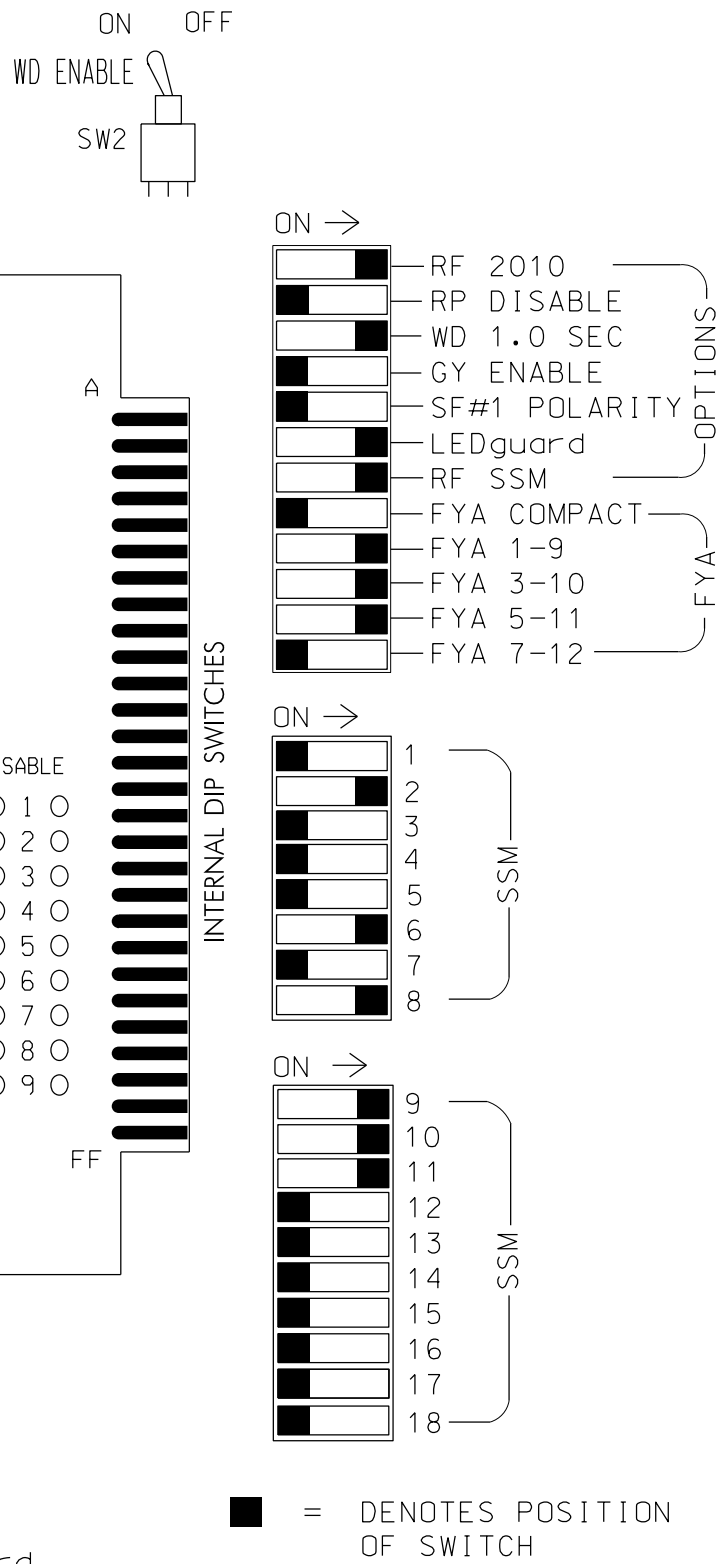


(remove jumpers and set switches as shown)

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. Integrate monitor with Ethernet network in cabinet.



NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

```

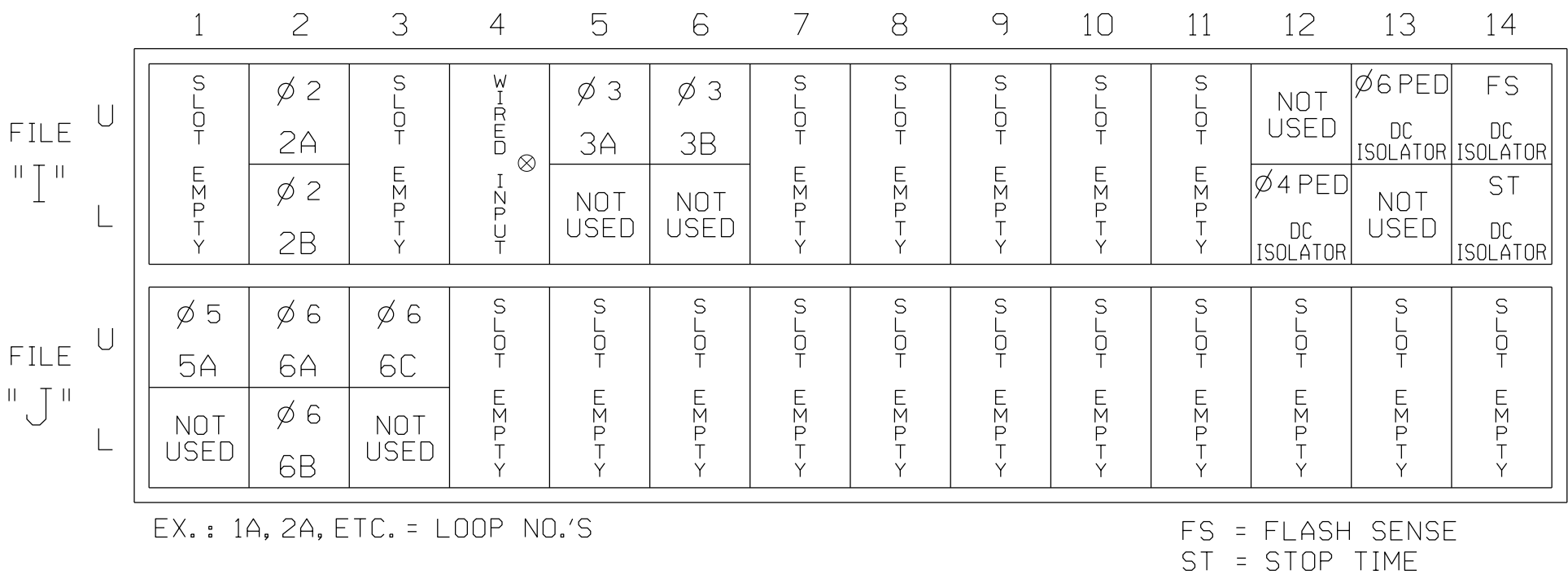
CONTROLLER.....2070LX
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S4,S6,S7,S8,S9,S11,AUX S1,AUX S2,
                        AUX S4
PHASES USED.....2,3,4*,4 PED,5,6,6 PED
OVERLAP "A".....**
OVERLAP "B".....**
OVERLAP "C".....**
OVERLAP "D".....NOT USED
OVERLAP "G".....**

```

* Phase used for timing purposes only
** See overlap programming detail on sheet 2

INPUT FILE POSITION LAYOUT

(front view)

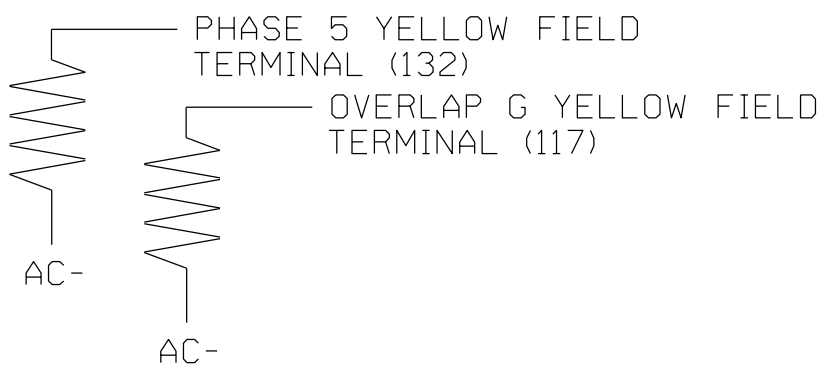


⊗ Wired Input - Do not populate slot with detector card

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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

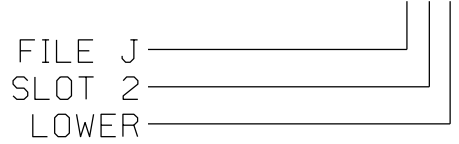


INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
2A	TB2-5,6	I2U	39	2	2	YES			X	N
2B	TB2-7,8	I2L	43	12	2	YES			X	N
3A	TB4-5,6	I5U	58	3	3	YES		10.0		N
3B	TB4-9,10	I6U	41	4	3	YES		15.0		N
5A ¹	TB3-1,2	J1U	55	5 ★	5	YES		15.0		N
	-	I4U	47	22 ★	2	YES		3.0		G
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N
6C	TB3-9,10	J3U	64	36	6	YES		3.0	-	G
PED PUSH BUTTONS						NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS				
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

★ Add jumper from J1-W to I4-W, on rear of input file.
★ For the detectors to work as shown on the signal design plan.
★ See the Vehicle Detector Setup Programming Detail for
Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



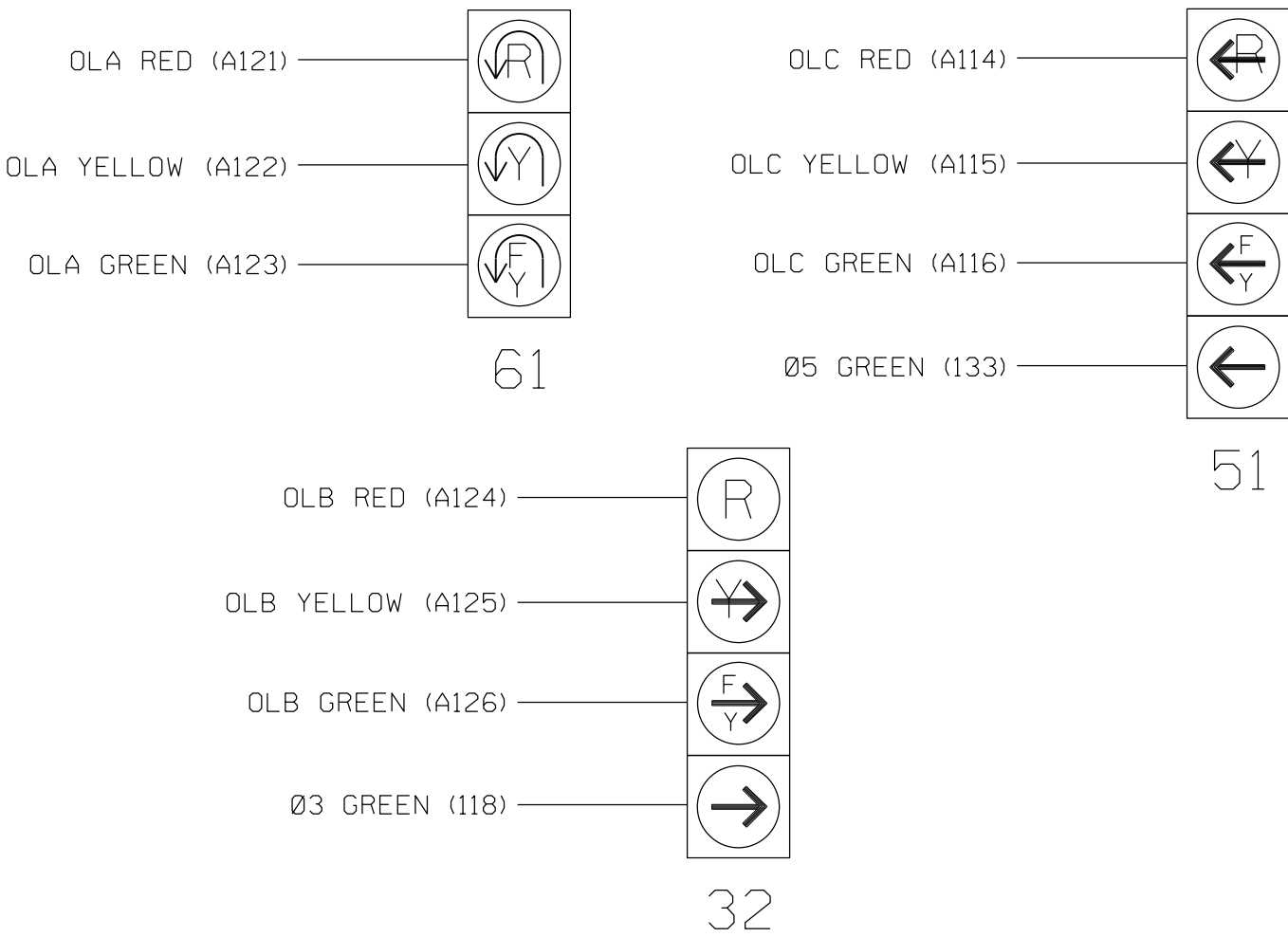
SIGNAL HEAD HOOK-UP CHART

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
EMU 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	OLG	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22, 23	NU	32★	NC	P41, P42	51★	62,63 64	P61, P62	NU	31	NU	61★	32★	NU	51★	NU	NU
RED		128						134			107			A124				
YELLOW		129		*			*	135										
GREEN		130						136										
RED ARROW													A121			A114		
YELLOW ARROW											108		A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW				118			133					109						
						104			119									
						106			121									

NU = Not Used
 NC = Not Connected
 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)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1112
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING

SR 1850 (Sandy Ridge Road)
at
SR 1854 (Bame Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
-------------------------	-----------------------------

PREPARED BY:	JT Stiff	REVIEWED BY:	PL Alexander
--------------	----------	--------------	--------------

REVISIONS	INIT.	DATE

[illegible]

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SEAL

NORTH CAROLINA
PROFESSIONAL
SEAL
044476
ENGINEER
ANTHONY M. ENCARNACION

DocuSigned by:
Anthony Encarnacion 3/14/2025

DEC 17 2023
SIGNATURE _____ DATE _____

SIG. INVENTORY NO. 07-1112



DocuSigned by:
Anthony Encarnacion 3/14/2025
DRE0577F023940F
SIGNATURE DATE
SIG. INVENTORY NO. 07-1112

13-MAR-2025 16:48
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S1F4685 - AT U0591289

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BIT 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

SF BIT 5: Modifies overlap parent phase for
head 51 to run protected turns only.

INPUTS PAGE 2: Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 0 seconds.

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 13.3

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

ACTION PLAN...[*]																		
PATTERN.....	AUTO				SYS OVERRIDE.... NO													
TIMING PLAN.....	0				SEQUENCE..... 0													
VEH DETECTOR PLAN..	2				DET LOG.....NONE													
FLASH.....	--				RED REST..... NO													
VEH DET DIAG PLN...	0				PED DET DIAG PLN..0													
DIMMING ENABLE..	NO				PRIORITY RETURN. NO													
PED PR RETURN..	NO				QUEUE DELAY..... NO													
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	.	.	.	.	X	.	.	.	(1-8)									
AUX FCT	.	.	.	(1-3)														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

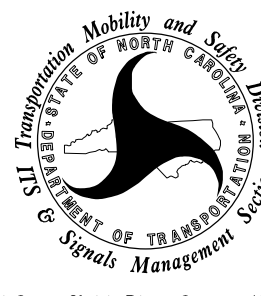
* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1112
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4

**AtkinsRéal**
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:



ALL Transportation Mobility and Safety Projects
of the STATE OF NORTH CAROLINA
are subject to the TRANSPORTATION
& Signal Management System

750 N.Greenfield Pkwy,Garner,NC 27529

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1850 (Sandy Ridge Road)
at
SR 1854 (Bame Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



SEAL
044476
ENGINEER
ANTHONY M. ENCARNACION

Designed by:
Anthony Encarnacion 3/14/2025

SIGNATURE DATE

SIG. INVENTORY NO. 07-1112

ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL
FOR LEADING PED INTERVAL (DELAYED GREEN)

(program controller as shown)

The following logic processor configuration holds the FYA on signal head 51 red for the duration of the delayed green time (leading ped interval) when serving a ped call on the opposing through phase and serve phase 4 instead of phase 3 if there is a phase 4 ped call.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From the LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

ENTER A "1" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#: 1 COPY FROM: 1 ACTIVE: M (T/F)

IF PED ON PH WALK 6 IS ON

AND VEH GREEN ON PH 6 IS OFF

THEN SIG SET OLP RED 3 ON

SIG SET OLP YELLOW 3 OFF

SIG SET OVLP GREEN 3 OFF

ELSE

HOLD SIGNAL HEAD 51 FYA
RED DURING THE PHASE 6
DELAYED GREEN TIME
(LEADING PED INTERVAL)

ENTER A "2" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#: 2 COPY FROM: 2 ACTIVE: M (T/F)

IF CTR ON PH PED CHK 4 IS ON

THEN CTR OMIT PHASE 3 ON

ELSE

LOGIC TO SERVE PHASE
4 INSTEAD OF PHASE 3
IF THERE IS A PHASE 4
PED CALL.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From the LOGIC PROCESSOR Submenu select 1. LOGIC STATEMENT CONTROL

ENABLE LOGIC PROCESSOR STATEMENTS 1-4 BY POSITIONING THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE THEM .

LOGIC STATEMENT CONTROL

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

LP 1-15 E E

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

END PROGRAMMING

ECONOLITE ASC/3-2070 STARTUP AND
SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA

-----START UP-----

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

PHASE G G

A B C D E F G H I J K L M N O P

OVERLAP X X X X X X X X X X X X X X X X

FLASH>MON. NO FL TIME.. 0 ALL RED... 6

PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit Fl" to Green "G"

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.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1112
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

ECONOLITE ASC/3-2070 BACKUP
PROTECTION ENABLE PROGRAMMING

(program controller as shown)

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 1. CONTROLLER SEQ
3. From CONTROLLER SEQUENCE Submenu select 3. BACKUP PREVENT PHASES

Follow programming as shown below. On the 'ENABLE BACKUP PREVENT' screen move cursor to the appropriate field and press 'YES/NO' on the controller keypad to toggle field value between 'X' and 'OFF'.

ENABLE BACKUP PREVENT

TMG/BKUP 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1

2

3 . X

4

5

6

7

8

9

10

11

12

13

14

15

16

END PROGRAMMING

NOTES

1. 'X' inhibits the controller from servicing the 'BACKUP' (column) phase when the 'TIMING' (row) phase is active or next.

ASC/3 FLASH SENSE INPUT CONTROL
FOR RED-RED FLASH

*The NCDOT default database is programmed to addresss Yellow-Red flash. Logic Statement 100 must be modified as shown when running Red-Red flash.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE

IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS

LP SET CIB ON 427

ELSE

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING

AtkinsRéalis
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Electrical Detail - Sheet 4 of 4

Prepared for the Offices of:



ALL TRANSPORTATION PROJECTS
Department of Transportation & Safety, State of North Carolina

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1850 (Sandy Ridge Road)
at
SR 1854 (Bame Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL



SEAL 044476

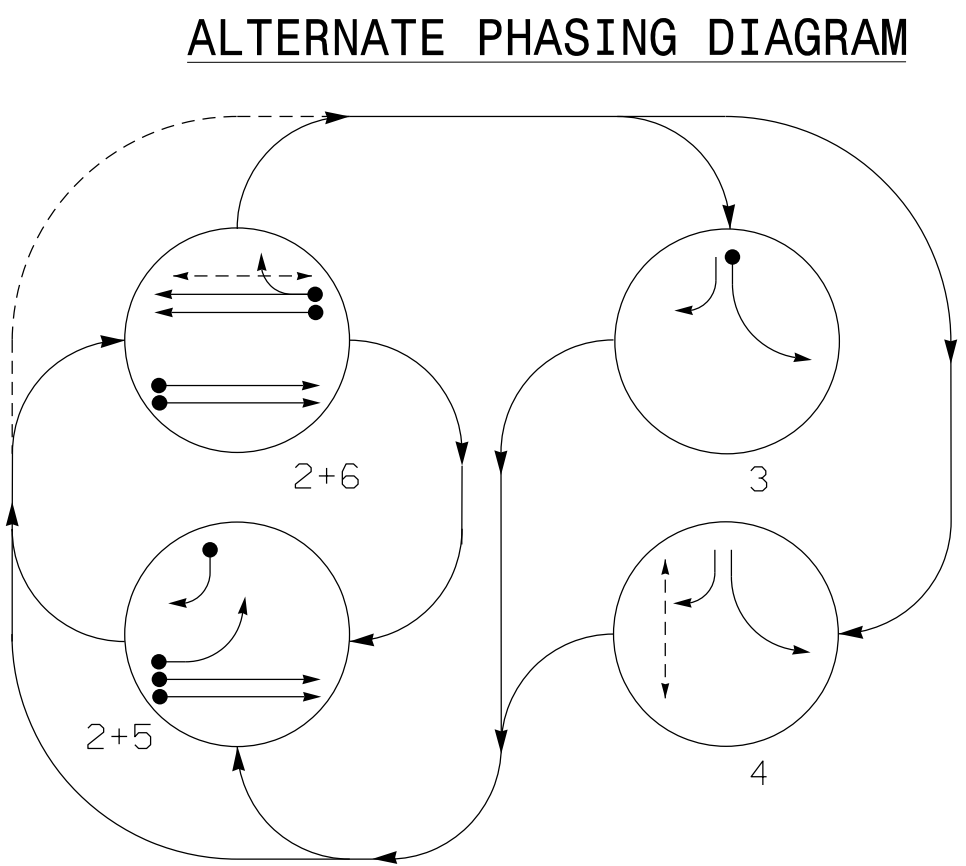
ENGINEER

Anthony Encarnacion

SIGNATURE DATE 3/14/2025

SIG. INVENTORY NO. 07-1112

3 Phase
Fully Actuated
(High Point Signal System)



ALTERNATE PHASING TABLE OF OPERATION					
SIGNAL FACE	PHASE				
	2 + 5	2 + 6	3	4	FLASH
2I, 22	G	G	R	R	R
3I, 33	← R	← R	←	←	← R
32	→	R	→	→	R
5I	←	← R	← R	← R	← R
6I	R	↑	R	R	R
62	R	G	R	R	R
P4I, P42	DW	DW	DW	W	DRK
P6I, P62	DW	W	DW	DW	DRK

* Disable delay during alternate phasing operation
Disable phase call for loop(s) during alternate phasing operation

- ### LEGEND

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

* 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.

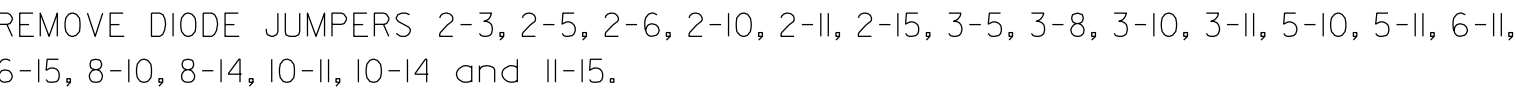
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.



Prepared For the Offices of:  Transportation Mobility and Safety Division DEPARTMENT OF TRANSPORTATION State Design Section	SR 1850 (Sandy Ridge Road) at SR 1877 (Joe Drive)	SEAL 
Division 7 Guilford County High Point		
PLAN DATE: January 2025		REVIEWED BY: AM Encarnacion
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander
750 N. Greenfield Pkwy, Garner, NC 27529		
SCALE		
		
REVISIONS		
		INIT. DATE
Signed by:  James T. Stiff DS48400037072M334		
SIGNATURE		DATE
SIG. INVENTORY NO.		07-1113

(remove jumpers and set switches as shown)

(remove jumpers and set switches as shown)



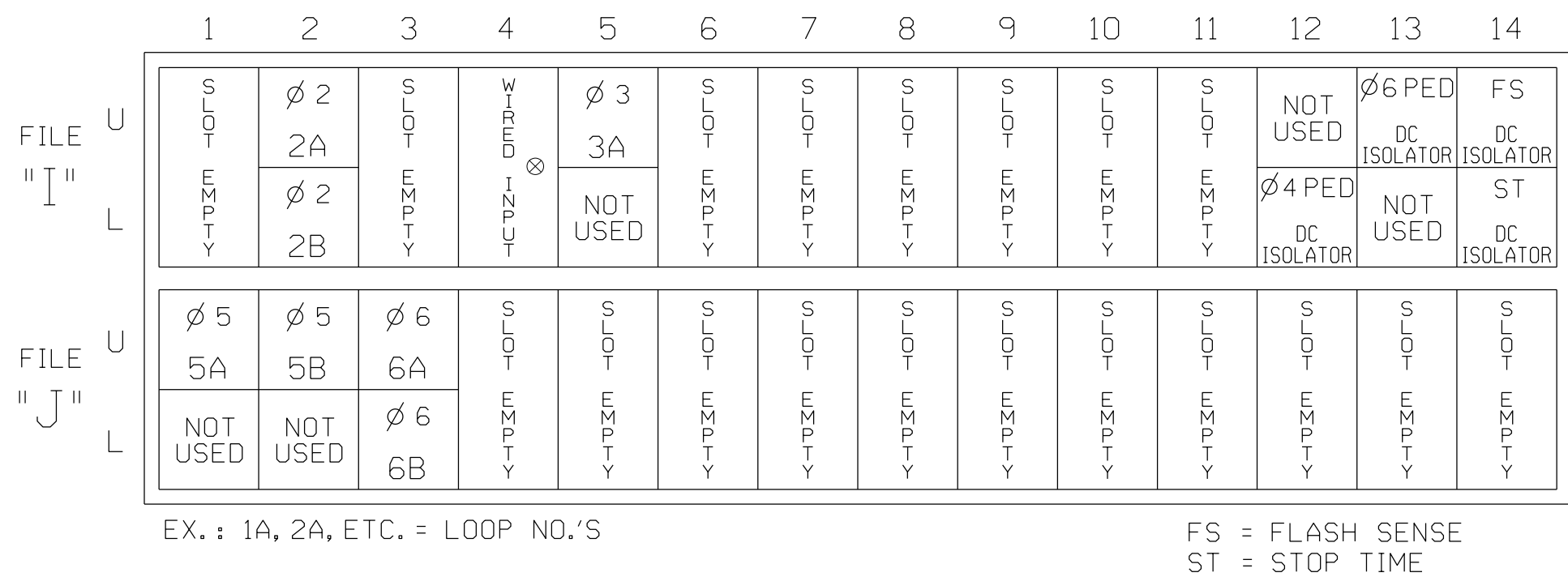
REMOVE JUMPERS AS SHOWN

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. Integrate monitor with Ethernet network in cabinet.

INPUT FILE POSITION LAYOUT

(front view)

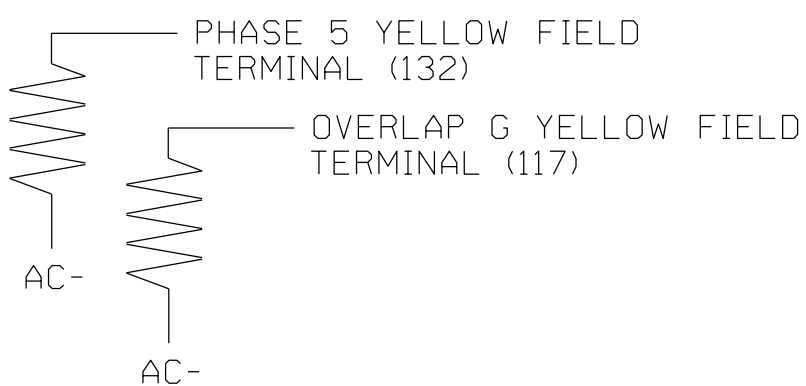


⊗ Wired Input - Do not populate slot with detector card

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

```

CONTROLLER.....2070LX
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S4,S6,S7,S8,S9,S11,AUX S2,AUX S4
PHASES USED.....2,3,4*,4 PED,5,6,6 PED
OVERLAP "A".....NOT USED
OVERLAP "B".....**
OVERLAP "C".....**
OVERLAP "D".....NOT USED
OVERLAP "G".....**
OVERLAP "H".....**
* Phase used for timing purposes only
** See overlap programming detail on sheet 2

```

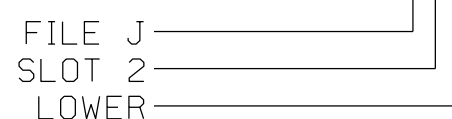
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
2A	TB2-5,6	I2U	39	2	2	YES			X	N
2B	TB2-7,8	I2L	43	12	2	YES			X	N
3A	TB4-5,6	I5U	58	3	3	YES		3.0		N
5A ¹	TB3-1,2	J1U	55	5 ★	5	YES		15.0		N
	-	I4U	47	22 ★	2	YES		3.0		G
5B	TB3-5,6	J2U	40	6	5	YES		15.0		N
6A	TB3-9,10	J3U	64	36	6	YES			X	N
6B	TB3-11,12	J3L	77	46	6	YES			X	N
PED PUSH BUTTONS						NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS				
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

NOTE:
INSTALL DC ISOLATORS
IN INPUT FILE SLOTS
I12 AND I13.

★ Add jumper from J1-W to I4-W, on rear of input file.
★ For the detectors to work as shown on the signal design plan.
See the Vehicle Detector Setup Programming Detail for
Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



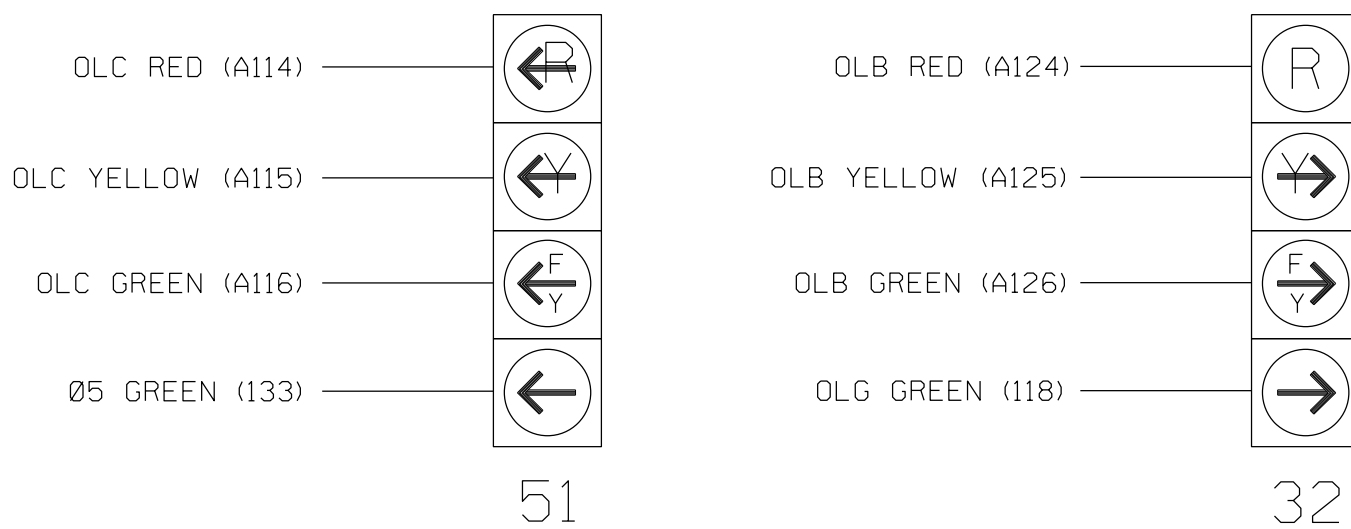
SIGNAL HEAD HOOK-UP CHART

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	OLG	4	4 PED	5	6	6 PED	7	OLH	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	32★	NC	P41, P42	51★	61	62	P61, P62	NU	31,33	NU	NU	32★	NU	51★	NU
RED		128						134	134					A124				
YELLOW		129		*			*	135	135									
GREEN		130							136									
RED ARROW											107					A114		
YELLOW ARROW											108			A125		A115		
FLASHING YELLOW ARROW														A126		A116		
GREEN ARROW				118			133	136				109						
						104			119									
						106			121									

NU = Not Used
 NC = Not Connected
 * 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)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1113
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1850 (Sandy Ridge Road)
at
SR 1877 (Joe Drive)

Division 7 Guilford County High Point

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
-------------------------	-----------------------------

PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander
-----------------------	---------------------------

REVISIONS	INIT.	DATE

[illegible]

SEAL

NORTH CAROLINA
PROFESSIONAL
SEAL
044476
ENGINEER
ANTHONY M. ENCARNACION

DocuSigned by:
Anthony Encarnacion

3/14/2025

SIG. INVENTORY NO. 07-111

SIGNATURE	DATE
INVENTORY NO.	07-1113

13-MAR-2025 16:56
DW://SUD0036343:work\ins-com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_USSR_S1g_and ITS/Task 05_11_Signals/071113_sm_e_2023mmda.dgn
S1F4685 - AT U0591289

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 5.

PHASING	VEH DET PLAN	SF BITS ENABLED
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BIT 5 AND VEH DET PLAN 2 ACTIVATE TO CALL THE
"ALTERNATE PHASING":

SF BIT 5: Modifies overlap parent phase for
head 51 to run protected turns only.

INPUTS PAGE 2: Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 0 seconds.

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 14.3

ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

ACTION PLAN...[*]																		
PATTERN.....	AUTO					SYS OVERRIDE.... NO												
TIMING PLAN.....	0					SEQUENCE..... 0												
VEH DETECTOR PLAN..	2					DET LOG.....NONE												
FLASH.....	--					RED REST..... NO												
VEH DET DIAG PLN...	0					PED DET DIAG PLN..0												
DIMMING ENABLE..	NO					PRIORITY RETURN. NO												
PED PR RETURN..	NO					QUEUE DELAY..... NO												
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	.	.	.	.	X	.	.	.	(1-8)									
AUX FCT	.	.	.	(1-3)														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1113
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

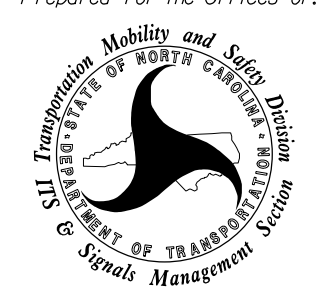
Electrical Detail - Sheet 3 of 4



1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

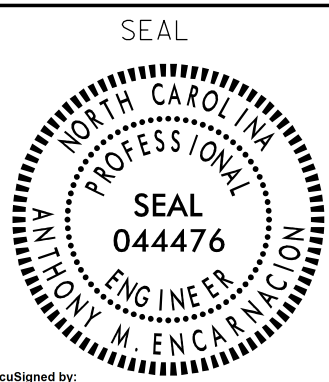
SR 1850 (Sandy Ridge Road)
at
SR 1877 (Joe Drive)

Division 7 Guilford County High Point

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



SEAL
044476
ENGINEER
ANTHONY M. ENCARNACION

Designed by:
Anthony Encarnacion 3/14/2025

SIGNATURE	DATE

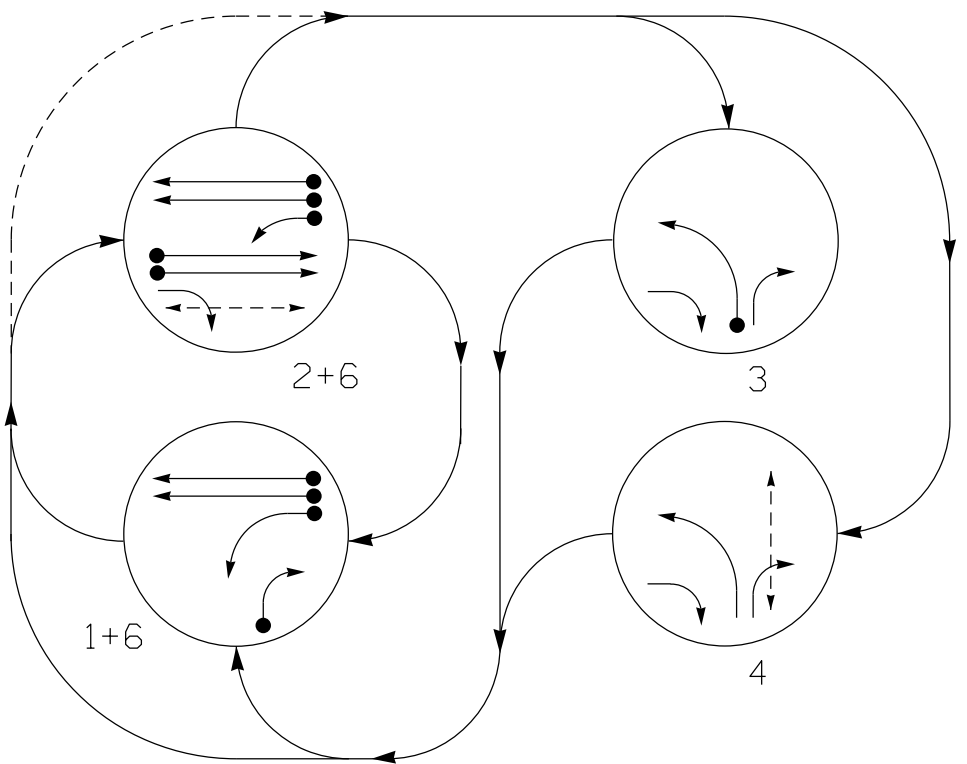
SIG. INVENTORY NO. 07-1113

3/14/2025

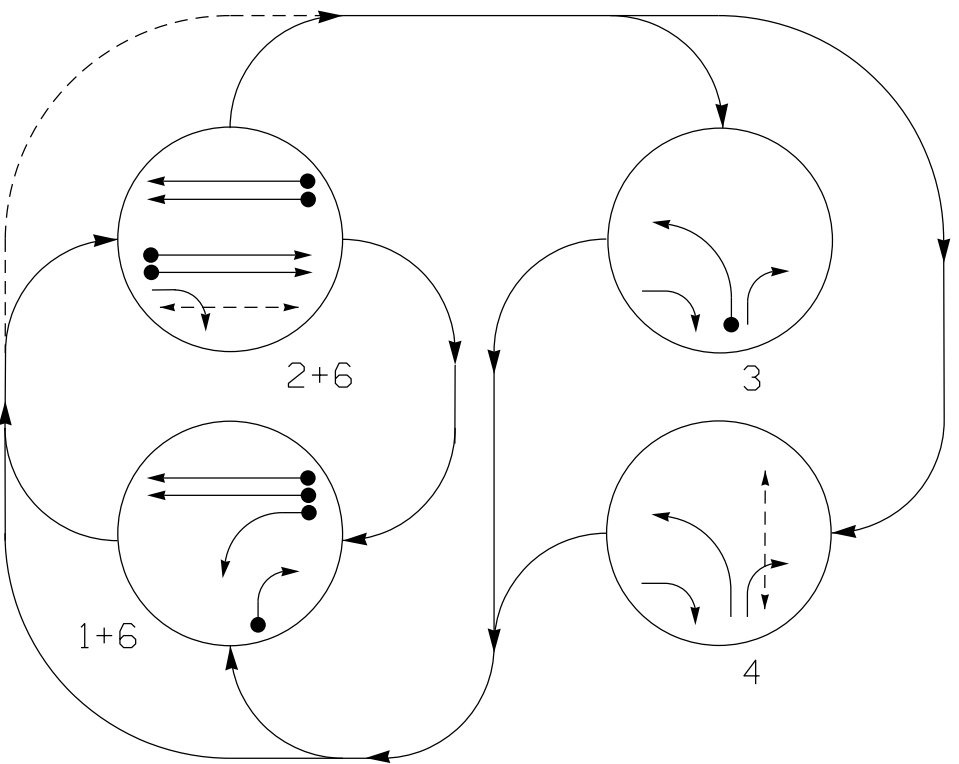
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 15.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



DEFAULT PHASING
TABLE OF OPERATION

SIGNAL FACE	PHASE				
	1 + 6	2 + 6	3	4	LEGEND
II	←	→	←	→	←
21	R	↑	R	R	R
22	R	G	R	R	R
23	R	Y	→	→	R
61, 62	G	G	R	R	R
31, 33	←	←	←	←	←
32	→	→	→	→	→
P21, P22	DW	W	DW	DW	DRK
P41, P42	DW	DW	DW	W	DRK

ALTERNATE PHASING
TABLE OF OPERATION

SIGNAL FACE	PHASE				
	1 + 6	2 + 6	3	4	LEGEND
II	←	→	←	→	←
21	R	↑	R	R	R
22	R	G	R	R	R
23	R	Y	→	→	R
61, 62	G	G	R	R	R
31, 33	←	←	←	←	←
32	→	→	→	→	→
P21, P22	DW	W	DW	DW	DRK
P41, P42	DW	DW	DW	W	DRK

ASC/3 DETECTOR INSTALLATION CHART												
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	X	1	Yes	-	15.0*	-	N	-	X
1B	6X40	0	2-4-2	X	1	Yes	-	15.0	-	N	-	X
2A	6X6	300	4	X	2	Yes	-	-	X	N	-	X
2B	6X6	300	4	X	2	Yes	-	-	X	N	-	X
3A	6X40	0	2-4-2	X	3	Yes	-	3.0	-	N	-	X
6A	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6B	6X6	300	4	X	6	Yes	-	-	X	N	-	X

* Disable delay during alternate phasing operation
Disable phase call for loop(s) during alternate phasing operation

3 Phase
Fully Actuated
(High Point Signal System)

NOTES

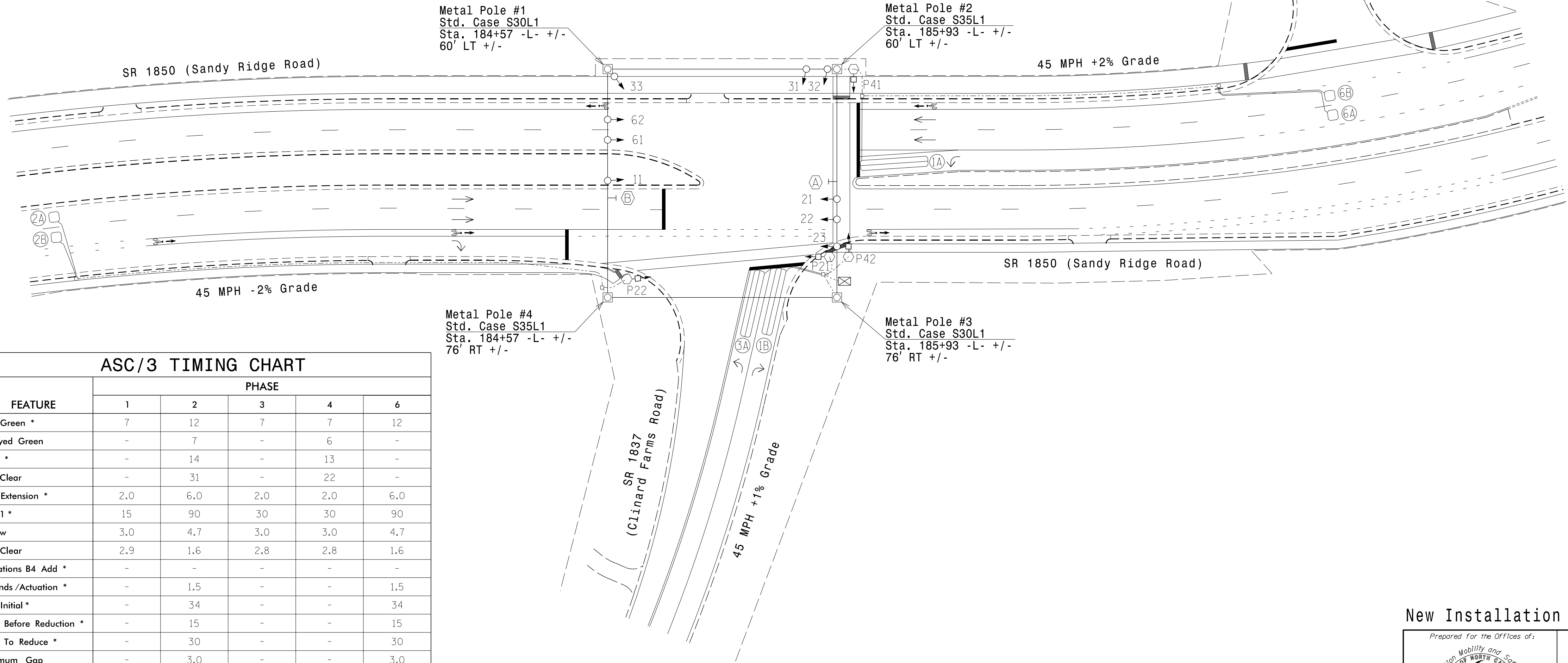
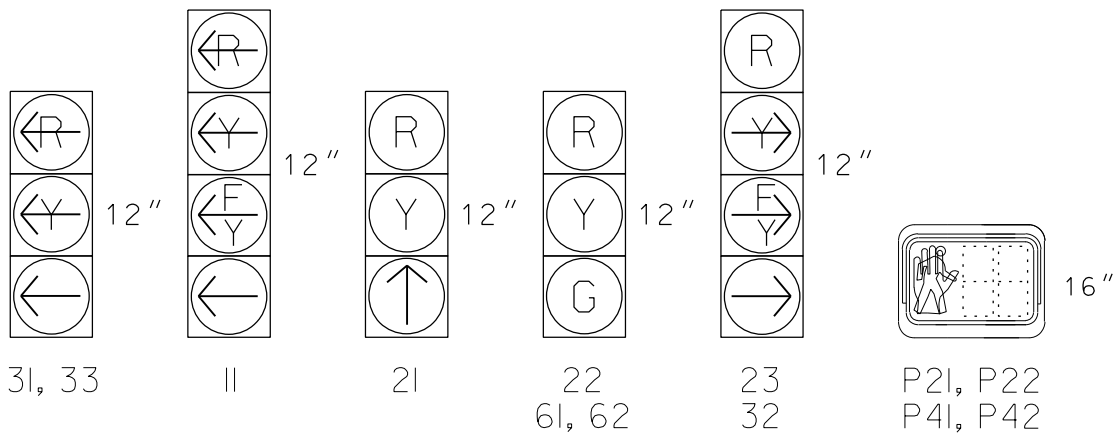
- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Omit phase 4 during phase 3 on.
- Phase 1 may be lagged.
- 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.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
- Metal poles, Type I pushbutton posts and Type II pedestals shall be BLACK in color.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- ... UNSIGNALIZED MOVEMENT
- ↔ PEDESTRIAN MOVEMENT

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 TIMING CHART

FEATURE	PHASE				
	1	2	3	4	6
Min Green *	7	12	7	7	12
Delayed Green	-	7	-	6	-
Walk *	-	14	-	13	-
Ped Clear	-	31	-	22	-
Veh. Extension *	2.0	6.0	2.0	2.0	6.0
Max I *	15	90	30	30	90
Yellow	3.0	4.7	3.0	3.0	4.7
Red Clear	2.9	1.6	2.8	2.8	1.6
Actuations B4 Add *	-	-	-	-	-
Seconds /Actuation *	-	1.5	-	-	1.5
Max Initial *	-	34	-	-	34
Time Before Reduction *	-	15	-	-	15
Time To Reduce *	-	30	-	-	30
Minimum Gap	-	3.0	-	-	3.0
Locking Detector	-	X	-	-	X
Recall Position **	-	SOFT RECALL	-	-	SOFT RECALL
Dual Entry	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X

* 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.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

LEGEND

- | PROPOSED | | EXISTING | |
|----------|--|----------|-----|
| ○→ | Traffic Signal Head | ●→ | N/A |
| ●→ | Modified Signal Head | | |
| ⊥ | 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 | → | |
| ⊥ | Metal Strain Pole | ⊥ | |
| ○ | Type II Signal Pedestal | ⊥ | |
| N/A | Curb Ramp | ⊥ | |
| ⊥ | No U-Turn/No Left Turn Sign (R3-18) | ⊥ | |
| ⊥ | "U-TURN YIELD TO RIGHT TURN" Sign (R10-16) | ⊥ | |

New Installation

Prepared for the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1850 (Sandy Ridge Road)
at
SR 1837 (Clinard Farms Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER

SEAL 056276

JAMES T. STIFF

Signed By: James Stiff 3/14/2025

DATE

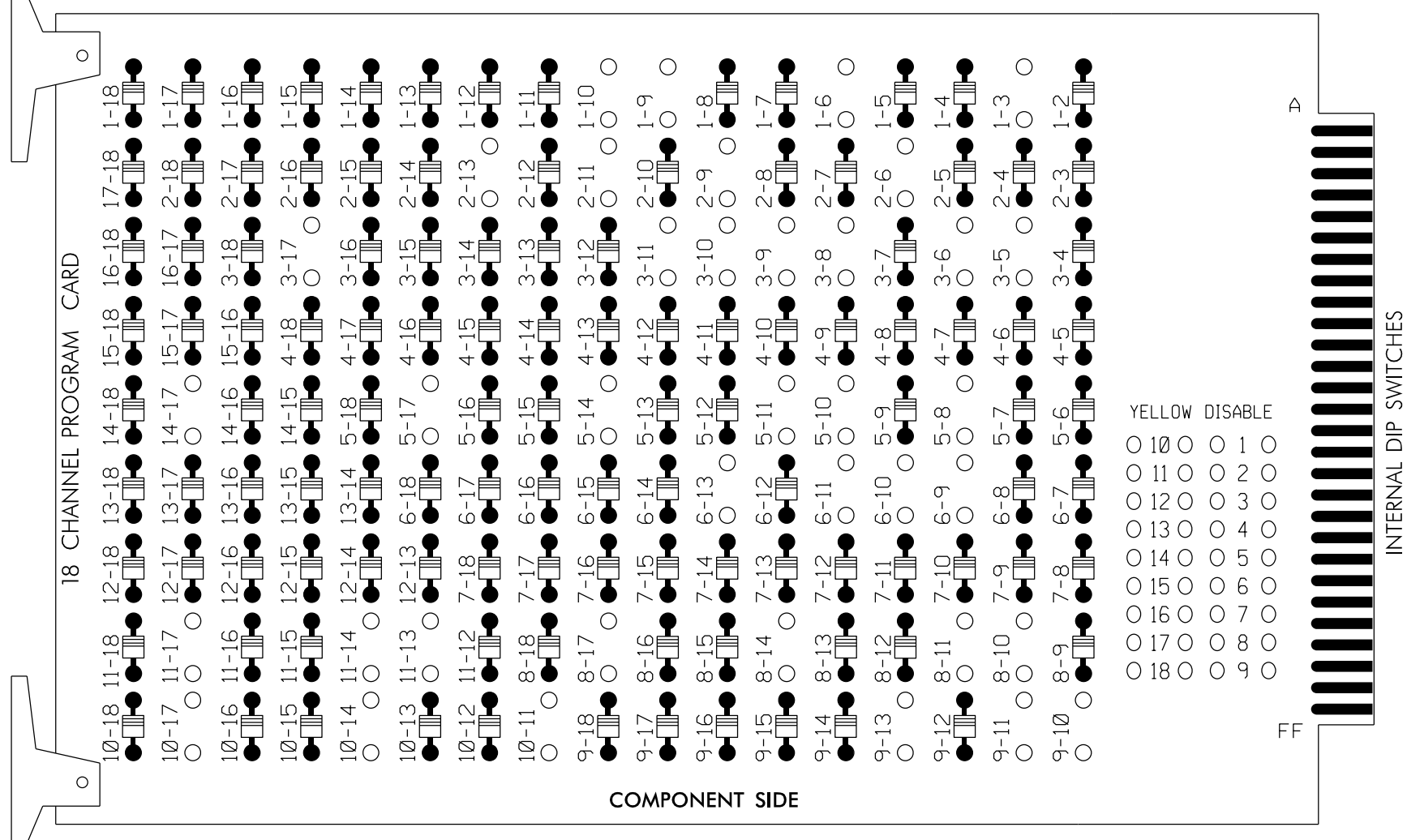
SIG. INVENTORY NO. 07-1114

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-3, 1-6, 1-9, 1-10, 2-6, 2-9, 2-11, 2-13, 3-5, 3-6, 3-8, 3-9, 3-10, 3-11, 3-17, 5-8, 5-10, 5-11, 5-14, 5-17, 6-9, 6-10, 6-11, 6-13, 8-10, 8-11, 8-14, 8-17, 9-10, 9-11, 9-13, 10-11, 10-14, 10-17, 11-13, 11-14, 11-17 and 14-17.



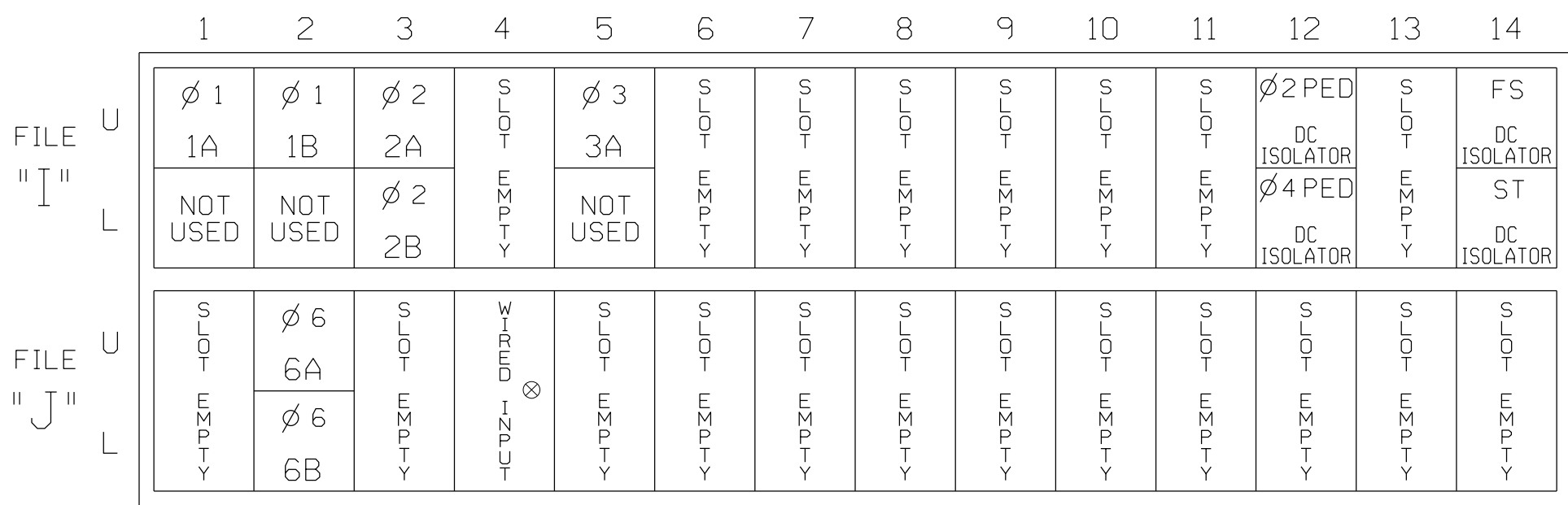
REMOVE JUMPERS AS SHOWN

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. Integrate monitor with Ethernet network in cabinet.

INPUT FILE POSITION LAYOUT

(front view)



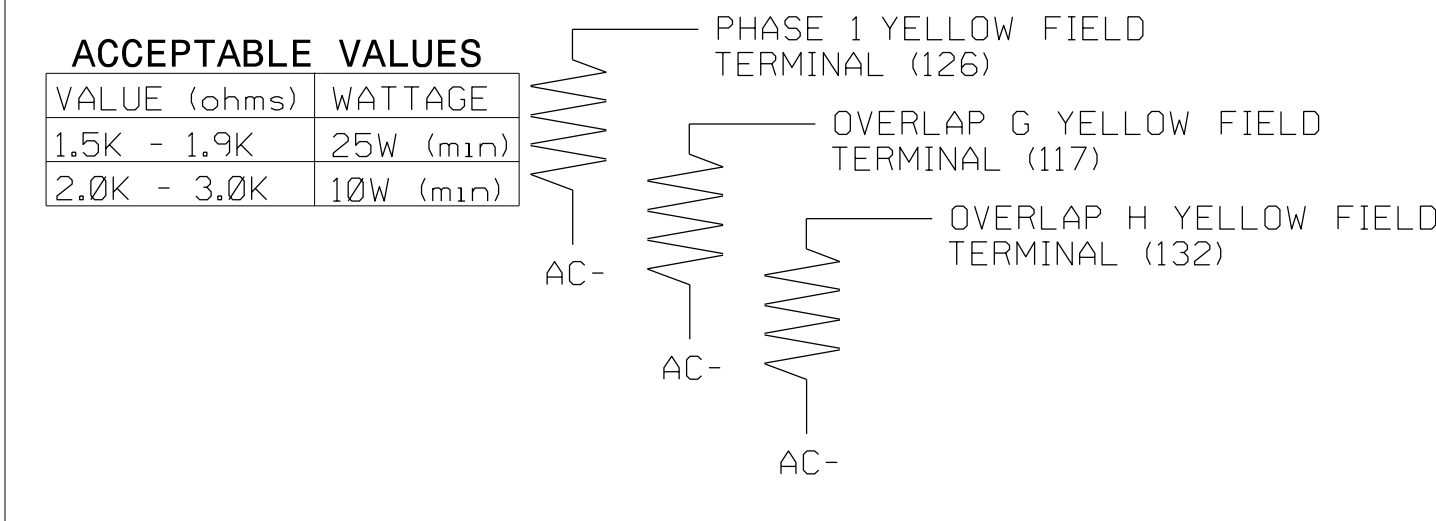
EX.: 1A, 2A, ETC. = LOOP NO.'S

```
FS = FLASH SENSE
ST = STOP TIME
```

⊗ Wired Input - Do not populate slot with detector card

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

```

CONTROLLER.....2070LX
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S3,S4,S6,S7,S8,S11,
                        AUX S1,AUX S2,AUX S3,AUX S4
PHASES USED.....1,2,2 PED,3,4*,4 PED,6

```

* Phase used for timing purposes only
** See overlap programming detail on sheet 2

INPUT FILE CONNECTION & PROGRAMMING CHART

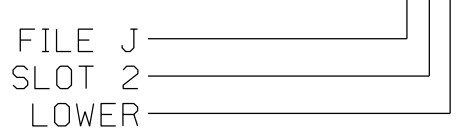
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A ¹	TB2-1,2	I1U	56	1 ★	1	YES		15.0		N
	-	J4U	48	26 ★	6	YES		3.0		G
1B	TB2-5,6	I2U	39	2	1	YES		15.0		N
2A	TB2-9,10	I3U	63	32	2	YES			X	N
2B	TB2-11,12	I3L	76	42	2	YES			X	N
3A	TB4-5,6	I5U	58	3	3	YES		3.0		N
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N
PED PUSH BUTTONS						NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOT 112.				
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					

NOTE:
INSTALL DC ISOLATORS
IN INPUT FILE SLOT I12.

¹Add jumper from I1-W to J4-W, on rear of input file.

★For the detectors to work as shown on the signal design plan.
See the Vehicle Detector Setup Programming Detail for
Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



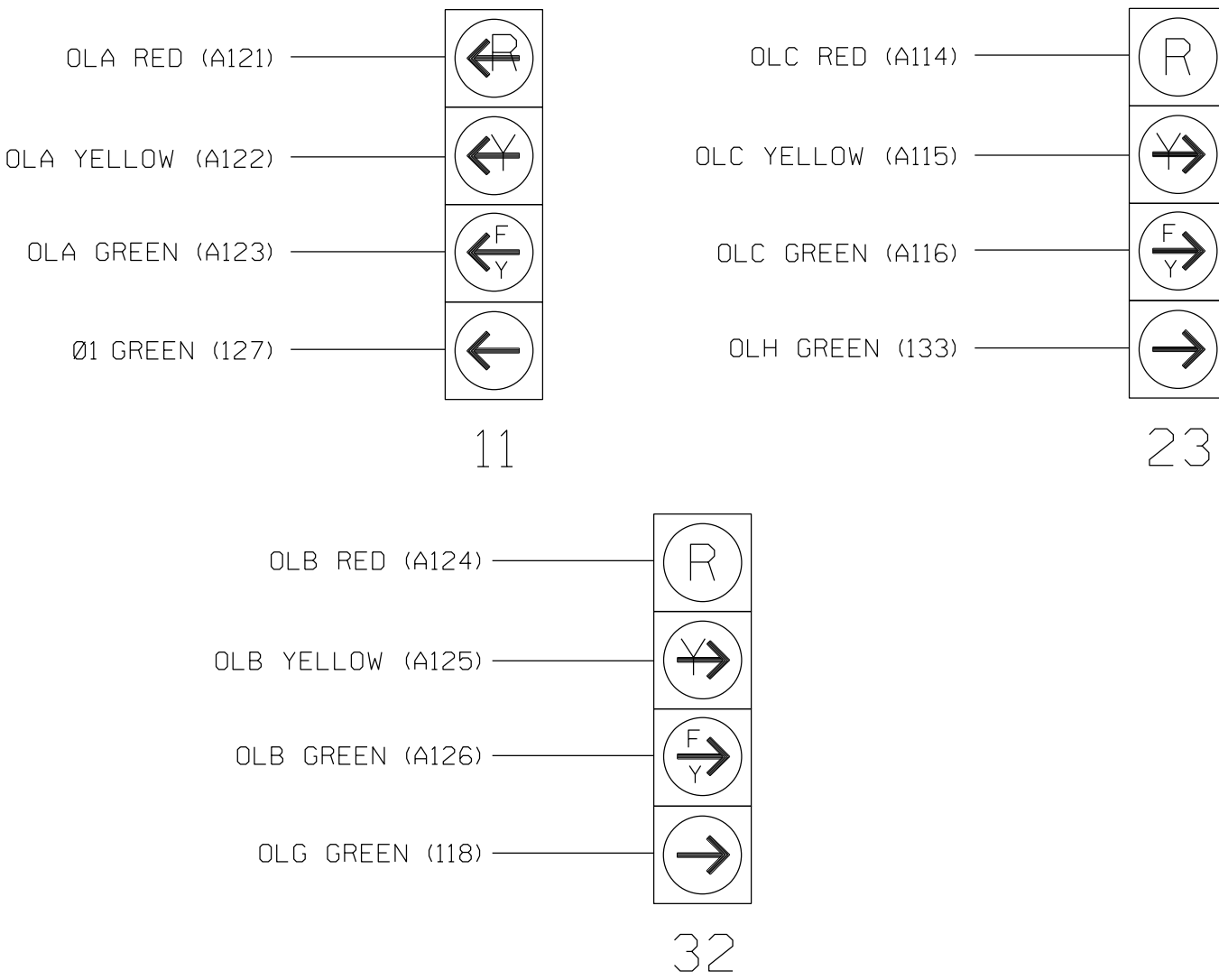
SIGNAL HEAD HOOK-UP CHART

[illegible]

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

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1114
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4

01EC537F023844F...
SIGNATURE

13-MAR-2025 16:59
DW://SUD0036343:work\ins-com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_USSR S1g and ITS/Task 05_11_Signals/071114_sm.le_2023mmda.dgn
S1F4685 - AT U0591289

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 1.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 1.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BIT 1 AND VEH DET PLAN 2 ACTIVATE TO CALL THE
"ALTERNATE PHASING":

SF BIT 1: Modifies overlap parent phase
for head 11 to run protected
turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 0 seconds.



ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

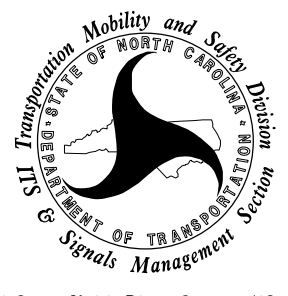
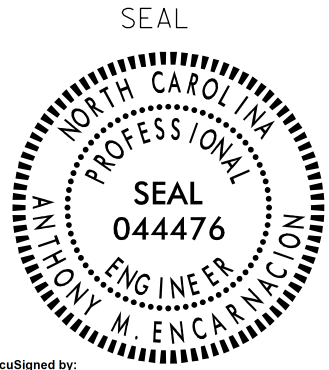
```
ACTION PLAN...[ *]
PATTERN.....AUTO   SYS OVERRIDE.... NO
TIMING PLAN..... 0   SEQUENCE.....  0
VEH DETECTOR PLAN.. 2   DET LOG.....NONE
FLASH.....      --   RED REST..... NO
VEH DET DIAG PLN... 0   PED DET DIAG PLN..0
DIMMING ENABLE..  NO   PRIORITY RETURN. NO
PED PR RETURN..  NO   QUEUE DELAY..... NO
PMT COND DELAY  NO

  PHASE   1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
PED RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
WALK 2    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEH RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
  PHASE   1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
MAX 3     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
CS INH    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
OMIT      .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
SPC FCT   X  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
AUX FCT   .  .  .  (1-3)
          1  2  3  4  5  6  7  8  9  0  1  2  3  4  5
LP 1-15   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 16-30  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 31-45  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 46-60  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 61-75  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 76-90  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 91-100 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
```

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1114
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1820 (Sandy Ridge Road) at SR 1837 (Clinard Farms Road)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared for the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529		Division 7 Guilford County High Point			
PLAN DATE: January 2025		REVIEWED BY: AM Encarnacion			
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander			
REVISIONS		INIT. DATE			
				Designed by: Anthony Encarnacion 3/14/2025	
				DATE	
				SIG. INVENTORY NO. 07-1114	

ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL
FOR LEADING PED INTERVAL (DELAYED GREEN)

(program controller as shown)

The following logic processor configuration holds the FYA on signal head 11 red for the duration of the delayed green time (leading ped interval) when serving a ped call on the opposing through phase and serve phase 4 instead of phase 3 if there is a phase 4 ped call.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From the LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

ENTER A "1" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#: 1 COPY FROM: 1 ACTIVE: M (T/F)

IF PED ON PH WALK 2 IS ON

AND VEH GREEN ON PH 2 IS OFF

THEN SIG SET OLP RED 1 ON

SIG SET OLP YELLOW 1 OFF

SIG SET OVLP GREEN 1 OFF

ELSE

HOLD SIGNAL HEAD 11 FYA
RED DURING THE PHASE 2
DELAYED GREEN TIME
(LEADING PED INTERVAL)

ENTER A "2" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#: 2 COPY FROM: 2 ACTIVE: M (T/F)

IF CTR ON PH PED CHK 4 IS ON

THEN CTR OMIT PHASE 3 ON

ELSE

LOGIC TO SERVE PHASE
4 INSTEAD OF PHASE 3
IF THERE IS A PHASE 4
PED CALL.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From the LOGIC PROCESSOR Submenu select 1. LOGIC STATEMENT CONTROL

ENABLE LOGIC PROCESSOR STATEMENTS 1-4 BY POSITIONING THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE THEM .

LOGIC STATEMENT CONTROL

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

LP 1-15 E E

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

END PROGRAMMING

ECONOLITE ASC/3-2070 STARTUP AND
SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA

-----START UP-----

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

PHASE G G

A B C D E F G H I J K L M N O P

OVERLAP X X X X X X X X X X X X X X X X

FLASH>MON. NO FL TIME.. 0 ALL RED... 6

PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit Fl" to Green "G"

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.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1114
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

ECONOLITE ASC/3-2070 BACKUP
PROTECTION ENABLE PROGRAMMING

(program controller as shown)

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 1. CONTROLLER SEQ
3. From CONTROLLER SEQUENCE Submenu select 3. BACKUP PREVENT PHASES

Follow programming as shown below. On the 'ENABLE BACKUP PREVENT' screen move cursor to the appropriate field and press 'YES/NO' on the controller keypad to toggle field value between 'X' and 'OFF'.

ENABLE BACKUP PREVENT

TMG/BKUP 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1

2

3 . X

4

5

6

7

8

9

10

11

12

13

14

15

16

END PROGRAMMING

NOTES

1. 'X' inhibits the controller from servicing the 'BACKUP' (column) phase when the 'TIMING' (row) phase is active or next.

ASC/3 FLASH SENSE INPUT CONTROL
FOR RED-RED FLASH

*The NCDOT default database is programmed to addresss Yellow-Red flash. Logic Statement 100 must be modified as shown when running Red-Red flash.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE

IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS

LP SET CIB ON 427

ELSE

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING

AtkinsRéalis

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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Electrical Detail - Sheet 4 of 4

Prepared for the Offices of:

Seal of the State of North Carolina

Department of Transportation & Signal Management Systems

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1820 (Sandy Ridge Road) at SR 1837 (Clinard Farms Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Seal of the State of North Carolina

Professional Engineer

Seal 044476

Anthony Encarnacion

3/14/2025

SIG. INVENTORY NO. 07-1114

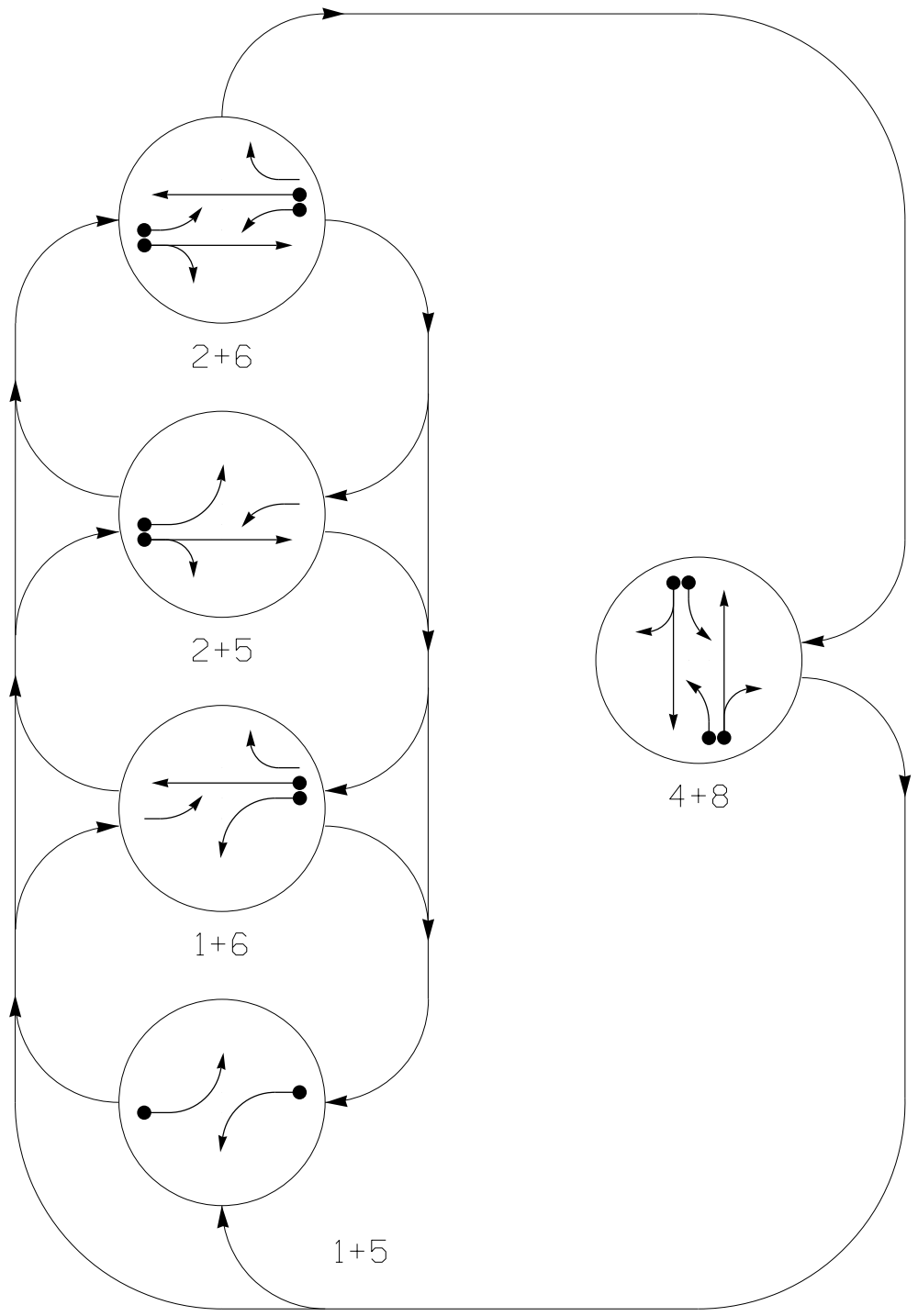
13-MAR-2025 17:00
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S:\14685 - AT L05910289

13-MAR-2025 17:00
DW://SUD0036343.dgn
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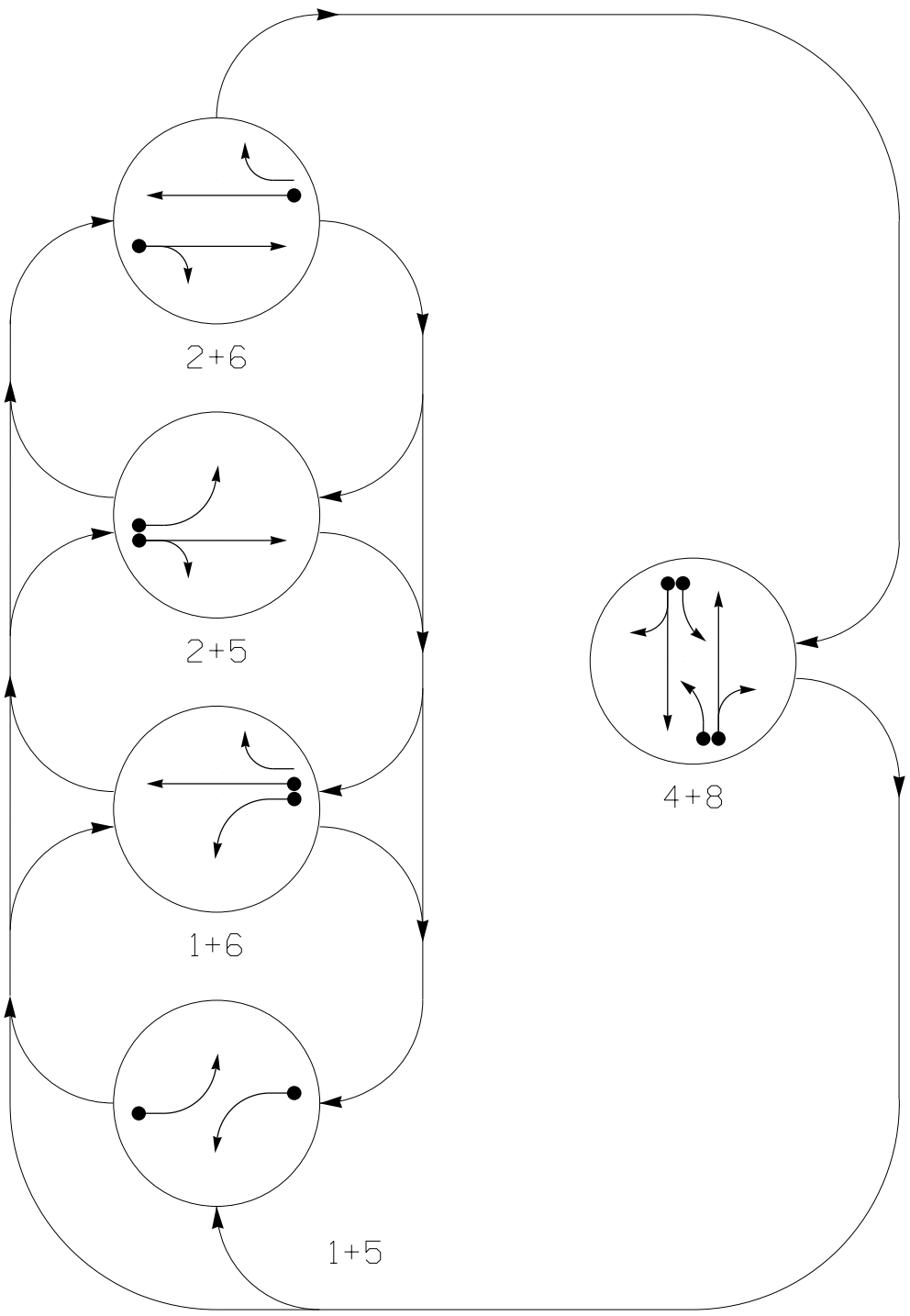
13-MAR-2025 17:00
DW://SUD0036343.dgn
S:\14685 - AT L05910289

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 16.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	P E D
II	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
41	←	←	←	←	←	←
42, 43, 44	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	R
81	←	←	←	←	←	←
82, 83, 84	R	R	R	R	G	R

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	4 + 8	P E D
II	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
41	←	←	←	←	←	←
42, 43, 44	R	R	R	R	G	R
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	R
81	←	←	←	←	←	←
82, 83, 84	R	R	R	R	G	R

ASC/3 DETECTOR INSTALLATION CHART												
DETECTOR					PROGRAMMING							
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A*	6X40	0	*	*	1	Yes	-	15.0**	-	N	-	*
2A*	6X6	300	*	*	6#	Yes	-	3.0	-	G	-	*
4A*	6X40	0	*	*	2	Yes	-	-	X	N	-	*
4B*	6X40	0	*	*	4	Yes	-	3.0	-	N	-	*
5A*	6X40	0	*	*	4	Yes	-	10.0	-	N	-	*
6A*	6X6	300	*	*	5	Yes	-	15.0**	-	N	-	*
8A*	6X40	0	*	*	2#	Yes	-	3.0	-	G	-	*
8B*	6X40	0	*	*	6	Yes	-	-	X	N	-	*
					8	Yes	-	3.0	-	N	-	*
					8	Yes	-	10.0	-	N	-	*

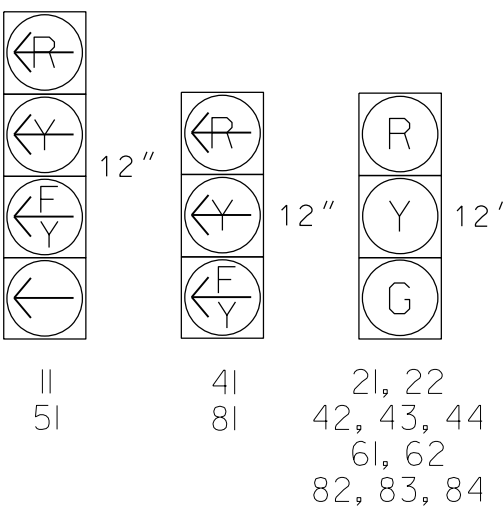
*Non-Intrusive Detection Zone

**Reduce delay to 3 seconds during alternate phasing operation

#Disable phase call for loop(s) during alternate phasing operation

SIGNAL FACE I.D.

All Heads L.E.D.

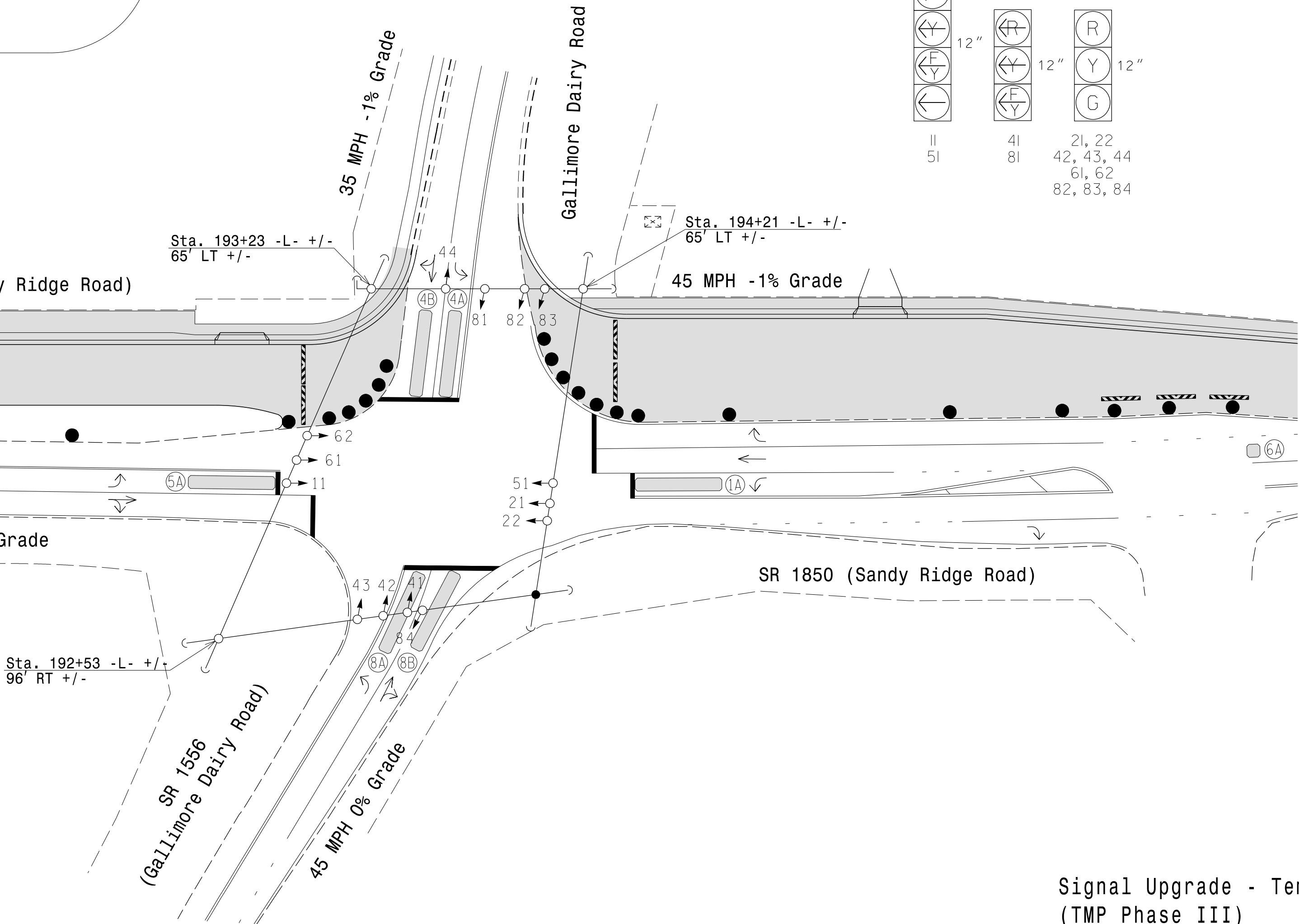


PHASING DIAGRAM DETECTION LEGEND

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

FEATURE	PHASE					
	1	2	4	5	6	8
Min Green *	7	12	7	7	12	7
Walk *	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0
Max 1 *	15	90	30	15	90	30
Yellow	3.0	4.6	4.5	3.0	4.6	4.5
Red Clear	3.4	1.9	1.3	3.2	1.9	1.3
Actuations B4 Add *	-	-	-	-	-	-
Seconds / Actuation *	-	2.5	-	-	2.5	-
Max Initial *	-	34	-	-	34	-
Time Before Reduction *	-	15	-	-	15	-
Time To Reduce *	-	30	-	-	30	-
Minimum Gap	-	3.0	-	-	3.0	-
Locking Detector	-	X	-	-	X	-
Recall Position	-	MIN RECALL	-	-	MIN RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

* 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.



LEGEND

- PROPOSED
- EXISTING
- Traffic Signal Head
- Modified Signal Head
- Sign
- Pedestrian Signal Head With Push Button & Sign
- Signal Pole with Guy
- Signal Pole with Sidewalk Guy
- Inductive Loop Detector
- Non-Intrusive Detection Zone
- Controller & Cabinet
- Junction Box
- 2-in Underground Conduit
- Right of Way
- Directional Arrow
- Construction Zone
- Construction Zone Drums
- Curb Ramp

Signal Upgrade - Temporary Design 1 (TMP Phase III)

AtkinsRéalis

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Signal Upgrade - Temporary Design 1 (TMP Phase III)

SR 1850 (Sandy Ridge Road) at SR 1556 (Gallimore Dairy Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS

INIT. DATE

Signature of James T. Stiff

3/14/2025

DATE

SIG. INVENTORY NO. 07-1115T1

(remove jumpers and set switches as shown)

18 CHANNEL PROGRAM CARD

10-18	11-18	12-18	13-18	14-18	15-18	16-18	17-18	1-18
10-17	11-17	12-17	13-17	14-17	15-17	16-17	2-18	1-17
10-16	11-16	12-16	13-16	14-16	15-16	3-18	2-17	1-16
10-15	11-15	12-15	13-15	14-15	4-18	3-17	2-16	1-15
10-14	11-14	12-14	13-14	5-18	4-17	3-16	2-15	1-14
10-13	11-13	12-13	6-18	5-17	4-16	3-15	2-14	1-13
10-12	11-12	7-18	6-17	5-16	4-15	3-14	2-13	1-12
10-11	8-18	7-17	6-16	5-15	4-14	3-13	2-12	1-11
9-18	8-17	7-16	6-15	5-14	4-13	3-12	2-11	1-10
9-17	8-16	7-15	6-14	5-13	4-12	3-11	2-10	1-9
9-16	8-15	7-14	6-13	5-12	4-11	3-10	2-9	1-8
9-15	8-14	7-13	6-12	5-11	4-10	3-9	2-8	1-7
9-14	8-13	7-12	6-11	5-10	4-9	3-8	2-7	1-6
9-13	8-12	7-11	6-10	5-9	4-8	3-7	2-6	1-5
9-12	8-11	7-10	6-9	5-8	4-7	3-6	2-5	1-4
9-11	8-10	7-9	6-8	5-7	4-6	3-5	2-4	1-3
9-10	8-9	7-8	6-7	5-6	4-5	3-4	2-3	1-2

FF

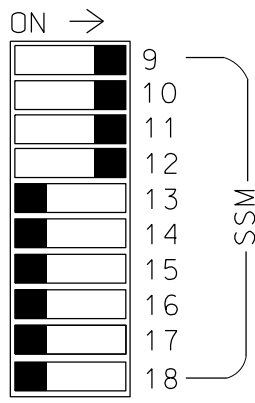
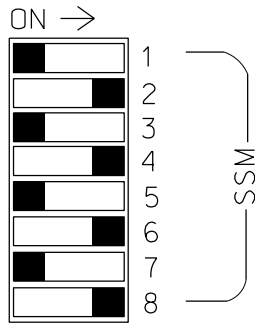
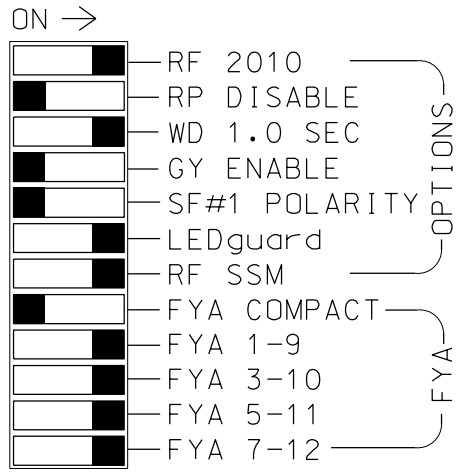
YELLOW DISABLE

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

NOTES:

- ON OFF
WD ENABLE
SW2



NOTES

- ## EQUIPMENT INFORMATION

* See overlap programming detail on sheet 2

(front view)

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

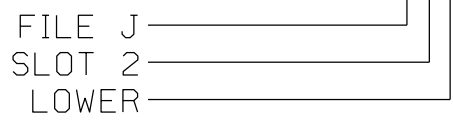
INPUT FILE CONNECTION & PROGRAMMING CHART

¹ Add jumper from I1-W to J4-W, on rear of input file.

²Add jumper from J1-W to I4-W, on rear of input file.

- ★For the detectors to work as shown on the signal design plan.
See the Vehicle Detector Setup Programming Detail for
Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



SPECIAL DETECTOR NOTE

- 1) Install a non-intrusive detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2) For detection areas 1A and 5A detector card placement and slots reserved for wired inputs are typical for a NCDOT installation. Inputs associated with these slots are compatible with time of day instructions located on sheets 2 and 3 of this electrical detail.

(install resistors as shown below)

PHASE 1 YELLOW FIELD
TERMINAL (126)

PHASE 5 YELLOW FIELD
TERMINAL (132)

AC-

AC-

SIGNAL HEAD HOOK-UP CHART

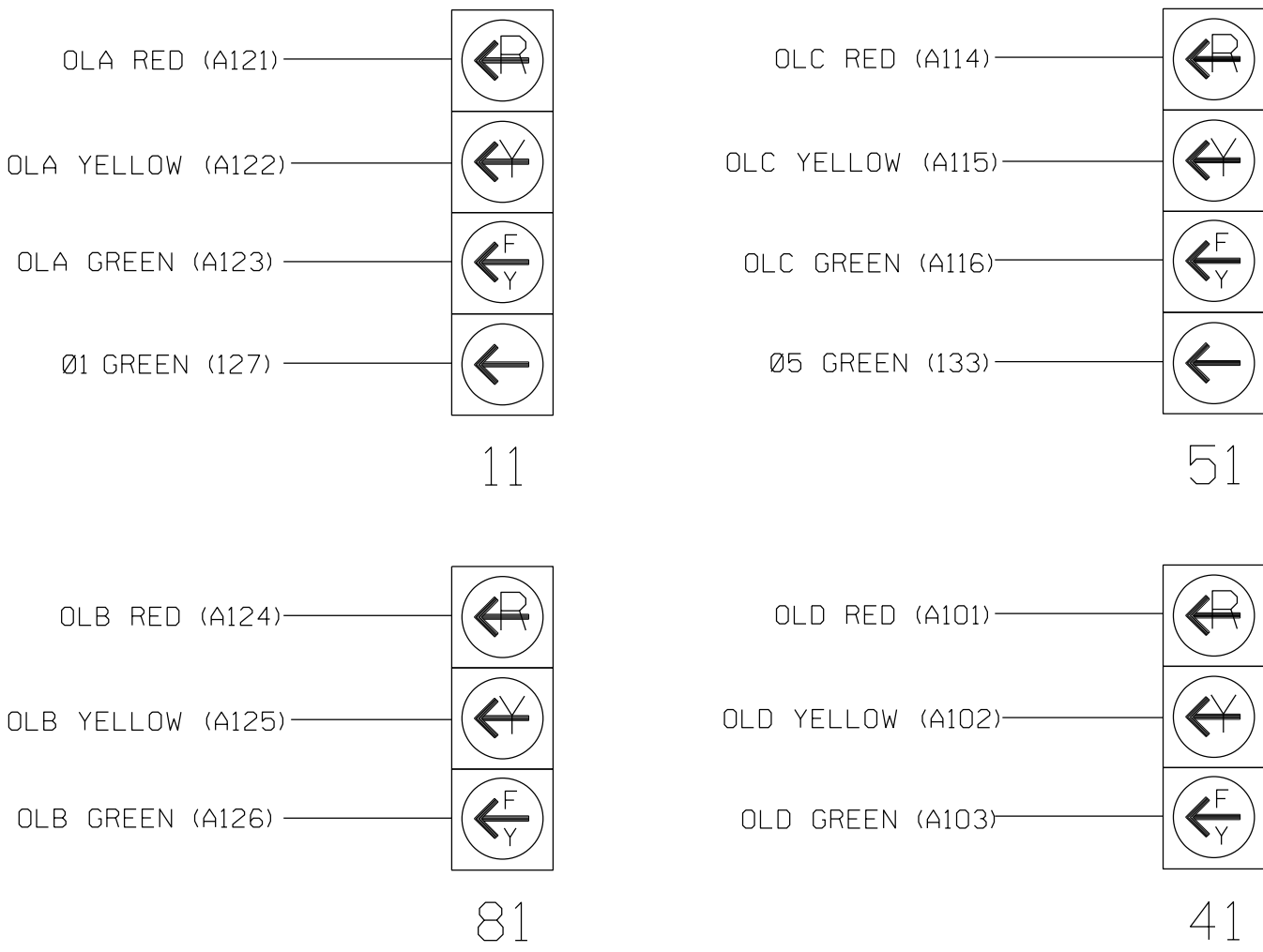
NU = Not Used

* 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)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1115T1
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 4
Temporary Design 1

ELECTRICAL AND PROGRAMMING

SR 1850 (Sandy Ridge Road)
at
SR 1556 (Gallimore Dairy Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
-------------------------	-----------------------------

PREPARED BY:	JT Stiff	REVIEWED BY:	PL Alexander
--------------	----------	--------------	--------------

REVISIONS	INT.	DATE

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DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



DocuSigned by:
Anthony Encarnacion 2/4/2025

DEC 17 2023
SIGNATURE _____ DATE _____

SIG. INVENTORY NO. 07-1115



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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

13-MAR-2025 17:01
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S1F4685 - AT L05491089

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

<u>PHASING</u>	<u>VEH DET PLAN</u>	<u>SF BITS ENABLED</u>
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1,5

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases
for heads 11 and 51 to
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A
and reduces delay time for phase 5
call on loop 5A to 3 seconds.

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ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select

5. TIME BASE
2. From TIME BASE Submenu select

2. ACTION PLAN

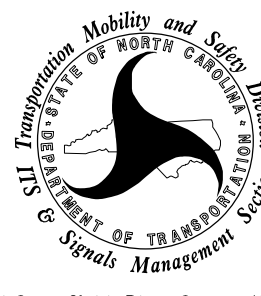
ACTION PLAN...[*]																		
PATTERN.....	AUTO			SYS OVERRIDE.... NO														
TIMING PLAN.....	0			SEQUENCE..... 0														
VEH DETECTOR PLAN..	2			DET LOG.....NONE														
FLASH.....	--			RED REST..... NO														
VEH DET DIAG PLN...	0			PED DET DIAG PLN..0														
DIMMING ENABLE..	NO			PRIORITY RETURN. NO														
PED PR RETURN..	NO			QUEUE DELAY..... NO														
PMT COND DELAY	NO																	
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
PED RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
WALK 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
VEH RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX RCL	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
MAX 2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
PHASE	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6		
MAX 3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
CS INH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
OMIT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
SPC FCT	X	.	.	.	X	.	.	.	(1-8)									
AUX FCT	.	.	.	(1-3)														
	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5			
LP 1-15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 16-30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 31-45	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 46-60	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 61-75	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 76-90	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		
LP 91-100	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.		

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1115T1
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4
Temporary Design 1

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1850 (Sandy Ridge Road)
at
SR 1556 (Gallimore Dairy Road)

Division 7

Guilford County

High Point

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



SEAL
044476
ENGINEER
ANTHONY M. ENCARNACION

Designed by:
Anthony Encarnacion

3/14/2025

SIGNATURE

DATE

SIG. INVENTORY NO.

07-1115T1

(program controller as shown)

- ```

START/FLASH DATA
-----START UP-----
 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
PHASE G G
 A B C D E F G H I J K L M N O P
OVERLAP X X X X X X X X X X X X X X
FLASH>MON. NO FL TIME.. 0 ALL RED... 6
PWR START SEQ.. 1 MUTCD> YES Y- G: NO

```

Scroll down on this screen and set "Exit Fl" to Green "G"

\*The NCDOT default database is programmed to address Yellow-Red flash.  
Logic Statement 100 must be modified as shown when running Red-Red flash.

- change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key, then hit "ENTER", select "LP SET CIB ON", hit "C", and then set the number to 427.

```

LP##:100 COPY FROM:100 ACTIVE: M FALSE
IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS
LP SET CIB ON 427

ELSE

```

THIS STATEMENT IS USED  
TO CONTROL THE FLASH  
SENSE INPUT WHEN RUNNING  
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115T1  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 4 of 4  
Temporary Design 1

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

**AtkinsRéalis**  
1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

[illegible]

| PROJECT REFERENCE NO. | SHEET NO. |
|-----------------------|-----------|
| U-4758                | Sig. 17.0 |

5 Phase  
Fully Actuated  
(Isolated)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Reposition existing signal heads numbered 11, 51, 61 and 62.
5. Set all detector units to presence mode.
6. The Division Traffic Engineer will determine the hours of use for each phasing plan.
7. This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.

| DEFAULT PHASING<br>TABLE OF OPERATION |             |             |             |             |             |             |             |
|---------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| SIGNAL<br>FACE                        | PHASE       |             |             |             |             |             |             |
|                                       | 1<br>+<br>5 | 1<br>+<br>6 | 2<br>+<br>5 | 2<br>+<br>6 | 4<br>+<br>8 | 5<br>+<br>6 | 5<br>+<br>8 |
| II                                    | ←           | ←           | ←           | ←           | ←           | ←           | ←           |
| 21, 22                                | R           | R           | G           | G           | R           | R           | R           |
| 41                                    | ←           | ←           | ←           | ←           | ←           | ←           | ←           |
| 42, 43, 44                            | R           | R           | R           | R           | G           | R           | R           |
| 51                                    | ←           | ←           | ←           | ←           | ←           | ←           | ←           |
| 61, 62                                | R           | G           | R           | G           | R           | R           | R           |
| 63                                    | R           | ←           | ←           | ←           | ←           | ←           | ←           |
| 81                                    | ←           | ←           | ←           | ←           | ←           | ←           | ←           |
| 82, 83, 84                            | R           | R           | R           | R           | G           | R           | R           |

| ALTERNATE PHASING<br>TABLE OF OPERATION |             |             |             |             |             |             |             |
|-----------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| SIGNAL<br>FACE                          | PHASE       |             |             |             |             |             |             |
|                                         | 1<br>+<br>5 | 1<br>+<br>6 | 2<br>+<br>5 | 2<br>+<br>6 | 4<br>+<br>8 | 5<br>+<br>6 | 5<br>+<br>8 |
| II                                      | ←           | ←           | ←           | ←           | ←           | ←           | ←           |
| 21, 22                                  | R           | R           | G           | G           | R           | R           | R           |
| 41                                      | ←           | ←           | ←           | ←           | ←           | ←           | ←           |
| 42, 43, 44                              | R           | R           | R           | R           | G           | R           | R           |
| 51                                      | ←           | ←           | ←           | ←           | ←           | ←           | ←           |
| 61, 62                                  | R           | G           | R           | G           | R           | R           | R           |
| 63                                      | R           | ←           | ←           | ←           | ←           | ←           | ←           |
| 81                                      | ←           | ←           | ←           | ←           | ←           | ←           | ←           |
| 82, 83, 84                              | R           | R           | R           | R           | G           | R           | R           |

| ASC/3 DETECTOR INSTALLATION CHART |              |                                     |       |          |             |         |                |               |                         |      |             |          |
|-----------------------------------|--------------|-------------------------------------|-------|----------|-------------|---------|----------------|---------------|-------------------------|------|-------------|----------|
| DETECTOR                          |              |                                     |       |          | PROGRAMMING |         |                |               |                         |      |             |          |
| ZONE                              | SIZE<br>(FT) | DISTANCE<br>FROM<br>STOPBAR<br>(FT) | TURNS | NEW LOOP | PHASE       | CALLING | EXTEND<br>TIME | DELAY<br>TIME | USE<br>ADDED<br>INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 1A*                               | 6X40         | 0                                   | *     | *        | 1           | Yes     | -              | 15.0**        | -                       | N    | -           | *        |
| 2A*                               | 6X6          | 300                                 | *     | *        | 6#          | Yes     | -              | 3.0           | -                       | G    | -           | *        |
| 4A*                               | 6X40         | 0                                   | *     | *        | 2           | Yes     | -              | -             | X                       | N    | -           | *        |
| 4B*                               | 6X40         | 0                                   | *     | *        | 4           | Yes     | -              | 3.0           | -                       | N    | -           | *        |
| 5A*                               | 6X40         | 0                                   | *     | *        | 4           | Yes     | -              | 10.0          | -                       | N    | -           | *        |
| 6A*                               | 6X6          | 300                                 | *     | *        | 5           | Yes     | -              | 15.0**        | -                       | N    | -           | *        |
| 6B*                               | 6X6          | 300                                 | *     | *        | 2#          | Yes     | -              | 3.0           | -                       | G    | -           | *        |
| 8A*                               | 6X40         | 0                                   | *     | *        | 6           | Yes     | -              | -             | X                       | N    | -           | *        |
| 8B*                               | 6X40         | 0                                   | *     | *        | 6           | Yes     | -              | -             | X                       | N    | -           | *        |
| 8A*                               | 6X40         | 0                                   | *     | *        | 8           | Yes     | -              | 3.0           | -                       | N    | -           | *        |
| 8B*                               | 6X40         | 0                                   | *     | *        | 8           | Yes     | -              | 10.0          | -                       | N    | -           | *        |

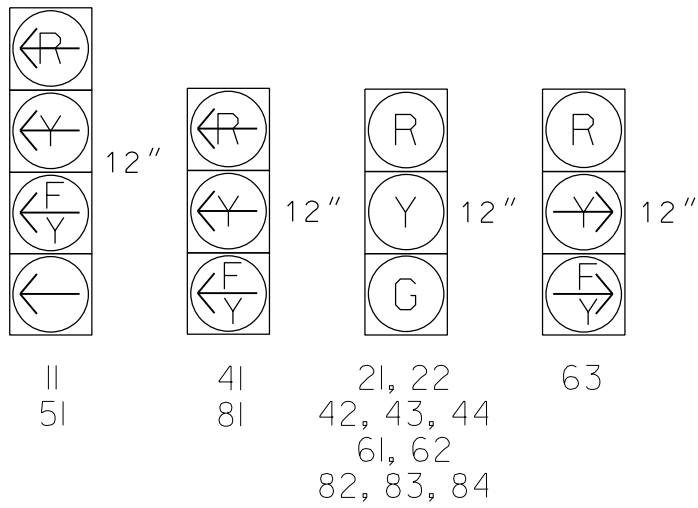
\* Non-Intrusive Detection Zone

\*\* Reduce delay to 3 seconds during alternate phasing operation

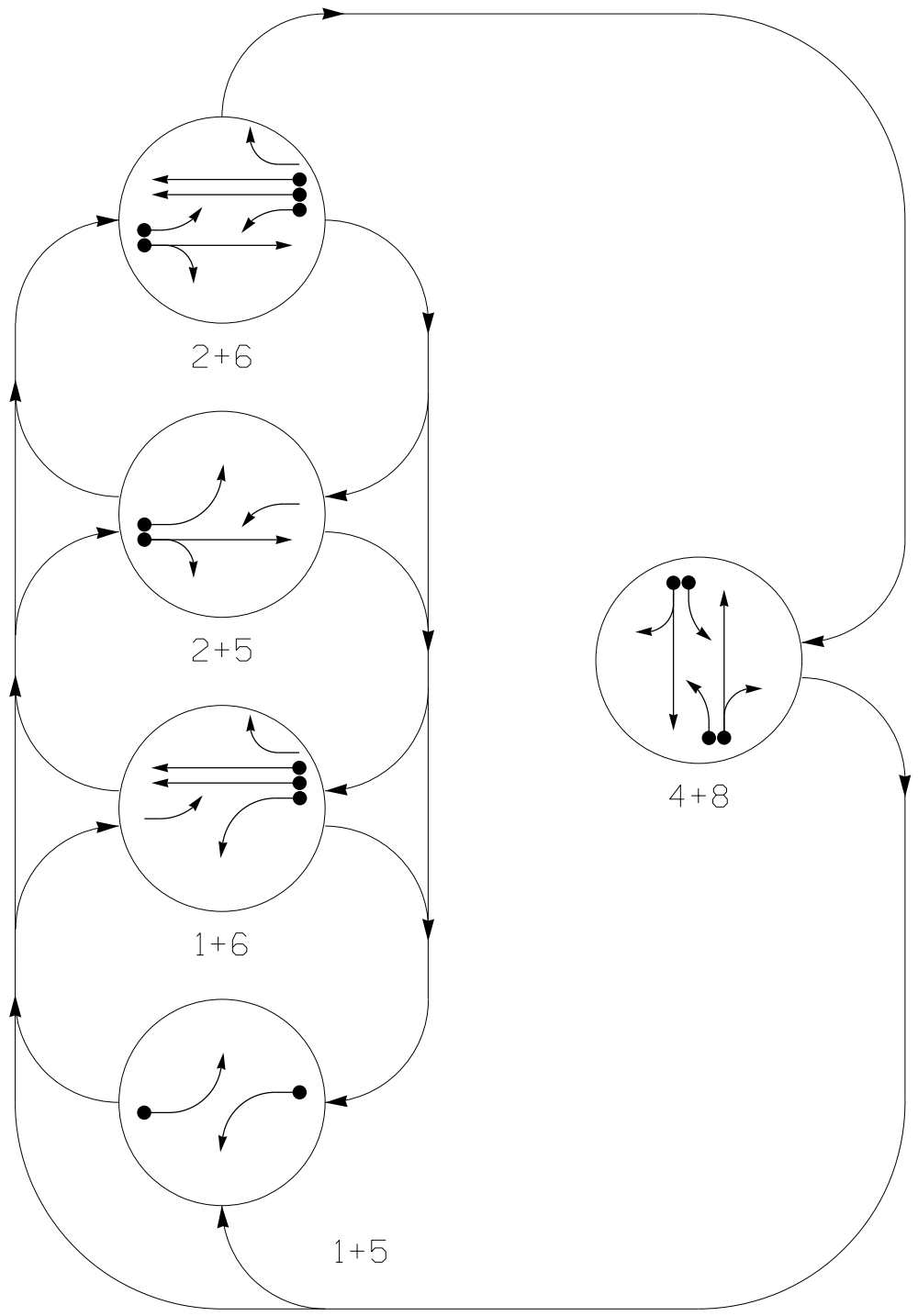
# Disable phase call for loop(s) during alternate phasing operation

SIGNAL FACE I.D.

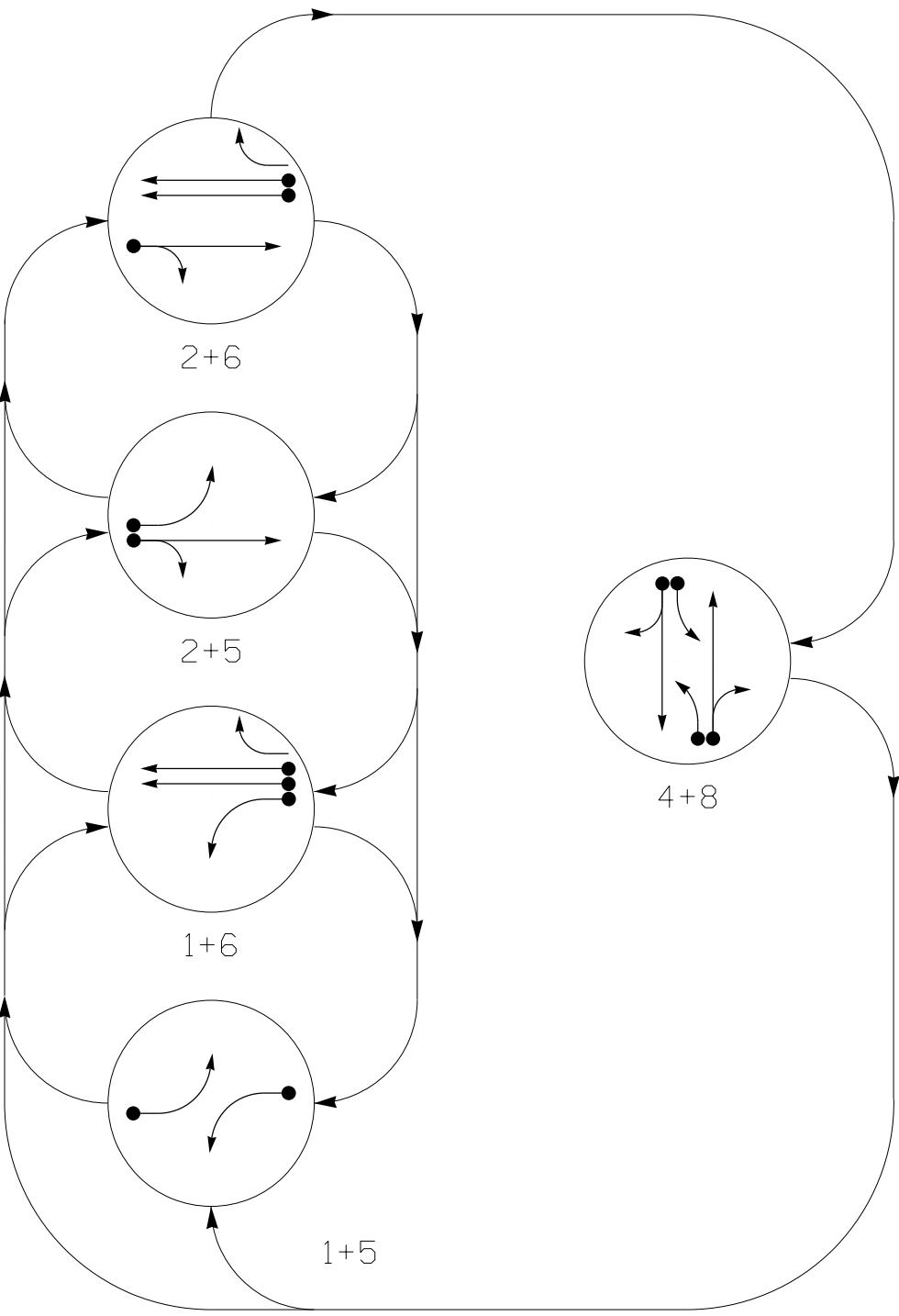
All Heads L.E.D.



DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM

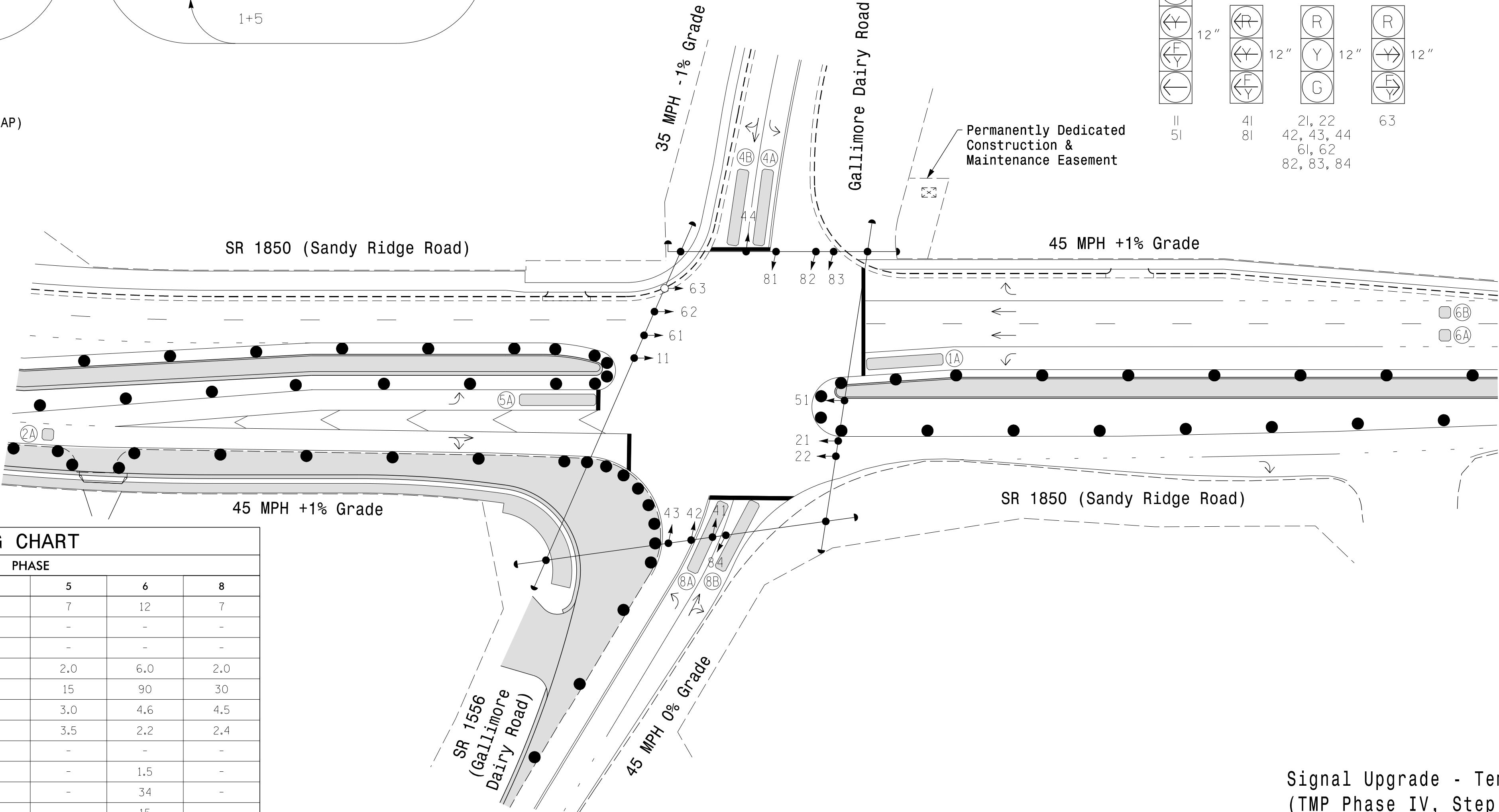


PHASING DIAGRAM DETECTION LEGEND

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

| ASC/3 TIMING CHART      |       |            |     |     |            |     |
|-------------------------|-------|------------|-----|-----|------------|-----|
| FEATURE                 | PHASE |            |     |     |            |     |
|                         | 1     | 2          | 4   | 5   | 6          | 8   |
| Min Green *             | 7     | 12         | 7   | 7   | 12         | 7   |
| Walk *                  | -     | -          | -   | -   | -          | -   |
| Ped Clear               | -     | -          | -   | -   | -          | -   |
| Veh. Extension *        | 2.0   | 6.0        | 2.0 | 2.0 | 6.0        | 2.0 |
| Max 1 *                 | 15    | 90         | 30  | 15  | 90         | 30  |
| Yellow                  | 3.0   | 4.6        | 4.5 | 3.0 | 4.6        | 4.5 |
| Red Clear               | 3.4   | 2.2        | 2.4 | 3.5 | 2.2        | 2.4 |
| Actuations B4 Add *     | -     | -          | -   | -   | -          | -   |
| Seconds / Actuation *   | -     | 2.5        | -   | -   | 1.5        | -   |
| Max Initial *           | -     | 34         | -   | -   | 34         | -   |
| Time Before Reduction * | -     | 15         | -   | -   | 15         | -   |
| Time To Reduce *        | -     | 30         | -   | -   | 30         | -   |
| Minimum Gap             | -     | 3.0        | -   | -   | 3.0        | -   |
| Locking Detector        | -     | X          | -   | -   | X          | -   |
| Recall Position         | -     | MIN RECALL | -   | -   | MIN RECALL | -   |
| Dual Entry              | -     | -          | X   | -   | -          | X   |
| Simultaneous Gap        | X     | X          | X   | X   | X          | X   |

\* 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.



LEGEND

- | PROPOSED                                         | EXISTING |
|--------------------------------------------------|----------|
| ○ Traffic Signal Head                            | ● N/A    |
| ○ Modified Signal Head                           | ○ N/A    |
| ○ Sign                                           | ○ 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    |
| ○ Non-Intrusive Detection Zone                   | ○ N/A    |
| ○ Controller & Cabinet                           | ○ N/A    |
| ○ Junction Box                                   | ○ N/A    |
| ○ 2-in Underground Conduit                       | ○ N/A    |
| ○ Right of Way                                   | ○ N/A    |
| ○ Directional Arrow                              | ○ N/A    |
| ○ Construction Zone                              | ○ N/A    |
| ○ Construction Zone Drums                        | ○ N/A    |
| ○ Curb Ramp                                      | ○ N/A    |

Signal Upgrade - Temporary Design 2  
(TMP Phase IV, Step 1)

**AtkinsRéalis**  
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RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

|                                                                              |                                                                                                                                                                                                                                |                                                                                                                                          |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Prepared for the Offices of:<br><br>750 N. Greenfield Pkwy, Garner, NC 27529 | <b>SR 1850 (Sandy Ridge Road)<br/>at<br/>SR 1556 (Gallimore Dairy Road)</b><br>Division 7 Guilford County High Point<br>PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion<br>PREPARED BY: JT Stiff REVIEWED BY: PL Alexander | DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED<br><br>Signed By:<br>DATE: 3/14/2025<br>SIC. INVENTORY NO. 07-111572 |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|

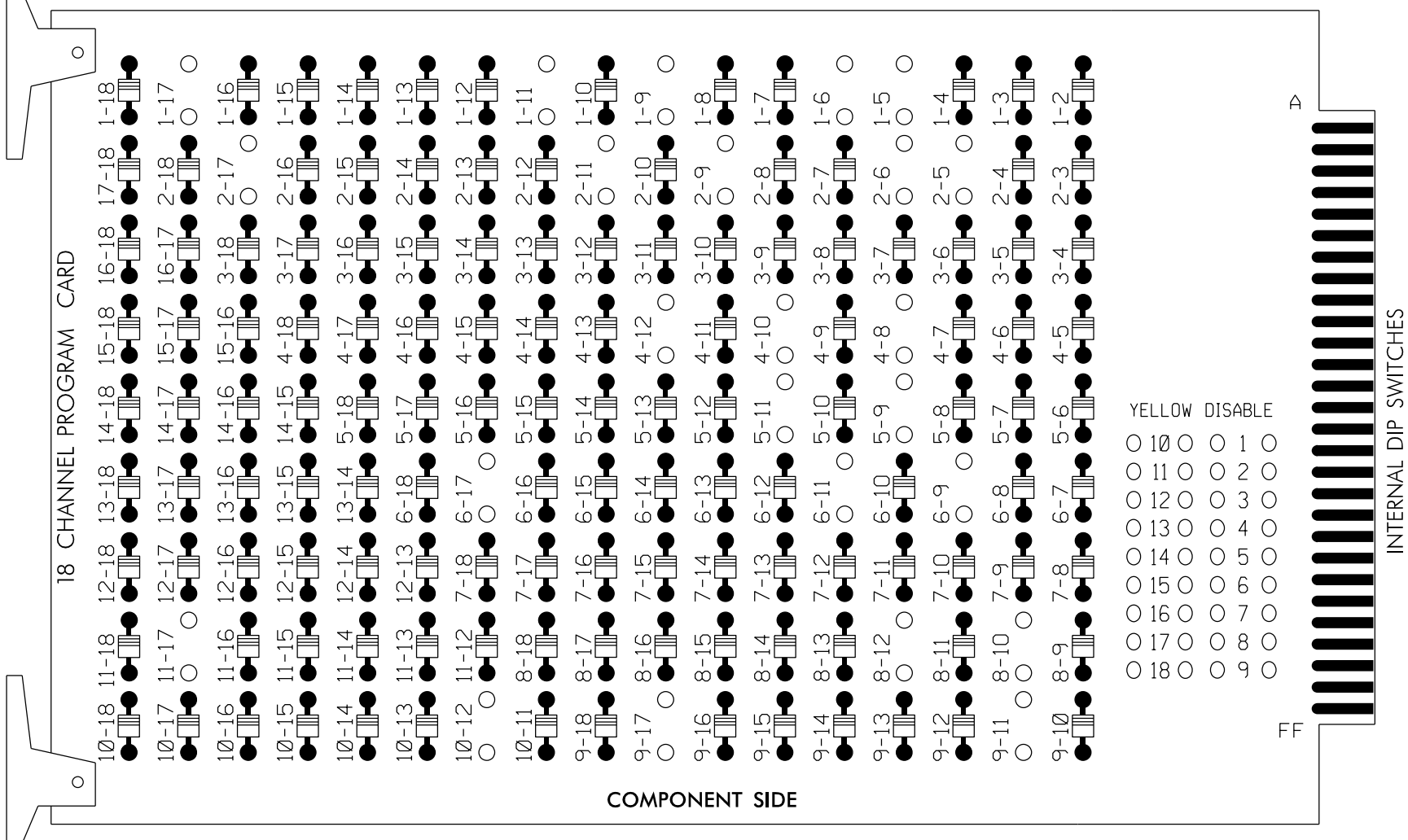
13-MAR-2025 17:03  
DW//SUD0036433\_wor\\kins-com\\ATKMANC01\\Documents\\Roads and Bridges\\Projects\\100059632\_JSSR S1g and ITS\\Task 05.11\_Signals\\071115T2\_sml.e\_2023mdd.dgn  
S1F4685 AT LUS91089

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-17, 2-5, 2-6, 2-9, 2-11, 2-17, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 6-17, 8-10, 8-12, 9-11, 9-17, 10-12 and 11-17.



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Integrate monitor with Ethernet network in cabinet.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Program controller to start up in phase 2 Green and 6 Green.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

EQUIPMENT INFORMATION

CONTROLLER.....207OLX  
CABINET.....332 W/ AUX  
SOFTWARE.....ECONOLITE ASC/3-2070  
CABINET MOUNT.....BASE  
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
LOAD SWITCHES USED.....S1,S2,S5,S7,S8,S11,AUX S1,  
AUX S2,AUX S3,AUX S4,AUX S5  
PHASES USED.....1,2,4,5,6,8  
OVERLAP "A".....\*  
OVERLAP "B".....\*  
OVERLAP "C".....\*  
OVERLAP "D".....\*  
OVERLAP "E".....\*

\* See overlap programming detail on sheet 2

INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO.        | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|-----------------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A <sup>1</sup> | TB2-1,2       | 11U             | 56      | 1 ★          | 1          | YES  |             | 15.0       |               | N             |
|                 | -             | J4U             | 48      | 26 ★         | 6          | YES  |             | 3.0        |               | G             |
| 5A <sup>2</sup> | TB3-1,2       | J1U             | 55      | 5 ★          | 5          | YES  |             | 15.0       |               | N             |
|                 | -             | I4U             | 47      | 22 ★         | 2          | YES  |             | 3.0        |               | G             |

<sup>1</sup>Add jumper from I1-W to J4-W, on rear of input file.

<sup>2</sup>Add jumper from J1-W to I4-W, on rear of input file.

★For the detectors to work as shown on the signal design plan.  
See the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L

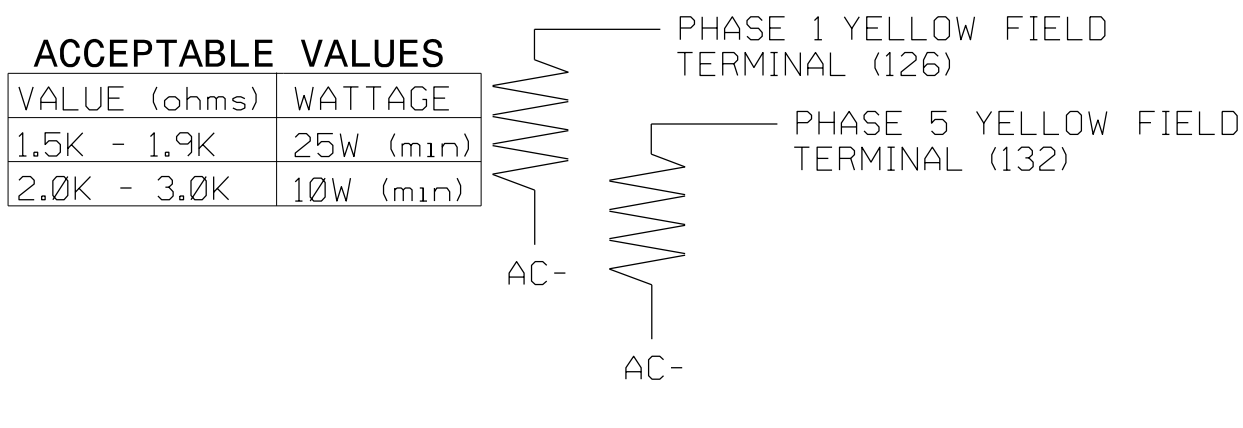
FILE J  
SLOT 2  
LOWER

SPECIAL DETECTOR NOTE

- Install a non-intrusive detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- For detection areas 1A and 5A detector card placement and slots reserved for wired inputs are typical for a NCDOT installation. Inputs associated with these slots are compatible with time of day instructions located on sheets 2 and 3 of this electrical detail.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



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    | OLE    | OLC    | OLD    | SPARE  |
| SIGNAL HEAD NO.       | 11 ★ | 21,22 | NU    | NU | 42 43,44 | NU    | 51 ★ | 61,62 | NU    | NU  | 82 83,84 | NU    | 11 ★   | 81 ★   | 63 ★   | 51 ★   | 41 ★   | NU     |
| RED                   |      | 128   |       |    | 101      |       |      | 134   |       |     | 107      |       |        |        | A111   |        |        |        |
| YELLOW                | *    | 129   |       |    | 102      |       | *    | 135   |       |     | 108      |       |        |        |        |        |        |        |
| GREEN                 |      | 130   |       |    | 103      |       |      | 136   |       |     | 109      |       |        |        |        |        |        |        |
| RED ARROW             |      |       |       |    |          |       |      |       |       |     |          |       | A121   | A124   |        | A114   | A101   |        |
| YELLOW ARROW          |      |       |       |    |          |       |      |       |       |     |          |       | A122   | A125   | A112   | A115   | A102   |        |
| FLASHING YELLOW ARROW |      |       |       |    |          |       |      |       |       |     |          |       | A123   | A126   | A113   | A116   | A103   |        |
| GREEN ARROW           | 127  |       |       |    |          |       | 133  |       |       |     |          |       |        |        |        |        |        |        |

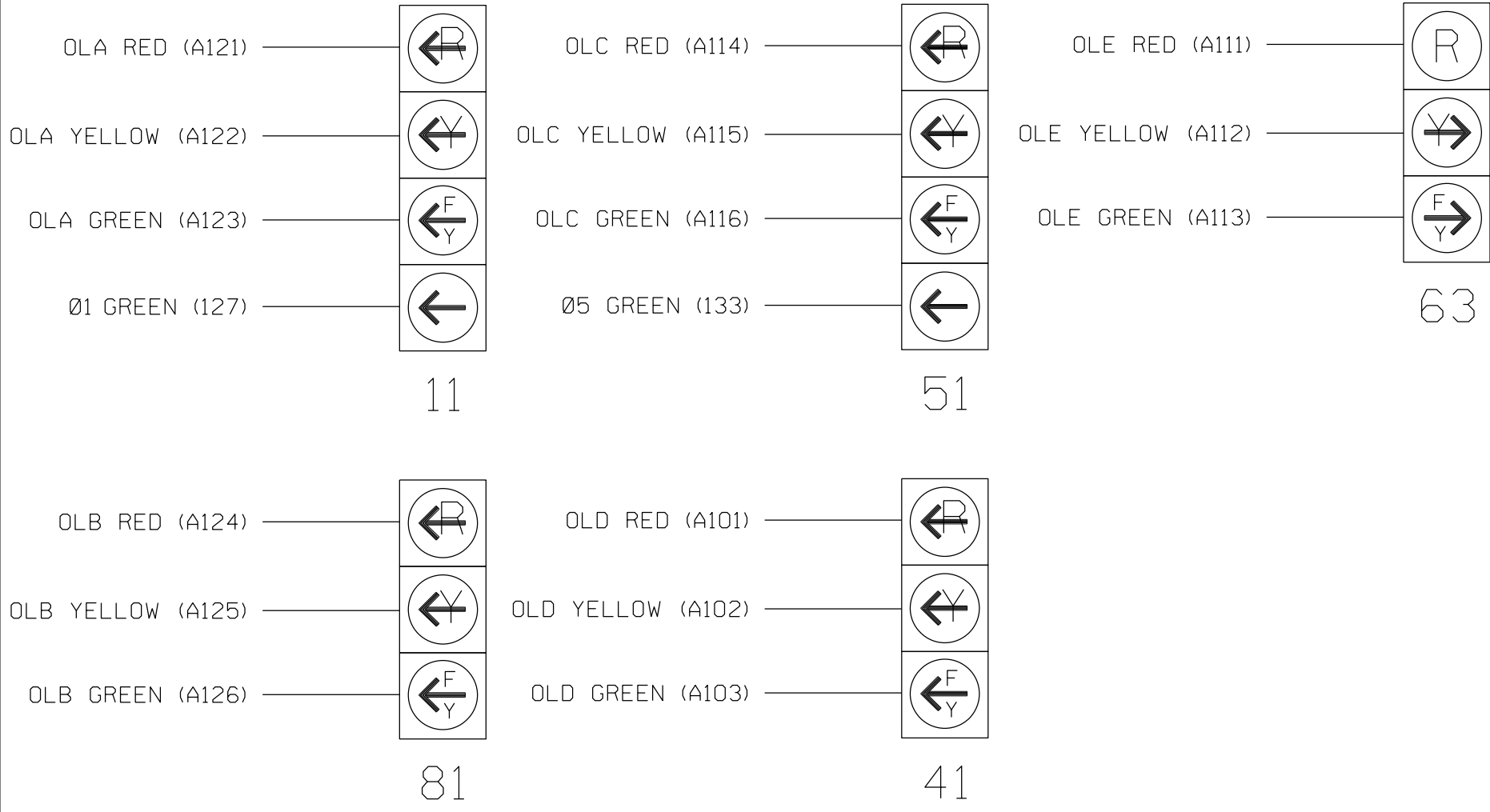
NU = Not Used

\* 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)



Electrical Detail - Sheet 1 of 4  
Temporary Design 2

|                                         |  |                                                                    |  |
|-----------------------------------------|--|--------------------------------------------------------------------|--|
| ELECTRICAL AND PROGRAMMING DETAILS FOR: |  | SR 1850 (Sandy Ridge Road)<br>at<br>SR 1556 (Gallimore Dairy Road) |  |
| Division 7                              |  | Guilford County                                                    |  |
| PLAN DATE: January 2025                 |  | REVIEWED BY: AM Encarnacion                                        |  |
| PREPARED BY: JT Stiff                   |  | REVIEWED BY: PL Alexander                                          |  |
| REVISIONS                               |  | INIT. DATE                                                         |  |
|                                         |  |                                                                    |  |
|                                         |  |                                                                    |  |
|                                         |  |                                                                    |  |

|                                                                                                |  |
|------------------------------------------------------------------------------------------------|--|
| DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED                                  |  |
| SEAL<br>NORTH CAROLINA<br>PROFESSIONAL<br>ENGINEER<br>SEAL<br>044476<br>ANTHONY M. ENCARNACION |  |
| Designed by: Anthony Encarnacion<br>DATE: 3/14/2025                                            |  |
| SIGNATURE<br>DATE                                                                              |  |
| SIG. INVENTORY NO. 07-1115T2                                                                   |  |

**AtkinsRéal**  
1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070  
OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select
2. CONTROLLER
2. From CONTROLLER Submenu select
2. VEHICLE OVERLAPS

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN.... PHASE 1

OPPOSING THROUGH..... PHASE 2

FLASHING ARROW OUTPUT.....CH9 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 1

NOTICE ACTION  
PLAN SF BIT "1"

Toggle Once

OVERLAP B

Select TMG VEH OVLP [B] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[B] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

Toggle Once

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

TMG VEH OVLP...[C] TYPE: .....PPLT FYA

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 5

NOTICE ACTION  
PLAN SF BIT "5"

Toggle Once

OVERLAP D

Select TMG VEH OVLP [D] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[D] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

Toggle Once

OVERLAP E

Select TMG VEH OVLP [E] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[E] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP  
PROGRAMMING DETAIL FOR ALTERNATE PHASING  
LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select
8. UTILITIES
2. From UTILITIES Submenu select
1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY

FROM TO

PHASE TIMING.... . > PHASE TIMING.... .

TIMING PLAN..... . > TIMING PLAN..... .

PH DET OPT PLAN. . > PH DET OPT PLAN. .

DETECTOR PLAN... 1 > DETECTOR PLAN... 2

TOGGLE TO SELECT A "FROM" AND A "TO"

THEN PRESS ENTER

4. From Main Menu select
6. DETECTORS
5. From DETECTOR Submenu select
2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [ ] position and enter "2".

- Place cursor in VEH DETECTOR [ ] position and enter "1".
- Set delay time to "0".

VEH DETECTOR [ 1] VEH DET PLAN [ 2]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1 1 . . . . .

CALL OPTION.... YES DELAY TIME... 3.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH  
DET PLAN 2

ENSURE DELAY  
IS SET TO '3'

- Place cursor in VEH DETECTOR [ ] position and enter "26".
- Set assigned phase to "0".

VEH DETECTOR [26] VEH DET PLAN [ 2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

26 0 . . . . .

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE VEH  
DET PLAN 2

ENSURE  
PHASE  
IS SET  
TO "0"

- Place cursor in VEH DETECTOR [ ] position and enter "5".
- Set delay time to "0".

VEH DETECTOR [ 5] VEH DET PLAN [ 2]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

5 5 . . . . .

CALL OPTION.... YES DELAY TIME... 3.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH  
DET PLAN 2

ENSURE DELAY  
IS SET TO '3'

- Place cursor in VEH DETECTOR [ ] position and enter "22".
- Set assigned phase to "0".

VEH DETECTOR [22] VEH DET PLAN [ 2]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

22 0 . . . . .

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

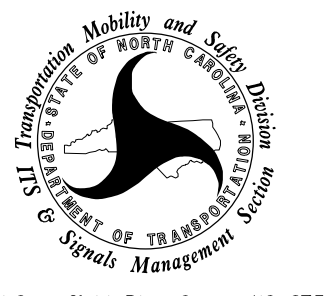
NOTICE VEH  
DET PLAN 2

ENSURE PHASE  
IS SET TO "0"

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115T2  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 2 of 4  
Temporary Design 2

|                                                                                       |  |                                                                    |  |                                                                     |  |
|---------------------------------------------------------------------------------------|--|--------------------------------------------------------------------|--|---------------------------------------------------------------------|--|
| ELECTRICAL AND PROGRAMMING<br>DETAILS FOR:                                            |  | SR 1850 (Sandy Ridge Road)<br>at<br>SR 1556 (Gallimore Dairy Road) |  | DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED |  |
| Prepared for the Offices of:                                                          |  | Division 7 Guilford County High Point                              |  | SEAL                                                                |  |
|  |  | PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion                |  | SEAL<br>044476                                                      |  |
| 750 N.Greenfield Pkwy,Garner,NC 27529                                                 |  | PREPARED BY: JT Stiff REVIEWED BY: PL Alexander                    |  | ENGINEER<br>ANTHONY M. ENCARNACION                                  |  |
|                                                                                       |  | REVISIONS                                                          |  | INIT. DATE                                                          |  |
|                                                                                       |  |                                                                    |  |                                                                     |  |
|                                                                                       |  |                                                                    |  |                                                                     |  |
|                                                                                       |  |                                                                    |  | Designed by:<br>Anthony Encarnacion<br>3/14/2025                    |  |
|                                                                                       |  |                                                                    |  | DATE                                                                |  |
|                                                                                       |  |                                                                    |  | SIG. INVENTORY NO. 07-1115T2                                        |  |

 **AtkinsRéal**  
1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

13-MAR-2025 17:04  
DW:///SUD0036343:work\ins-com\ATKMANC01\Documents\Roads and Bridges\Projects\100059632\_JSSR S1g and ITS\Task 05\_11\_Signals\071115T2\_sml.e\_2023mcd.dgn  
S1F4685 - AT L05491089

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.  
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED  
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED  
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

| <u>PHASING</u>                                   | <u>VEH DET PLAN</u> | <u>SF BITS ENABLED</u> |
|--------------------------------------------------|---------------------|------------------------|
| ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>   | 1                   | NONE                   |
| ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u> | 2                   | 1,5                    |

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY  
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE  
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN  
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE  
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases  
for heads 11 and 51 to  
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A  
and reduces delay time for phase 1  
call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A  
and reduces delay time for phase 5  
call on loop 5A to 3 seconds.



1616 EAST MILLBROOK ROAD, SUITE 160  
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ECONOLITE ASC/3-2070 ACTION PLAN  
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

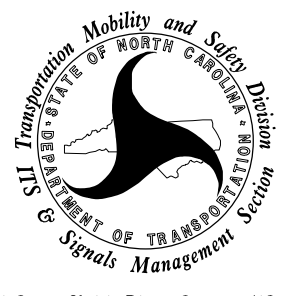
|                     |      |   |   |       |                     |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
|---------------------|------|---|---|-------|---------------------|---|---|---|-------|---|---|---|---|---|---|---|--|--|--|
| ACTION PLAN...[*]   |      |   |   |       |                     |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| PATTERN.....        | AUTO |   |   |       | SYS OVERRIDE.... NO |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| TIMING PLAN.....    | 0    |   |   |       | SEQUENCE..... 0     |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| VEH DETECTOR PLAN.. | 2    |   |   |       | DET LOG.....NONE    |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| FLASH.....          | --   |   |   |       | RED REST..... NO    |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| VEH DET DIAG PLN... | 0    |   |   |       | PED DET DIAG PLN..0 |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| DIMMING ENABLE..    | NO   |   |   |       | PRIORITY RETURN. NO |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| PED PR RETURN..     | NO   |   |   |       | QUEUE DELAY..... NO |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| PMT COND DELAY      |      |   |   | NO    |                     |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
| PHASE               | 1    | 2 | 3 | 4     | 5                   | 6 | 7 | 8 | 9     | 0 | 1 | 2 | 3 | 4 | 5 | 6 |  |  |  |
| PED RCL             | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| WALK 2              | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| VEX 2               | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| VEH RCL             | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| MAX RCL             | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| MAX 2               | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| PHASE               | 1    | 2 | 3 | 4     | 5                   | 6 | 7 | 8 | 9     | 0 | 1 | 2 | 3 | 4 | 5 | 6 |  |  |  |
| MAX 3               | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| CS INH              | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| OMIT                | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| SPC FCT             | X    | . | . | .     | X                   | . | . | . | (1-8) |   |   |   |   |   |   |   |  |  |  |
| AUX FCT             | .    | . | . | (1-3) |                     |   |   |   |       |   |   |   |   |   |   |   |  |  |  |
|                     | 1    | 2 | 3 | 4     | 5                   | 6 | 7 | 8 | 9     | 0 | 1 | 2 | 3 | 4 | 5 |   |  |  |  |
| LP 1-15             | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| LP 16-30            | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| LP 31-45            | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| LP 46-60            | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| LP 61-75            | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| LP 76-90            | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |
| LP 91-100           | .    | . | . | .     | .                   | . | . | . | .     | . | . | . | . | . | . | . |  |  |  |

\* The Action Plan number(s) are to be determined by  
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115T2  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 3 of 4  
Temporary Design 2

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

ELECTRICAL AND PROGRAMMING  
DETAILS FOR:

SR 1850 (Sandy Ridge Road)  
at  
SR 1556 (Gallimore Dairy Road)

Division 7    Guilford County    High Point

PLAN DATE:    January 2025    REVIEWED BY:    AM Encarnacion

PREPARED BY:    JT Stiff    REVIEWED BY:    PL Alexander

REVISIONS

INIT.    DATE

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

SEAL



SEAL  
044476  
ENGINEER  
ANTHONY M. ENCARNACION

Designed by:  
Anthony Encarnacion    3/14/2025  
SIGNATURE    DATE

SIG. INVENTORY NO.    07-1115T2

ECONOLITE ASC/3-2070 STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA  
-----START UP-----  
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6  
PHASE G G  
A B C D E F G H I J K L M N O P  
OVERLAP X X X X X X X X X X X X X X X  
FLASH>MON. NO FL TIME.. 0 ALL RED... 6  
PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit Fl" to Green "6"

ASC/3 FLASH SENSE INPUT CONTROL FOR RED-RED FLASH

\*The NCDOT default database is programmed to addresss Yellow-Red flash. Logic Statement 100 must be modified as shown when running Red-Red flash.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE  
IF LP CIB CODE ON 331 F  
  
THEN LP DELAY FOR 1.0 SECONDS  
LP SET CIB ON 427  
  
ELSE

THIS STATEMENT IS USED TO CONTROL THE FLASH SENSE INPUT WHEN RUNNING RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING

FLASHER CIRCUIT MODIFICATION DETAIL

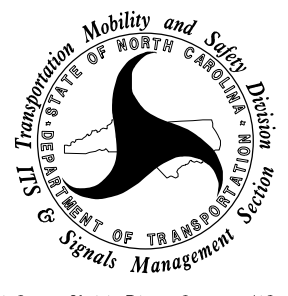
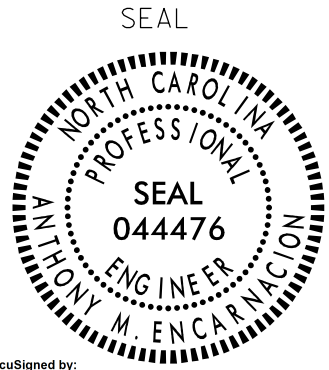
IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115T2  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 4 of 4  
Temporary Design 2

|                                                                                       |  |                                                                    |  |                                                                                       |  |
|---------------------------------------------------------------------------------------|--|--------------------------------------------------------------------|--|---------------------------------------------------------------------------------------|--|
| ELECTRICAL AND PROGRAMMING DETAILS FOR:                                               |  | SR 1850 (Sandy Ridge Road)<br>at<br>SR 1556 (Gallimore Dairy Road) |  | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED                         |  |
| Prepared for the Offices of:                                                          |  | Division 7 Guilford County High Point                              |  | SEAL                                                                                  |  |
|  |  | PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion                |  |  |  |
|                                                                                       |  | PREPARED BY: JT Stiff REVIEWED BY: PL Alexander                    |  |                                                                                       |  |
| 750 N.Greenfeld Pkwy,Garner,NC 27529                                                  |  | REVISIONS                                                          |  | INIT. DATE                                                                            |  |
|                                                                                       |  |                                                                    |  |                                                                                       |  |
|                                                                                       |  |                                                                    |  |                                                                                       |  |
|                                                                                       |  |                                                                    |  | Designed by: Anthony Encarnacion 3/14/2025                                            |  |
|                                                                                       |  |                                                                    |  | SIGNED: DATE                                                                          |  |
|                                                                                       |  |                                                                    |  | SIG. INVENTORY NO. 07-1115T2                                                          |  |

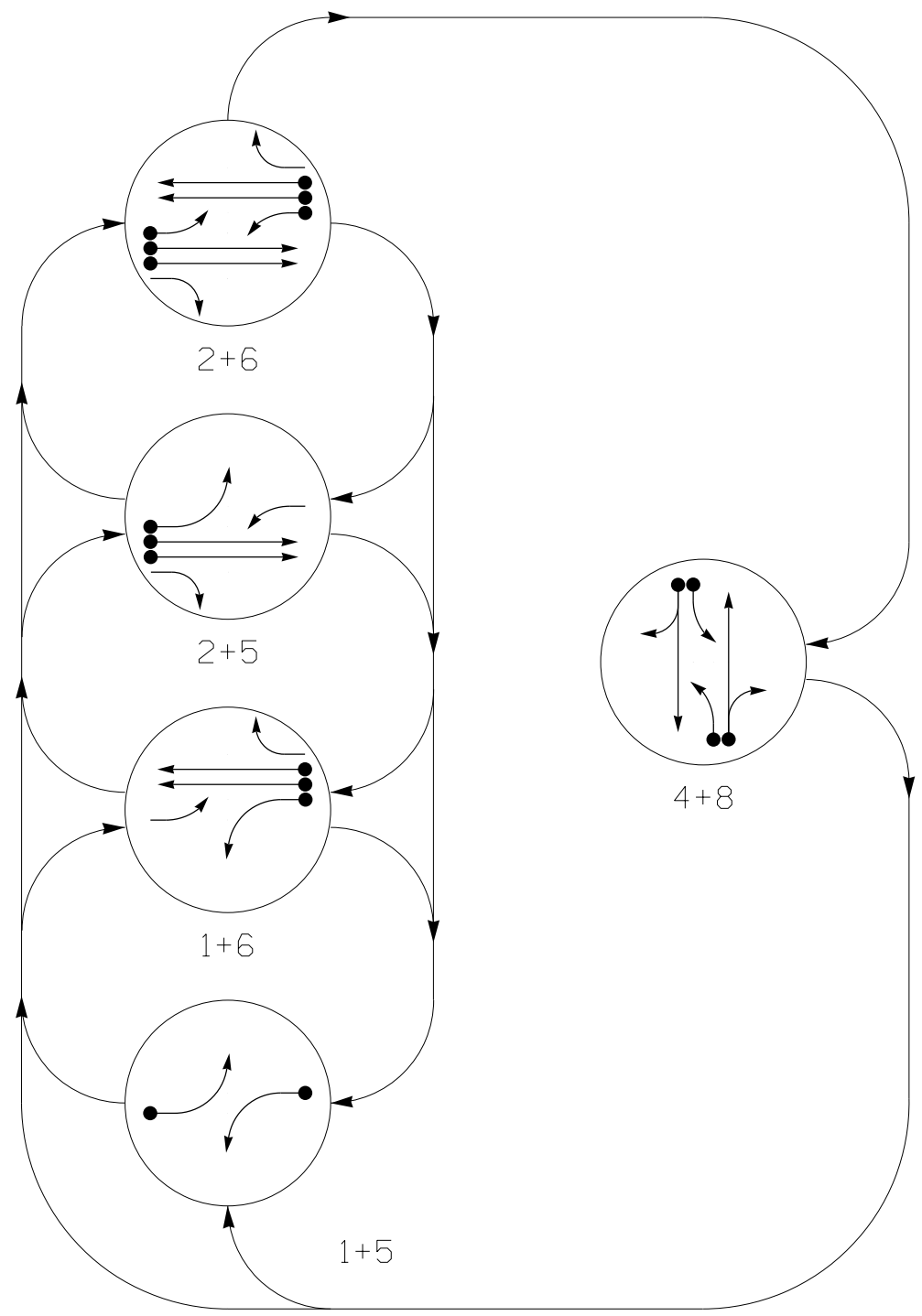
**AtkinsRéal**  
1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

13-MAR-2025 17:05  
DW://SUD0036343.dwg  
S:\174685 - AT L0591289

13-MAR-2025 17:05  
DW://SUD0036343.dwg  
S:\174685 - AT L0591289

13-MAR-2025 17:05  
DW://SUD0036343.dwg  
S:\174685 - AT L0591289

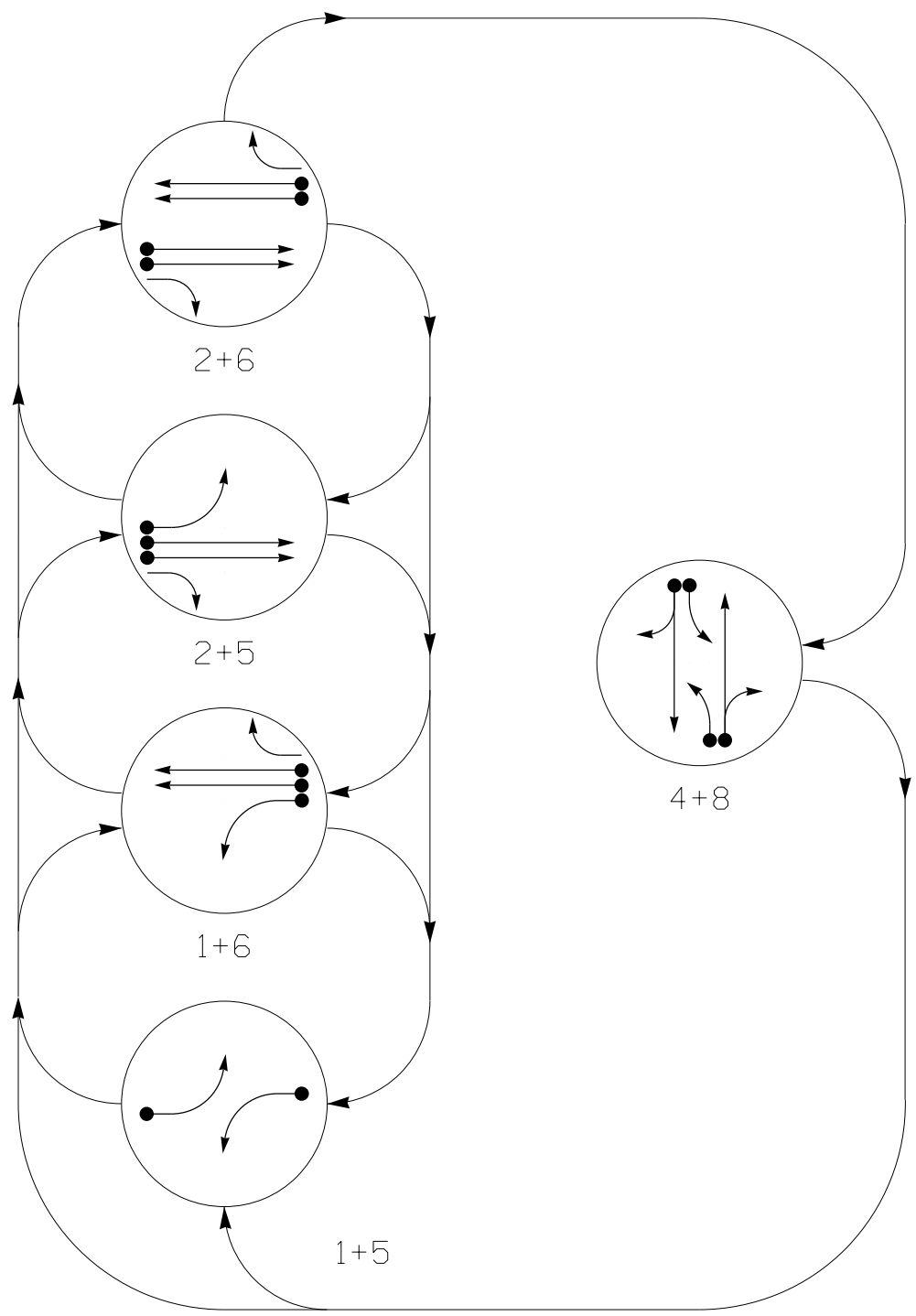
## DEFAULT PHASING DIAGRAM



### PHASING DIAGRAM DETECTION LEGEND

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

## ALTERNATE PHASING DIAGRAM



### DEFAULT PHASING TABLE OF OPERATION

| SIGNAL<br>FACE | PHASE       |             |             |             |             |                                           |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------------------------------------|
|                | 1<br>+<br>5 | 1<br>+<br>6 | 2<br>+<br>5 | 2<br>+<br>6 | 4<br>+<br>8 | F<br>L<br>C<br>B<br>H<br>O<br>U<br>S<br>E |
| 11             | ←           | ←           | ←           | ←           | ←           | ←                                         |
| 21, 22         | R           | R           | G           | G           | R           | R                                         |
| 23             | R           | R           | ←           | ←           | R           | R                                         |
| 41             | ←           | ←           | ←           | ←           | ←           | ←                                         |
| 42,43,44       | R           | R           | R           | R           | G           | R                                         |
| 51             | ←           | ←           | ←           | ←           | ←           | ←                                         |
| 61, 62         | R           | G           | R           | G           | R           | R                                         |
| 63             | R           | ←           | R           | ←           | R           | R                                         |
| 81             | ←           | ←           | ←           | ←           | ←           | ←                                         |
| 82,83,84       | R           | R           | R           | R           | G           | R                                         |

### ALTERNATE PHASING TABLE OF OPERATION

| SIGNAL<br>FACE | PHASE       |             |             |             |             |                                           |
|----------------|-------------|-------------|-------------|-------------|-------------|-------------------------------------------|
|                | 1<br>+<br>5 | 1<br>+<br>6 | 2<br>+<br>5 | 2<br>+<br>6 | 4<br>+<br>8 | F<br>L<br>C<br>B<br>H<br>O<br>U<br>S<br>E |
| 11             | ←           | ←           | ←           | ←           | ←           | ←                                         |
| 21, 22         | R           | R           | G           | G           | R           | R                                         |
| 23             | R           | R           | ←           | ←           | R           | R                                         |
| 41             | ←           | ←           | ←           | ←           | ←           | ←                                         |
| 42,43,44       | R           | R           | R           | R           | G           | R                                         |
| 51             | ←           | ←           | ←           | ←           | ←           | ←                                         |
| 61, 62         | R           | G           | R           | G           | R           | R                                         |
| 63             | R           | ←           | R           | ←           | R           | R                                         |
| 81             | ←           | ←           | ←           | ←           | ←           | ←                                         |
| 82,83,84       | R           | R           | R           | R           | G           | R                                         |

| ASC/3 DETECTOR INSTALLATION CHART |              |                                     |       |          |             |         |                |               |                         |      |             |          |
|-----------------------------------|--------------|-------------------------------------|-------|----------|-------------|---------|----------------|---------------|-------------------------|------|-------------|----------|
| DETECTOR                          |              |                                     |       |          | PROGRAMMING |         |                |               |                         |      |             |          |
| ZONE                              | SIZE<br>(FT) | DISTANCE<br>FROM<br>STOPBAR<br>(FT) | TURNS | NEW LOOP | PHASE       | CALLING | EXTEND<br>TIME | DELAY<br>TIME | USE<br>ADDED<br>INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 1A*                               | 6X40         | 0                                   | *     | *        | 1           | Yes     | -              | 15.0**        | -                       | N    | -           | *        |
| 2A*                               | 6X6          | 300                                 | *     | *        | 2           | Yes     | -              | 3.0           | -                       | G    | -           | *        |
| 2B*                               | 6X6          | 300                                 | *     | *        | 2           | Yes     | -              | -             | X                       | N    | -           | *        |
| 4A*                               | 6X40         | 0                                   | *     | *        | 4           | Yes     | -              | 3.0           | -                       | N    | -           | *        |
| 4B*                               | 6X40         | 0                                   | *     | *        | 4           | Yes     | -              | 10.0          | -                       | N    | -           | *        |
| 5A*                               | 6X40         | 0                                   | *     | *        | 5           | Yes     | -              | 15.0**        | -                       | N    | -           | *        |
| 6A*                               | 6X6          | 300                                 | *     | *        | 6           | Yes     | -              | 3.0           | -                       | G    | -           | *        |
| 6B*                               | 6X6          | 300                                 | *     | *        | 6           | Yes     | -              | -             | X                       | N    | -           | *        |
| 8A*                               | 6X40         | 0                                   | *     | *        | 8           | Yes     | -              | 3.0           | -                       | N    | -           | *        |
| 8B*                               | 6X40         | 0                                   | *     | *        | 8           | Yes     | -              | 10.0          | -                       | N    | -           | *        |

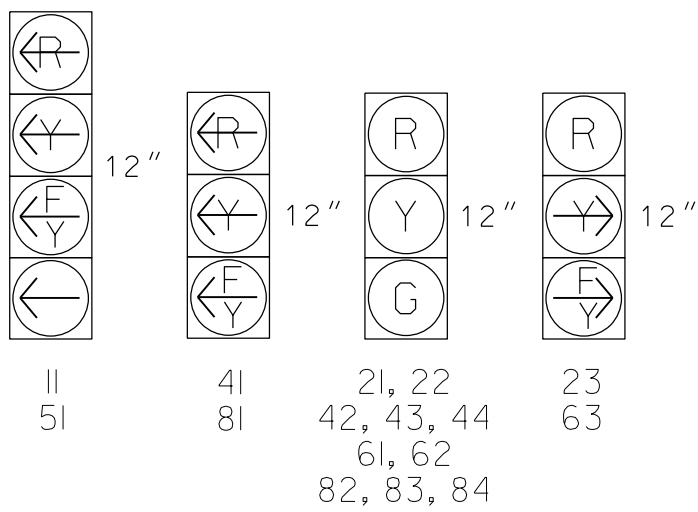
\* Non-Intrusive Detection Zone

\*\* Disable delay during alternate phasing operation

# Disable phase call for loop(s) during alternate phasing operation

### SIGNAL FACE I.D.

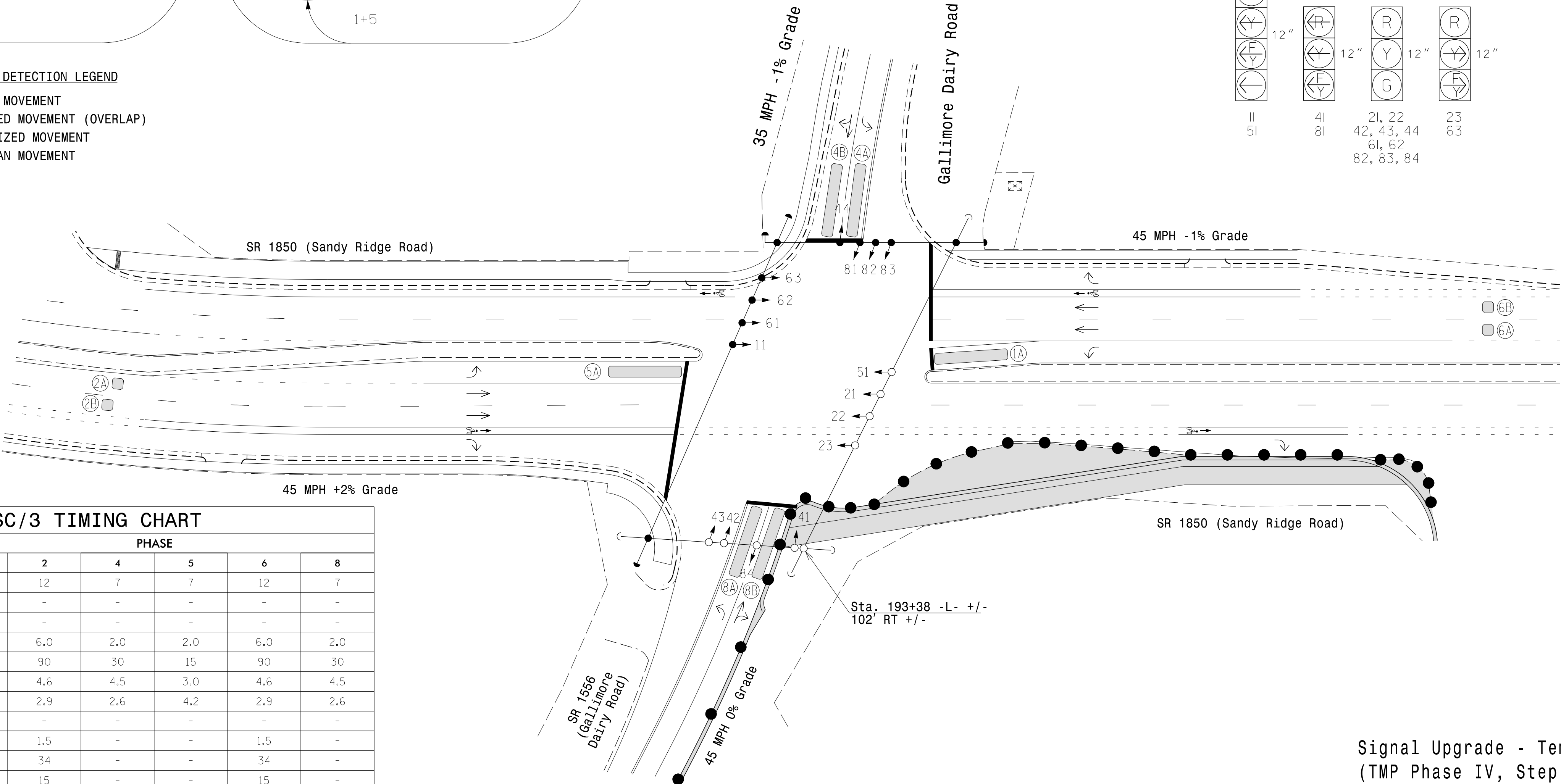
All Heads L.E.D.



### ASC/3 TIMING CHART

| FEATURE                 | PHASE |            |     |     |            |     |
|-------------------------|-------|------------|-----|-----|------------|-----|
|                         | 1     | 2          | 4   | 5   | 6          | 8   |
| Min Green *             | 7     | 12         | 7   | 7   | 12         | 7   |
| Walk *                  | -     | -          | -   | -   | -          | -   |
| Ped Clear               | -     | -          | -   | -   | -          | -   |
| Veh. Extension *        | 2.0   | 6.0        | 2.0 | 2.0 | 6.0        | 2.0 |
| Max 1 *                 | 15    | 90         | 30  | 15  | 90         | 30  |
| Yellow                  | 3.0   | 4.6        | 4.5 | 3.0 | 4.6        | 4.5 |
| Red Clear               | 3.5   | 2.9        | 2.6 | 4.2 | 2.9        | 2.6 |
| Actuations B4 Add *     | -     | -          | -   | -   | -          | -   |
| Seconds / Actuation *   | -     | 1.5        | -   | -   | 1.5        | -   |
| Max Initial *           | -     | 34         | -   | -   | 34         | -   |
| Time Before Reduction * | -     | 15         | -   | -   | 15         | -   |
| Time To Reduce *        | -     | 30         | -   | -   | 30         | -   |
| Minimum Gap             | -     | 3.0        | -   | -   | 3.0        | -   |
| Locking Detector        | -     | X          | -   | -   | X          | -   |
| Recall Position         | -     | MIN RECALL | -   | -   | MIN RECALL | -   |
| Dual Entry              | -     | -          | X   | -   | -          | X   |
| Simultaneous Gap        | X     | X          | X   | X   | X          | X   |

\* 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.



### 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                        | —        |
| Non-Intrusive Detection Zone                   | N/A      |
| Controller & Cabinet                           | ■        |
| Junction Box                                   | ■        |
| 2-in Underground Conduit                       | —        |
| Right of Way                                   | —        |
| Directional Arrow                              | →        |
| Construction Zone                              | ■        |
| Construction Zone Drums                        | ●        |
| Curb Ramp                                      | ■        |

### Signal Upgrade - Temporary Design 3 (TMP Phase IV, Step 2)

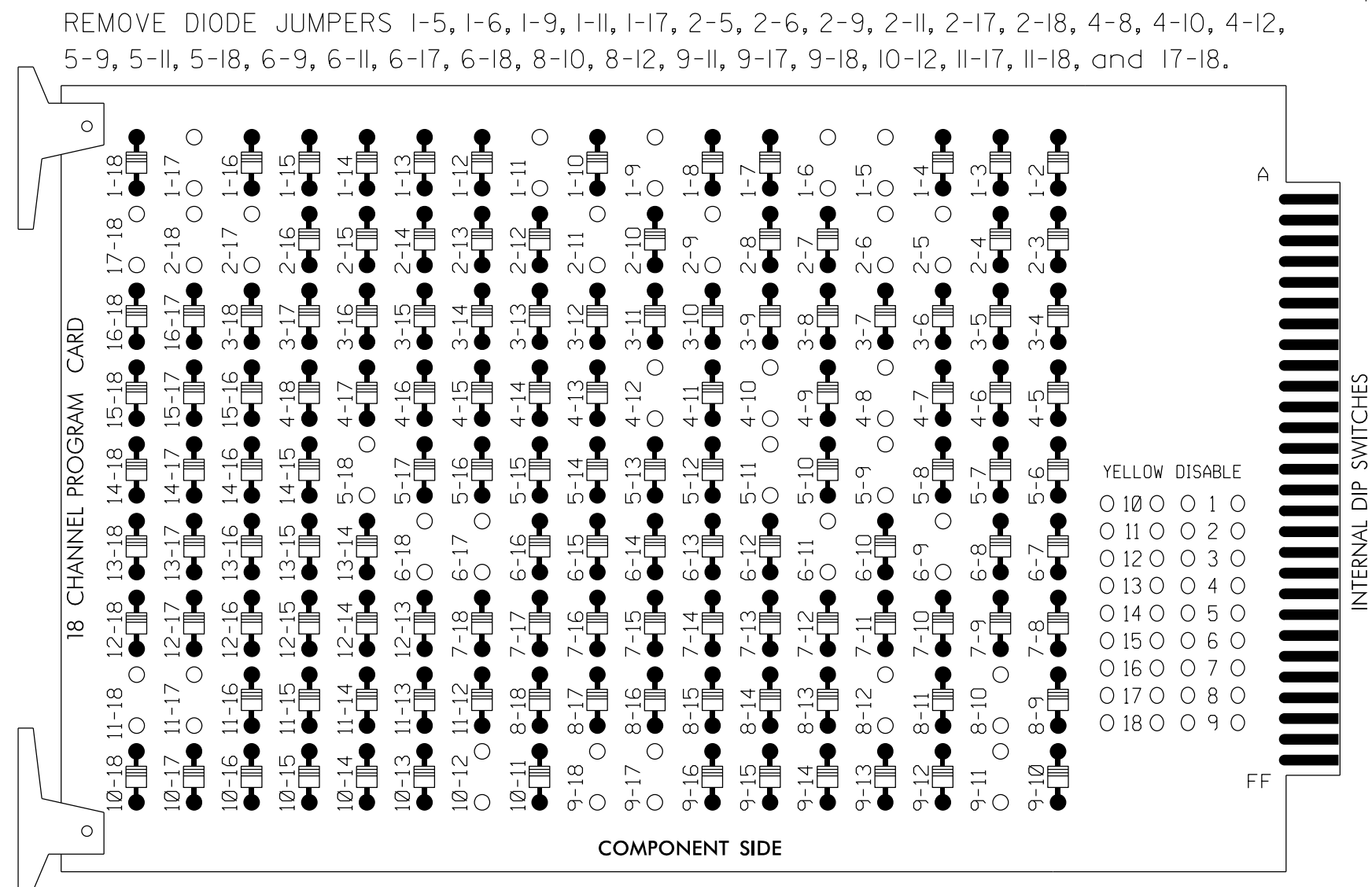
**AtkinsRéalis**  
1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

|                                                                              |                                                                                                                                                                                                                                |                                                                     |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| Prepared for the Offices of:<br><br>750 N. Greenfield Pkwy, Garner, NC 27529 | <b>SR 1850 (Sandy Ridge Road)<br/>at<br/>SR 1556 (Gallimore Dairy Road)</b><br>Division 7 Guilford County High Point<br>PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion<br>PREPARED BY: JT Stiff REVIEWED BY: PL Alexander | DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED |
| <br>SCALE<br>0 40<br>1"=40'                                                  | <br>James T. Stiff<br>3/14/2025                                                                                                                                                                                                |                                                                     |
|                                                                              |                                                                                                                                                                                                                                | SIG. INVENTORY NO. 07-111573                                        |

## 18 CHANNEL IP CONFLICT MONITOR

## PROGRAMMING DETAIL

*(remove jumpers and set switches as shown)*



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. Integrate monitor with Ethernet network in cabinet.

## NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all 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. Program controller to start up in phase 2 Green and 6 Green.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

## EQUIPMENT INFORMATION

```

CONTROLLER.....2070LX
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S5,S7,S8,S11,AUX S1,
 AUX S2,AUX S3,AUX S4,AUX S5,AUX S6
PHASES USED.....1,2,4,5,6,8
OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*
OVERLAP "E".....*
OVERLAP "F".....*

```

\* See overlap programming detail on sheet 2

# SIGNAL HEAD HOOK-UP CHART

[illegible]

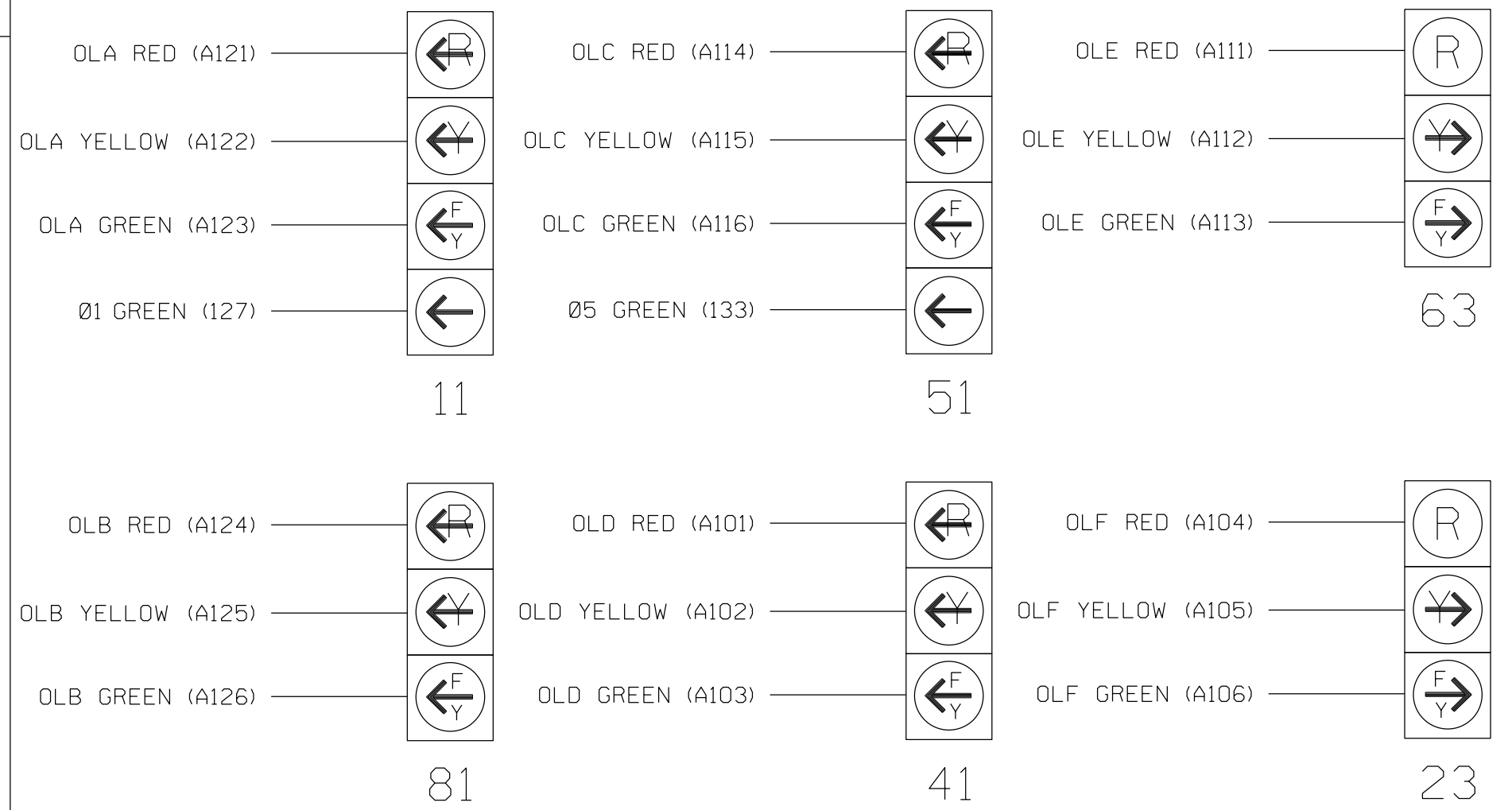
NU = Not Used

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

★ See pictorial of head wiring in detail below.

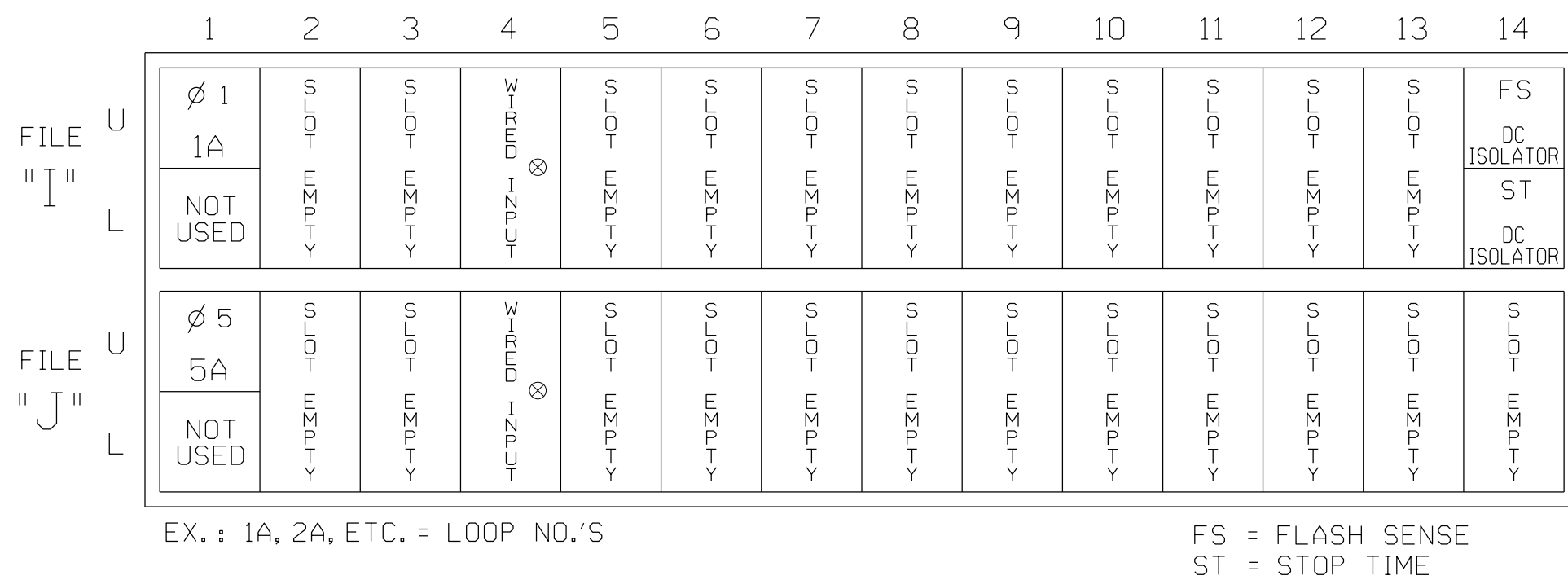
## FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



## INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE  
ST = STOP TIME

## INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO.        | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|-----------------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A <sup>1</sup> | TB2-1,2       | I1U             | 56      | 1 ★          | 1          | YES  |             | 15.0       |               | N             |
|                 | -             | J4U             | 48      | 26 ★         | 6          | YES  |             | 3.0        |               | G             |
| 5A <sup>2</sup> | TB3-1,2       | J1U             | 55      | 5 ★          | 5          | YES  |             | 15.0       |               | N             |
|                 | -             | I4U             | 47      | 22 ★         | 2          | YES  |             | 3.0        |               | G             |

<sup>1</sup>Add jumper from I1-W to J4-W, on rear of input file.

<sup>2</sup>Add jumper from J1-W to I4-W, on rear of input file.

★For the detectors to work as shown on the signal design plan.  
See the Vehicle Detector Setup Programming Detail for  
Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L

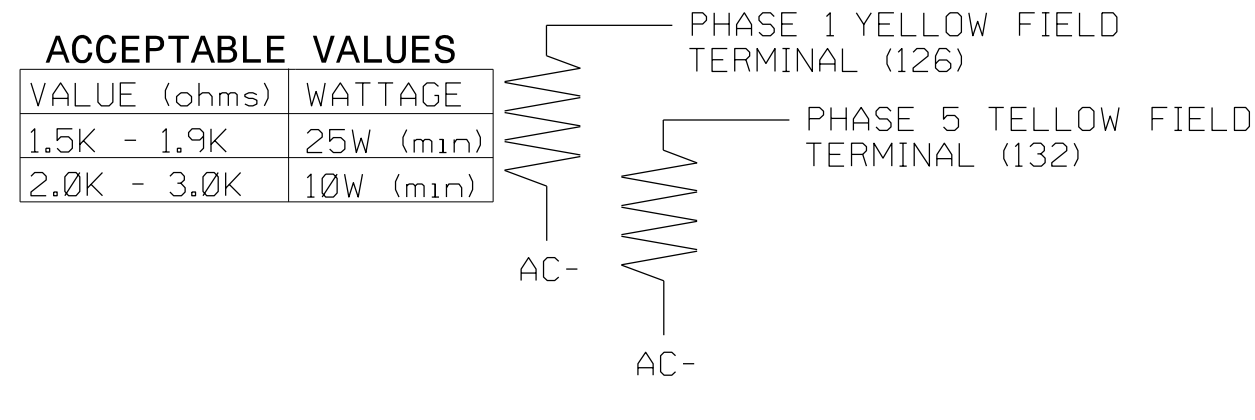
FILE J \_\_\_\_\_  
SLOT 2 \_\_\_\_\_  
LOWER \_\_\_\_\_

SPECIAL DETECTOR NOTE

- 1) Install a non-intrusive detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
- 2) For detection areas 1A and 5A detector card placement and slots reserved for wired inputs are typical for a NCDOT installation. Inputs associated with these slots are compatible with time of day instructions located on sheets 2 and 3 of this electrical detail.

### LOAD RESISTOR INSTALLATION DETAIL

*(install resistors as shown below)*



THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115T3  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 1 of 4  
Temporary Design 3

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

| <p><b>ELECTRICAL AND PROGRAMMING<br/>DETAILS FOR:</b></p> <p style="text-align: center;">SR 1850 (Sandy Ridge Road)<br/>at<br/>SR 1556 (Gallimore Dairy Road)</p> <p style="text-align: center;">Division 7    Guilford County    High Point</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">PLAN DATE: <b>January 2025</b></td> <td style="width: 50%;">REVIEWED BY: <b>AM Encarnacion</b></td> </tr> <tr> <td>PREPARED BY: <b>JT Stiff</b></td> <td>REVIEWED BY: <b>PL Alexander</b></td> </tr> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">REVISIONS</th> <th style="width: 20%;">INIT.</th> <th style="width: 20%;">DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>750 N. Greenfield Pkwy, Garner, NC 27529</p> | PLAN DATE: <b>January 2025</b>     | REVIEWED BY: <b>AM Encarnacion</b> | PREPARED BY: <b>JT Stiff</b> | REVIEWED BY: <b>PL Alexander</b> | REVISIONS | INIT. | DATE |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <p style="text-align: right;">SEAL</p> <div style="text-align: center;">  </div> <p style="text-align: center;">Downloaded by<br/><b>Anthony Encarnacion</b><br/>_____<br/>SIGNATURE</p> <p style="text-align: right;">3/14/2025<br/>_____<br/>DATE</p> <p>SIG. INVENTORY NO. 07-1111573</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|------------------------------|----------------------------------|-----------|-------|------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PLAN DATE: <b>January 2025</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | REVIEWED BY: <b>AM Encarnacion</b> |                                    |                              |                                  |           |       |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                   |
| PREPARED BY: <b>JT Stiff</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | REVIEWED BY: <b>PL Alexander</b>   |                                    |                              |                                  |           |       |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                   |
| REVISIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | INIT.                              | DATE                               |                              |                                  |           |       |      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                                                                                                                                                                                                                                                                                                                                                                   |
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13-MAR-2025 17:06  
[https://www.wskotkins.com/ATKNNC01/Documents/Roads and Bridges/Projects/100059632\\_JSSR Sig and ITS/Task 05.11%20Signals/0711573\\_sm\\_ele\\_2023mmdl.dgn](https://www.wskotkins.com/ATKNNC01/Documents/Roads%20and%20Bridges/Projects/100059632_JSSR%20Sig%20and%20ITS/Task%2005.11%20Signals/0711573_sm_ele_2023mmdl.dgn)  
 C:\Users\TJF1659\AppData\Local\Autocad\AutoCAD 2023\Temp\100059632\_JSSR Sig and ITS\Task 05.11%20Signals\0711573\_sm\_ele\_2023mmdl.dgn

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ECONOLITE ASC/3-2070  
OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select
2. CONTROLLER
2. From CONTROLLER Submenu select
2. VEHICLE OVERLAPS

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN.... PHASE 1

OPPOSING THROUGH..... PHASE 2

FLASHING ARROW OUTPUT.....CH9 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 1

NOTICE ACTION  
PLAN SF BIT "1"

Toggle Once

OVERLAP B

Select TMG VEH OVLP [B] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[B] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

Toggle Once

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

TMG VEH OVLP...[C] TYPE: .....PPLT FYA

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 5

NOTICE ACTION  
PLAN SF BIT "5"

Toggle Once

OVERLAP D

Select TMG VEH OVLP [D] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[D] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

Toggle Once

OVERLAP E

Select TMG VEH OVLP [E] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[E] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

OVERLAP F

Select TMG VEH OVLP [F] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[F] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP  
PROGRAMMING DETAIL FOR ALTERNATE PHASING

LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select
8. UTILITIES
2. From UTILITIES Submenu select
1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY

FROM TO

PHASE TIMING.... . > PHASE TIMING.... .

TIMING PLAN..... . > TIMING PLAN..... .

PH DET OPT PLAN. . > PH DET OPT PLAN. .

DETECTOR PLAN... 1 > DETECTOR PLAN... 2

TOGGLE TO SELECT A "FROM" AND A "TO"

THEN PRESS ENTER

4. From Main Menu select
6. DETECTORS
5. From DETECTOR Submenu select
2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [ ] position and enter "2".

- Place cursor in VEH DETECTOR [ ] position and enter "1".
- Set delay time to "0".

VEH DETECTOR [ 1 ] VEH DET PLAN [ 2 ]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1 1 . . . . .

CALL OPTION.... YES DELAY TIME... 0.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH  
DET PLAN 2

ENSURE DELAY  
IS SET TO '0'

- Place cursor in VEH DETECTOR [ ] position and enter "26".
- Set assigned phase to "0".

VEH DETECTOR [26] VEH DET PLAN [ 2 ]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

26 0 . . . . .

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE VEH  
DET PLAN 2

ENSURE  
PHASE  
IS SET  
TO "0"

- Place cursor in VEH DETECTOR [ ] position and enter "5".
- Set delay time to "0".

VEH DETECTOR [ 5 ] VEH DET PLAN [ 2 ]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

5 5 . . . . .

CALL OPTION.... YES DELAY TIME... 0.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH  
DET PLAN 2

ENSURE DELAY  
IS SET TO '0'

- Place cursor in VEH DETECTOR [ ] position and enter "22".
- Set assigned phase to "0".

VEH DETECTOR [22] VEH DET PLAN [ 2 ]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

22 0 . . . . .

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

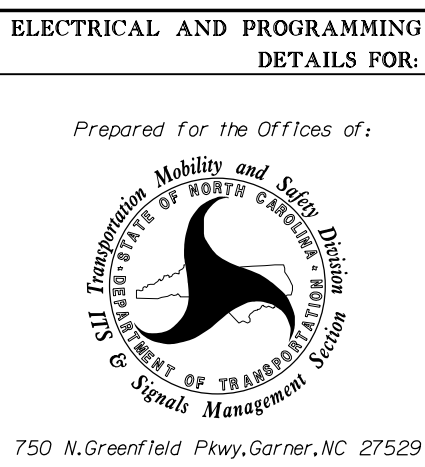
NOTICE VEH  
DET PLAN 2

ENSURE PHASE  
IS SET TO "0"

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115T3  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 2 of 4  
Temporary Design 3



**AtkinsRéal**  
1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

SR 1850 (Sandy Ridge Road)  
at  
SR 1556 (Gallimore Dairy Road)

Division 7 Guilford County High Point

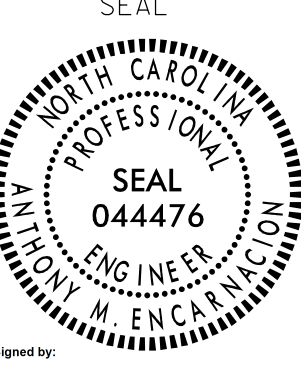
PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

SEAL



Designed by:  
Anthony Encarnacion  
3/14/2025

SIGNATURE DATE

SIG. INVENTORY NO. 07-1115T3

13-MAR-2025 17:06  
DW:///SUD0036343/.work\ins-com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632\_JSSR S1g and ITS/Task 05\_11\_Signals/071115T3\_sml.e\_2023mcd.dgn  
S1F4685 - AT L05491089

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.  
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED  
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED  
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

| PHASING                                          | VEH DET PLAN | SF BITS ENABLED |
|--------------------------------------------------|--------------|-----------------|
| ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>   | 1            | NONE            |
| ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u> | 2            | 1,5             |

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY  
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE  
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN  
SF BITS 1 AND 5 AND VEH DET PLAN 2 ACTIVATE  
TO CALL THE "ALTERNATE PHASING":

- SF BITS 1,5:

Modifies overlap parent phases  
for heads 11 and 51 to  
run protected turns only.
- INPUTS PAGE 2:

Disables phase 6 call on loop 1A  
and reduces delay time for phase 1  
call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A  
and reduces delay time for phase 5  
call on loop 5A to 0 seconds.

AtkinsRéal

1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070 ACTION PLAN  
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

|                     |      |   |   |       |                    |   |   |   |      |       |   |   |   |   |   |   |
|---------------------|------|---|---|-------|--------------------|---|---|---|------|-------|---|---|---|---|---|---|
| ACTION PLAN...[*]   |      |   |   |       |                    |   |   |   |      |       |   |   |   |   |   |   |
| PATTERN.....        | AUTO |   |   |       | SYS OVERRIDE....   |   |   |   | NO   |       |   |   |   |   |   |   |
| TIMING PLAN.....    | 0    |   |   |       | SEQUENCE.....      |   |   |   | 0    |       |   |   |   |   |   |   |
| VEH DETECTOR PLAN.. | 2    |   |   |       | DET LOG.....       |   |   |   | NONE |       |   |   |   |   |   |   |
| FLASH.....          | --   |   |   |       | RED REST.....      |   |   |   | NO   |       |   |   |   |   |   |   |
| VEH DET DIAG PLN... | 0    |   |   |       | PED DET DIAG PLN.. |   |   |   | 0    |       |   |   |   |   |   |   |
| DIMMING ENABLE..    | NO   |   |   |       | PRIORITY RETURN.   |   |   |   | NO   |       |   |   |   |   |   |   |
| PED PR RETURN..     | NO   |   |   |       | QUEUE DELAY.....   |   |   |   | NO   |       |   |   |   |   |   |   |
| PMT COND DELAY      | NO   |   |   |       |                    |   |   |   |      |       |   |   |   |   |   |   |
| PHASE               | 1    | 2 | 3 | 4     | 5                  | 6 | 7 | 8 | 9    | 0     | 1 | 2 | 3 | 4 | 5 | 6 |
| PED RCL             | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| WALK 2              | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| VEX 2               | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| VEH RCL             | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| MAX RCL             | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| MAX 2               | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| PHASE               | 1    | 2 | 3 | 4     | 5                  | 6 | 7 | 8 | 9    | 0     | 1 | 2 | 3 | 4 | 5 | 6 |
| MAX 3               | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| CS INH              | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| OMIT                | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| SPC FCT             | X    | . | . | .     | X                  | . | . | . | .    | (1-8) |   |   |   |   |   |   |
| AUX FCT             | .    | . | . | (1-3) |                    |   |   |   |      |       |   |   |   |   |   |   |
|                     | 1    | 2 | 3 | 4     | 5                  | 6 | 7 | 8 | 9    | 0     | 1 | 2 | 3 | 4 | 5 |   |
| LP 1-15             | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| LP 16-30            | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| LP 31-45            | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| LP 46-60            | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| LP 61-75            | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| LP 76-90            | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |
| LP 91-100           | .    | . | . | .     | .                  | . | . | . | .    | .     | . | . | . | . | . | . |

\* The Action Plan number(s) are to be determined by  
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115T3  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 3 of 4  
Temporary Design 3

Prepared for the Offices of:

AtkinsRéal

1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING  
DETAILS FOR:

SR 1850 (Sandy Ridge Road)  
at  
SR 1556 (Gallimore Dairy Road)  
Division 7    Guilford County    High Point  
PLAN DATE: January 2025    REVIEWED BY: AM Encarnacion  
PREPARED BY: JT Stiff    REVIEWED BY: PL Alexander  
REVISIONS    INIT.    DATE  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
750 N.Greenfeld Pkwy, Garner, NC 27529

DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

SEAL  
NORTH CAROLINA  
PROFESSIONAL  
SEAL  
044476  
ENGINEER  
ANTHONY M. ENCARNACION

Designed by:  
Anthony Encarnacion  
3/14/2025  
SIGNATURE    DATE  
\_\_\_\_\_  
\_\_\_\_\_  
SIG. INVENTORY NO.    07-1115T3

ECONOLITE ASC/3-2070 STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA  
-----START UP-----  
1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6  
PHASE G G  
A B C D E F G H I J K L M N O P  
OVERLAP X X X X X X X X X X X X X X X  
FLASH>MON. NO FL TIME.. 0 ALL RED... 6  
PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit F1" to Green "6"

ASC/3 FLASH SENSE INPUT CONTROL FOR RED-RED FLASH

\*The NCDOT default database is programmed to addresss Yellow-Red flash. Logic Statement 100 must be modified as shown when running Red-Red flash.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE  
IF LP CIB CODE ON 331 F  
  
THEN LP DELAY FOR 1.0 SECONDS  
LP SET CIB ON 427  
  
ELSE

THIS STATEMENT IS USED TO CONTROL THE FLASH SENSE INPUT WHEN RUNNING RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

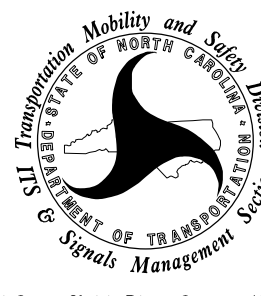
1. ON REAR OF PDA – REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA – REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115T3  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 4 of 4  
Temporary Design 3

Prepared for the Offices of:



750 N.Greenfeld Pkwy,Garner,NC 27529

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1850 (Sandy Ridge Road)  
at  
SR 1556 (Gallimore Dairy Road)  
Division 7 Guilford County High Point

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

Seal of Anthony M. Encarnacion, Professional Engineer, Seal 044476

Designed by: Anthony Encarnacion

3/14/2025

SIGNATURE

DATE

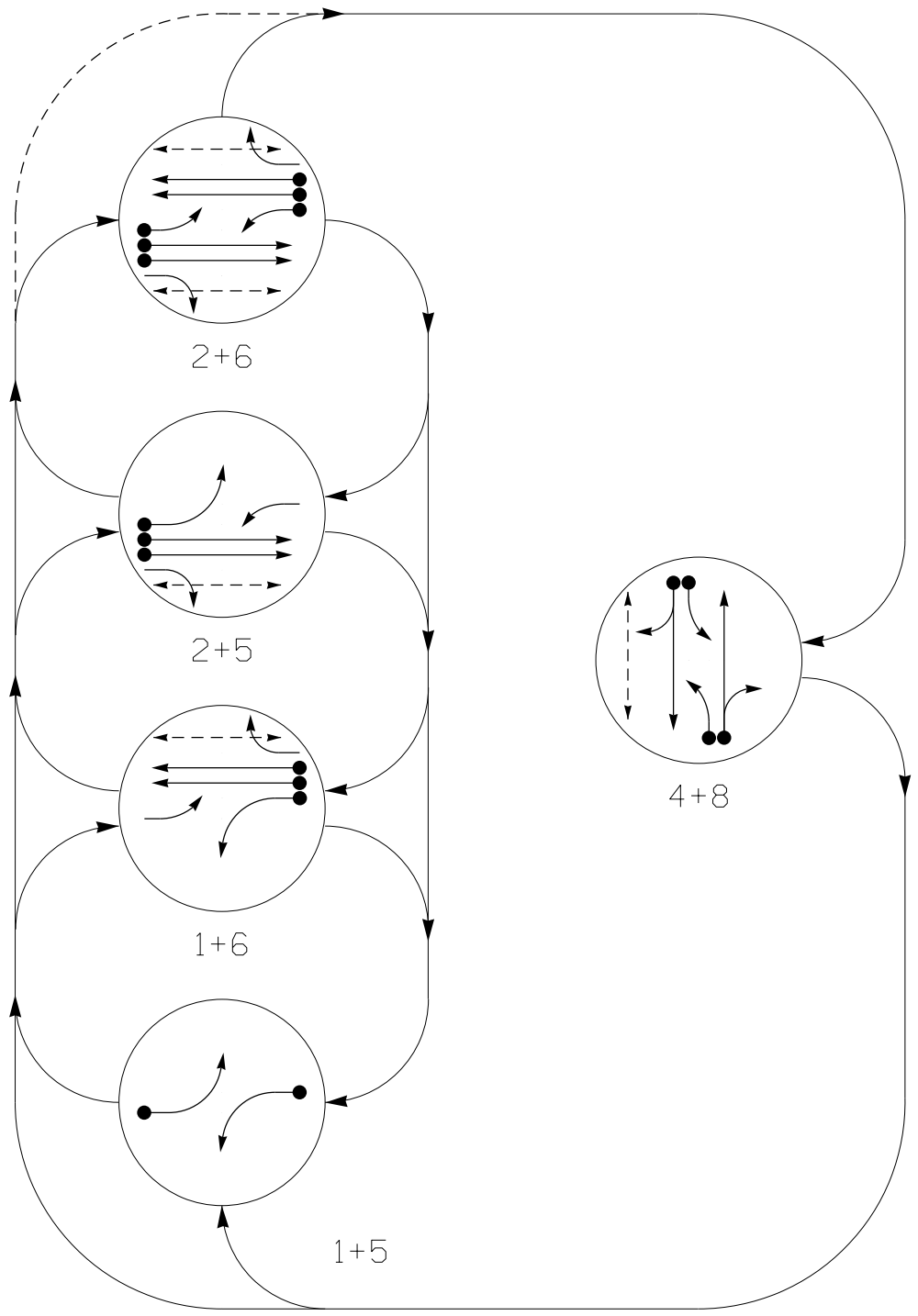
SIG. INVENTORY NO.

07-1115T3

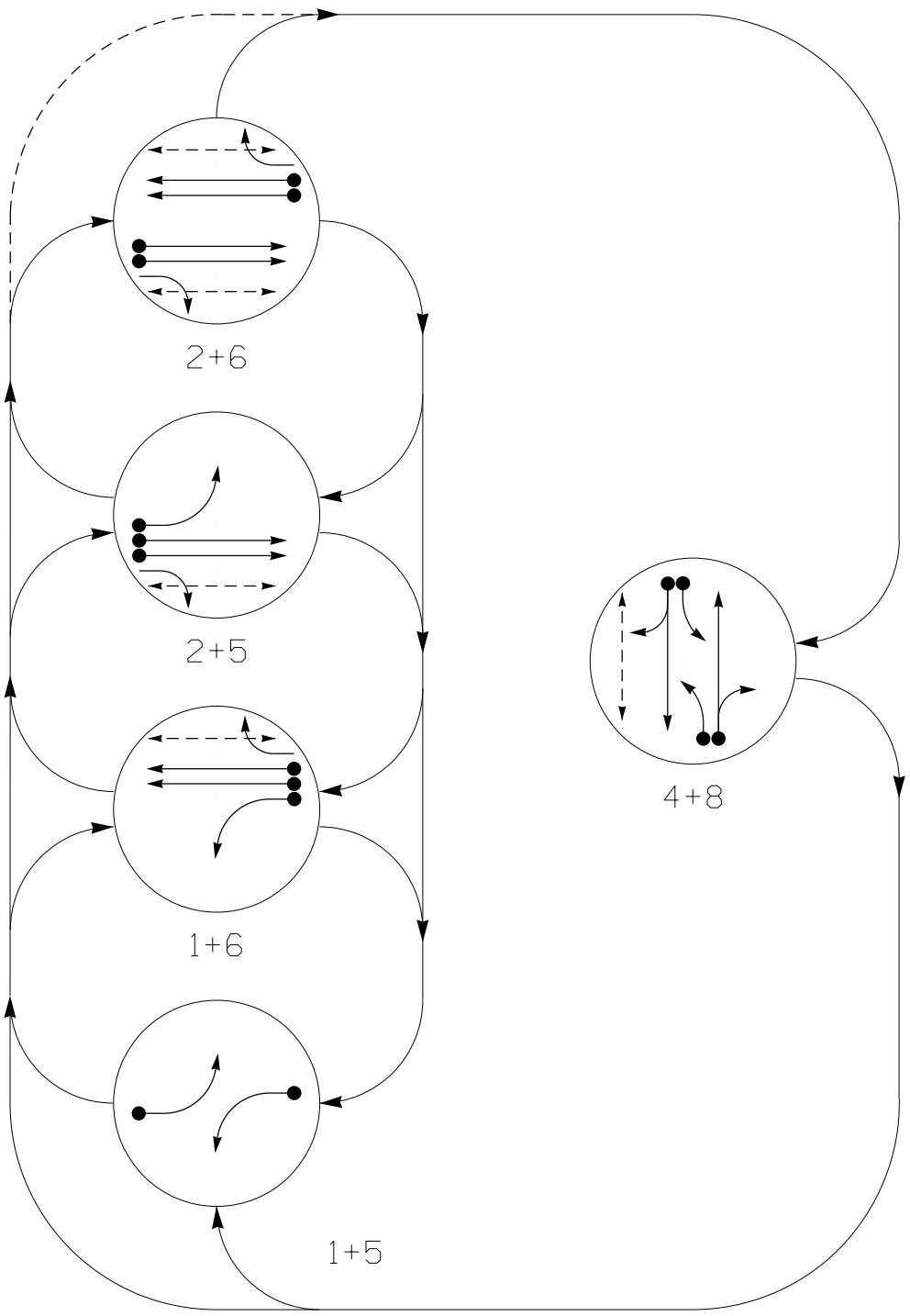
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S1F4685 AT L0591289

|                       |           |
|-----------------------|-----------|
| PROJECT REFERENCE NO. | SHEET NO. |
| U-4758                | Sig. 19.0 |

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



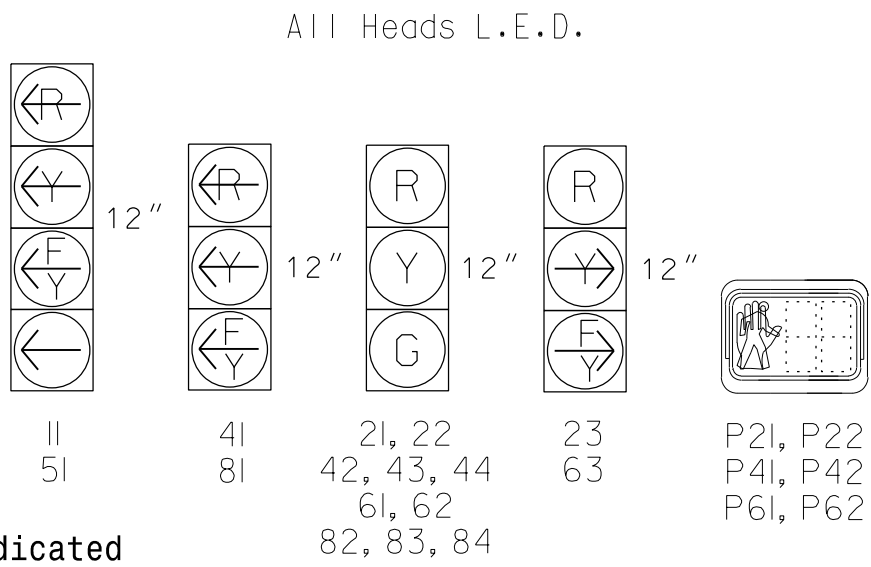
| SIGNAL FACE | PHASE |       |       |       |       |       |
|-------------|-------|-------|-------|-------|-------|-------|
|             | 1 + 5 | 1 + 6 | 2 + 5 | 2 + 6 | 4 + 8 | FLUSH |
| II          | ←     | ←     | ←     | ←     | ←     | ←     |
| 21, 22      | R     | R     | G     | G     | R     | R     |
| 23          | R     | R     | ←     | ←     | R     | R     |
| 41          | ←     | ←     | ←     | ←     | ←     | ←     |
| 42,43,44    | R     | R     | R     | R     | G     | R     |
| 51          | ←     | ←     | ←     | ←     | ←     | ←     |
| 61, 62      | R     | G     | R     | G     | R     | R     |
| 63          | R     | ←     | R     | ←     | R     | R     |
| 81          | ←     | ←     | ←     | ←     | ←     | ←     |
| 82,83,84    | R     | R     | R     | R     | G     | R     |
| P21, P22    | DW    | DW    | W     | W     | DW    | DRK   |
| P41, P42    | DW    | DW    | DW    | DW    | W     | DRK   |
| P61, P62    | DW    | W     | DW    | W     | DW    | DRK   |

| SIGNAL FACE | PHASE |       |       |       |       |       |
|-------------|-------|-------|-------|-------|-------|-------|
|             | 1 + 5 | 1 + 6 | 2 + 5 | 2 + 6 | 4 + 8 | FLUSH |
| II          | ←     | ←     | ←     | ←     | ←     | ←     |
| 21, 22      | R     | R     | G     | G     | R     | R     |
| 23          | R     | R     | ←     | ←     | R     | R     |
| 41          | ←     | ←     | ←     | ←     | ←     | ←     |
| 42,43,44    | R     | R     | R     | R     | G     | R     |
| 51          | ←     | ←     | ←     | ←     | ←     | ←     |
| 61, 62      | R     | G     | R     | G     | R     | R     |
| 63          | R     | ←     | R     | ←     | R     | R     |
| 81          | ←     | ←     | ←     | ←     | ←     | ←     |
| 82,83,84    | R     | R     | R     | R     | G     | R     |
| P21, P22    | DW    | DW    | W     | W     | DW    | DRK   |
| P41, P42    | DW    | DW    | DW    | DW    | W     | DRK   |
| P61, P62    | DW    | W     | DW    | W     | DW    | DRK   |

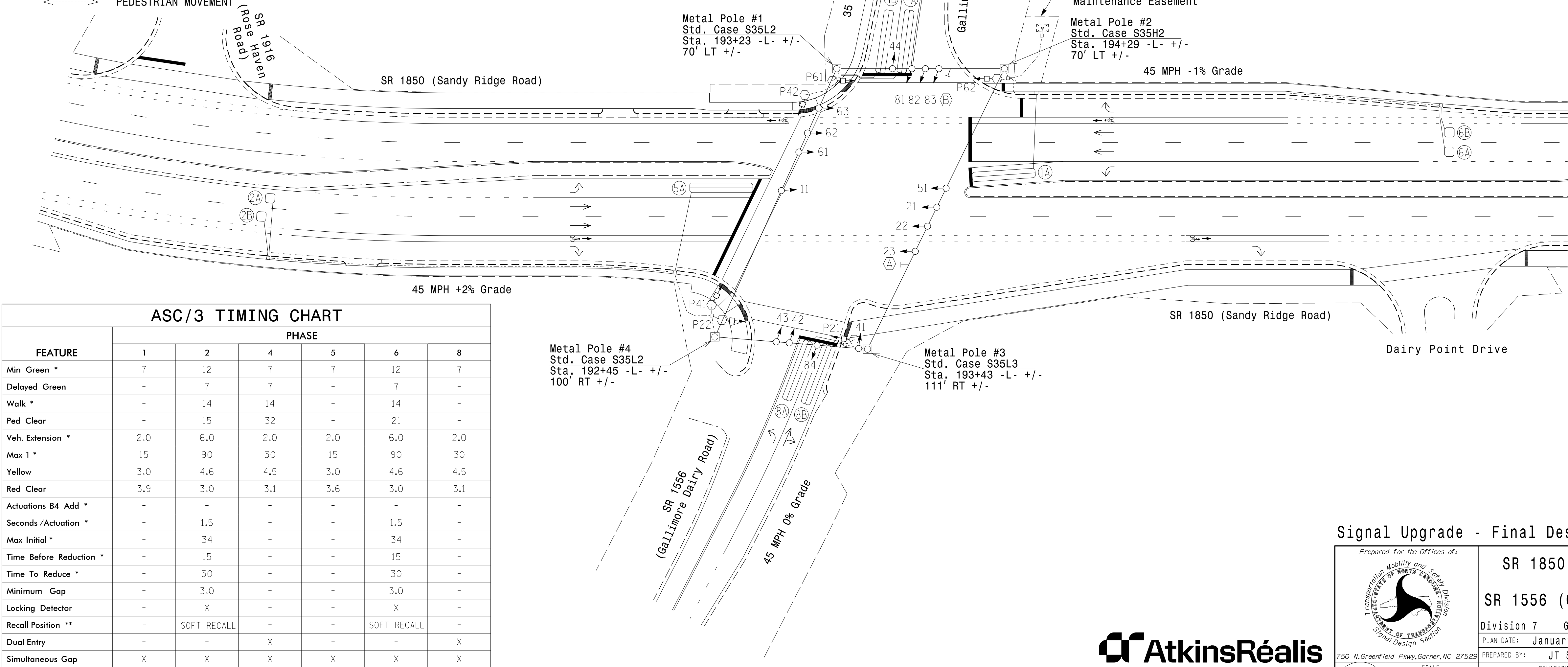
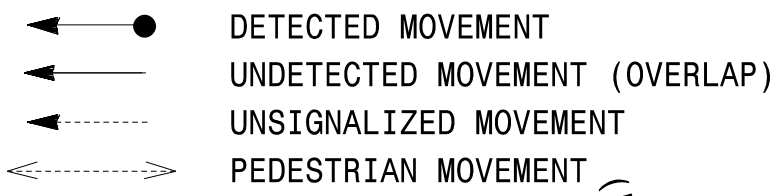
| ASC/3 DETECTOR INSTALLATION CHART |           |                            |       |          |             |         |             |            |                   |      |             |          |
|-----------------------------------|-----------|----------------------------|-------|----------|-------------|---------|-------------|------------|-------------------|------|-------------|----------|
| DETECTOR                          |           |                            |       |          | PROGRAMMING |         |             |            |                   |      |             |          |
| LOOP                              | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PHASE       | CALLING | EXTEND TIME | DELAY TIME | USE ADDED INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 1A                                | 6X40      | 0                          | 2-4-2 | X        | 1           | Yes     | -           | 15.0*      | -                 | N    | -           | X        |
| 2A                                | 6X6       | 300                        | 4     | X        | 2           | Yes     | -           | -          | X                 | N    | -           | X        |
| 2B                                | 6X6       | 300                        | 4     | X        | 2           | Yes     | -           | -          | X                 | N    | -           | X        |
| 4A                                | 6X40      | 0                          | 2-4-2 | X        | 4           | Yes     | -           | 3.0        | -                 | N    | -           | X        |
| 4B                                | 6X40      | 0                          | 2-4-2 | X        | 4           | Yes     | -           | 10.0       | -                 | N    | -           | X        |
| 5A                                | 6X40      | 0                          | 2-4-2 | X        | 5           | Yes     | -           | 15.0*      | -                 | N    | -           | X        |
| 6A                                | 6X6       | 300                        | 4     | X        | 6           | Yes     | -           | -          | X                 | N    | -           | X        |
| 6B                                | 6X6       | 300                        | 4     | X        | 6           | Yes     | -           | -          | X                 | N    | -           | X        |
| 8A                                | 6X40      | 0                          | 2-4-2 | X        | 8           | Yes     | -           | 3.0        | -                 | N    | -           | X        |
| 8B                                | 6X40      | 0                          | 2-4-2 | X        | 8           | Yes     | -           | -          | -                 | N    | -           | X        |

\*Disable delay during alternate phasing operation  
#Disable phase call for loop(s) during alternate phasing operation

SIGNAL FACE I.D.



PHASING DIAGRAM DETECTION LEGEND



ASC/3 TIMING CHART

| FEATURE                 | PHASE |             |     |     |             |     |
|-------------------------|-------|-------------|-----|-----|-------------|-----|
|                         | 1     | 2           | 4   | 5   | 6           | 8   |
| Min Green *             | 7     | 12          | 7   | 7   | 12          | 7   |
| Delayed Green           | -     | 7           | 7   | -   | 7           | -   |
| Walk *                  | -     | 14          | 14  | -   | 14          | -   |
| Ped Clear               | -     | 15          | 32  | -   | 21          | -   |
| Veh. Extension *        | 2.0   | 6.0         | 2.0 | 2.0 | 6.0         | 2.0 |
| Max 1 *                 | 15    | 90          | 30  | 15  | 90          | 30  |
| Yellow                  | 3.0   | 4.6         | 4.5 | 3.0 | 4.6         | 4.5 |
| Red Clear               | 3.9   | 3.0         | 3.1 | 3.6 | 3.0         | 3.1 |
| Actuations B4 Add *     | -     | -           | -   | -   | -           | -   |
| Seconds /Actuation *    | -     | 1.5         | -   | -   | 1.5         | -   |
| Max Initial *           | -     | 34          | -   | -   | 34          | -   |
| Time Before Reduction * | -     | 15          | -   | -   | 15          | -   |
| Time To Reduce *        | -     | 30          | -   | -   | 30          | -   |
| Minimum Gap             | -     | 3.0         | -   | -   | 3.0         | -   |
| Locking Detector        | -     | X           | -   | -   | X           | -   |
| Recall Position **      | -     | SOFT RECALL | -   | -   | SOFT RECALL | -   |
| Dual Entry              | -     | -           | X   | -   | -           | X   |
| Simultaneous Gap        | X     | X           | X   | X   | X           | X   |

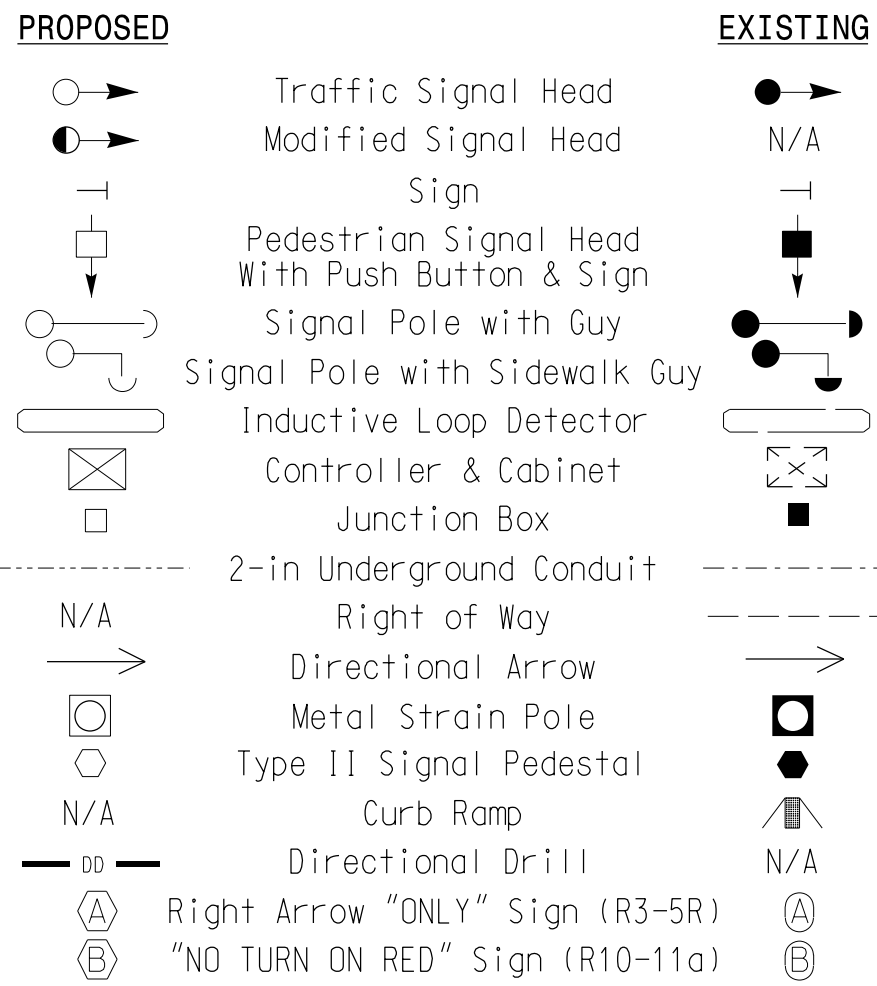
\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.  
\*\* May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

5 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
- Metal poles, Type I pushbutton posts and Type II pedestals shall be BLACK in color.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND



Signal Upgrade - Final Design

Prepared for the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1850 (Sandy Ridge Road) at SR 1556 (Gallimore Dairy Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS

INIT. DATE

SCALE

0 40

1"=40'

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER

SEAL 056276

James Stiff

3/14/2025

SIG. INVENTORY NO. 07-1115

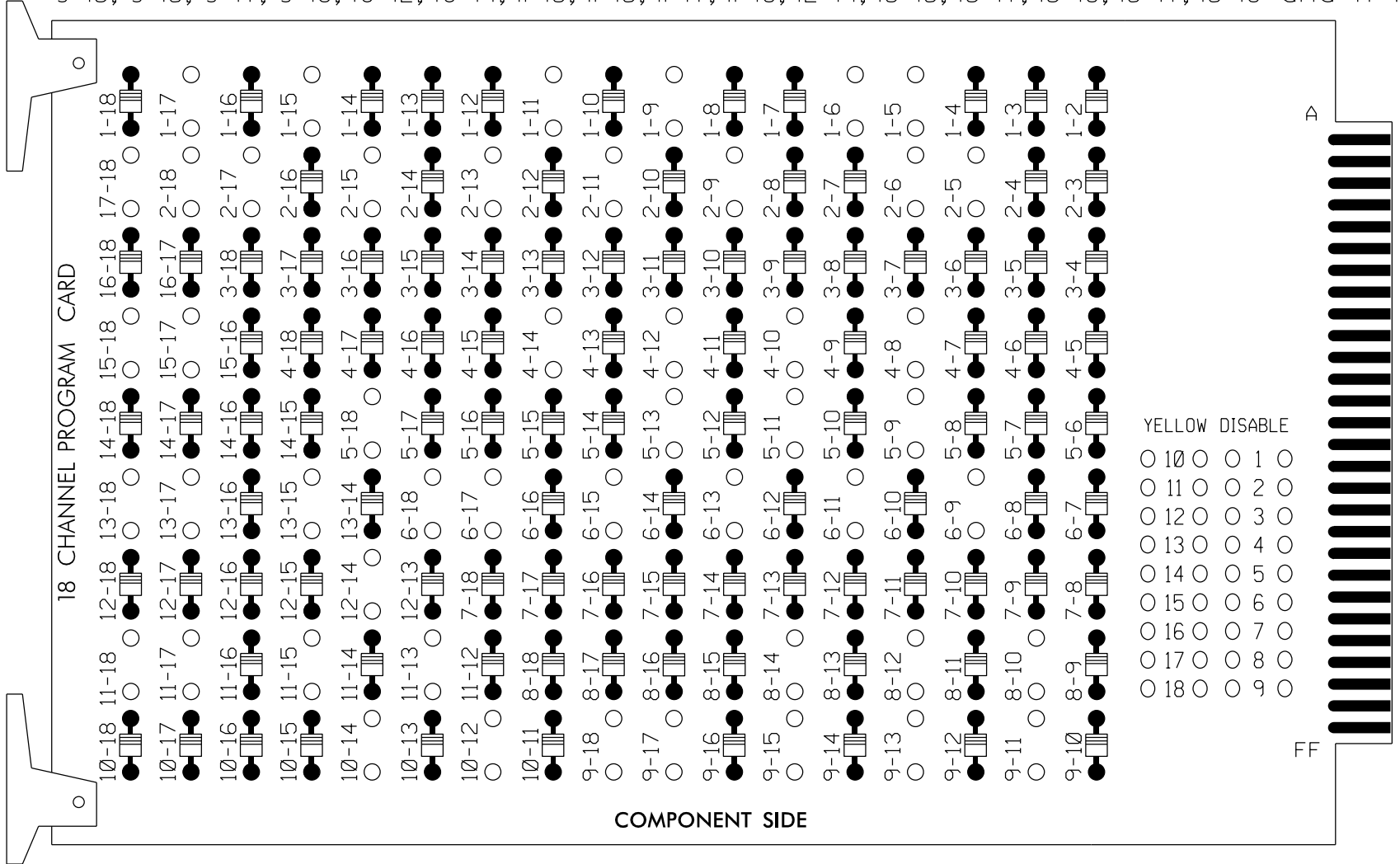
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S1F4685 AT L0591089

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 1-17, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 2-17, 2-18, 4-8, 4-10, 4-12, 4-14, 5-9, 5-11, 5-13, 5-18, 6-9, 6-11, 6-13, 6-15, 6-17, 6-18, 8-10, 8-12, 8-14, 9-11, 9-13, 9-15, 9-17, 9-18, 10-12, 10-14, 11-13, 11-15, 11-17, 11-18, 12-14, 13-15, 13-17, 13-18, 15-17, 15-18 and 17-18.



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Integrate monitor with Ethernet network in cabinet.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the High Point Signal System.

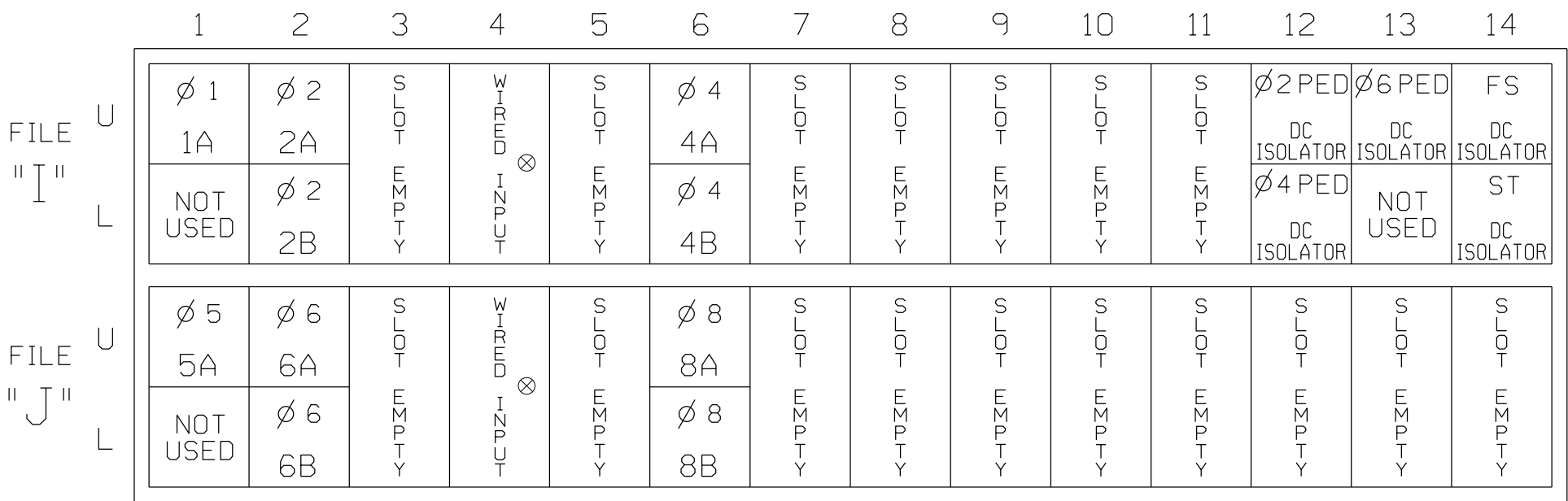
EQUIPMENT INFORMATION

CONTROLLER.....2070LX  
CABINET.....332 W/ AUX  
SOFTWARE.....ECONOLITE ASC/3-2070  
CABINET MOUNT.....BASE  
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
LOAD SWITCHES USED.....S1,S2,S3,S5,S6,S7,S8,S9,S11,AUX S1,  
AUX S2,AUX S3,AUX S4,AUX S5,AUX S6  
PHASES USED.....1,2,2 PED,4,4 PED,5,6,6 PED,8,8 PED  
OVERLAP "A".....\*  
OVERLAP "B".....\*  
OVERLAP "C".....\*  
OVERLAP "D".....\*  
OVERLAP "E".....\*  
OVERLAP "F".....\*

\* See overlap programming detail on sheet 2

INPUT FILE POSITION LAYOUT

(front view)



INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO.         | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|------------------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A <sup>1</sup>  | TB2-1,2       | I1U             | 56      | 1 ★          | 1          | YES  |             | 15.0       |               | N             |
|                  | -             | J4U             | 48      | 26 ★         | 6          | YES  |             | 3.0        |               | G             |
| 2A               | TB2-5,6       | I2U             | 39      | 2            | 2          | YES  |             |            | X             | N             |
| 2B               | TB2-7,8       | I2L             | 43      | 12           | 2          | YES  |             |            | X             | N             |
| 4A               | TB4-9,10      | I6U             | 41      | 4            | 4          | YES  |             | 3.0        |               | N             |
| 4B               | TB4-11,12     | I6L             | 45      | 14           | 4          | YES  |             | 10.0       |               | N             |
| 5A <sup>2</sup>  | TB3-1,2       | J1U             | 55      | 5 ★          | 5          | YES  |             | 15.0       |               | N             |
|                  | -             | I4U             | 47      | 22 ★         | 2          | YES  |             | 3.0        |               | G             |
| 6A               | TB3-5,6       | J2U             | 40      | 6            | 6          | YES  |             |            | X             | N             |
| 6B               | TB3-7,8       | J2L             | 44      | 16           | 6          | YES  |             |            | X             | N             |
| 8A               | TB5-9,10      | J6U             | 42      | 8            | 8          | YES  |             | 3.0        |               | N             |
| 8B               | TB5-11,12     | J6L             | 46      | 18           | 8          | YES  |             |            |               | N             |
| PED PUSH BUTTONS |               |                 |         |              |            |      |             |            |               |               |
| P21,P22          | TB8-4,6       | I12U            | 67      | PED 2        | 2 PED      |      |             |            |               |               |
| P41,P42          | TB8-5,6       | I12L            | 69      | PED 4        | 4 PED      |      |             |            |               |               |
| P61,P62          | TB8-7,9       | I13U            | 68      | PED 6        | 6 PED      |      |             |            |               |               |

NOTE:

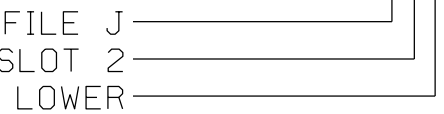
INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

<sup>1</sup>Add jumper from I1-W to J4-W, on rear of input file.

<sup>2</sup>Add jumper from J1-W to I4-W, on rear of input file.

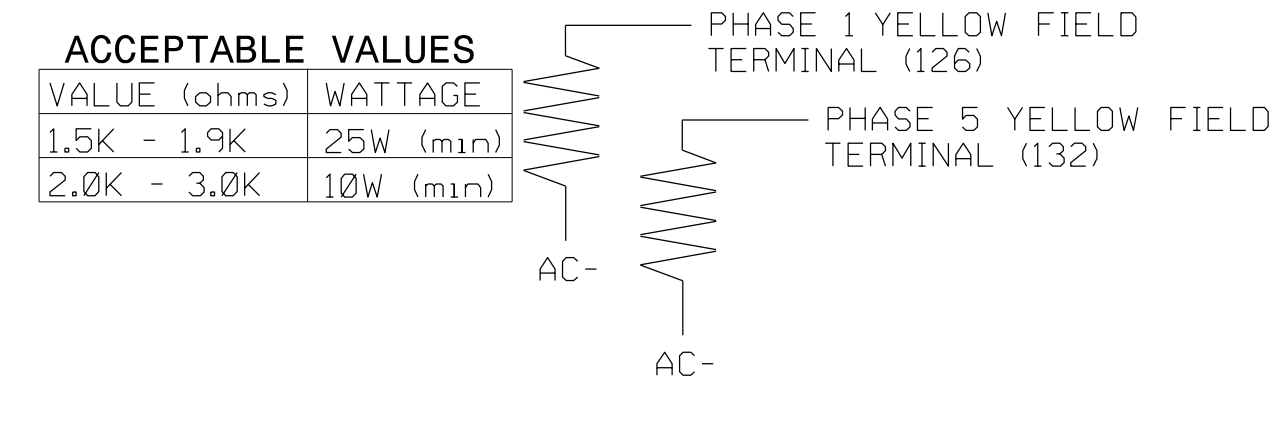
★For the detectors to work as shown on the signal design plan. See the Vehicle Detector Setup Programming Detail for Alternate Phasing on sheet 2.

INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1115  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 1 of 4  
Final Design

**AtkinsRéal**  
1616 EAST MILLBROOK ROAD, SUITE 160  
RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

|                                         |  |                                                              |  |                                       |  |
|-----------------------------------------|--|--------------------------------------------------------------|--|---------------------------------------|--|
| ELECTRICAL AND PROGRAMMING DETAILS FOR: |  | SR 1850 (Sandy Ridge Road) at SR 1556 (Gallimore Dairy Road) |  | Division 7 Guilford County High Point |  |
| PLAN DATE: January 2025                 |  | REVIEWED BY: AM Encarnacion                                  |  | PREPARED BY: JT Stiff                 |  |
| REVISIONS                               |  | INIT.                                                        |  | DATE                                  |  |
| 750 N.Greenfield Pkwy,Garner,NC 27529   |  | Seal of the State of North Carolina                          |  | Seal of the State of North Carolina   |  |
| Designed by: Anthony Encarnacion        |  | 3/14/2025                                                    |  | DATE                                  |  |
| SIGNATURE                               |  | DATE                                                         |  | DATE                                  |  |
| SIC. INVENTORY NO.                      |  | 07-1115                                                      |  | DATE                                  |  |

ECONOLITE ASC/3-2070  
OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select
2. CONTROLLER
2. From CONTROLLER Submenu select
2. VEHICLE OVERLAPS

OVERLAP A

Select TMG VEH OVLP [A] and 'PPLT FYA'

TMG VEH OVLP...[A] TYPE: .....PPLT FYA

PROTECTED LEFT TURN.... PHASE 1

OPPOSING THROUGH..... PHASE 2

FLASHING ARROW OUTPUT.....CH9 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 1

NOTICE ACTION  
PLAN SF BIT "1"

Toggle Once

OVERLAP B

Select TMG VEH OVLP [B] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[B] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

Toggle Once

OVERLAP C

Select TMG VEH OVLP [C] and 'PPLT FYA'

TMG VEH OVLP...[C] TYPE: .....PPLT FYA

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 5

NOTICE ACTION  
PLAN SF BIT "5"

Toggle Once

OVERLAP D

Select TMG VEH OVLP [D] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[D] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

Toggle Once

OVERLAP E

Select TMG VEH OVLP [E] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[E] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . . . . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . . . . . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

OVERLAP F

Select TMG VEH OVLP [F] and 'OTHER/ECONOLITE'

TMG VEH OVLP...[F] TYPE:OTHER/ECONOLITE

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . X . . . . .

PROTECT . . . . .

PED PRTC . . . . .

NOT OVLP . . . . .

FLSH GRN . 1 . . . . .

LAG X PH . . . . .

LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

END PROGRAMMING

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP  
PROGRAMMING DETAIL FOR ALTERNATE PHASING

LOOPS 1A AND 5A

(program controller as shown)

IMPORTANT!

Program detectors per the input file connection and programming chart shown on sheet 1 before proceeding.

1. From Main Menu select
8. UTILITIES
2. From UTILITIES Submenu select
1. COPY/CLEAR
3. Copy from DETECTOR PLAN "1" to DETECTOR PLAN "2".

COPY / CLEAR UTILITY

FROM TO

PHASE TIMING.... . > PHASE TIMING.... .

TIMING PLAN..... . > TIMING PLAN..... .

PH DET OPT PLAN. . > PH DET OPT PLAN. .

DETECTOR PLAN... 1 > DETECTOR PLAN... 2

TOGGLE TO SELECT A "FROM" AND A "TO"

THEN PRESS ENTER

4. From Main Menu select
6. DETECTORS
5. From DETECTOR Submenu select
2. VEHICLE DETECTOR SETUP
6. Place cursor in VEH DET PLAN [ ] position and enter "2".

- Place cursor in VEH DETECTOR [ ] position and enter "1".
- Set delay time to "0".

VEH DETECTOR [ 1 ] VEH DET PLAN [ 2 ]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1 1 . . . . .

CALL OPTION.... YES DELAY TIME... 0.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH  
DET PLAN 2

ENSURE DELAY  
IS SET TO '0'

- Place cursor in VEH DETECTOR [ ] position and enter "26".
- Set assigned phase to "0".

VEH DETECTOR [26] VEH DET PLAN [ 2 ]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

26 0 . . . . .

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE VEH  
DET PLAN 2

ENSURE  
PHASE  
IS SET  
TO "0"

- Place cursor in VEH DETECTOR [ ] position and enter "5".
- Set delay time to "0".

VEH DETECTOR [ 5 ] VEH DET PLAN [ 2 ]

TYPE: N-NTCIP

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

5 5 . . . . .

CALL OPTION.... YES DELAY TIME... 0.0

EXT OPTION. PASSAGE EXTENSION TIME. 0.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY- NO

NOTICE VEH  
DET PLAN 2

ENSURE DELAY  
IS SET TO '0'

- Place cursor in VEH DETECTOR [ ] position and enter "22".
- Set assigned phase to "0".

VEH DETECTOR [22] VEH DET PLAN [ 2 ]

TYPE: G-GREEN EXTENSION/DELAY

TS2 DETECTOR..... . ECPI LOG..... NO

DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

22 0 . . . . .

EXTEND TIME... 0.0 DELAY TIME... 3.0

USE ADDED INITIAL . CROSS SWITCH PH.. 0

LOCK IN..... NONE NTCIP VOL . OR OCC .

PMT QUEUE DELAY. NO

NOTICE VEH  
DET PLAN 2

ENSURE PHASE  
IS SET TO "0"

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 07-1115  
DESIGNED: January 2025  
SEALED: 03-14-2025  
REVISED: N/A

Electrical Detail - Sheet 2 of 4  
Final Design

|                                                                                                                                                                |  |                                                                    |  |                                                                                               |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------|--|
| ELECTRICAL AND PROGRAMMING<br>DETAILS FOR:                                                                                                                     |  | SR 1850 (Sandy Ridge Road)<br>at<br>SR 1556 (Gallimore Dairy Road) |  | DOCUMENT NOT CONSIDERED<br>FINAL UNLESS ALL<br>SIGNATURES COMPLETED                           |  |
| Prepared for the Offices of:<br><br>750 N.Greenfield Pkwy,Garner,NC 27529 |  | Division 7 Guilford County High Point                              |  | SEAL<br> |  |
| PLAN DATE: January 2025                                                                                                                                        |  | REVIEWED BY: AM Encarnacion                                        |  | Designed by:<br>Anthony Encarnacion<br>3/14/2025                                              |  |
| PREPARED BY: JT Stiff                                                                                                                                          |  | REVIEWED BY: PL Alexander                                          |  | DATE                                                                                          |  |
| REVISIONS                                                                                                                                                      |  | INIT.                                                              |  | DATE                                                                                          |  |
|                                                                                                                                                                |  |                                                                    |  |                                                                                               |  |
|                                                                                                                                                                |  |                                                                    |  |                                                                                               |  |
|                                                                                                                                                                |  |                                                                    |  |                                                                                               |  |
|                                                                                                                                                                |  |                                                                    |  | SIG. INVENTORY NO. 07-1115                                                                    |  |

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RALEIGH, NORTH CAROLINA 27609  
(919) 876-6888 NCBEES #F-0326

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.  
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED  
TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1 AND 5.

| <u>PHASING</u>                                   | <u>VEH DET PLAN</u> | <u>SF BITS ENABLED</u> |
|--------------------------------------------------|---------------------|------------------------|
| ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>   | 1                   | NONE                   |
| ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u> | 2                   | 1,5                    |

## ALTERNATE PHASING PAGE CHANGE SUMMARY

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.



## PROGRAMMING DETAIL

- ```

ACTION PLAN... [ *]
PATTERN.....AUTO      SYS OVERRIDE.... NO
TIMING PLAN..... 0      SEQUENCE..... 0
VEH DETECTOR PLAN.. 2    DET LOG.....NONE
FLASH..... --          RED REST..... NO
VEH DET DIAG PLN... 0    PED DET DIAG PLN..0
DIMMING ENABLE.. NO      PRIORITY RETURN. NO
PED PR RETURN.. NO        QUEUE DELAY..... NO
PMT COND DELAY   NO

```

[illegible]

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1115
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

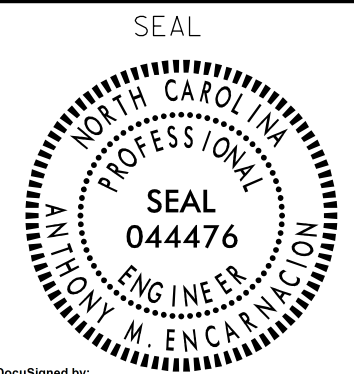
**ELECTRICAL AND PROGRAMMING
DETAILS FOR:**

Division 7 Guilford County High Point

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
-------------------------	-----------------------------

[illegible]

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



Declassified by: Anthony Encarnacion 3/14/2025
DEC507621040F...
SIGNATURE DATE

IG. INVENTORY NO. 07-1115

SEAL

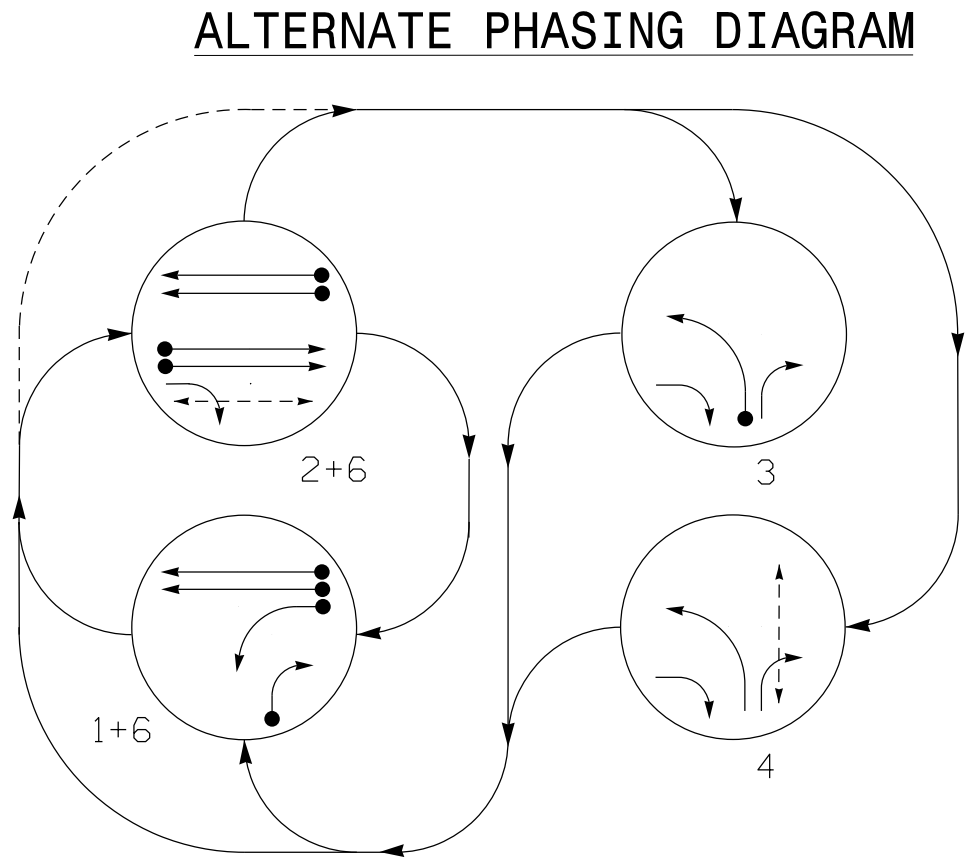
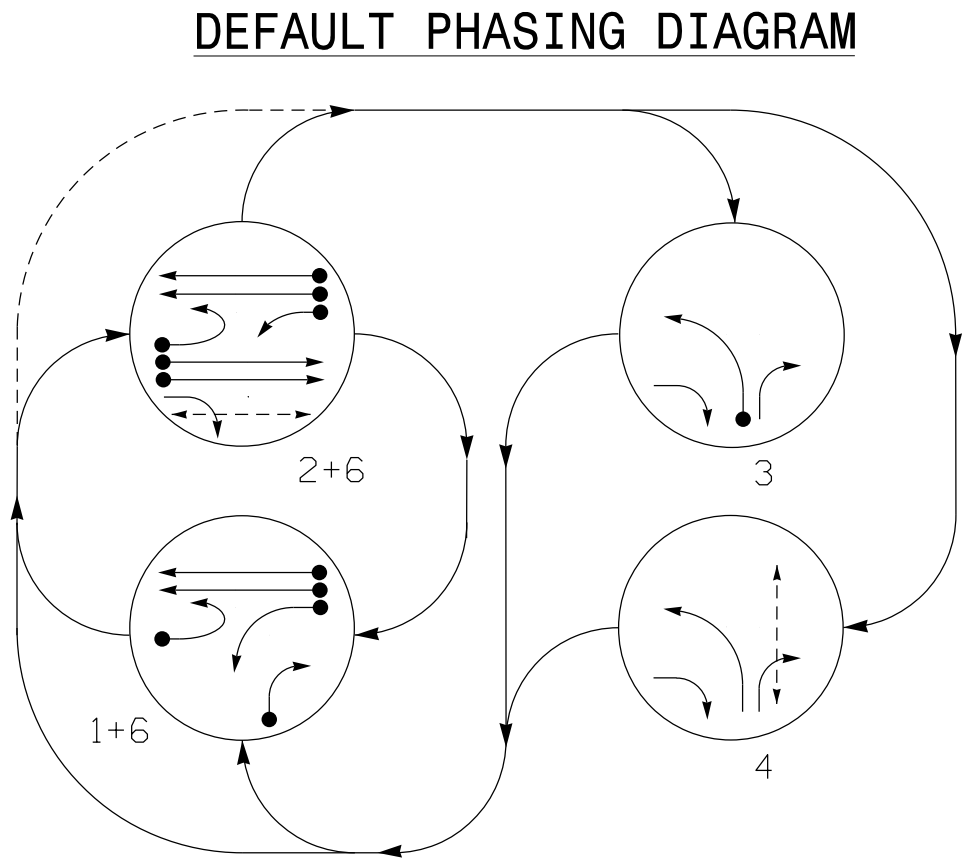


—Designed by: Anthony Encarnacion 3/14/2025

—DRC: 05378783364F — DATE

SIG. INVENTORY NO. 07-111

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 20.0



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE	PHASE			
	1 + 6	2 + 6	3	4
II	←	←	←	←
2I	←	←	←	←
22, 23	R	G	R	R
24	R	←	→	R
3I, 33	←	←	←	←
32	→	R	←	R
6I, 62	G	G	R	R
P2I, P22	DW	W	DW	DRK
P4I, P42	DW	DW	W	DRK

SIGNAL FACE	PHASE			
	1 + 6	2 + 6	3	4
II	←	←	←	←
2I	←	←	←	←
22, 23	R	G	R	R
24	R	←	→	R
3I, 33	←	←	←	←
32	→	R	←	R
6I, 62	G	G	R	R
P2I, P22	DW	W	DW	DRK
P4I, P42	DW	DW	W	DRK

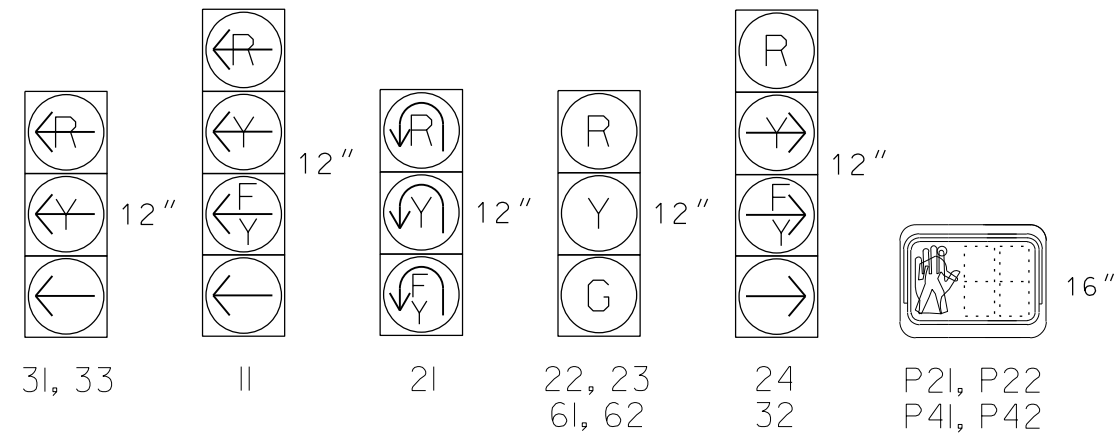
ASC/3 DETECTOR INSTALLATION CHART												
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	X	1	Yes	-	15.0*	-	N	-	X
1B	6X40	0	2-4-2	X	1	Yes	-	15.0	-	N	-	X
2A	6X6	300	4	X	2	Yes	-	-	X	N	-	X
2B	6X6	300	4	X	2	Yes	-	-	X	N	-	X
2C	6X40	0	2-4-2	X	2	Yes	-	3.0	-	G	-	X
3A	6X40	0	2-4-2	X	3	Yes	-	3.0	-	N	-	X
6A	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6B	6X6	300	4	X	6	Yes	-	-	X	N	-	X

* Disable delay during alternate phasing operation

Disable phase call for loop(s) during alternate phasing operation

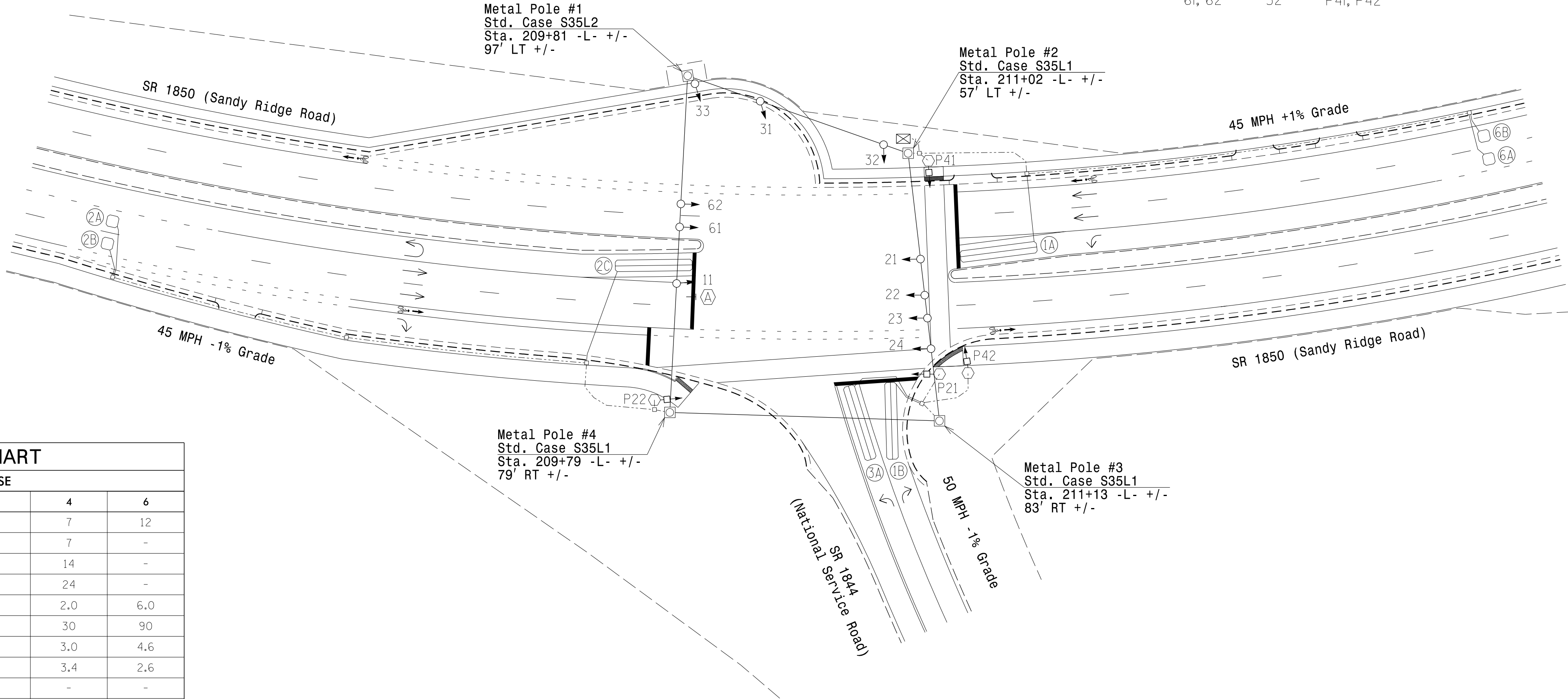
SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 TIMING CHART					
FEATURE	PHASE				
	1	2	3	4	6
Min Green *	7	12	7	7	12
Delayed Green	-	7	-	7	-
Walk *	-	14	-	14	-
Ped Clear	-	34	-	24	-
Veh. Extension *	2.0	6.0	2.0	2.0	6.0
Max I *	15	90	30	30	90
Yellow	3.0	4.6	3.0	3.0	4.6
Red Clear	3.1	2.6	3.4	3.4	2.6
Actuations B4 Add *	-	-	-	-	-
Seconds /Actuation *	-	1.5	-	-	1.5
Max Initial *	-	34	-	-	34
Time Before Reduction *	-	15	-	-	15
Time To Reduce *	-	30	-	-	30
Minimum Gap	-	3.0	-	-	3.0
Locking Detector	-	X	-	-	X
Recall Position **	-	SOFT RECALL	-	-	SOFT RECALL
Dual Entry	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X

* 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.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.



LEGEND

PROPOSED	EXISTING
Traffic Signal Head	N/A
Modified Signal Head	N/A
Sign	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
Right of Way	N/A
Directional Arrow	N/A
Metal Strain Pole	N/A
Type II Signal Pedestal	N/A
Curb Ramp	N/A
"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	N/A

New Installation

Prepared for the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1850 (Sandy Ridge Road) at SR 1844 (National Service Road)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
	Division 7 Guilford County High Point		
PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JAMES T. STILE 056276
PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander		
REVISIONS	INIT.	DATE	SIGNED BY: James Stiff 0548BD0378724434 SIGNATURE DATE
SCALE 0 40 1"=40'		SIC. INVENTORY NO. 07-1116	

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13-MAR-2025 17:11
DW://SUD0036343\work\ins-com\ATKMANC01\Documents/Roads and Bridges/Projects/100059632_JSSR S1g and ITS/Task 05_11_Signals/071116_sm.le_2023mmda.dgn
S1F4685 - AT L05491089

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN.
SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 1.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED
TO SELECT VEH DET PLAN 2 AND ENABLE SF BIT 1.

PHASING	VEH DET PLAN	SF BITS ENABLED
ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	NONE
ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	1

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY
EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE
RUN EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN
SF BIT 1 AND VEH DET PLAN 2 ACTIVATE TO CALL THE
"ALTERNATE PHASING":

SF BIT 1: Modifies overlap parent phase
for head 11 to run protected
turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A
and reduces delay time for phase 1
call on loop 1A to 0 seconds.



ECONOLITE ASC/3-2070 ACTION PLAN
PROGRAMMING DETAIL

1. From Main Menu select 5. TIME BASE
2. From TIME BASE Submenu select 2. ACTION PLAN

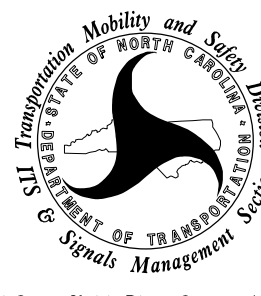
```
ACTION PLAN...[ *]
PATTERN.....AUTO   SYS OVERRIDE.... NO
TIMING PLAN..... 0   SEQUENCE.....  0
VEH DETECTOR PLAN.. 2   DET LOG.....NONE
FLASH.....      --   RED REST..... NO
VEH DET DIAG PLN... 0   PED DET DIAG PLN..0
DIMMING ENABLE..  NO   PRIORITY RETURN. NO
PED PR RETURN..  NO   QUEUE DELAY..... NO
PMT COND DELAY  NO

  PHASE   1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
PED RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
WALK 2    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
VEH RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX RCL   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
MAX 2     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
  PHASE   1  2  3  4  5  6  7  8  9  0  1  2  3  4  5  6
MAX 3     .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
CS INH    .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
OMIT      .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
SPC FCT   X  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
AUX FCT   .  .  .  (1-3)
          1  2  3  4  5  6  7  8  9  0  1  2  3  4  5
LP 1-15   .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 16-30  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 31-45  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 46-60  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 61-75  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 76-90  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
LP 91-100 .  .  .  .  .  .  .  .  .  .  .  .  .  .  .  .
```

* The Action Plan number(s) are to be determined by
the Division and/or City Traffic Engineer.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1116
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1850 (Sandy Ridge Road) at SR 1844 (National Serivce Road)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared for the Offices of:		Division 7 Guilford County High Point		SEAL SEAL SEAL 044476 ENGINEER ANTHONY M. ENCARNACION Designed by: <i>Anthony Encarnacion</i> 3/14/2025 SIGNATURE DATE SIG. INVENTORY NO. 07-1116	
		PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion			
		PREPARED BY: JT Stiff REVIEWED BY: PL Alexander			
		REVISIONS			
		INIT.		DATE	

ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL
FOR LEADING PED INTERVAL (DELAYED GREEN)

(program controller as shown)

The following logic processor configuration holds the FYA on signal head 11 red for the duration of the delayed green time (leading ped interval) when serving a ped call on the opposing through phase and serve phase 4 instead of phase 3 if there is a phase 4 ped call.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From the LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

ENTER A "1" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#: 1 COPY FROM: 1 ACTIVE: M (T/F)

IF PED ON PH WALK 2 IS ON

AND VEH GREEN ON PH 2 IS OFF

THEN SIG SET OLP RED 1 ON

SIG SET OLP YELLOW 1 OFF

SIG SET OVLP GREEN 1 OFF

ELSE

HOLD SIGNAL HEAD 11 FYA
RED DURING THE PHASE 2
DELAYED GREEN TIME
(LEADING PED INTERVAL)

ENTER A "2" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

LP#: 2 COPY FROM: 2 ACTIVE: M (T/F)

IF CTR ON PH PED CHK 4 IS ON

THEN CTR OMIT PHASE 3 ON

ELSE

LOGIC TO SERVE PHASE
4 INSTEAD OF PHASE 3
IF THERE IS A PHASE 4
PED CALL.

END PROGRAMMING

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From the LOGIC PROCESSOR Submenu select 1. LOGIC STATEMENT CONTROL

ENABLE LOGIC PROCESSOR STATEMENTS 1-4 BY POSITIONING THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE THEM .

LOGIC STATEMENT CONTROL

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

LP 1-15 E E

LP 16-30

LP 31-45

LP 46-60

LP 61-75

LP 76-90

ECONOLITE ASC/3-2070 STARTUP AND
SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA

-----START UP-----

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

PHASE G G

A B C D E F G H I J K L M N O P

OVERLAP X X X X X X X X X X X X X X X X

FLASH>MON. NO FL TIME.. 0 ALL RED... 6

PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit Fl" to Green "G"

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.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1116
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

ECONOLITE ASC/3-2070 BACKUP
PROTECTION ENABLE PROGRAMMING

(program controller as shown)

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 1. CONTROLLER SEQ
3. From CONTROLLER SEQUENCE Submenu select 3. BACKUP PREVENT PHASES

Follow programming as shown below. On the 'ENABLE BACKUP PREVENT' screen move cursor to the appropriate field and press 'YES/NO' on the controller keypad to toggle field value between 'X' and 'OFF'.

ENABLE BACKUP PREVENT

TMG/BKUP 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

1

2

3 . X

4

5

6

7

8

9

10

11

12

13

14

15

16

END PROGRAMMING

NOTES

1. 'X' inhibits the controller from servicing the 'BACKUP' (column) phase when the 'TIMING' (row) phase is active or next.

ASC/3 FLASH SENSE INPUT CONTROL
FOR RED-RED FLASH

*The NCDOT default database is programmed to addresss Yellow-Red flash. Logic Statement 100 must be modified as shown when running Red-Red flash.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER", select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE

IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS

LP SET CIB ON 427

ELSE

THIS STATEMENT IS USED
TO CONTROL THE FLASH
SENSE INPUT WHEN RUNNING
RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING



Electrical Detail - Sheet 4 of 4

Electrical and Programming Details For:

Prepared for the Offices of:

SR 1850 (Sandy Ridge Road) at SR 1844 (National Service Road)

Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

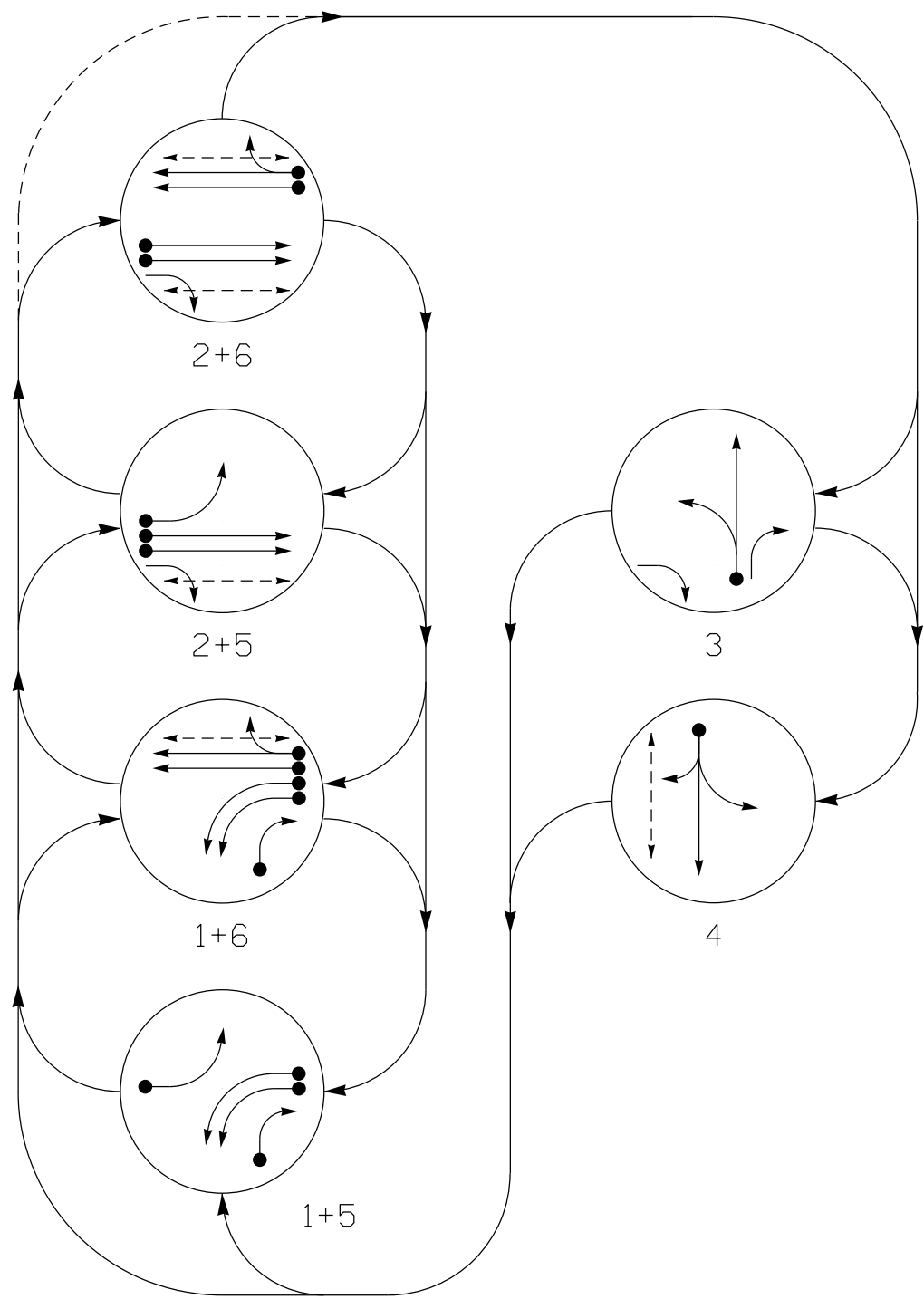
Designed by: Anthony Encarnacion 3/14/2025

SIGNATURE DATE

SIG. INVENTORY NO. 07-1116

13-MAR-2025 17:17
DW://SUD0036343/.work/ris-com/ATKMANC01/Documents/Roads and Bridges/Projects/100059632_USR S1g and ITS/Task 05.11_Signals/071117_s1g_dsn_2023mdd.dgn
S1F4685 AT L0591089

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

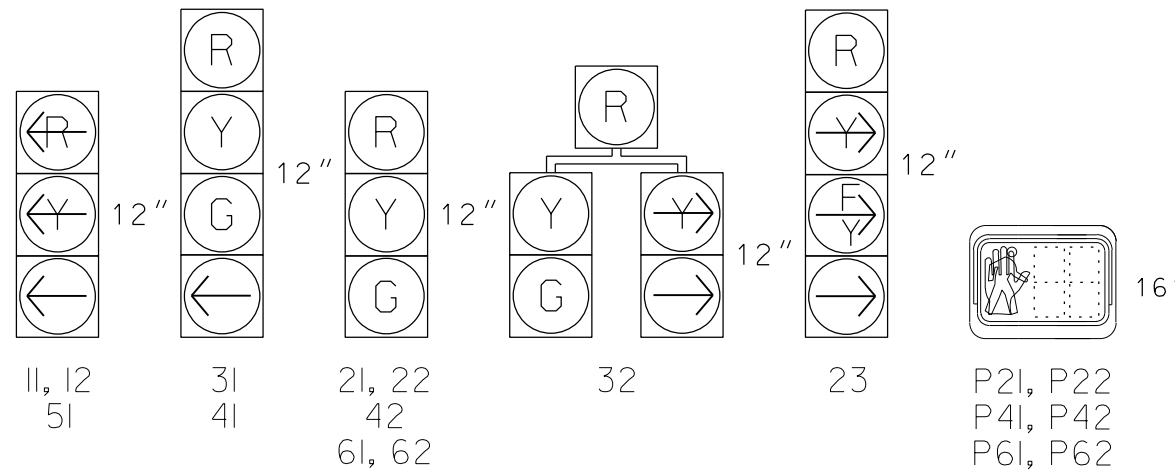
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	3	4
11, 12	←	←	←	←	←	←
21, 22	R	R	G	G	R	R
23	R	R	F	F	→	R
31	R	R	R	R	G	R
32	R	R	R	R	G	R
41	R	R	R	R	R	G
42	R	R	R	R	R	G
51	←	←	←	←	←	←
61, 62	R	G	R	G	R	R
P21, P22	DW	DW	W	W	DW	DRK
P41, P42	DW	DW	DW	DW	DW	W
P61, P62	DW	W	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



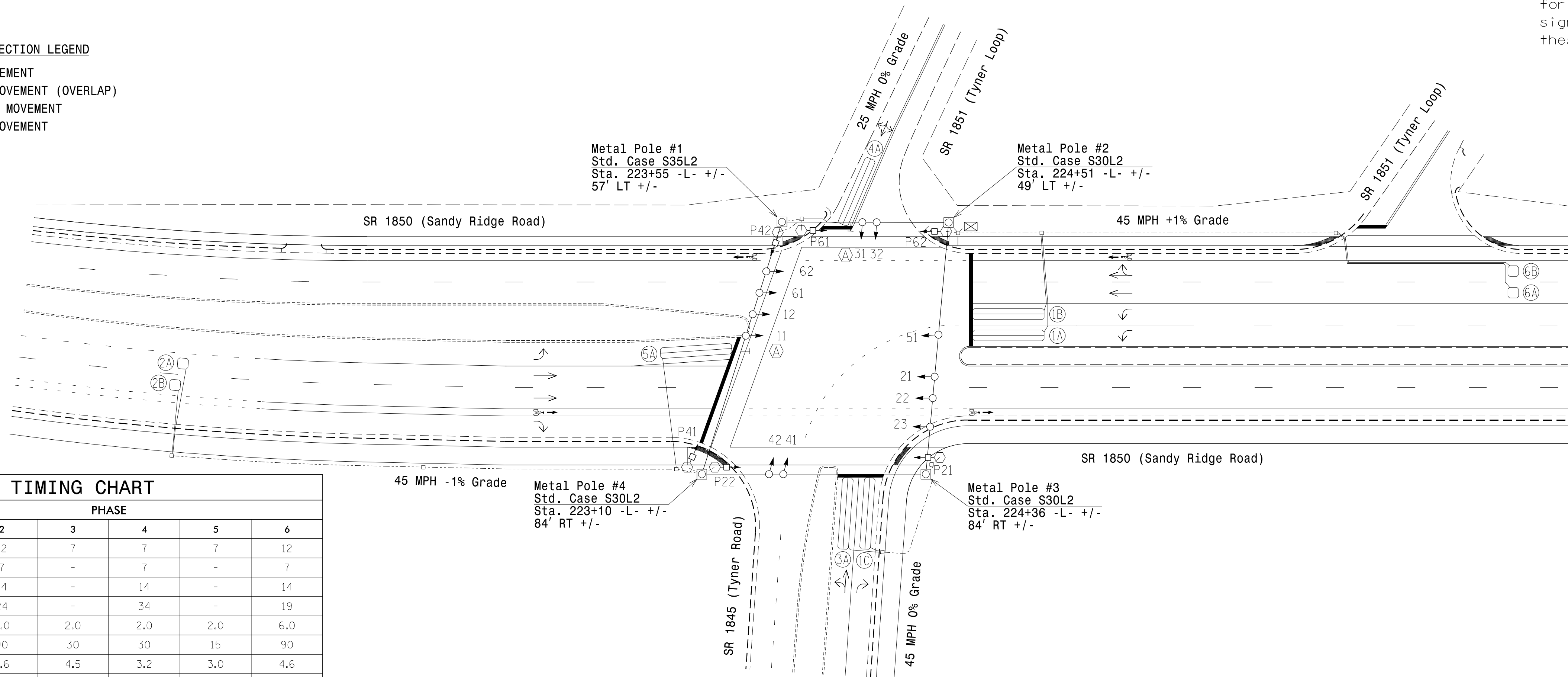
ASC/3 DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING				
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL
1A	6X40	0	2-4-2	X	1	Yes	-	-	-
1B	6X40	0	2-4-2	X	1	Yes	-	-	-
1C	6X40	0	2-4-2	X	1	Yes	-	15.0	-
2A	6X6	300	4	X	2	Yes	-	-	X
2B	6X6	300	4	X	2	Yes	-	-	X
3A	6X40	0	2-4-2	X	3	Yes	-	-	-
4A	6X40	0	2-4-2	X	4	Yes	-	5.0	-
5A	6X40	0	2-4-2	X	5	Yes	-	-	-
6A	6X6	300	4	X	6	Yes	-	-	X
6B	6X6	300	4	X	6	Yes	-	-	X

6 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- 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.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Metal poles, Type I pushbutton posts and Type II pedestals shall be BLACK in color.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



ASC/3 TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green *	7	12	7	7	7	12
Delayed Green	-	7	-	7	-	7
Walk *	-	14	-	14	-	14
Ped Clear	-	24	-	34	-	19
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0
Max 1 *	15	90	30	30	15	90
Yellow	3.0	4.6	4.5	3.2	3.0	4.6
Red Clear	3.7	1.6	2.0	3.3	3.1	1.6
Actuations B4 Add *	-	-	-	-	-	-
Seconds / Actuation *	-	1.5	-	-	-	1.5
Max Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Locking Detector	-	X	-	-	-	X
Recall Position **	-	SOFT RECALL	-	-	-	SOFT RECALL
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X

* 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.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

LEGEND

PROPOSED	EXISTING

New Installation

Prepared for the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529 SCALE 0 40 1"=40'		SR 1850 (Sandy Ridge Road) at SR 1845 (Tyner Road)/ SR 1851 (Tyner Loop) Division 7 Guilford County High Point PLAN DATE: January 2025 PREPARED BY: JT Stiff REVIEWED BY: AM Encarnacion REVISIONS INIT. DATE		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JAMES T. STIFF 056276 3/14/2025 SIC. INVENTORY NO. 07-1117	
---	--	--	--	---	--

AtkinsRéalis
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ECONOLITE ASC/3-2070
OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 2. VEHICLE OVERLAPS

Toggle to 'Overlap G'
OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

TMG VEH OVLP...[G] TYPE:NORMAL

PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

INCLUDED . . X

LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle to 'Overlap D'
OVERLAP D

Select TMG VEH OVLP [D] and 'PPLT FYA'

TMG VEH OVLP...[D] TYPE:PPLT FYA

PROTECTED LEFT TURN.... OVERLAP G

OPPOSING THROUGH..... PHASE 2

FLASHING ARROW OUTPUT.....CH12 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 0

END PROGRAMMING

ASC/3 FLASH SENSE INPUT CONTROL
FOR RED-RED FLASH

*The NCDOT default database is programmed to address Yellow-Red flash.
Logic Statement 100 must be modified as shown when running Red-Red flash.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. From LOGIC PROCESSOR Submenu select 2. LOGIC STATEMENTS

Change the "LP" to 100 and move the cursor down. Delete the two "CTR-SET" statements by moving the cursor over them and hitting the "C" key. then hit "ENTER". select "LP SET CIB ON", hit "ENT", and then set the number to 427.

LP#:100 COPY FROM:100 ACTIVE: M FALSE

IF LP CIB CODE ON 331 F

THEN LP DELAY FOR 1.0 SECONDS

LP SET CIB ON 427

ELSE

THIS STATEMENT IS USED TO CONTROL THE FLASH SENSE INPUT WHEN RUNNING RED-RED FLASH OPERATION.

Hit "ESC", then 1 for "LOGIC STATEMENT CONTROL", next verify that LP#100 is ENABLED.

END PROGRAMMING

ECONOLITE ASC/3-2070
LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switch S10 as OLG, program LD SWITCH 7 as OVLP '7' TYPE '0' as shown below.

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 3. LOAD SW ASSIGN

LD SWITCH ASSIGN

	PHASE		DIMMING	---	FLASH---		
	/OVLP	TYPE	R	Y	G	D	PWR AUT TGR
1	1	V	.	.	.	+	A R X
2	2	V	.	.	.	+	A R .
3	3	V	.	.	.	+	A R X
4	4	V	.	.	.	+	A R .
5	5	V	.	.	.	-	A R .
6	6	V	.	.	.	-	A R X
7	7	O	.	.	.	-	A R .
8	8	V	.	.	.	-	A R X
9	2	P	.	.	.	+	A . .
10	4	P	.	.	.	+	A . .
11	6	P	.	.	.	-	A . .
12	8	P	.	.	.	-	A . .
13	1	O	.	.	.	+	A R X
14	2	O	.	.	.	-	A R X
15	3	O	.	.	.	+	A R .
16	4	O	.	.	.	-	A R .

NOTICE OVERLAP G
ASSIGNED TO
LD SWITCH 7



ECONOLITE ASC/3-2070 STARTUP AND
SOFTWARE FLASH PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 5. START/FLASH

START/FLASH DATA

-----START UP-----

1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6

PHASE G G

A B C D E F G H I J K L M N O P

OVERLAP X X X X X X X X X X X X X X

FLASH>MON. NO FL TIME.. 0 ALL RED... 6

PWR START SEQ.. 1 MUTCD> YES Y- G: NO

Scroll down on this screen and set "Exit Fl" to Green "G"

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.

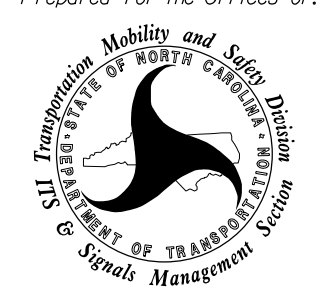
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1117
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2



1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
SR 1845 (Tyner Road)/
SR 1851 (Tyner Loop)
Division 7 Guilford County High Point

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion
PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

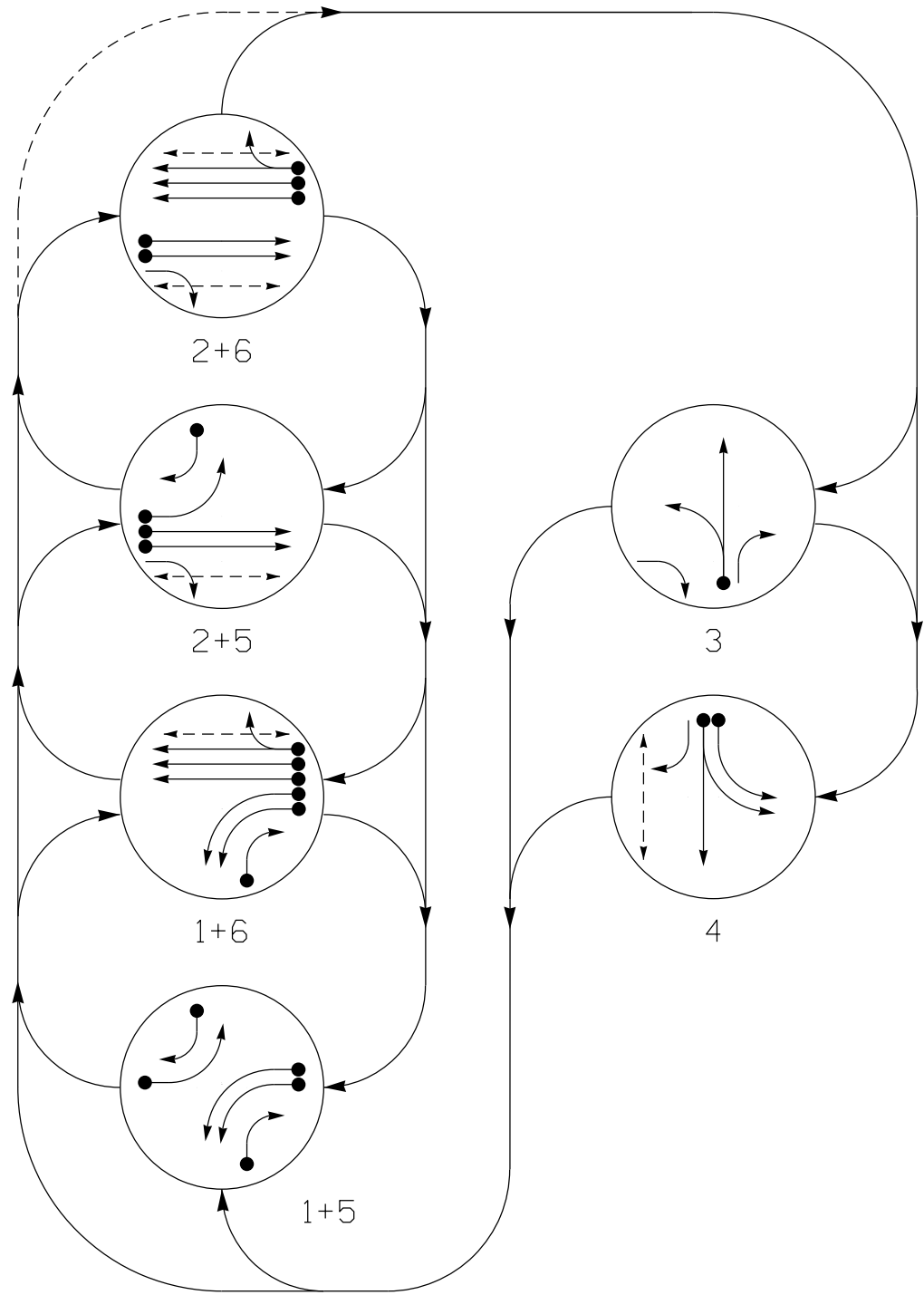
REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
044476
ENGINEER
ANTHONY M. ENCARNACION

Designed by:
Anthony Encarnacion
3/14/2025
SIGNATURE DATE
SIG. INVENTORY NO. 07-1117

PHASING DIAGRAM



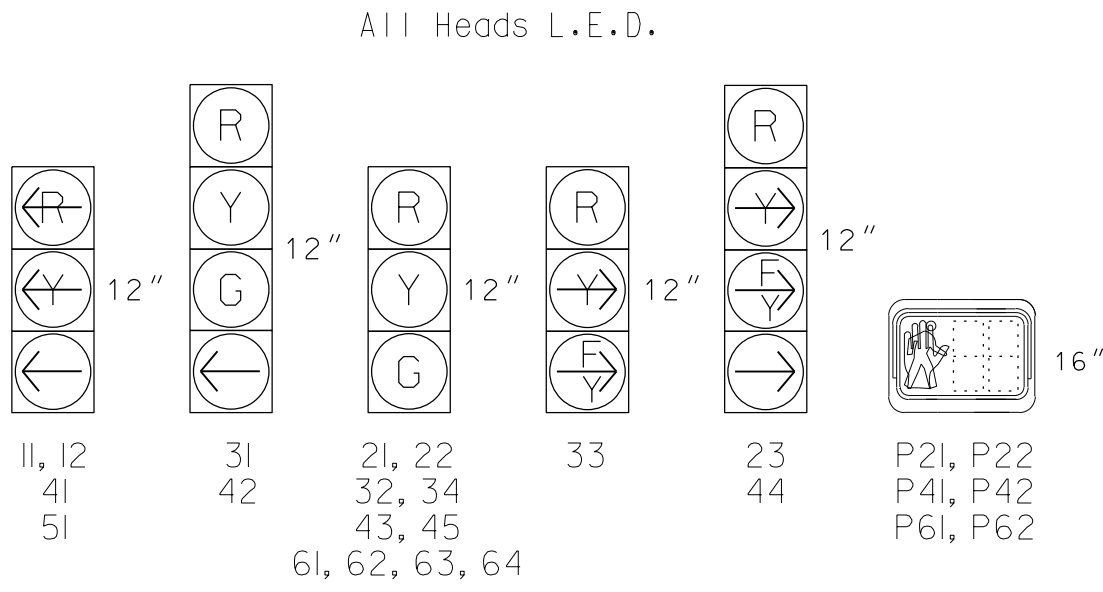
PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE					
	1 + 5	1 + 6	2 + 5	2 + 6	3	4
1L, 12	←	←	←	←	←	←
2L, 22	R	R	G	G	R	R
23	R	R	F	F	→	→
3L	R	R	R	R	G	R
32, 34	R	R	R	R	G	R
33	F	F	R	R	F	R
4L	←	←	←	←	←	←
42	R	R	R	R	R	G
43, 45	R	R	R	R	R	G
44	→	R	→	R	R	F
5L	←	←	←	←	←	←
6L, 62, 63, 64	R	G	R	G	R	R
P2L, P22	DW	DW	W	W	DW	DRK
P4L, P42	DW	DW	DW	DW	DW	DRK
P6L, P62	DW	W	DW	W	DW	DRK

SIGNAL FACE I.D.



ASC/3 DETECTOR INSTALLATION CHART												
DETECTOR					PROGRAMMING							
LOOP/ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	X	1	Yes	-	-	-	N	-	X
1B	6X40	0	2-4-2	X	1	Yes	-	-	-	N	-	X
1C*	6X40	0	*	*	1	Yes	-	-	-	N	-	*
2A	6X6	300	4	X	2	Yes	-	-	X	N	-	X
2B	6X6	300	4	X	2	Yes	-	-	X	N	-	X
3A*	6X40	0	*	*	3	Yes	-	-	-	N	-	*
4A	6X40	0	2-4-2	X	4	Yes	-	3.0	-	N	-	X
4B	6X40	0	2-4-2	X	4	Yes	-	-	-	N	-	X
5A	6X40	0	2-4-2	X	5	Yes	-	-	-	N	-	X
5B	6X40	0	2-4-2	X	5	Yes	-	15.0	-	N	-	X
6A	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6B	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6C	6X6	300	4	X	6	Yes	-	-	X	N	-	X

* Non-Intrusive Detection Zone

6 Phase Fully Actuated (High Point Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- 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.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- This intersection uses video detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
- Metal poles. Type I pushbutton posts and Type II pedestals shall be BLACK in color.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

- | PROPOSED | EXISTING |
|--|----------|
| Traffic Signal Head | N/A |
| Modified Signal Head | N/A |
| Sign | 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 |
| Non-Intrusive Detection Zone | N/A |
| Controller & Cabinet | N/A |
| Junction Box | N/A |
| 2-in Underground Conduit | N/A |
| Directional Drill | N/A |
| Right of Way | N/A |
| Directional Arrow | N/A |
| Metal Strain Pole | N/A |
| Type I Pushbutton Post | N/A |
| Type II Signal Pedestal | N/A |
| Curb Ramp | N/A |
| "U-TURN YIELD TO RIGHT TURN" Sign (R10-16) | N/A |
| "NO TURN ON RED" Sign (R10-11a) | N/A |
| "STOP HERE ON RED" Sign (R10-6) | N/A |
| "RIGHT TURN YIELD TO U-TURN" Sign | N/A |

ASC/3 TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green *	7	12	7	7	7	12
Delayed Green	-	7	-	7	-	7
Walk *	-	14	-	14	-	14
Ped Clear	-	20	-	35	-	32
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0
Max I *	15	90	30	30	15	90
Yellow	3.0	4.6	3.2	4.6	3.0	4.6
Red Clear	4.4	2.1	3.8	2.4	3.6	2.1
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	1.5	-	-	-	1.5
Max Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Locking Detector	-	X	-	-	-	X
Recall Position **	-	SOFT RECALL	-	-	-	SOFT RECALL
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X

* 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.
** May be changed to Min Recall by Time of Day at discretion of City Traffic Engineer.

New Installation

Prepared for the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529 SCALE 0 40 1"=40'	SR 1850 (Sandy Ridge Road) at SR 1849 (Norcross Road)/ Piedmont Triad Farmers Market Division 7 Guilford County High Point PLAN DATE: January 2025 PREPARED BY: JT Stiff REVIEWED BY: AM Encarnacion REVISIONS INIT. DATE	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JAMES T. STIFF 056276 3/14/2025 DATE SIC. INVENTORY NO. 07-1118
---	---	--

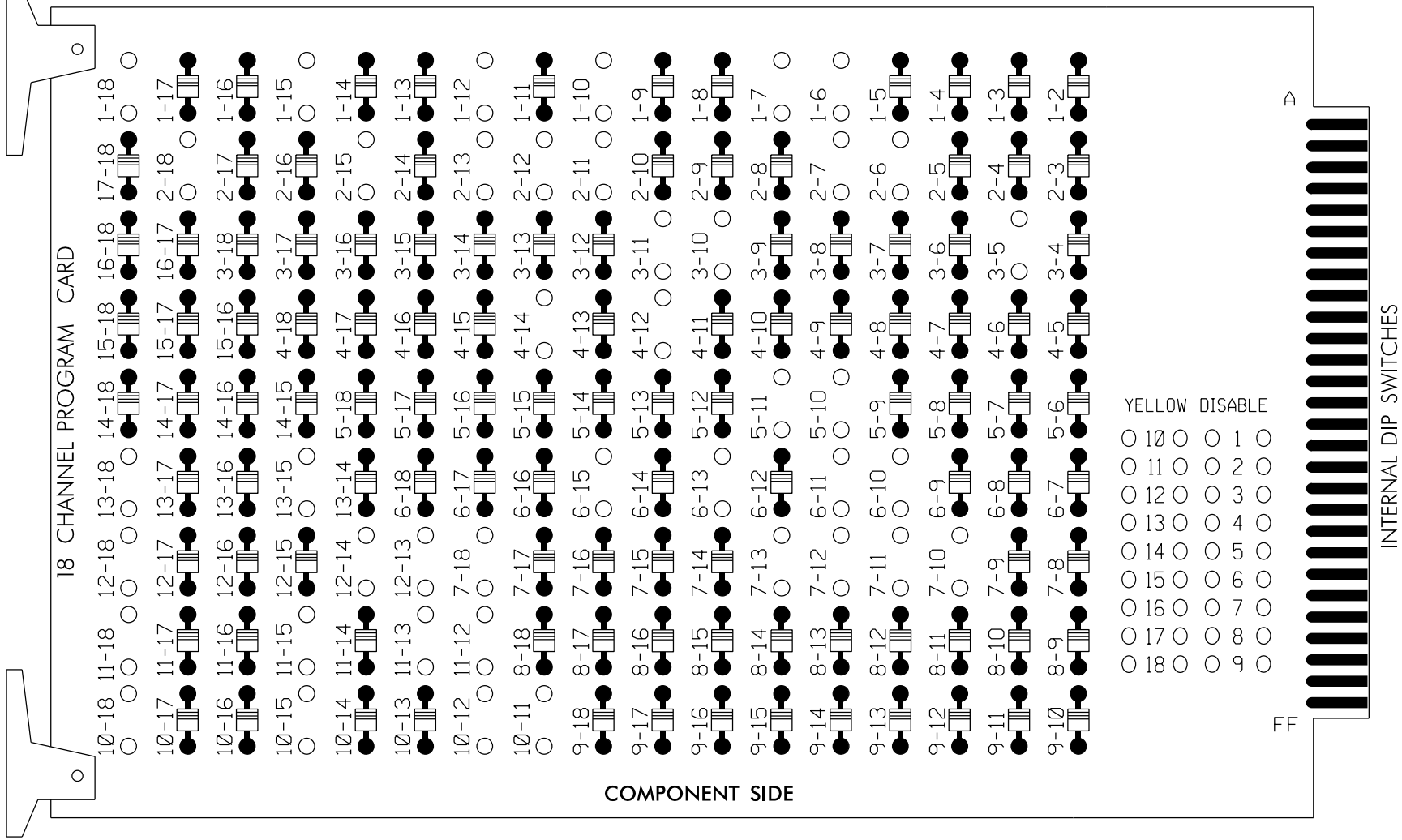
AtkinsRéal
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

18 CHANNEL IP CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 1-7, 1-10, 1-12, 1-15, 1-18, 2-6, 2-7, 2-11, 2-12, 2-13, 2-15, 2-18, 3-5, 3-10, 3-11, 4-12, 4-14, 5-10, 5-11, 6-10, 6-11, 6-13, 6-15, 7-10, 7-11, 7-12, 7-13, 7-18, 10-11, 10-12, 10-15, 10-18, 11-12, 11-13, 11-15, 11-18, 12-13, 12-14, 12-18, 13-15 and 13-18.



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Integrate monitor with Ethernet network in cabinet.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the High Point Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,
S10,AUX S2,AUX S4,AUX S5,AUX S6

PHASES USED.....1,2,2 PED,3,4,4 PED,5,6,6 PED
OVERLAP "A".....NOT USED
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*
OVERLAP "F".....*
OVERLAP "G".....*
OVERLAP "H".....*

* See overlap programming detail on sheet 2

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" U	∅ 1	∅ 1	∅ 2	∅ 1	∅ 1	∅ 4	∅ 1	∅ 1	∅ 1	∅ 1	∅ 1	∅ 2 PED	∅ 6 PED	FS
L	1A	1B	2A	1A	1A	4A	1A	1A	1A	1A	1A	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
FILE "J" U	NOT USED	NOT USED	∅ 2	∅ 2	∅ 2	∅ 4	∅ 2	∅ 2	∅ 2	∅ 2	∅ 2	∅ 4 PED	NOT USED	ST
L	5A	5B	6A	5A	5A	4B	5A	5A	5A	5A	5A	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR

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

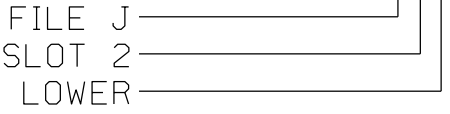
FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES				N
1B	TB2-5,6	I2U	39	2	1	YES				N
2A	TB2-9,10	I3U	63	32	2	YES			X	N
2B	TB2-11,12	I3L	76	42	2	YES			X	N
4A	TB4-9,10	I6U	41	4	4	YES		3.0		N
4B	TB4-11,12	I6L	45	14	4	YES				N
5A	TB3-1,2	J1U	55	5	5	YES				N
5B	TB3-5,6	J2U	40	6	5	YES		15.0		N
6C	TB3-7,8	J2L	44	16	6	YES			X	N
6A	TB3-9,10	J3U	64	36	6	YES			X	N
6B	TB3-11,12	J3L	77	46	6	YES			X	N
PED PUSH BUTTONS										
P21,P22, PB23	TB8-4,6	I12U	67	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

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

INPUT FILE POSITION LEGEND: J2L



SPECIAL DETECTOR NOTE

Install a non-intrusive detection system for vehicle detection zones 1C and 3A. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

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	DLG	6	6 PED	OLH	8	8 PED	OLA	OLB	SPARE	OLC	OLD	OLF
SIGNAL HEAD NO.	11,12	21,22	P21, P22	31	32,34	41	42	43,45	P41, P42	23	61,62, 63,64	P61, P62	44	33	NU	23	44	51
RED		128		116	116											A124	A114	A101
YELLOW		129		117	117					*	135		*					
GREEN		130		118	118						136							
RED ARROW	125				101													
YELLOW ARROW	126				102										A125	A115	A102	A105
FLASHING YELLOW ARROW															A126	A116	A103	
GREEN ARROW	127			118	103	103				133								A106
Hand icon			113						104		119							
Walking person icon			115						106		121							

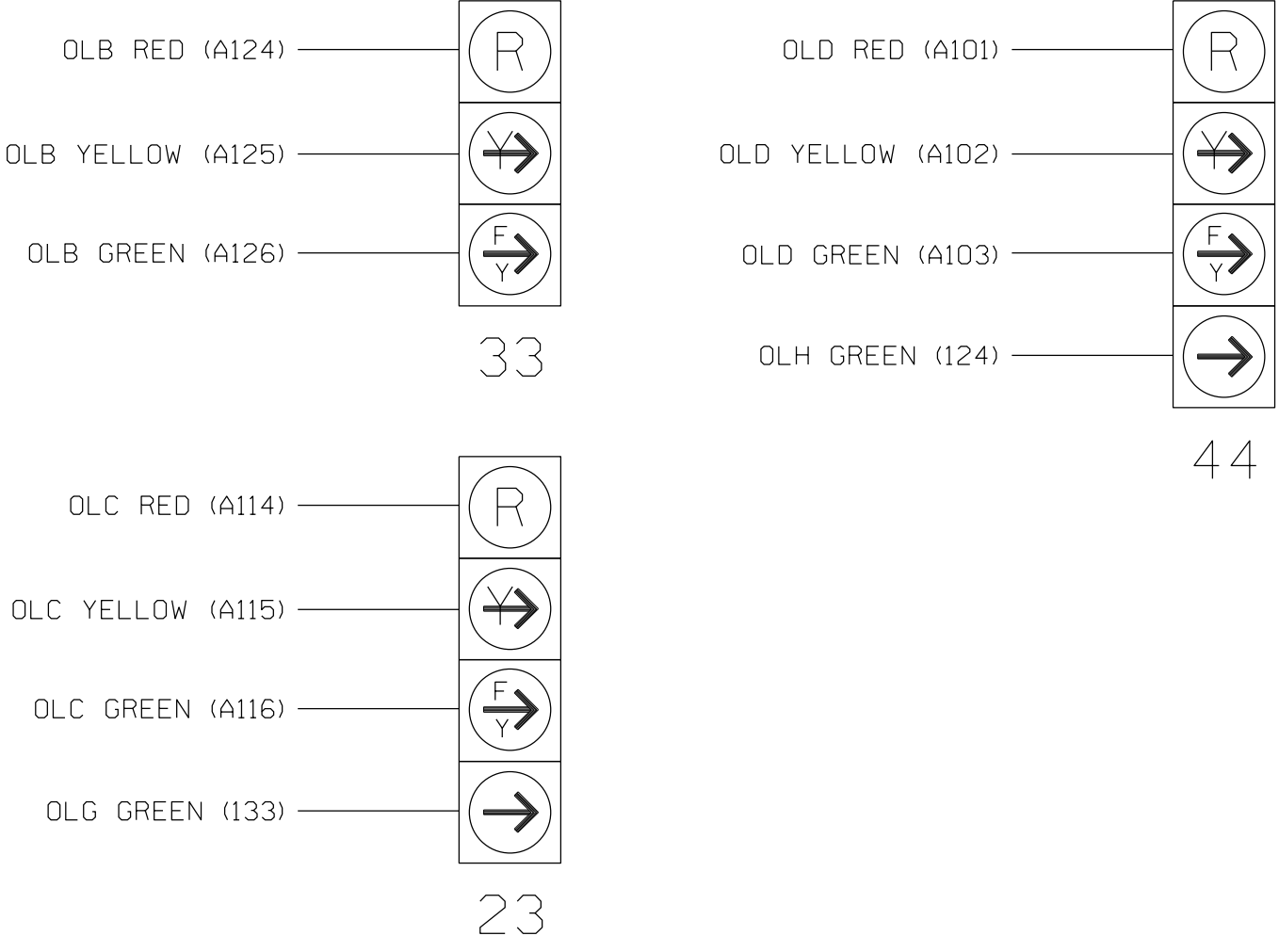
NU = Not Used

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

★ See pictorial of head wiring in detail below.

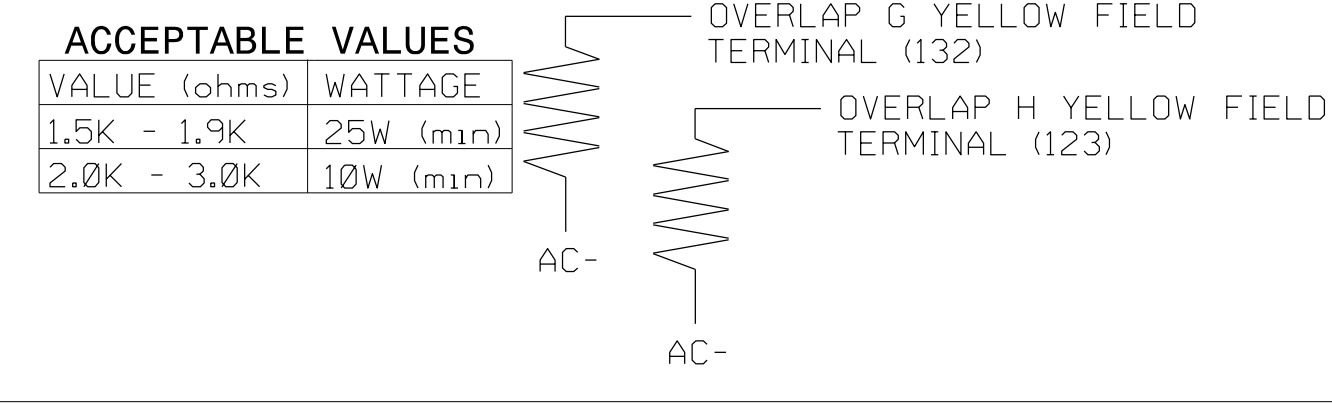
FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)



Electrical Detail - Sheet 1 of 3

Electrical AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

SR 1850 (Sandy Ridge Road) at
SR 1849 (Norcross Road)/
Piedmont Triad Farmers Market
Division 7 Guilford County High Point

PLAN DATE: January 2025
PREPARED BY: JT Stiff

REVIEWED BY: AM Encarnacion
REVIEWED BY: PL Alexander

REVISIONS

INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

Designed by: Anthony Encarnacion
Signature: _____ Date: 3/14/2025

SIG. INVENTORY NO. 07-1118

(program controller as shown)

- Toggle to 'Overlap F'
- OVERLAP F

```

TMG VEH OVLP...[F] TYPE: .....NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . . . X . . . . . . . . . .
LAG GRN 0.0 YEL 0.0 RED 0.0

```

Toggle Once

OVERLAP G

```

TMG VEH DVLP...[G] TYPE: .....NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . X . . . . . . . . . .
LAG GRN 0.0 YEL 0.0 RED 0.0

```

Toggle Once

OVERLAP H

```

TMG VEH DVL P...[H] TYPE: .....NORMAL
  PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . . . X . . . . . . . . .
LAG GRN 0.0 YEL 0.0 RED 0.0

```

Toggle to 'Overlap B'

OVERLAP E

TMG	VEH	DVLP...	[B]	TYPE:	OTHER/ECONDLITE											
PHASES	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6
INCLUDED	X	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.
PROTECT	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
PED PRTC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
NOT DVLP	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
FLSH GRN	1	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
LAG X PH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LAG 2 PH	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
LAG GRN	0.0	YEL	0.0	RED	0.0	ADV	GRN	0.0								

Toggle Once

OVERLAP C

```

TMG VEH OVLP...[C] TYPE: ....[PPLT FYA]
PROTECTED LEFT TURN....    OVERLAP      G
OPPOSING THROUGH.....    PHASE        2

FLASHING ARROW OUTPUT.....CH11 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE.....0

```

Toggle Once

OVERLAP [

```

TMG VEH OVLP...[D] TYPE: ....[PPLT FYA]
PROTECTED LEFT TURN.... OVERLAP H
OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT.....CH12 ISOLATE

DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 0

```

END PROGRAMMING

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

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.

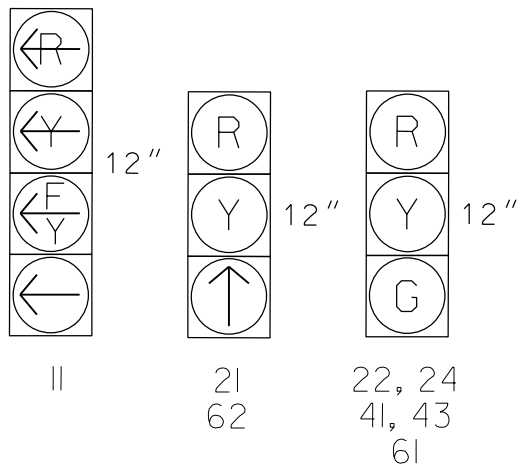
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1118
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Anthony Encarnacion 3/14/2025
 SIGNATURE DATE
 SIG. INVENTORY NO. 07-1118

Figure 1 shows three nodes in a directed graph, each representing a different configuration of a system. The nodes are labeled 2+6, 4, and 1+6. Each node contains a diagram of a system with particles (dots) and arrows indicating movement. The nodes are connected by directed edges forming a cycle: 2+6 to 4, 4 to 1+6, and 1+6 to 2+6.

TABLE OF OPERATION				
SIGNAL FACE	PHASE			
	1 + 6	2 + 6	4	F L A S H
II	←	→	←	←
2I	R	↑	R	R
22, 24	R	G	R	R
4I, 43	R	R	G	R
6I	G	G	R	R
62	↑	↑	R	R

All Heads L.E.D.

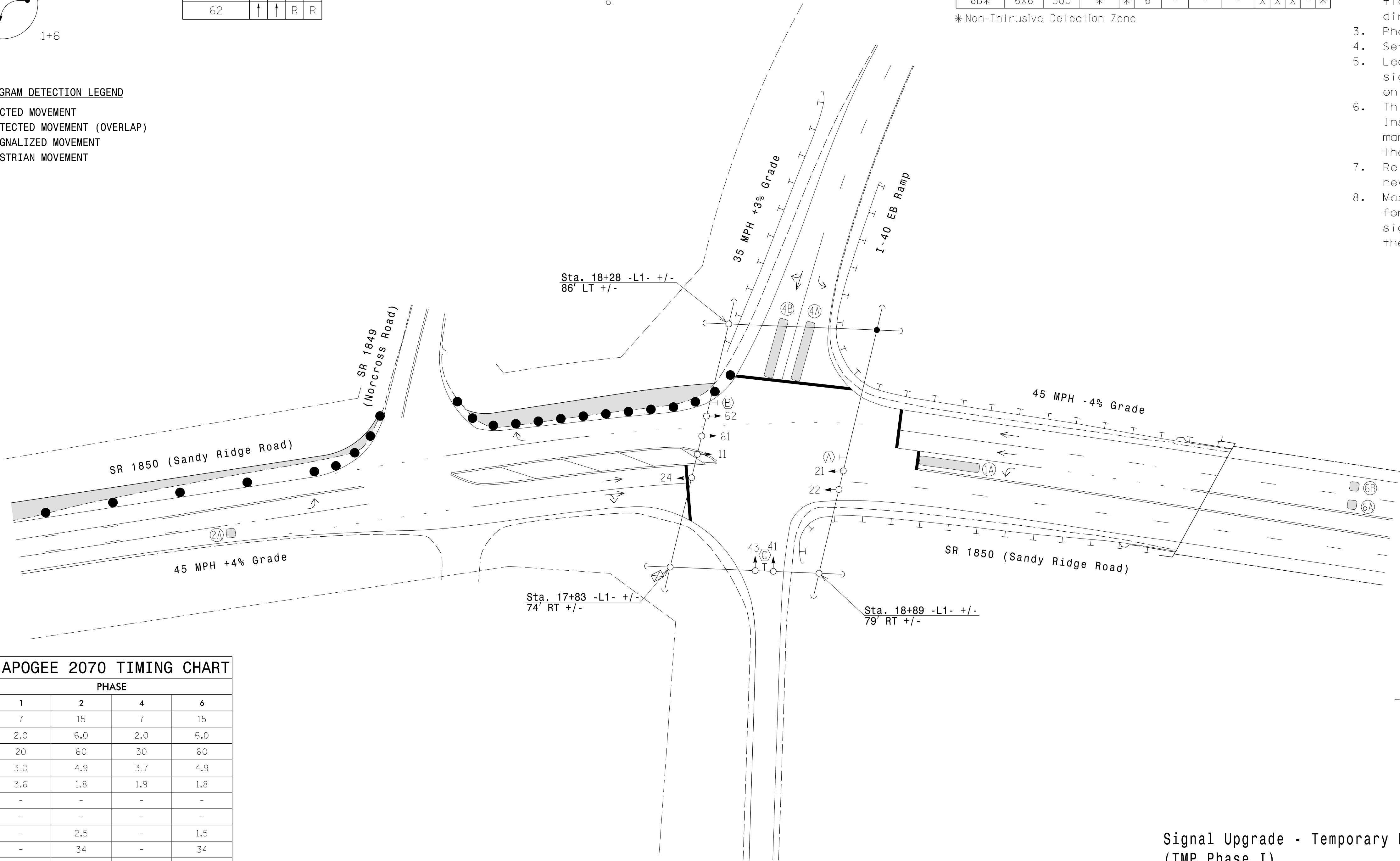
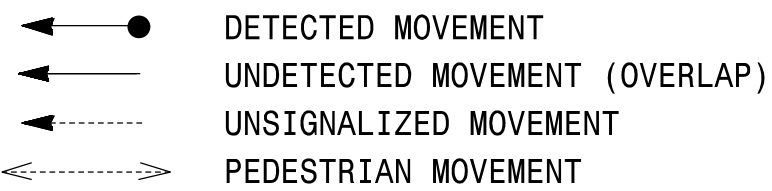


INDUCTIVE LOOPS/ZONES					DETECTOR PROGRAMMING								
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	SWITCH (PHASE)	DELAY TIME	STRETCH TIME	CALLING EXTENSION	ADDED INIT.	SYSTEM LOOP	NEW CARD	
1A*	6X40	0	*	*	1	-	15.0	-	X X	-	-	*	
					6	-	-	-	X X	-	-	*	
2A*	6X6	300	*	*	2	-	-	-	X X	X	-	*	
4A*	6X40	0	*	*	4	-	-	-	X X	-	-	*	
4B*	6X40	0	*	*	4	-	10.0	-	X X	-	-	*	
6A*	6X6	300	*	*	6	-	-	-	X X	X	-	*	
6B*	6X6	300	*	*	6	-	-	-	X X	X	-	*	

* Non-Intrusive Detection Zone

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. This intersection uses video detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
7. Relocate existing Street Name Sign onto new spanwire from existing spanwire.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

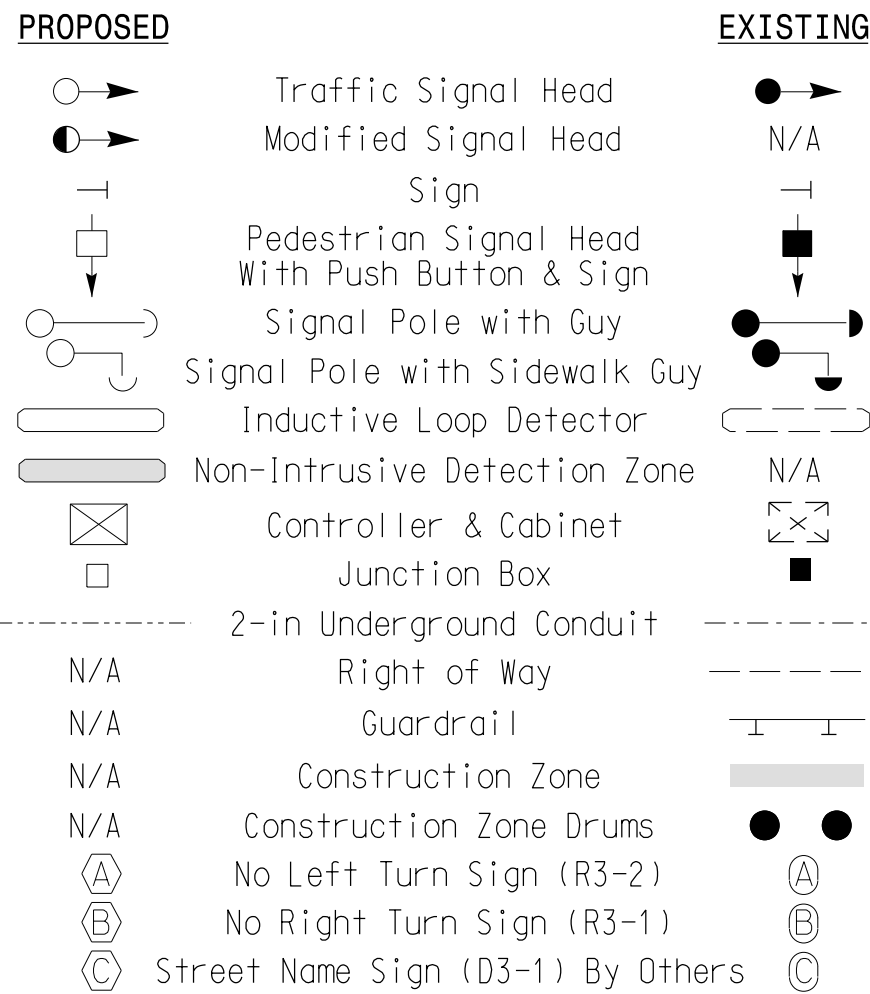
PHASING DIAGRAM DETECTION LEGEND



FEATURE	PHASE			
	1	2	4	6
Min Green *	7	15	7	15
Gap, Extension *	2,0	6,0	2,0	6,0
Maximum Green 1 *	20	60	30	60
Yellow Clear	3,0	4,9	3,7	4,9
Red Clear	3,6	1,8	1,9	1,8
Walk *	-	-	-	-
Pedestrian Clear	-	-	-	-
Added Initial *	-	2,5	-	1,5
Maximum 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
Lock Calls	NO	YES	NO	YES
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.

LEGEND



Signal Upgrade - Temporary Design 1
(TMP Phase I)

AtkinsRéalis
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBES #F-0326

Prepared For the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	SR 1850 (Sandy Ridge Road) at I-40 EB Ramps	SEAL 															
Division 7 Guilford County Greensboro																	
PLAN DATE: January 2025		REVIEWED BY: AM Encarnacion															
PREPARED BY: JT Stiff		REVIEWED BY: PL Alexander															
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">REVISIONS</th> <th style="width: 25%;">INIT.</th> <th style="width: 25%;">DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>			REVISIONS	INIT.	DATE												
REVISIONS	INIT.	DATE															
 SCALE 0 40 1" = 40'	Signed by <u>James Stiff</u> DS4800378722434 SIGNATURE 3/14/2025 DATE DATE SIG. INVENTORY NO. 07-164871																

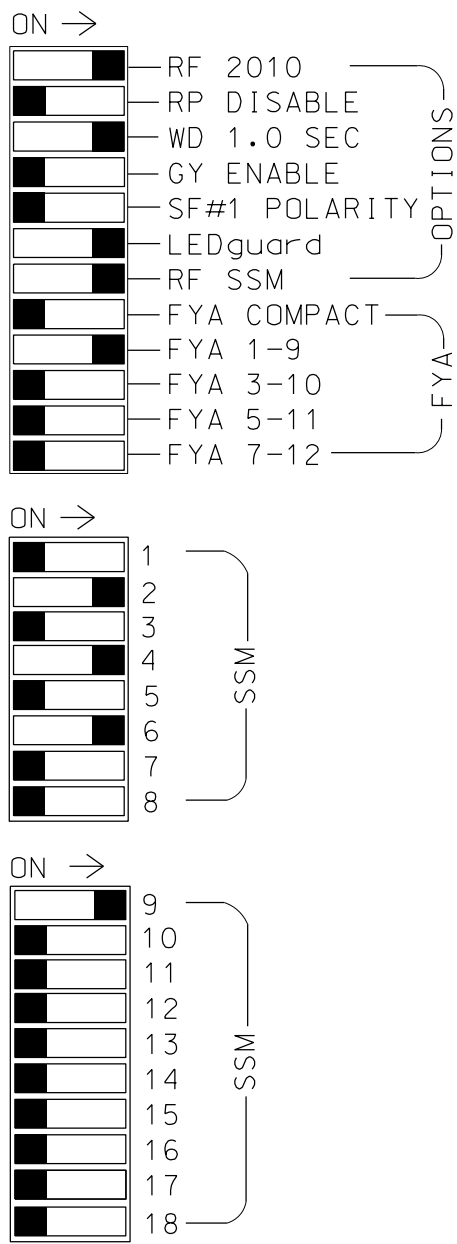
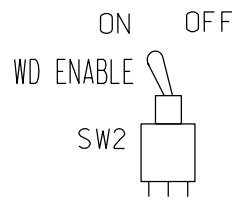
(remove jumpers and set switches as shown)

(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. Ensure Conflict Monitor Ethernet port is connected to a Switch port located within the cabinet.



■ = DENOTES POSITION
OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Initialize database in Trafficware 2070 local software (APOGEE) as FULL-CALTRANS. This initialization should be done prior to programming controller.
3. Initialize I/O "C1-C11-ABC IO Mode" to USER (MM 1-8-6). Then set "Init 2A" to MODE 5 (MM 1-8-9-3).
4. Program phases 2 and 6 for Start Up In Green.
5. Program "Start Up Flash" for 0 sec. The conflict monitor will govern start-up flash time.
6. Ensure "Local Flash Start" feature is set to "RST".
7. Program "Start Red Time" for 6.0 seconds.
8. Program controller to provide a 1 second delay on the Flash Sense/Local Flash input. Use the following logic statement to provide this functionality:

FROM MAIN MENU->1->8->7 (I/O LOGIC)	Result Src.Fcn 1208 = 01208 }} TimeOp Time DLY 1 }}
-------------------------------------	--
9. The cabinet and controller are part of the City of Greensboro Signal System.

EQUIPMENT INFORMATION

```

CONTROLLER.....2070E
CABINET.....332 W/ AUX
SOFTWARE.....TRAFFICWARE APOGEE
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S5,S8,AUX S1
PHASES USED.....1,2,4,6
OVERLAP "A".....*
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

```

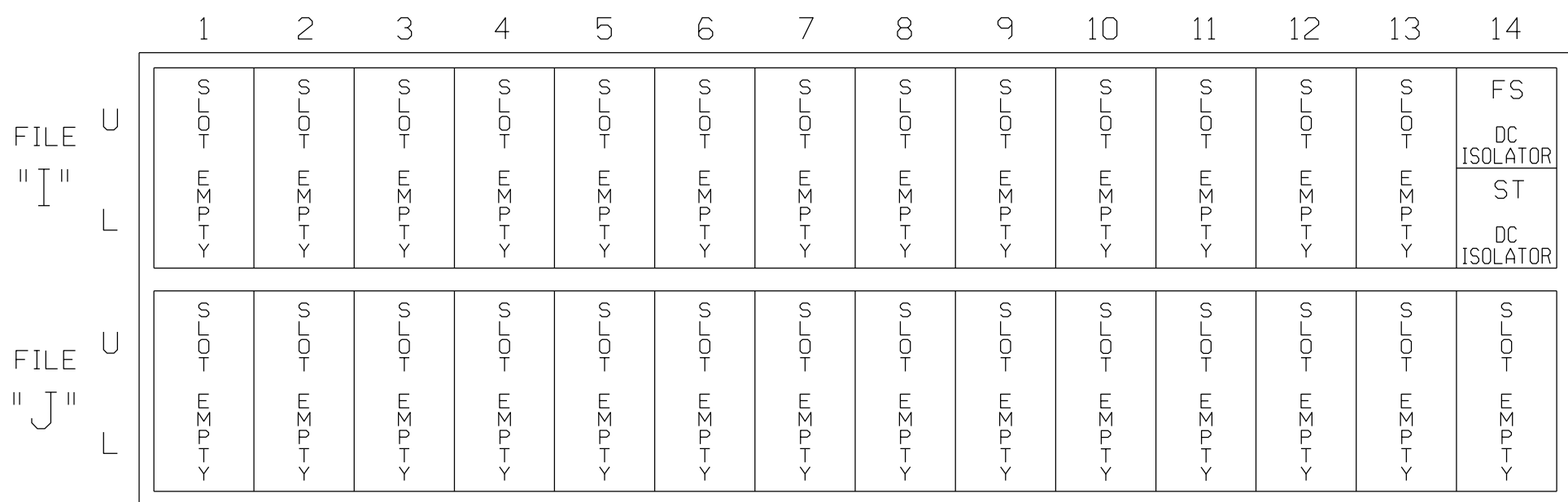
* See overlap programming detail on sheet 2

SPECIAL DETECTOR NOTE

- 1) Install a non-intrusive detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

INPUT FILE POSITION LAYOUT

(front view)

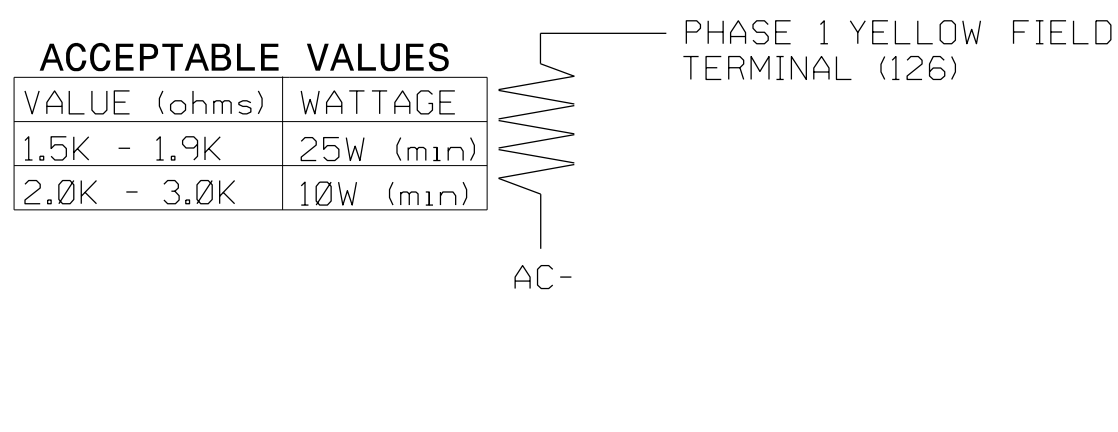


EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)



SIGNAL HEAD HOOK-UP CHART

[illegible]

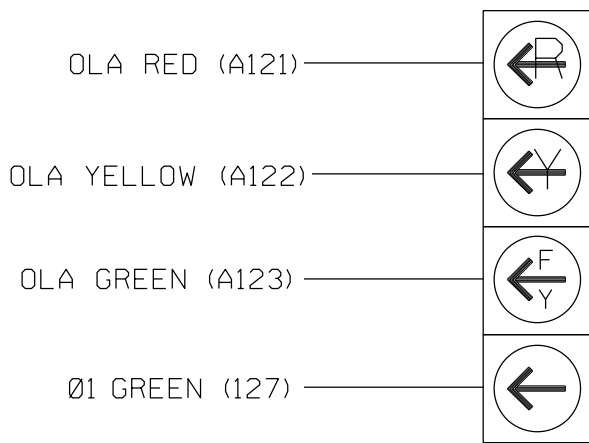
NU = Not Used

* 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 head as shown)



11

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1648T1
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 3
Temporary Design 1

**ELECTRICAL AND PROGRAMMING
DETAILS FOR:**

SR 1850 (Sandy Ridge Road)
at
I-40 EB Ramps

Division 7 Guilford County Greensboro

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



DocuSigned by:
Anthony Encarnacion 3/14/2025
DHECSTATEF230400

SIGNATURE	DATE
SIG. INVENTORY NO.	07-1648



OVERLAP PROGRAMMING DETAIL
FOR OVERLAP A*

(program controller as shown below)

*NOTE FOR ALL OVERLAPS: Use Default values for
Overlap 'PLUS' programming details.

FROM MAIN MENU PRESS "1" CONTROLLER
AND THEN "5" OVERLAPS

Overlaps

1.General Parm
2.Program
3.Status

General Overlap Parameters

Lock Inhibit OFF
Confl Lock Enable OFF
Parent P Clnocs ON
Extra Included Phases OFF

PRESS "ESC"

Overlaps

1.General Parm
2.Program
3.Status

Enter Overlap # 1

then press Enter

Overlap A-1

1.Program Parm
2.Confl Prog+
3.Program Parm+

Notice
type
FYA-4
➔

OvrIp A-1 Ps.....

Included Ps 1 0 0 0 0 0 0 0

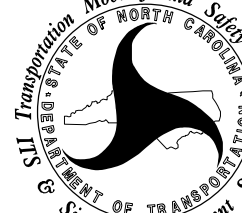
Modifier Ps 2 0 0 0 0 0 0 0

Type:FYA-4 Grn: 0 Yel: 3.5 Red: 1.5

END OF OVERLAP PROGRAMMING DETAIL

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1648T1
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

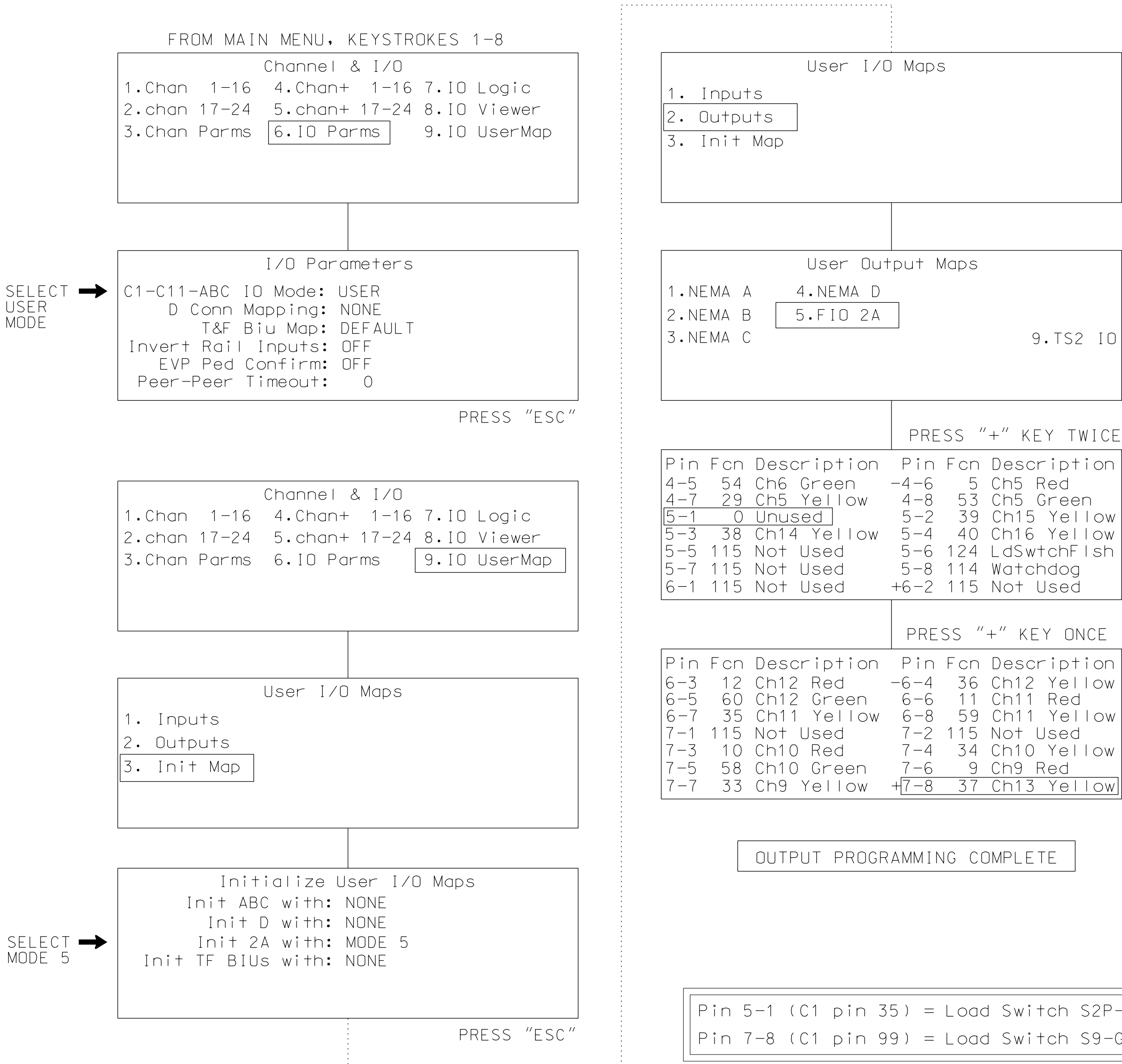
Electrical Detail - Sheet 2 of 3
Temporary Design 1

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of:  750 N.Greenfeld Pkwy,Garner,NC 27529	SR 1850 (Sandy Ridge Road) at I-40 EB Ramps Division 7 Guilford County Greensboro <table><tr><td>PLAN DATE: January 2025</td><td>REVIEWED BY: AM Encarnacion</td></tr><tr><td>PREPARED BY: JT Stiff</td><td>REVIEWED BY: PL Alexander</td></tr><tr><td>REVISIONS</td><td>INIT. DATE</td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table>	PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion	PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander	REVISIONS	INIT. DATE					DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 044476 ANTHONY M. ENCARNACION Designed by: Anthony Encarnacion 3/14/2025 <table><tr><td>SIGNATURE</td><td>DATE</td></tr><tr><td> </td><td> </td></tr></table> SIG. INVENTORY NO. 07-1648T1	SIGNATURE	DATE		
	PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion														
	PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander														
	REVISIONS	INIT. DATE														
SIGNATURE	DATE															
1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326																
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1648T1 DESIGNED: January 2025 SEALED: 03-14-2025 REVISED: N/A																
Electrical Detail - Sheet 2 of 3 Temporary Design 1																
13-MAR-2025 17:22 DW://SUD0036343\work\ris-com\ATKMANC01\Documents\Roads and Bridges\Projects\100059632_JSSR S1g and ITS\Task 05_11_Signals\071648T1_sml.e_2023mdd.dgn S1F4685 - AT L0591289																

4-SECTION PPLT FYA OUTPUT REMAPPING PROGRAMMING DETAIL

(program controller as shown below)

1. Before proceeding with output programming, be sure to switch the “RUN ENABLE STATUS” to “OFF”. The “RUN ENABLE STATUS” setting is located from Main Menu, key strokes 1-7.
2. The Flashing Yellow Arrow in a 4-section PPLT FYA head is controlled by a normally unused PED Yellow output. This programming takes a specific PED Yellow output and remaps it to the appropriate Overlap Green output.



- ! Press the “*” key to return to Main Menu. Now
- o go back to “RUN-ENABLE STATUS” and switch to “ON”.

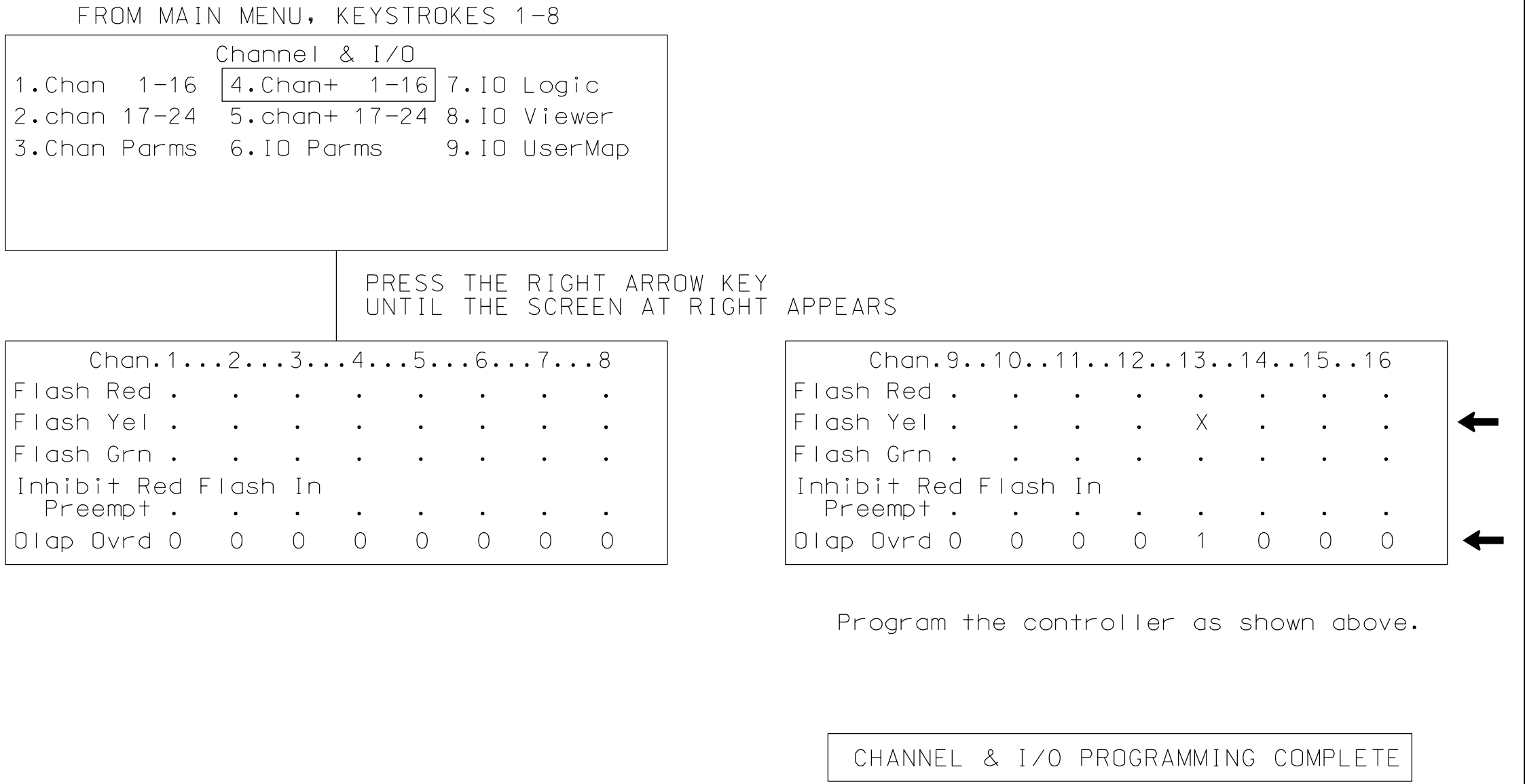
NOTE

I/O re-programming is necessary for proper FYA operation. See Channel & I/O Programming Detail for FYA Operation on this sheet.

CHANNEL & I/O PROGRAMMING DETAIL FOR FYA OPERATION

(program controller as shown below)

This programming takes the output that drives a Flashing Yellow Arrow and makes it flash. It also specifies which overlap is to be overridden for the FYA to display properly.

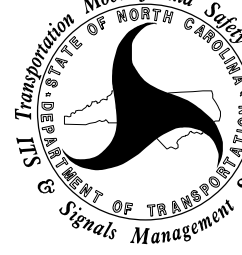
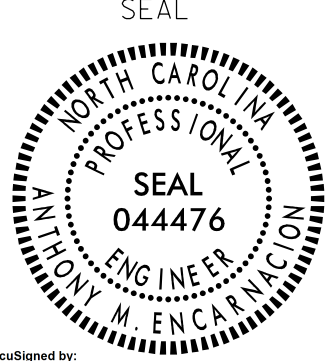


NOTE

Output remapping is necessary for proper FYA operation. See the 4-Section PPLT FYA Output Programming Detail on this.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1648T1
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

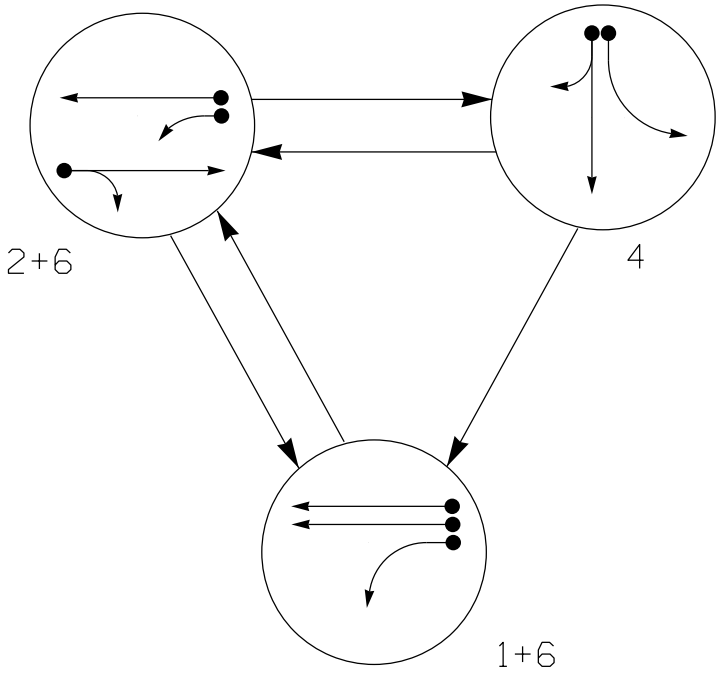
Electrical Detail - Sheet 3 of 3
Temporary Design 1

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of:  ALL Transportation Mobility and Safety Projects STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION & Signal Management Systems 750 N.Greenfeld Pkwy,Garner,NC 27529	SR 1850 (Sandy Ridge Road) at I-40 EB Ramps		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL  SEAL 044476 ENGINEER Designed by: Anthony Encarnacion 3/14/2025 SIGNATURE DATE SIG. INVENTORY NO. 07-1648T1	
	Division 7	Guilford County		Greensboro
	PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion		
	PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander		
	REVISIONS	INIT.		DATE

 **AtkinsRéal**
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

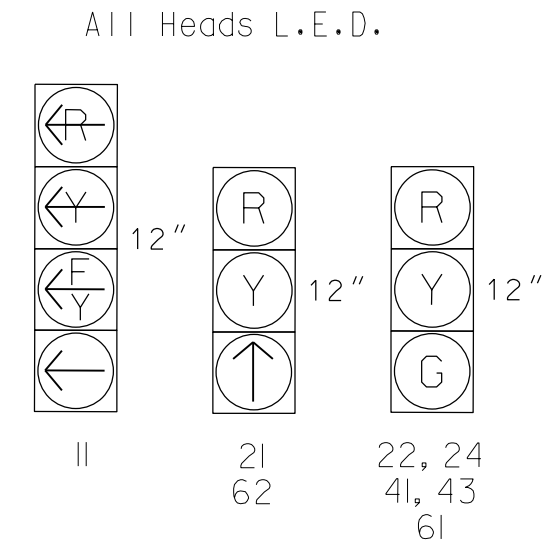
PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 24.0

PHASING DIAGRAM



SIGNAL FACE	PHASE			
	1 + 6	2 + 6	4	11
11	←	→	←	→
21	R	↑	R	R
22, 24	R	G	R	R
41, 43	R	R	G	R
61	G	G	R	R
62	↑	↑	R	R

SIGNAL FACE I.D.



LOOP & DETECTOR UNIT INSTALLATION CHART TRAFFICWARE APOGEE SOFTWARE 2070 CONTROLLER												
INDUCTIVE LOOPS/ZONES					DETECTOR PROGRAMMING							
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	URNS	NEW LOOP	PHASE	SWITCH (PHASE)	DELAY TIME	STRETCH TIME	CALLING	EXTENSION	ADDED INIT.	SYSTEM LOOP
1A*	6X40	0	*	*	1	-	15.0	-	X	X	-	*
2A*	6X6	300	*	*	2	-	-	-	X	X	-	*
4A*	6X40	0	*	*	4	-	-	-	X	X	-	*
4B*	6X40	0	*	*	4	-	10.0	-	X	X	-	*
6A*	6X6	300	*	*	6	-	-	-	X	X	-	*

*Non-Intrusive Detection Zone

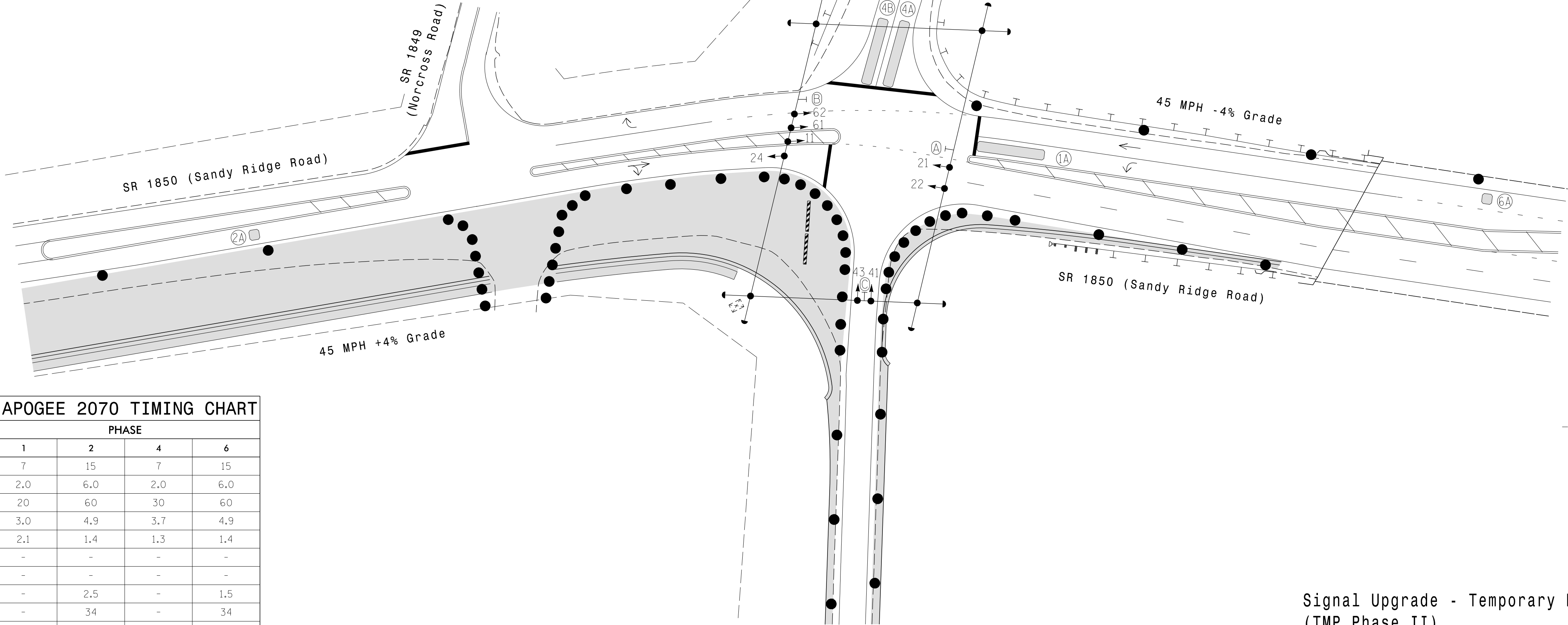
3 Phase
Fully Actuated
(Greensboro Signal System)

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 may be lagged.
- Reposition existing signal heads numbered 11, 21, 22, 24, 61 and 62.
- Set all detector units to presence mode.
- This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED	EXISTING
Traffic Signal Head	N/A
Modified Signal Head	N/A
Sign	Sign
Pedestrian Signal Head With Push Button & Sign	Sign
Signal Pole with Guy	Signal Pole with Guy
Signal Pole with Sidewalk Guy	Signal Pole with Sidewalk Guy
Inductive Loop Detector	Inductive Loop Detector
Non-Intrusive Detection Zone	N/A
Controller & Cabinet	Controller & Cabinet
Junction Box	Junction Box
2-in Underground Conduit	2-in Underground Conduit
Right of Way	Right of Way
Guardrail	Guardrail
Construction Zone	Construction Zone
Construction Zone Drums	Construction Zone Drums
Type III Barrier	Type III Barrier
No Left Turn Sign (R3-2)	No Left Turn Sign (R3-2)
No Right Turn Sign (R3-1)	No Right Turn Sign (R3-1)
Street Name Sign (D3-1)	Street Name Sign (D3-1)

TRAFFICWARE APOGEE 2070 TIMING CHART					
FEATURE	PHASE				
	1	2	4	6	
Min Green *	7	15	7	15	
Gap, Extension *	2.0	6.0	2.0	6.0	
Maximum Green 1 *	20	60	30	60	
Yellow Clear	3.0	4.9	3.7	4.9	
Red Clear	2.1	1.4	1.3	1.4	
Walk *	-	-	-	-	
Pedestrian Clear	-	-	-	-	
Added Initial *	-	2.5	-	1.5	
Maximum 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	
Lock Calls	NO	YES	NO	YES	
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.

Signal Upgrade - Temporary Design 2
(TMP Phase II)

AtkinsRéal
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	SR 1850 (Sandy Ridge Road) at I-40 EB Ramps Division 7 Guilford County Greensboro PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion PREPARED BY: JT Stiff REVIEWED BY: PL Alexander	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JAMES T. STIFF 056276 3/14/2025 SIC. INVENTORY NO. 07-164872
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PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 24.2

OVERLAP PROGRAMMING DETAIL
FOR OVERLAP A*

(program controller as shown below)

*NOTE FOR ALL OVERLAPS: Use Default values for
Overlap 'PLUS' programming details.

FROM MAIN MENU PRESS "1" CONTROLLER
AND THEN "5" OVERLAPS

Overlaps

1.General Parm

2.Program

3.Status

General Overlap Parameters

Lock Inhibit OFF

Confl Lock Enable OFF

Parent P Clnocs ON

Extra Included Phases OFF

PRESS "ESC"

Overlaps

1.General Parm

2.Program

3.Status

Enter Overlap # 1

then press Enter

Overlap A-1

1.Program Parm

2.Confl Prog+

3.Program Parm+

Notice
type
FYA-4



OvrIp A-1 Ps.....

Included Ps 1 0 0 0 0 0 0 0

Modifier Ps 2 0 0 0 0 0 0 0

Type:FYA-4 Grn: 0 Yel: 3.5 Red: 1.5

END OF OVERLAP PROGRAMMING DETAIL

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1648T2
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 3
Temporary Design 2

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfeld Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
I-40 EB Ramps

Division 7 Guilford County Greensboro

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL

Over Designed by:
Anthony Encarnacion
3/14/2025

SIGNATURE

DATE

SIG. INVENTORY NO. 07-1648T2

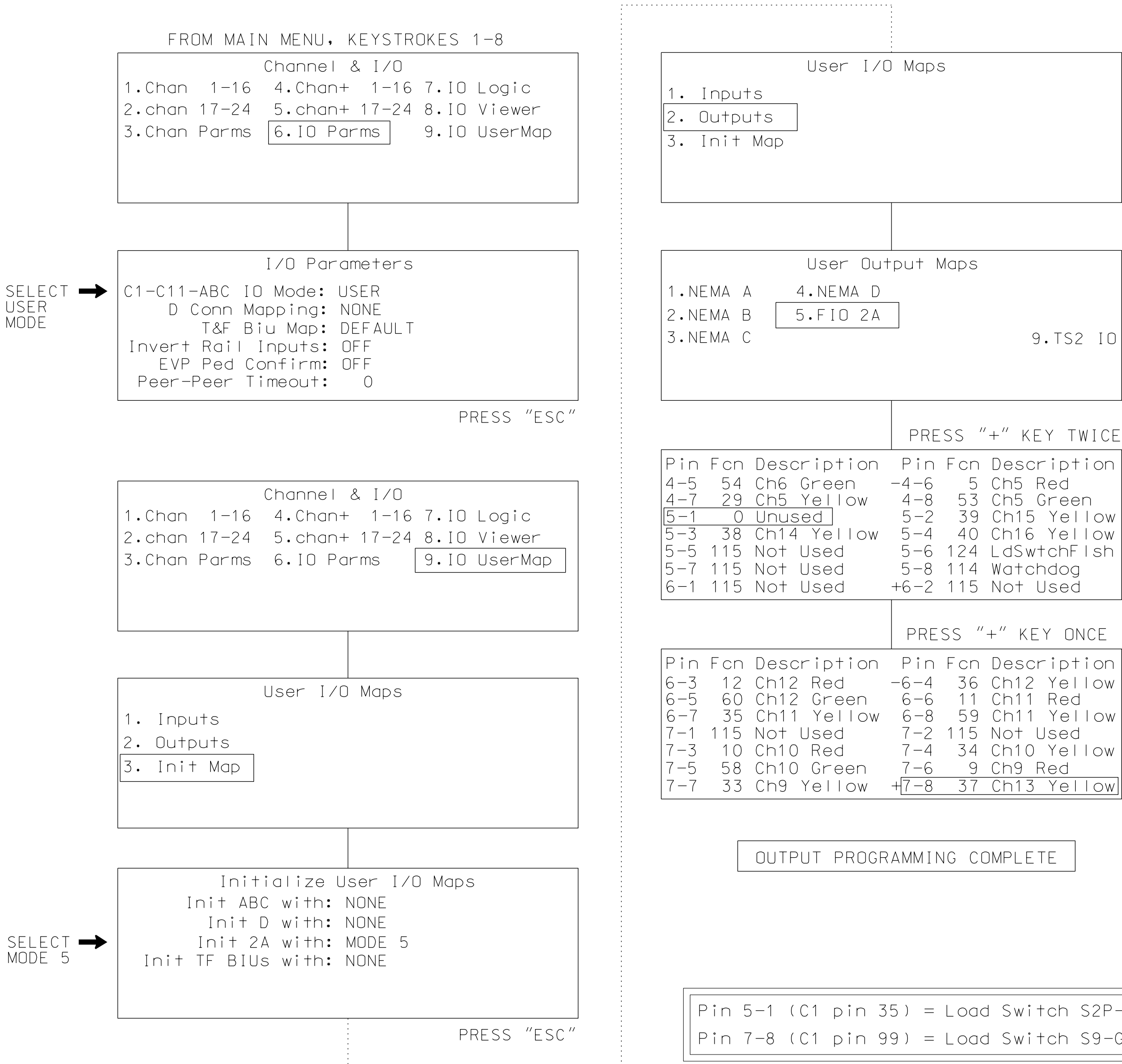
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1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

4-SECTION PPLT FYA OUTPUT REMAPPING PROGRAMMING DETAIL

(program controller as shown below)

1. Before proceeding with output programming, be sure to switch the “RUN ENABLE STATUS” to “OFF”. The “RUN ENABLE STATUS” setting is located from Main Menu, key strokes 1-7.
2. The Flashing Yellow Arrow in a 4-section PPLT FYA head is controlled by a normally unused PED Yellow output. This programming takes a specific PED Yellow output and remaps it to the appropriate Overlap Green output.



- ! Press the “*” key to return to Main Menu. Now
- o go back to “RUN-ENABLE STATUS” and switch to “ON”.

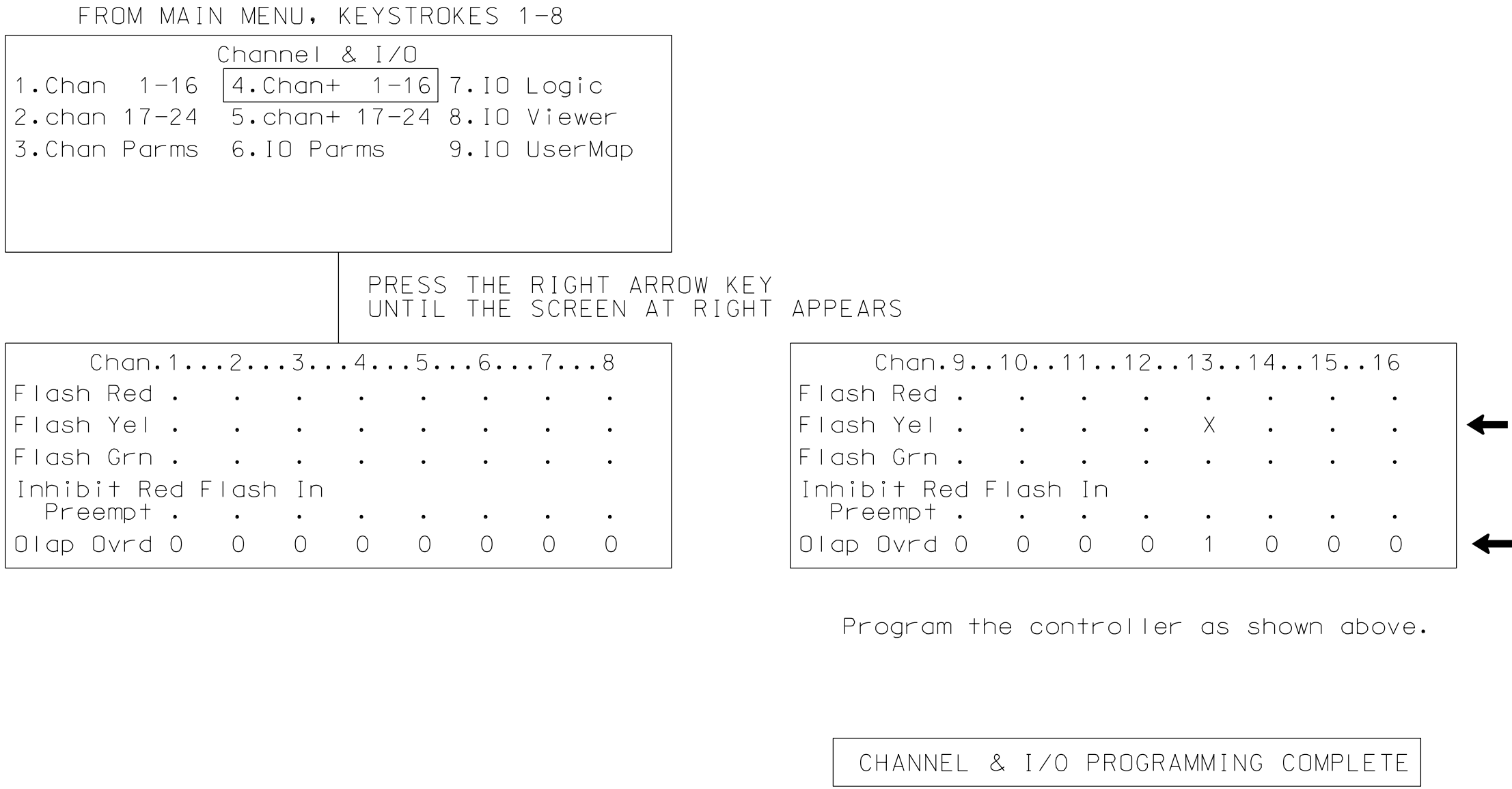
NOTE

I/O re-programming is necessary for proper FYA operation. See Channel & I/O Programming Detail for FYA Operation on this sheet.

CHANNEL & I/O PROGRAMMING DETAIL FOR FYA OPERATION

(program controller as shown below)

This programming takes the output that drives a Flashing Yellow Arrow and makes it flash. It also specifies which overlap is to be overridden for the FYA to display properly.



NOTE

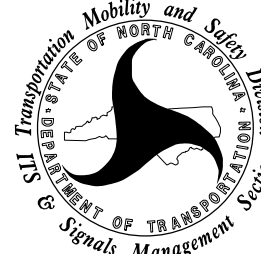
Output remapping is necessary for proper FYA operation. See the 4-Section PPLT FYA Output Programming Detail on this.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1648T2
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 3 of 3
Temporary Design 2

Electrical and Programming Details For:

Prepared for the Offices of:



750 N.Greenfield Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
I-40 EB Ramps

Division 7 Guilford County Greensboro

PLAN DATE: January 2025

REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff

REVIEWED BY: PL Alexander

REVISIONS

INIT.

DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

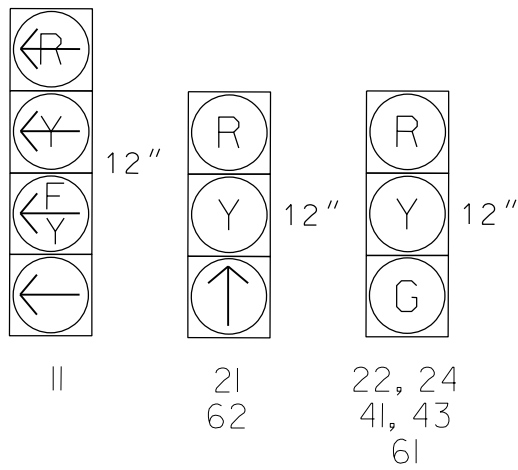


Designed by: Anthony Encarnacion
Signature: _____ Date: 3/14/2025

SIG. INVENTORY NO. 07-1648T2

TABLE OF OPERATION				
SIGNAL FACE	PHASE			
	1 + 6	2 + 6	4	FLASH
II	←	→	←	←
2I	R	↑	R	R
22, 24	R	G	R	R
4I, 43	R	R	G	R
6I	G	G	R	R
62	↑	↑	R	R

All Heads L.E.D.

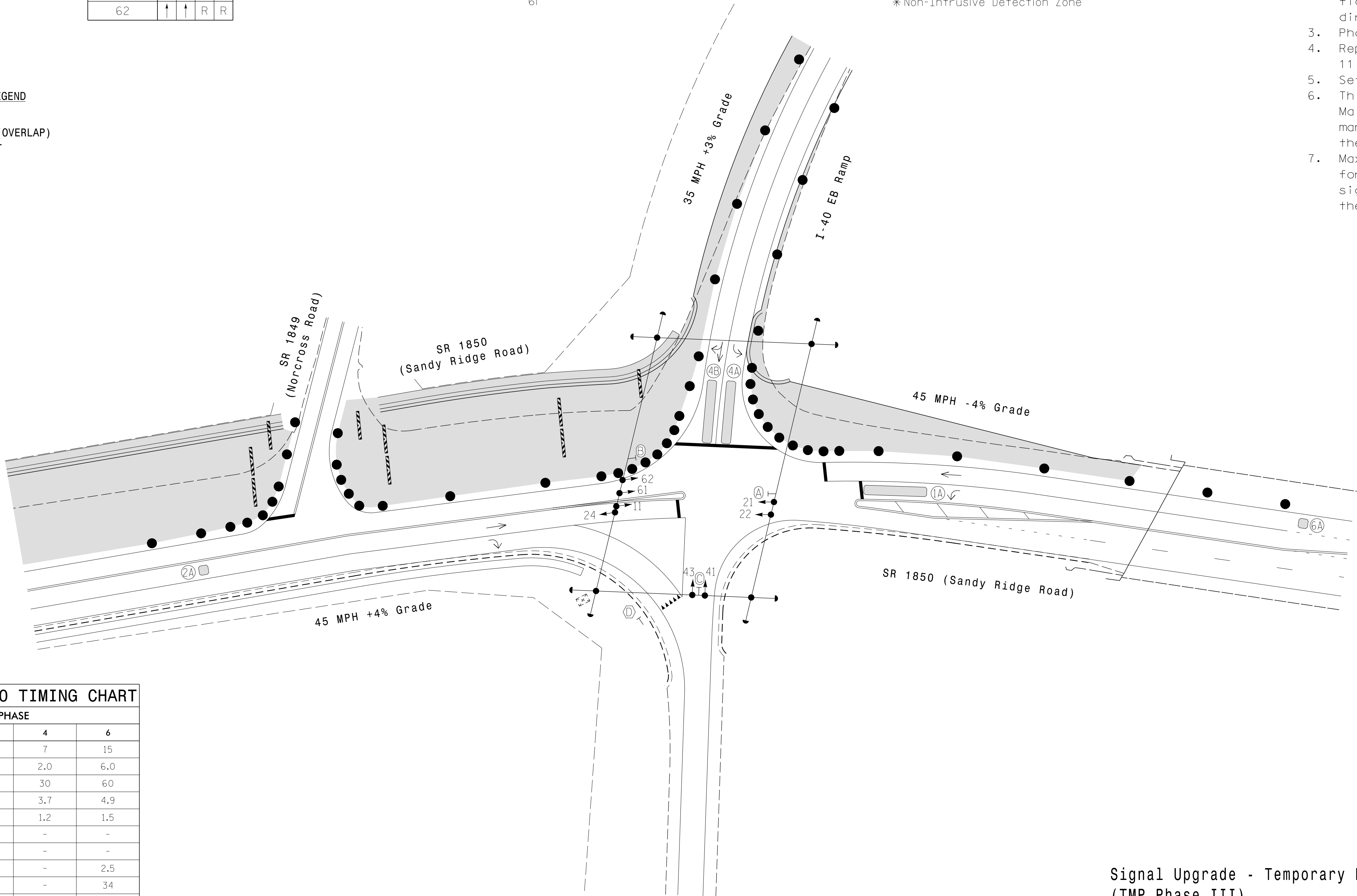
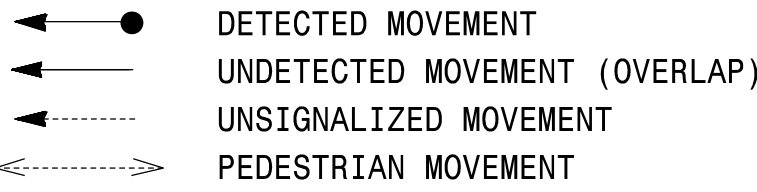


INDUCTIVE LOOPS/ZONES					DETECTOR PROGRAMMING									
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	SWITCH (PHASE)	DELAY TIME	STRETCH TIME	CALLING	EXTENSION	ADDED INIT.	SYSTEM LOOP	NEW CARD	
1A*	6X40	0	*	*	1	-	15.0	-	X	X	-	-	*	
					6	-	-	-	X	X	-	-	*	
2A*	6X6	300	*	*	2	-	-	-	X	X	X	-	*	
4A*	6X40	0	*	*	4	-	-	-	X	X	-	-	*	
4B*	6X40	0	*	*	4	-	10.0	-	X	X	-	-	*	
6A*	6X6	300	*	*	6	-	-	-	X	X	X	-	*	

* Non-Intrusive Detection Zone

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 may be lagged.
4. Reposition existing signal heads numbered 11, 21, 22, 24, 61 and 62.
5. Set all detector units to presence mode.
6. This intersection uses video detection. Maintain detectors according to the manufacturer's instructions to achieve the desired detection.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND



FEATURE	PHASE			
	1	2	4	6
Min Green *	7	15	7	15
Gap, Extension *	2.0	6.0	2.0	6.0
Maximum Green 1 *	20	60	30	60
Yellow Clear	3.0	4.9	3.7	4.9
Red Clear	3.2	1.5	1.2	1.5
Walk *	-	-	-	-
Pedestrian Clear	-	-	-	-
Added Initial *	-	1.5	-	2.5
Maximum 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
Lock Calls	NO	YES	NO	YES
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.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Non-Intrusive Detection Zone	N/A
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
N/A	Guardrail	
N/A	Construction Zone	
N/A	Construction Zone Drums	
N/A	Type III Barrier	
	No Left Turn Sign (R3-2)	
	No Right Turn Sign (R3-1)	
	Street Name Sign (D3-1)	
	Yield Sign (R1-2)	

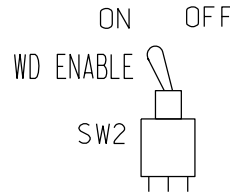
Signal Upgrade - Temporary Design 3
(TMP Phase III)

AtkinsRéalis
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBES #F-0326

Prepared For The Offices of:		SR 1850 (Sandy Ridge Road) at I-40 EB Ramps							
Transportation Mobility and Safety Division STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION State Design Section		Division 7 Guilford County Greensboro							
750 N. Greenfield Pkwy, Garner, NC 27529		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> PLAN DATE: January 2025 </td> <td style="width: 50%; padding: 5px;"> REVIEWED BY: AM Encarnacion </td> </tr> <tr> <td style="padding: 5px;"> PREPARED BY: JT Stiff </td> <td style="padding: 5px;"> REVIEWED BY: PL Alexander </td> </tr> </table>		PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion	PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander		
PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion								
PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander								
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REVISONS	INIT.	DATE							
		Signed by: SEAL NORTH CAROLINA PROFESSIONAL SEAL 056276 ENGINEER JAMES STIFF SIGNATURE DS4B00307672A434 DATE 3/14/2025							
SIG. INVENTORY NO.		DATE							
07-1648T3		07-1648T3							

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 1-9, 2-6, 2-9 and 6-9.



NOTES:

- ## INPUT FILE POSITION LAYOUT

(front view)



FS = FLASH SENSE
ST = STOP TIME

(install resistor as shown below)

PHASE 1 YELLOW FIELD
TERMINAL (126)

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.

9. The cabinet and controller are part of the City of Greensboro Signal System.

```

CONTROLLER.....2070E
CABINET.....332 W/ AUX
SOFTWARE.....TRAFFICWARE APOGEE
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S5,S8,AUX S1
PHASES USED.....1,2,4,6
OVERLAP "A".....*
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

```

* See overlap programming detail on sheet 2

- 1) Install a non-intrusive detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 25.1

NU = Not Used

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

★ See pictorial of head wiring in detail below.

(wire signal head as shown)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1648T3
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 1 of 3
Temporary Design 3

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

750 N.Greenfield Pkwy.Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
I-40 EB Ramps

Division 7 Guilford County Greensboro

PLAN DATE: January 2025	REVIEWED BY: AM Encarnacion
-------------------------	-----------------------------

PREPARED BY: JT Stiff	REVIEWED BY: PL Alexander
-----------------------	---------------------------

REVISIONS	INIT.	DATE
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[illegible]

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



~Digitized by:

Anthony Encarnacion

SIGNATURE _____ DATE _____

SIG. INVENTORY NO. 07-1648



PROJECT REFERENCE NO.	SHEET NO.
U-4758	Sig. 25.2

OVERLAP PROGRAMMING DETAIL
FOR OVERLAP A*

(program controller as shown below)

*NOTE FOR ALL OVERLAPS: Use Default values for
Overlap 'PLUS' programming details.

FROM MAIN MENU PRESS "1" CONTROLLER
AND THEN "5" OVERLAPS

Overlaps

1.General Parm
2.Program
3.Status

General Overlap Parameters

Lock Inhibit OFF
Confl Lock Enable OFF
Parent P Clnocs ON
Extra Included Phases OFF

PRESS "ESC"

Overlaps

1.General Parm
2.Program
3.Status

Enter Overlap # 1

then press Enter

Overlap A-1

1.Program Parm
2.Confl Prog+
3.Program Parm+

Notice
type
FYA-4



OvrIp A-1 Ps.....

Included Ps 1 0 0 0 0 0 0 0

Modifier Ps 2 0 0 0 0 0 0 0

Type:FYA-4 Grn: 0 Yel: 3.5 Red: 1.5

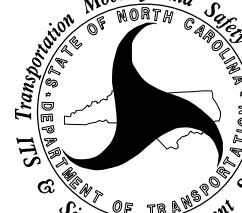
END OF OVERLAP PROGRAMMING DETAIL

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-1648T3
DESIGNED: January 2025
SEALED: 03-14-2025
REVISED: N/A

Electrical Detail - Sheet 2 of 3
Temporary Design 3

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:



ALL Transportation Mobility and Safety Projects
PREPARED BY THE DEPARTMENT OF NORTH CAROLINA
TRANSPORTATION & SIGNAL MANAGEMENT SYSTEMS

750 N.Greenfeld Pkwy,Garner,NC 27529

SR 1850 (Sandy Ridge Road)
at
I-40 EB Ramps

Division 7 Guilford County Greensboro

PLAN DATE: January 2025 REVIEWED BY: AM Encarnacion

PREPARED BY: JT Stiff REVIEWED BY: PL Alexander

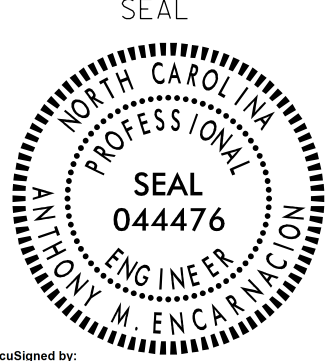
REVISIONS

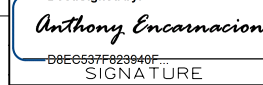
INIT.

DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL



OverSigned by:

DATE: 3/14/2025

SIG. INVENTORY NO. 07-1648T3

13-MAR-2025 17:26
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