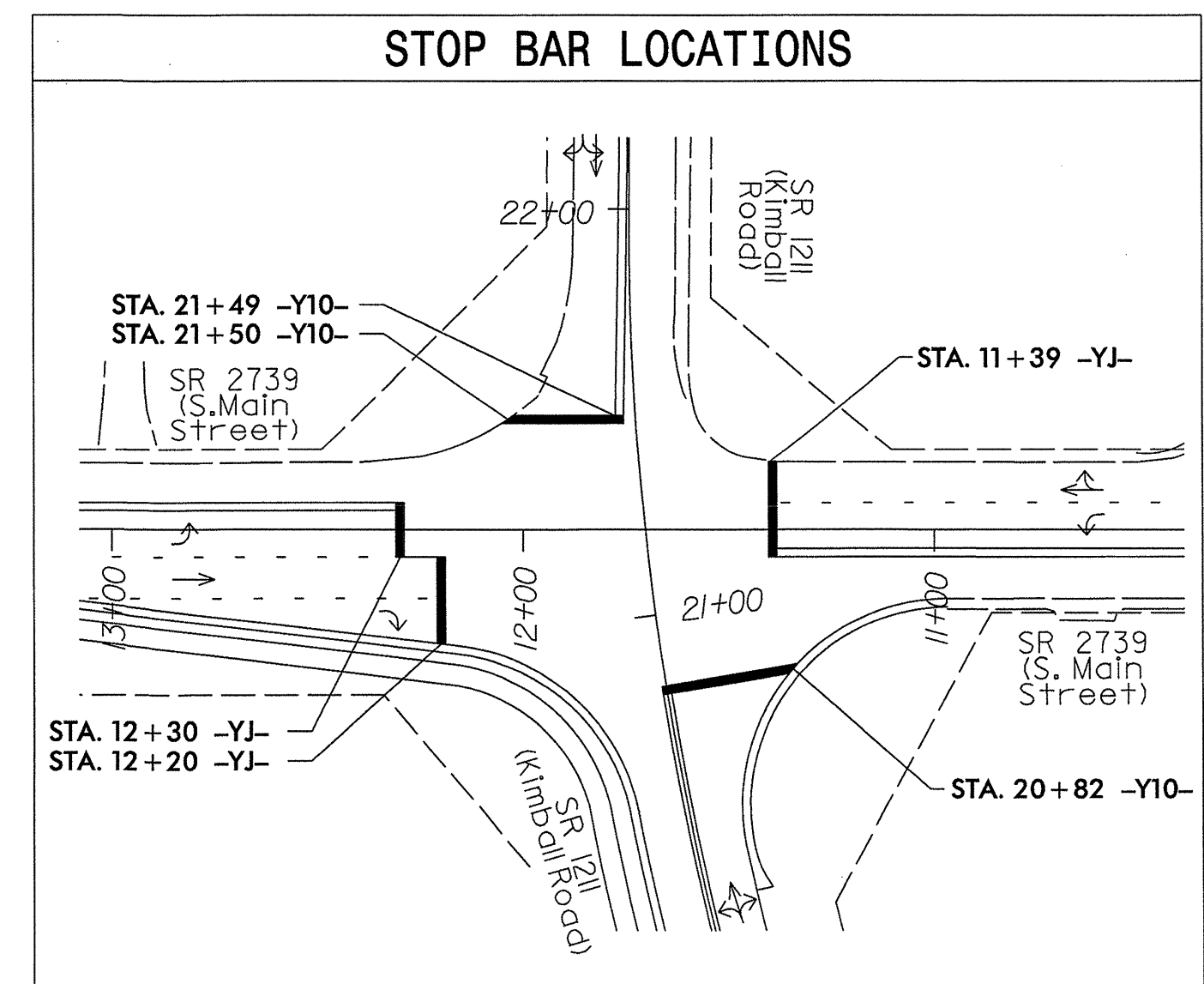
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.

**SIGNAL FACE I.D.**



### OASIS 2070L TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	12	7	12	7
Extension 1 *	6.0	2.0	6.0	2.0
Max Green 1 *	60	30	60	30
Yellow Clearance	4.5	3.8	4.5	3.8
Red Clearance	1.0	1.2	1.0	1.1
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	2.5	-	2.5	-
Max Variable Initial *	34	-	34	-
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



New Installation

**SEPI**  
ENGINEERING & CONSTRUCTION

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

SR 2739 (S. Main Street) at SR 1211 (Kimball Road)

Division 9 Rowan County China Grove

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

REVISIONS

INIT. DATE

SEAL

TRANSPORTATION MOBILITY AND SAFETY DIVISION  
STATE OF NORTH CAROLINA  
J. HOCHANADEL  
28430  
ENGINEER

DATE: 4/10/13

SIG. INVENTORY NO. 09-1352

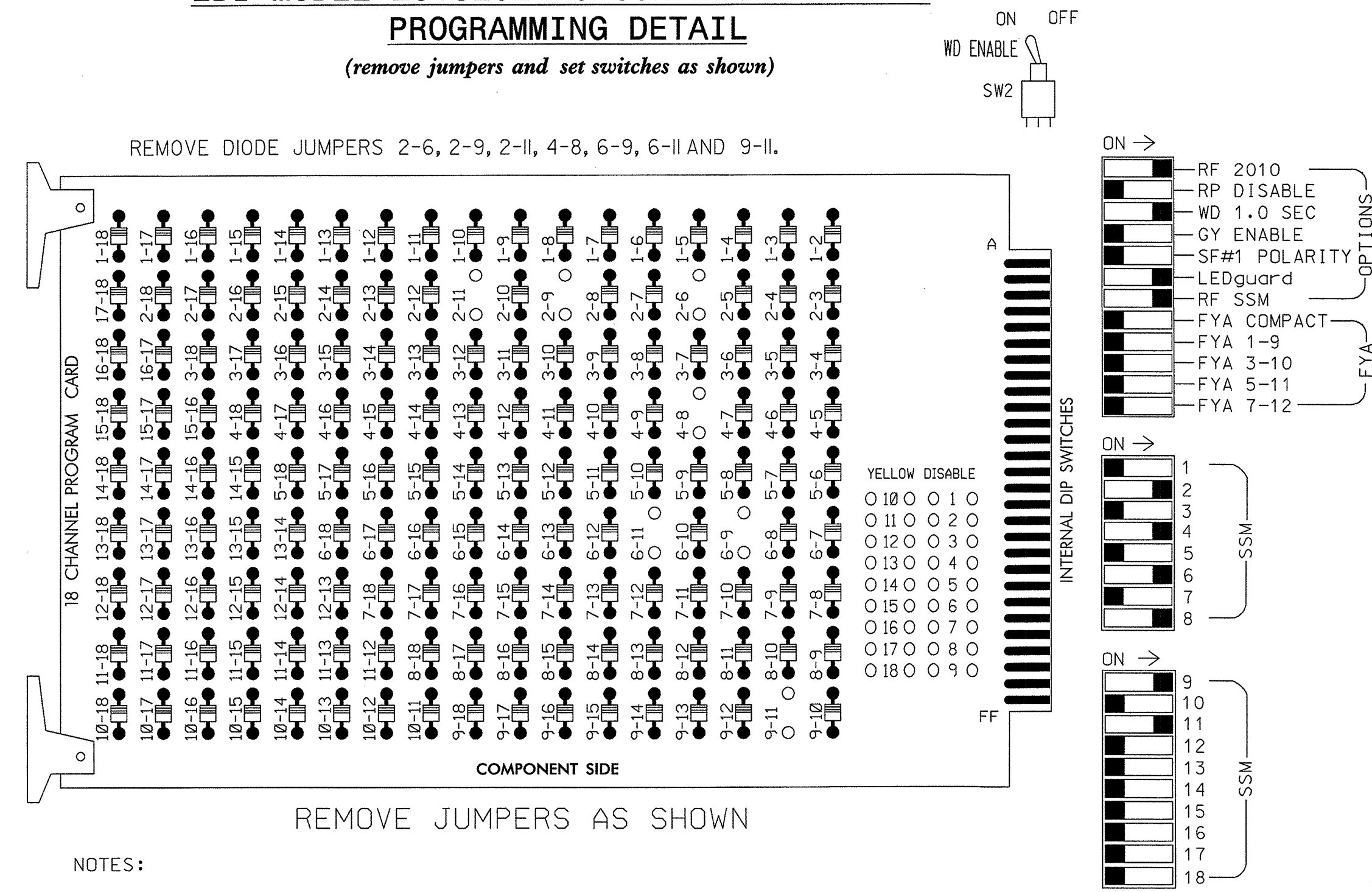
\*\*\*\*\*SYTIME\*\*\*\*\*  
\*\*\*\*\*SUNONS\*\*\*\*\*  
\*\*\*\*\*SERNAME\*\*\*\*\*



DCN:  
0164DEL\_P10b2

### EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

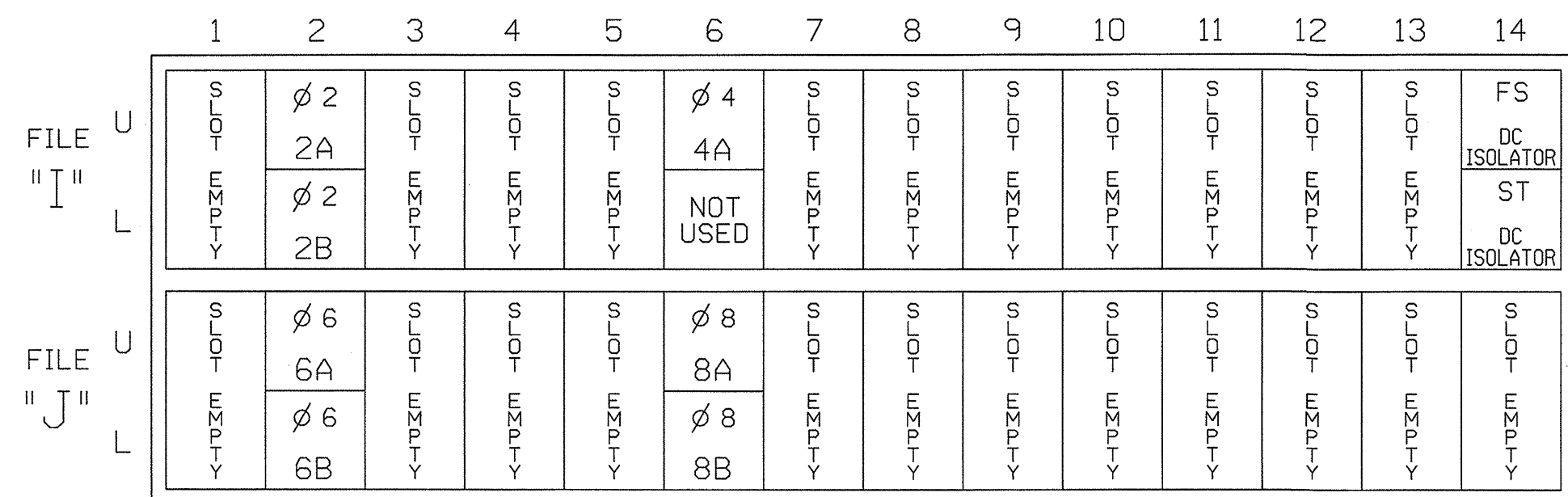


**NOTES:**

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.

### INPUT FILE POSITION LAYOUT

(front view)



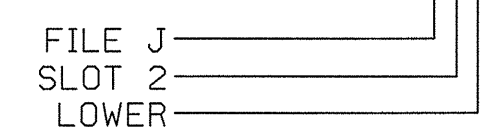
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
ST = STOP TIME  
PRE = 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	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	Y		3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			10
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y	Y		3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			10
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			15

INPUT FILE POSITION LEGEND: J2L



\*\*\*\*\*SYSTEM\*\*\*\*\*  
\*\*\*\*\*DION\*\*\*\*\*  
\*\*\*\*\*USER\*\*\*\*\*

### 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 Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash, and Overlap 1 as Wag Overlaps.

### EQUIPMENT INFORMATION

CONTROLLER.....2070L  
CABINET.....332 W/ AUX.  
SOFTWARE.....ECONOLITE OASIS  
CABINET MOUNT.....BASE  
OUTPUT FILE POSITIONS...18 W/AUX. OUTPUT FILE  
LOAD SWITCHES USED.....S2,S5,S8,S11,  
AUX S1,AUX S4  
PHASES USED.....2,4,6,8  
OVERLAP "A":.....6  
OVERLAP "B":.....NOT USED  
OVERLAP "C":.....2  
OVERLAP "D":.....NOT USED

### 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.	NU	22,23	NU	NU	41,42	NU	NU	62,63	NU	NU	81,82	NU	61	NU	NU	21	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																		

NU = Not Used

\* See pictorial of head wiring in detail below.

### 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: X
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)...0.0
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

```

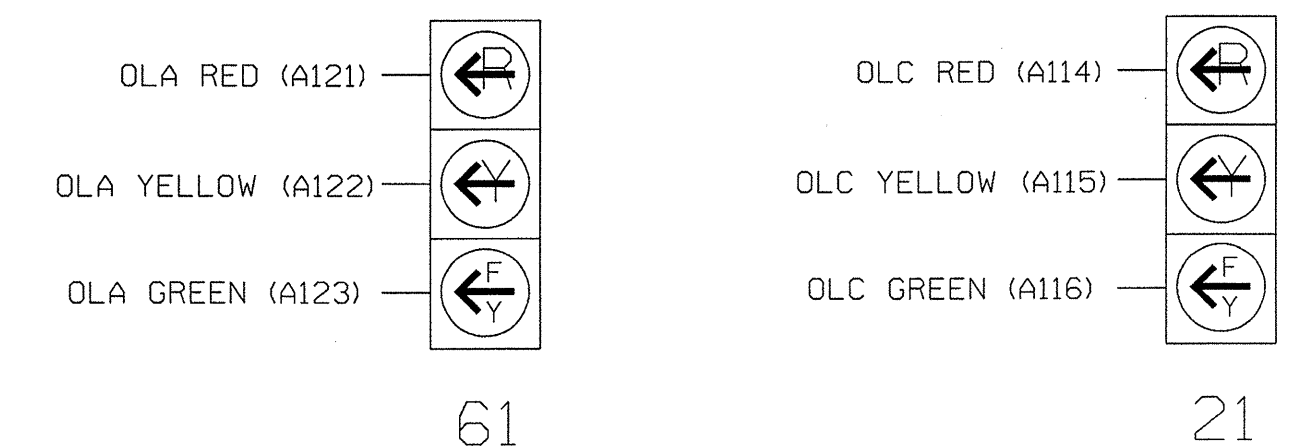
PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
PHASE:      12345678910111213141516
VEH OVL PARENTS: X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: _ RED _ YELLOW _ GREEN
FLASH COLORS:  _ RED _ YELLOW X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC)...0.0
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

### 3 SECTION FYA SIGNAL WIRING DETAIL

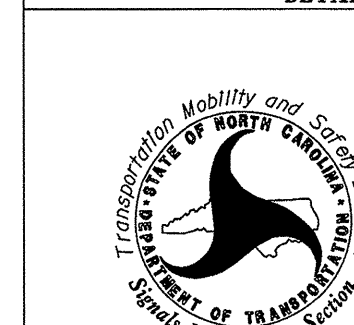
(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 09-1352  
DESIGNED: APRIL 2013  
SEALED: 4/17/2013  
REVISED:

New Installation

ELECTRICAL AND PROGRAMMING  
DETAILS FOR:



750 N.Greenfield Pkwy, Garner, NC 27529

SR 2739 (S. Main Street)  
at  
SR 1211 (Kimball Road)

Division 9 Rowan County China Grove

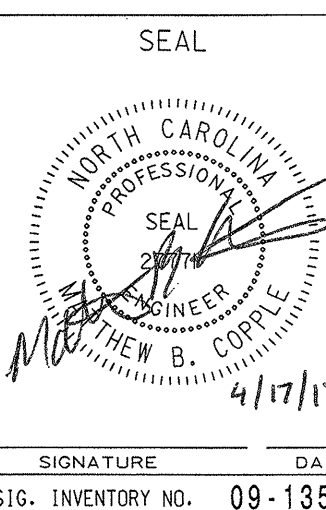
PLAN DATE: April 2013 REVIEWED BY: M Copple

PREPARED BY: C Lawson REVIEWED BY:

REVISIONS INIT. DATE

SIGNATURE DATE

SIG. INVENTORY NO. 09-1352

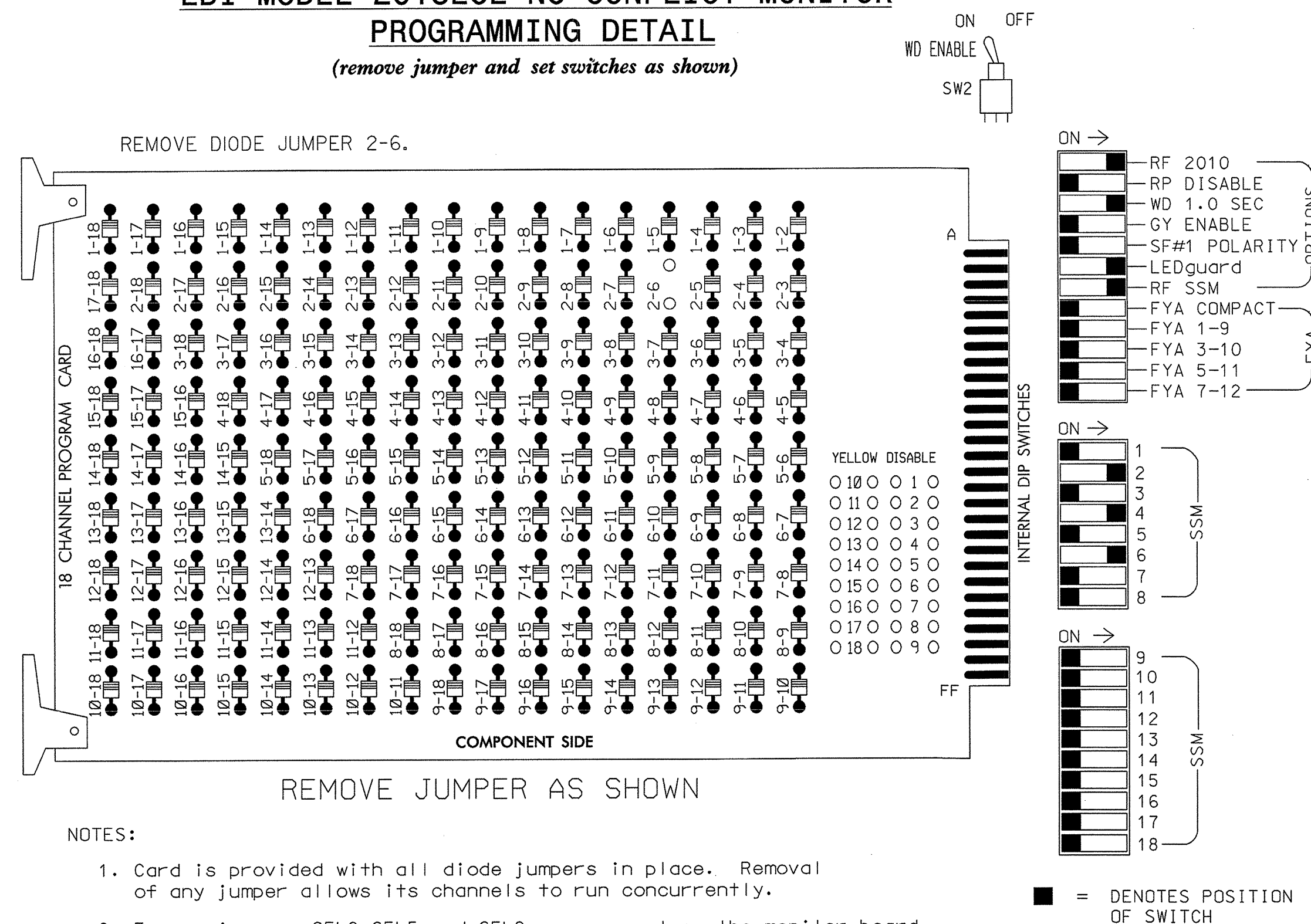






**EDI MODEL 2018ECL-NC CONFLICT MONITOR  
PROGRAMMING DETAIL**

(remove jumper and set switches 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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2 and 6 for Yellow Flash.

**EQUIPMENT INFORMATION**

CONTROLLER.....2070L  
 CABINET.....332  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S2,S5,S8  
 PHASES USED.....2,4,6  
 OVERLAPS.....NONE

**SIGNAL HEAD HOOK-UP CHART**

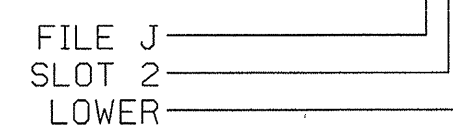
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	NU	NU
RED		128			101			134				
YELLOW		129			102			135				
GREEN		130			103			136				
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
Hand icon												
Person icon												

NU = Not Used

**INPUT FILE CONNECTION & PROGRAMMING CHART**

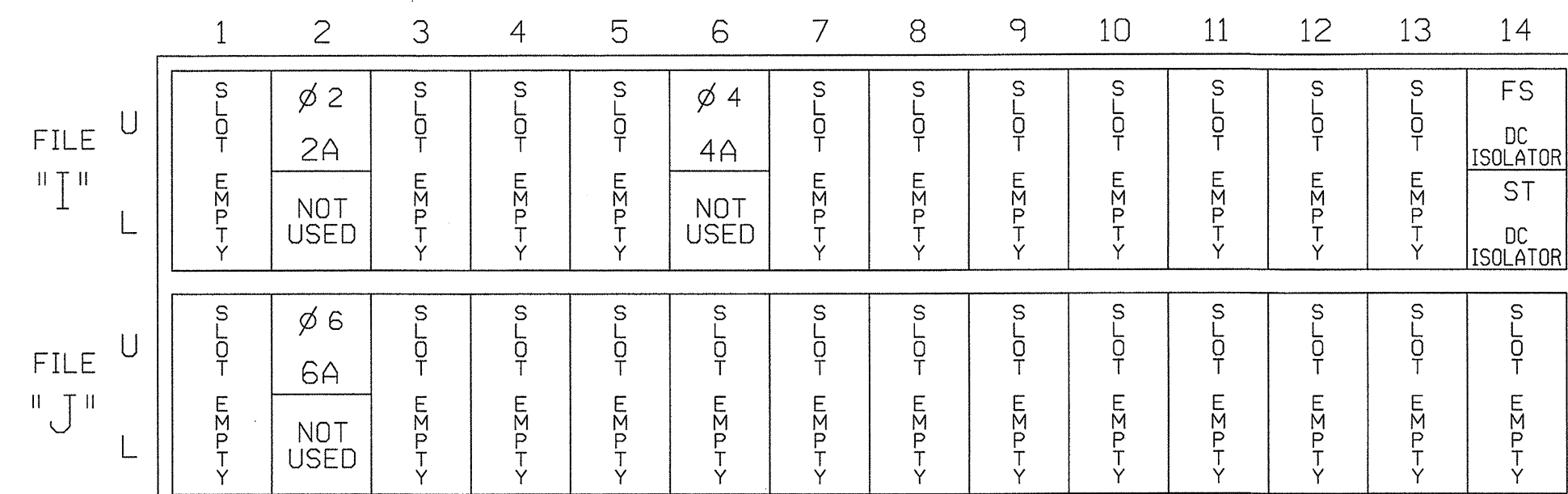
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			10
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			

**INPUT FILE POSITION LEGEND: J2L**



**INPUT FILE POSITION LAYOUT**

(front view)



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

FS = FLASH SENSE  
 ST = STOP TIME

THIS ELECTRICAL DETAIL IS FOR  
 THE SIGNAL DESIGN: 09-0320T  
 DESIGNED: APRIL 2013  
 SEALED: 4/17/2013  
 REVISED:

**Signal Upgrade - Temporary Design**

ELECTRICAL AND PROGRAMMING DETAILS FOR:



750 N. Greenfield Pkwy, Garner, NC 27529

**SR 2739 (Main Street)  
 at  
 Centerview Street**

Division 9 Rowan County China Grove

PLAN DATE: April 2013 REVIEWED BY: M Copple

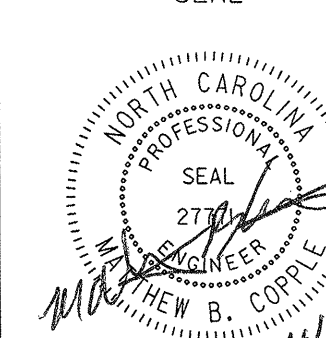
PREPARED BY: C Lawson REVIEWED BY:

REVISIONS INIT. DATE

SIGNATURE DATE

SIG. INVENTORY NO. 09-0320T

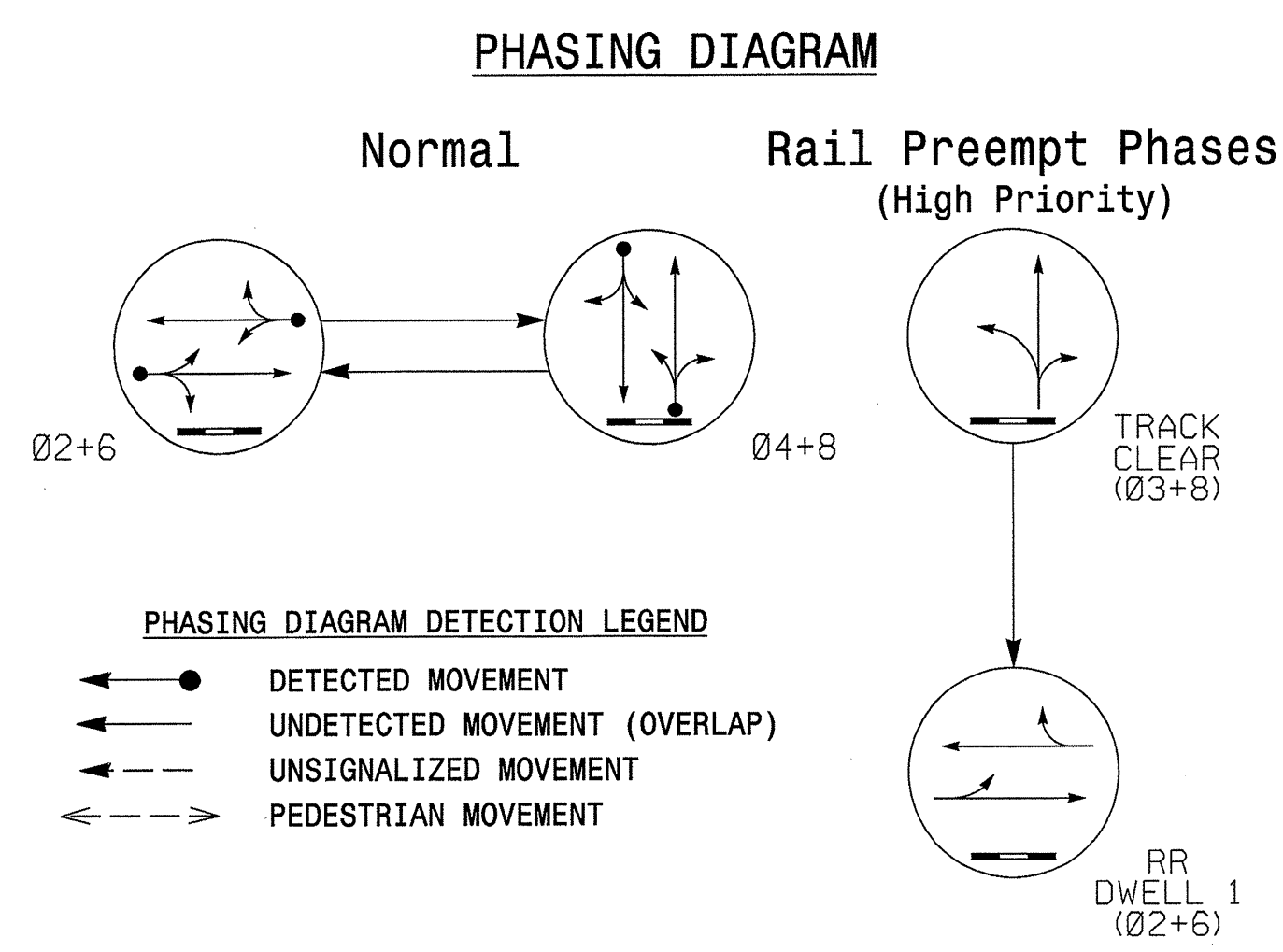
SEAL



4/17/13

\*\*\*\*\*ACTIVE\*\*\*\*\*  
 \*\*\*\*\*CONTRACTS\*\*\*\*\*  
 \*\*\*\*\*SERIALS\*\*\*\*\*  
 \*\*\*\*\*USER NAME\*\*\*\*\*

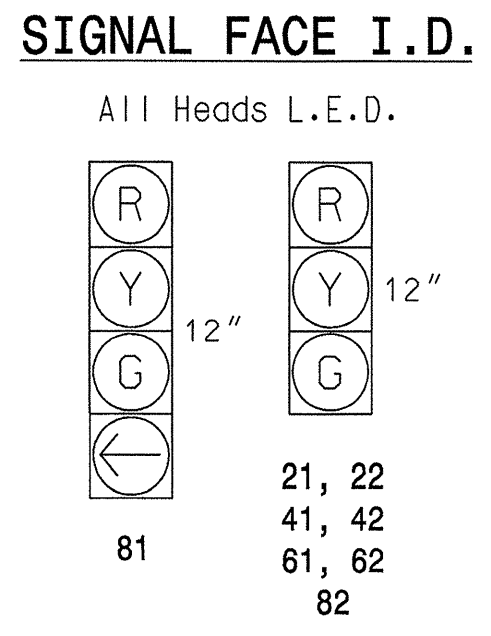
DCN: 0164DEL\_P10b2



### TABLE OF OPERATION

SIGNAL FACE	PHASE				
	Ø 2+6	Ø 4+8	Clear	Dwell	FLASH
21, 22	G	R	R	G	Y
41, 42	R	G	R	R	R
61, 62	G	R	G	G	Y
81	R	G	G	R	R
82	R	G	G	R	R
Sign A	OFF	OFF	ON	ON	*
Sign B	OFF	OFF	ON	ON	*

\* See Note 5.



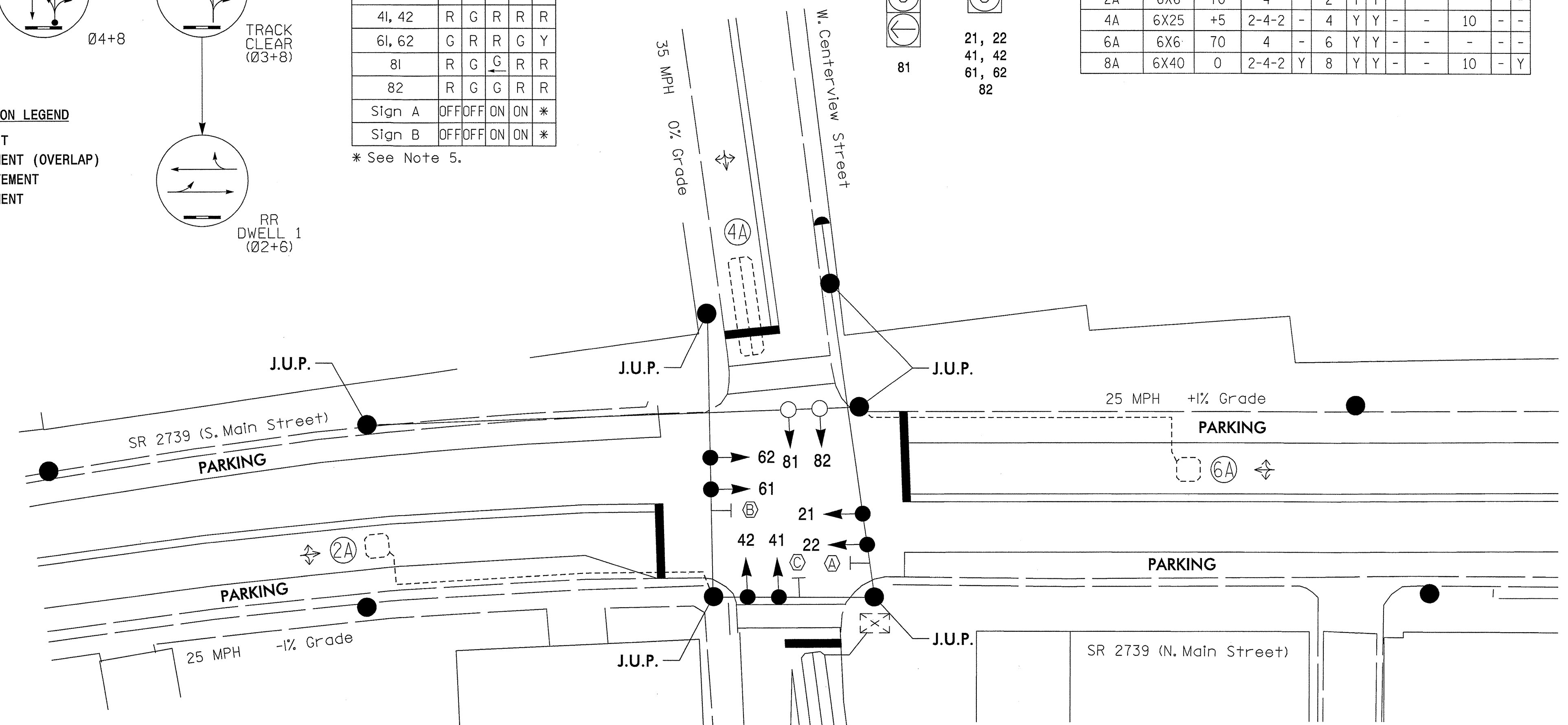
### OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	70	4	-	2	Y	Y	-	-	-	-	-
4A	6X25	+5	2-4-2	-	4	Y	Y	-	-	10	-	-
6A	6X6	70	4	-	6	Y	Y	-	-	-	-	-
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	Y

2 Phase Fully Actuated W/ Railroad 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. Set all detector units to presence mode.
4. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
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.



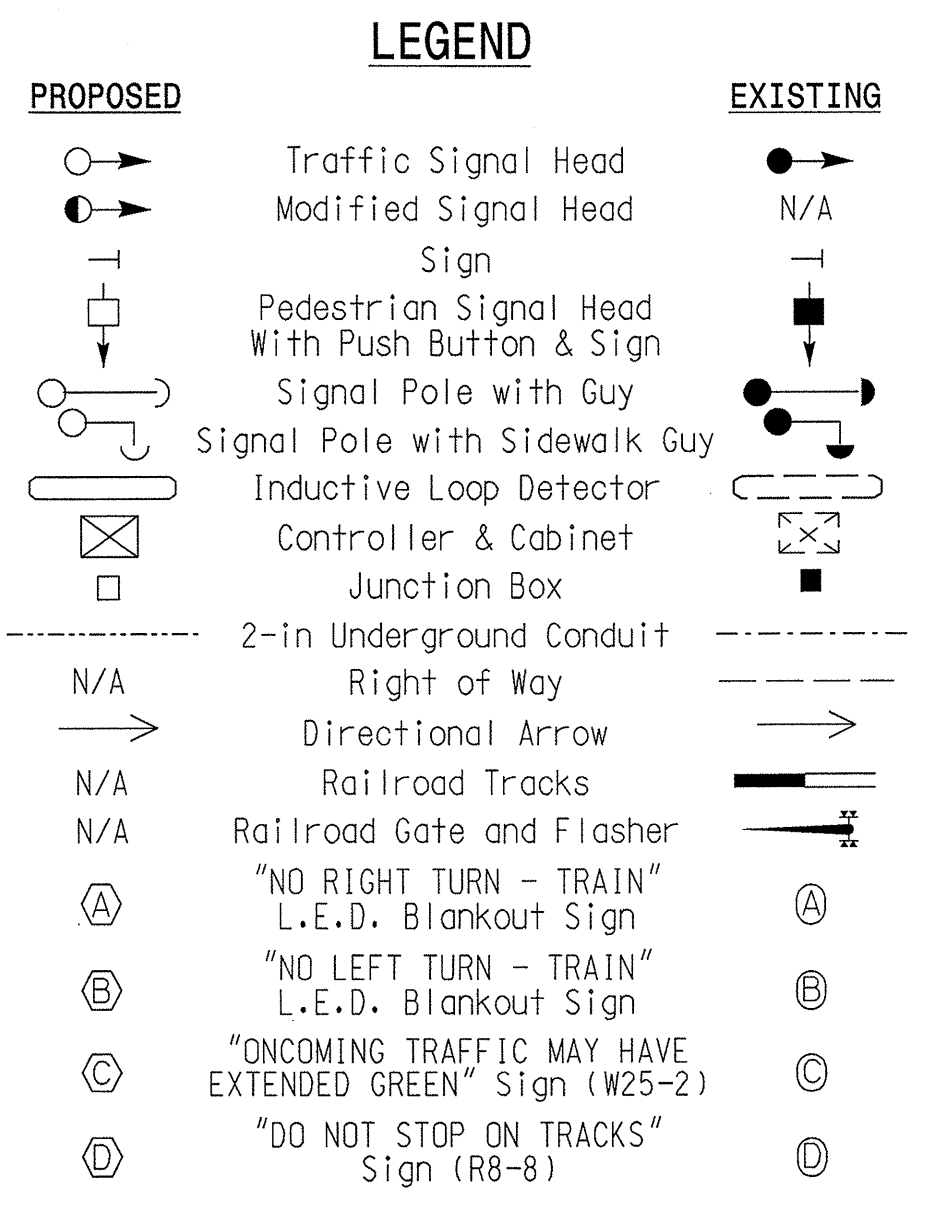
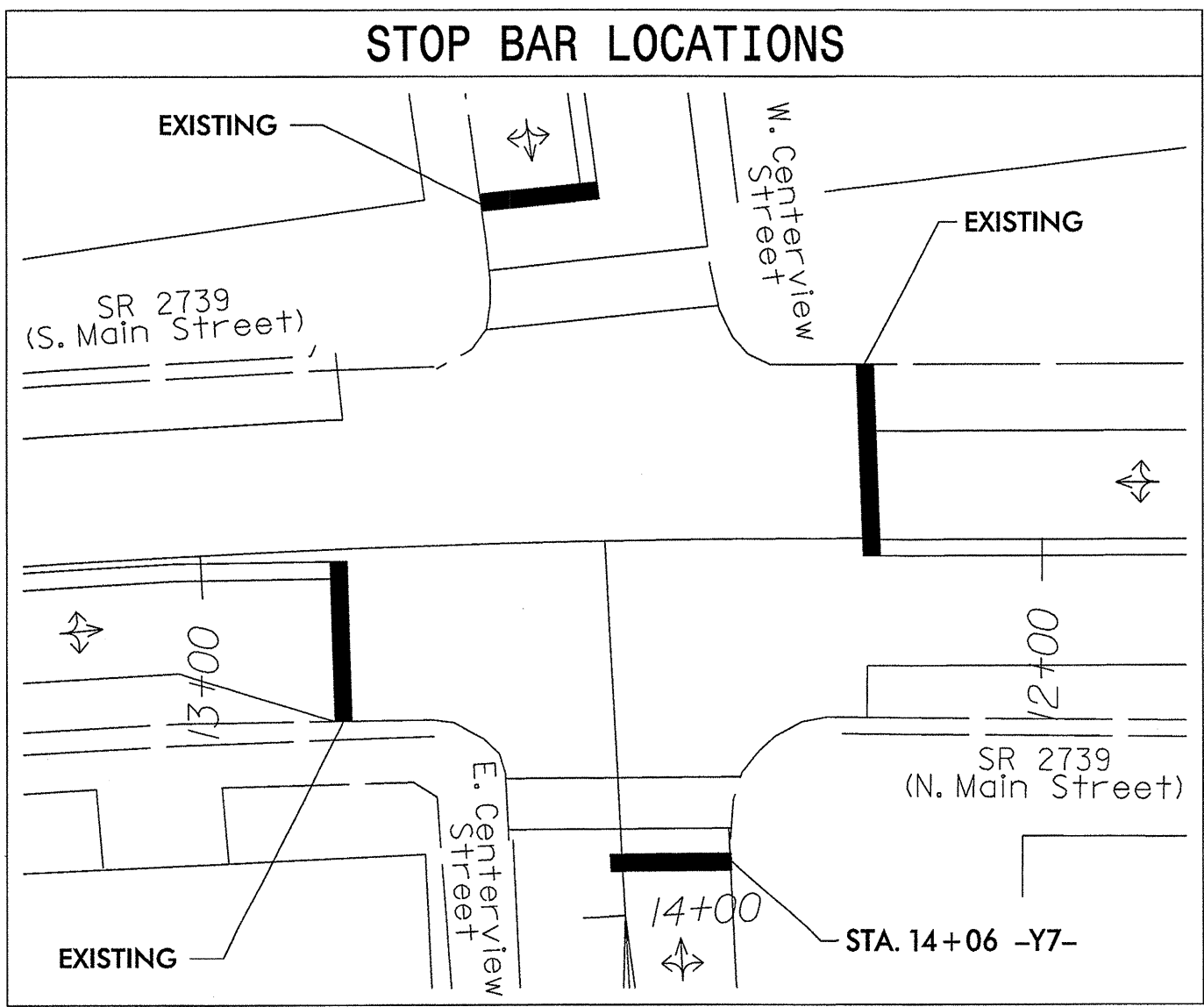
### OASIS 2070L TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green 1 *	10	7	10	7
Extension 1 *	3.0	2.0	3.0	1.0
Max Green 1 *	30	16	30	16
Yellow Clearance	3.2	3.8	3.1	4.1
Red Clearance	1.7	1.4	1.7	1.3
Red Revert	2.0	2.0	2.0	2.0
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	-	ON	-	ON
Simultaneous Gap	ON	ON	ON	ON

### 2070 RAIL PREEMPTION

Interval 1 - Track Clearance Green	29
Interval 1 - Track Clearance Yellow	4.1
Interval 1 - Track Clearance Red	1.3
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
Priority	High
Delay Time	0
Exit Phase(s)	4, 8
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	3.8
Red Clear Before Pre	1.4
Dwell Min Time	7
Ped Clear Through Yellow	N
Omit Overlaps	P

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



\* 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 signal was designed for advanced preemption.

NORFOLK SOUTHERN RAILWAY  
CROSSING NUMBER 724 384M

Signal Upgrade - Final Design

**SEPI**  
ENGINEERING & CONSTRUCTION

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

SR 2739 (Main Street) at Centerview Street

Division 9 Rowan County China Grove

PLAN DATE: April 2013 REVIEWED BY: J Hochandel

PREPARED BY: M Copple REVIEWED BY:

REVISIONS

INIT. DATE

Signature: Jeffrey P. Hochandel 4/17/13

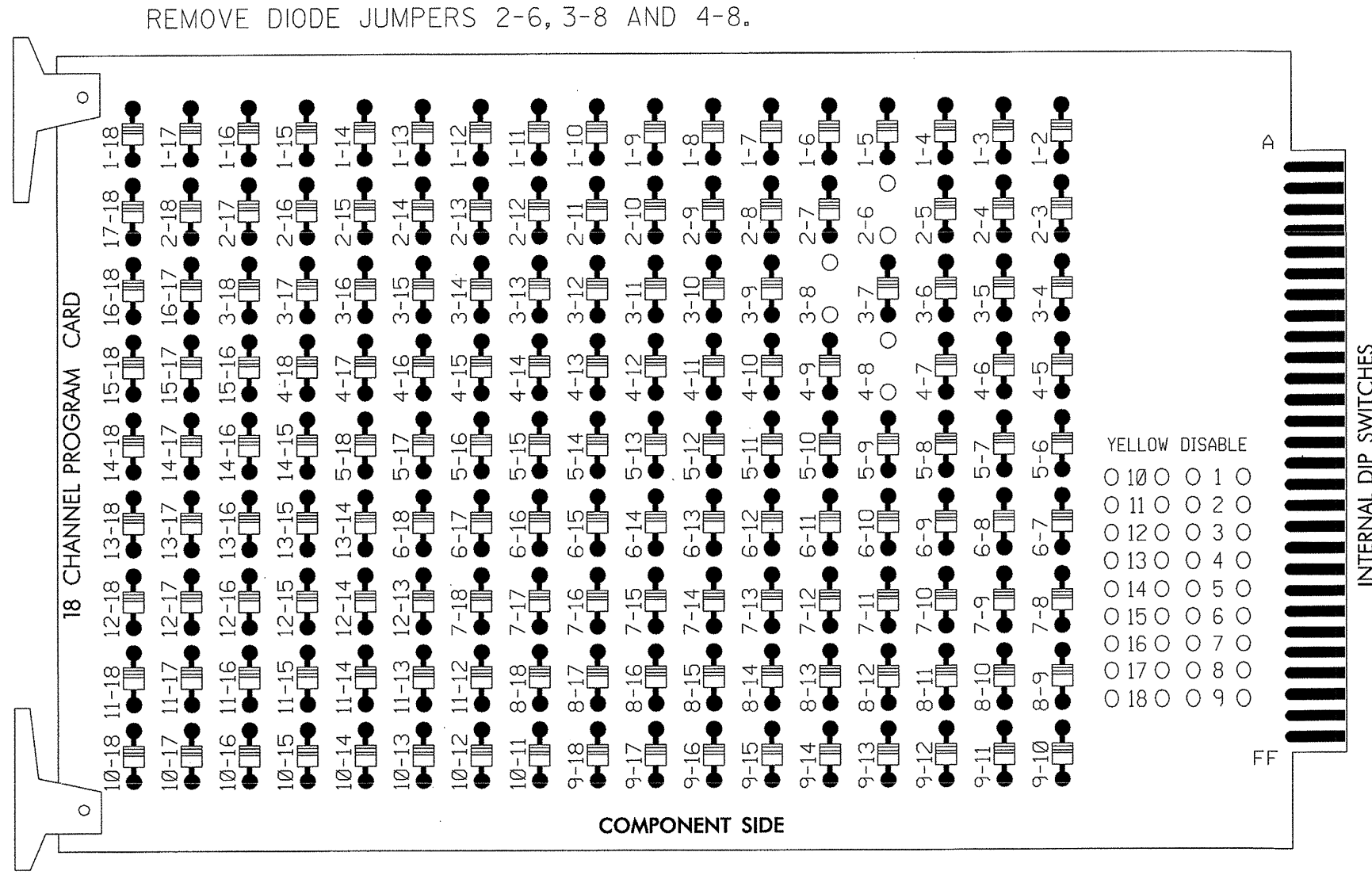
SIGNATURE DATE

SIG. INVENTORY NO. 09-0320



**EDI MODEL 2018ECL-NC CONFLICT MONITOR  
PROGRAMMING DETAIL**

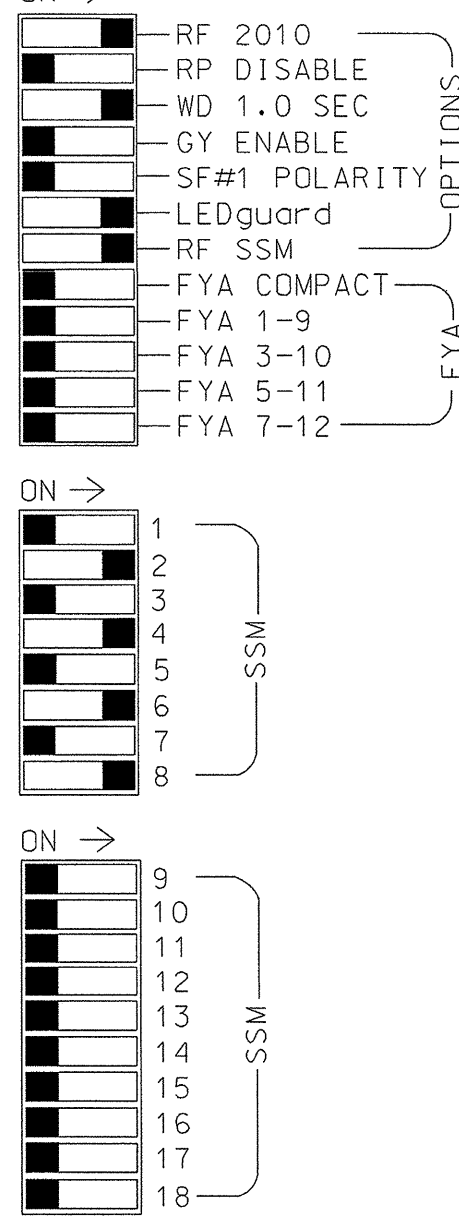
(remove jumpers and set switches as shown)



**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.

■ = DENOTES POSITION OF SWITCH



**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 Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.

**EQUIPMENT INFORMATION**

CONTROLLER.....2070L  
 CABINET.....332  
 SOFTWARE.....ECONOLITE OASIS 3.03.26E  
 (OR LATEST APPROVED VERSION)  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S2,S4,S5,S8,S11  
 PHASES USED.....2,3\*,4,6,8  
 OVERLAP P.....2+4+6+8

\*USED DURING PREEMPT ONLY

**SIGNAL HEAD HOOK-UP CHART**

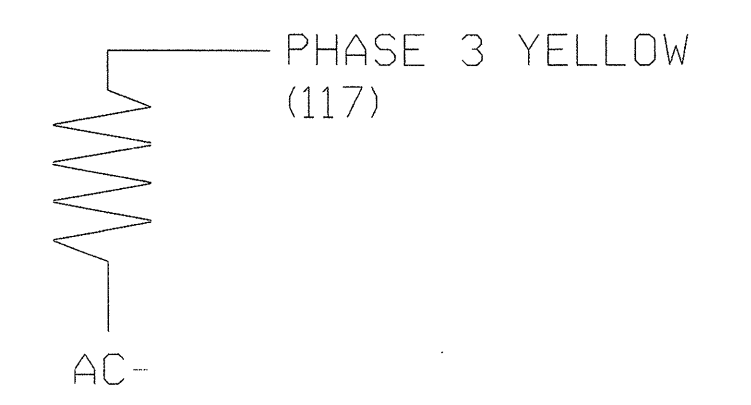
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	81	41,42	NU	NU	61,62	NU	NU	81,82	NU
RED		128			101			134			107	
YELLOW		129		*	102			135			108	
GREEN		130			103			136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW									118			

NU = Not Used  
 \* Denotes install load resistor. See load resistor installation detail this sheet.

**LOAD RESISTOR INSTALLATION DETAIL**

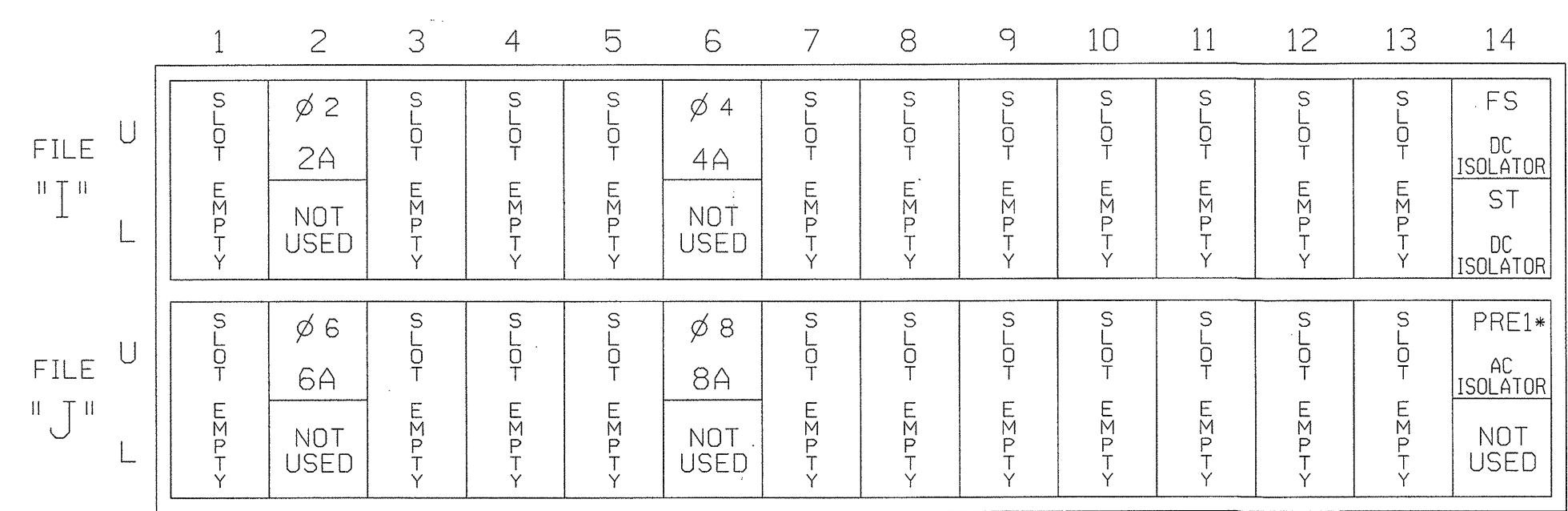
ACCEPTABLE VALUES

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



**INPUT FILE POSITION LAYOUT**

(front view)



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

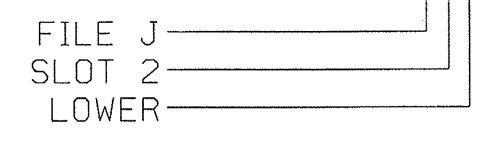
FS = FLASH SENSE  
 ST = STOP TIME  
 PRE = PREEMPT

\*See AC Isolator Programming Detail on Sheet 2

**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	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			10
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			10

**INPUT FILE POSITION LEGEND: J2L**



**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 2,4,6 and 8 for 'Startup Calls'. This is to prevent Phase 3 from being served when not in Preempt.

**OVERLAP PROGRAMMING DETAIL**

(program controller as shown below)

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

PAGE 1: VEHICLE OVERLAP 'P' SETTINGS  
 PHASE: 12345678910111213141516  
 VEH OVL PARENTS: X X X 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)...0.0  
 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: 09-0320  
 DESIGNED: APRIL 2013  
 SEALED: 4/17/2013  
 REVISED:

Signal Upgrade - Final Design Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

**SR 2739 (Main Street)  
 at  
 Centerview Street**

Division 9 Rowan County China Grove

PLAN DATE: April 2013 REVIEWED BY: M Copple

PREPARED BY: C Lawson REVIEWED BY:

REVISIONS INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER  
 THEW B. COPPLE  
 4/17/13

SIGNATURE DATE  
 SIG. INVENTORY NO. 09-0320

\*\*\*\*\*SYTIME\*\*\*\*\*  
 \*\*\*\*\*CON\*\*\*\*\*  
 \*\*\*\*\*SERIAL\*\*\*\*\*

DCN: 0164DEL\_P10b2

**RAILROAD PREEMPTION PROGRAMMING DETAIL**

(program controller as shown below)

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

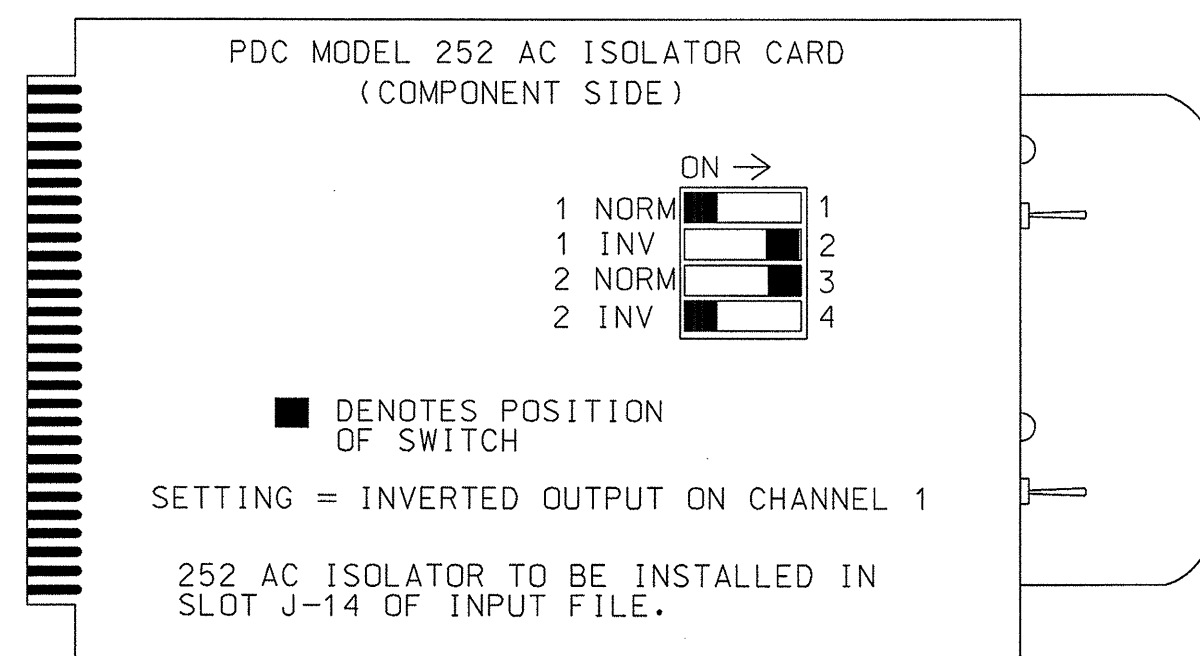
PREEMPTION #1	SETTINGS (NEXT:1-10)
INTERVAL/TIMING	CLEAR/DWELL PHASES
GRN YEL RED	12345678910111213141516
1 29 4.1 1.3	X X
2 255 0.0 0.0	X X
3 0 0.0 0.0	
4 0 0.0 0.0	
5 1 0.0 0.0	X X

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)...	0
YELLOW CLEAR BEFORE PRE (0= DEFAULT)...	3.8
RED CLEAR BEFORE PRE (0= DEFAULT)...	1.4
DWELL MIN TIMER (0-255 SEC) .....	7
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: .....	X

**PREEMPT 1 AC ISOLATOR (MODEL 252) OUTPUT PROGRAMMING DETAIL**

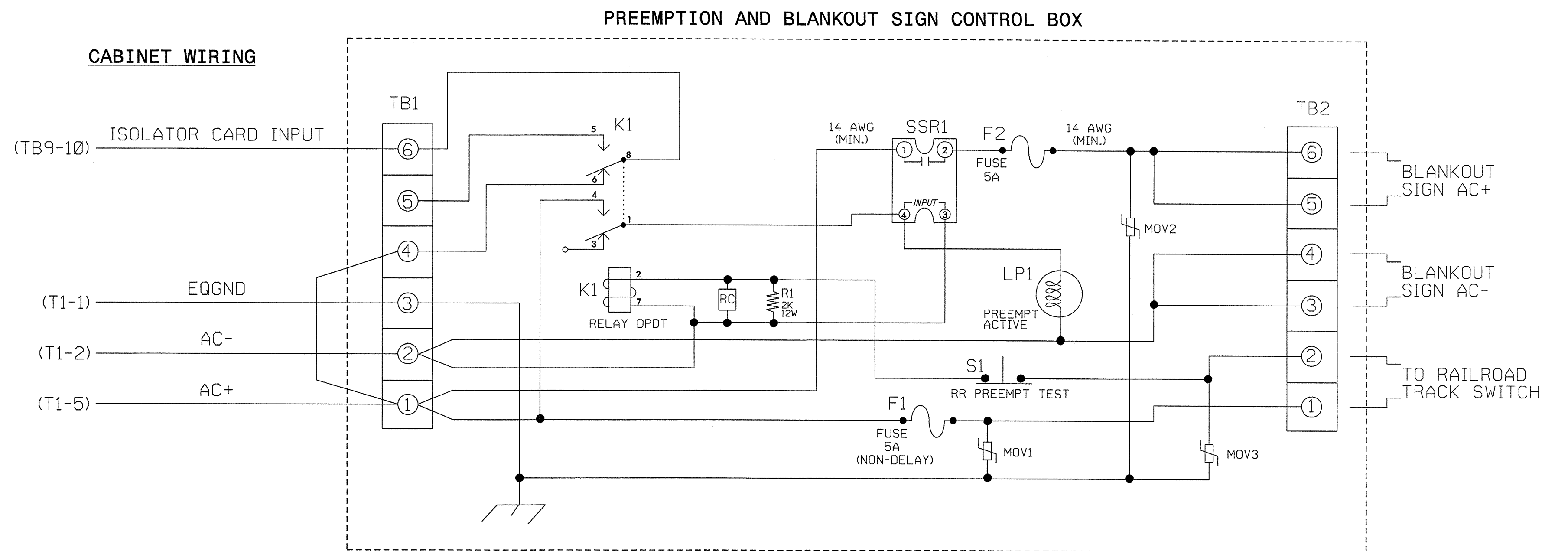
(set DIP switches as shown below)



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**

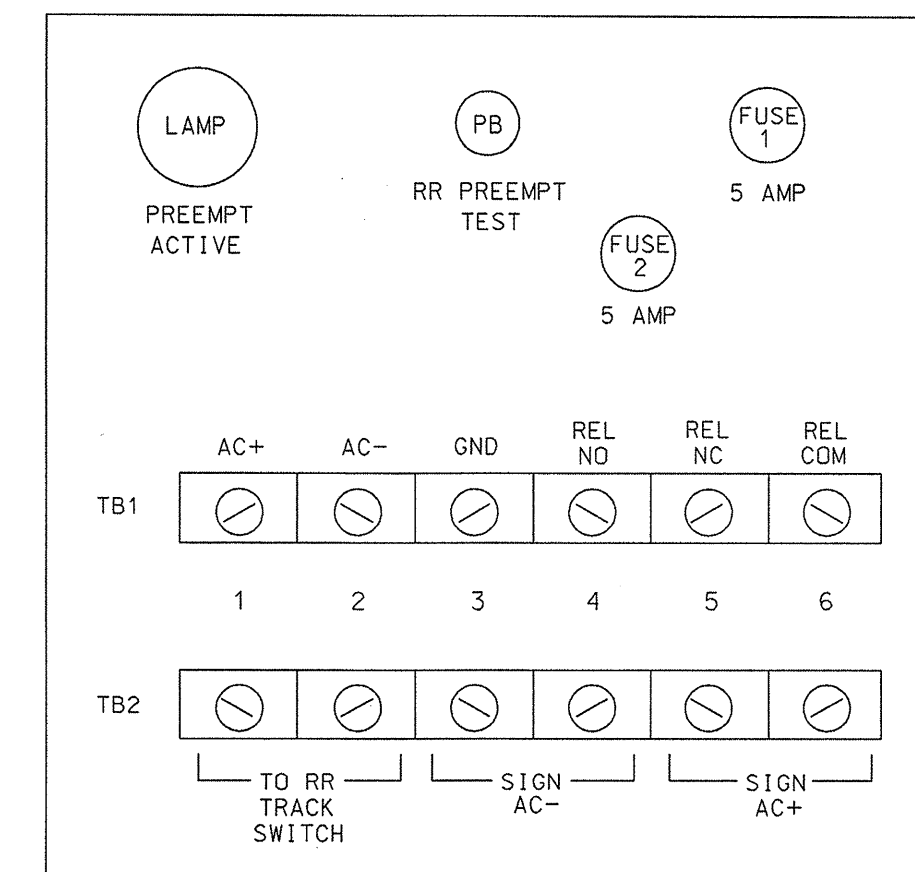
(wire as shown below)



**NOTES**

- Relay K1 is shown in the energized (Preempt not active) normal operation state.
- Relay K1 is a DPDT with 120VAC coil with octal base.
- Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output.
- 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.
- 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: 09-0320  
DESIGNED: APRIL 2013  
SEALED: 4/17/2013  
REVISED:

Signal Upgrade - Final Design Sheet 2 of 2

	<p><b>SR 2739 (Main Street) at Centerview Street</b></p>	
	<p>Division 9 Rowan County China Grove</p>	<p>PLAN DATE: April 2013 REVIEWED BY: M Copple</p>
	<p>PREPARED BY: C Lawson</p>	<p>REVIEWED BY:</p>
	<p>REVISIONS</p>	<p>INIT. DATE</p>
<p>SIGNATURE DATE</p>		<p>SIG. INVENTORY NO. 09-0320</p>

\*\*\*\*\*SYSTEM TIME\*\*\*\*\*  
\*\*\*\*\*REVISIONS\*\*\*\*\*  
\*\*\*\*\*DATE\*\*\*\*\*