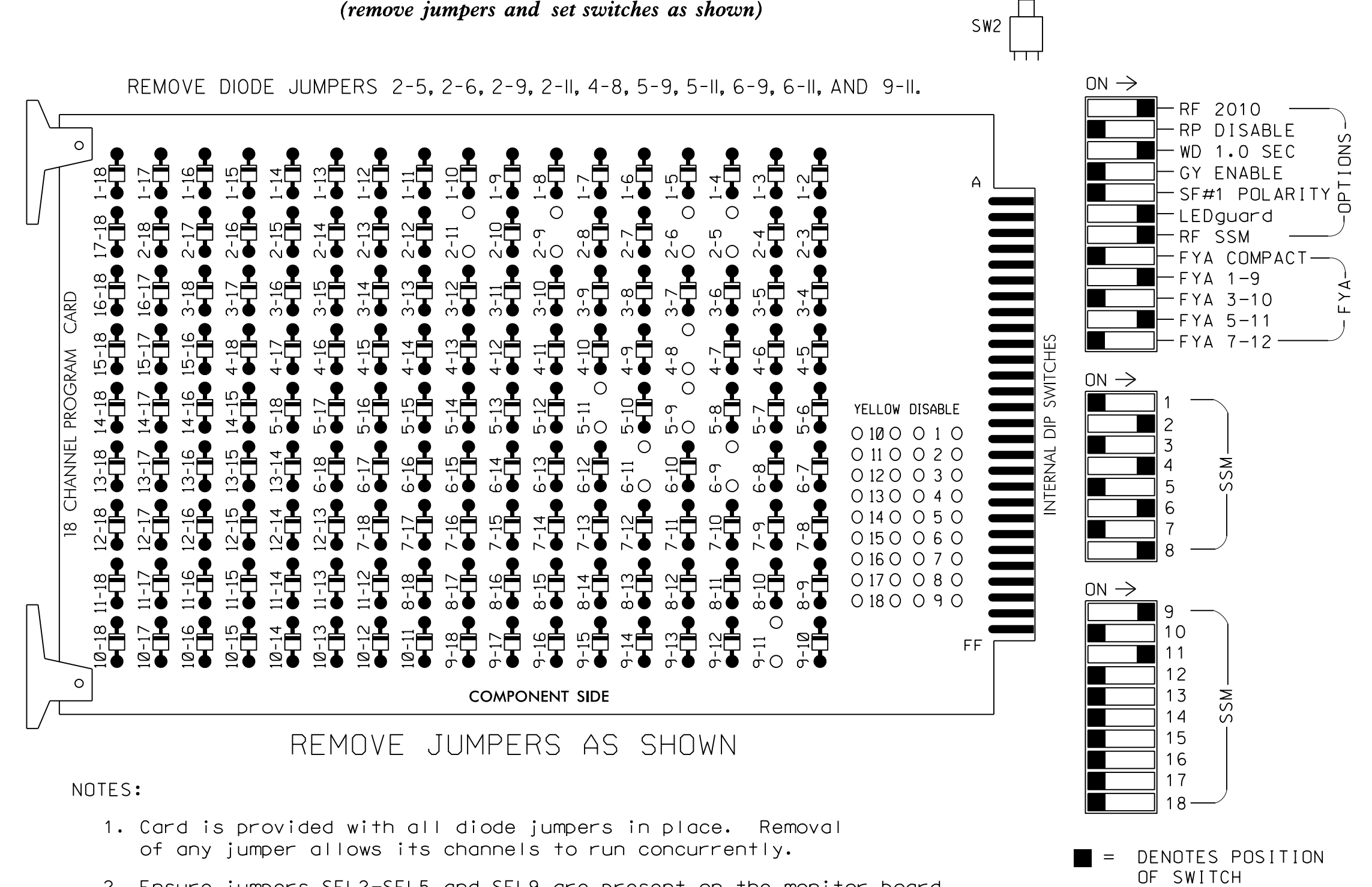


EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL
(remove jumpers and set switches as shown)



NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- 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 System # 10605.

EQUIPMENT INFORMATION

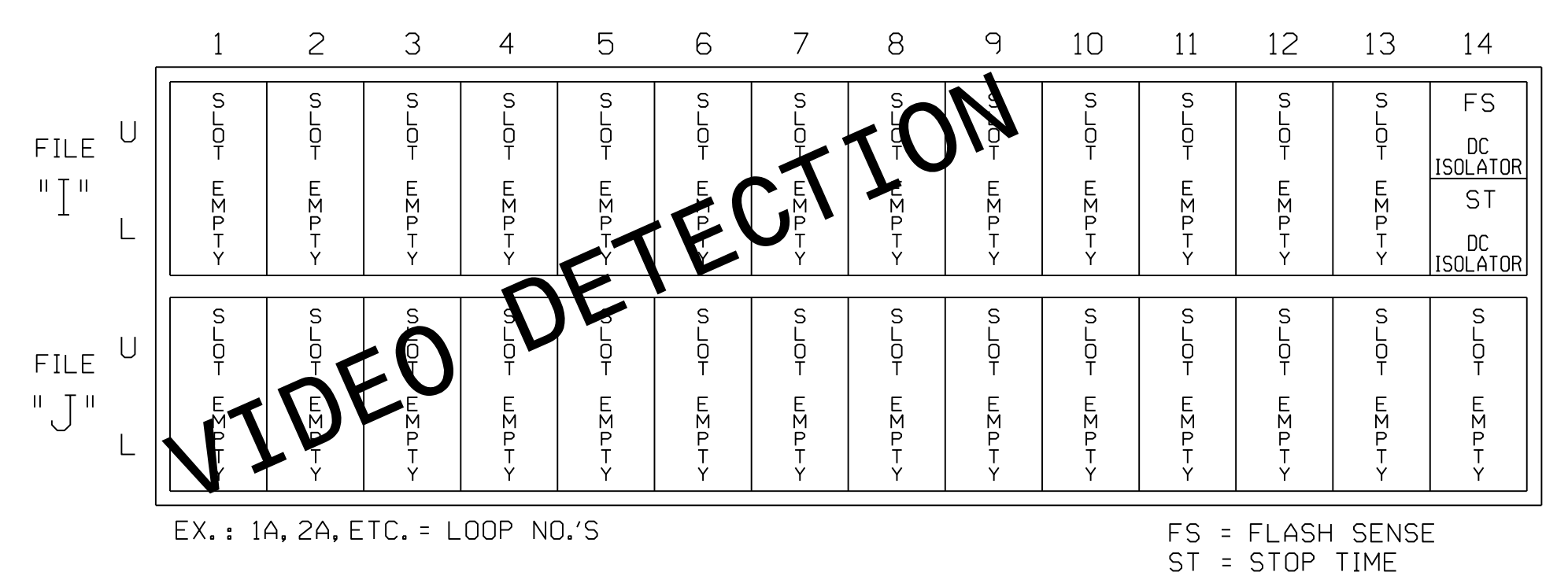
CONTROLLER.....CONTRACTOR SUPPLIED 2070LX
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S5,S7,S8,S11,
 AUX S1,AUX S4
 PHASES USED.....2,4,5,6,8
 OVERLAP "A".....*
 OVERLAP "B".....NOT USED
 OVERLAP "C".....*
 OVERLAP "D".....NOT USED
 * See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

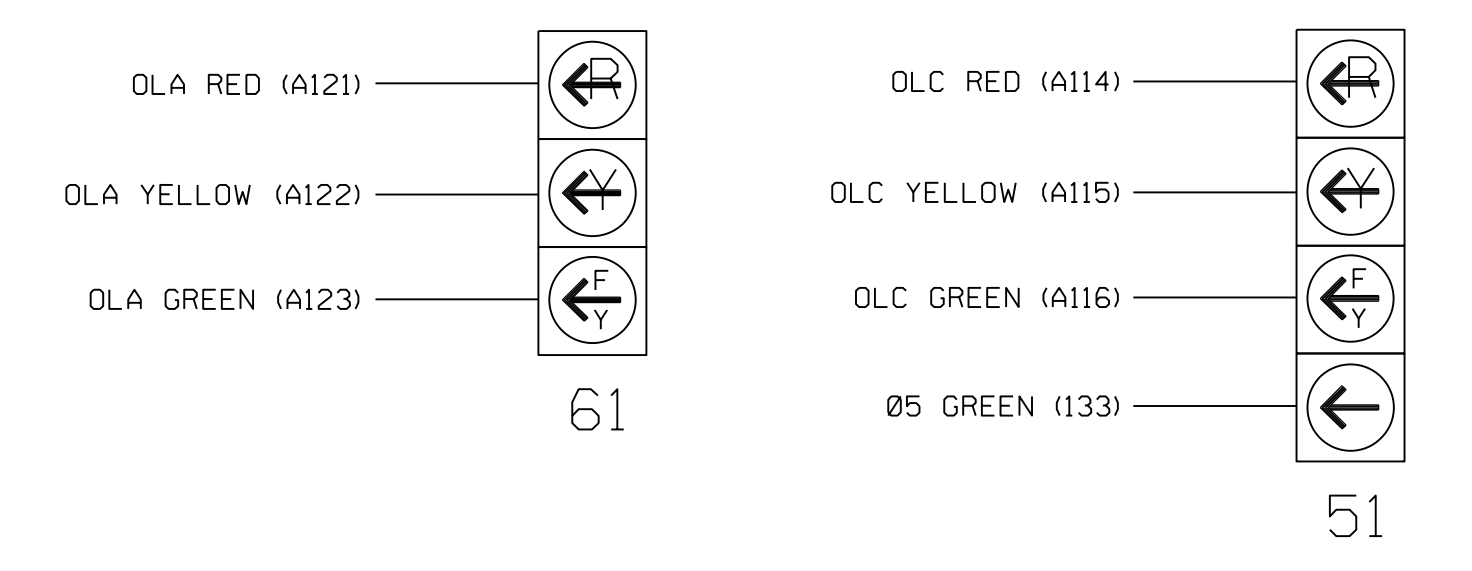
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	51	62,63	NU	NU	81,82	NU	61	NU	NU	51	NU	NU
RED	128				101			134			107							
YELLOW	129				102		*	135			108							
GREEN	130				103			136			109							
RED ARROW														A121				A114
YELLOW ARROW														A122				A115
FLASHING YELLOW ARROW														A123				A116
GREEN ARROW								133										

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

INPUT FILE POSITION LAYOUT
(front view)

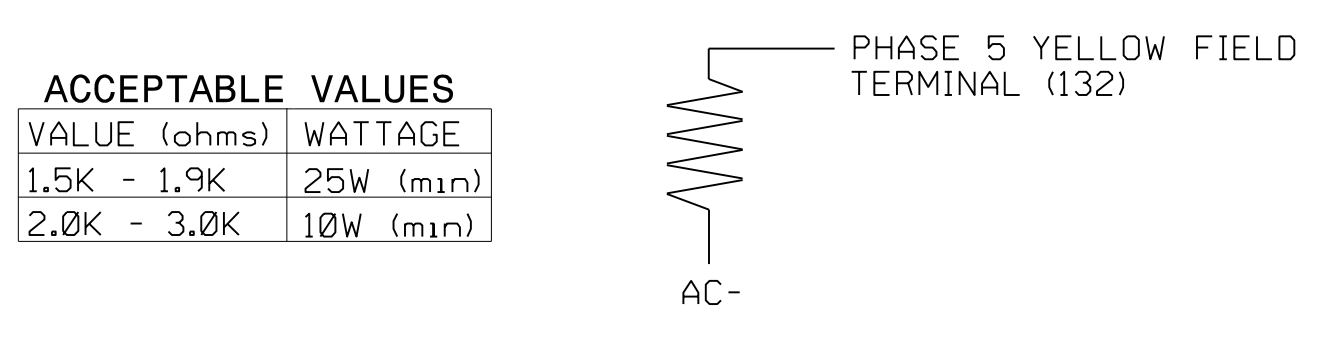


FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)



SPECIAL DETECTOR NOTE:
 Note: Install a video detection system for vehicle detection. Perform installation in accordance with manufacturer's directions and NCDOT engineer approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans for the following video zones: 2A, 2B, 4A, 5A, 6A, 6B, AND 8A.

LOAD RESISTOR INSTALLATION DETAIL
(install resistors as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1381
 DESIGNED: March 2020
 SEALED: 05/15/2020
 REVISED: N/A

SEPI
 Engineering & Construction, Inc.
 1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
 Fax: 919.789.9591
 License: C-2197

Temporary Design 1 - (TMP Phases 1 & 1A)
 Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 MATTHEW B. COYLE
 SEAL 27771

US 701 Bypass/NC 130
 (S. J.K. Powell Boulevard)
 at
 W. Columbus Street

Division 06 Columbus County Whiteville

PLAN DATE: December 2019 REVIEWED BY:
 PREPARED BY: M.B. Copple REVIEWED BY: G.G. Murr Jr

REVISIONS	INIT.	DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SIG. INVENTORY NO. 06-1381T1

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 'OTHER/ECONOLITE'

TMG VEH OVLP...[A] 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 Twice

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

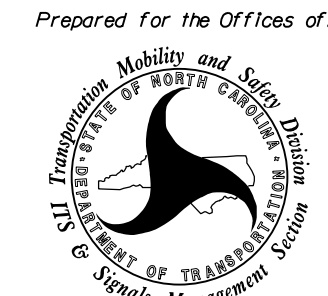

DELAY START OF: FYA..0.0 CLEARANCE..0.0

ACTION PLAN SF BIT DISABLE..... 0

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-1381
 DESIGNED: March 2020
 SEALED: 05/15/2020
 REVISED: N/A

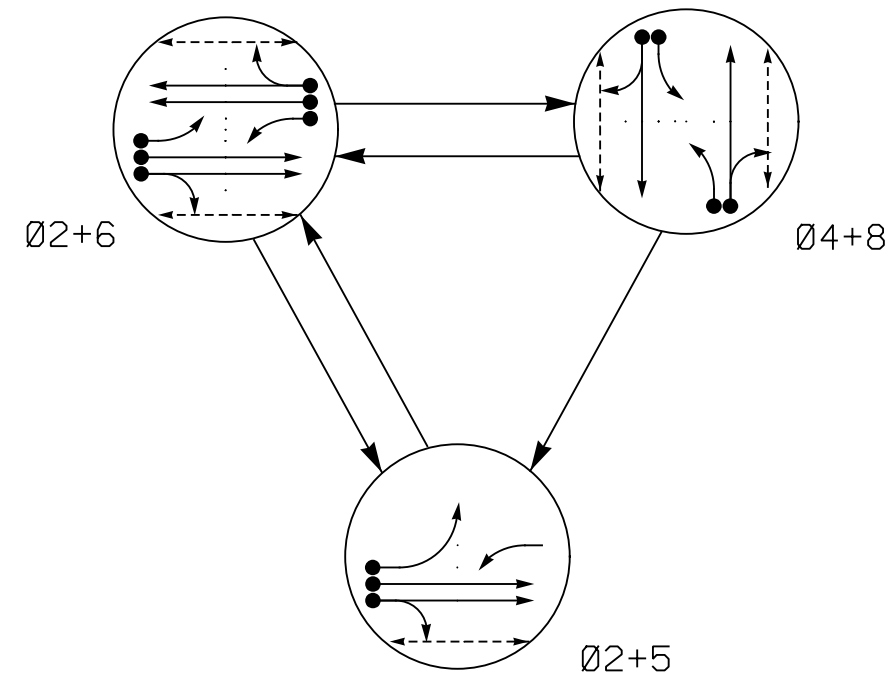
Temporary Design 1 - (TMP Phases 1 & 1A)
 Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 701 Bypass/NC 130 (S. J.K. Powell Boulevard) at W. Columbus Street	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED									
	Division 06 Columbus County Whiteville										
	PLAN DATE: December 2019 REVIEWED BY:										
	PREPARED BY: M.B. Copple REVIEWED BY: GG Murr Jr										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE							
REVISIONS	INIT.	DATE									
		DATE: _____ SIG. INVENTORY NO. 06-1381T1									



1 Glenwood Avenue
 Raleigh, NC 27603
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 Fax: 919.789.9591
 License: C-2197

PHASING DIAGRAM



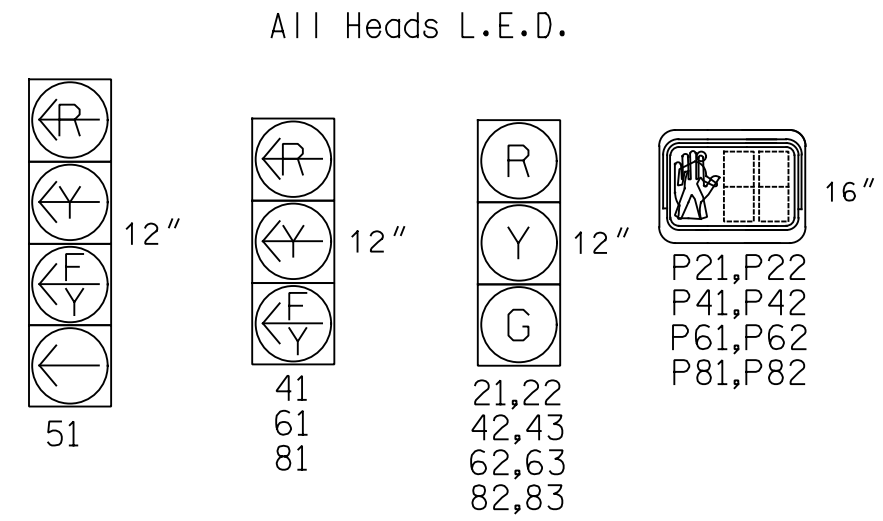
PHASING DIAGRAM DETECTION LEGEND

- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- ←---→ UNSIGNALIZED MOVEMENT
- ←- - - -> PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	Ø2+5	Ø2+6	Ø4+8	FLASH
21,22	G	G	R	Y
41	←R	←R	←F	←R
42,43	R	R	G	R
51	←F	←F	←R	←Y
61	←F	←F	←R	←Y
62,63	R	G	R	Y
81	←R	←R	←F	←R
82,83	R	R	G	R
P21,P22	W	W	DW	DRK
P41,P42	DW	DW	W	DRK
P61,P62	DW	W	DW	DRK
P81,P82	DW	DW	W	DRK

SIGNAL FACE I.D.



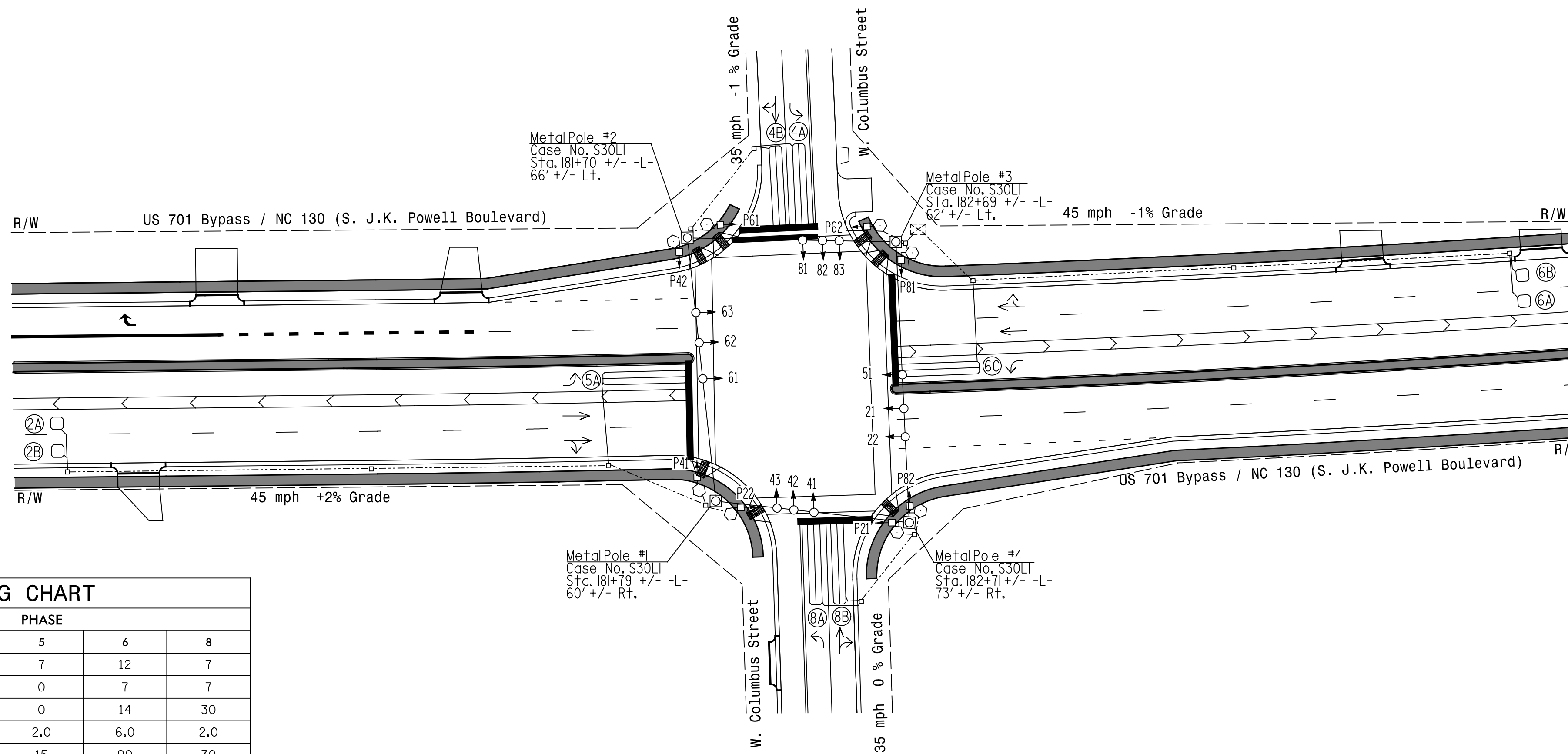
ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
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	-	N	-	X
4B	6X40	0	2-4-2	X	4	Yes	-	10	-	N	-	X
5A	6X40	0	2-4-2	X	5	Yes	-	15	-	N	-	X
6A	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6B	6X6	300	4	X	6	Yes	-	-	X	N	-	X
6C	6X40	0	2-4-2	X	6	Yes	-	3	-	N	-	X
8A	6X40	0	2-4-2	X	8	Yes	-	3	-	N	-	X
8B	6X40	0	2-4-2	X	8	Yes	-	10	-	N	-	X

3 Phase Fully Actuated System #10605

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- 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.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.



ASC/3 TIMING CHART

FEATURE	PHASE				
	2	4	5	6	8
Min Green *	12	7	7	12	7
Walk *	7	7	0	7	7
Ped Clear	13	24	0	14	30
Veh. Extension *	6.0	2.0	2.0	6.0	2.0
Max 1 *	90	30	15	90	30
Yellow	4.6	3.9	3.0	4.6	3.9
Red Clear	1.8	2.5	3.1	1.8	2.5
Actuations B4 Add *	0	-	-	0	-
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	VEH. RECALL	-	-	VEH. RECALL	-
Dual Entry	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X

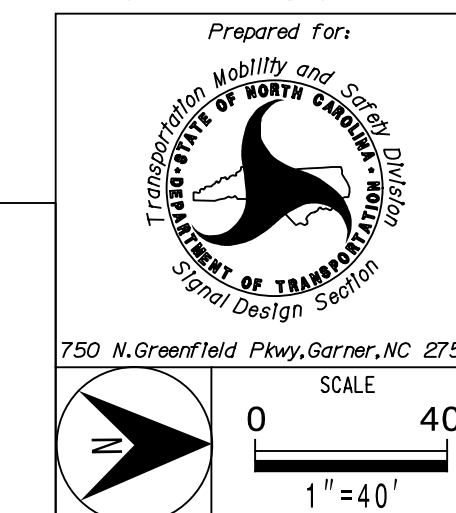
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

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 |
| ○→ Wheelchair Ramp | ○→ N/A |
| ○→ Type II Pedestal | ○→ N/A |
| ○→ Metal Strain Pole | ○→ N/A |

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



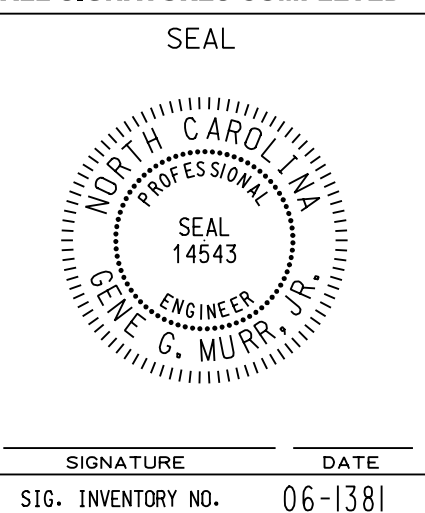
US 701 Bypass/NC 130 (S. J.K. Powell Blvd) at W. Columbus Street

Division 06 Columbus County Whiteville

PLAN DATE: NOVEMBER 2019 REVIEWED BY: G. G. Murr, Jr

PREPARED BY: M. Ishak REVIEWED BY:

REVISIONS	INIT.	DATE



SEPI
Engineering & Construction, Inc.

1 Glenwood Avenue
Raleigh, NC 27603
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Fax: 919.789.9591
License: C-2197

5/13/2020 11:00 AM R-5020B.dgn USER:MCoppie

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 'OTHER/ECONOLITE'

```

TMG VEH OVLP...[A] 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 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..... 0
  
```

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 . . . . . 8 . . . . .
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

FLASHER CIRCUIT MODIFICATION DETAIL

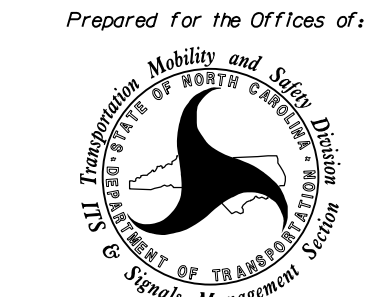
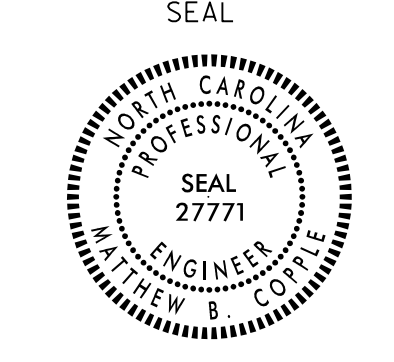
IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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: 06-1381
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

New Signal
 Electrical Detail - Sheet 2 of 2

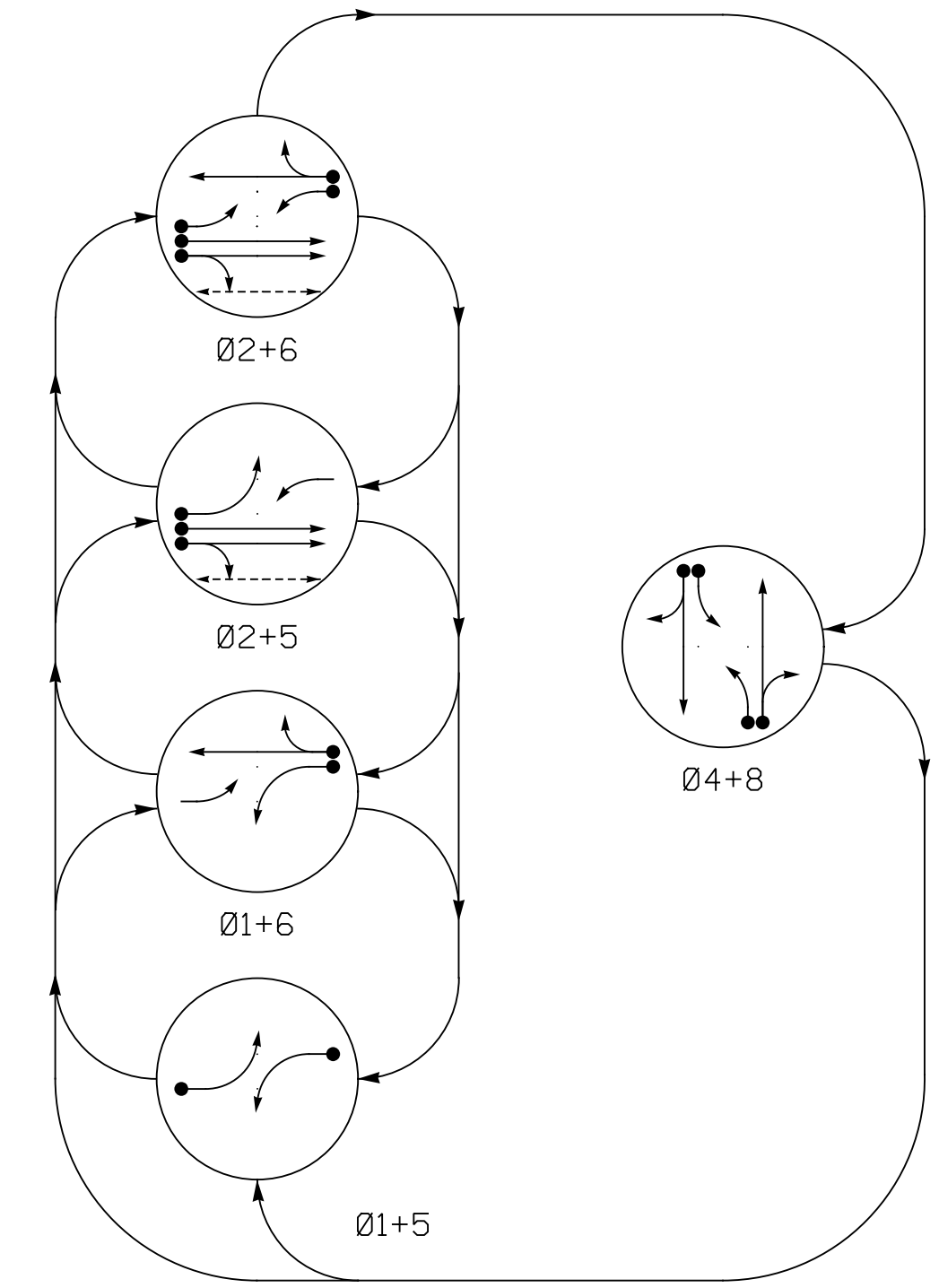
	<p>US 701 Bypass/NC 130 (S. J.K. Powell Boulevard) at W. Columbus Street</p>	<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>
<p>Division 06 Columbus County Whiteville</p>		
<p>Prepared by: M.B. Copple Reviewed by: GG Murr Jr</p>		
<p>REVISIONS</p>	<p>INIT. DATE</p>	
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>		<p>SIG. INVENTORY NO. 06-1381</p>

SEPI

1 Glenwood Avenue
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 Fax: 919.789.9591
 License: C-2197

5/15/2020
 R-5020B.dgn
 USER: M.Copple

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND
 ● DETECTED MOVEMENT
 ◀ UNDETECTED MOVEMENT (OVERLAP)
 - - - UNSIGNALIZED MOVEMENT
 ⇄ PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE					
	Ø 1+5	Ø 1+6	Ø 2+5	Ø 2+6	Ø 4+8	Ø 4+8
11	←	←	←	←	←	←
21,22	R	R	G	G	R	Y
41	←	←	←	←	←	←
42,43	R	R	R	R	G	R
51	←	←	←	←	←	←
61,62	R	G	R	G	R	Y
81	←	←	←	←	←	←
82,83	R	R	R	R	G	R
P21,P22	DW	DW	W	W	DW	DRK

ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	*	X	1	Yes	-	15	-	N	-	X
					6	Yes	-	3	-	G	-	X
2A	6X6	300	*	X	2	Yes	-	-	X	N	-	X
					2	Yes	-	-	X	N	-	X
4A	6X40	0	*	X	4	Yes	-	3	-	N	-	X
					4	Yes	-	10	-	N	-	X
5A	6X40	0	*	X	5	Yes	-	15	-	N	-	X
					2	Yes	-	3	-	G	-	X
6A	6X6	300	*	X	6	Yes	-	-	X	N	-	X
					8	Yes	-	3	-	N	-	X
8B	6X40	0	*	X	8	Yes	-	10	-	N	-	X
					8	Yes	-	10	-	N	-	X

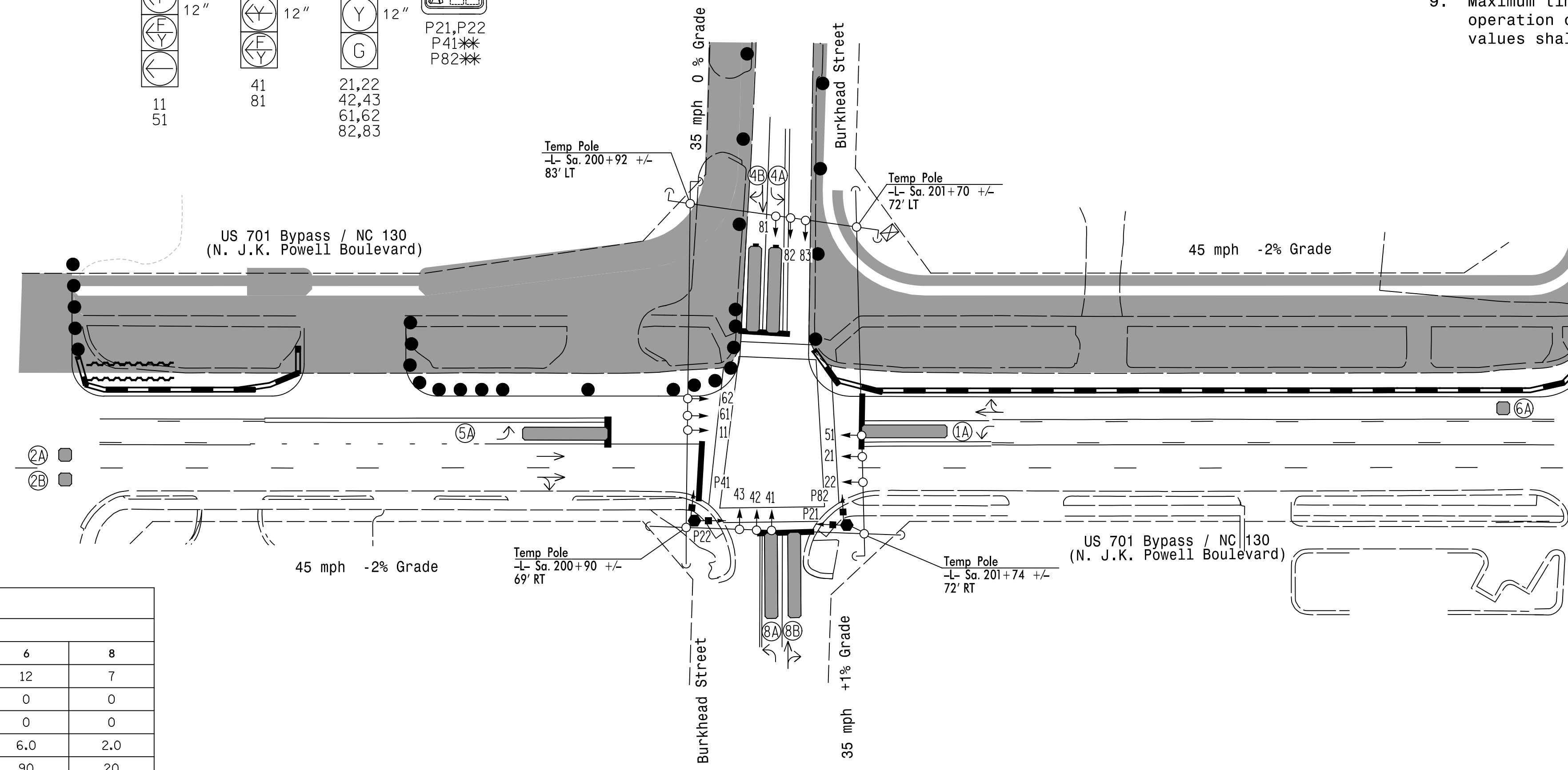
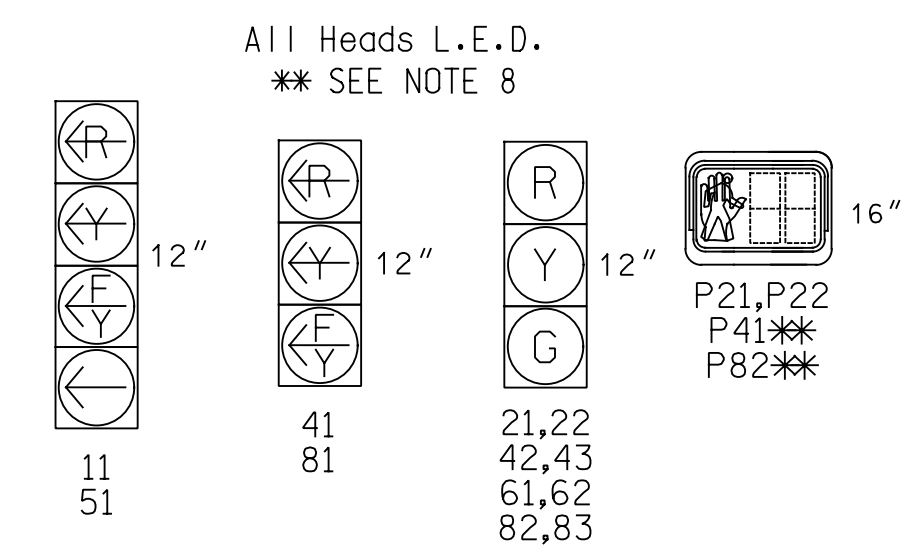
* Video Detection Zone

5 Phase Fully Actuated SYSTEM # 10605

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or 5 may be lagged.
4. Set all detection zones to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. Bag and disconnect pedestrian signal heads P41, P82 and remove Phase 4 and 8 push buttons & educational signs.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.

SIGNAL FACE I.D.



ASC/3 TIMING CHART

FEATURE	PHASE						
	1	2	4	5	6	8	
Min Green *	7	12	7	7	12	7	
Walk *	0	7	0	0	0	0	
Ped Clear	0	10	0	0	0	0	
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0	
Max I *	15	90	20	15	90	20	
Yellow	3.0	4.7	3.8	3.0	4.7	3.8	
Red Clear	2.3	1.4	1.7	3.1	1.4	1.3	
Actuations B4 Add *	-	0	-	-	0	-	
Seconds /Actuation *	-	1.5	-	-	2.5	-	
Max Initial *	-	34	-	-	34	-	
Time Before Reduction *	-	15	-	-	15	-	
Time To Reduce *	-	30	-	-	30	-	
Minimum Gap	-	3.0	-	-	3.0	-	
Locking Detector	-	-	-	-	-	-	
Recall Position	-	VEH. RECALL	-	-	VEH. RECALL	-	
Dual Entry	-	-	X	-	-	X	
Simultaneous Gap	X	X	X	X	X	X	

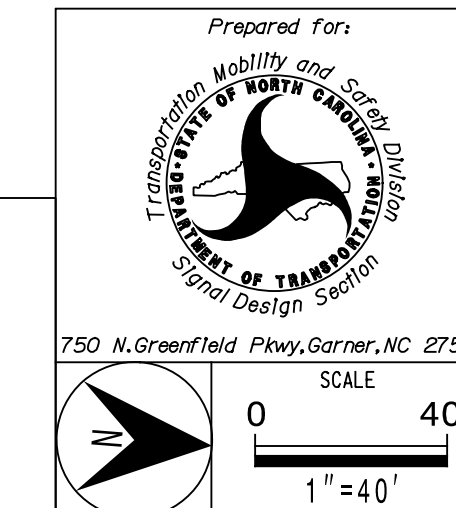
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED	EXISTING
○ Traffic Signal Head	● Traffic Signal Head
○ Modified Signal Head	N/A
○ Sign	N/A
○ Pedestrian Signal Head With Push Button & Sign	○ Pedestrian Signal Head
○ Signal Pole with Guy	○ Signal Pole with Guy
○ Signal Pole with Sidewalk Guy	○ Signal Pole with Sidewalk Guy
□ Inductive Loop Detector	□ Inductive Loop Detector
□ Controller & Cabinet	□ Controller & Cabinet
□ Junction Box	□ Junction Box
- - - 2-in Underground Conduit	- - - 2-in Underground Conduit
- - - Right of Way	- - - Right of Way
→ Directional Arrow	→ Directional Arrow
█ Construction Zone	N/A
█ Video Detection Zone	█ Video Detection Zone
● Drums	N/A
▬ PORTABLE CONCRETE BARRIER	▬ PORTABLE CONCRETE BARRIER
○ Type II Signal Pedestal	● Type II Signal Pedestal

Signal Upgrade - Temporary Design 1 - (TMP Phase I)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



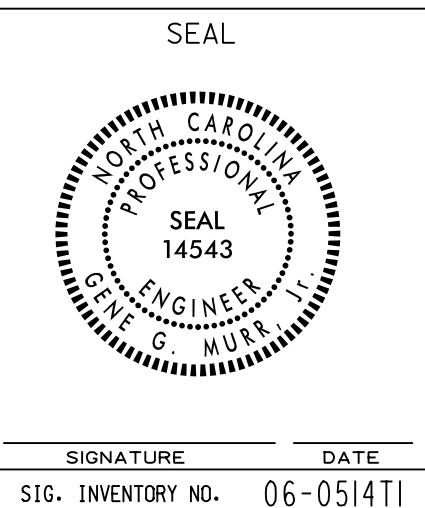
US 701 Bypass/NC 130 (N. J.K. Powell Blvd) at Burkhead Street

Division 06 Columbus County Whiteville

PLAN DATE: December 2019 REVIEWED BY: G. G. Murr, Jr.

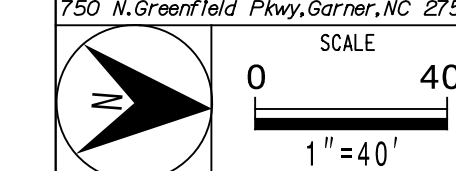
PREPARED BY: M. Ishak REVIEWED BY:

REVISIONS	INIT.	DATE

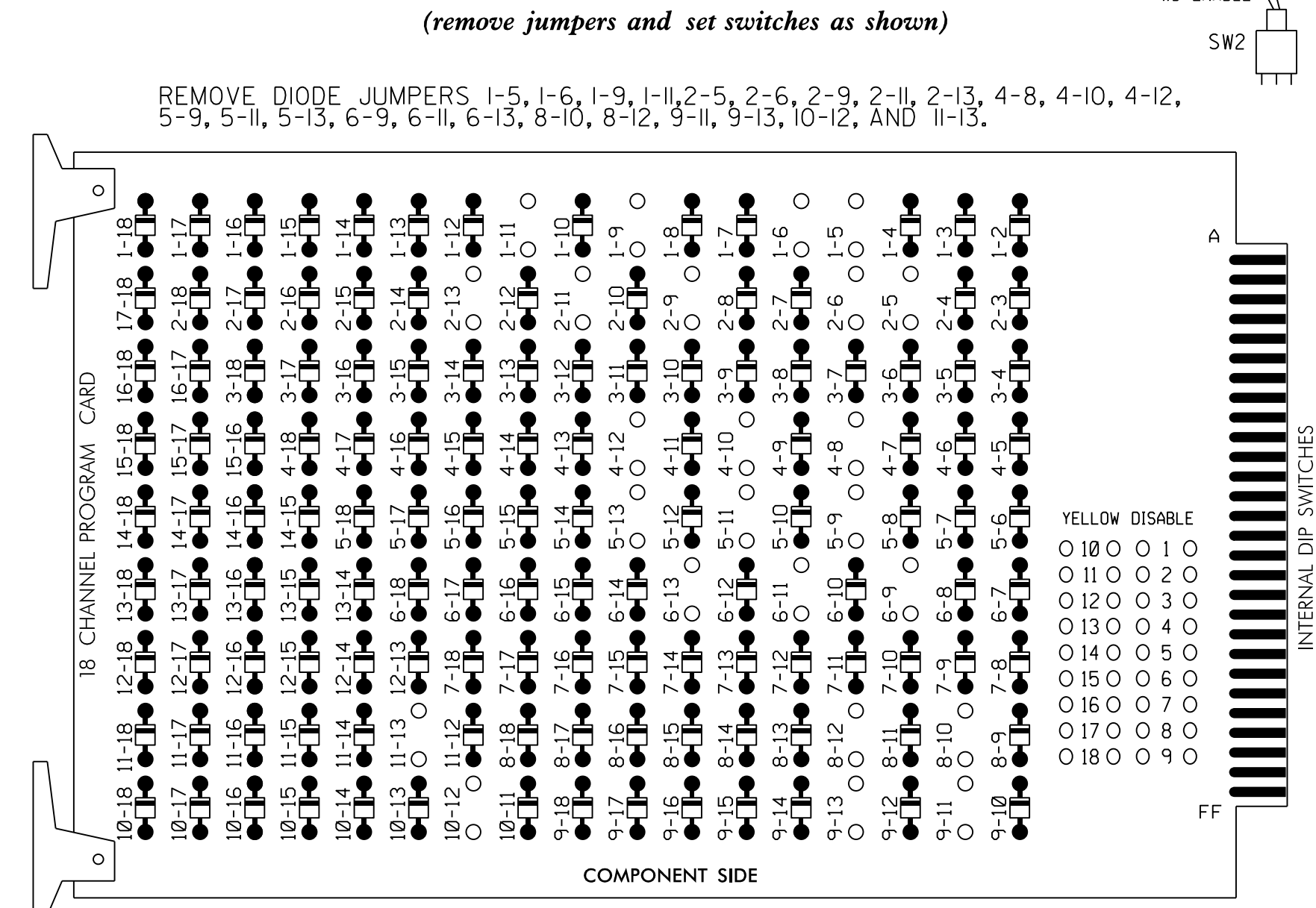


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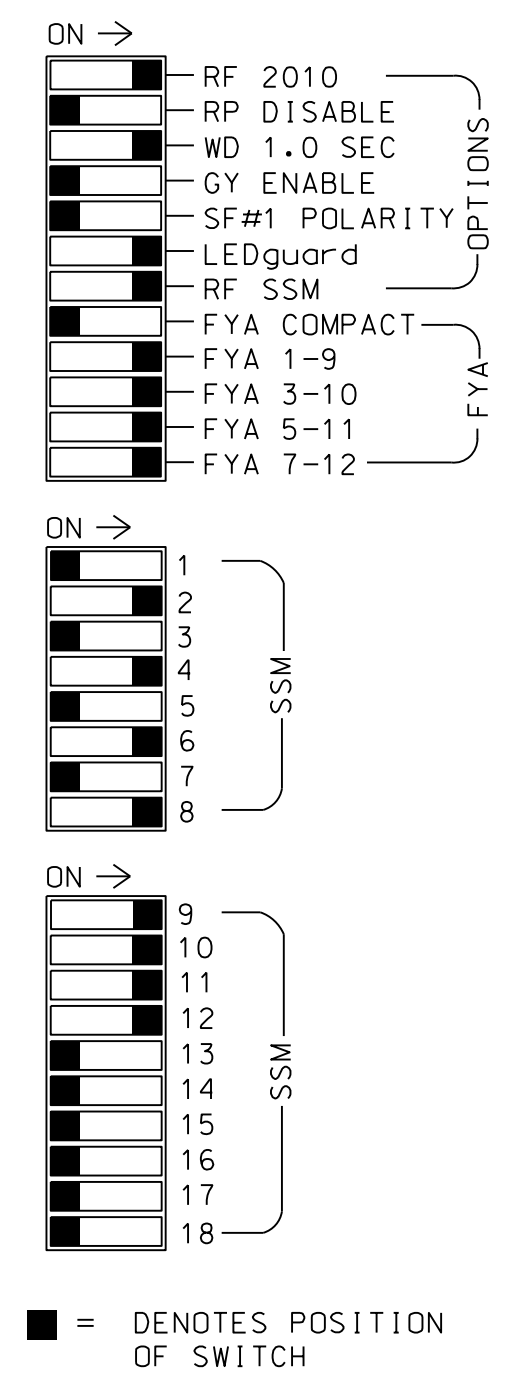
1 Glenwood Avenue
Raleigh, NC 27603
Tel: 919.789.9977
Fax: 919.789.9591
License: C-2197



EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL
(remove jumpers and set switches as shown)



- NOTES:**
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - 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 unused 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 Walk and 6 Green.
- The cabinet and controller are part of System # 10605.

EQUIPMENT INFORMATION

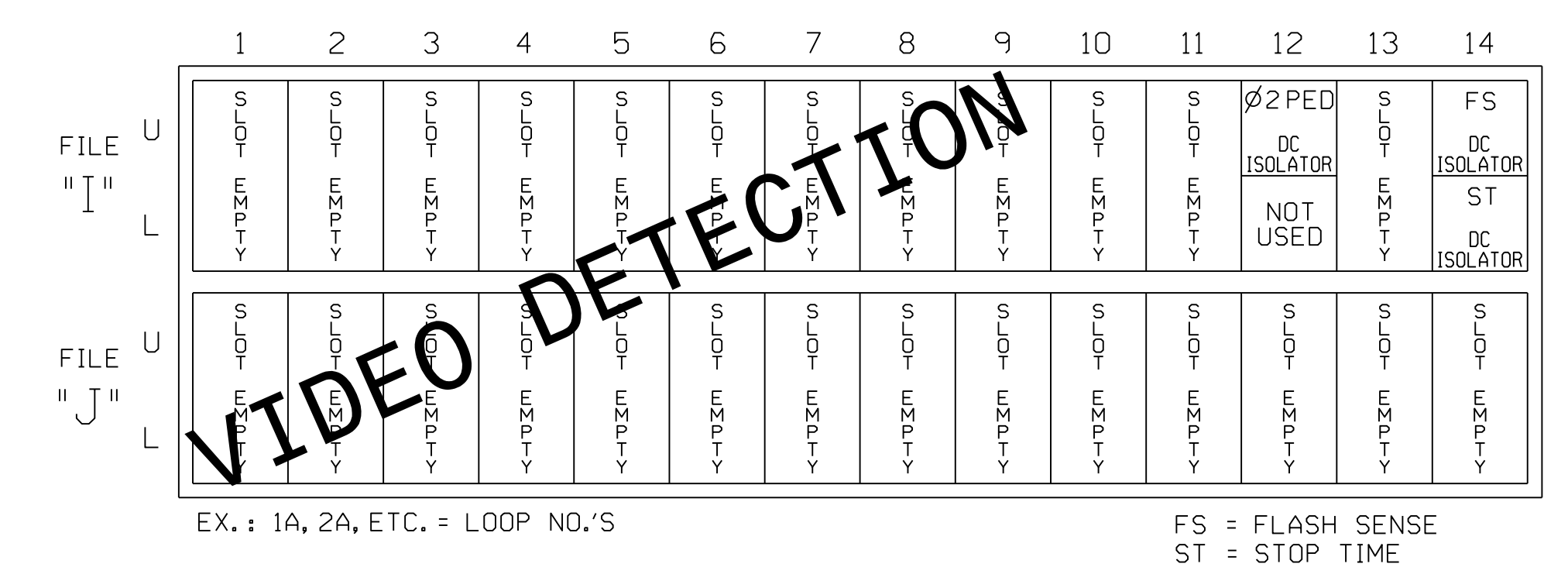
CONTROLLER.....2070LX
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S3,S5,S7,S8,S11,AUX S1
 AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,2 PED,4,5,6,8
 OVERLAP "A".....*
 OVERLAP "B".....*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

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	P21, P22	NU	42,43	NU	51	61,62	NU	82,83	NU	11	81	NU	51	41	NU	NU
RED	128			101				134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130				103			136		109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW													A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127								133									
Hand							113											
Person																		

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

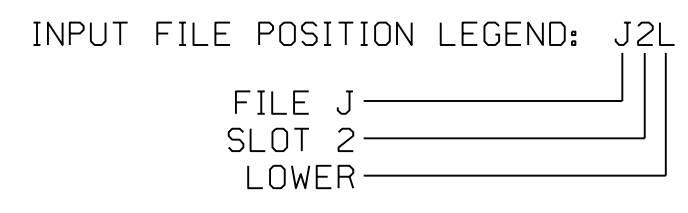
INPUT FILE POSITION LAYOUT
(front view)



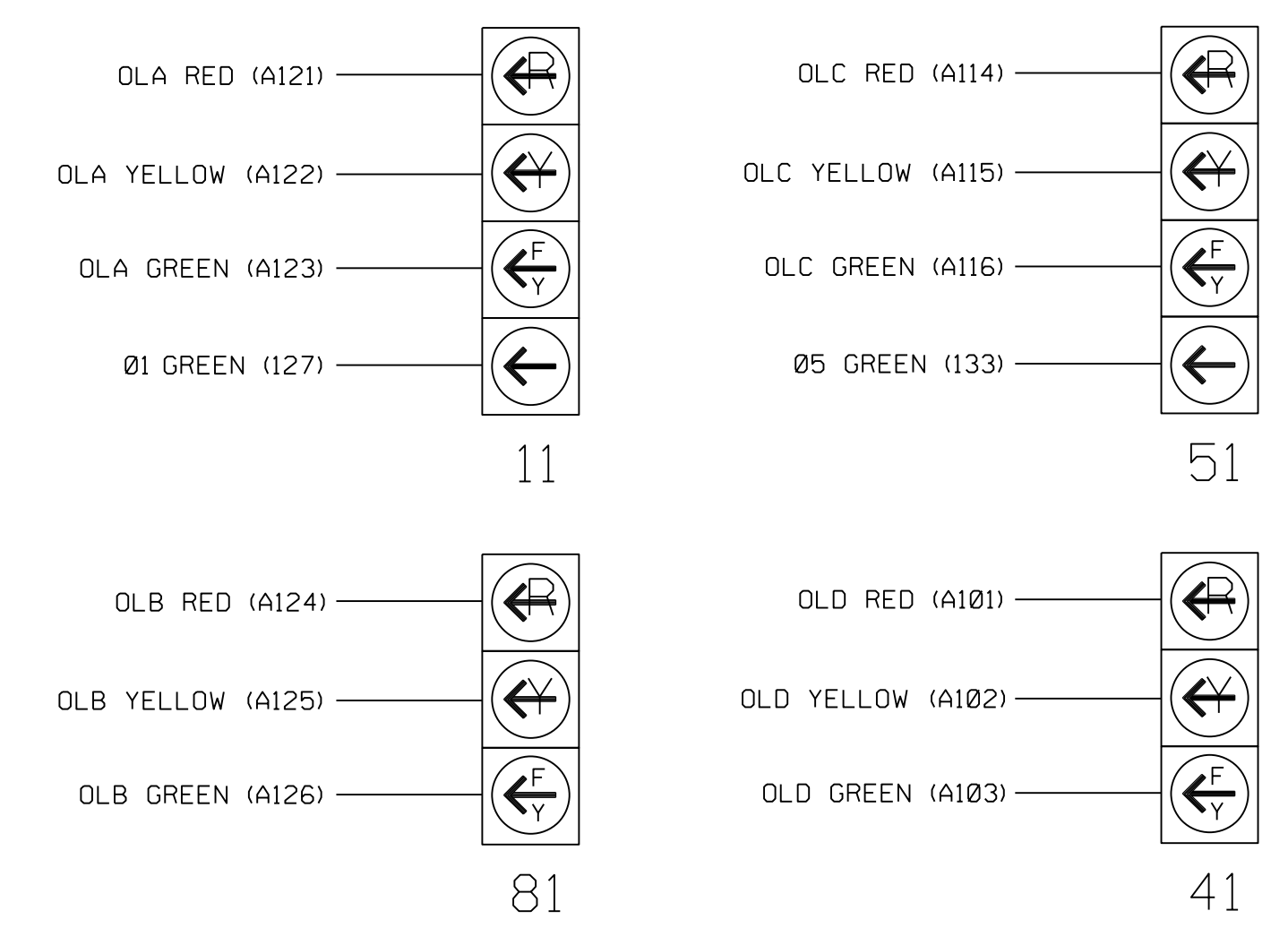
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					

NOTE:
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12.



FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)



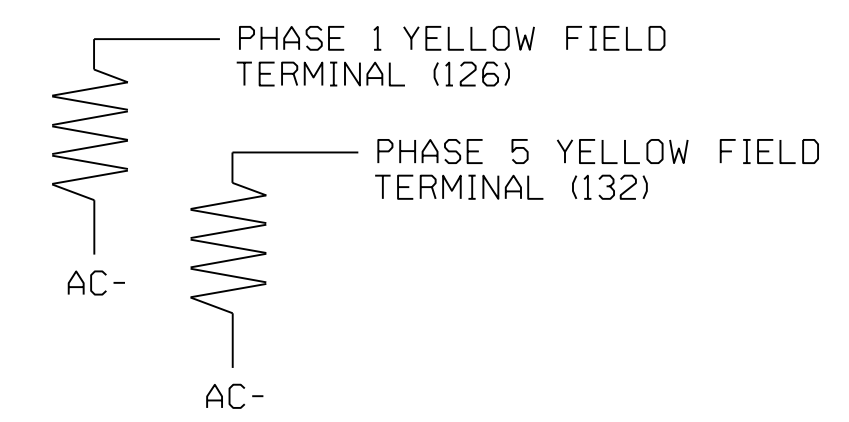
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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.

LOAD RESISTOR INSTALLATION DETAIL
(install resistors as shown)

ACCEPTABLE VALUES

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



SPECIAL DETECTOR NOTE:
 Note: Install a video detection system for vehicle detection. Perform installation in accordance with manufacturer's directions and NCDOT engineer approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans for the following video zones: 1A, 2A, 2B, 4A, 4B, 5A, 6A, 8A, AND 8B.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0514T1
 DESIGNED: December 2019
 SEALED: 05/15/2020
 REVISED: N/A

SEPI
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 1 Glenwood Avenue
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 Tel:919.789.9977
 Fax:919.789.9591
 License: C-2197

Temporary Design 1 - (TMP Phase I)
 Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

US 701 Bypass/NC 130 (N. J.K. Powell Boulevard) at Burkhead Street

Division 06 Columbus County Whiteville

PLAN DATE: December 2019 REVIEWED BY:

PREPARED BY: M.B. Copple REVIEWED BY: G G Murr Jr

REVISIONS: INIT. DATE

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 M. B. COPPLE
 27771

SIG. INVENTORY NO. 06-0514T1

5/15/2020
 W:\P20208\sig.dgn, 06-0514T1.e.dgn
 USER:MCopple

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..... 0
    
```

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..... 0
    
```

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 . . . . . 8 . . . . .
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

FLASHER CIRCUIT MODIFICATION DETAIL

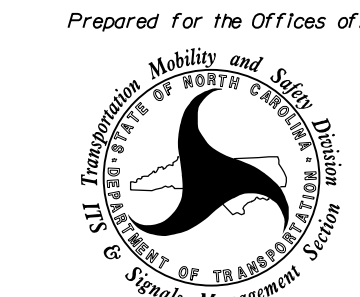


IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

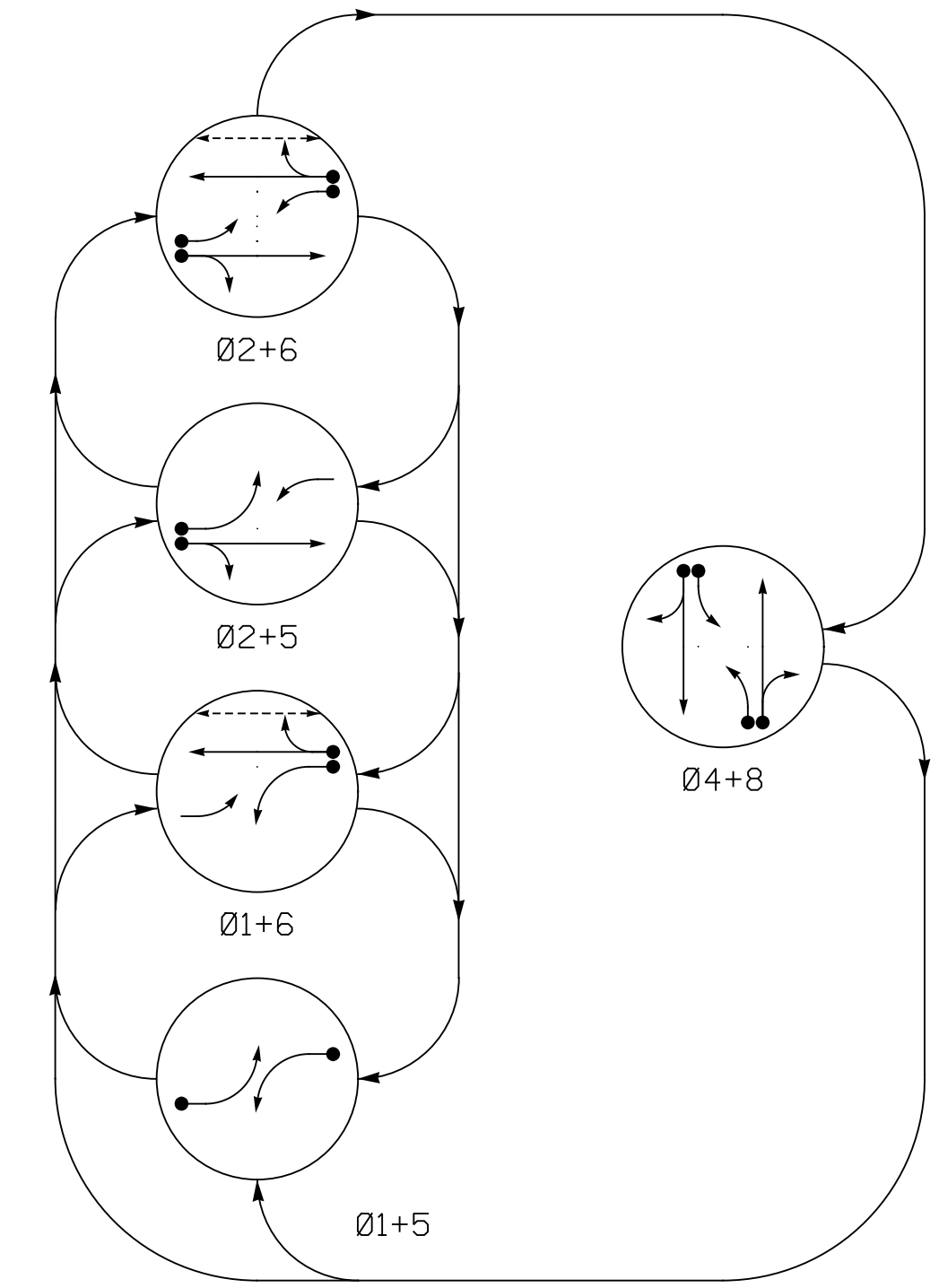
THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-0514T1
 DESIGNED: December 2019
 SEALED: 05/15/2020
 REVISED: N/A

Temporary Design 1 - (TMP Phase I)
 Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 701 Bypass/NC 130 (N. J.K. Powell Boulevard) at Burkhead Street	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
Prepared for the Offices of: 	Division 06 Columbus County Whiteville	SEAL 
	PLAN DATE: December 2019 REVIEWED BY:	DATE
1 Glenwood Avenue Raleigh, NC 27603 Tel: 919.789.9977 Fax: 919.789.9591 License: C-2197	PREPARED BY: M.B. Copple REVIEWED BY: GG Murr Jr	REVISIONS INIT. DATE
750 N. Greenfield Pkwy, Garner, NC 27529	SIG. INVENTORY NO. 06-0514T1	DATE

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE					
	Ø 1+5	Ø 1+6	Ø 2+5	Ø 2+6	Ø 4+8	Ø 4+8
11	←	←	←	←	←	←
21,22	R	R	G	G	R	Y
41	←	←	←	←	←	←
42,43	R	R	R	R	G	R
51	←	←	←	←	←	←
61,62	R	G	R	G	R	Y
81	←	←	←	←	←	←
82,83	R	R	R	R	G	R
P61,P62	DW	W	DW	W	DW	DRK

ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	*	X	1	Yes	-	15	-	N	-	-
2A	6X6	300	*	X	2	Yes	-	-	-	X	N	-
4A	6X40	0	*	X	4	Yes	-	3	-	N	-	-
4B	6X40	0	*	X	4	Yes	-	10	-	N	-	-
5A	6X40	0	*	X	5	Yes	-	15	-	N	-	-
6A	6X6	300	*	X	6	Yes	-	-	-	X	N	-
8A	6X40	0	*	X	8	Yes	-	3	-	N	-	-
8B	6X40	0	*	X	8	Yes	-	10	-	N	-	-

* Video Detection Zone

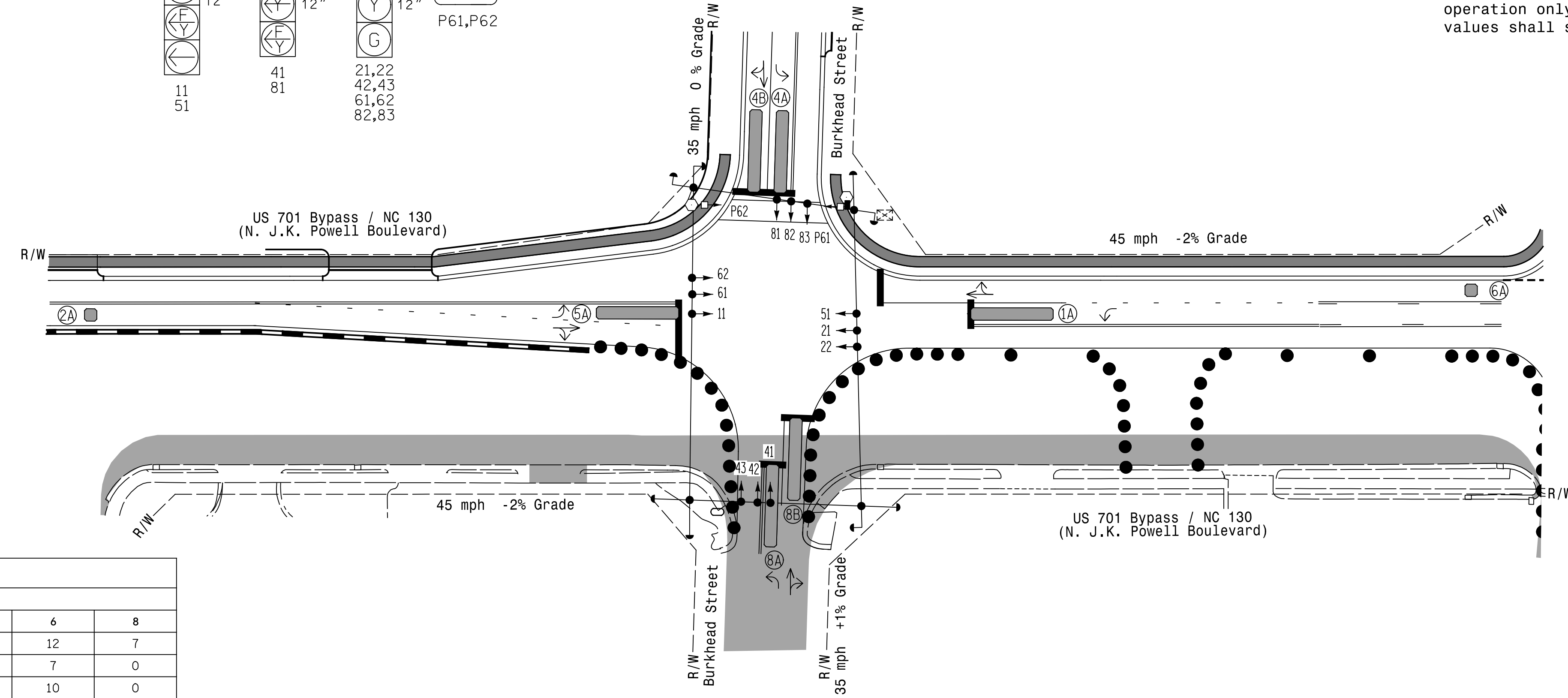
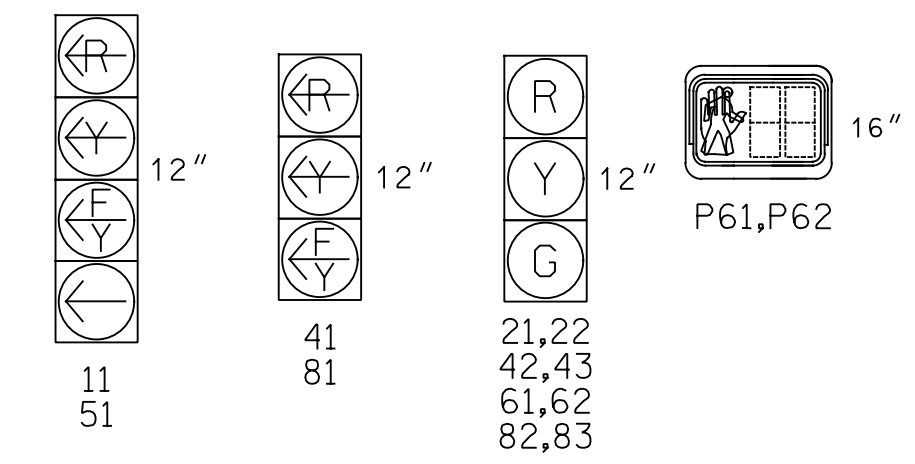
5 Phase Fully Actuated SYSTEM # 10605

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or 5 may be lagged.
- Reposition existing signal heads 11, 21, 22, 51, 61, and 62.
- Remove, and stockpile, existing pedestrian heads P21 & P22 along with the existing Type II signal pedestals on the east side of US 701 Bypass. These heads and pedestals will be reused in the final signal plan.
- Set all detection zones 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.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.

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 *	0	0	0	0	7	0
Ped Clear	0	0	0	0	10	0
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0
Max I *	15	90	20	15	90	20
Yellow	3.0	4.7	3.8	3.0	4.7	3.8
Red Clear	3.3	1.6	1.6	2.4	1.6	2.1
Actuations B4 Add *	-	0	-	-	0	-
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	-	-	-	-	-	-
Recall Position	-	VEH. RECALL	-	-	VEH. RECALL	-
Dual Entry	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

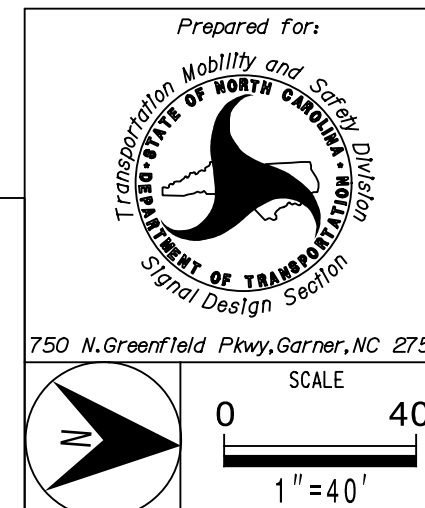
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED	EXISTING
○ Traffic Signal Head	● Traffic Signal Head
○ Modified Signal Head	N/A
⊥ Sign	⊥ Sign
⊥ Pedestrian Signal Head With Push Button & Sign	⊥ Pedestrian Signal Head
○ Signal Pole with Guy	○ Signal Pole with Guy
○ Signal Pole with Sidewalk Guy	○ Signal Pole with Sidewalk Guy
⊠ Inductive Loop Detector	⊠ Inductive Loop Detector
⊠ Controller & Cabinet	⊠ Controller & Cabinet
○ Junction Box	○ Junction Box
⋯ 2-in Underground Conduit	⋯ 2-in Underground Conduit
N/A Right of Way	⋯ Right of Way
→ Directional Arrow	→ Directional Arrow
█ Construction Zone	N/A
● Video Detection Zone Drums	● Video Detection Zone Drums
○ Type II Signal Pedestal	● Type II Signal Pedestal

Signal Upgrade - Temporary Design 2 - (TMP Phase 1A)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



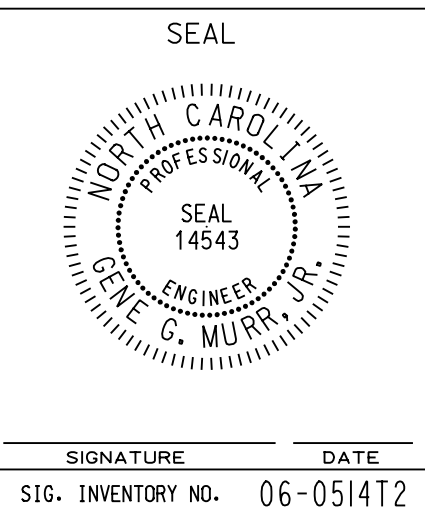
US 701 Bypass/NC 130 (N. J.K. Powell Blvd) at Burkhead Street

Division 06 Columbus County Whiteville

PLAN DATE: November 2019 REVIEWED BY: G.G. Murr, Jr.

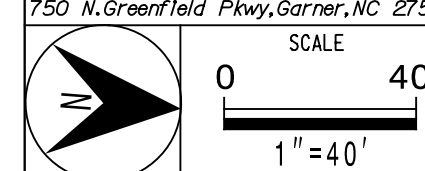
PREPARED BY: M. Ishak REVIEWED BY:

REVISIONS	INIT.	DATE



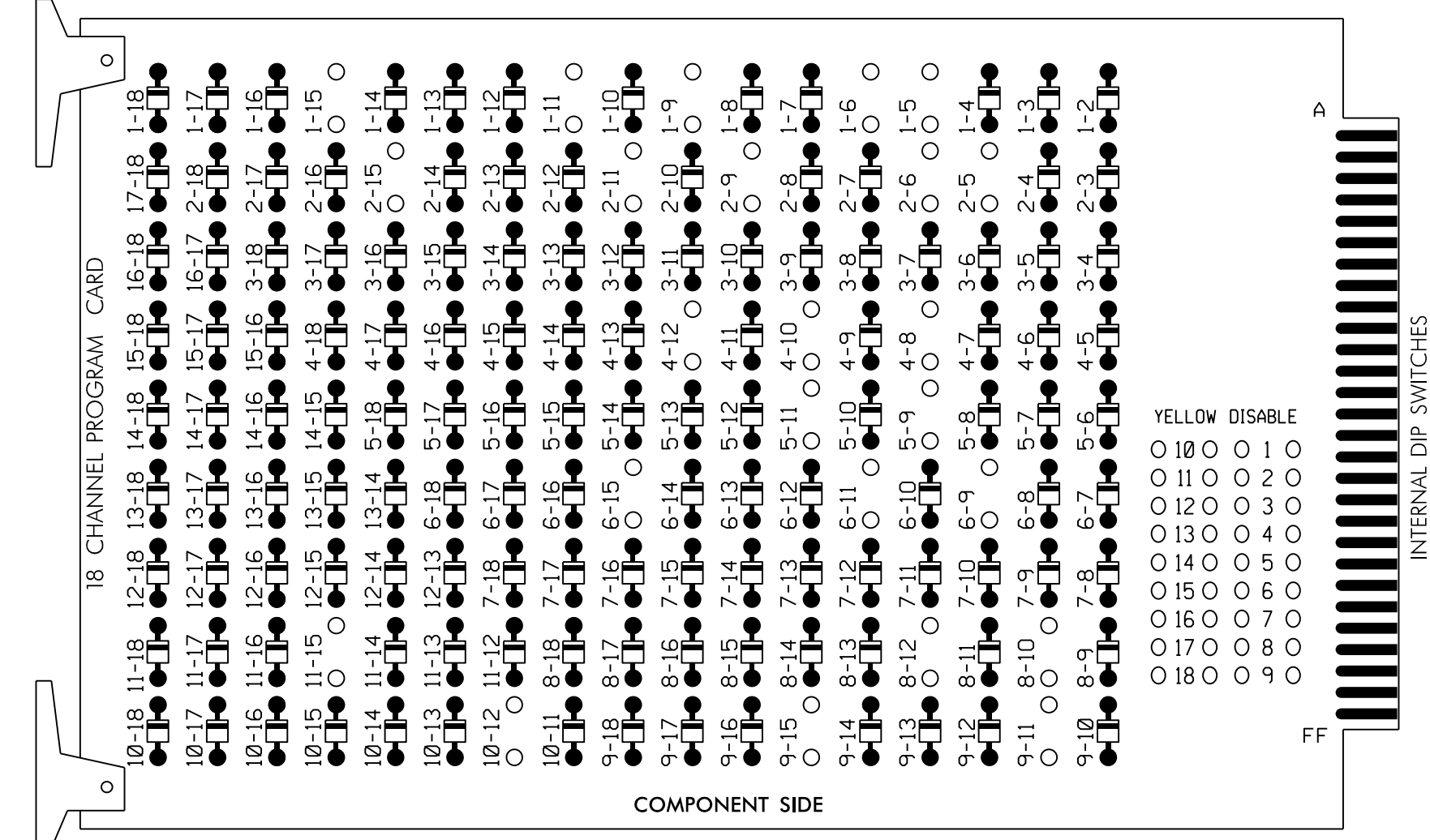
SEPI Engineering & Construction, Inc.

1 Glenwood Avenue
Raleigh, NC 27603
Tel: 919.789.9977
Fax: 919.789.9591
License: C-2197



EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL
(remove jumpers and set switches as shown)

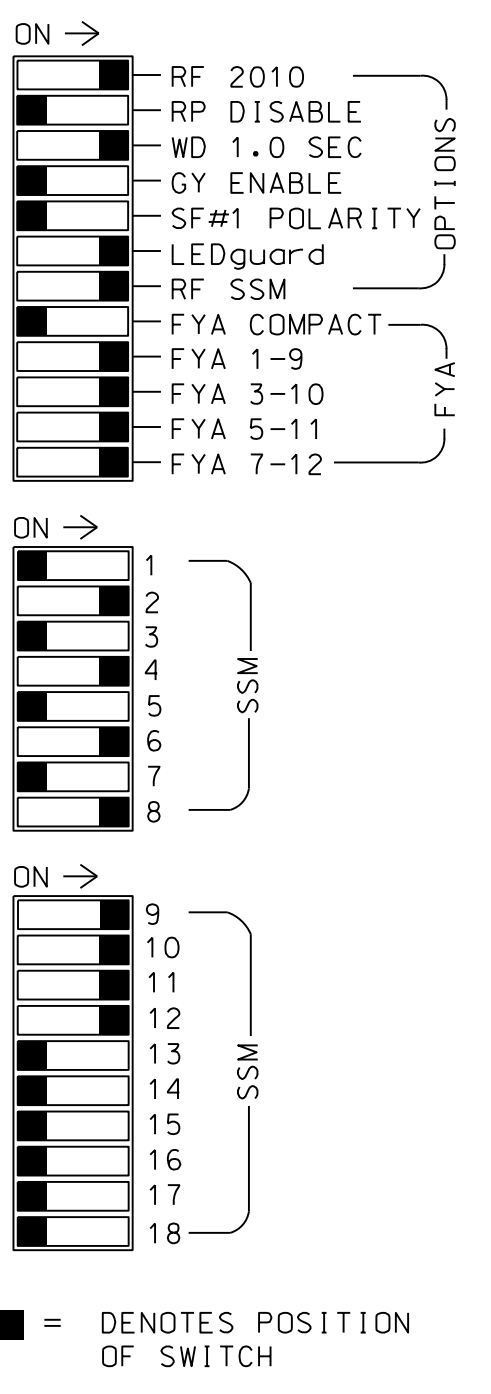
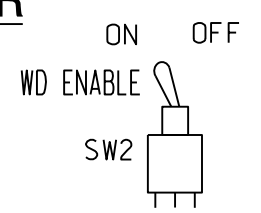
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-15, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 6-15, 8-10, 8-12, 9-11, 9-15, 10-12, AND 11-15.



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 unused 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 Walk.
- The cabinet and controller are part of System # 10605.

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,S9,S11,AUX S1
 AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,4,5,6,6 PED,8
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 * See overlap programming detail on sheet 2

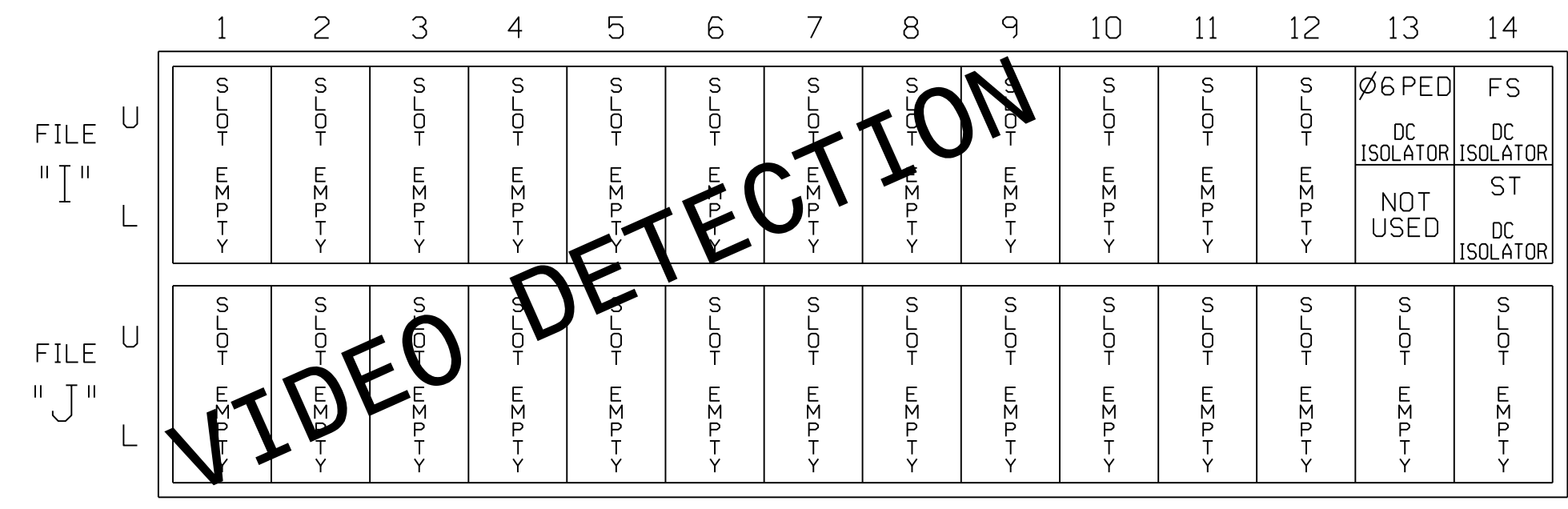
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	NU	42,43	NU	51	61,62	P61, P62	NU	82,83	NU	11	81	NU	51	41	NU
RED	128				101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW														A121	A124		A114	A101
YELLOW ARROW														A122	A125		A115	A102
FLASHING YELLOW ARROW														A123	A126		A116	A103
GREEN ARROW	127							133										
											119							

NU = Not Used

* Denotes install load resistor. See load resistor installation detail this sheet.
 ★ See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT
(front view)



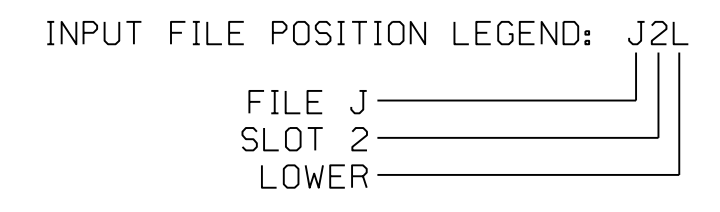
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

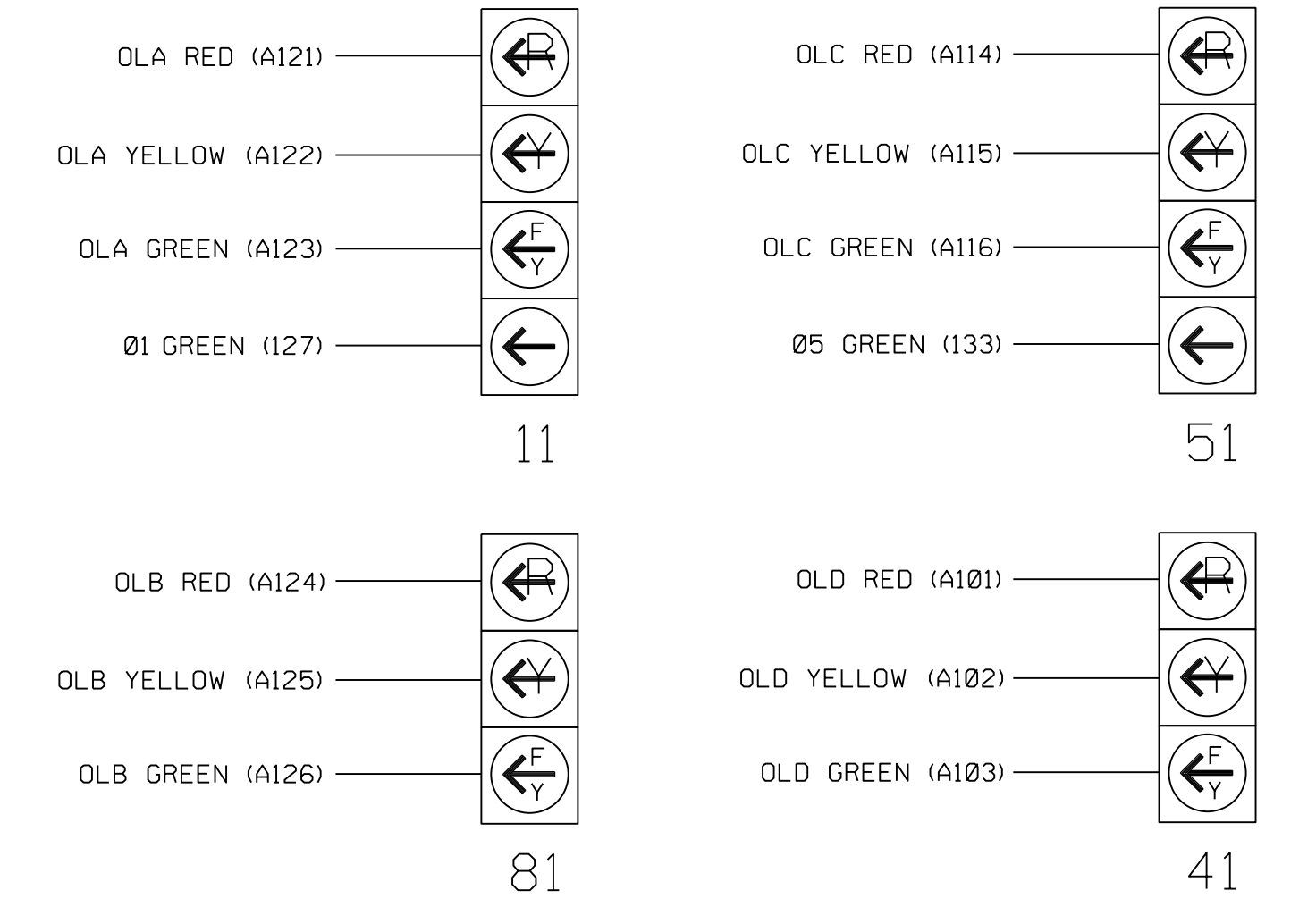
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
PED PUSH BUTTONS										
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS 113.



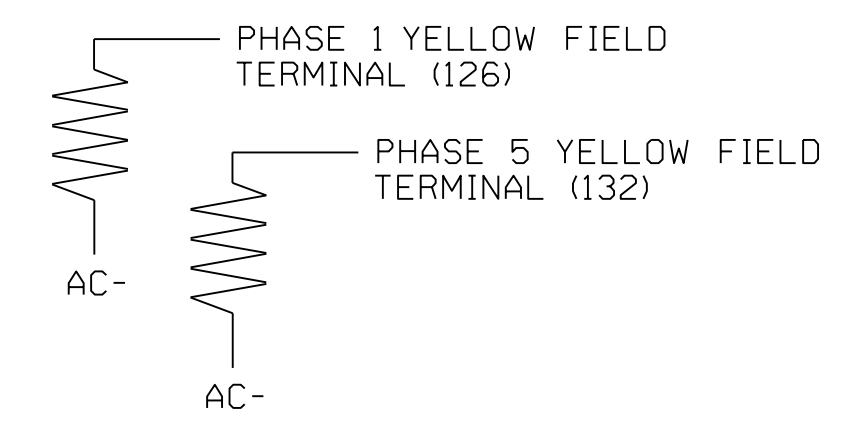
FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)



LOAD RESISTOR INSTALLATION DETAIL
(install resistors as shown)

ACCEPTABLE VALUES

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



SPECIAL DETECTOR NOTE:

Note: Install a video detection system for vehicle detection. Perform installation in accordance with manufacturer's directions and NCDOT engineer approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans for the following video zones: 1A, 2A, 4A, 4B, 5A, 6A, 8A, AND 8B.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0514T2
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

SEPI
 Engineering & Construction, Inc.
 1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
 Fax: 919.789.9591
 License: C-2197

Temporary Design 2 - (TMP Phase 1A)
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:
 US 701 Bypass/NC 130
 (N. J.K. Powell Boulevard)
 at
 Burkhead Street
 Division 06 Columbus County Whiteville
 PLAN DATE: November 2019 REVIEWED BY:
 PREPARED BY: M.B. Copple REVIEWED BY: G.G. Murr Jr
 REVISIONS: INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEERS
 SEAL 27771
 MATTHEW B. COPPLE
 DATE
 SIG. INVENTORY NO. 06-0514T2

5/15/2020
 W:\P60208\sig.dsn_06-0514T2.dgn
 USER:MCopple

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..... 0
    
```

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..... 0
    
```

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 . . . . . 8 . . . . .
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

FLASHER CIRCUIT MODIFICATION DETAIL

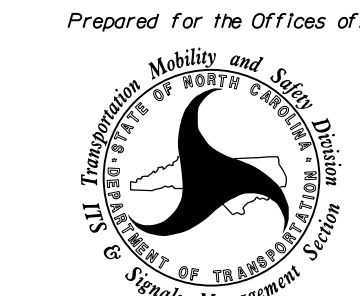
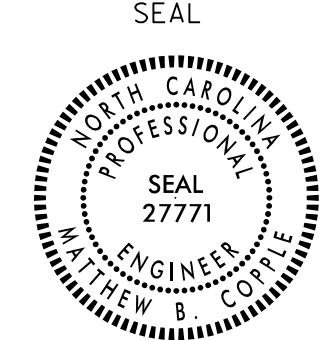
IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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: 06-0514T2
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

Temporary Design 2 - (TMP Phase 1A)
 Electrical Detail - Sheet 2 of 2

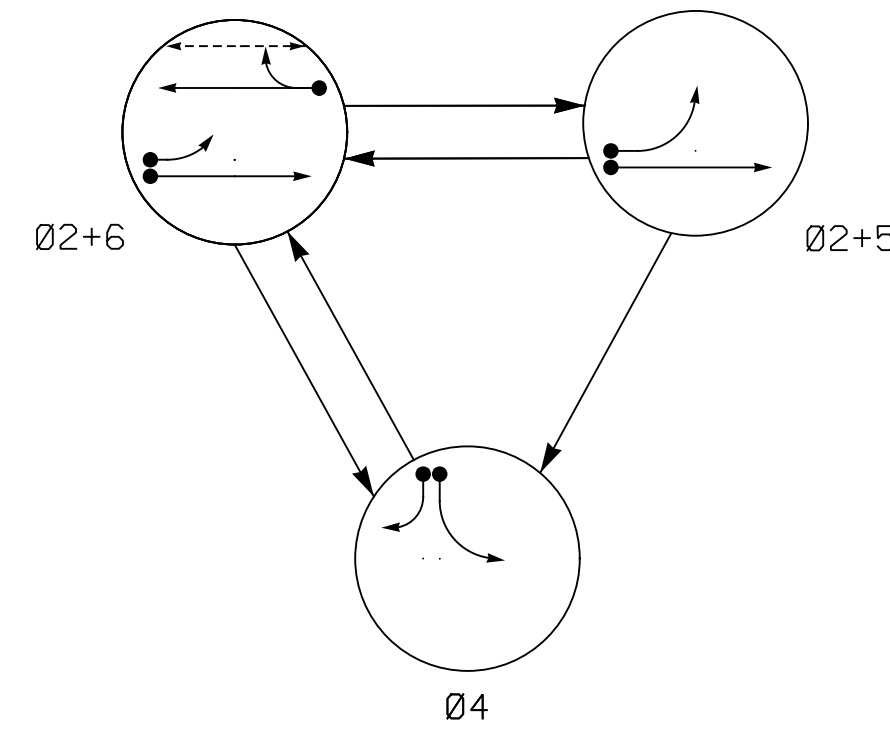
ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 701 Bypass/NC 130 (N. J.K. Powell Boulevard) at Burkhead Street	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED									
Prepared for the Offices of: 	Division 06 Columbus County Whiteville	SEAL 									
	PLAN DATE: December 2019 REVIEWED BY:										
	PREPARED BY: M.B. Copple REVIEWED BY: GG Murr Jr										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE							
REVISIONS	INIT.	DATE									
	750 N. Greenfield Pkwy, Garner, NC 27529	DATE SIG. INVENTORY NO. 06-0514T2									

SEPI

Engineering & Construction, Inc.

1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
 Fax: 919.789.9591
 License: C-2197

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	Ø 2+5	Ø 2+6	Ø 4	FLASH
21,22	G	G	R	Y
41	R	R	F	R
42,43	R	R	G	R
51	F	F	R	Y
61,62	R	G	R	Y
P61,P62	DW	W	DW	DRK

ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
2A	6X6	300	*	-	2	Yes	-	-	X	N	-	-
4A	6X40	0	*	-	4	Yes	-	3	-	N	-	-
4B	6X40	0	*	-	4	Yes	-	10	-	N	-	-
5A	6X40	0	*	-	5	Yes	-	15	-	N	-	-
6A	6X6	300	*	-	2	Yes	-	3	-	G	-	-
					6	Yes	-	-	X	N	-	-

* Video Detection Zone

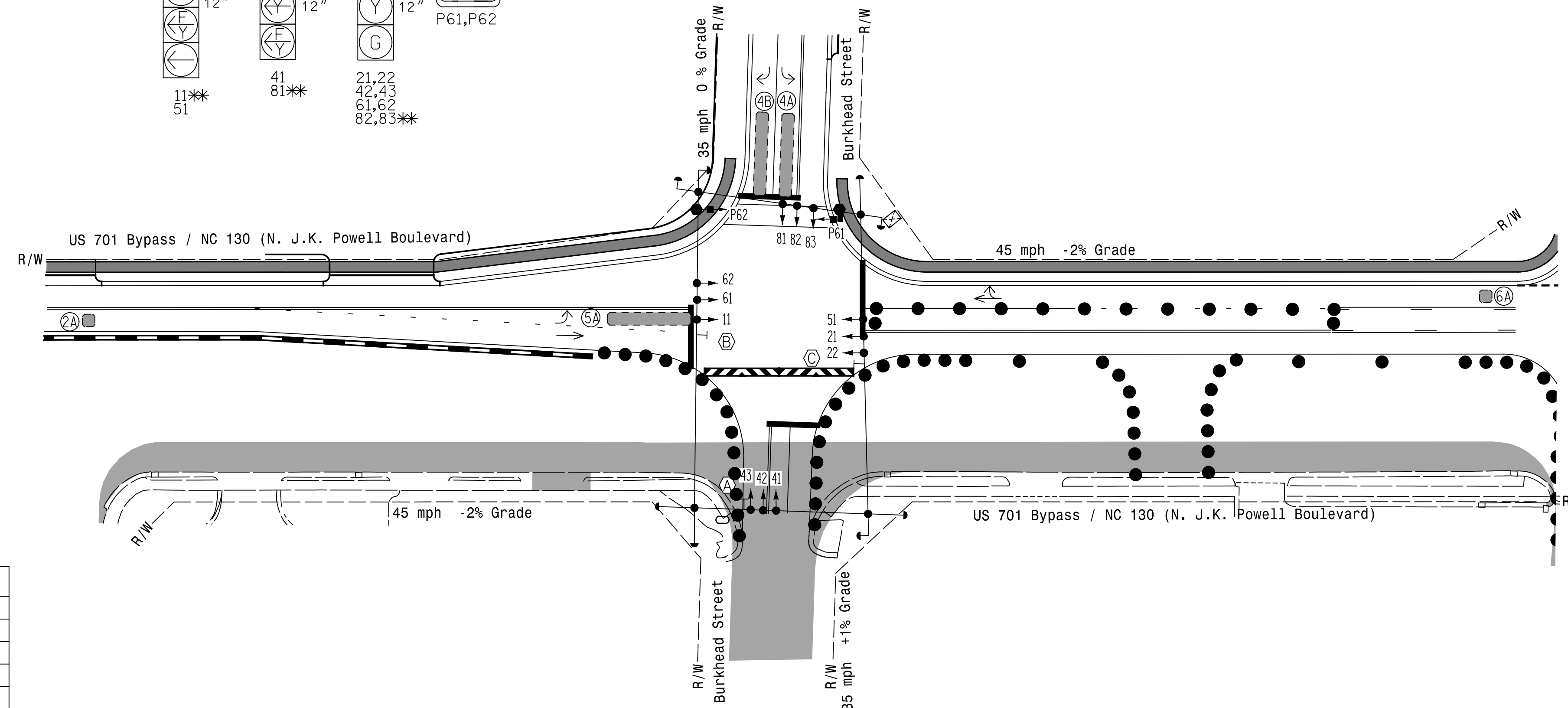
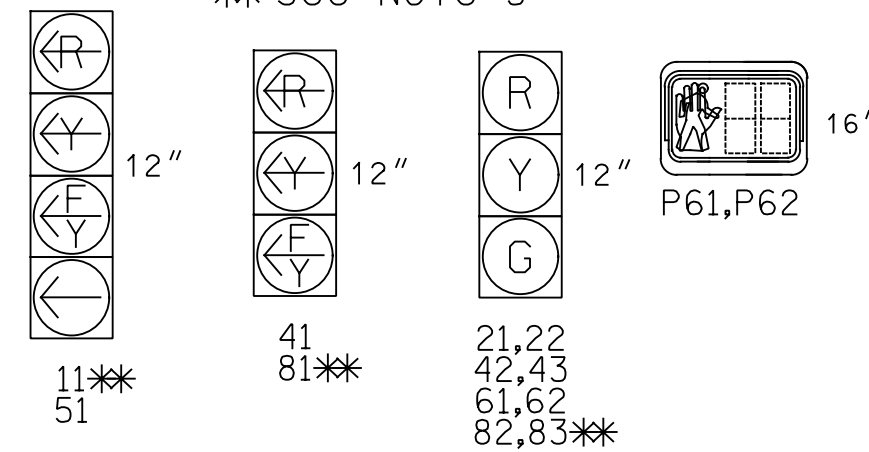
3 Phase Fully Actuated SYSTEM # 10605

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may lead.
4. Reposition existing signal heads 21, 22, 51, 61, and 62.
5. Bag and disconnect signal heads 11, 81, 82, and 83.
6. Set all detection zones to presence mode.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.

SIGNAL FACE I.D.

All Heads L.E.D. * See Note 5



ASC/3 TIMING CHART

FEATURE	PHASE			
	2	4	5	6
Min Green *	12	7	7	12
Walk *	0	0	0	7
Ped Clear	0	0	0	10
Veh. Extension *	6.0	2.0	2.0	6.0
Max I *	90	20	15	90
Yellow	4.7	3.0	3.0	4.7
Red Clear	1.0	2.4	2.4	1.0
Actuations B4 Add *	0	-	-	0
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	-	-	-	-
Recall Position	VEH. RECALL	-	-	VEH. RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	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 | ● Traffic Signal Head |
| ○ 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 |
| ⊥ Controller & Cabinet | ⊥ Controller & Cabinet |
| ⊥ Junction Box | ⊥ Junction Box |
| ⊥ 2-in Underground Conduit | ⊥ 2-in Underground Conduit |
| N/A Right of Way | — Right of Way |
| → Directional Arrow | → Directional Arrow |
| ▬ Video Detection Area | ▬ Video Detection Area |
| ▬ BARRICADE (TYPE III) | ▬ BARRICADE (TYPE III) |
| ▬ Construction Zone | N/A |
| ▬ Video Detection Zone | ▬ Video Detection Zone |
| ● Drums | N/A |
| Ⓐ "RIGHT ARROW ONLY" Sign (R3-5R) | Ⓐ "RIGHT ARROW ONLY" Sign (R3-5R) |
| Ⓑ "NO LEFT TURN" Sign (R3-2) | Ⓑ "NO LEFT TURN" Sign (R3-2) |
| Ⓒ "NO RIGHT TURN" Sign (R3-1) | Ⓒ "NO RIGHT TURN" Sign (R3-1) |
| ○ Type II Signal Pedestal | ● Type II Signal Pedestal |

Signal Upgrade - Temporary Design 3 - (TMP Phase 1A)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529
 SCALE 1" = 40'

US 701 Bypass/NC 130 (N. J.K. Powell Boulevard) at Burkhead Street
 Division 06 Columbus County Whiteville
 PLAN DATE: November 2019 REVIEWED BY: G.G. Murr, Jr.
 PREPARED BY: M. Ishak REVIEWED BY:
 REVISIONS INIT. DATE

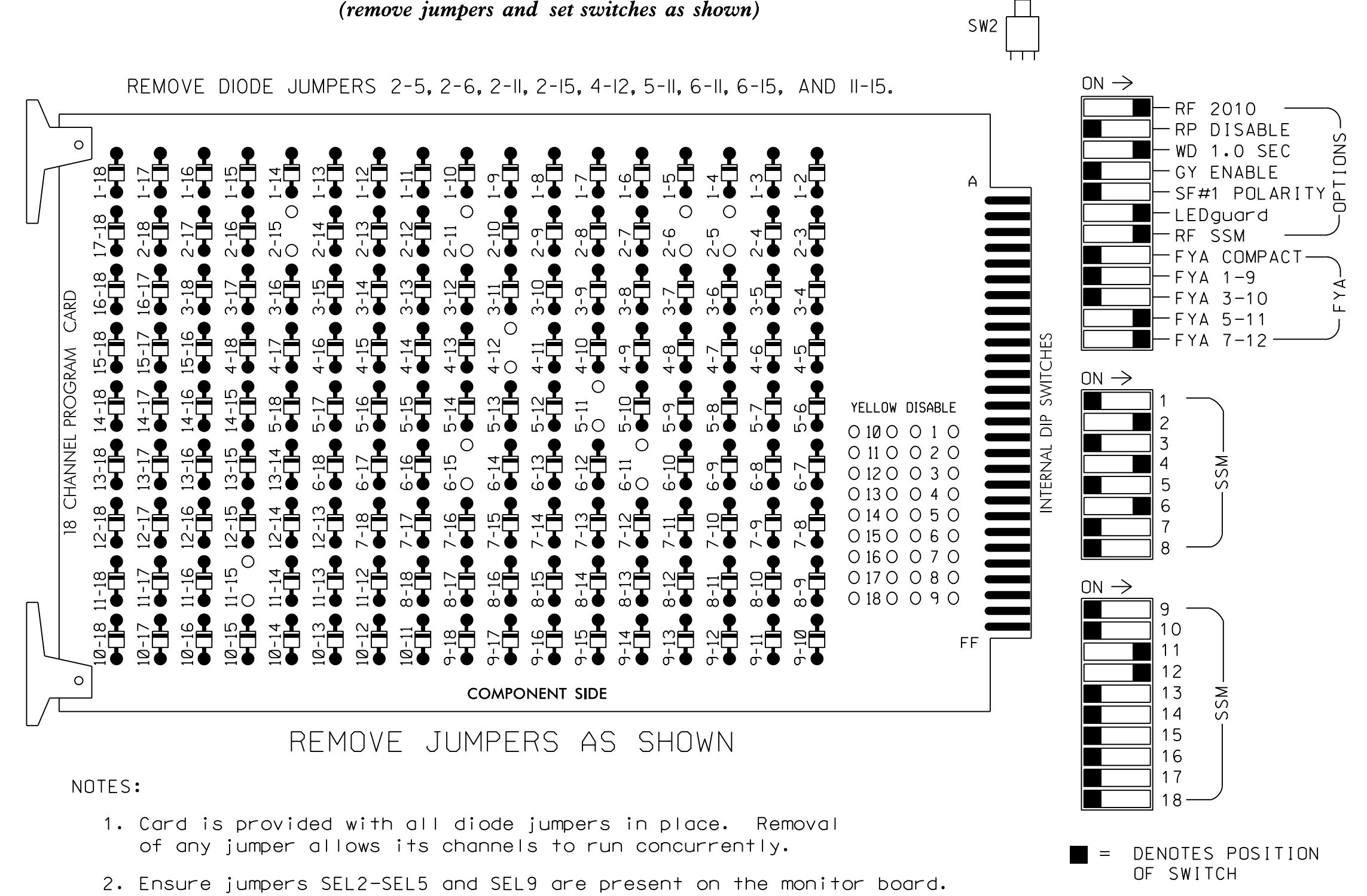
SEAL

 SIGNATURE DATE
 SIG. INVENTORY NO. 06-0514T3

SEPI
 Engineering & Construction, Inc.
 1 Glenwood Avenue
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 Tel: 919.789.9977
 Fax: 919.789.9591
 License: C-2197

5/13/2020
 USER: MURR
 USER: MURR

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL
(remove jumpers and set switches as shown)



- NOTES:**
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - 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 unused 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 Walk.
- The cabinet and controller are part of System # 10605.

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,S5,S7,S8,S9,AUX S4,AUX S5
 PHASES USED.....2,4,5,6,6 PED
 OVERLAP "A".....NOT USED
 OVERLAP "B".....NOT USED
 OVERLAP "C".....*
 OVERLAP "D".....*

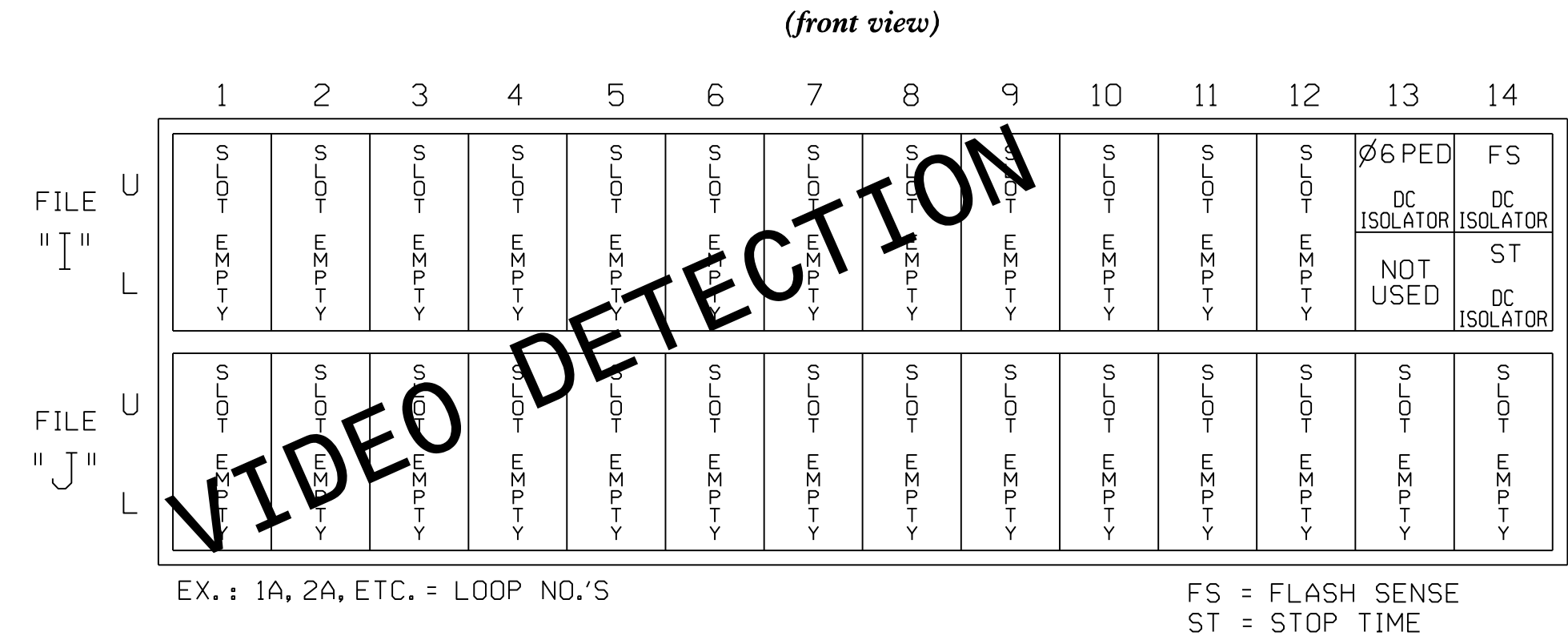
* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	42,43	NU	51	61,62	P61, P62	NU	NU	NU	NU	NU	NU	51	41	NU
RED		128			101			134										
YELLOW		129			102		*	135										
GREEN		130			103			136										
RED ARROW																	A114	A101
YELLOW ARROW																	A115	A102
FLASHING YELLOW ARROW																	A116	A103
GREEN ARROW								133										
Hand icon										119								
Person icon										121								

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

INPUT FILE POSITION LAYOUT

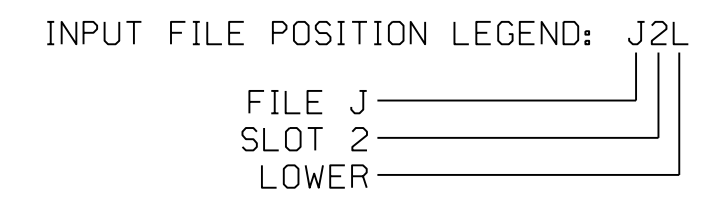


EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME

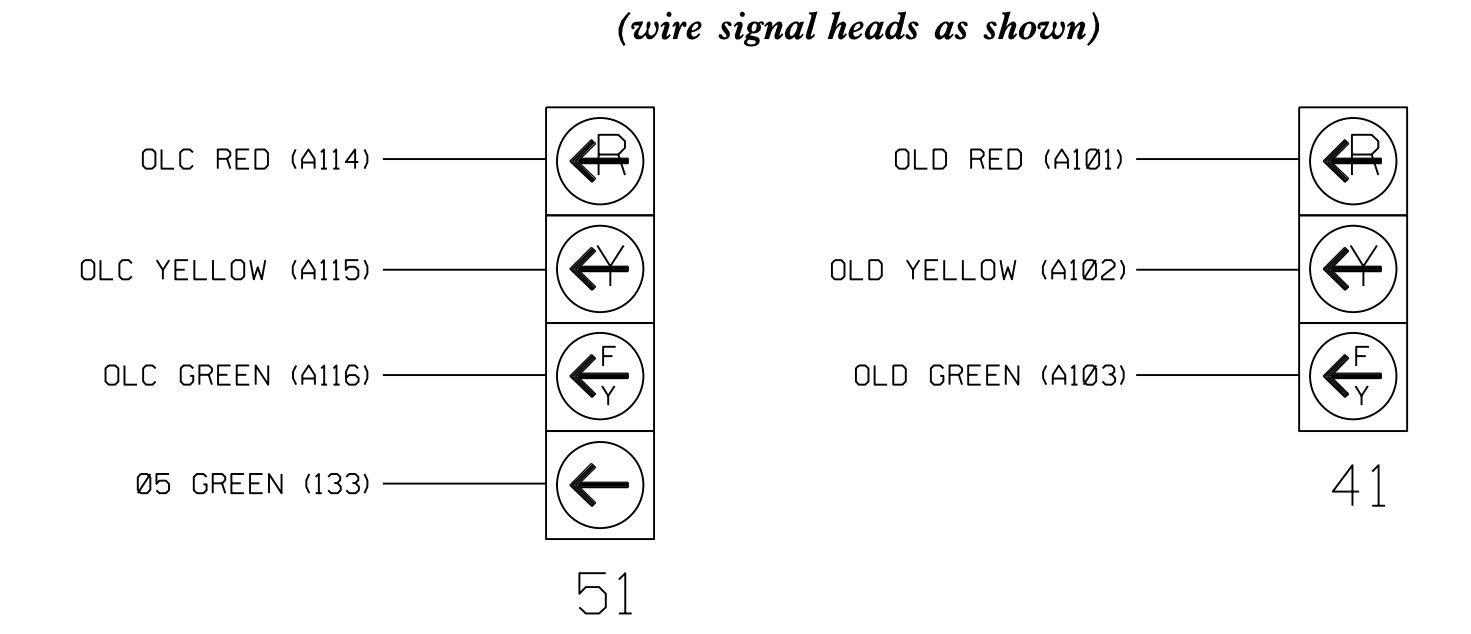
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
PED PUSH BUTTONS										
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

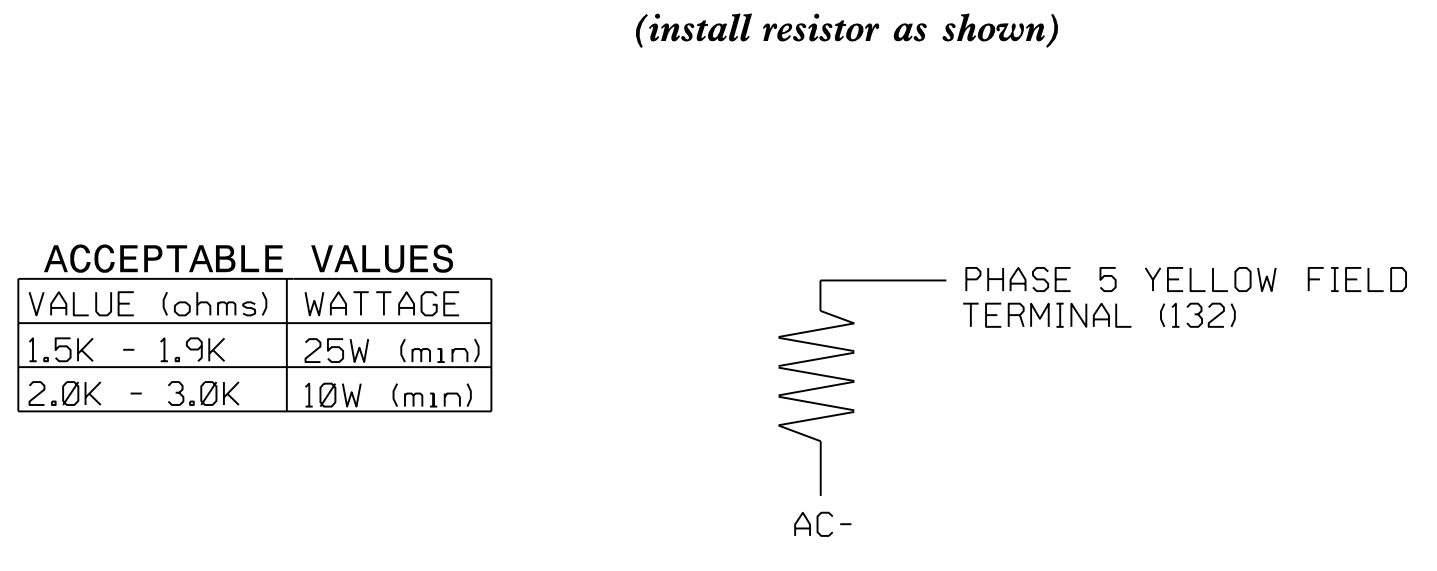
NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS 113.



FYA SIGNAL WIRING DETAIL



LOAD RESISTOR INSTALLATION DETAIL



ACCEPTABLE VALUES

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

SPECIAL DETECTOR NOTE:

Note: Install a video detection system for vehicle detection. Perform installation in accordance with manufacturer's directions and NCDOT engineer approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans for the following video zones: 2A, 4A, 4B, 5A, AND 6A.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0514T3
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

Temporary Design 3 - (TMP Phase 1A)
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 701 Bypass/NC 130
 (N. J.K. Powell Boulevard)
 at
 Burkhead Street

Division 06 Columbus County Whiteville

PLAN DATE: November 2019 REVIEWED BY:
 PREPARED BY: M.B. Copple REVIEWED BY: G.G. Murr Jr

REVISIONS: _____ INIT. DATE _____

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 Twice

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..... 0

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 . . . 4

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 CONTROLLER

SEQUENCE PROGRAMMING DETAIL

(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 1. PHASE RING SEQUENCE AND ASSIGNMENT

CONTROLLER SEQUENCE [1]

SEQUENCE COMMANDS	HW	ALT	SEQ	ENA.	NO.										
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
BC=B	-	B	-	B	-	-	-	-	-	-	-	-	-	-	-
R1	-	02	04	.	.	.	.	.	.	.	.	.	.	.	.
R2	-	06	05	.	.	.	.	.	.	.	.	.	.	.	.
R3	-
R4	-

R1-R4=RING 1-4, DATA ENTRY, PHASES 1-16
BC=BARRIER CONTROL, VALUES: B,C
B=BARRIER MODE
C=COMPATIBILITY MODE

END PROGRAMMING

FLASHER CIRCUIT MODIFICATION DETAIL

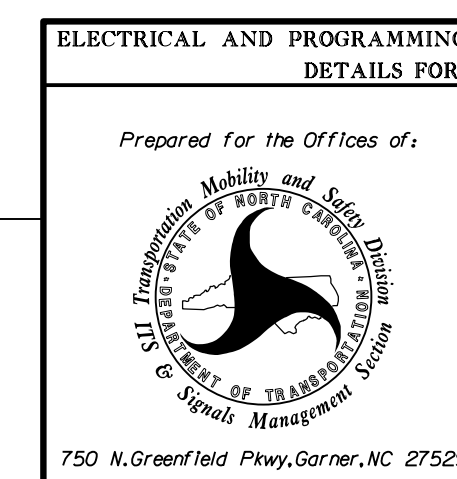
IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

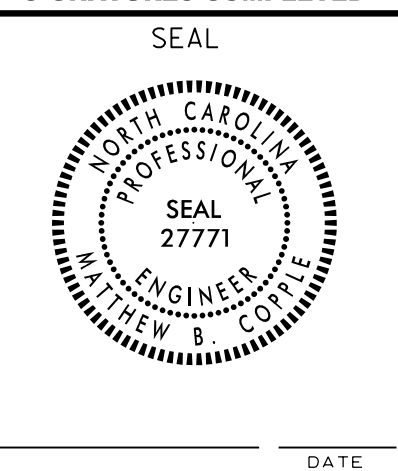
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-0514T3
DESIGNED: November 2019
SEALED: 05/15/2020
REVISED: N/A

Temporary Design 3 - (TMP Phase 1A)
Electrical Detail - Sheet 2 of 2



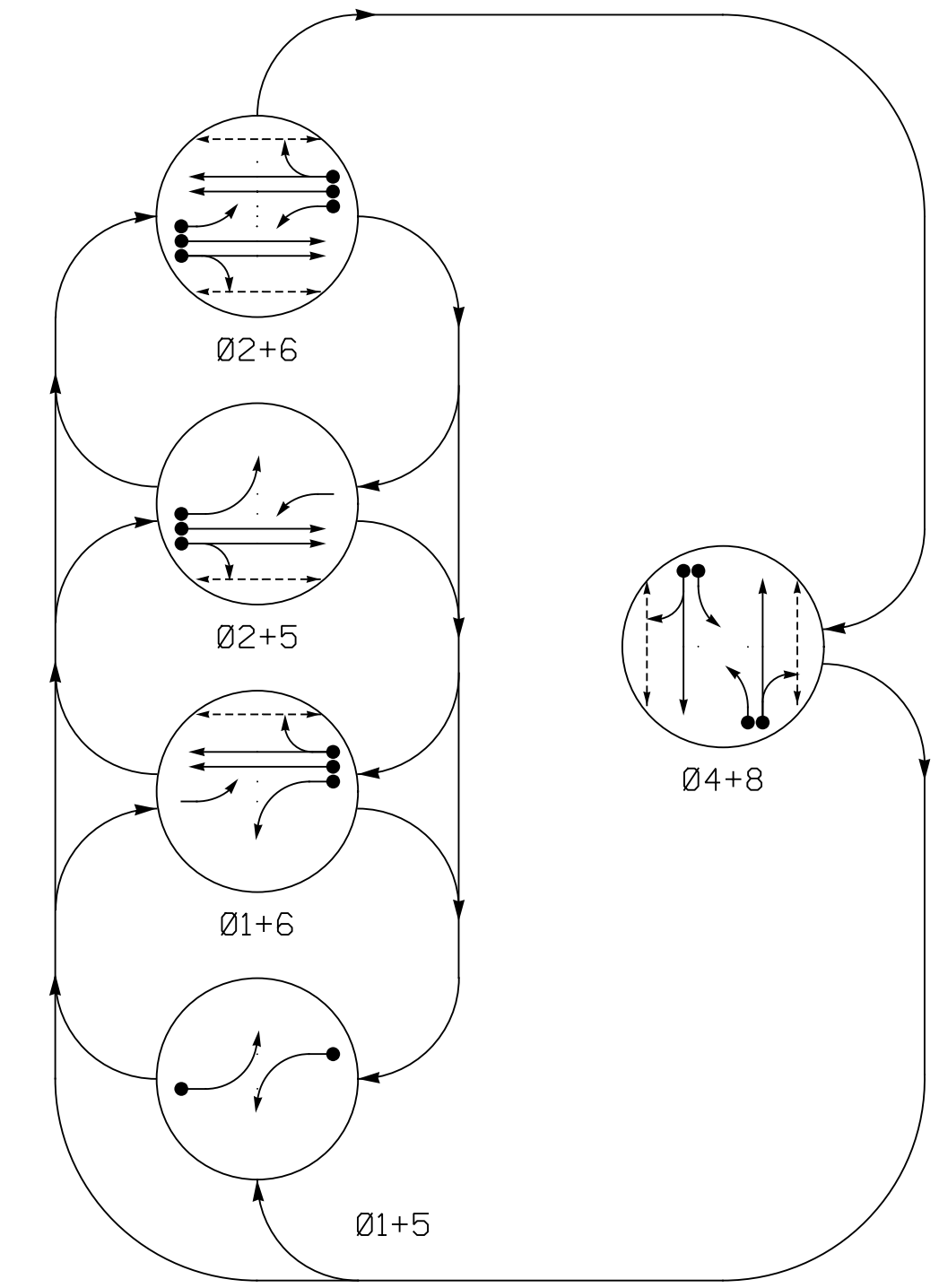
US 701 Bypass/NC 130 (N. J.K. Powell Boulevard) at Burkhead Street	
Division 06	Columbus County
Whiteville	
PLAN DATE: November 2019	REVIEWED BY:
PREPARED BY: M.B. Copple	REVIEWED BY: GG Murr Jr
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED



SIG. INVENTORY NO. 06-0514T3

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE					
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	Ø 4 + 8	Ø 4 + 8
11	←	←	←	←	←	←
21,22	R	R	G	G	R	Y
41	←	←	←	←	←	←
42,43	R	R	R	R	G	R
51	←	←	←	←	←	←
61,62	R	G	R	G	R	Y
81	←	←	←	←	←	←
82,83	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
P81,P82	DW	DW	DW	DW	W	DRK

ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	X	1	Yes	-	15	-	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	-	N	-	X
4B	6X40	0	2-4-2	X	4	Yes	-	10	-	N	-	X
5A	6X40	0	2-4-2	X	5	Yes	-	15	-	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	-	N	-	X
8B	6X40	0	2-4-2	X	8	Yes	-	10	-	N	-	X

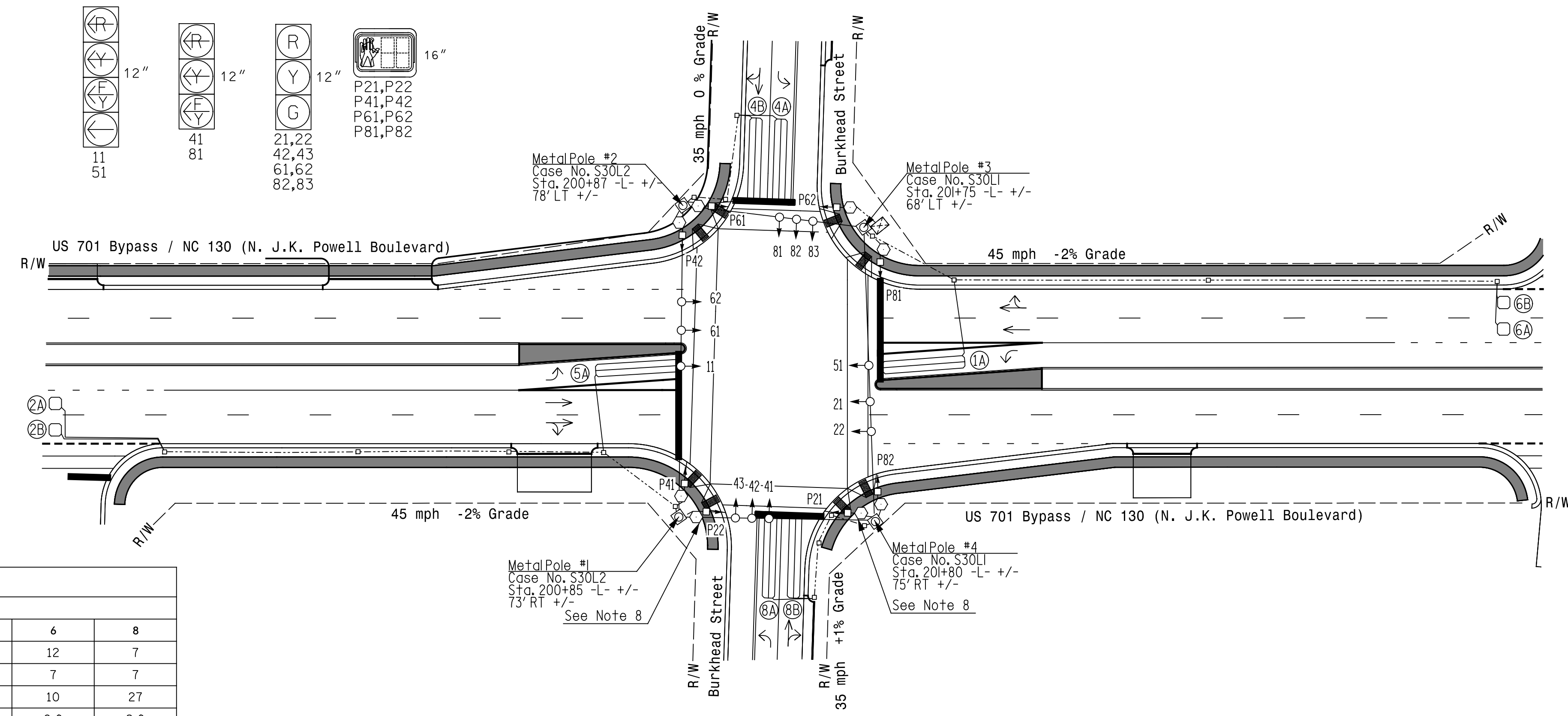
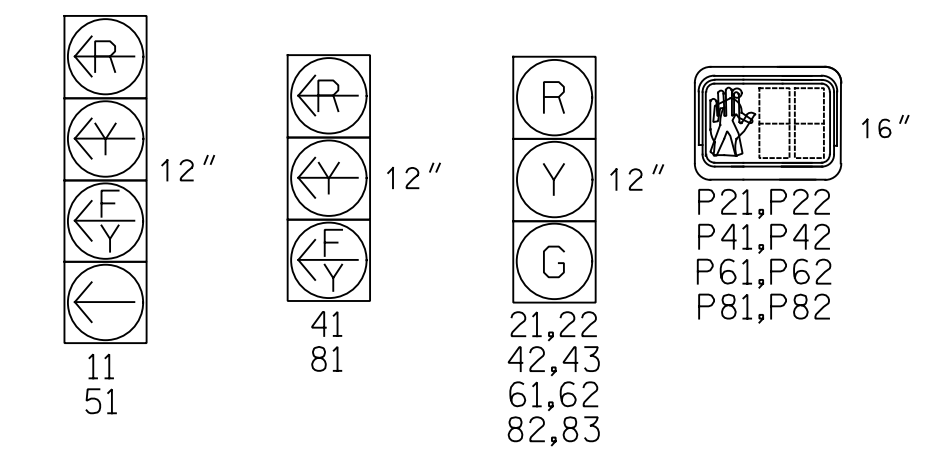
5 Phase Fully Actuated SYSTEM # 10605

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or 5 may be lagged.
4. Set all detector units to presence mode.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
8. Reuse the stockpiled pedestrian heads P21 & P22 along with the Type II signal pedestals from Temporary Design 2

SIGNAL FACE I.D.

All Heads L.E.D.

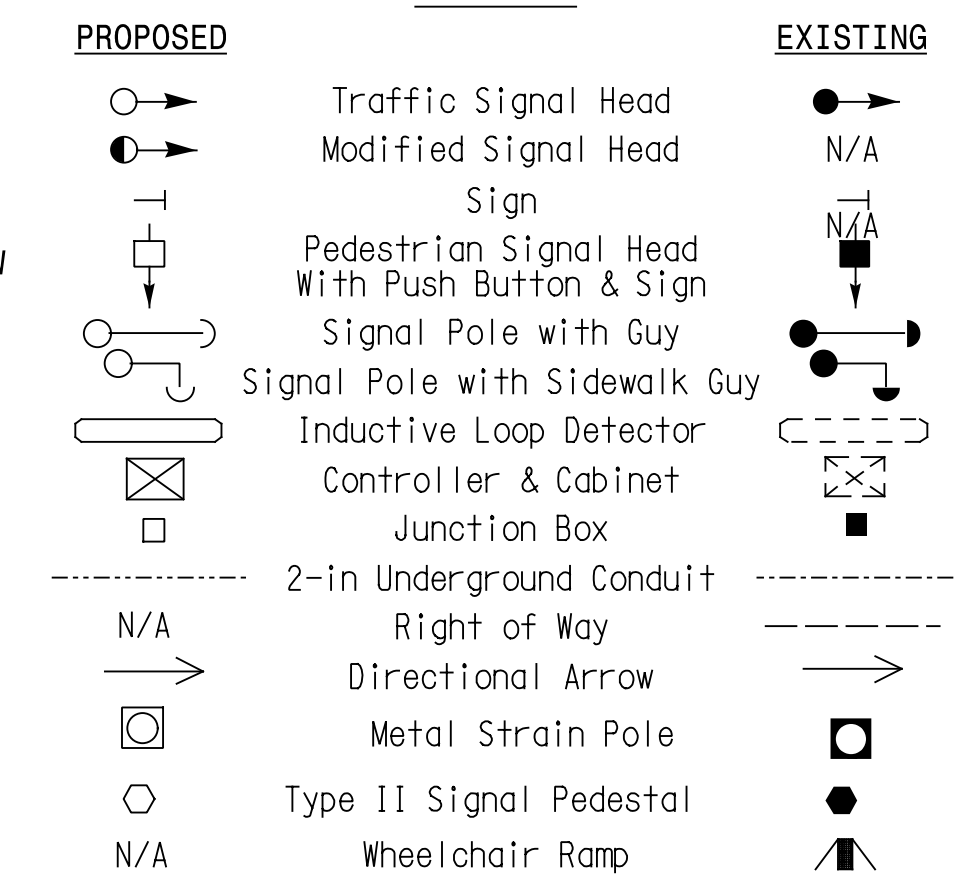


ASC/3 TIMING CHART

FEATURE	PHASE						
	1	2	4	5	6	8	
Min Green *	7	12	7	7	12	7	
Walk *	0	7	7	0	7	7	
Ped Clear	0	13	30	0	10	27	
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0	
Max I *	15	90	20	15	90	20	
Yellow	3.0	4.7	3.8	3.0	4.7	3.8	
Red Clear	3.1	1.4	2.8	3.1	1.4	2.8	
Actuations B4 Add *	-	0	-	-	0	-	
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	-	VEH. RECALL	-	-	VEH. RECALL	-	
Dual Entry	-	-	X	-	-	X	
Simultaneous Gap	X	X	X	X	X	X	

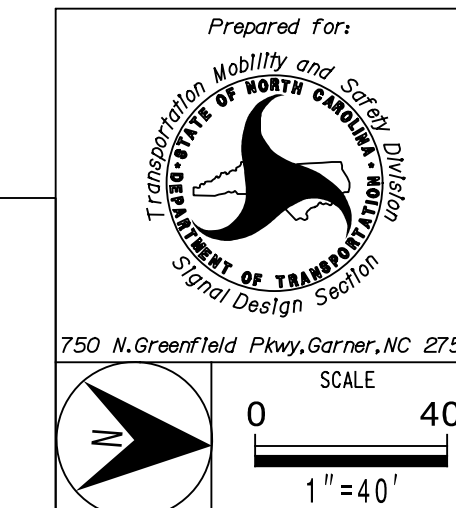
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

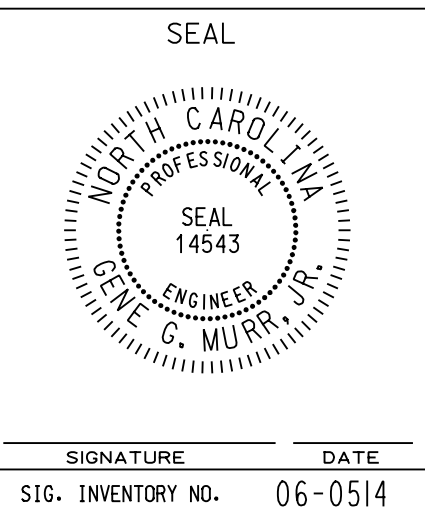


Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



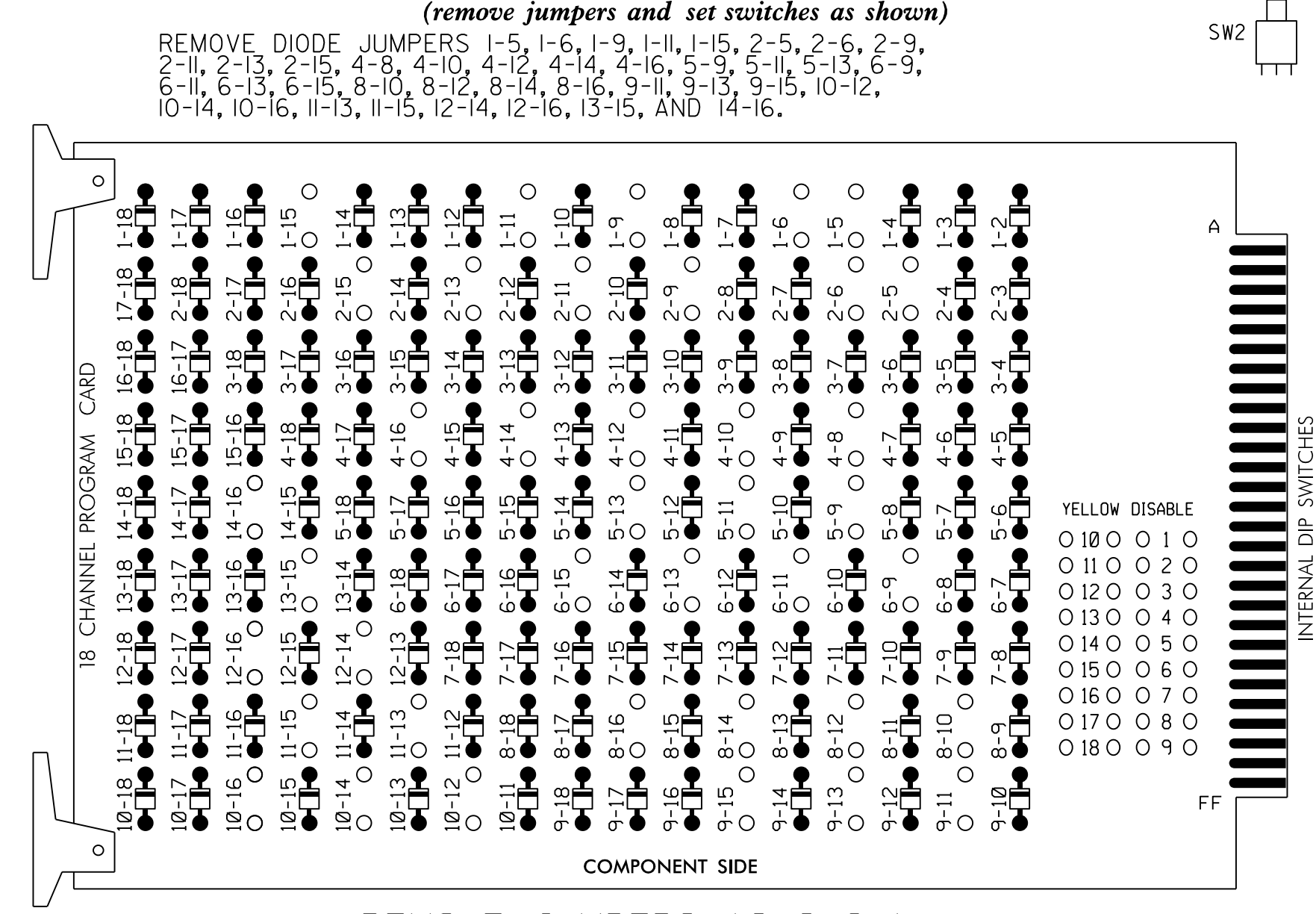
US 701 Bypass/NC 130 (N. J.K. Powell Blvd) at Burkhead Street
 Division 06 Columbus County Whiteville
 PLAN DATE: November 2019 REVIEWED BY: G.G. Murr, Jr.
 PREPARED BY: M Ishak REVIEWED BY:
 REVISIONS INIT. DATE



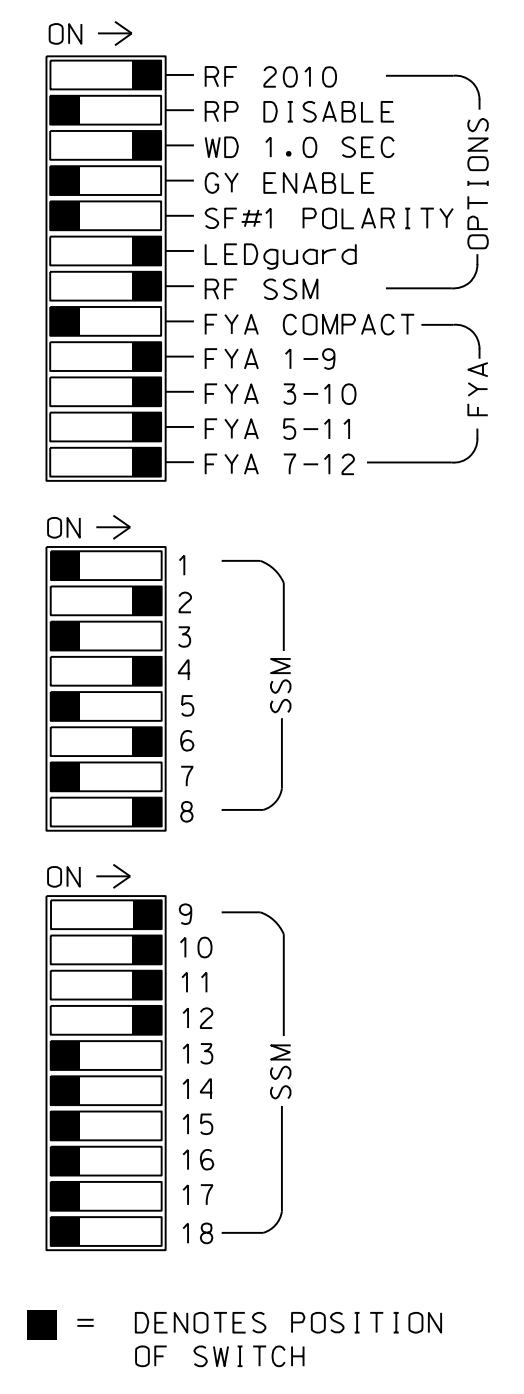
SEPI
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 1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
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 License: C-2197

5/13/2020 11:05:00 AM R-5020B-14.dgn USER:MCopple

EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL
(remove jumpers and set switches as shown)



- NOTES:
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - 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 unused 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 Walk and 6 Walk.
- The cabinet and controller are part of System # 10605.

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,S12,
 AUX S1,AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,2PED,4,4PED,5,6,6PED,8,8PED
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 * See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	P21, P22	NU	42,43	P41, P42	51	61,62	P61, P62	NU	82,83	P81, P82	11	81	NU	51	41	NU
RED	128			101				134		107								
YELLOW	*	129		102		*	135		108									
GREEN		130		103			136		109									
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW													A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127						133											
Hand icon			113			104		119		110								
Person icon			115			106		121		112								

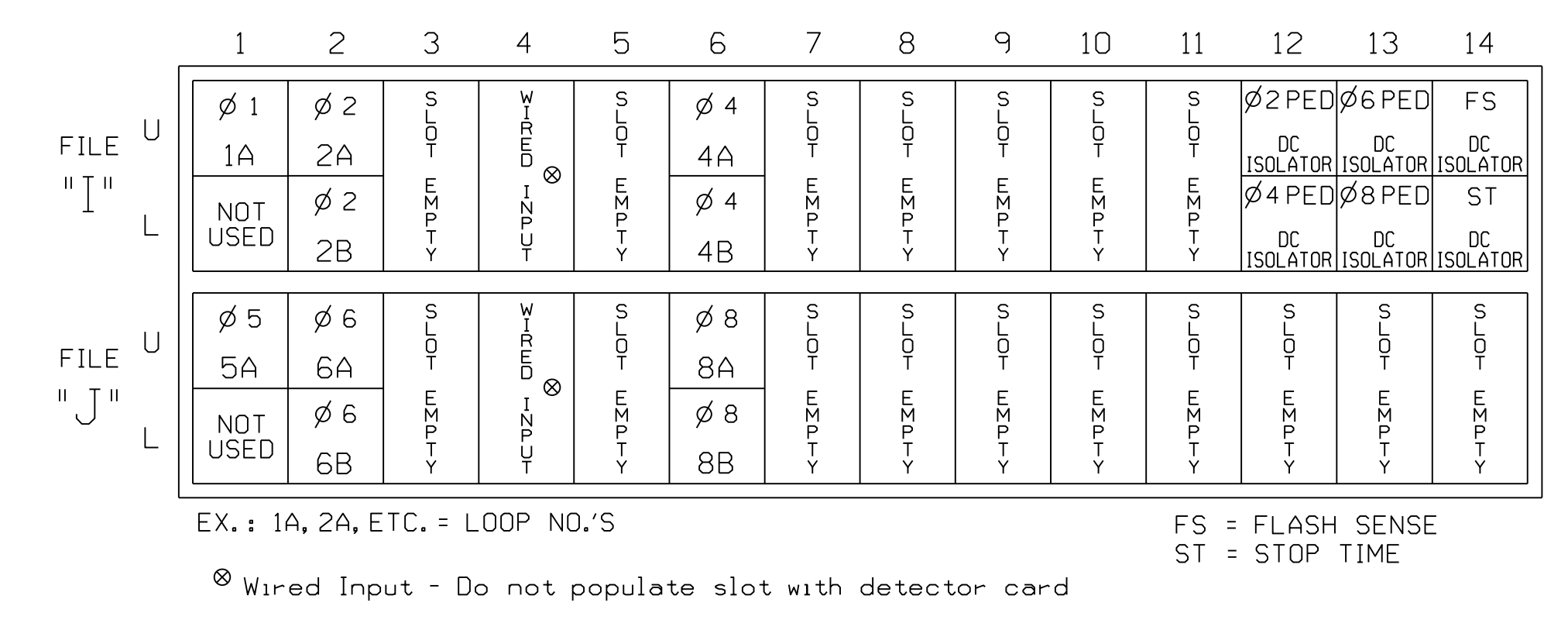
NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 ★ See pictorial of head wiring in detail this sheet.

INPUT FILE CONNECTION & PROGRAMMING CHART

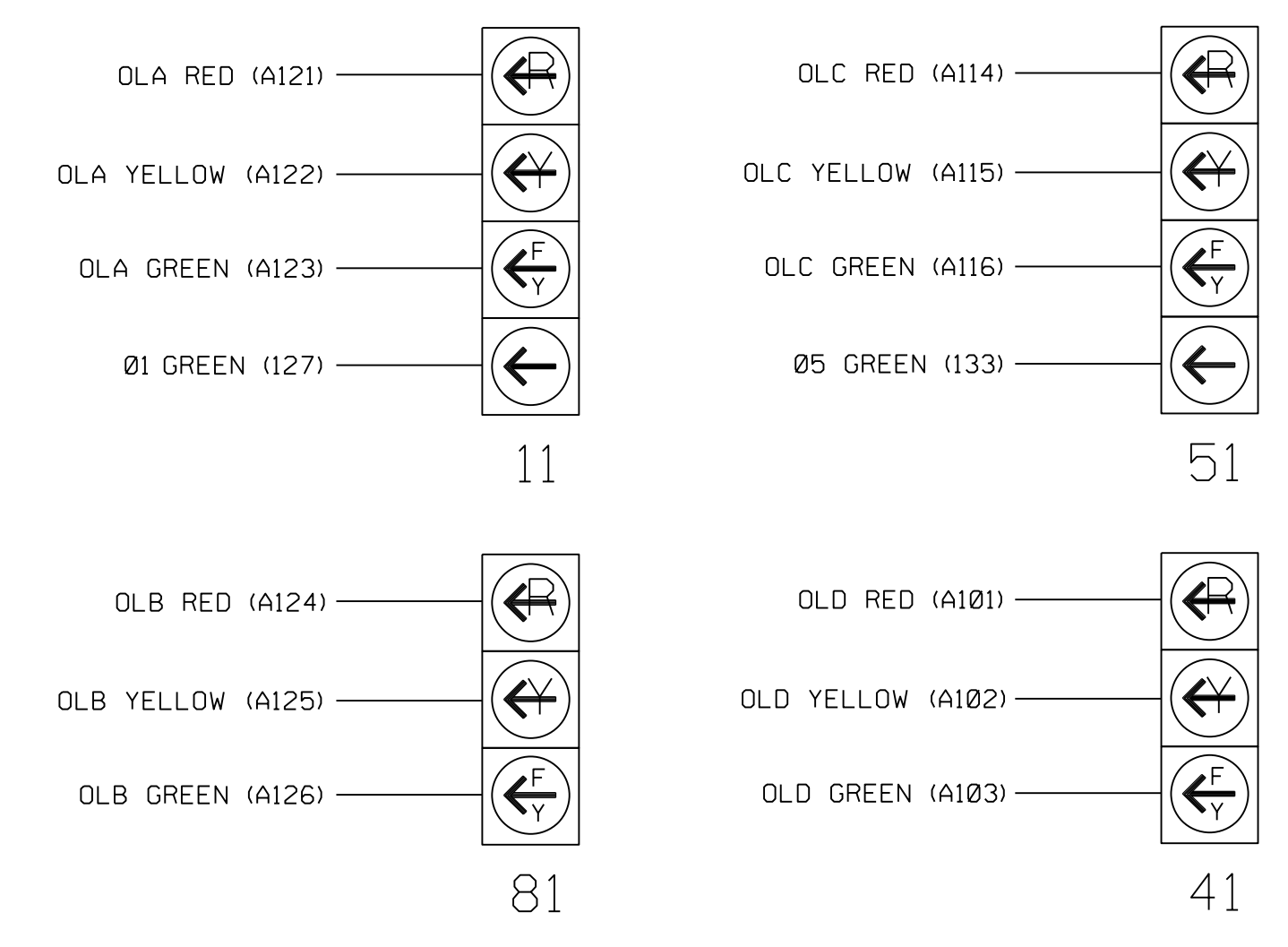
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A ¹	TB2-1,2	I1U	56	1	1	YES		15		N
2A	TB2-5,6	J4U	48	26	6	YES		3		G
2B	TB2-7,8	I2L	43	12	2	YES			X	N
4A	TB4-9,10	I6U	41	4	4	YES		3		N
4B	TB4-11,12	I6L	45	14	4	YES		10		N
5A ²	TB3-1,2	J1U	55	5	5	YES		15		N
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		N
8B	TB5-11,12	J6L	46	18	8	YES		10		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					
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED					

NOTE:
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.
 INPUT FILE POSITION LEGEND: J2L
 FILE J
 SLOT 2
 LOWER

INPUT FILE POSITION LAYOUT
(front view)



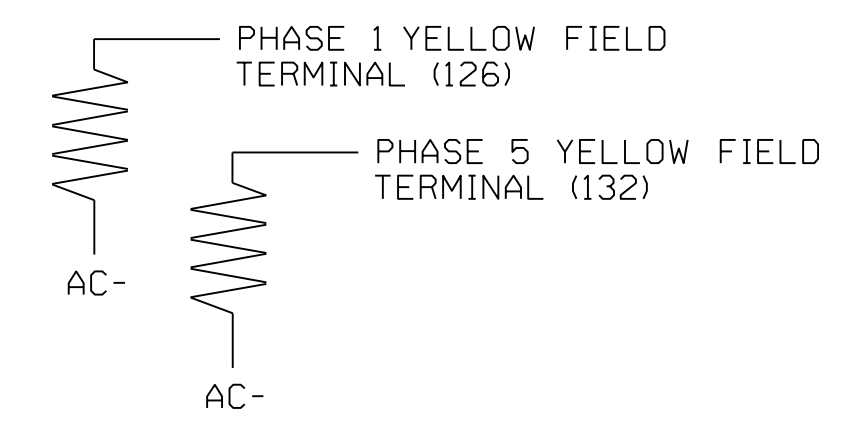
FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)



LOAD RESISTOR INSTALLATION DETAIL
(install resistors as shown)

ACCEPTABLE VALUES

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0514
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

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.

SEPI
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 1 Glenwood Avenue
 Raleigh, NC 27603
 Tel:919.789.9977
 Fax:919.789.9591
 License: C-2197

Final Design
 Electrical Detail - Sheet 1 of 2

US 701 Bypass/NC 130
 (N. J.K. Powell Boulevard)
 at
 Burkhead Street

Division 06 Columbus County Whiteville

PLAN DATE: December 2019 REVIEWED BY:
 PREPARED BY: M.B. Copple REVIEWED BY: G G Murr Jr

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 M. B. COPPLE
 SEAL 27771

SIG. INVENTORY NO. 06-0514

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..... 0
    
```

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..... 0
    
```

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 . . . . . 8 . . . . .
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

FLASHER CIRCUIT MODIFICATION DETAIL

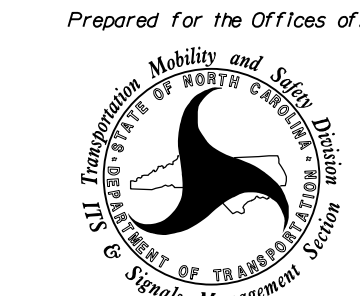
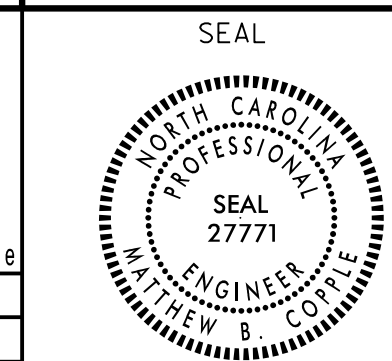
IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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: 06-0514
DESIGNED: November 2019
SEALED: 05/15/2020
REVISED: N/A

Final Design
Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	US 701 Bypass/NC 130 (N. J.K. Powell Boulevard) at Burkhead Street Division 06 Columbus County Whiteville PLAN DATE: November 2019 REVIEWED BY: PREPARED BY: M.B. Copple REVIEWED BY: GG Murr Jr REVISIONS INIT. DATE	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL  DATE SIG. INVENTORY NO. 06-0514
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SEPI

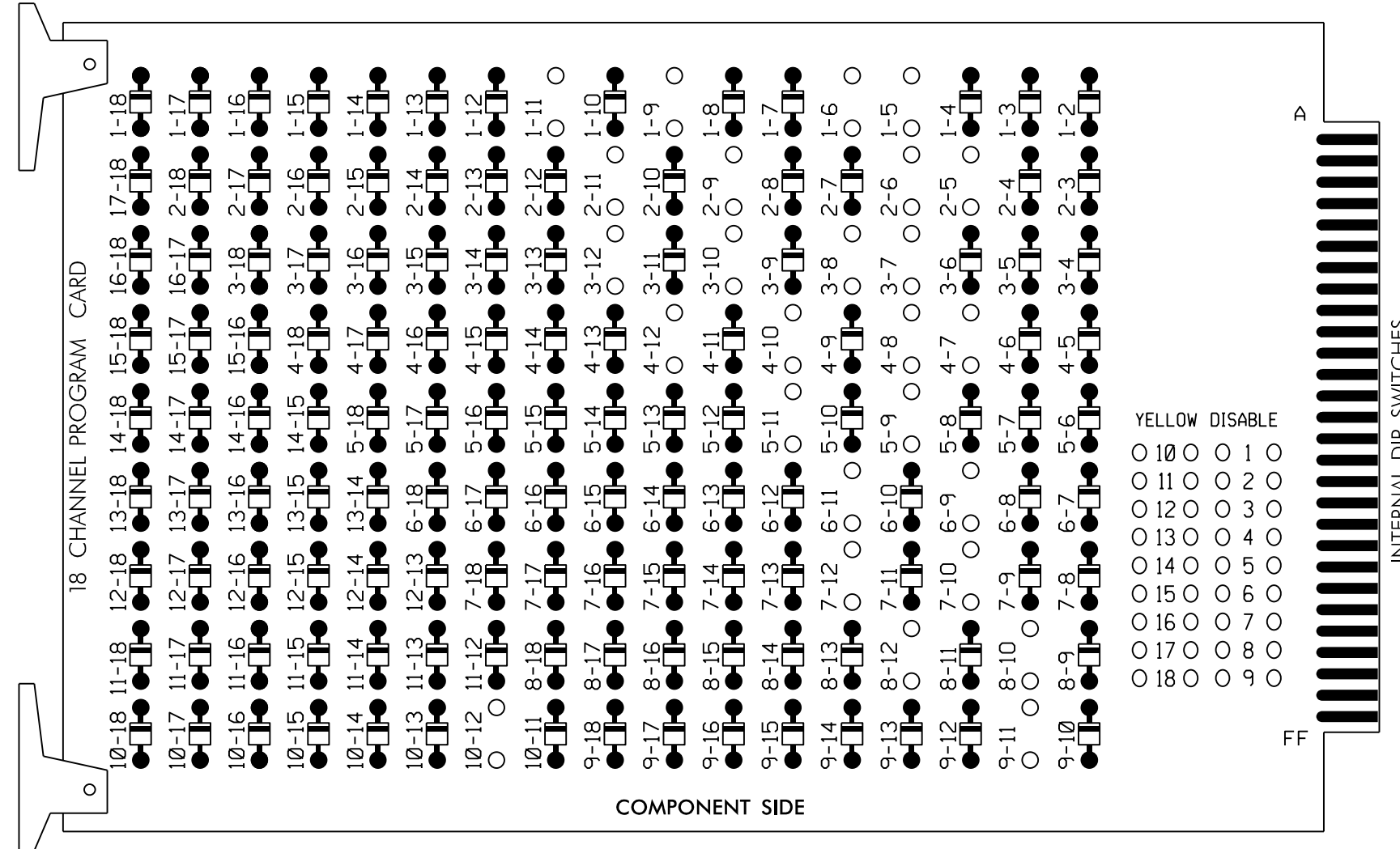
Engineering & Construction, Inc.

1 Glenwood Avenue
Raleigh, NC 27603
Tel: 919.789.9977
Fax: 919.789.9591
License: C-2197

EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 7-10, 7-12, 8-10, 8-12, 9-11, AND 10-12



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 unused 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 Signal System # 10605.

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,S4,S5,S7,S8,S10,S11
 AUX S1,AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 * See overlap programming detail on sheet 2

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	3	4	4	5	6	6	7	8	8	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	31	41,42	NU	42	51	61,62	NU	62	71	81,82	NU	31	51	71	NU
RED		128			101		*		134		*		107					
YELLOW	*	129		*	102				135				108					
GREEN		130			103				136				109					
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW								132			123		A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118			133	133		124	124							

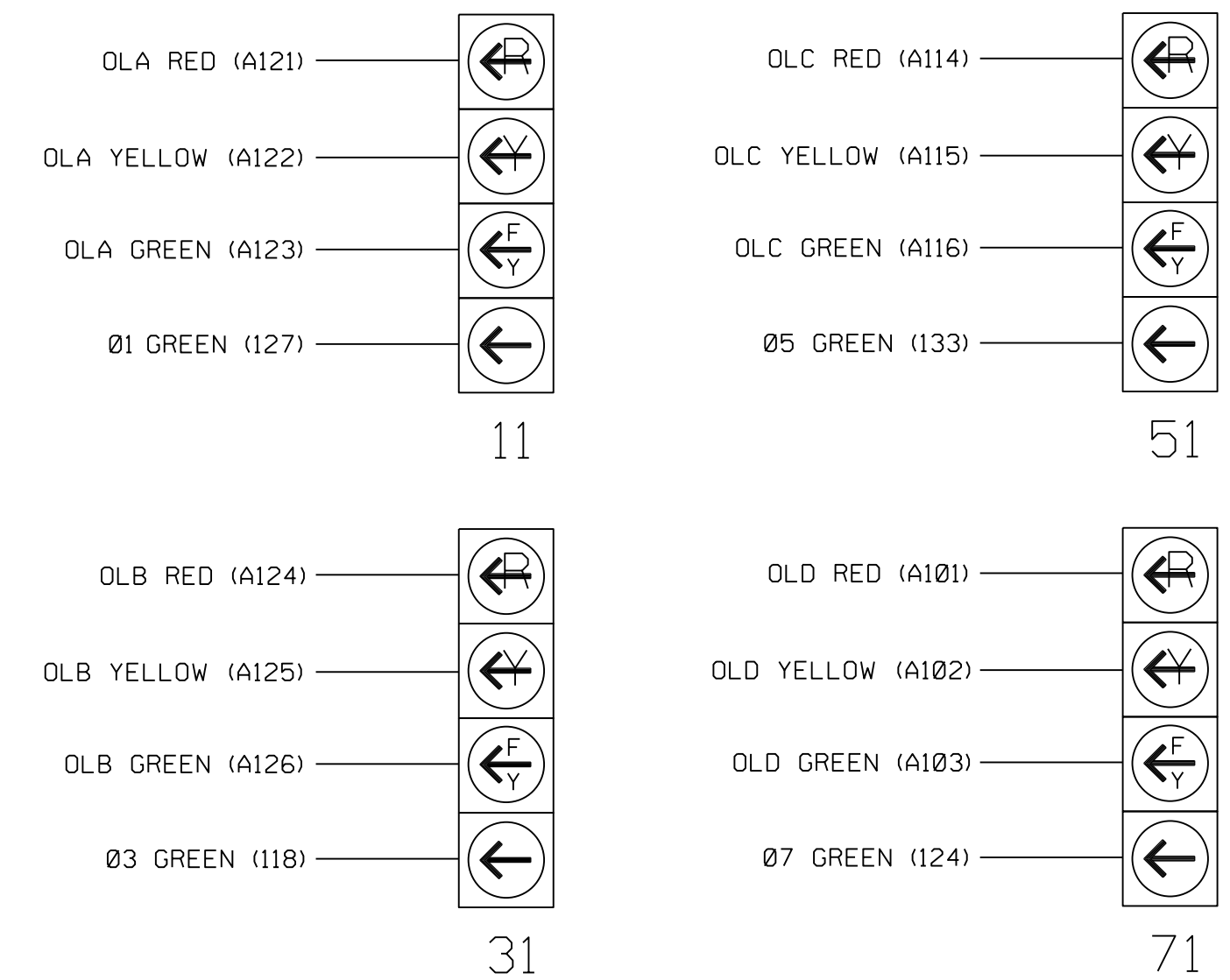
NU = Not Used

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

★ See pictorial of head wiring in detail this sheet.

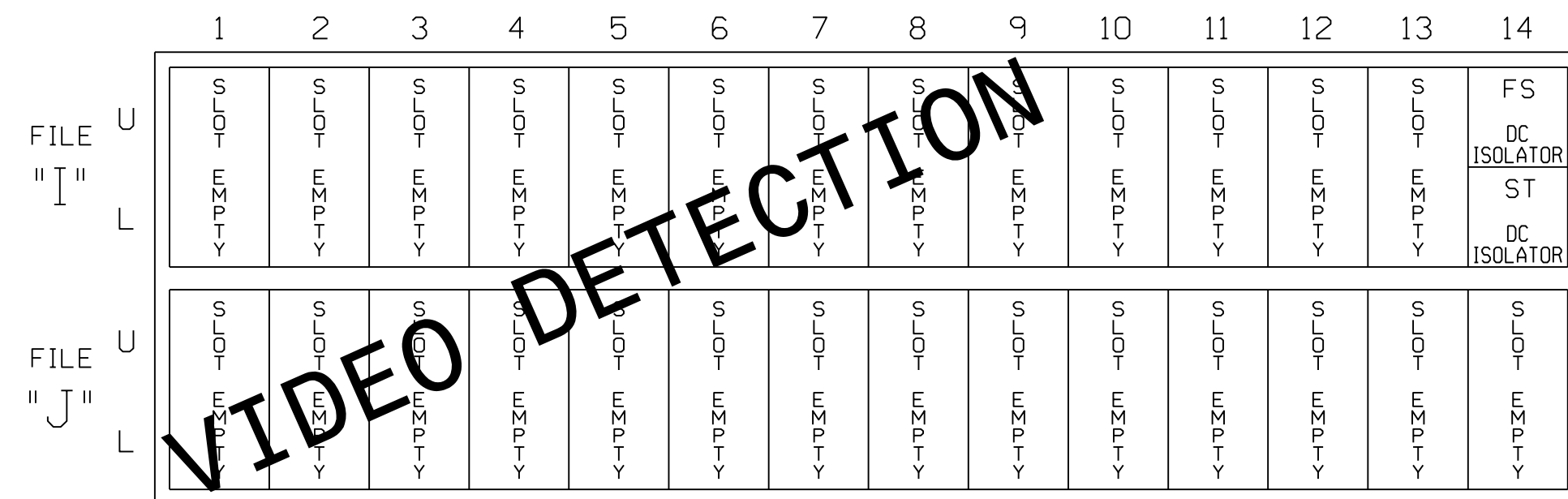
FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)



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

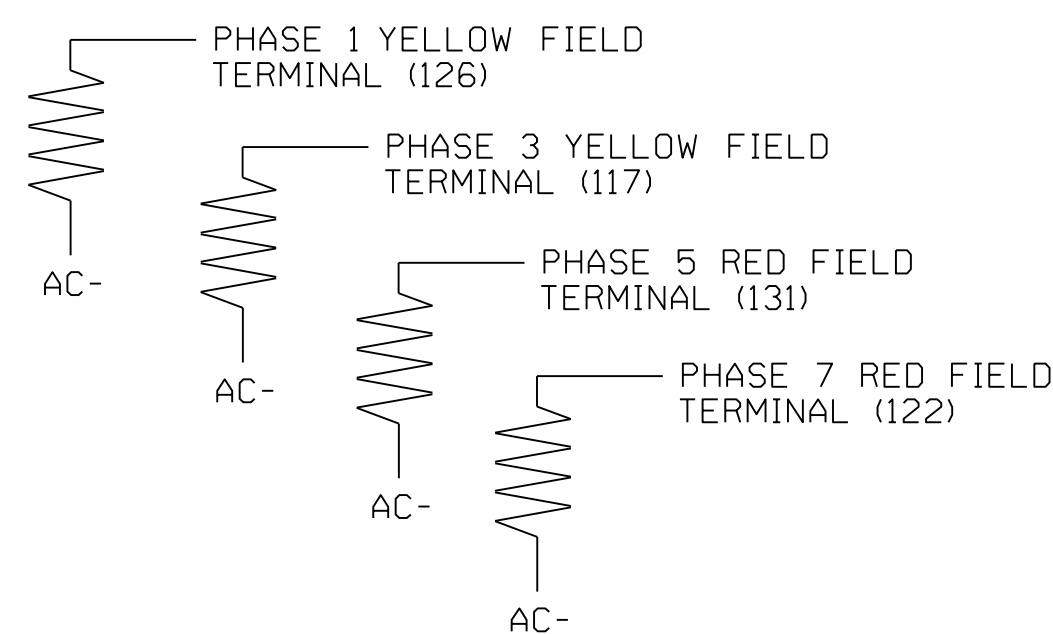
FS = FLASH SENSE
 ST = STOP TIME

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

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



SPECIAL DETECTOR NOTE:

Note: Install a video detection system for vehicle detection. Perform installation in accordance with manufacturer's directions and NCDOT engineer approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans for the following video zones: 1A, 2A, 2B, 3A, 4A, 5A, 5B, 6A, 7A, AND 8A.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0109T1
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A



Temporary Design 1 - (TMP Phase I)
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	US 701 Bypass/NC 130 (N. J.K. Powell Blvd) at US 74-76 BUS/NC 130 (Washington Street)		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL SEAL 27771 ENGINEER MATTHEW B. COPPLE
	Division 06 PLAN DATE: November 2019 PREPARED BY: M.B. Copple	Columbus County REVIEWED BY: G.G. Murr, Jr. REVIEWED BY: G.G. Murr, Jr.		Whiteville DATE: _____ DATE: _____ 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..... 0

Toggle Once

OVERLAP B

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

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

PROTECTED LEFT TURN.... PHASE 3
OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT.....CH10 ISOLATE

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

Toggle Once

OVERLAP D

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

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

PROTECTED LEFT TURN.... PHASE 7
OPPOSING THROUGH..... PHASE 8

FLASHING ARROW OUTPUT.....CH12 ISOLATE

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

END PROGRAMMING

FLASHER CIRCUIT MODIFICATION DETAIL

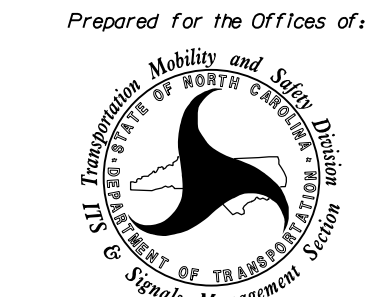
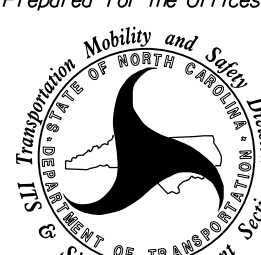

IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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.

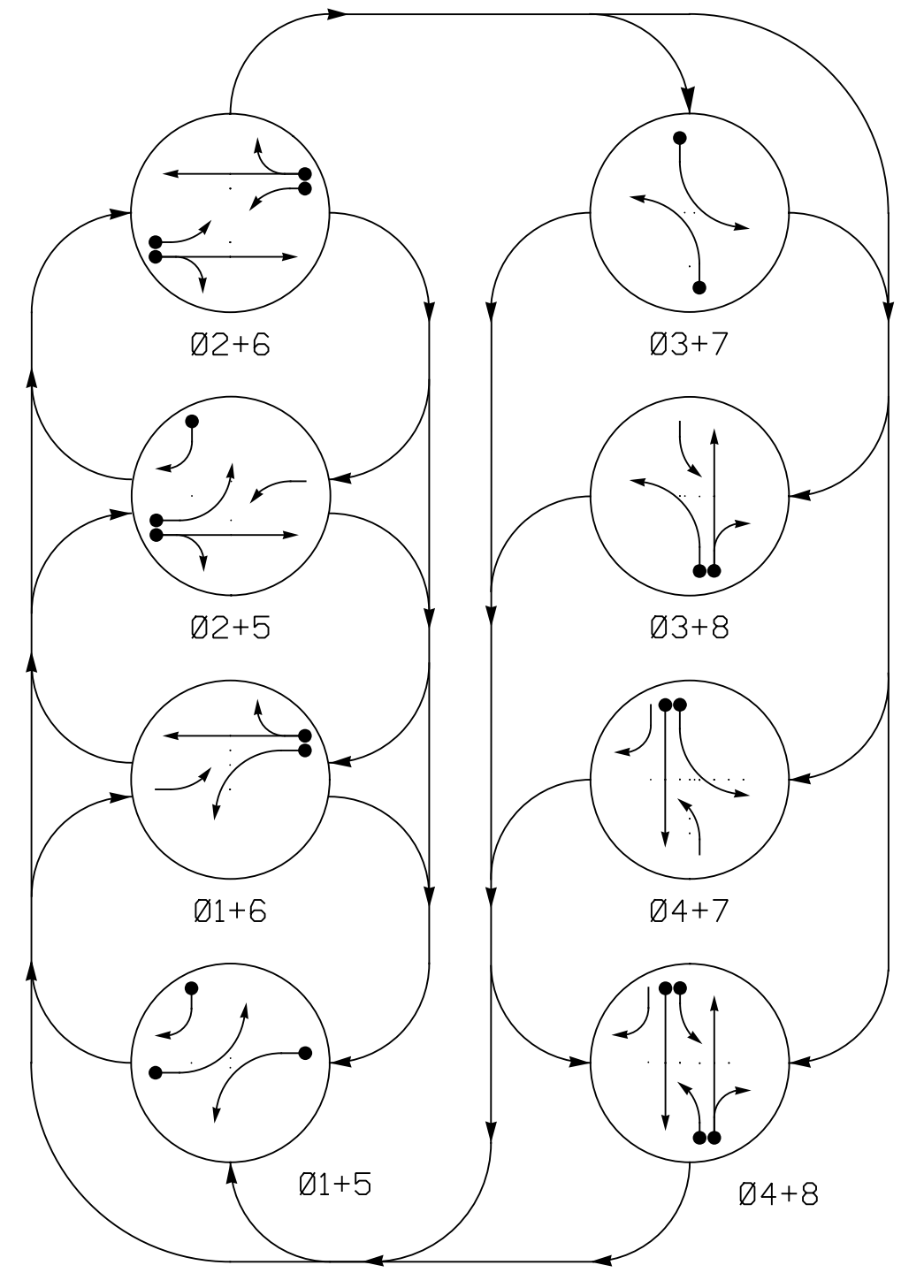
THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-0109T1
DESIGNED: November 2019
SEALED: 05/15/2020
REVISED: N/A

Temporary Design 1 - (TMP Phase I)
Electrical Detail - Sheet 2 of 2

 SEPI Engineering & Construction, Inc.	Prepared for the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	US 701 Bypass/NC 130 (N. J.K. Powell Blvd) at US 74-76 BUS/NC 130 (Washington Street)	<div style="border: 1px solid black; padding: 5px;"> <p style="font-size: small;">DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p style="text-align: center;">SEAL</p>  <p style="font-size: x-small;">MATTHEW B. CONLEY ENGINEER 27771</p> </div>
Division 06 Columbus County Whiteville		PLAN DATE: November 2019 REVIEWED BY: J T Rowe	
PREPARED BY: C Lawson		REVIEWED BY: GG Murr, Jr.	
REVISIONS	INIT.	DATE	DATE

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

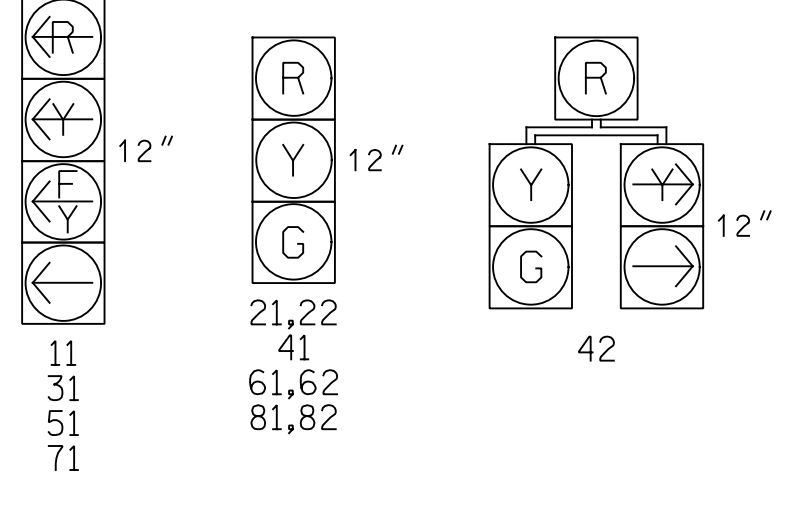
- ◄●► DETECTED MOVEMENT
- ◄◄◄ UNDETECTED MOVEMENT (OVERLAP)
- ◄---► UNSIGNALIZED MOVEMENT
- ◄- - - - ► PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE							
	Ø 1 + 5	Ø 2 + 5	Ø 2 + 6	Ø 3 + 7	Ø 3 + 8	Ø 4 + 7	Ø 4 + 8	FLASH
11	←	←	←	←	←	←	←	Y
21,22	R	R	G	G	R	R	R	Y
31	←	←	←	←	←	←	←	Y
41	R	R	R	R	R	R	G	R
42	R	R	R	R	R	R	G	R
51	←	←	←	←	←	←	←	Y
61,62	R	G	R	G	R	R	R	Y
71	←	←	←	←	←	←	←	Y
81,82	R	R	R	R	R	G	R	G

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 DETECTOR INSTALLATION CHART

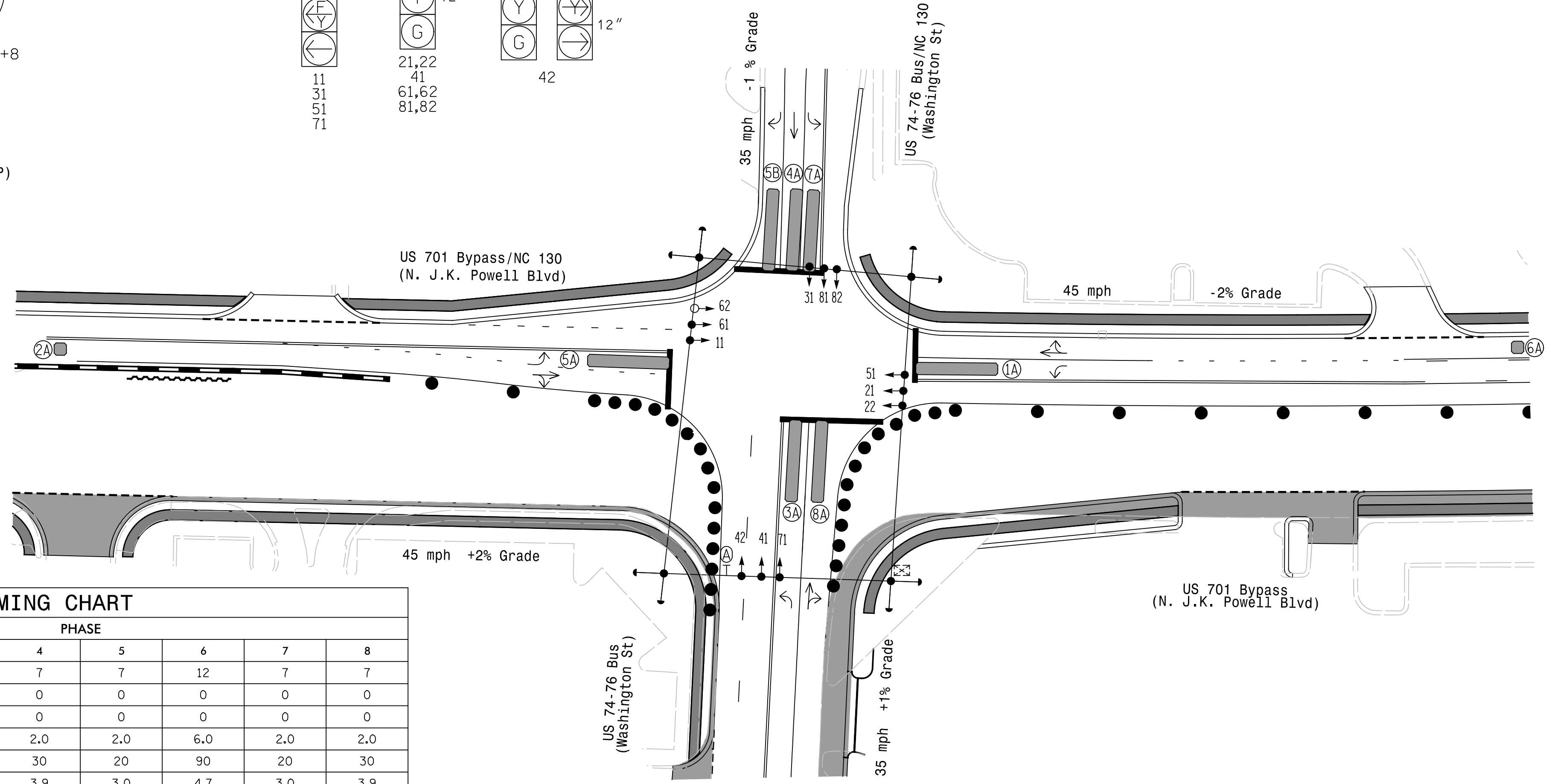
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	*	X	1	Yes	-	15	-	N	-	-
					6	Yes	-	3	-	G	-	-
2A	6X6	300	*	X	3	Yes	-	-	-	X	-	-
3A	6X40	0	*	X	8	Yes	-	15	-	N	-	-
					4	Yes	-	3	-	N	-	-
4A	6X40	0	*	X	5	Yes	-	15	-	N	-	-
					2	Yes	-	3	-	G	-	-
5A	6X40	0	*	X	7	Yes	-	15	-	N	-	-
					4	Yes	-	3	-	N	-	-
5B	6X40	0	*	X	5	Yes	-	15	-	N	-	-
6A	6X6	300	*	X	6	Yes	-	-	-	X	-	-
7A	6X40	0	*	X	7	Yes	-	15	-	N	-	-
					4	Yes	-	3	-	N	-	-
8A	6X40	0	*	X	8	Yes	-	10	-	N	-	-

* Video Detection Zone

8 Phase Fully Actuated SYSTEM #10605

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Set all detection zones to presence mode.
- Reposition existing signal heads 11, 21, 22, 51, and 61.
- This intersection uses video detection. Follow manufacturer's instructions for installation and operation to achieve the optimal detection scheme.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.



ASC/3 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	12	7	7	7	12	7	7
Walk *	0	0	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0	0	0
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max I *	20	90	20	30	20	90	20	30
Yellow	3.0	4.7	3.0	3.9	3.0	4.7	3.0	3.9
Red Clear	2.4	1.3	1.4	1.3	2.6	1.3	2.1	1.3
Actuations B4 Add *	-	0	-	-	-	0	-	-
Seconds /Actuation *	-	2.5	-	-	-	2.5	-	-
Max Initial *	-	37	-	-	-	37	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	X	-	-	-	X
Simultaneous Gap	X	X	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

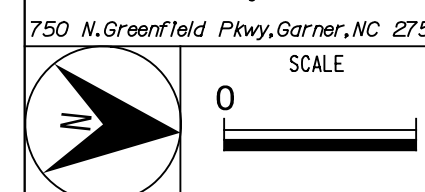
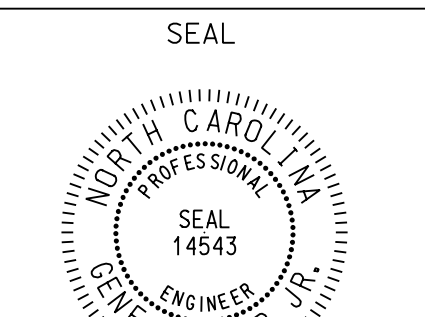
- | | | | |
|--|---------------------------------|--|----------|
| | Traffic Signal Head | | EXISTING |
| | Modified Signal Head | | N/A |
| | Sign | | N/A |
| | Pedestrian Signal Head | | N/A |
| | Signal Pole with Guy | | N/A |
| | Signal Pole with Sidewalk Guy | | N/A |
| | Inductive Loop Detector | | 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 |
| | Video Detection Zone | | N/A |
| | Construction Zone | | N/A |
| | Drums | | N/A |
| | Right Arrow "ONLY" Sign (R3-5R) | | N/A |
| | PORTABLE CONCRETE BARRIER | | N/A |

Signal Upgrade Temporary Design 2 - (TMP Phase II)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



US 701 Bypass/NC 130 (N. J.K. Powell Blvd) at US 74-76 BUS/NC 130 (Washington Street)
 Division 6 Columbus County Whiteville
 PLAN DATE: November 2019 REVIEWED BY: G. G. Murr, Jr
 PREPARED BY: M. Ishak REVIEWED BY:



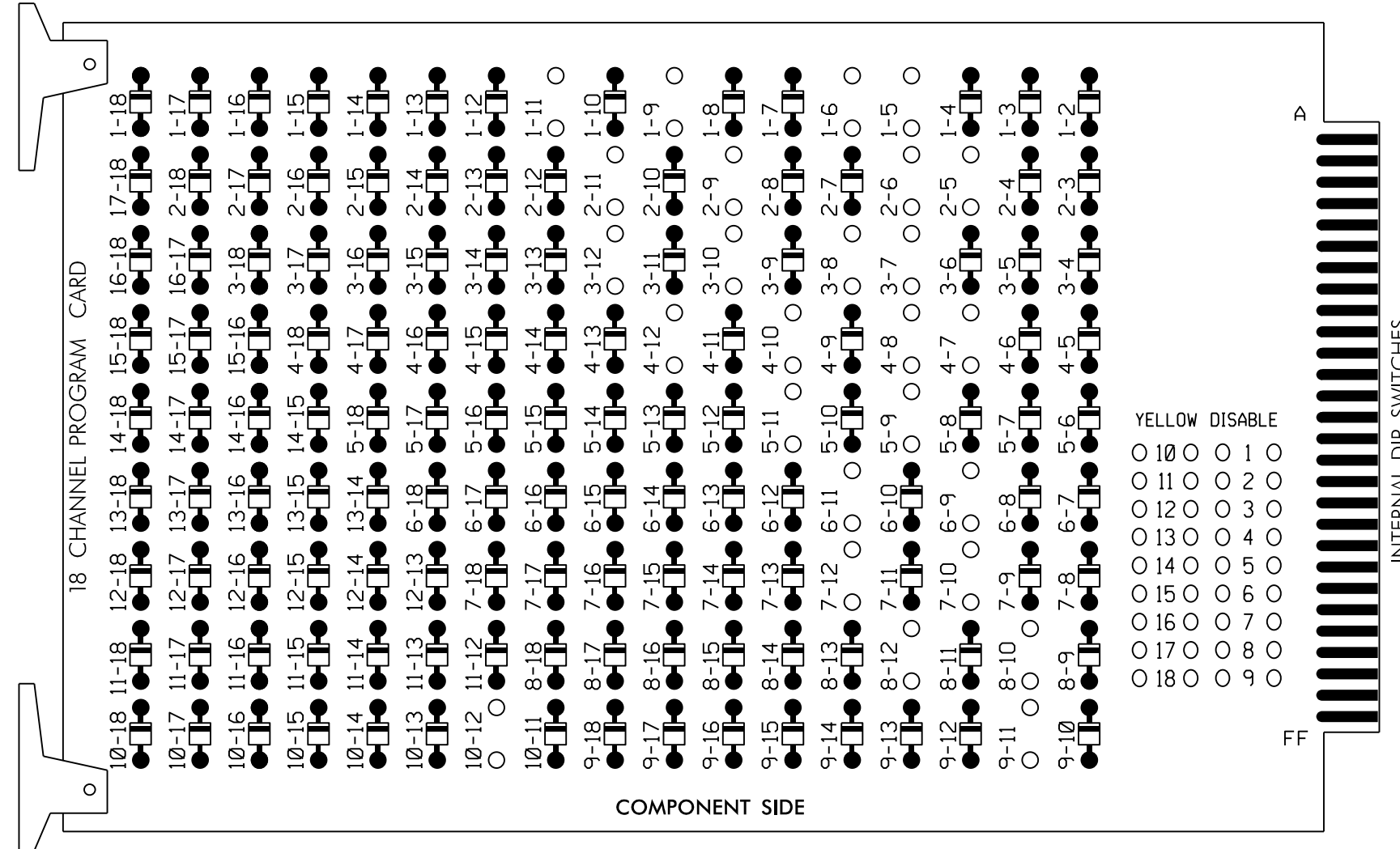
REVISIONS	INIT.	DATE

SIGNATURE DATE
 SIG. INVENTORY NO. 06-0109T2

SEPI
 Engineering & Construction, Inc.
 1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
 Fax: 919.789.9591
 License: C-2197

EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL
(remove jumpers and set switches as shown)

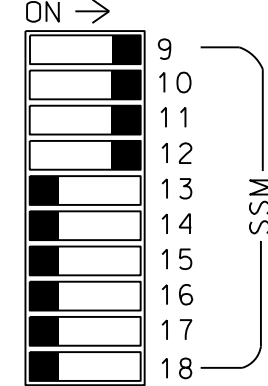
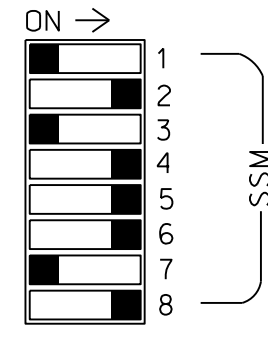
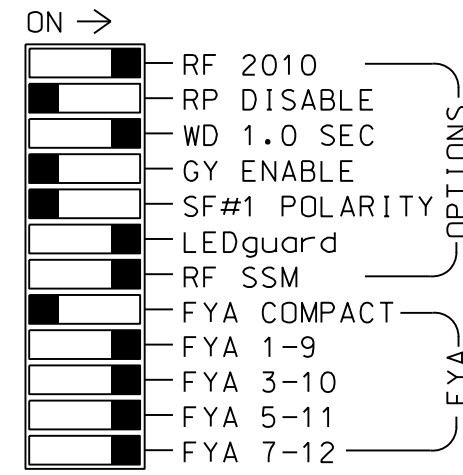
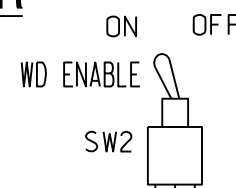
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 7-10, 7-12, 8-10, 8-12, 9-11, AND 10-12



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.



■ = DENOTES POSITION OF SWITCH

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- 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 Signal System # 10605.

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,S4,S5,S7,S8,S10,S11
 AUX S1,AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 * See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

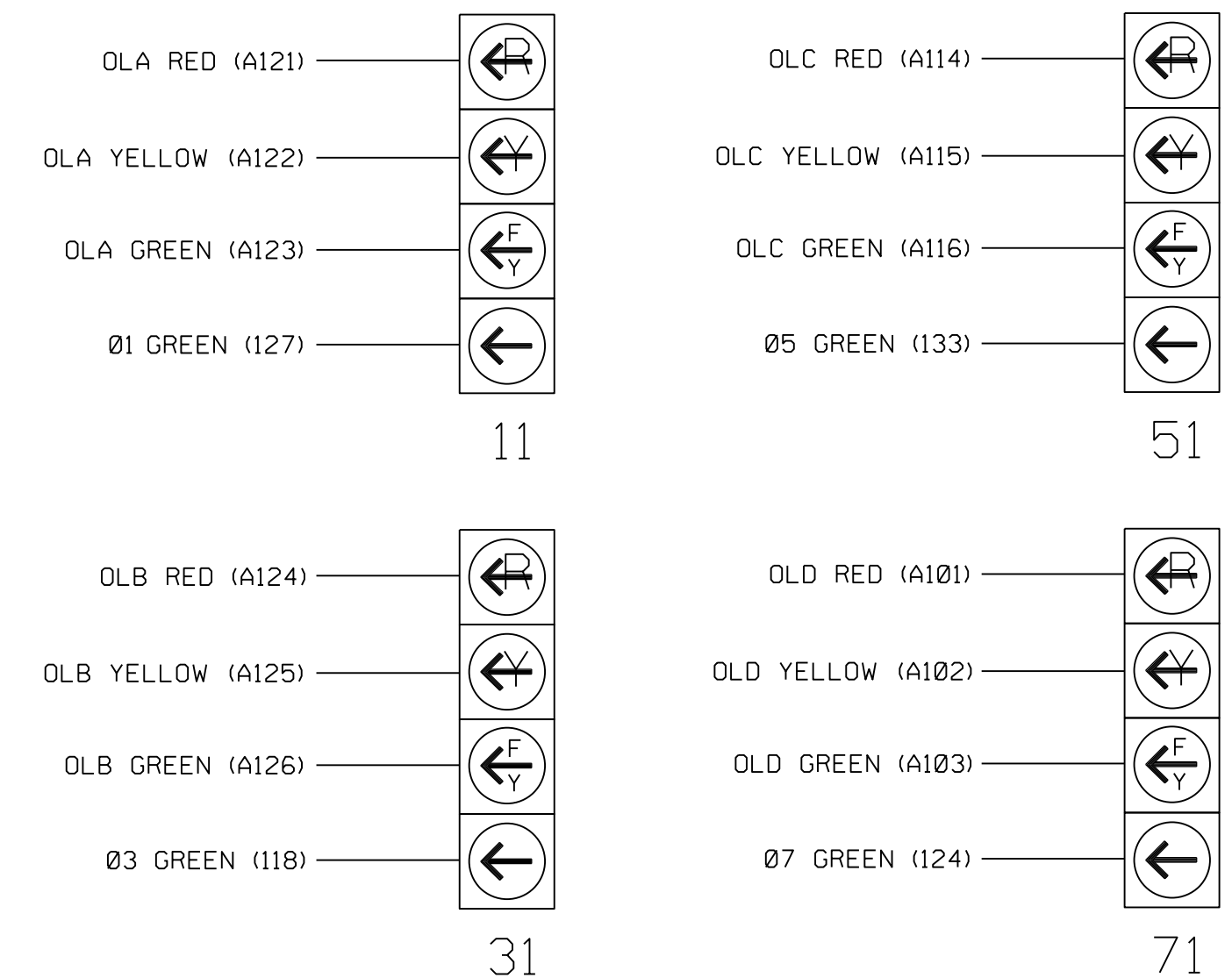
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2	3	4	4	5	6	6	7	8	8	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	31	41,42	NU	42	51	61,62	NU	71	81,82	NU	11	31	NU	51	71
RED		128			101		*		134		107							
YELLOW	*	129		*	102				135		* 108							
GREEN		130			103				136		109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW							132						A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118			133	133		124								

NU = Not Used

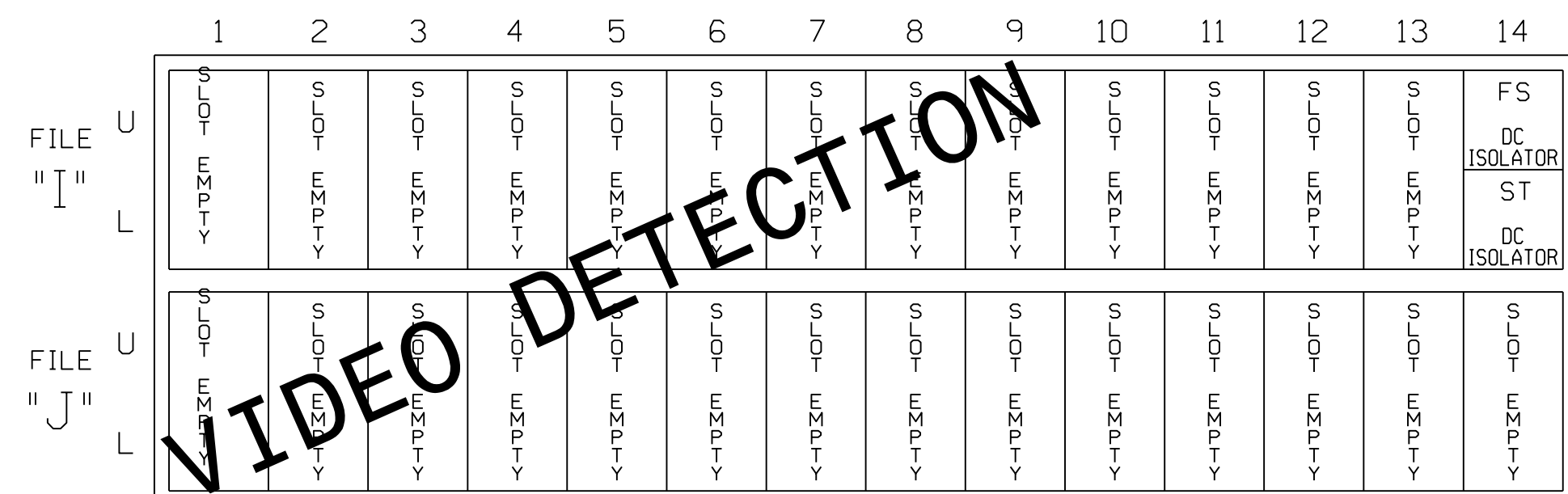
* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)



INPUT FILE POSITION LAYOUT
(front view)



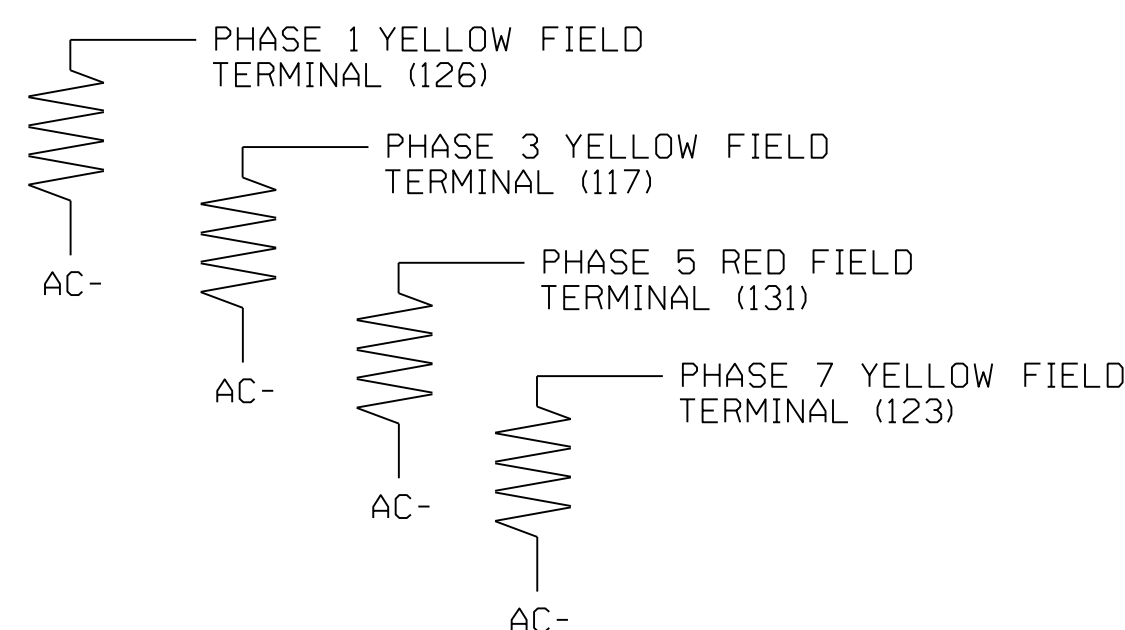
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

LOAD RESISTOR INSTALLATION DETAIL
(install resistors as shown)

ACCEPTABLE VALUES

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



SPECIAL DETECTOR NOTE:

Note: Install a video detection system for vehicle detection. Perform installation in accordance with manufacturer's directions and NCDOT engineer approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans for the following video zones: 1A, 2A, 3A, 4A, 5A, 5B, 6A, 7A, AND 8A.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0109T2
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A



Temporary Design 2 - (TMP Phase II)
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 701 Bypass/NC 130
 (N. J.K. Powell Boulevard)
 at
 US 74-76 BUS/NC130 (Washington St)

Division 06 Columbus County Whiteville

PLAN DATE: November 2019 REVIEWED BY:

PREPARED BY: M.B. Copple REVIEWED BY: G.G. Murr, Jr.

REVISIONS: INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER

MATTHEW B. COPPLE

SEAL 27771

DATE

SIG. INVENTORY NO. 06-0109T2

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..... 0

Toggle Once

OVERLAP B

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

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

PROTECTED LEFT TURN.... PHASE 3
OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT.....CH10 ISOLATE

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

Toggle Once

OVERLAP D

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

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

PROTECTED LEFT TURN.... PHASE 7
OPPOSING THROUGH..... PHASE 8

FLASHING ARROW OUTPUT.....CH12 ISOLATE

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

END PROGRAMMING

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE 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.

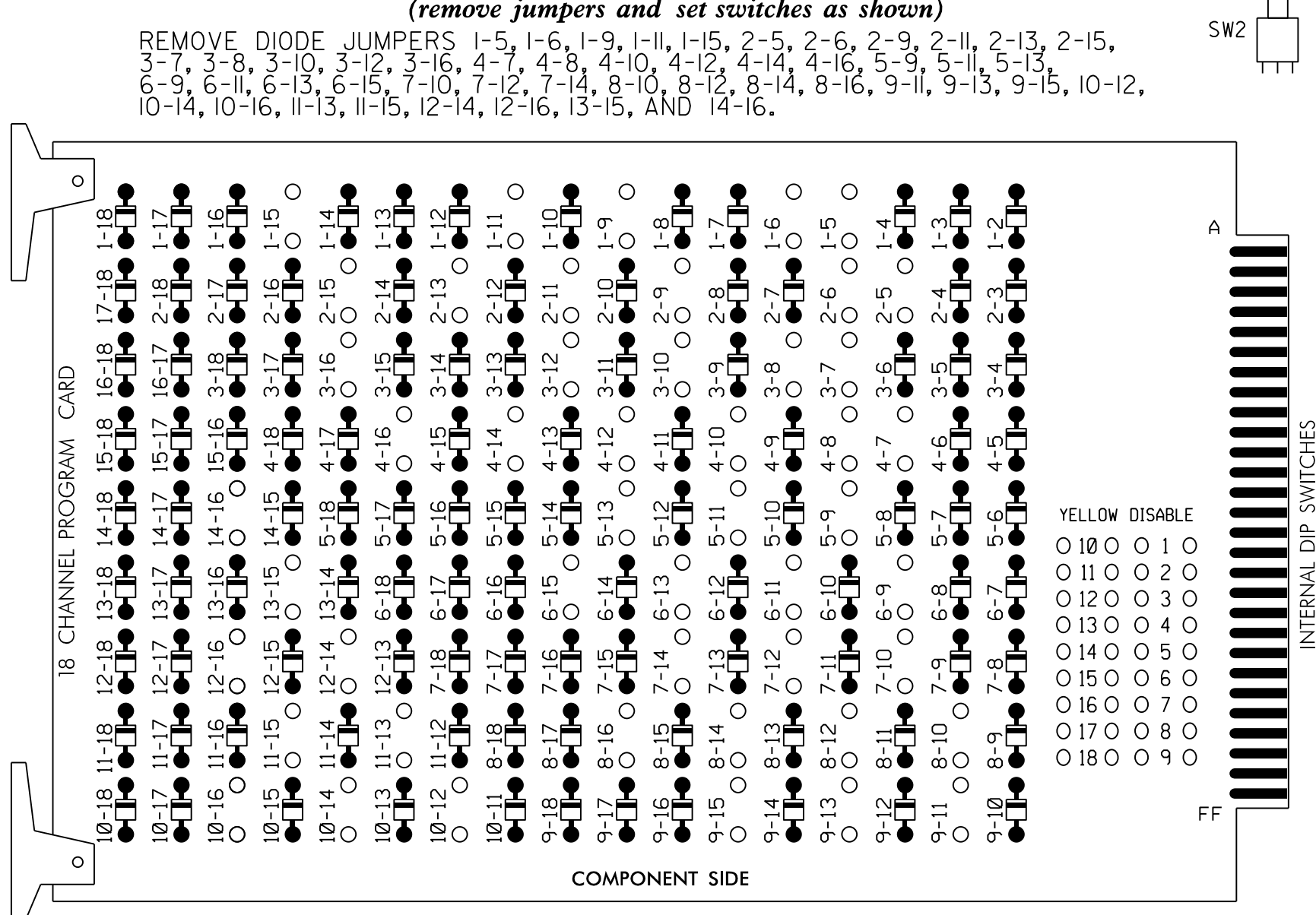
THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0109T2
DESIGNED: November 2019
SEALED: 05/15/2020
REVISED: N/A

Temporary Design 2 - (TMP Phase II)
Electrical Detail - Sheet 2 of 2

 Prepared for the Offices of: City of Raleigh Department of Transportation, Mobility and Safety Division Street of Raleigh Signal Management Section 750 N. Greenfield Pkwy, Garner, NC 27529	US 701 Bypass/NC 130 (N. J.K. Powell Boulevard) at US 74-76 BUS/NC130(Washington St) Division 06 Columbus County Whiteville	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL SEAL 27771 MATTHEW B. COPPLE																				
PLAN DATE: November 2019 REVIEWED BY:		PREPARED BY: M.B. Copple REVIEWED BY: GG Murr Jr																				
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>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> </tbody> </table>		REVISIONS	INIT.	DATE										<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </tbody> </table>	INIT.	DATE						
REVISIONS	INIT.	DATE																				
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1 Glenwood Avenue Raleigh, NC 27603 Tel: 919.789.9977 Fax: 919.789.9591 License: C-2197		DATE SIG. INVENTORY NO. 06-0109T2																				

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL



- 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 unused 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 Walk and 6 Walk.
- The cabinet and controller are part of Signal System # 10605.

EQUIPMENT INFORMATION

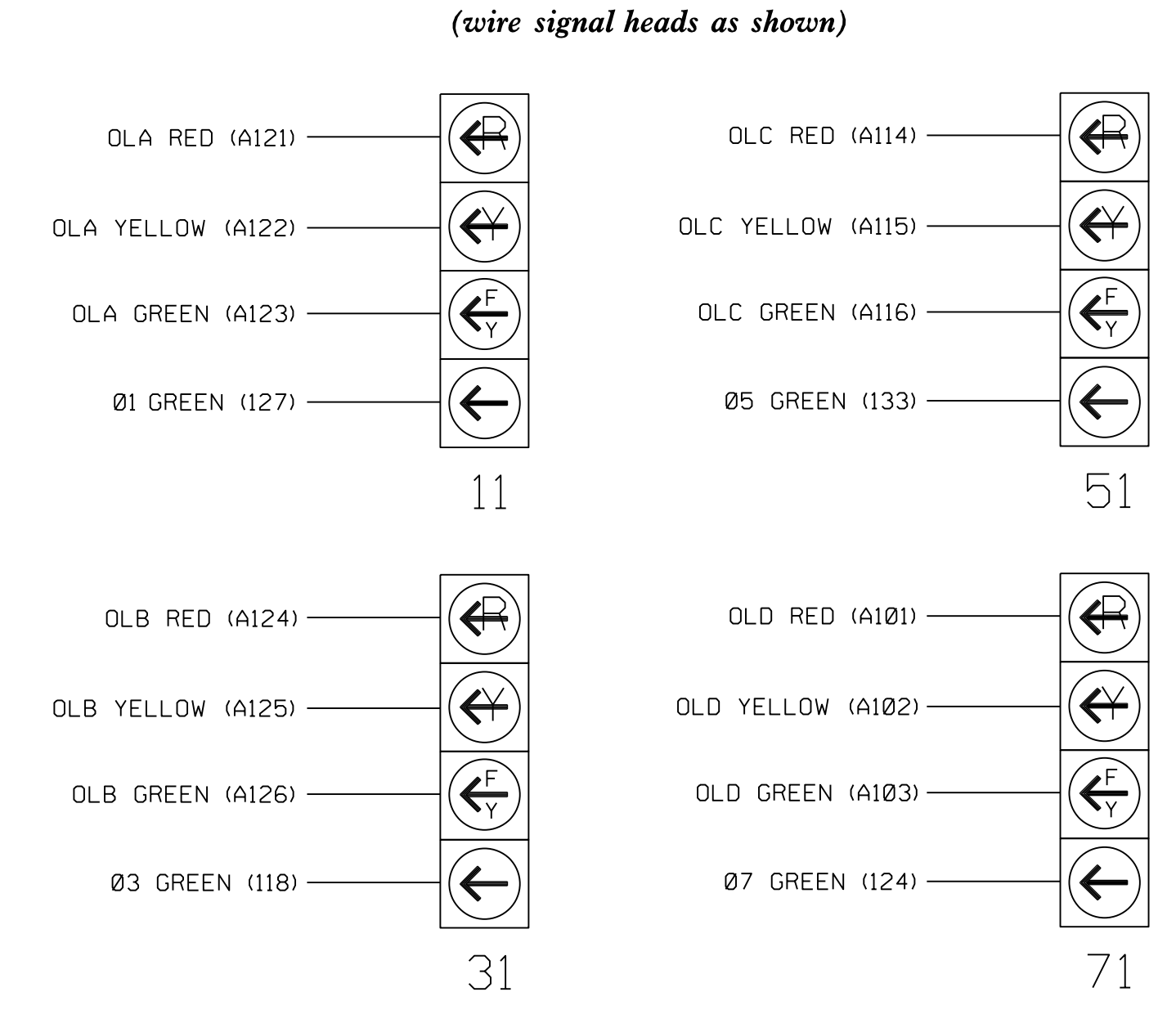
CONTROLLER.....2070LX
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE S12,AUX S1,AUX S2,AUX S4,AUX S5
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,S10,S11,
 S12,AUX S1,AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,2PED,3,4,4PED,5,6,6PED,7,8,8PED
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 * See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

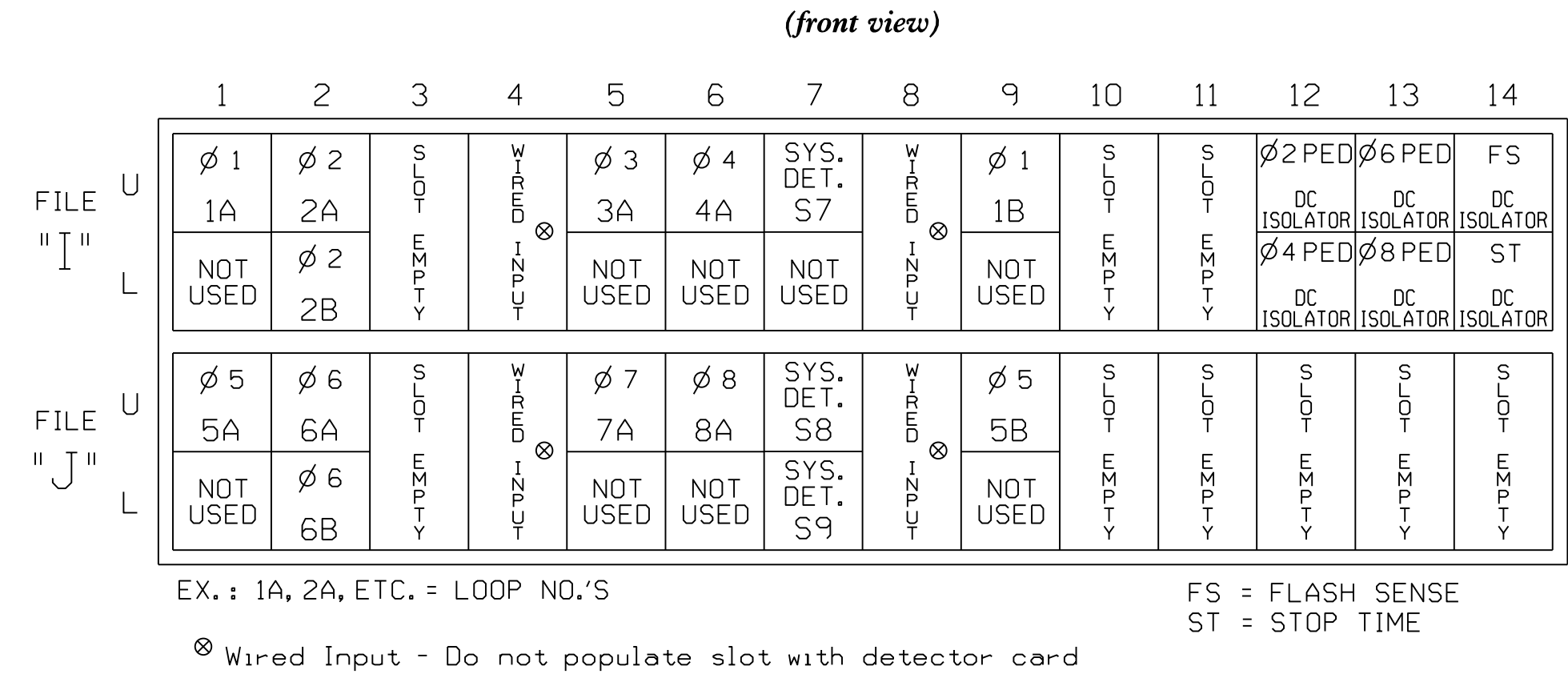
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6				
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18				
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE				
SIGNAL HEAD NO.	11	82	21,22	P21, P22	22	31	41,42	P41, P42	42	51	61,62	P61, P62	71	81,82	P81, P82	11	31	NU	51	71	NU	
RED	*	128		*	101		*	134			107											
YELLOW		129			102			135		*	108											
GREEN		130			103			136			109											
RED ARROW																A121	A124		A114	A101		
YELLOW ARROW		126			117			132								A122	A125		A115	A102		
FLASHING YELLOW ARROW																A123	A126		A116	A103		
GREEN ARROW	127	127			118	118		133	133		124											
Hand								104			119											
Walking								106			121											

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

FYA SIGNAL WIRING DETAIL



INPUT FILE POSITION LAYOUT

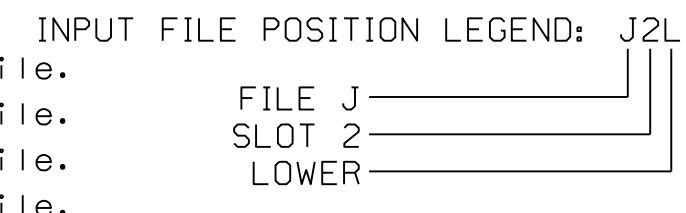


EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME
 * Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

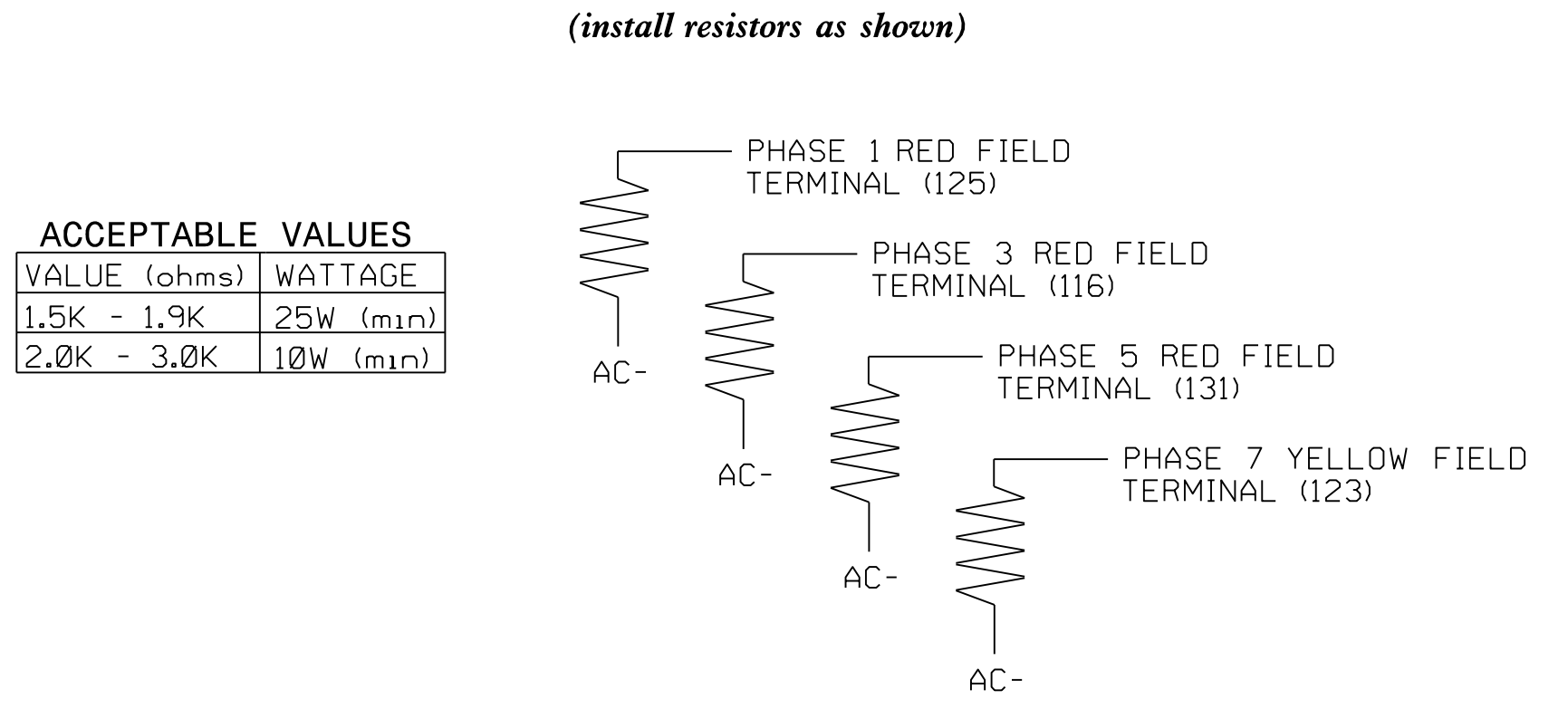
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A ¹	TB2-1,2	I1U	56	1	1	YES		15		N
	-	J4U	48	26	6	YES		3		G
1B	TB6-9,10	I9U	60	11	1	YES		15		N
2A	TB2-5,6	I2U	39	2	2	YES			X	N
2B	TB2-7,8	I2L	43	12	2	YES			X	N
3A ²	TB4-5,6	I5U	58	3	3	YES		15		N
	-	J8U	50	28	8	YES		3		N
4A	TB4-9,10	I6U	41	4	4	YES				N
5A ³	TB3-1,2	J1U	55	5	5	YES		15		N
	-	I4U	47	22	2	YES		3		G
5B	TB7-9,10	J9U	59	15	5	YES		15		N
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N
7A ⁴	TB5-5,6	J5U	57	7	7	YES		15		N
	-	I8U	49	24	4	YES		3		N
8A	TB5-9,10	J6U	42	8	8	YES				N
* S7	TB6-1,2	I7U	65	34	SYS	NO				N
* S8	TB7-1,2	J7U	66	38	SYS	NO				N
* S9	TB7-3,4	J7L	79	48	SYS	NO				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					
P81,P82	TB8-8,9	I13L	70	PED 8	8 PED					

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



- Add jumper from I1-W to J4-W, on rear of input file.
 - Add jumper from I5-W to J8-W, on rear of input file.
 - Add jumper from J1-W to I4-W, on rear of input file.
 - Add jumper from J5-W to I8-W, on rear of input file.
- * System Detector only. Remove the vehicle phase assigned to this detector in the default programming.

LOAD RESISTOR INSTALLATION DETAIL



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.

Final Design
 Electrical Detail - Sheet 1 of 2

Prepared for the Offices of:
 City of Raleigh
 Department of Transportation
 Signal Management Section

US 701 Bypass/NC 130
 (N. J.K. Powell Boulevard)
 at US 74-76 BUS/NC 130
 (Washington St)

Division 06 Columbus County Whiteville

PLAN DATE: November 2019 REVIEWED BY:
 PREPARED BY: M B COPPLE REVIEWED BY: G G Murr Jr

REVISIONS INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 M. B. COPPLE
 27771

SIG. INVENTORY NO. 06-0109

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0109
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

SEPI
 Engineering & Construction, Inc.
 1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
 Fax: 919.789.9591
 License: C-2197

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..... 0

Toggle Once

OVERLAP B

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

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

PROTECTED LEFT TURN.... PHASE 3
 OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT.....CH10 ISOLATE

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

Toggle Once

OVERLAP D

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

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

PROTECTED LEFT TURN.... PHASE 7
 OPPOSING THROUGH..... PHASE 8

FLASHING ARROW OUTPUT.....CH12 ISOLATE

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

END PROGRAMMING

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE 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: 06-0109
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

Final Design
 Electrical Detail - Sheet 2 of 2

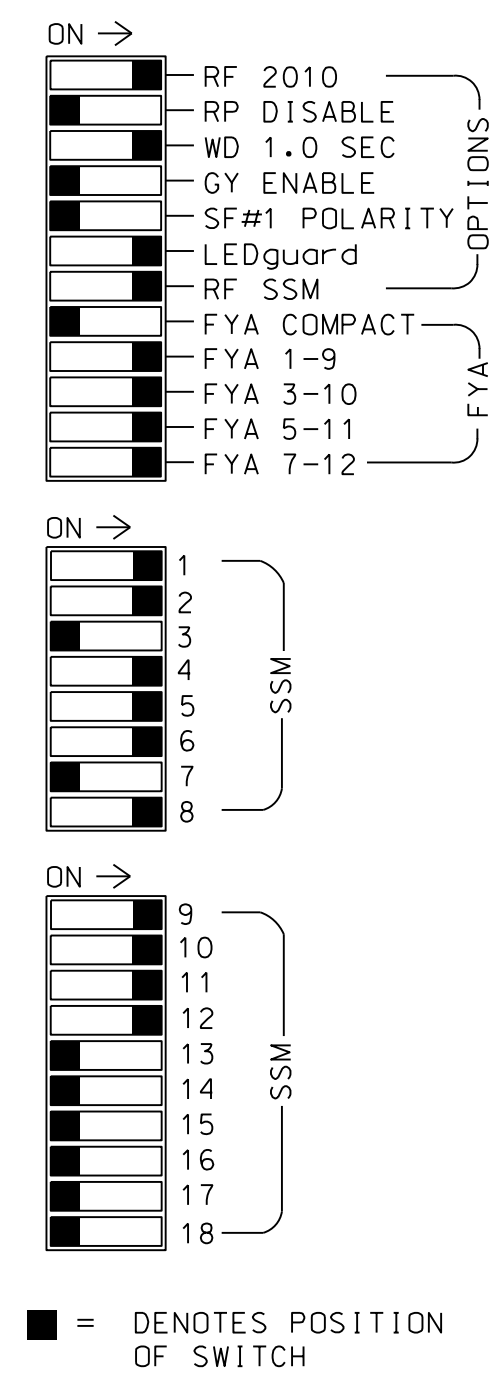
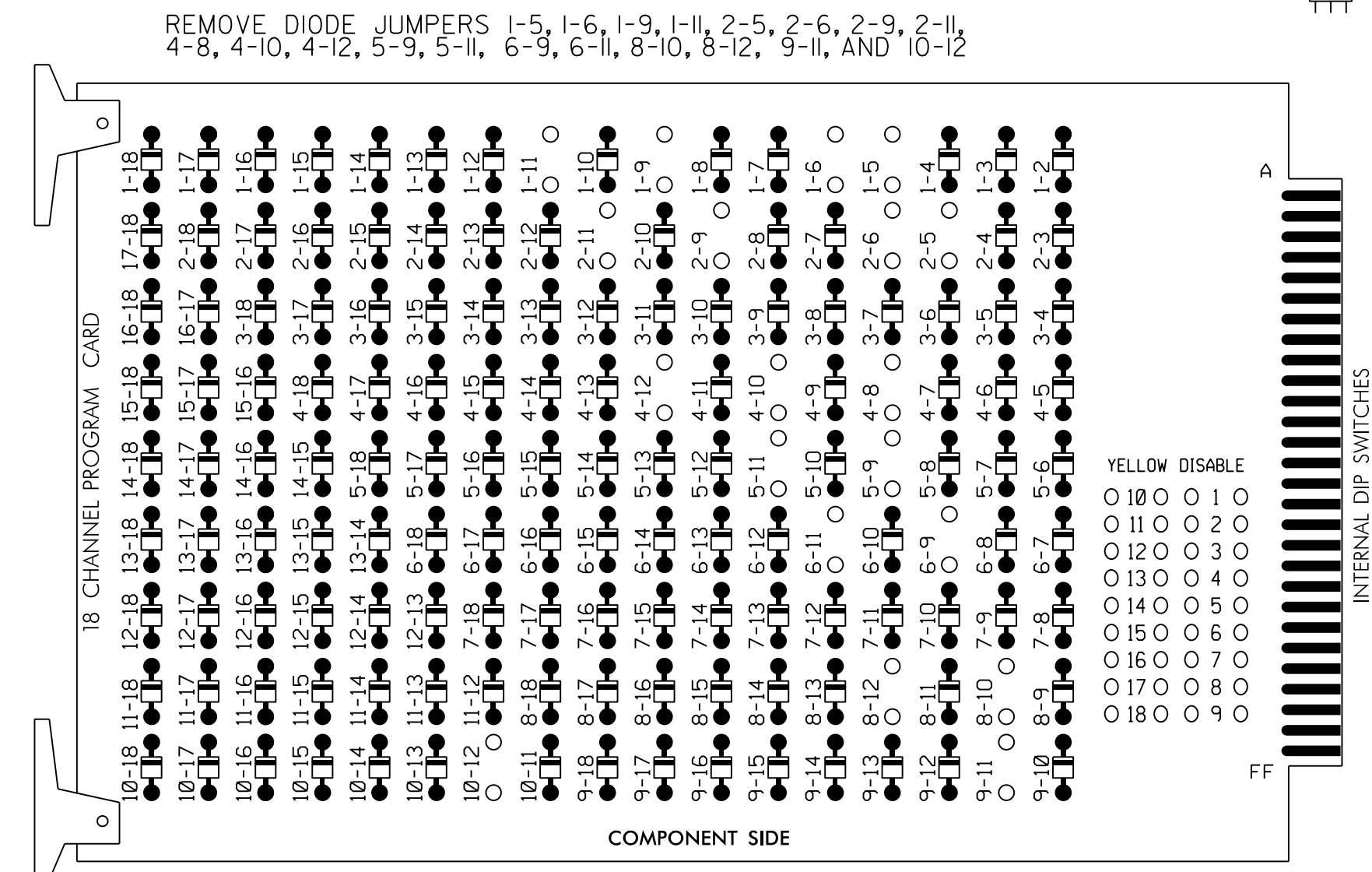
ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: Department of Transportation Signal Management Section 750 N. Greenfield Pkwy, Garner, NC 27529	US 701 Bypass/NC 130 (N. J.K. Powell Boulevard) at US 74-76 BUS/NC 130 (Washington St)	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
Division 06 Columbus County Whiteville	PLAN DATE: November 2019 REVIEWED BY:	SEAL 27771
PREPARED BY: M B COPPLE REVIEWED BY: GG Murr Jr	REVISIONS INIT. DATE	DATE
SIG. INVENTORY NO. 06-0109		

SEPI

Engineering & Construction, Inc.

1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
 Fax: 919.789.9591
 License: C-2197

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL
(remove jumpers and set switches as shown)



- NOTES:
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - 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 unused 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 Signal System # 10605.

EQUIPMENT INFORMATION

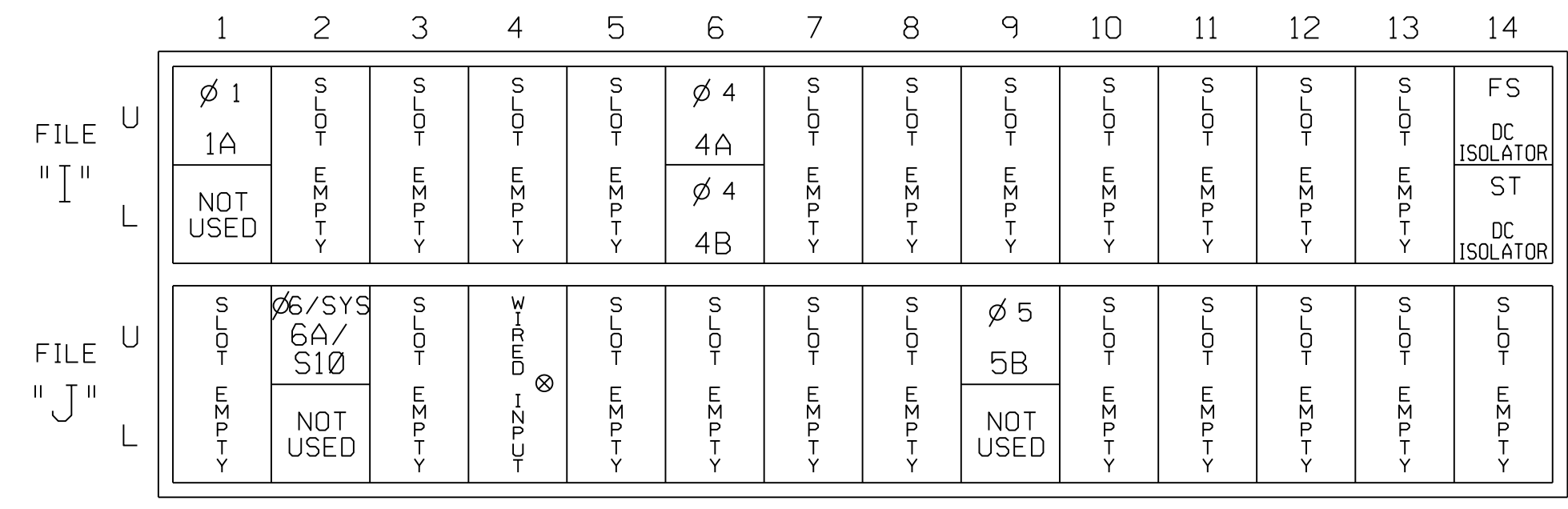
CONTROLLER.....2070LX
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S5,S7,S8,S11,
 AUX S1,AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,4,5,6,8
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP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

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6	
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18	
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE	
SIGNAL HEAD NO.	11	83	21,22	NU	NU	42,43	NU	43	51	61,62	NU	NU	82,83	NU	11	81	NU	51	41
RED	*	128			101			*	134			107							
YELLOW		129			102				135			108							
GREEN		130			103				136			109							
RED ARROW													A121	A124		A114	A101		
YELLOW ARROW	126							132					A122	A125		A115	A102		
FLASHING YELLOW ARROW													A123	A126		A116	A103		
GREEN ARROW	127	127					133	133											

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

INPUT FILE POSITION LAYOUT
(front view)



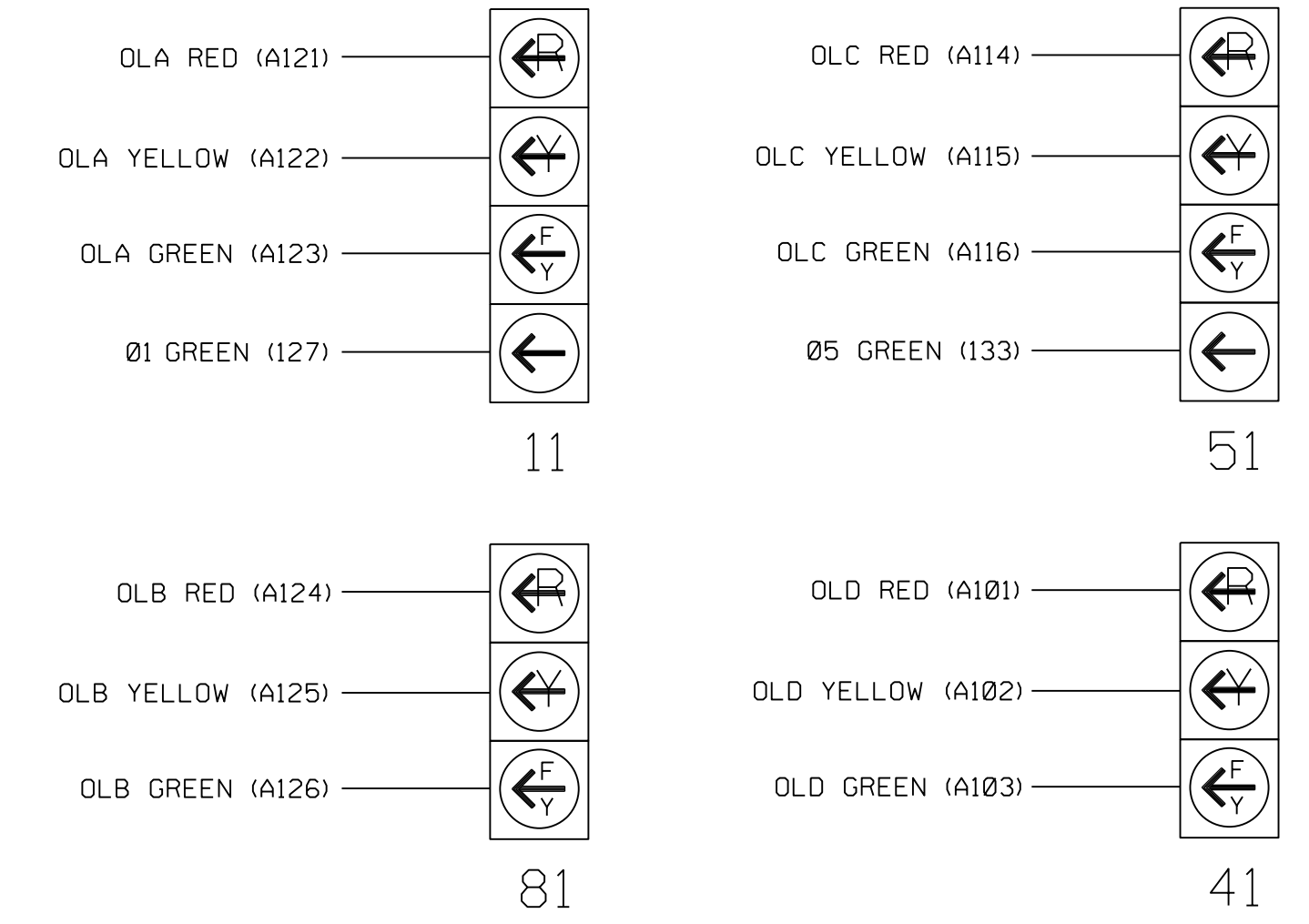
EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME
 ⊗ Wired Input - Do not populate slot with detector card

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		N
		J4U	48	26	6	YES		3		G
4A	TB4-9,10	I6U	41	4	4	YES		3		N
4B	TB4-11,12	I6L	45	14	4	YES				N
5B	TB7-9,10	J9U	59	15	5	YES		15		N
6A/S10	TB3-5,6	J2U	40	6	6/SYS	YES			X	N

¹Add jumper from I1-W to J4-W, on rear of input file.
 INPUT FILE POSITION LEGEND: J2L
 FILE J
 SLOT 2
 LOWER

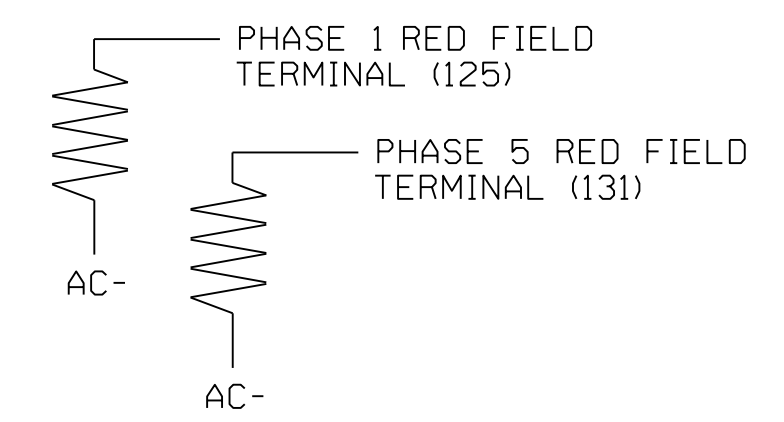
FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)



LOAD RESISTOR INSTALLATION DETAIL
(install resistors as shown)

ACCEPTABLE VALUES

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



SPECIAL DETECTOR NOTES:
 Install a video 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 zone 1A, the equipment placement and slots reserved for wired inputs are typical for a NCDOT installation.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1283T
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

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 Engineering & Construction, Inc.
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 Raleigh, NC 27603
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 Fax: 919.789.9591
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Temporary Design - (TMP Phase I)
 Electrical Detail - Sheet 1 of 2

US 701 Bypass
 (N. J.K. Powell Blvd) at
 SR 1552 (Smyrna Road) -
 McDonald's D/W

Division 06 Columbus County Whiteville

Prepared by: M Copple
 Reviewed by: G G Murr Jr

REVISIONS: _____ INIT. DATE _____

DATE: _____

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 MATTHEW B. COPPLE
 SEAL 27771

SIG. INVENTORY NO. 06-1283T

5/15/2020
 W:\R50208\sig.dgn, 06-1283T1.e.dgn
 USER:MCopple

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..... 0

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..... 0

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 8

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

FLASHER CIRCUIT MODIFICATION DETAIL

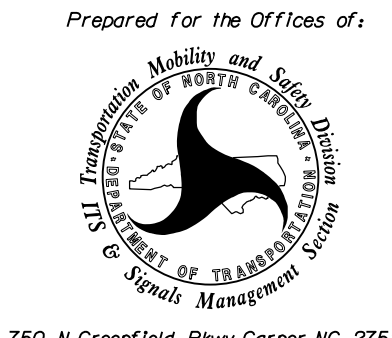
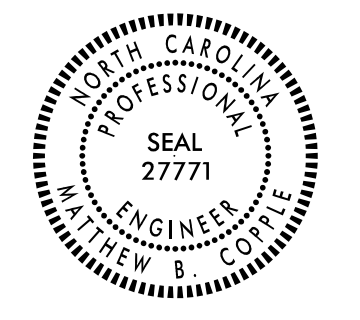
IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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: 06-1283T
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

Temporary Design - (TMP Phase I)
 Electrical Detail - Sheet 2 of 2

	<p>US 701 Bypass (N. J.K. Powell Blvd) at SR 1552 (Smyrna Road)- McDonald's D/W</p> <p>Division 06 Columbus County Whiteville</p> <p>PLAN DATE: November 2019 REVIEWED BY:</p> <p>PREPARED BY: M Copple REVIEWED BY: GG Murr Jr</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE							<div style="border: 1px solid black; padding: 5px;"> <p>SEAL</p>  <p>SEAL 27771</p> </div>
REVISIONS	INIT.	DATE									

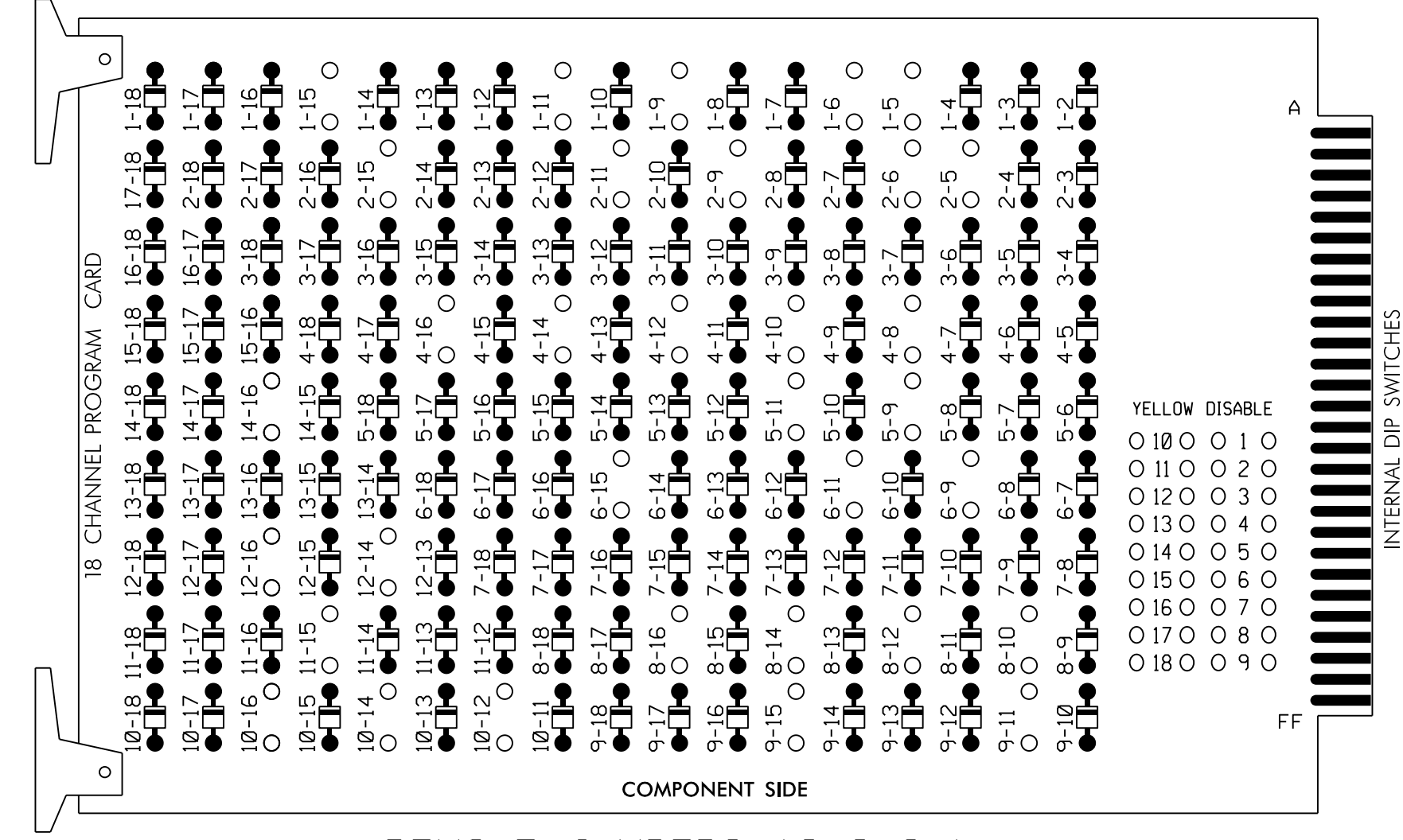
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL
(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-15, 3-8, 4-10, 4-12, 4-14, 4-16, 5-9, 5-11, 6-9, 6-11, 6-15, 8-10, 8-12, 8-14, 8-16, 9-11, 9-15, 10-12, 10-14, 10-16, 11-15, 12-14, 12-16, AND 14-16



- 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 unused 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 Walk.
- The cabinet and controller are part of Signal System # 10605.

EQUIPMENT INFORMATION

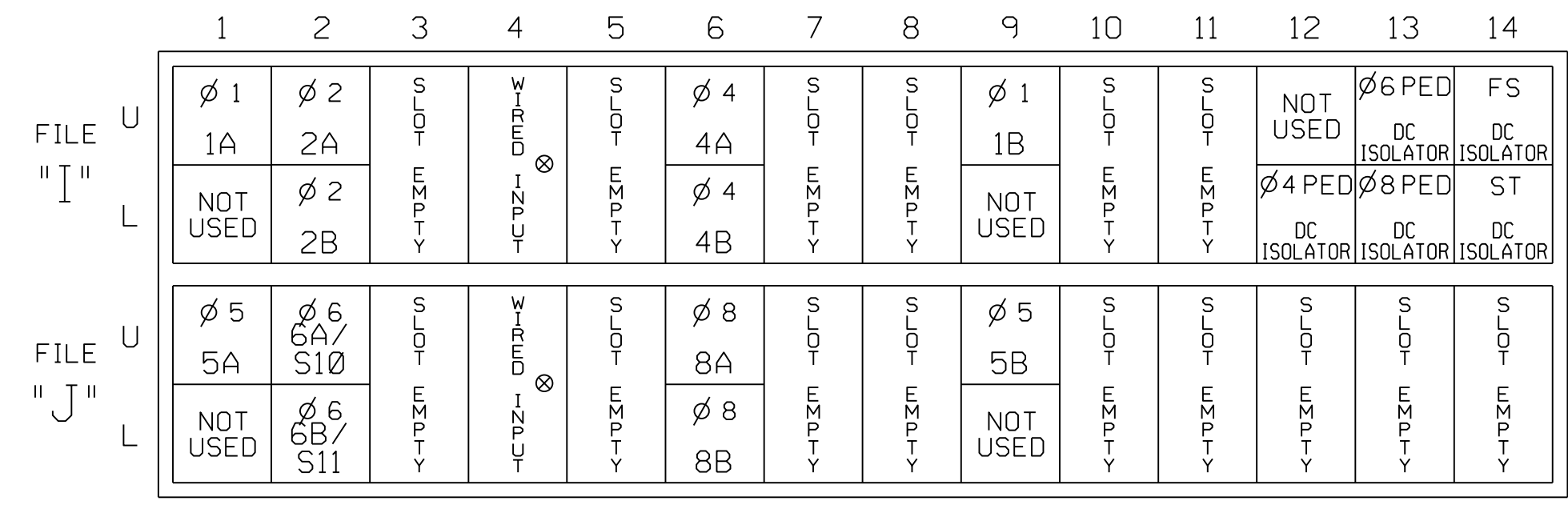
CONTROLLER.....2070LX
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S5,S6,S7,S8,S9,S11,S12
 AUX S1,AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,4,4PED,5,6,6PED,8,8PED
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 * See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6		
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18		
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE		
SIGNAL HEAD NO.	11	83	21,22	NU	NU	42,43	P41, P42	43	51	61,62	P61, P62	NU	82,83	P81, P82	11	81	NU	51	41	NU
RED	*	128			101			*	134		107									
YELLOW		129			102				135		108									
GREEN		130			103				136		109									
RED ARROW													A121	A124		A114	A101			
YELLOW ARROW	126							132					A122	A125		A115	A102			
FLASHING YELLOW ARROW													A123	A126		A116	A103			
GREEN ARROW	127	127					133	133												
Hand							104		119		110									
Person							106		121		112									

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

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

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		N
		J4U	48	26	6	YES		3		G
1B	TB6-9,10	I9U	60	11	1	YES		15		N
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		N
4B	TB4-11,12	I6L	45	14	4	YES				N
5A ²	TB3-1,2	J1U	55	5	5	YES		15		N
		I4U	47	22	2	YES		3		G
5B	TB7-9,10	J9U	59	15	5	YES		15		N
6A/S10	TB3-5,6	J2U	40	6	6	YES			X	N
6B/S11	TB3-7,8	J2L	44	16	6	YES			X	N
8A	TB5-9,10	J6U	42	8	8	YES		5		N
8B	TB5-11,12	J6L	46	18	8	YES		10		N
PED PUSH BUTTONS										
P41,P42	TB8-5,6	I12L	69	PED 4	4	PED				
P61,P62	TB8-7,9	I13U	68	PED 6	6	PED				
P81,P82	TB8-8,9	I13L	70	PED 8	8	PED				

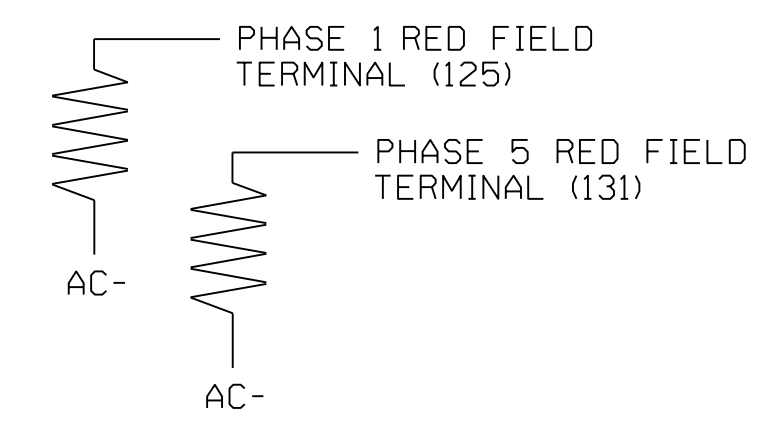
NOTE:
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

INPUT FILE POSITION LEGEND: J2L
¹Add 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.

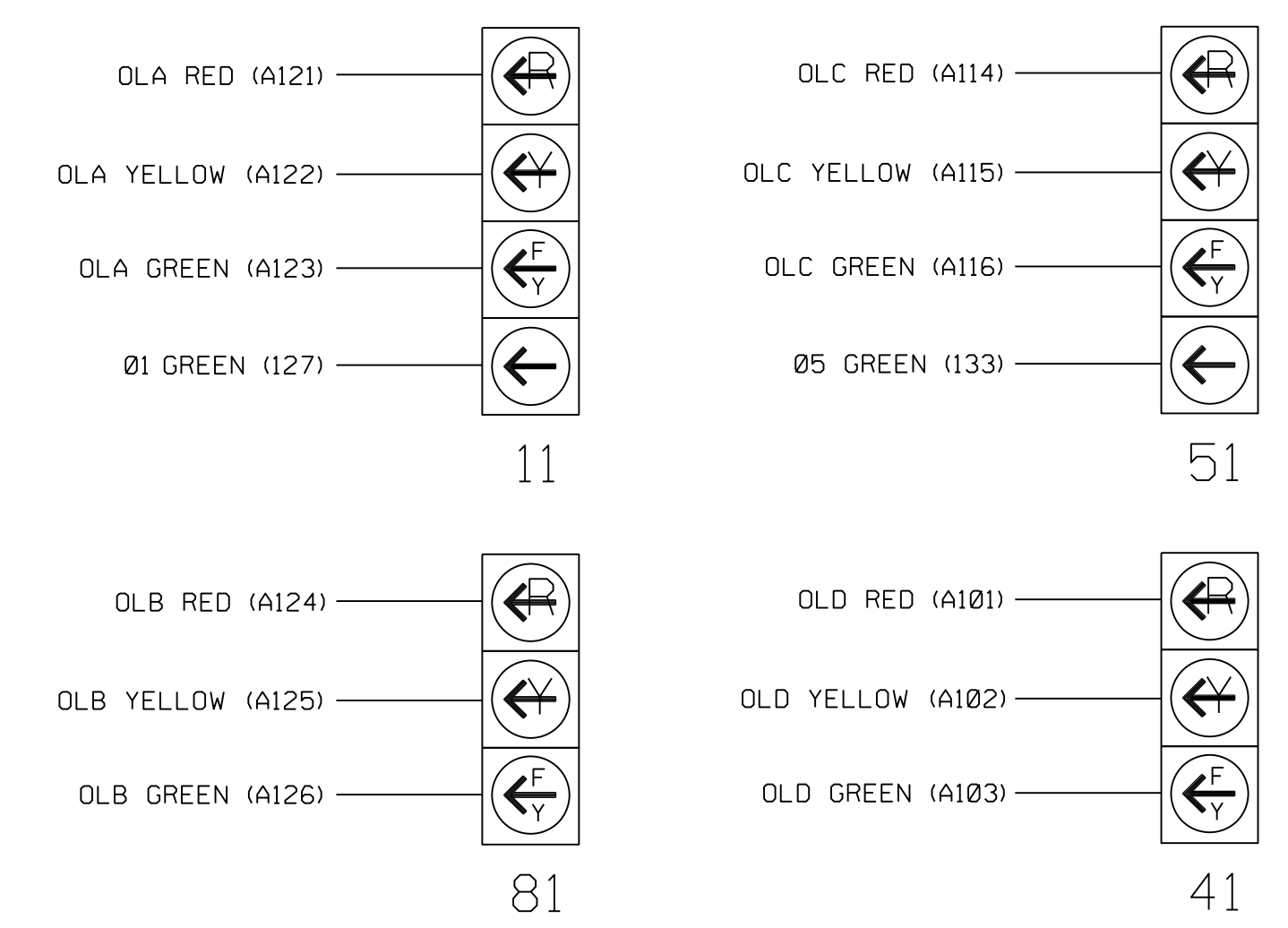
LOAD RESISTOR INSTALLATION DETAIL
(install resistors as shown)

ACCEPTABLE VALUES

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



FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)



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.

Final Design
 Electrical Detail - Sheet 1 of 2

Prepared for the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

US 701 Bypass
 (N. J.K. Powell Blvd) at
 SR 1552 (Smyrna Road)-
 McDonald's D/W

Division 06 Columbus County Whiteville

PLAN DATE: November 2019 REVIEWED BY:
 PREPARED BY: M Copple REVIEWED BY: G G Murr Jr

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

 SEAL 27771
 M. COPPLE
 PROFESSIONAL ENGINEER
 STATE OF NORTH CAROLINA

SIG. INVENTORY NO. 06-1283

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1283
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

SEPI
 Engineering & Construction, Inc.
 1 Glenwood Avenue
 Raleigh, NC 27603
 Tel: 919.789.9977
 Fax: 919.789.9591
 License: C-2197

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..... 0
        
```

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..... 0
        
```

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 . . . . . 8 . . . . .
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

FLASHER CIRCUIT MODIFICATION DETAIL

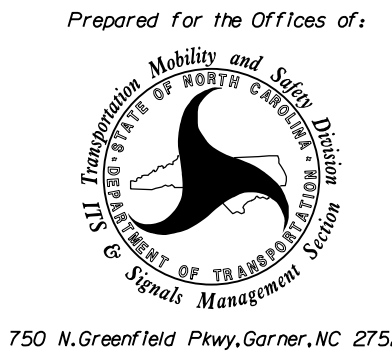
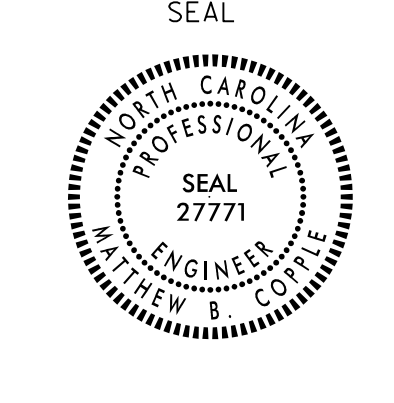
IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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: 06-1283
 DESIGNED: November 2019
 SEALED: 05/15/2020
 REVISED: N/A

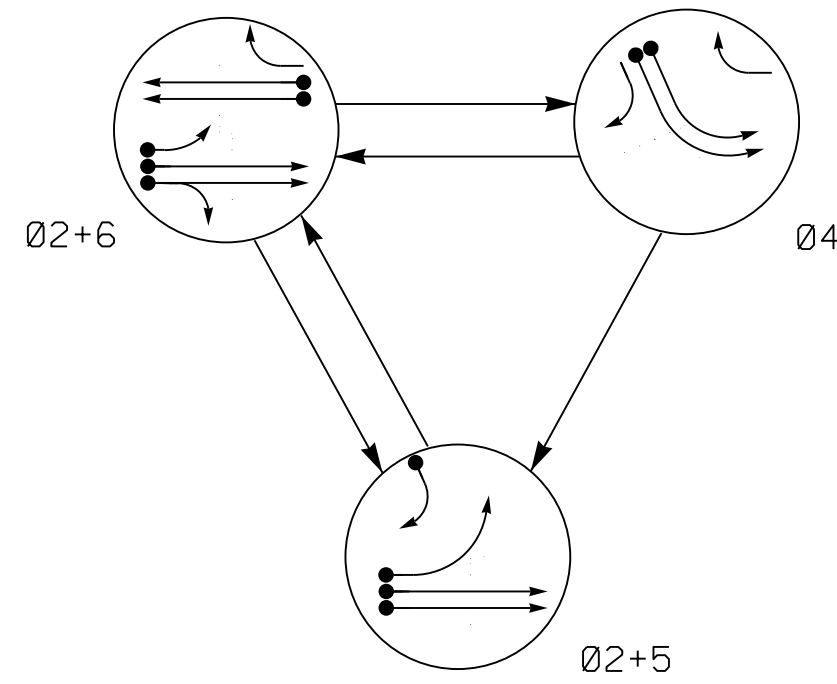
Final Design
 Electrical Detail - Sheet 2 of 2

	<p>US 701 Bypass (N. J.K. Powell Blvd) at SR 1552 (Smyrna Road)- McDonald's D/W</p> <p>Division 06 Columbus County Whiteville</p> <p>PLAN DATE: November 2019 REVIEWED BY:</p> <p>PREPARED BY: M Copple REVIEWED BY: GG Murr Jr</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE							<div style="border: 1px solid black; padding: 5px;"> <p style="font-size: small;">DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p style="font-size: x-small;">SEAL</p>  <p style="font-size: x-small;">DATE</p> <p style="font-size: x-small;">SIG. INVENTORY NO. 06-1283</p> </div>
REVISIONS	INIT.	DATE									



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PHASING DIAGRAM



SIGNAL FACE	PHASE			
	02+5	02+6	04	FL HEAD
21,22	G	G	R	Y
41,43	R	R	G	R
42	R	R	G	R
51	R	G	R	Y
61	R	G	R	Y
62	R	G	R	Y

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
2A/S15	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	-
2B/S16	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	-
4A	6X60	+10	2-4-2	-	4	Yes	-	3	-	N	-	-
4B	6X60	0	2-4-2	-	4	Yes	-	-	-	N	-	-
5A	6X60	0	2-4-2	-	5	Yes	-	15	-	N	-	-
5B	6X60	0	2-4-2	-	5	Yes	-	15	-	N	-	-
6A/S13	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	-
6B/S14	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	-

3 Phase Fully Actuated System #10605

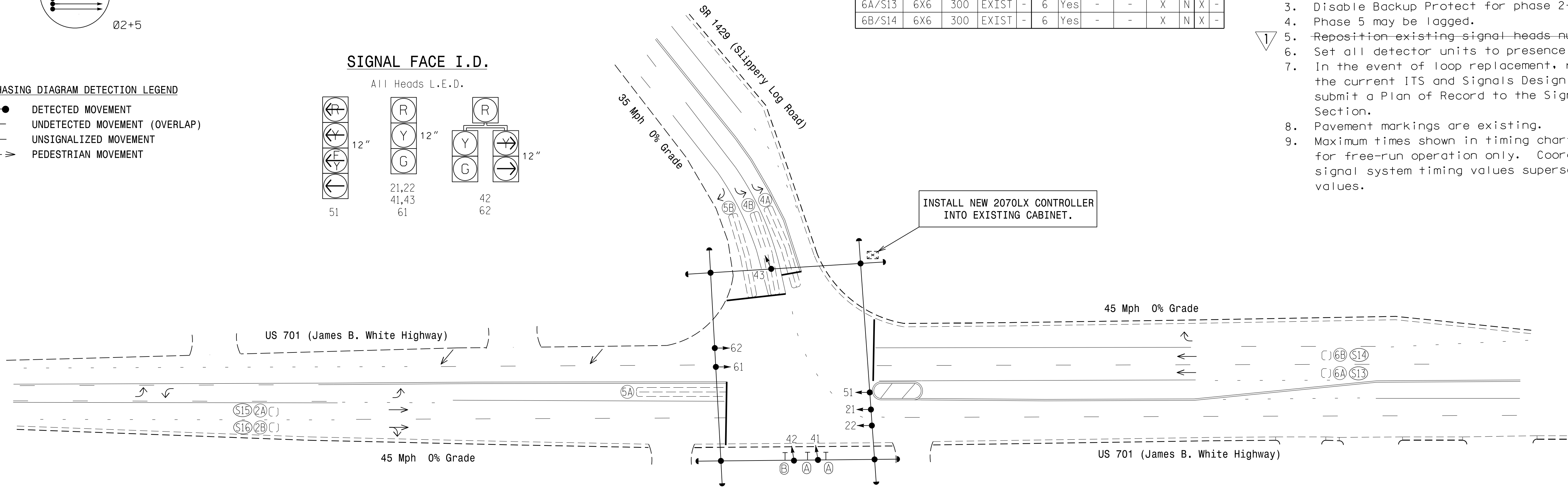
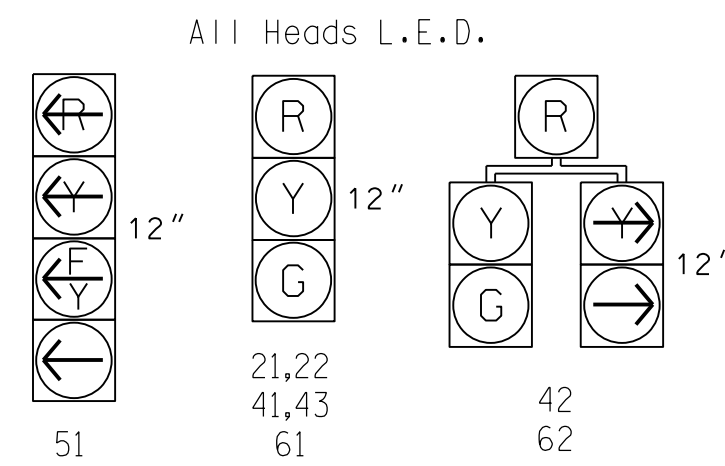
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 2+6.
4. Phase 5 may be lagged.
5. Reposition existing signal heads numbered 22.
6. Set all detector units to presence mode.
7. In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
8. Pavement markings are existing.
9. 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.



ASC/3 TIMING CHART				
FEATURE	PHASE			
	2	4	5	6
Min Green *	12	7	7	12
Walk *	-	-	-	-
Ped Clear	-	-	-	-
Veh. Extension *	6.0	1.0	1.0	6.0
Max 1 *	90	20	25	90
Yellow	4.5	3.0	3.0	4.5
Red Clear	1.5	3.3	2.9	1.5
Actuations B4 Add *	0	-	-	0
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	VEH. RECALL	-	-	VEH. RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	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 | ● → Traffic Signal Head |
| ● → Modified Signal Head | N/A |
| ⊥ Sign | ⊥ Sign |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ Pedestrian Signal Head With Push Button & 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 |
| ⊥ Controller & Cabinet | ⊥ Controller & Cabinet |
| ⊥ Junction Box | ⊥ Junction Box |
| --- 2-in Underground Conduit | --- 2-in Underground Conduit |
| N/A Right of Way | --- Right of Way |
| → Directional Arrow | → Directional Arrow |
| (A) Left Arrow "ONLY" Sign (R3-5L) | (A) Left Arrow "ONLY" Sign (R3-5L) |
| (B) Right Arrow "ONLY" Sign (R3-5R) | (B) Right Arrow "ONLY" Sign (R3-5R) |

Signal Revision

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Revision Seal

Prepared for: Transportation Mobility and Safety Division, STATE OF NORTH CAROLINA, Signal Design Section

750 N. Greenfield Pkwy, Garner, NC 27529

US 701 (James B. White Highway) at SR 1429 (Slippery Log Road)

Division 6 Columbus County Whiteville

PLAN DATE: November 2012 REVIEWED BY: PLA

PREPARED BY: Jeff Spence REVIEWED BY:

REVISIONS	INIT.	DATE
Controller changed to ASC/3	GS	05/14/20

SEAL

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SIGNATURE DATE

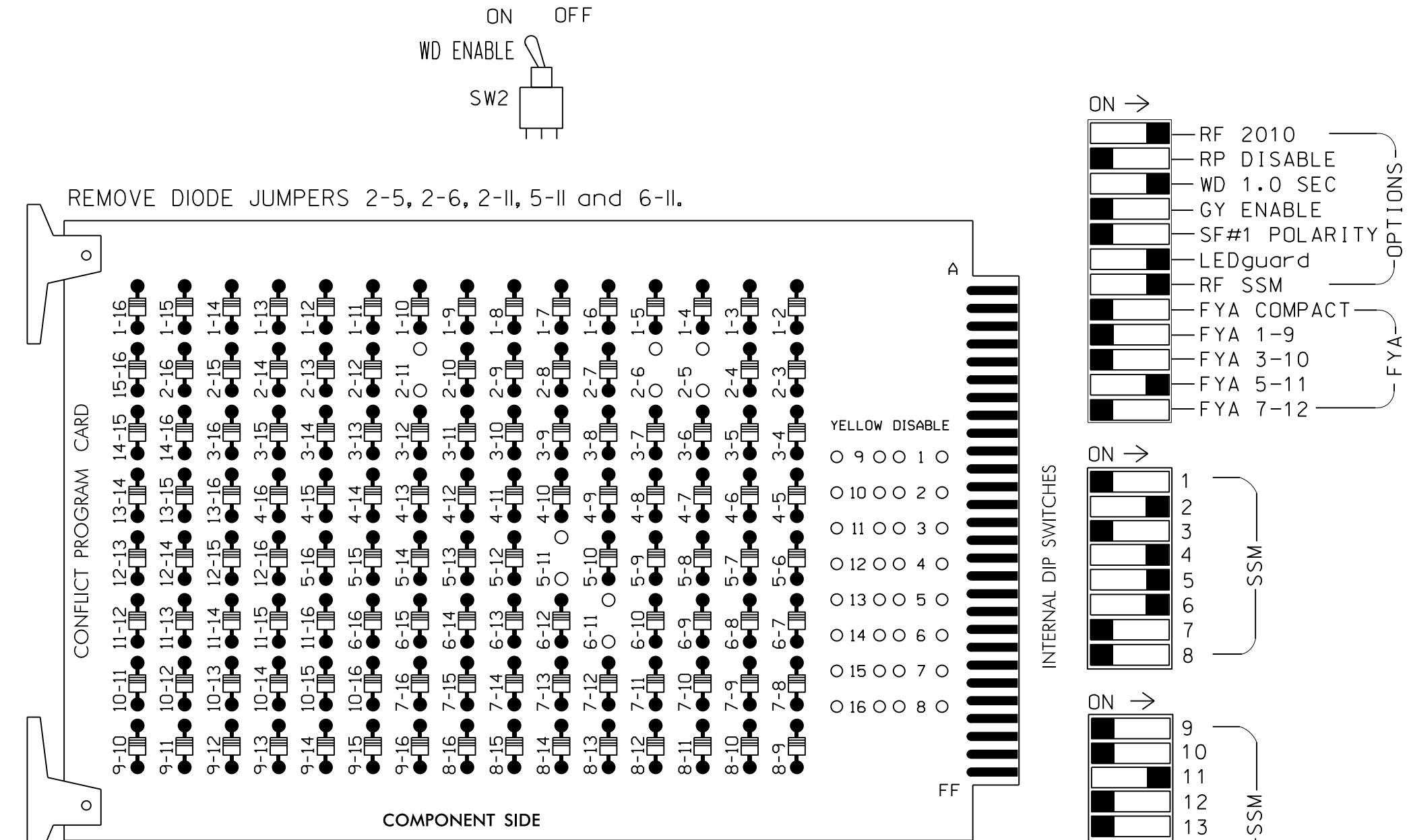
SIG. INVENTORY NO. 06-0951

SEPI Engineering & Construction, Inc.

1 Glenwood Avenue
Raleigh, NC 27603
Tel: 919.789.9977
Fax: 919.789.9591
License: C-2197

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Signal System # 10605.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14	
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE	
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42 43	62	51*	42	61,62	NU	NU	NU	NU	NU	NU	51*	NU	NU	
RED		128			101			*	134										
YELLOW		129			102				135										
GREEN		130			103				136										
RED ARROW																		A114	
YELLOW ARROW					102			132											A115
FLASHING YELLOW ARROW																			A116
GREEN ARROW					103	133	133												

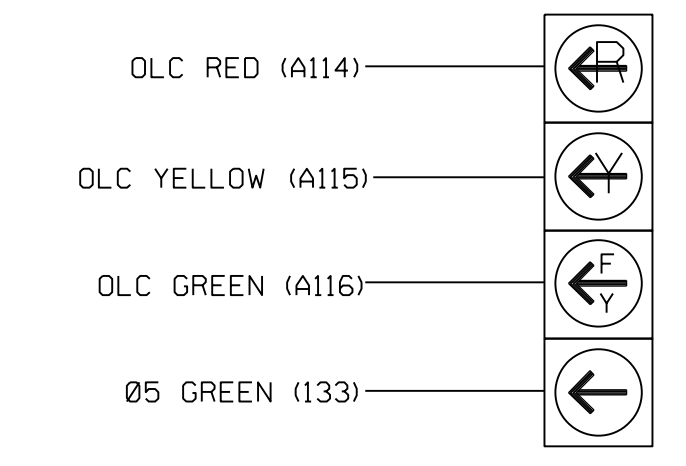
NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 ★ See pictorial of head wiring in detail below.

EQUIPMENT INFORMATION

CONTROLLER.....CONTRACTOR SUPPLIED 2070LX
 CABINET.....EXISTING EAGLE 332 /W/ AUX
 SOFTWAREECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S4,S5,S6,S12.
 PHASES USED.....2,4,5,6.
 OVERLAP "A".....NOT USED
 OVERLAP "B".....NOT USED
 OVERLAP "C".....* * See overlap programming detail on sheet 2
 OVERLAP "D".....NOT USED

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



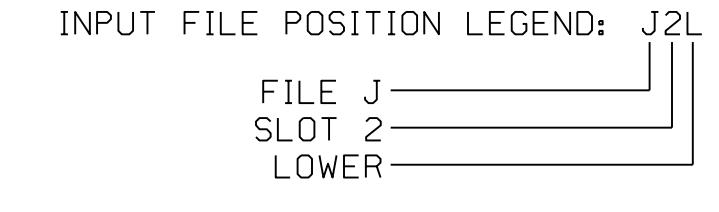
51

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14	FILE "J"
U	∅ 2/SYS	∅ 2/SYS	∅ 5	∅ 4	∅ 4	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	FS
L	2A/S15	2B/S16	5A	4A	4A	5A	5A	5A	5A	5A	5A	5A	5A	5A	DC ISOLATOR
U	∅ 5	∅ 6/SYS	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	∅ 5	DC ISOLATOR
L	NOT USED	6B/S14	NOT USED	5B	5B	5B	5B	5B	5B	5B	5B	5B	5B	5B	DC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME
 ⊗ Wired Input - Do not populate slot with detector card



INPUT FILE CONNECTION & PROGRAMMING CHART

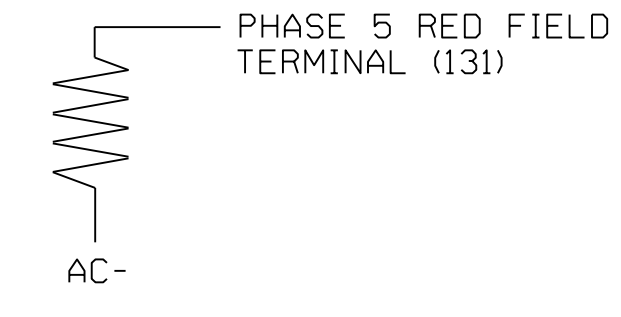
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
2A/S15	TB2-5,6	I2U	39	2	2	YES			X	N
2B/S16	TB2-7,8	I2L	43	12	2	YES			X	N
4A	TB4-9,10	I6U	41	4	4	YES		3		N
4B	TB4-11,12	I6L	45	14	4	YES				N
5A ¹	TB3-1,2	J1U	55	5	5	YES		15		N
	-	I4U	47	22	2	YES		3		G
6A/S13	TB3-5,6	J2U	40	6	6	YES			X	N
6B/S14	TB3-7,8	J2L	44	16	6	YES			X	N
5B	TB3-9,10	J3U	64	36	5	YES		15		N

¹Add jumper from J1-W to I4-W, on rear of input file.
 If present, remove jumpers from TB3-9 to TB3-11, and from TB3-10 to TB3-12.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0951
 DESIGNED: November 2012
 SEALED: 2-22-13
 REVISED: 05/14/2020

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 Engineering & Construction, Inc.
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 License: C-2197

Revision Seal

ELECTRICAL DETAIL SHEET 1 OF 2
 ELECTRICAL AND PROGRAMMING DETAILS FOR: US 701 (James B. White Highway) at SR 1429 (Slippery Log Road)
 Division 06 Columbus County Whiteville
 PLAN DATE: 2-19-13 REVIEWED BY:
 PREPARED BY: D.H. Spaulding REVIEWED BY:
 REVISIONS: Controller changed to ASC/3. M.B.C. 05/14/20
 INIT. DATE
 SIGNATURE DATE
 SIG. INVENTORY NO. 06-0951

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▽ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL
(program controller as shown)

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

Toggle Twice

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..... 0


END PROGRAMMING
    
```

THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-0951
 DESIGNED: November 2012
 SEALED: 2-22-13
 REVISED: 05/14/2020

ELECTRICAL DETAIL SHEET 2 OF 2

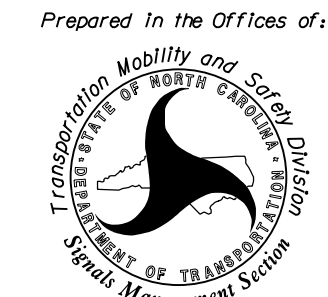
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Revision Seal



SIGNATURE _____ DATE _____

ELECTRICAL AND PROGRAMMING
 DETAILS FOR:



Prepared in the Offices of:
 750 N. Greenfield Pkwy, Garner, NC 27529

US 701 (James B. White Highway) at SR 1429 (Slippery Log Road)	
Division 06	Columbus County Whiteville
PLAN DATE: 2-19-13	REVIEWED BY:
PREPARED BY: D.H. Spaulding	REVIEWED BY:
REVISIONS	INIT. DATE
▽ Controller changed to ASC/3.....	MBC 05/14/20
SIGNATURE _____	DATE _____

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 SIG. INVENTORY NO. 06-0951

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PHASING DIAGRAM

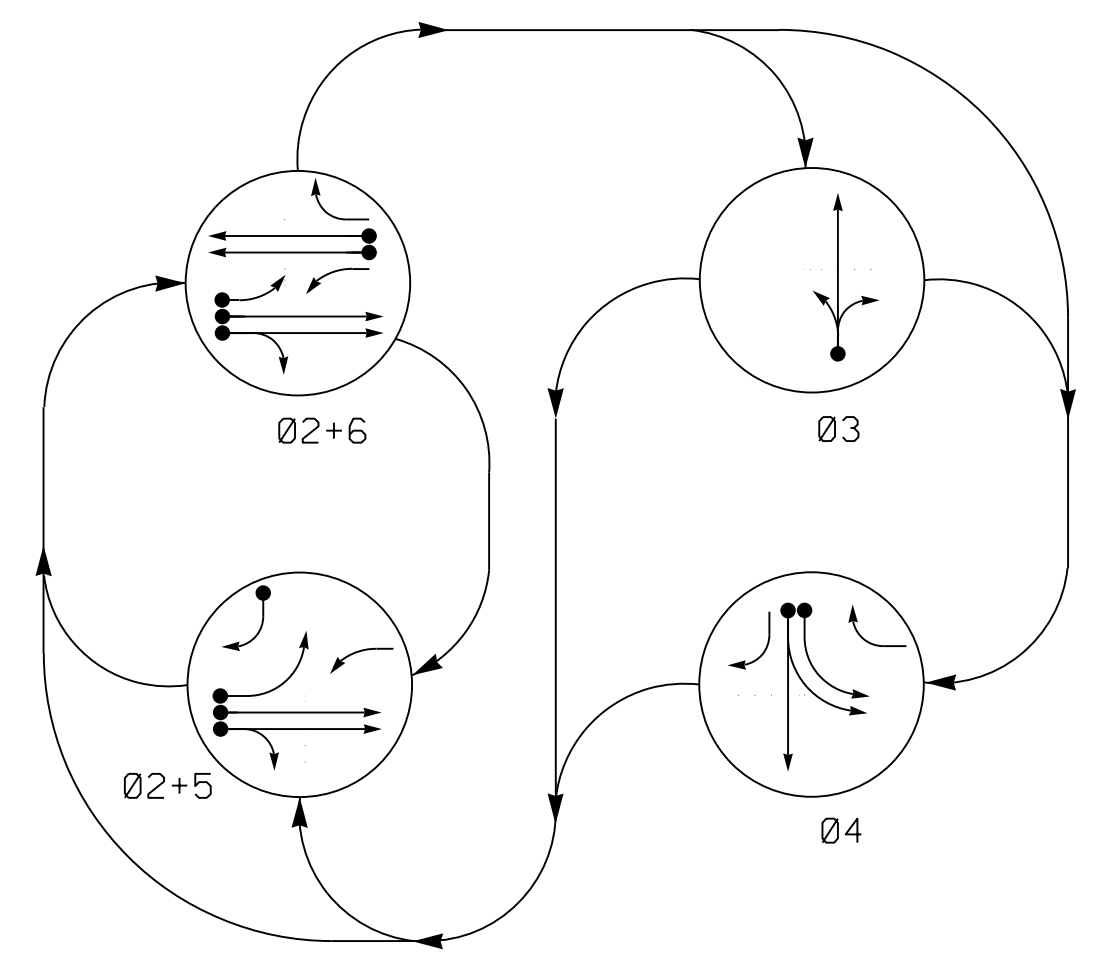


TABLE OF OPERATION

SIGNAL FACE	PHASE				
	02+5	02+6	03	04	FLASH
21,22	G	G	R	R	Y
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
51	F	F	R	R	Y
61	F	F	R	R	Y
62	R	G	R	R	Y
63	R	G	R	R	Y

ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING						
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	SYSTEM LOOP	NEW CARD
2A,2B	6X6	300	EXIST	-	2	Yes	-	-	X	N	-
3A	6X12	0	2-4-2	-	3	Yes	-	10	-	N	-
4A	6X60	0	2-4-2	-	4	Yes	-	3	-	N	-
4B	6X60	0	2-4-2	-	4	Yes	-	-	-	N	-
5A	6X60	0	2-4-2	-	5	Yes	-	15	-	N	-
5B	6X60	0	2-4-2	-	5	Yes	-	15	-	N	-
6A,6B	6X6	300	EXIST	-	6	Yes	-	-	X	N	-

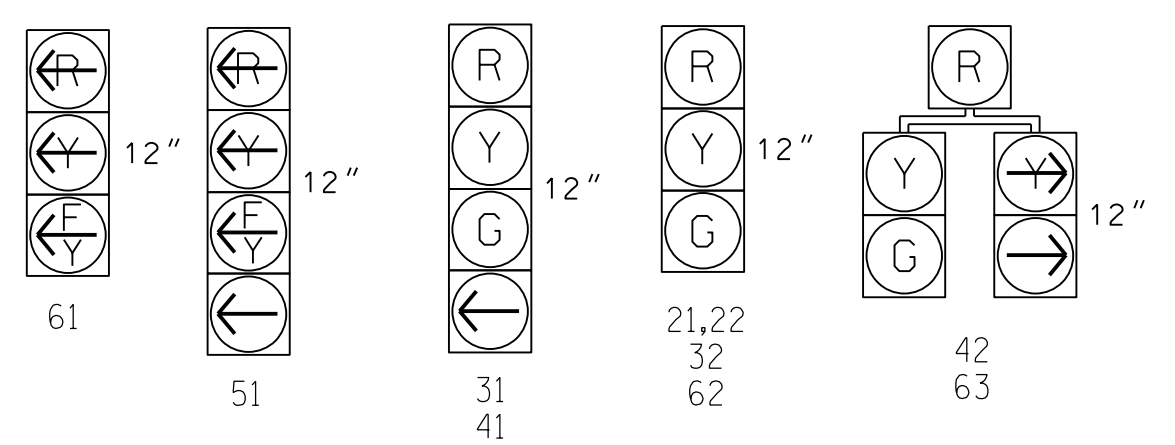
4 Phase Fully Actuated System #10605

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Disable Backup Protect for phase 2+6.
- Phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Set all detector units to presence mode.
- In the event of loop replacement, refer to the current ITS and Signals Design Manual and submit a Plan of Record to the Signal Design Section.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

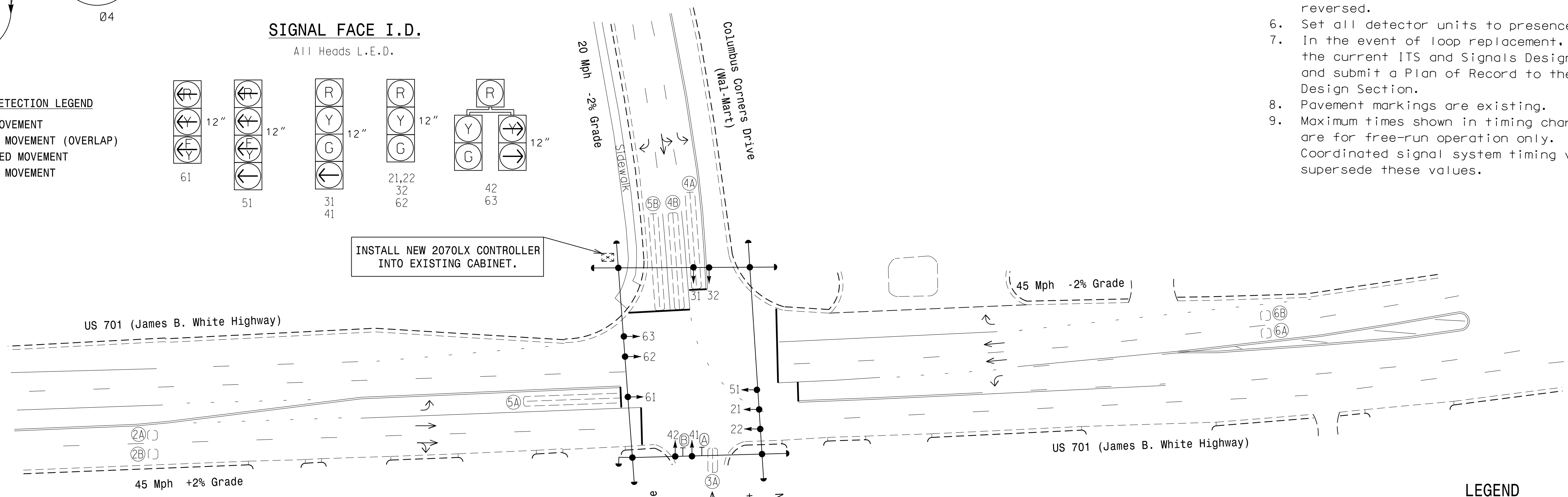
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



SIGNAL FACE I.D.

All Heads L.E.D.

INSTALL NEW 2070LX CONTROLLER INTO EXISTING CABINET.



ASC/3 TIMING CHART

FEATURE	PHASE				
	2	3	4	5	6
Min Green *	12	7	7	7	12
Walk *	-	-	-	-	-
Ped Clear	-	-	-	-	-
Veh. Extension *	6.0	3.0	1.0	1.0	6.0
Max I *	90	15	20	15	90
Yellow	4.7	3.0	3.0	3.0	4.7
Red Clear	1.5	2.8	2.9	2.8	1.5
Actuations B4 Add *	0	-	-	-	0
Seconds / Actuation *	2.0	-	-	-	2.0
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	VEH. RECALL	-	-	-	VEH. 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.

LEGEND

- | PROPOSED | EXISTING |
|----------|----------|
| | |
| | N/A |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| N/A | |
| | |
| | |
| | |

Signal Revision

Revision Seal

Seal of the State of North Carolina

US 701 (James B. White Highway) at Columbus Corners Drive

Division 6 Columbus County Whiteville

PLAN DATE: November 2012 REVIEWED BY:

PREPARED BY: Jeff Spence REVIEWED BY:

REVISIONS

NO.	DESCRIPTION	INIT.	DATE
1	Controller changed to ASC/3	JS	05/14/20

SEAL

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SIGNATURE DATE

SIG. INVENTORY NO. 06-1251

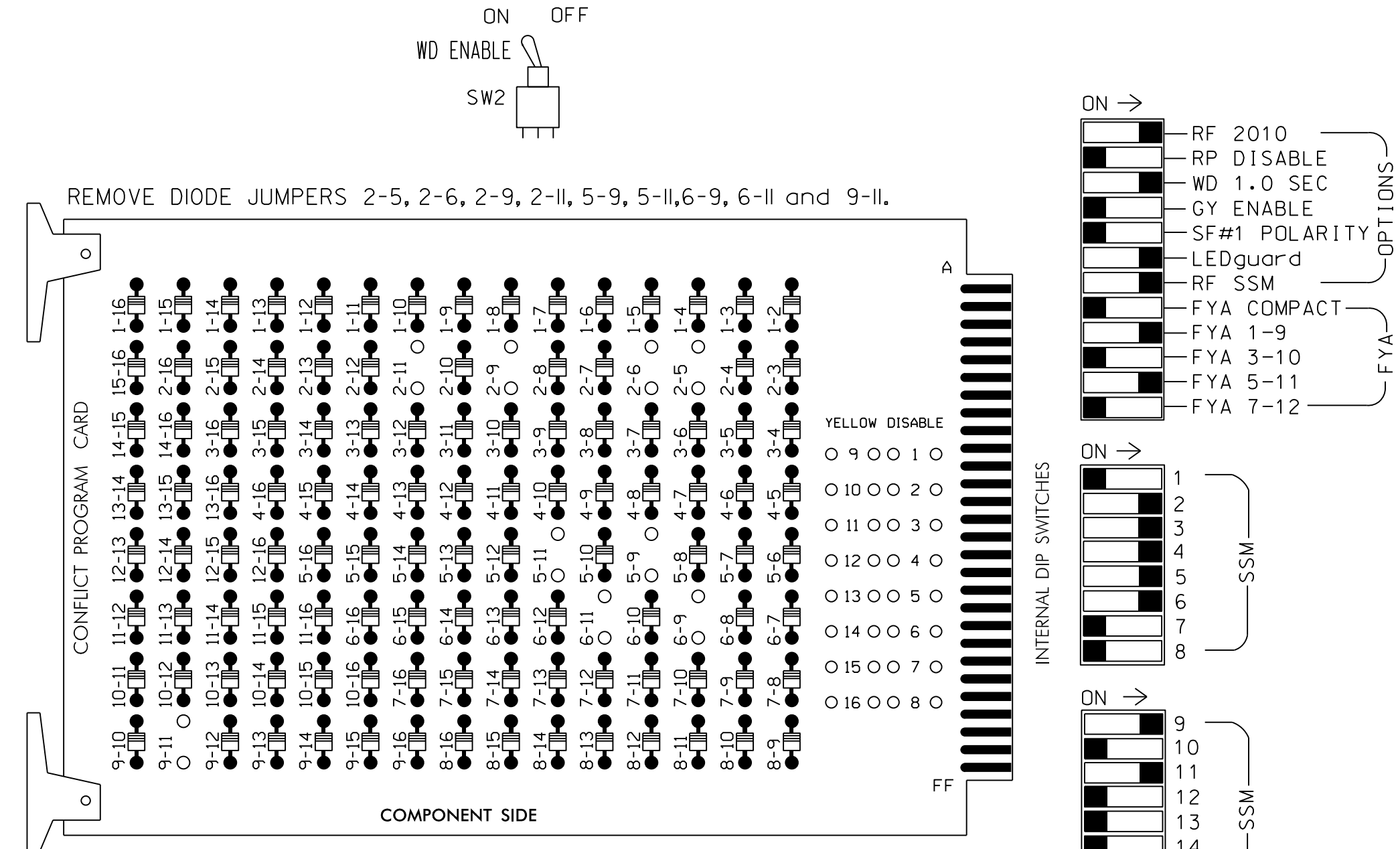
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Tel: 919.789.9977
Fax: 919.789.9591
License: C-2197

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

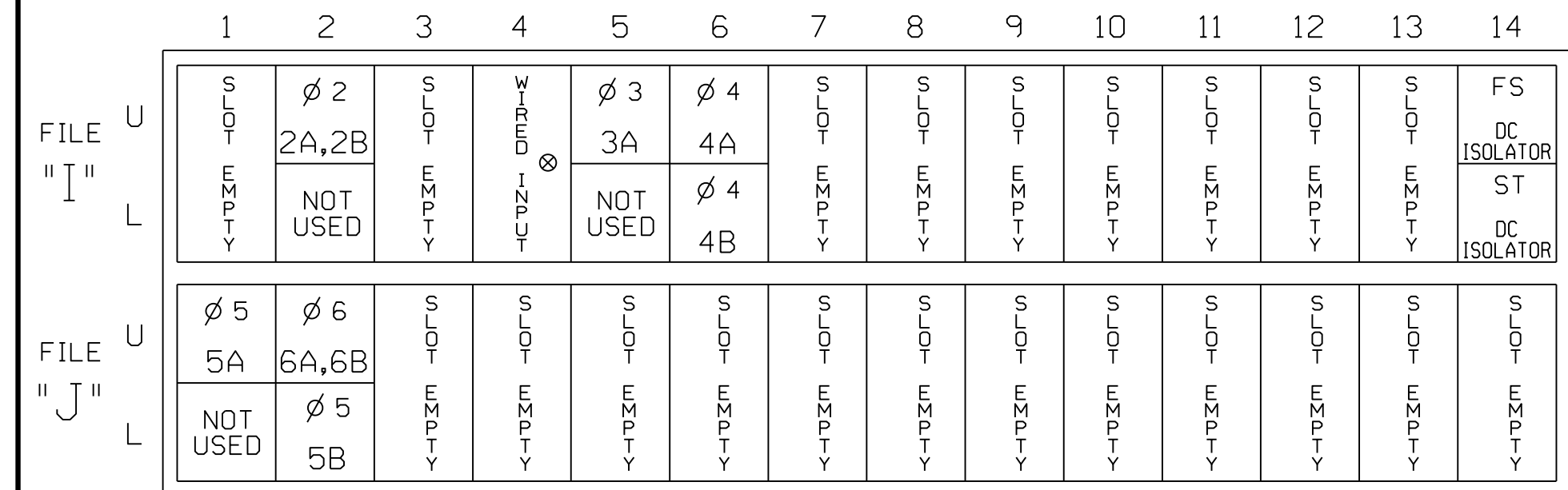
(remove jumpers and set switches as shown)



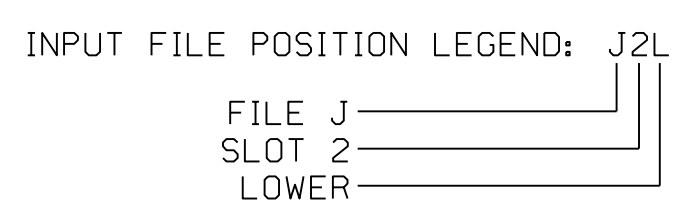
NOTES:

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

INPUT FILE POSITION LAYOUT (front view)



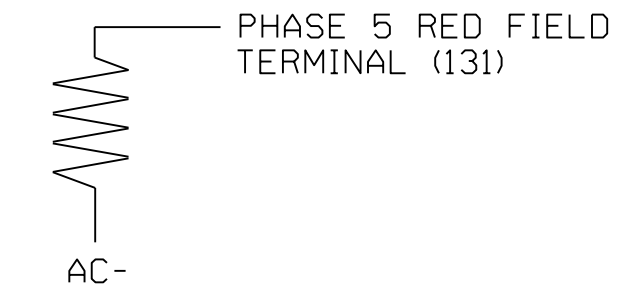
EX.: 1A, 2A, ETC. = LOOP NO.'S
FS = FLASH SENSE
ST = STOP TIME
⊗ Wired Input - Do not populate slot with detector card



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Signal System # 10605.

EQUIPMENT INFORMATION

CONTROLLER.....CONTRACTOR SUPPLIED 2070LX
 CABINET.....EXISTING McCAIN 332 /W/ AUX
 SOFTWAREECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S3,S4,S5,S6,S9,S12.
 PHASES USED.....2,3,4,5,6.
 OVERLAP "A".....*
 OVERLAP "B".....NOT USED
 OVERLAP "C".....*
 OVERLAP "D".....NOT USED

* See overlap programming detail on sheet 2

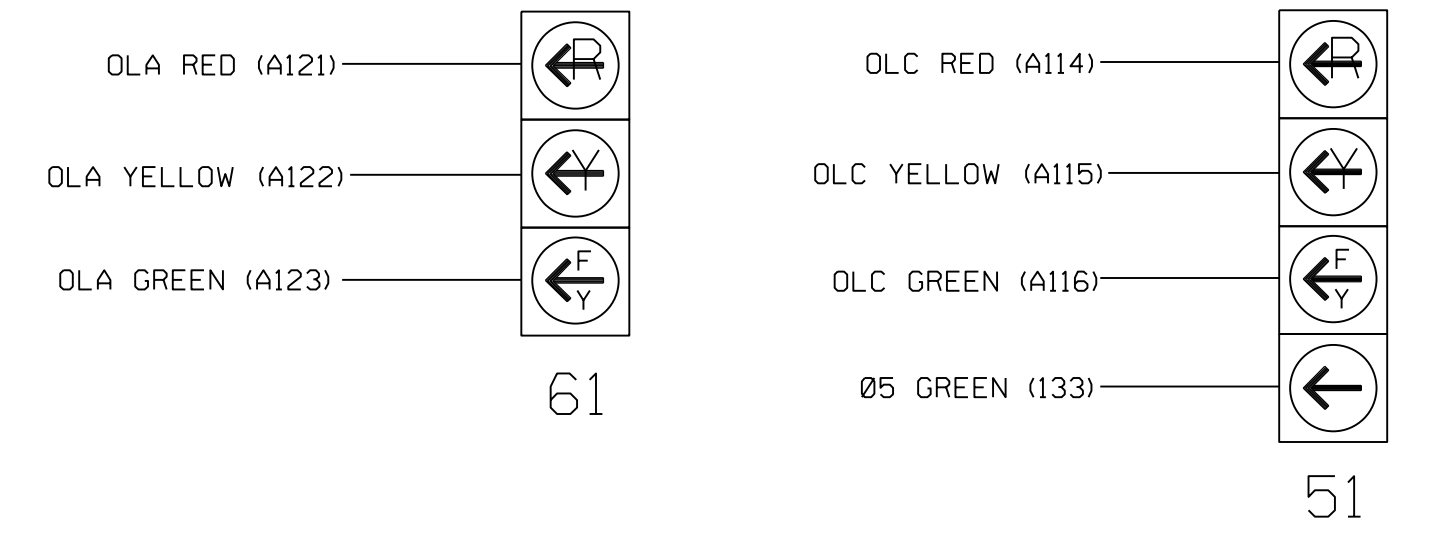
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	DLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	31 32	41 42	63	51 42	62,63	NU	NU	NU	NU	61	NU	NU	51	NU	NU
RED		128		116 116	101 101		*	134										
YELLOW		129		117 117	102 102			135										
GREEN		130		118 118	103 103			136										
RED ARROW																A121		A114
YELLOW ARROW						102		132								A122		A115
FLASHING YELLOW ARROW																A123		A116
GREEN ARROW				118	103	103	133	133										

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

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



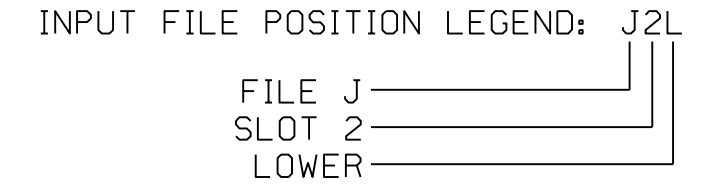
NOTE

1. The sequence display for signal head 51 requires special logic programming. See sheet 2 of 2 for programming instructions.

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,2B	TB2-5,6	I2U	39	2	2	YES			X	N
3A	TB4-5,6	I5U	58	3	3	YES		10		N
4A	TB4-9,10	I6U	41	4	4	YES		3		N
4B	TB4-11,12	I6L	45	14	4	YES				N
5A ¹	TB3-1,2	J1U	55	5	5	YES		15		N
		I4U	47	22	2	YES		3		G
6A,6B	TB3-5,6	J2U	40	6	6	YES			X	N
5B	TB3-7,8	J2L	44	16	5	YES		15		N

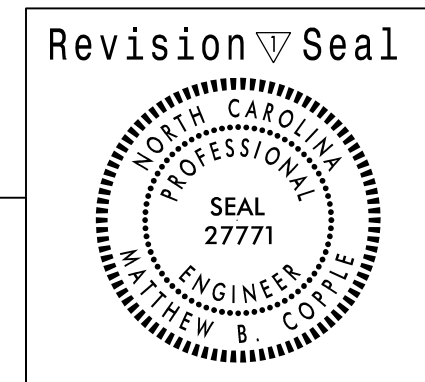
¹Add jumper from J1-W to I4-W, on rear of input file.



If present, remove jumpers from TB3-9 to TB3-11, and from TB3-10 to TB3-12.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1251
 DESIGNED: November 2012
 SEALED: 12-18-12
 REVISED: 05/14/2020

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ELECTRICAL DETAIL SHEET 1 OF 2

US 701 (James B. White Highway) at Columbus Corners Drive

Division 06 Columbus County Whiteville

PLAN DATE: 12-06-12 REVIEWED BY:

PREPARED BY: D. H. Spaulding REVIEWED BY:

REVISIONS: CONTROLLER changed to ASC/3 MBC 05/14/20

SIGNATURE DATE

SIG. INVENTORY NO. 06-1251

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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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 'OTHER/ECONOLITE'
TMG VEH OVLP...[A] 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 Twice
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..... 0
END PROGRAMMING
  
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-1251
DESIGNED: November 2012
SEALED: 12-18-12
REVISED: 05/14/2020

5/14/2020
...061251.sm.e.le...20121220.dgn
USER:MCDDP1e

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Raleigh, NC 27603
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Fax:919.789.9591
License: C-2197

Revision Seal

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

ELECTRICAL DETAIL SHEET 2 OF 2			
US 701 (James B. White Highway) at Columbus Corners Drive		Division 06 Columbus County Whiteville	
PLAN DATE: 12-06-12	REVIEWED BY:		
PREPARED BY: D. H. Spaulding	REVIEWED BY:		
REVISIONS	INIT.	DATE	
▽ Controller changed to ASC/3	MBC	05/14/20	
SIGNATURE		DATE	

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document.

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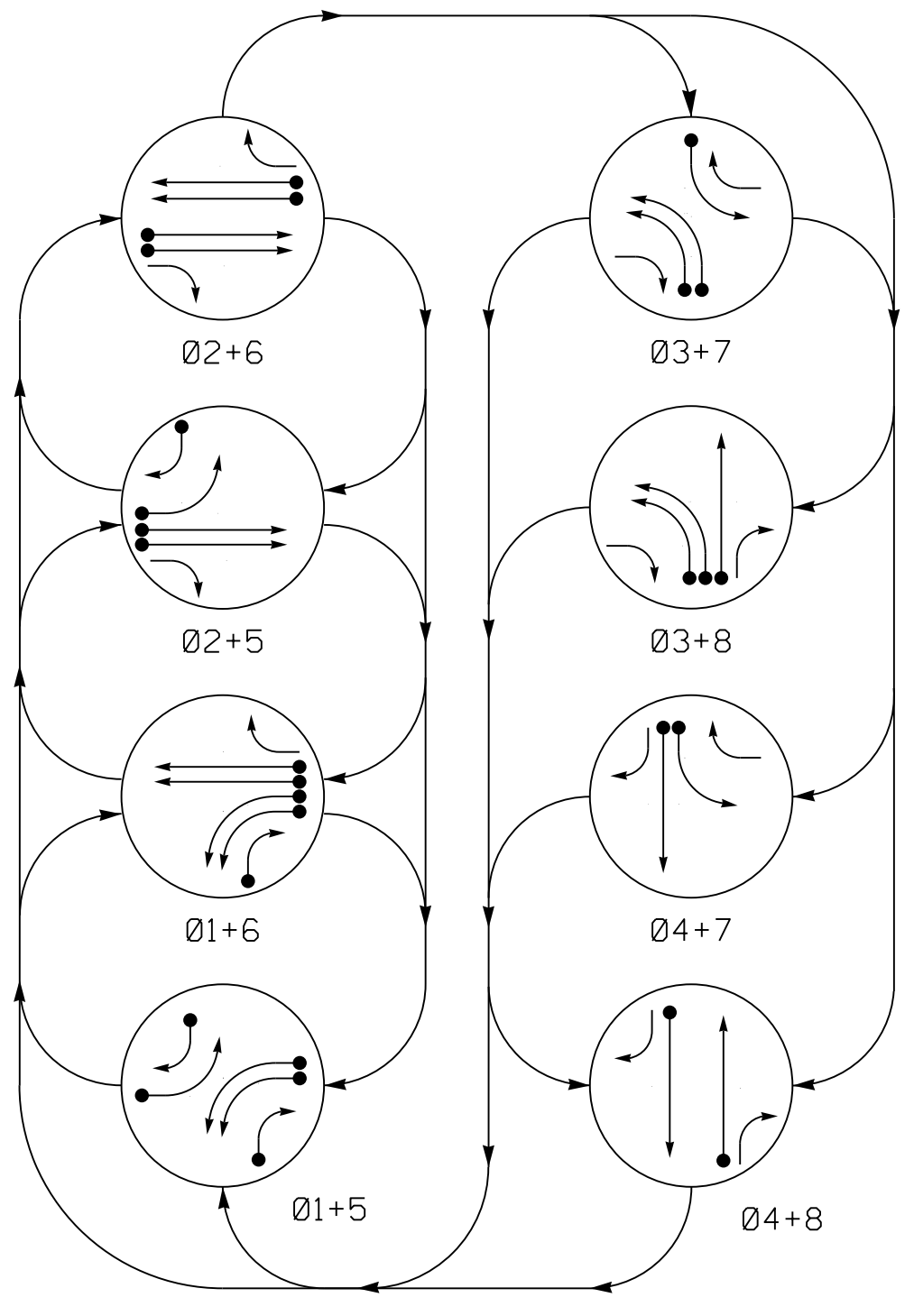
SIG. INVENTORY NO. 06-1251

8 Phase Fully Actuated System #10605

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 or phase 5 may be lagged.
4. Phase 3 or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.

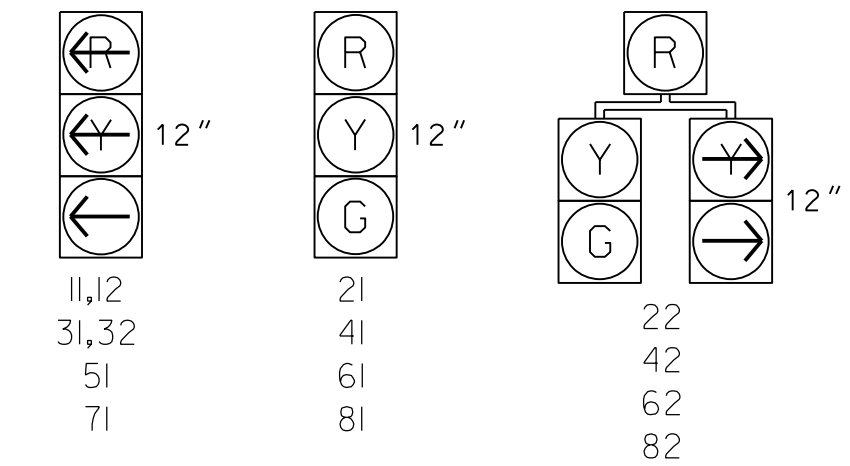
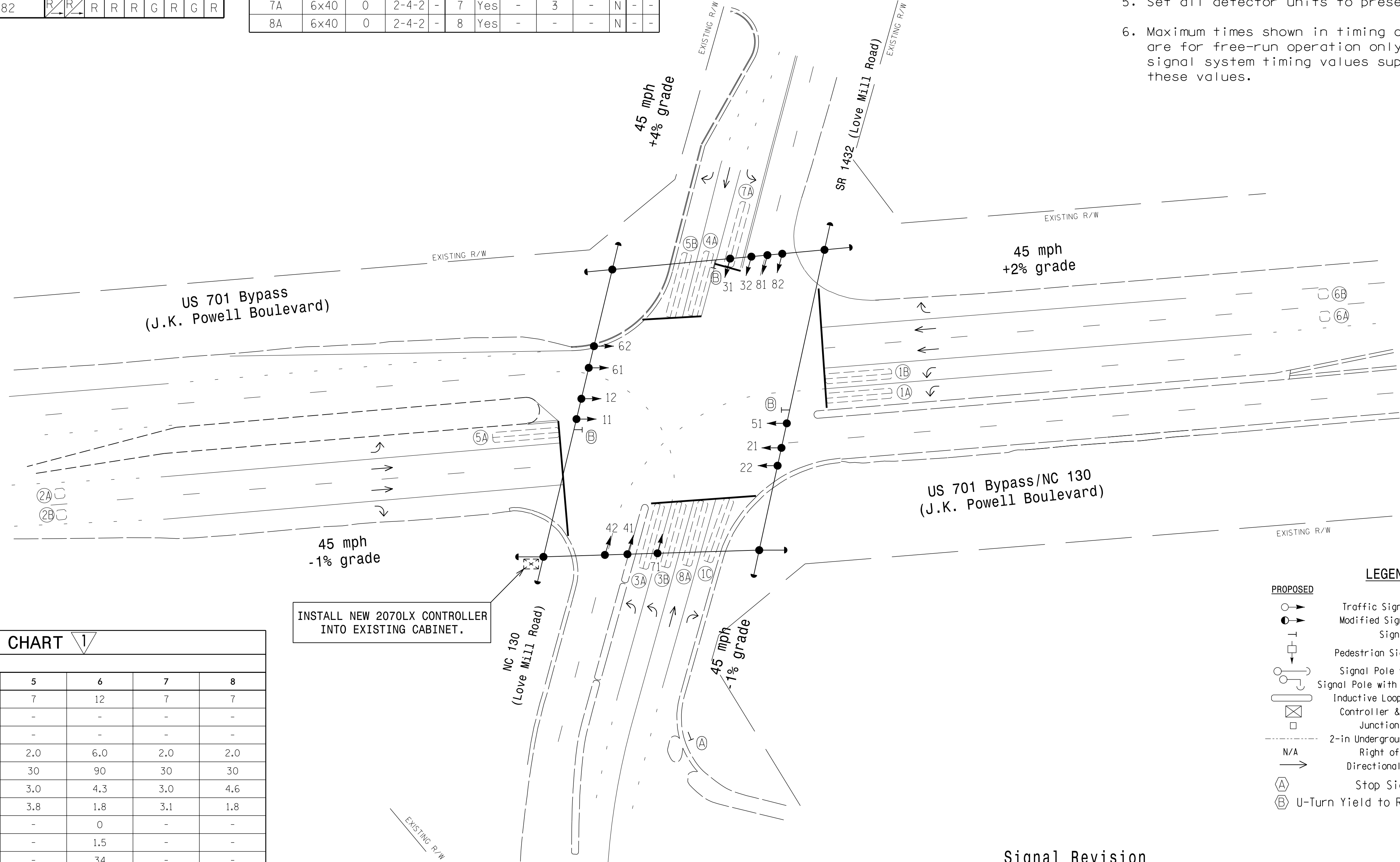


TABLE OF OPERATION

SIGNAL FACE	PHASE							
	Ø 1 + 5	Ø 2 + 6	Ø 3 + 7	Ø 4 + 8	Ø 1 + 6	Ø 2 + 5	Ø 3 + 8	Ø 4 + 7
11,12	←	→	↑	↓	←	→	↑	↓
21	R	R	G	G	R	R	R	Y
22	R	R	G	G	R	R	R	Y
31,32	←	→	↑	↓	←	→	↑	↓
41	R	R	R	R	R	R	G	G
42	R	R	R	R	R	R	G	G
51	←	→	↑	↓	←	→	↑	↓
61	R	G	R	G	R	R	R	Y
62	R	G	R	G	R	R	R	Y
71	←	→	↑	↓	←	→	↑	↓
81	R	R	R	R	R	R	G	G
82	R	R	R	R	R	R	G	G

ASC/3 DETECTOR INSTALLATION CHART

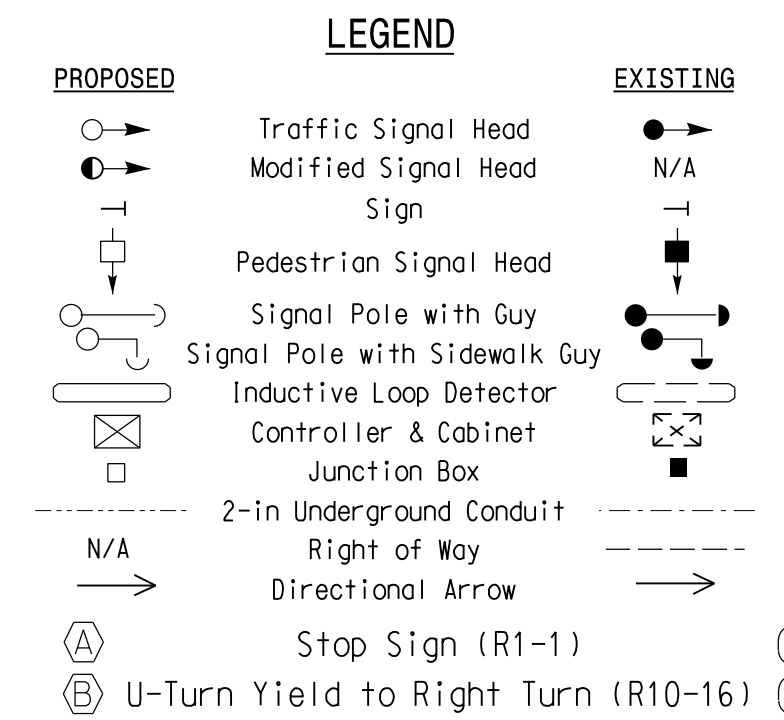
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING						
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6x40	0	2-4-2	-	1	Yes	-	-	-	N	-
1B	6x40	0	2-4-2	-	1	Yes	-	-	-	N	-
1C	6x40	0	2-4-2	-	1	Yes	-	15	-	N	-
2A	6x6	300	EXIST	-	2	Yes	-	-	X	N	-
2B	6x6	300	EXIST	-	2	Yes	-	-	X	N	-
3A	6x40	0	2-4-2	-	3	Yes	-	-	-	N	-
3B	6x40	0	2-4-2	-	3	Yes	-	-	-	N	-
4A	6x40	0	2-4-2	-	4	Yes	-	-	-	N	-
5A	6x40	0	2-4-2	-	5	Yes	-	-	-	N	-
5B	6x40	0	2-4-2	-	5	Yes	-	15	-	N	-
6A	6x6	300	EXIST	-	6	Yes	-	-	X	N	-
6B	6x6	300	EXIST	-	6	Yes	-	-	X	N	-
7A	6x40	0	2-4-2	-	7	Yes	-	3	-	N	-
8A	6x40	0	2-4-2	-	8	Yes	-	-	-	N	-



ASC/3 TIMING CHART

	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	12	7	7	7	12	7	7
Walk *	-	-	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-	-	-
Veh. Extension *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max 1 *	30	90	30	30	30	90	30	30
Yellow	3.0	4.6	3.0	4.3	3.0	4.3	3.0	4.6
Red Clear	4.0	1.8	3.2	1.7	3.8	1.8	3.1	1.8
Actuations B4 Add *	-	0	-	-	-	0	-	-
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	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	X	X	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.



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License: C-2197

Revision Seal

Professional Engineer Seal for C. G. MURPHY, JR., No. 14543, State of North Carolina.

Signal Revision

Prepared in the Offices of:
Traffic Engineering and Safety Planning
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal and Geometric Section

122 N. McDowell St., Raleigh, NC 27603

US 701 Bypass and US 701 Business at NC 130 and SR 1432 (Love Mill Road)

Division 6 Columbus County Whiteville

PLAN DATE: June 2008 REVIEWED BY: LM Moon

PREPARED BY: BK Scott REVIEWED BY: MR Cooney

REVISIONS: Controller changed to ASC/3 INIT. DATE: GGM 05/14/20

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

Not a certified document. This document originally issued and sealed by Lisa M. Moon, P.E. no. 22516 on 6/13/08. This document shall not be considered a certified document.

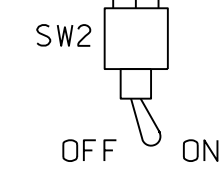
SIGNATURE DATE

SIG. INVENTORY NO. 06-0257

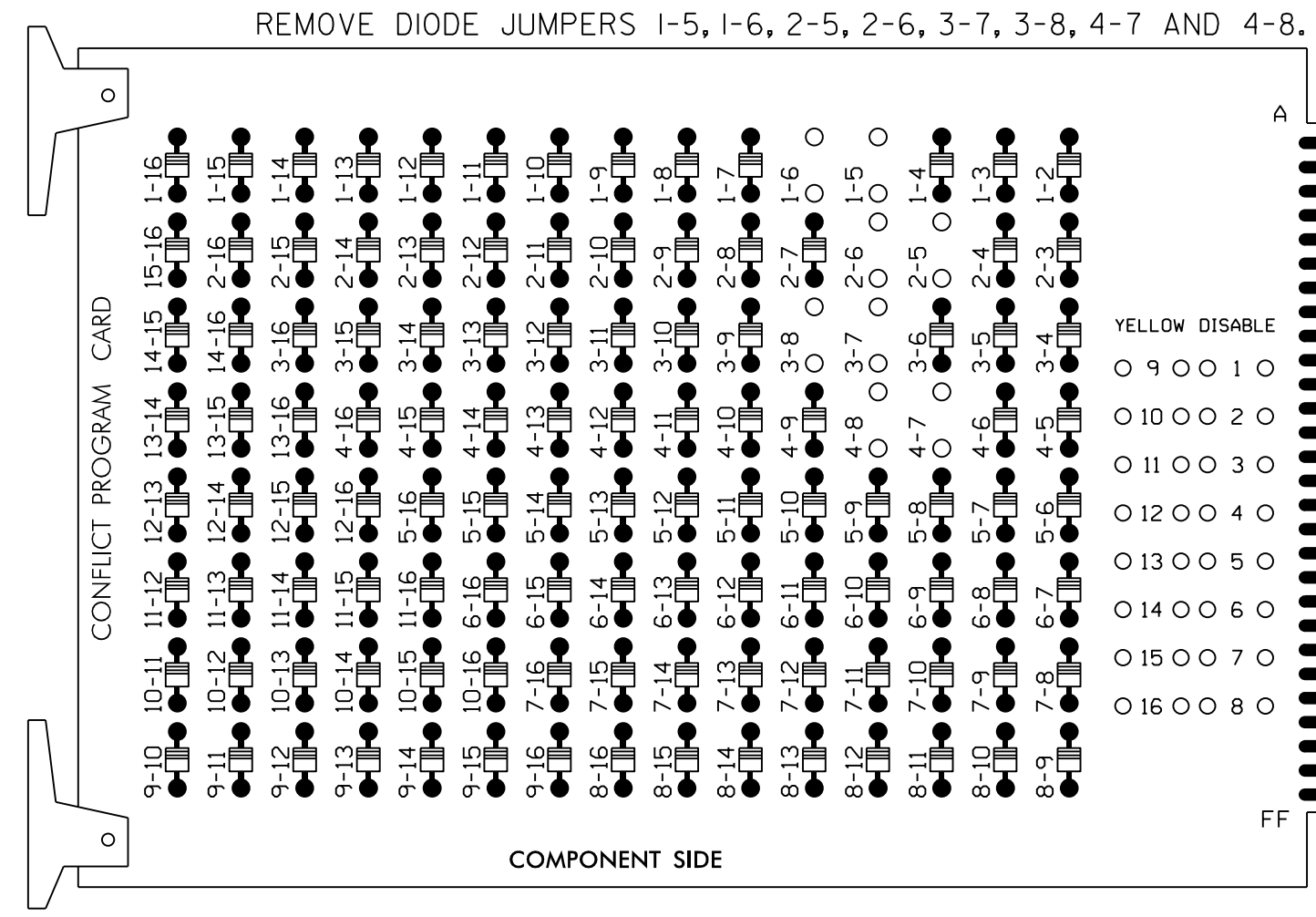
EDI MODEL 2010ECL CONFLICT MONITOR

PROGRAMMING DETAIL

WD ENABLE

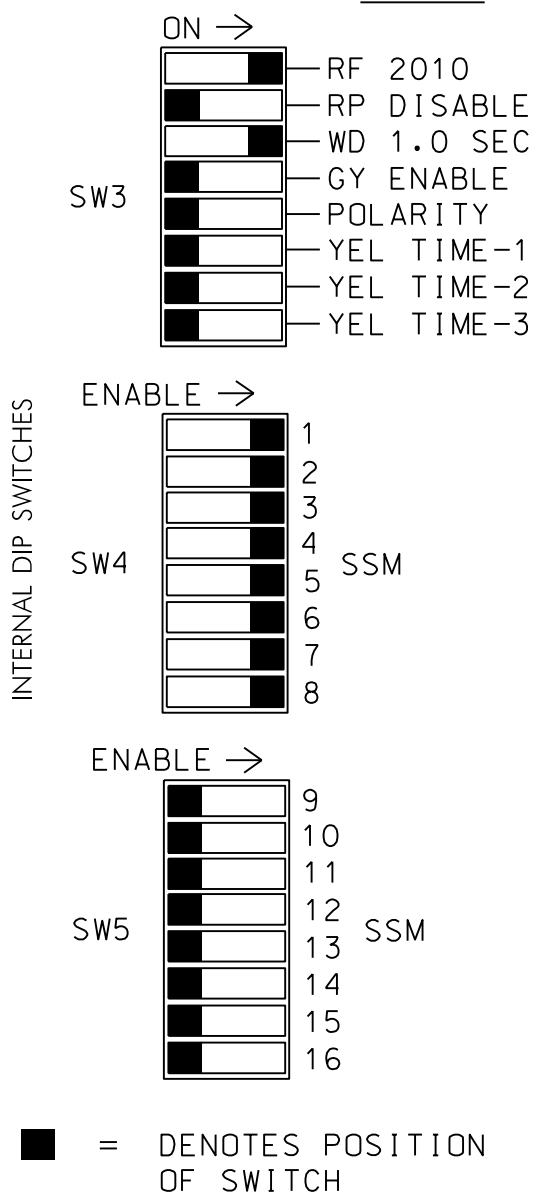


(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

OPTIONS



NOTES:

- CARD IS PROVIDED WITH ALL DIODE JUMPERS IN PLACE. REMOVAL OF ANY JUMPER ALLOWS ITS CHANNELS TO RUN CONCURRENTLY.
- MAKE SURE JUMPERS SEL2-SEL5 ARE PRESENT ON THE MONITOR BOARD.

FIELD CONNECTION HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11,12	82	21,22	NU	31,32	22	41,42	NU	51	42	61,62	NU	71	62	81,82	NU	NU	NU
RED		128			101			134			107							
YELLOW		129			102			135			108							
GREEN		130			103			136			109							
RED ARROW	125				116			131			122							
YELLOW ARROW	126	126			117	117		132	132		123	123						
GREEN ARROW	127	127			118	118		133	133		124	124						
Hand icon																		
Person icon																		

NU = NOT USED

EQUIPMENT INFORMATION

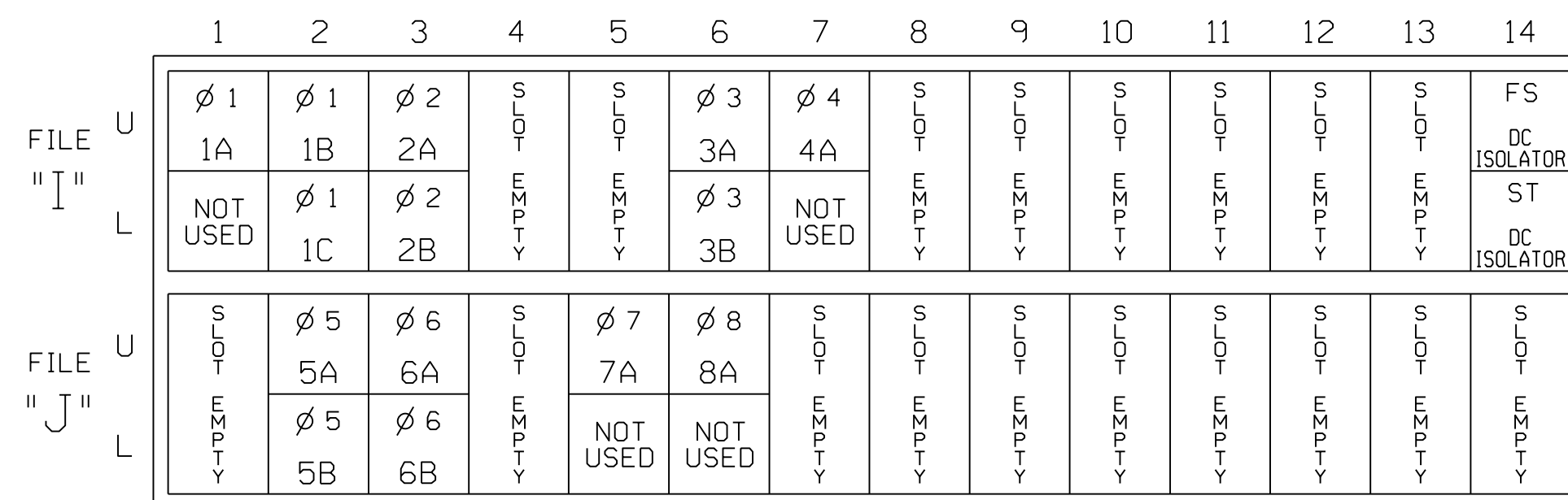
- CONTROLLER.....CONTRACTOR SUPPLIED 2070LX CABINETEXISTING EAGLE 332 w/ AUX
- SOFTWAREECONOLITE ASC/3-2070 CABINET MOUNT.....BASE
- OUTPUT FILE POSITIONS..18 (12-STD, 6-AUX)
- LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8
- PHASES USED.....1,2,3,4,5,6,7,8
- OVERLAPS.....NONE

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Signal System # 10605.

INPUT FILE POSITION LAYOUT

(front view)



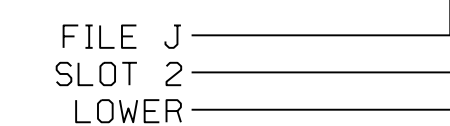
EX.: 1A, 2A, ETC. = LOOP NO.'S

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	TB2-1,2	I1U	56	1	1	YES				N
1B	TB2-5,6	I2U	39	2	1	YES				N
1C	TB2-7,8	I2L	43	12	1	YES		15		N
2A	TB2-9,10	I3U	63	32	2	YES			X	N
2B	TB2-11,12	I3L	76	42	2	YES			X	N
3A	TB4-9,10	I6U	41	4	3	YES				N
3B	TB4-11,12	I6L	45	14	3	YES				N
4A	TB6-1,2	I7U	65	34	4	YES				N
5A	TB3-5,6	J2U	40	6	5	YES				N
5B	TB3-7,8	J2L	44	16	5	YES		15		N
6A	TB3-9,10	J3U	64	36	6	YES			X	N
6B	TB3-11,12	J3L	77	46	6	YES			X	N
7A	TB5-5,6	J5U	57	7	7	YES		3		N
8A	TB5-9,10	J6U	42	8	8	YES				N

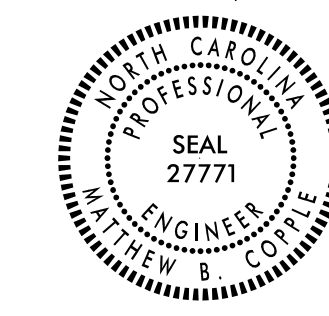
INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0257
DESIGNED: June 2008
SEALED: June 13, 2008
REVISED: 05/14/202

Electrical Detail

Revision Seal



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ELECTRICAL AND PROGRAMMING DETAILS FOR:

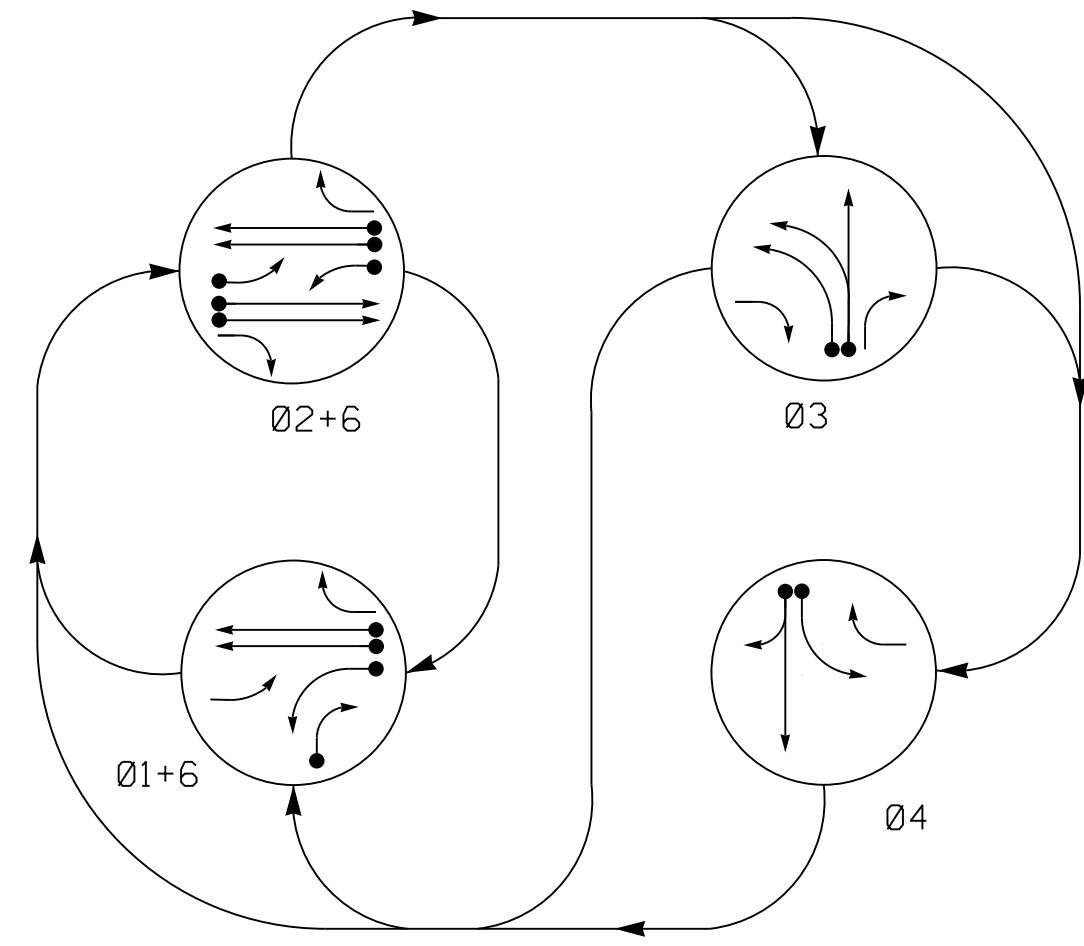
Prepared in the Offices of:
STATE OF NORTH CAROLINA
Professional Engineer
Matthew B. Cooney
122 N. McDowell St., Raleigh, NC 27603

US 701 BYPASS and US 701 BUSINESS at NC 130 and SR 1432 (LOVE MILL ROAD)	
DIVISION 06	COLUMBUS COUNTY WHITEVILLE
PLAN DATE: June 2008	REVIEWED BY: MR Cooney
PREPARED BY: LM Moon	REVIEWED BY:
REVISIONS	INIT. DATE
Controller changed to ASC/3	MBC 05/14/20

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL	DATE
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SIGNATURE	DATE
SIG. INVENTORY NO. 06-0257	

PHASING DIAGRAM



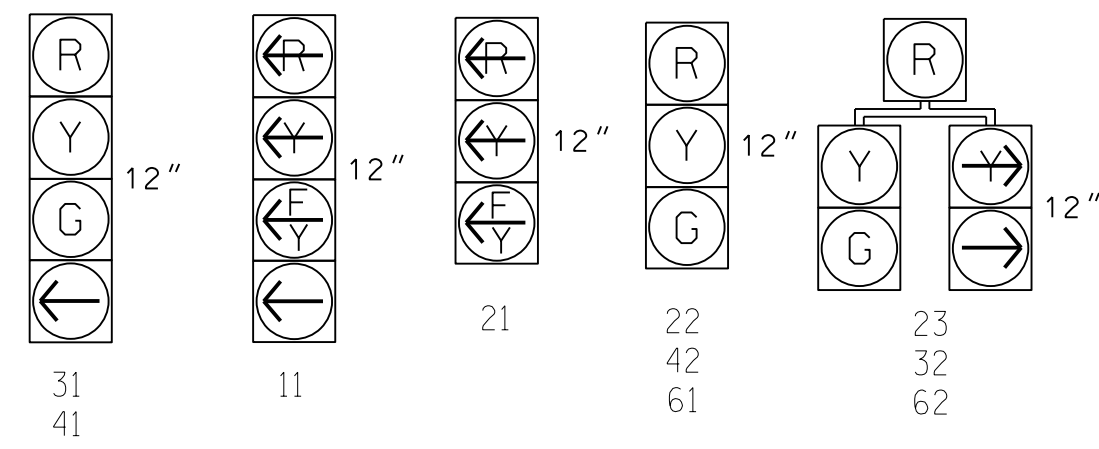
PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE	PHASE				FL
	Ø 1+6	Ø 2+6	Ø 3	Ø 4	
11	←	←	←	←	←
21	←	←	←	←	←
22	R	G	R	R	Y
23	R	G	R	R	Y
31	R	R	G	R	R
32	R	R	G	R	R
41	R	R	R	G	R
42	R	R	R	G	R
61	G	G	R	R	Y
62	G	G	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.

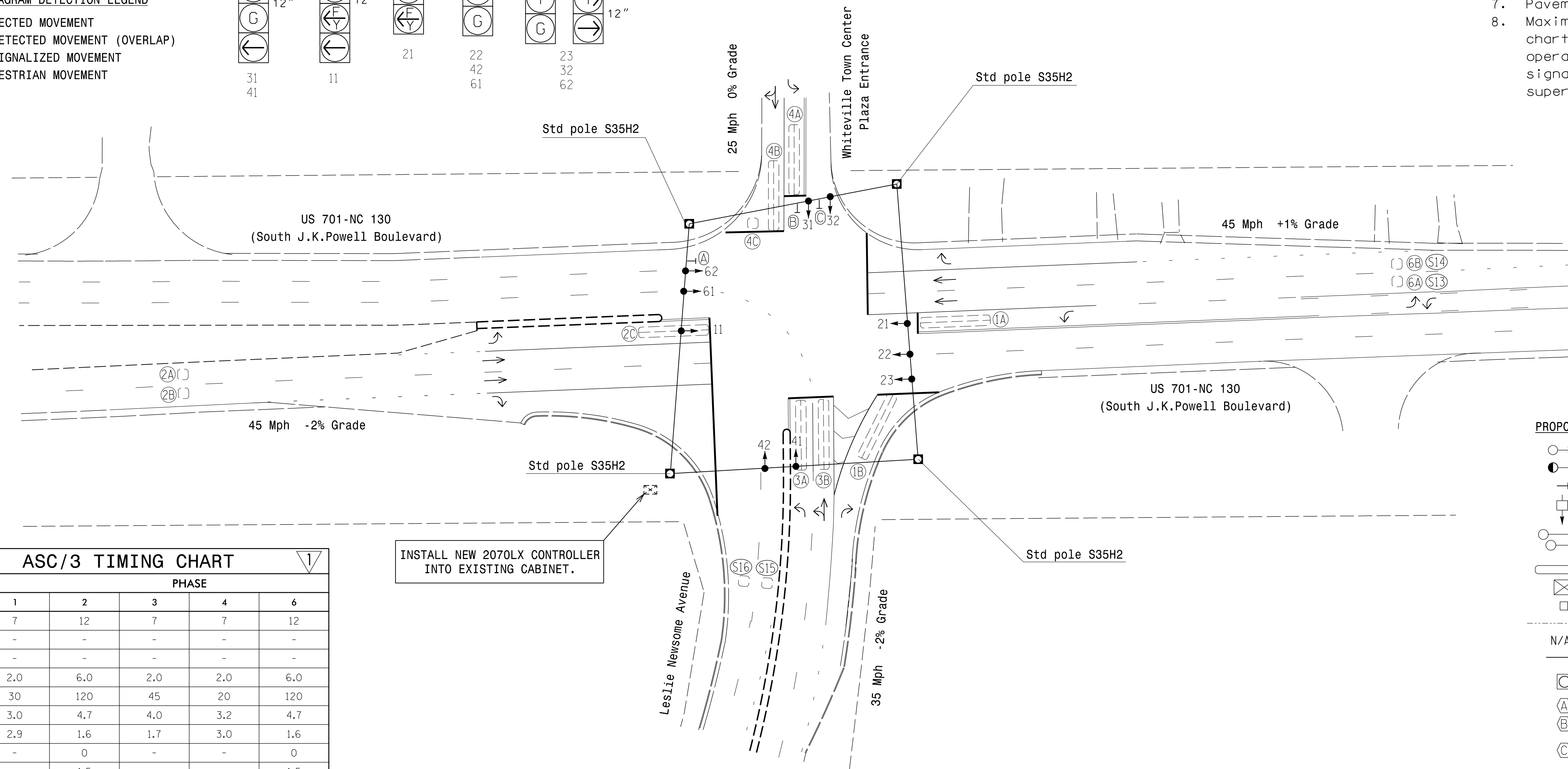


ASC/3 DETECTOR INSTALLATION CHART												
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6x40	0	2-4-2	-	1	Yes	-	15	-	N	-	-
1B	6x40	0	2-4-2	-	6	Yes	-	3	-	G	-	-
2A	6x6	300	EXIST	-	1	Yes	-	15	-	N	-	-
2B	6x6	300	EXIST	-	2	Yes	-	-	-	X	N	-
2C	6x40	0	2-4-2	-	2	Yes	-	3	-	N	-	-
3A	6x40	0	2-4-2	-	3	Yes	-	3	-	N	-	-
3B	6x40	0	2-4-2	-	3	Yes	-	-	-	N	-	-
4A	6x40	0	2-4-2	-	4	Yes	-	2	-	N	-	-
4B	6x40	0	2-4-2	-	4	Yes	-	5	-	N	-	-
4C	6x6	0	EXIST	-	4	Yes	-	15	-	N	-	-
6A/S13	6x6	300	EXIST	-	6	Yes	-	-	-	X	N	X
6B/S14	6x6	300	EXIST	-	6	Yes	-	-	-	X	N	X
S15	6x6	+190	EXIST	-	-	-	-	-	-	N	X	-
S16	6x6	+190	EXIST	-	-	-	-	-	-	N	X	-

4 Phase Fully Actuated System #10605

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Disable Backup Protect for phase 6.
4. Phase 1 may be lagged.
5. The order of phase 3 and phase 4 may be reversed.
6. Set all detector units to presence mode.
7. Pavement markings are existing.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



FEATURE	PHASE				
	1	2	3	4	6
Min Green *	7	12	7	7	12
Walk *	-	-	-	-	-
Ped Clear	-	-	-	-	-
Veh. Extension *	2.0	6.0	2.0	2.0	6.0
Max 1 *	30	120	45	20	120
Yellow	3.0	4.7	4.0	3.2	4.7
Red Clear	2.9	1.6	1.7	3.0	1.6
Actuations B4 Add *	-	0	-	-	0
Seconds / Actuation *	-	1.5	-	-	1.5
Max Initial *	-	34	-	-	34
Time Before Reduction *	-	15	-	-	15
Time To Reduce *	-	30	-	-	30
Minimum Gap	-	3.2	-	-	3.2
Locking Detector	-	X	-	-	X
Recall Position	-	VEH. RECALL	-	-	VEH. 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.

INSTALL NEW 2070LX CONTROLLER INTO EXISTING CABINET.

LEGEND

- | PROPOSED | EXISTING |
|--|--|
| ○ → Traffic Signal Head | ● → Traffic Signal Head |
| ○ → Modified Signal Head | ○ → Modified Signal Head |
| ⊥ Sign | ⊥ Sign |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ Pedestrian Signal Head With Push Button & 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 |
| ⊥ Controller & Cabinet | ⊥ Controller & Cabinet |
| ⊥ Junction Box | ⊥ Junction Box |
| ⊥ 2-in Underground Conduit | ⊥ 2-in Underground Conduit |
| → Right of Way | → Right of Way |
| → Directional Arrow | → Directional Arrow |
| ○ Metal Strain Pole | ○ Metal Strain Pole |
| ⊙ Right Arrow "ONLY" Sign (R3-5R) | ⊙ Right Arrow "ONLY" Sign (R3-5R) |
| ⊙ Left Arrow "ONLY" Sign (R3-5L) | ⊙ Left Arrow "ONLY" Sign (R3-5L) |
| ⊙ Combined Through and Left Arrow Sign (R3-6L) | ⊙ Combined Through and Left Arrow Sign (R3-6L) |

Signal Revision

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Revision Seal

Prepared for: Transportation Mobility and Safety Division, STATE OF NORTH CAROLINA, Signal Design Section

750 N. Greenfield Pkwy, Garner, NC 27529

US 701-NC 130 (South J.K. Powell Blvd.) at Leslie Newsome Ave. / Whiteville Town Centre Entrance

Division 06 Columbus County Whiteville

PLAN DATE: February 2013 REVIEWED BY: Jeff Spence

PREPARED BY: Jeff Spence REVIEWED BY: GGM

REVISIONS: Controller changed to ASC/3

INIT. DATE: GGM 05/14/20

SEAL

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SIGNATURE DATE

SIG. INVENTORY NO. 06-1271

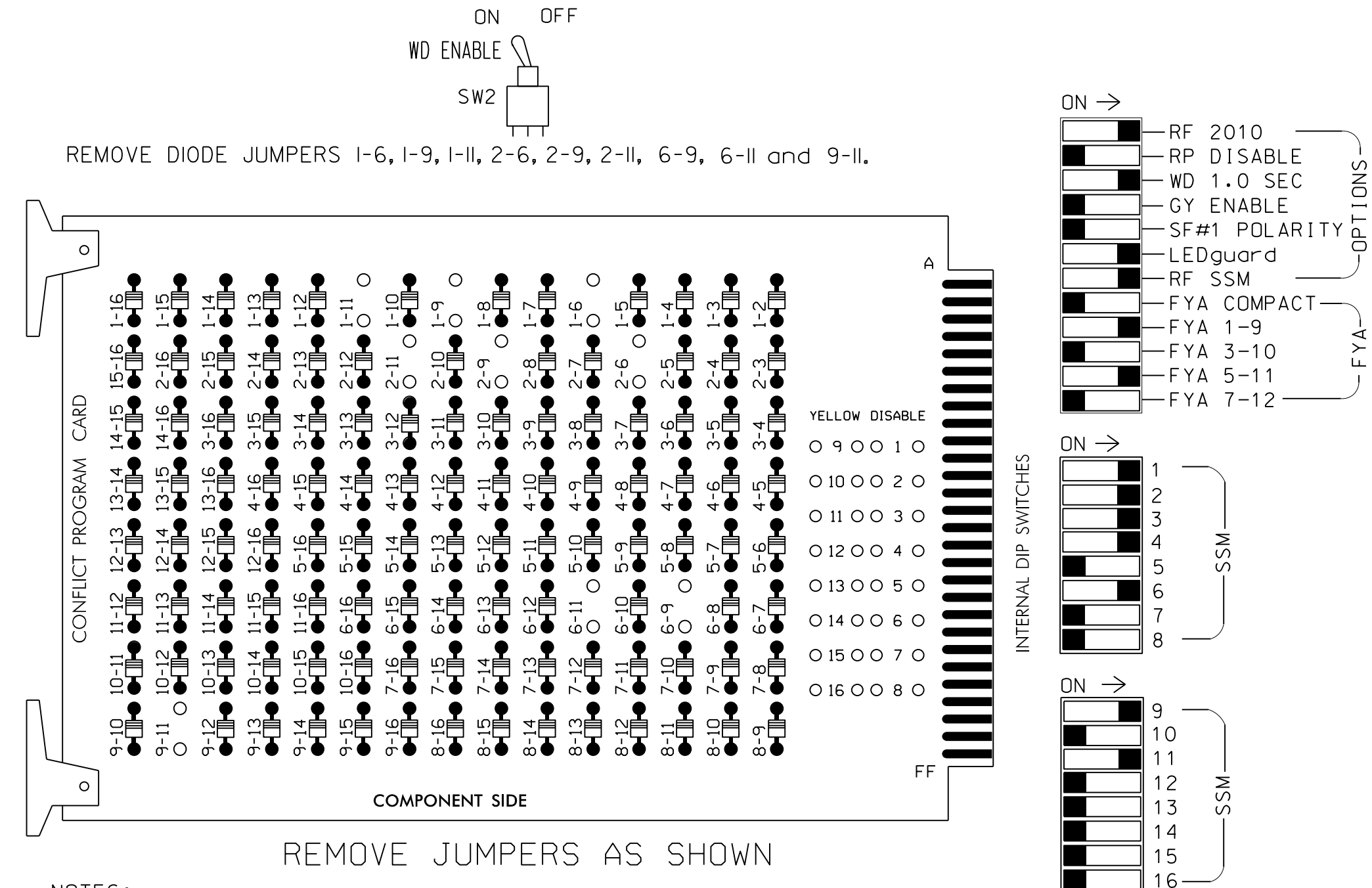
SEPI Engineering & Construction, Inc.

1 Glenwood Avenue
Raleigh, NC 27603
Tel: 919.789.9977
Fax: 919.789.9591
License: C-2197

EDI MODEL 2010ECL-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Signal System # 10605.

EQUIPMENT INFORMATION

CONTROLLER.....CONTRACTOR SUPPLIED 2070LX CABINET.....EXISTING EAGLE 332 /W/ AUX SOFTWAREEXISTING ECONOLITE ASC/3-2070 CABINET MOUNT.....BASE OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE LOAD SWITCHES USED.....S1,S2,S3,S4,S6,S9,S12. PHASES USED.....1,2,3,4,6. OVERLAP "A".....* OVERLAP "B".....NOT USED OVERLAP "C".....NOT USED OVERLAP "D".....NOT USED

* See overlap programming detail on sheet 2

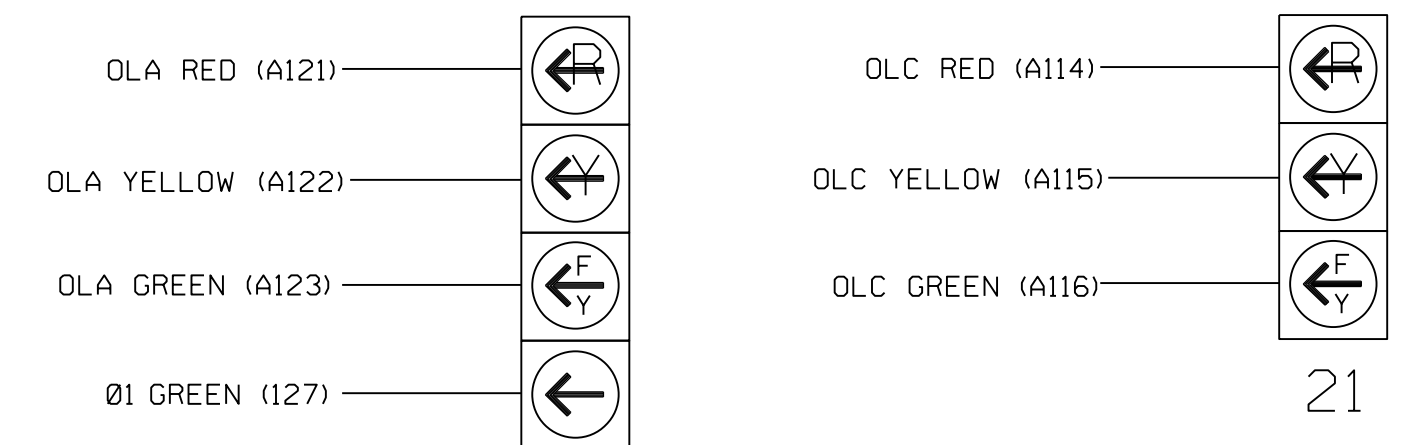
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14			
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE			
SIGNAL HEAD NO.	11	32	22,23	31	32	23	41	42	62	NU	NU	61,62	NU	NU	NU	11	NU	21	NU	NU	
RED	*	128		116	116		101	101				134									
YELLOW		129		117	117		102	102				135									
GREEN		130		118	118		103	103				136									
RED ARROW																A121			A114		
YELLOW ARROW		126				117			102							A122			A115		
FLASHING YELLOW ARROW																A123			A116		
GREEN ARROW	127	127		118	118	103		103													

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

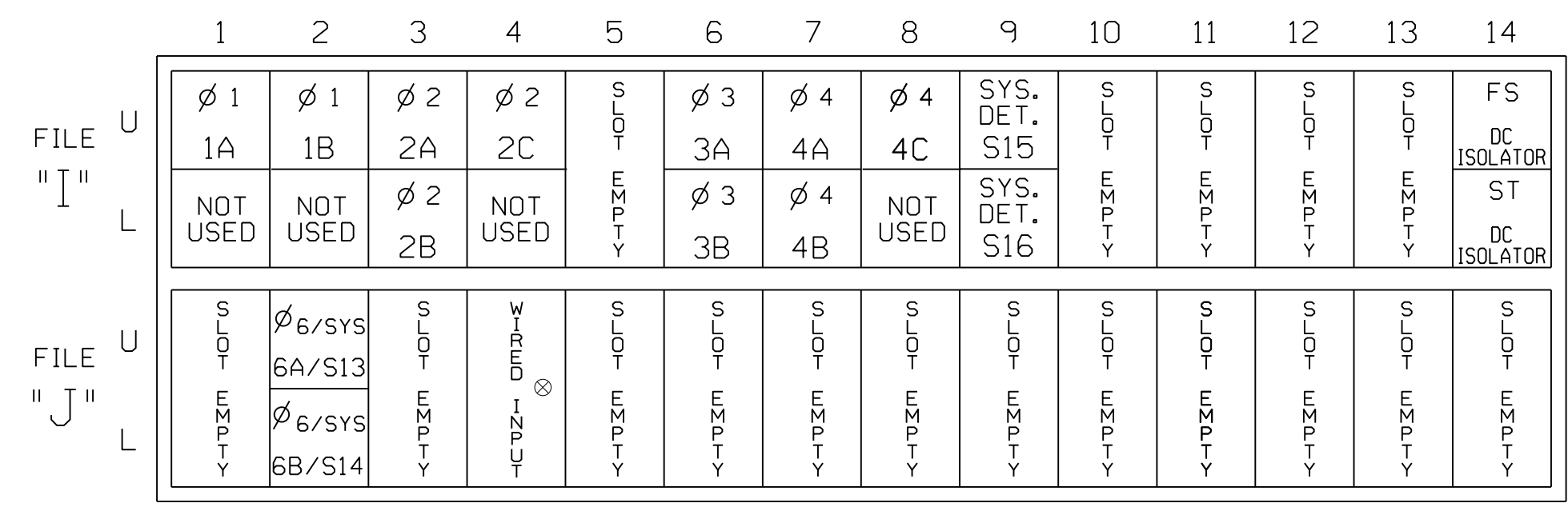
FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

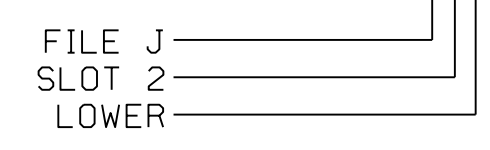
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A ¹	TB2-1,2	I1U	56	1	1	YES		15		N
	-	J4U	48	26	6	YES		3		G
1B	TB2-5,6	I2U	39	2	1	YES		15		N
	TB2-9,10	I3U	63	32	2	YES			X	N
2B	TB2-11,12	I3L	76	42	2	YES			X	N
	TB4-1,2	I4U	47	22	2	YES		3		G
3A	TB4-9,10	I6U	41	4	3	YES		3		N
	TB4-11,12	I6L	45	14	3	YES				N
4A	TB6-1,2	I7U	65	34	4	YES		2		N
	TB6-3,4	I7L	78	44	4	YES		5		N
4C	TB6-5,6	I8U	49	24	4	YES		15		N
	TB6-9,10	I9U	60	11	SYS	NO				N
* S16	TB6-11,12	I9L	62	13	SYS	NO				N
6A/S13	TB3-5,6	J2U	40	6	6/SYS	YES			X	N
	TB3-7,8	J2L	44	16	6/SYS	YES			X	N

* System detector only. Remove any assigned vehicle phase.

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

If present, remove jumpers from TB2-5 to TB2-7, and from TB2-6 to TB2-8.

INPUT FILE POSITION LEGEND: J2L

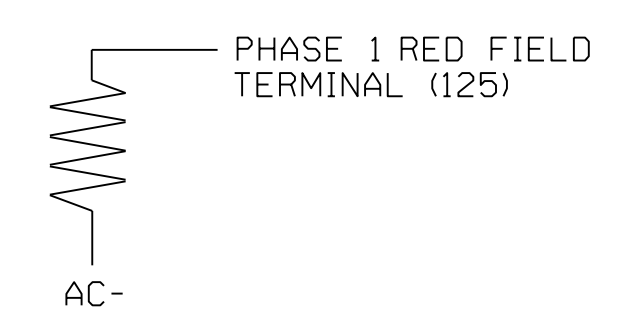


LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1271
 DESIGNED: February 2013
 SEALED: 3-15-13
 REVISED: 05/14/2020

SEPI
 Engineering & Construction, Inc.
 1 Glenwood Avenue
 Raleigh, NC 27603
 Tel:919.789.9977
 Fax:919.789.9591
 License: C-2197

Revision Seal
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 27771
 MATTHEW B. COPPE
 STATE OF NORTH CAROLINA

ELECTRICAL DETAIL SHEET 1 OF 2

US 701-NC 130
 (South J.K. Powell Blvd.) at
 Leslie Newsome Ave. /
 Whiteville Town Centre Entrance

Division 06 Columbus County Whiteville

PLAN DATE: 3-13-13 REVIEWED BY:

PREPARED BY: D.H. Spaulding REVIEWED BY:

REVISIONS INIT. DATE

✓ Controller changed to ASC/3 MGC 05/14/20

750 N.Greenfield Pkwy,Garner,NC 27529

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SIGNATURE DATE

SIG. INVENTORY NO. 06-1271

1 ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select 2. CONTROLLER
- 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..... 0
    
```

Toggle Twice

OVERLAP C

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

```

TMG VEH OVLP...[C] 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

THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-1271
 DESIGNED: February 2013
 SEALED: 3-15-13
 REVISED: 05/14/2020

ELECTRICAL DETAIL SHEET 2 OF 2


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5/14/2020
 ...061271.sm.e.le_20130319.dgn
 USER:MCDDP/le

SEPI
 Engineering & Construction, Inc.

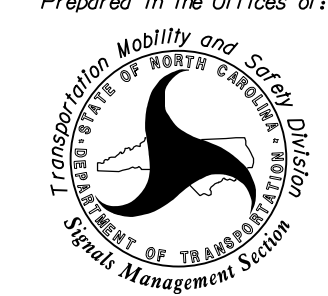
1 Glenwood Avenue
 Raleigh, NC 27603
 Tel:919.789.9977
 Fax:919.789.9591
 License: C-2197

Revision Seal



ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

US 701-NC 130
 (South J.K. Powell Blvd.) at
 Leslie Newsome Ave. /
 Whiteville Town Centre Entrance

Division 06 Columbus County Whiteville

PLAN DATE: 3-13-13 REVIEWED BY:

PREPARED BY: D.H. Spaulding REVIEWED BY:

REVISIONS	INIT.	DATE
Controller changed to ASC/3	MBC	05/14/20

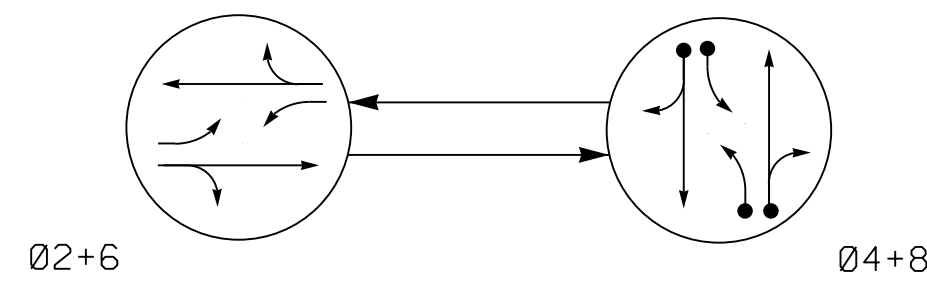
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SIGNATURE DATE

SIG. INVENTORY NO. 06-1271

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

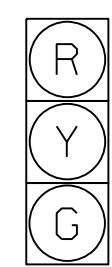
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

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

SIGNAL FACE I.D.

All Heads L.E.D.



21, 22
41, 42
61, 62
81, 82

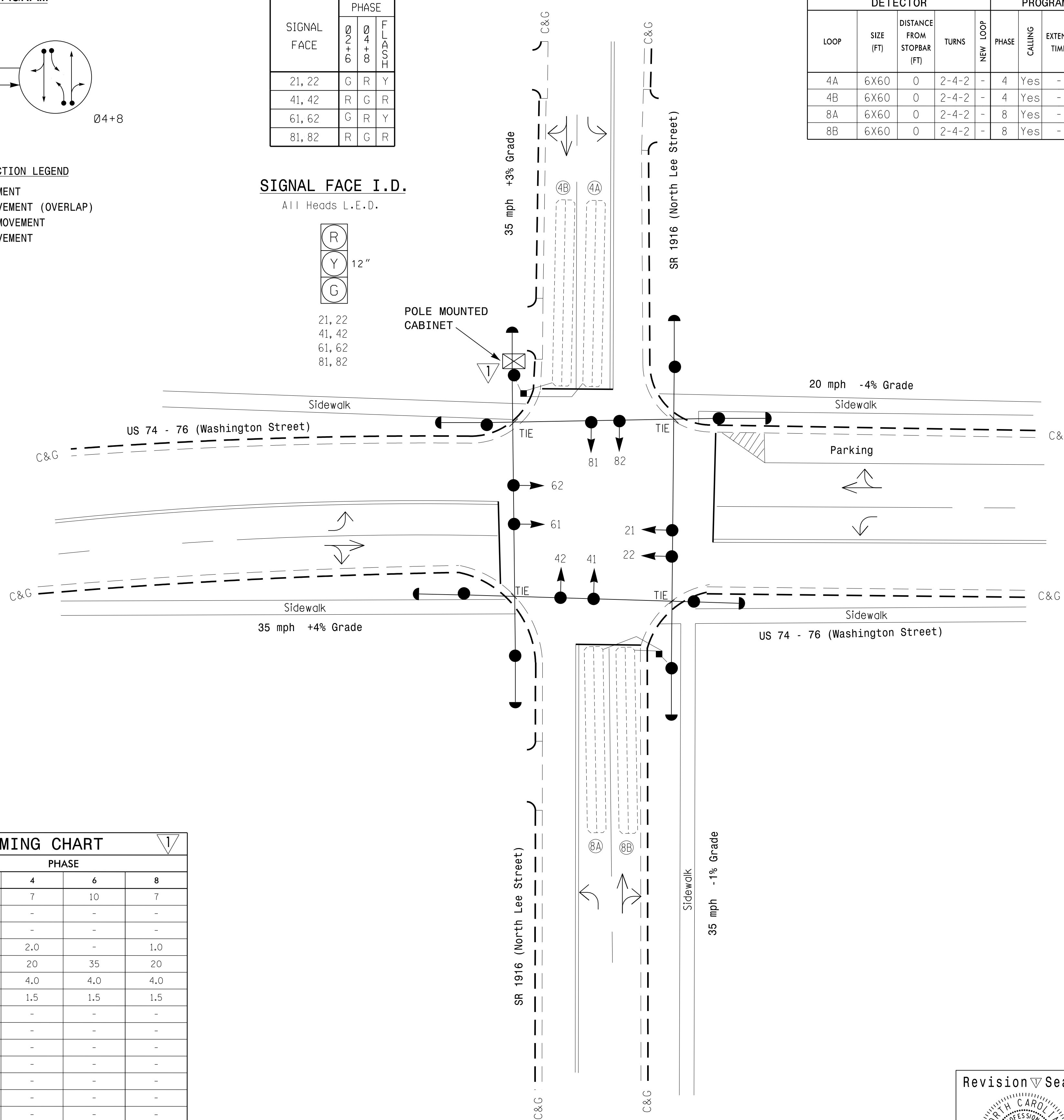
ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING						
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
4A	6X60	0	2-4-2	-	4	Yes	-	3	-	N	-
4B	6X60	0	2-4-2	-	4	Yes	-	10	-	N	-
8A	6X60	0	2-4-2	-	8	Yes	-	3	-	N	-
8B	6X60	0	2-4-2	-	8	Yes	-	10	-	N	-

2 Phase
Semi-Actuated
System #10605

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
- Set all detector units to presence mode.



ASC/3 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green *	10	7	10	7
Walk *	-	-	-	-
Ped Clear	-	-	-	-
Veh. Extension *	-	2.0	-	1.0
Max I *	35	20	35	20
Yellow	4.0	4.0	4.0	4.0
Red Clear	1.5	1.5	1.5	1.5
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	-	-	-	-
Recall Position	MAX RECALL	-	MAX RECALL	-
Dual Entry	-	X	-	X
Simultaneous Gap	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 | ● Traffic Signal Head |
| ● Modified Signal Head | N/A |
| □ Sign | □ Sign |
| □ Pedestrian Signal Head With Push Button & Sign | □ Pedestrian Signal Head With Push Button & 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 |
| □ Controller & Cabinet | □ Controller & Cabinet |
| □ Junction Box | □ Junction Box |
| □ 2-in Underground Conduit | □ 2-in Underground Conduit |
| N/A Right of Way | — Right of Way |
| → Directional Arrow | → Directional Arrow |
| → Pavement Marking Arrow | → Pavement Marking Arrow |

Signal Revision

Revision Seal

Prepared for:

 750 N. Greenfield Pkwy, Garner, NC 27529
 SCALE: 0 20
 1"=20'

US 74-76 Business (Washington Street) at SR 1916 (North Lee Street)
 Division 6 Columbus County Whiteville
 PLAN DATE: July 2003 REVIEWED BY: R.J. Ziemba
 PREPARED BY: Hanbright REVIEWED BY:
 REVISIONS: Controller changed to ASC/3 with new cabinet. INIT. DATE: GGM 05/15/20

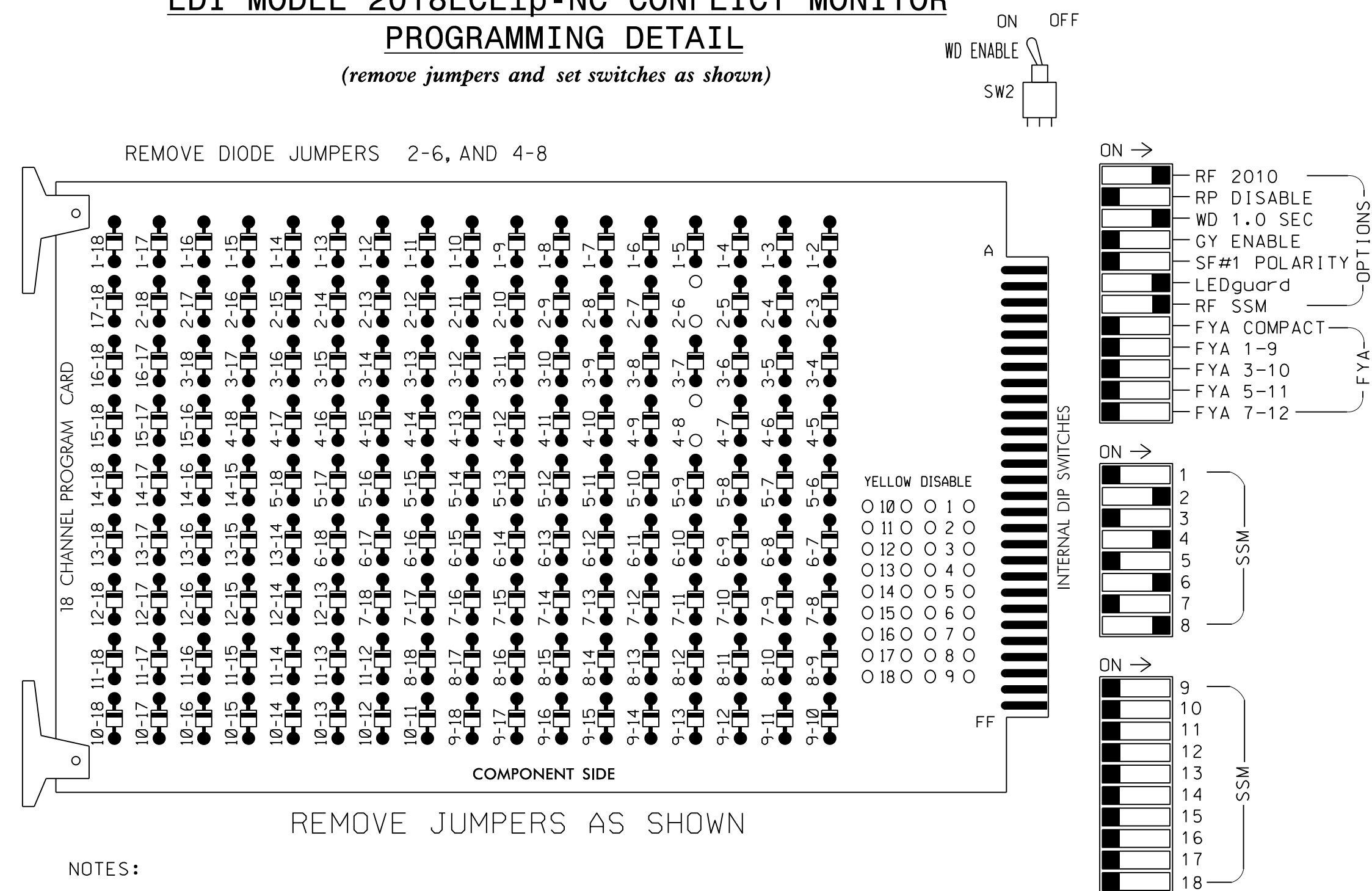
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 SIGNATURE: DATE: SIG. INVENTORY NO. 06-0080

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 License: C-2197

EDI MODEL 2018EClip-NC 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 unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Green and 6 Green.
4. The cabinet and controller are part of Signal System # 10605.

SIGNAL HEAD HOOK-UP CHART

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

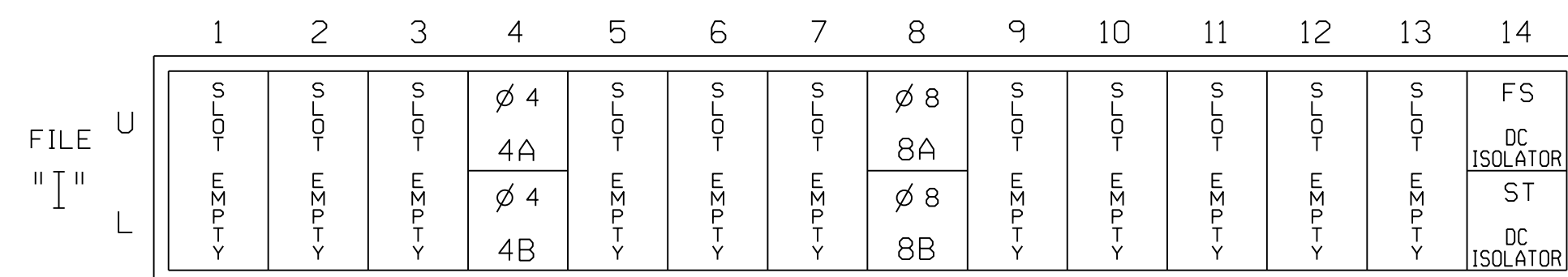
NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
 CABINET336
 SOFTWAREECONOLITE ASC/3-2070
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S5,S8,S11
 PHASES USED.....2,4,6,8
 OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)



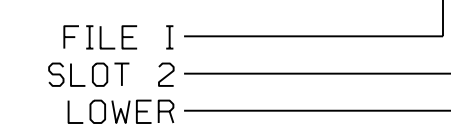
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

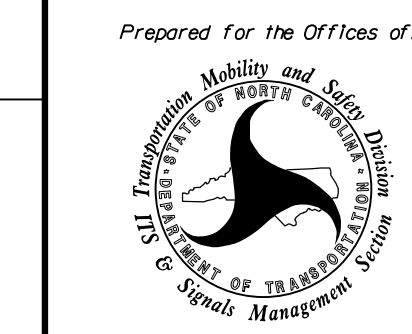
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
4A	TB21-7,8	I4U	41	4	4	YES		3		N
4B	TB23-7,8	I4L	45	14	4	YES		10		N
8A	TB22-1,2	I8U	42	8	8	YES		3		N
8B	TB24-1,2	I8L	46	18	8	YES		10		N

INPUT FILE POSITION LEGEND: I2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0080
 DESIGNED: JULY 2003
 SEALED: 05/15/20
 REVISED:

ELECTRICAL AND PROGRAMMING DETAILS FOR:



1 Glenwood Avenue
 Raleigh, NC 27603
 Tel:919.789.9977
 Fax:919.789.9591
 License: C-2197

750 N. Greenfield Pkwy, Garner, NC 27529

US 74-76 BUSINESS (WASHINGTON STREET)
 at
 SR 1916 (NORTH LEE STREET)

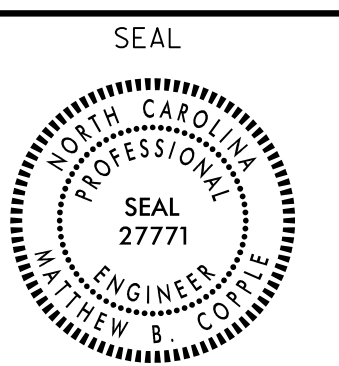
DIVISION 06 COLUMBUS COUNTY WHITEVILLE

PLAN DATE: APRIL 2020 REVIEWED BY: J. Rowe

PREPARED BY: M. Copple REVIEWED BY:

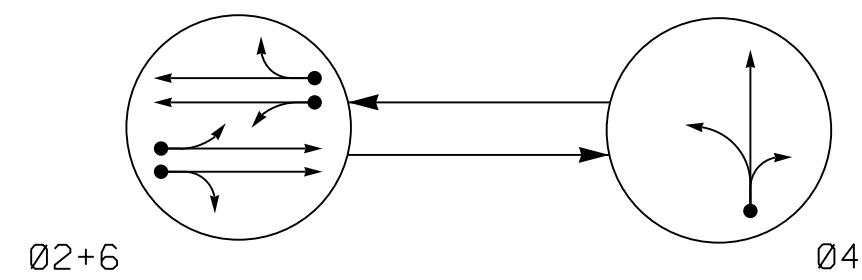
REVISIONS INIT. DATE

SIGNATURE DATE



SIG. INVENTORY NO. 06-0080

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

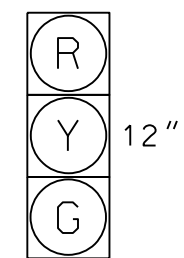
- ← DETECTED MOVEMENT
- ◐ ← UNDETECTED MOVEMENT (OVERLAP)
- ← UNSIGNALIZED MOVEMENT
- ← --- → PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE		
	02+6	04	FLASH
21, 22	G	R	Y
41, 42	R	G	R
61, 62	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



21, 22
41, 42
61, 62

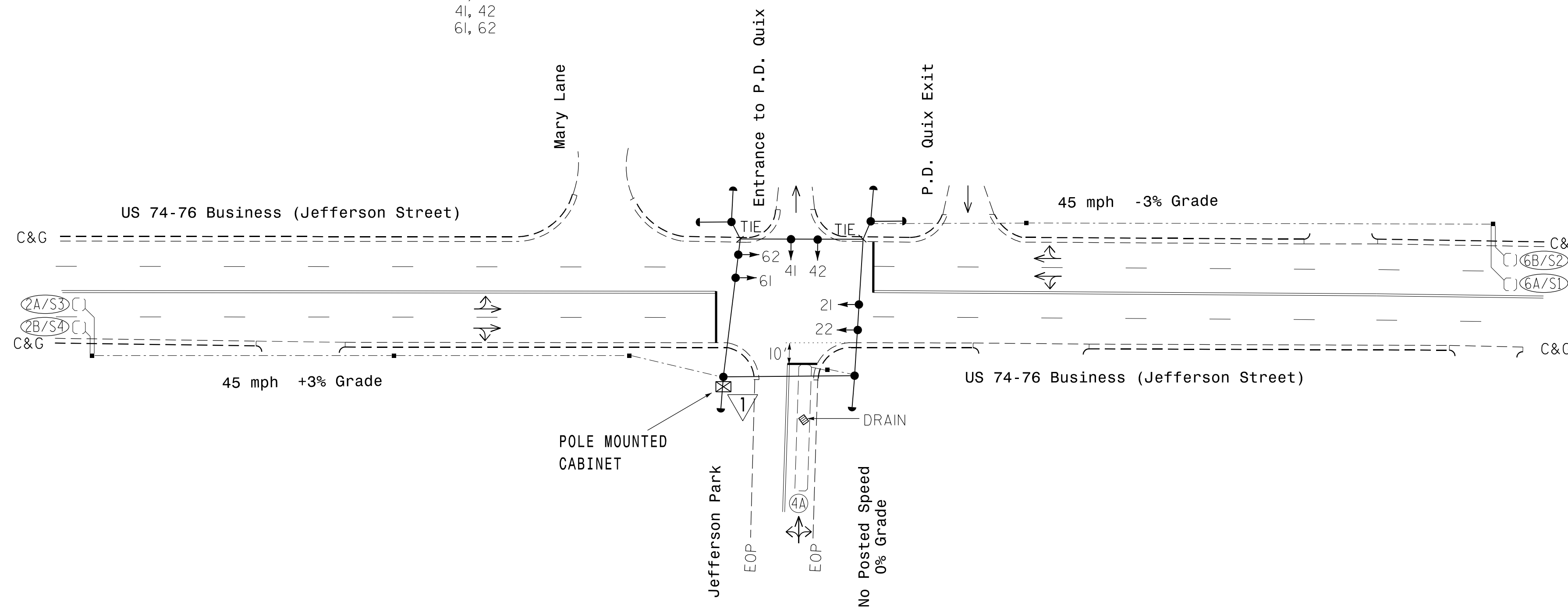
ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING								
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	LOOP SYSTEM	LOOP NEW CARD	
2A/S3	6X6	300	EXIST	-	2	Yes	-	-	-	X	N	X	-
2B/S4	6X6	300	EXIST	-	2	Yes	-	-	-	X	N	X	-
4A	6X60	0	EXIST	-	4	Yes	-	10	-	-	N	-	-
6A/S1	6X6	300	EXIST	-	6	Yes	-	-	-	X	N	X	-
6B/S2	6X6	300	EXIST	-	6	Yes	-	-	-	X	N	X	-

2 Phase Fully Actuated System #10605

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Pavement markings are existing, unless otherwise shown on plan.
- Remove existing crosswalk and pedestrian signal heads.
- Reposition existing signal heads numbered 41 and 42.
- Set all detector units to presence mode.
- Maximum times shown in timing chart are for free run operation only. Coordinated signal system timing values shall supersede these values.



ASC/3 TIMING CHART

FEATURE	PHASE		
	2	4	6
Min Green *	12	7	12
Walk *	-	-	-
Ped Clear	-	-	-
Veh. Extension *	6.0	1.0	6.0
Max I *	90	20	90
Yellow	4.7	4.0	4.7
Red Clear	1.5	1.5	1.5
Actuations B4 Add *	0	-	0
Seconds / Actuation *	1.8	-	1.8
Max Initial *	34	-	34
Time Before Reduction *	15	-	15
Time To Reduce *	45	-	45
Minimum Gap	3.0	-	3.0
Locking Detector	X	-	X
Recall Position	VEH. RECALL	-	VEH. RECALL
Dual Entry	-	-	-
Simultaneous Gap	X	X	X

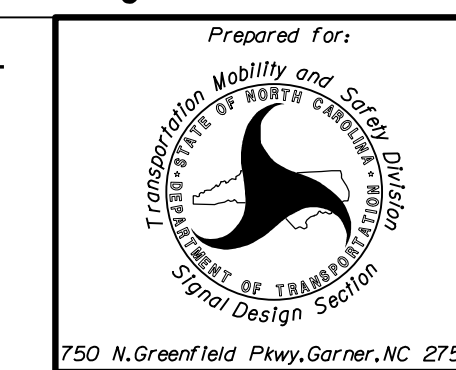
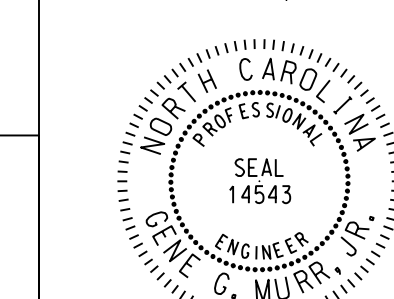
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

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 |
| ⊠ → Controller & Cabinet | ⊠ → N/A |
| □ → Junction Box | □ → N/A |
| --- → 2-in Underground Conduit | --- → N/A |
| N/A → Right of Way | N/A → N/A |
| → → Directional Arrow | → → N/A |
| → → Pavement Marking Arrow | → → N/A |

Signal Revision

Revision Seal



US 74-76 Business (Jefferson Street) at Jefferson Park

Division 6 Columbus County Whiteville

PLAN DATE: August 2003 REVIEWED BY:

PREPARED BY: C.E. Carter REVIEWED BY:

REVISIONS: Controller changed to ASC/3 with new cabinet. GGM 05/15/20

INIT. DATE

SIGNATURE DATE

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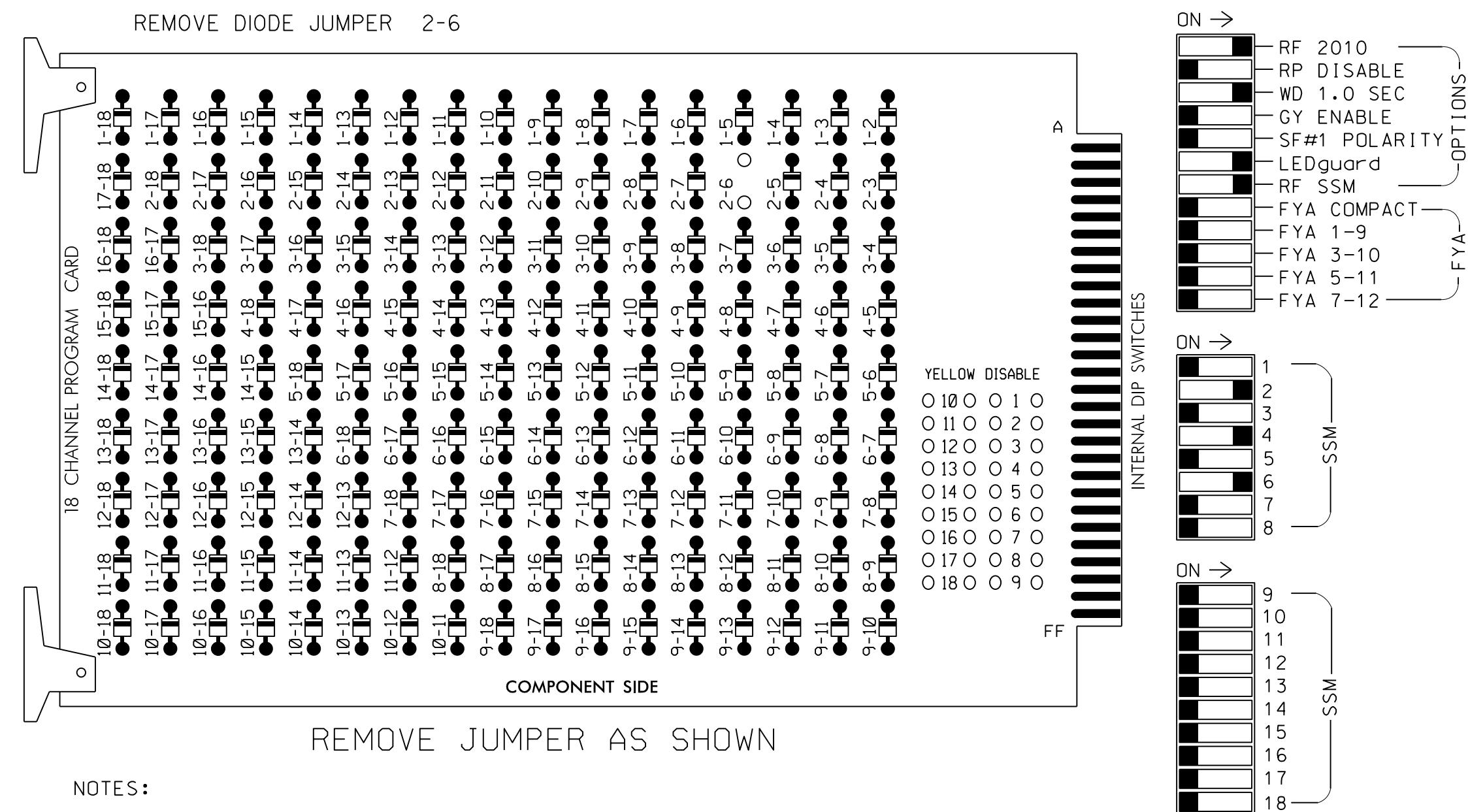
SIG. INVENTORY NO. 06-0110

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Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel: 919.789.9977
Fax: 919.789.9591
License: C-2197

5/15/2020
...#60110...20031104.dgn
USER:MCDDP/E

EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumper and set switches as shown)



NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of Signal System # 10605.

SIGNAL HEAD HOOK-UP CHART

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

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
 CABINET336
 SOFTWAREECONOLITE ASC/3-2070
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S5,S8
 PHASES USED.....2,4,6
 OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)

FILE	U	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U		∅2/sys	∅2/sys	∅4	∅6/sys	∅6/sys									FS
I		2A/S3	2A/S3	4A	6A/S1	6A/S1									DC ISOLATOR
L		2B/S4	2B/S4	NOT USED	6B/S2	6B/S2									ST
															DC ISOLATOR

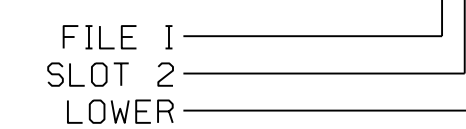
EX. : 1A, 2A, ETC. = LOOP NO.'S

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
2A/S3	TB21-3,4	I2U	39	2	2/SYS	YES			X	N
2B/S4	TB23-3,4	I2L	43	12	2/SYS	YES			X	N
4A	TB21-7,8	I4U	41	4	4	YES		10		N
6A/S1	TB21-11,12	I6U	40	6	6/SYS	YES			X	N
6B/S2	TB23-11,12	I6L	44	16	6/SYS	YES			X	N

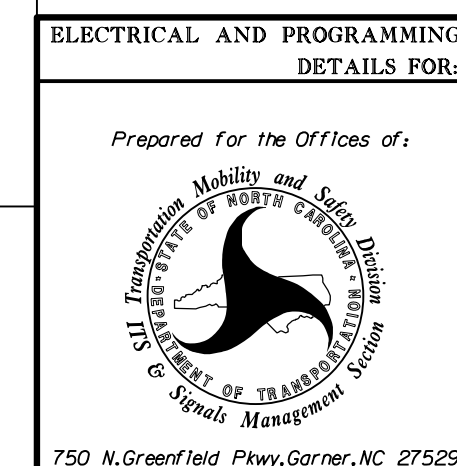
INPUT FILE POSITION LEGEND: I2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0110
 DESIGNED: AUGUST 2003
 SEALED: 05/15/20
 REVISED:

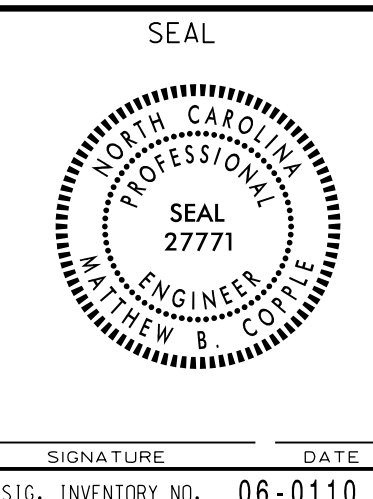


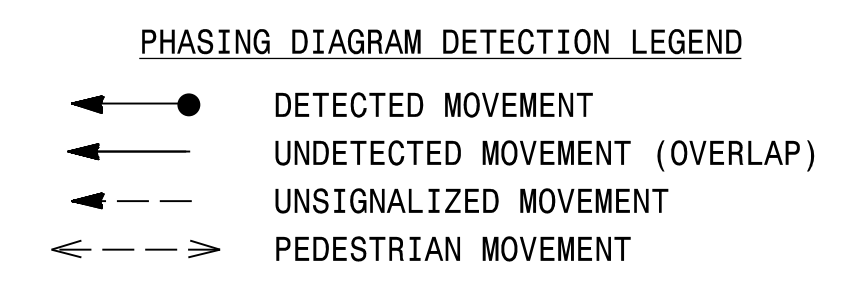
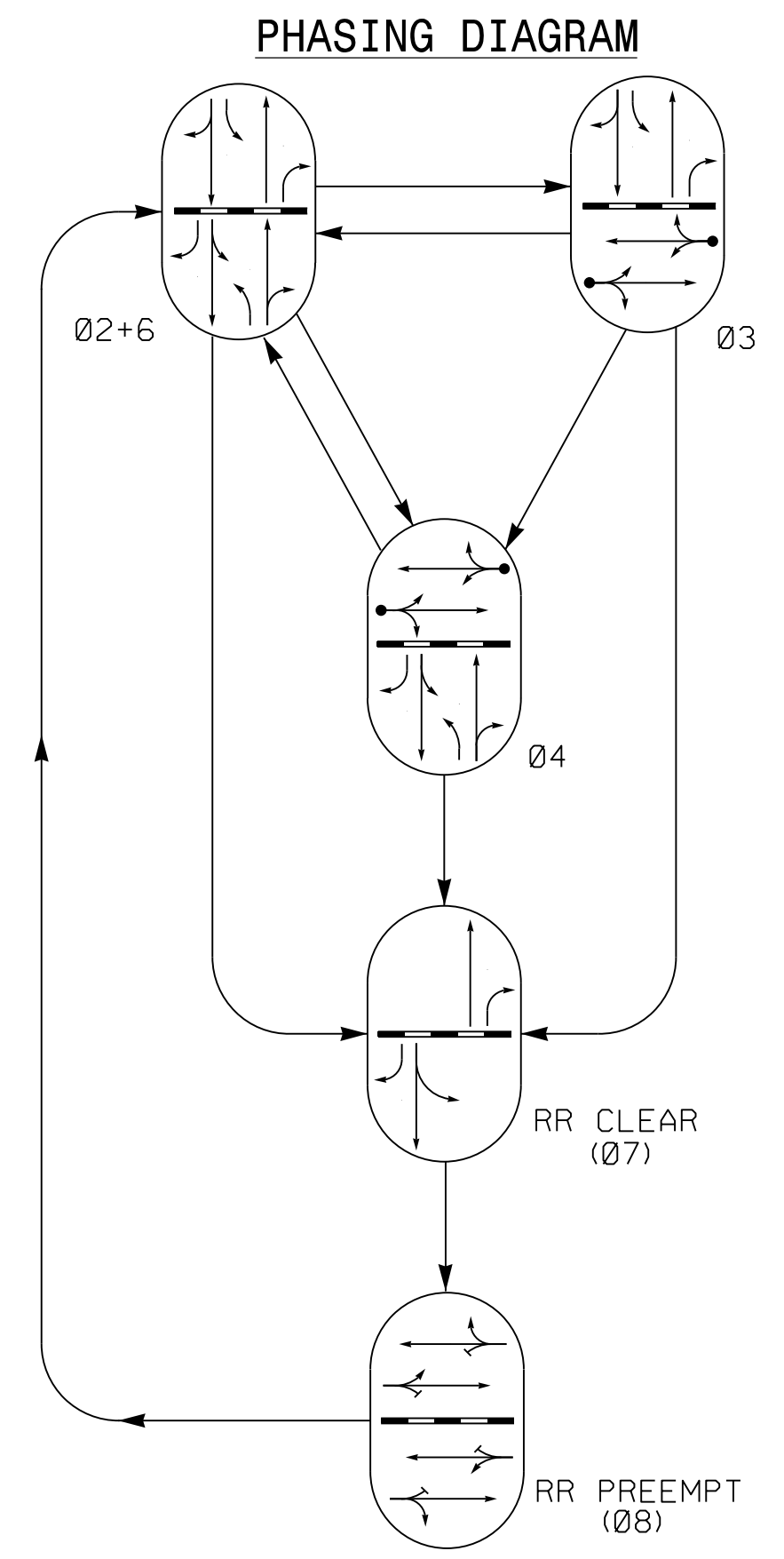
1 Glenwood Avenue
 Raleigh, NC 27603
 Tel:919.789.9977
 Fax:919.789.9591
 License: C-2197



US 74-76 BUSINESS (JEFFERSON STREET)
 at
 JEFFERSON PARK

DIVISION 06		COLUMBUS COUNTY		WHITEVILLE
PLAN DATE: APRIL 2020	REVIEWED BY: J. Rowe			
PREPARED BY: M. Copple	REVIEWED BY:			
REVISIONS	INIT.	DATE		
SIGNATURE		DATE		

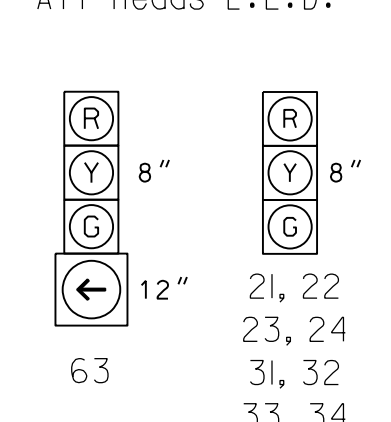




SIGNAL FACE	PHASE					
	02+6	03	04	RR CLEAR	RR PREEMPT	FLASH
21, 22	G	R	G	R	R	Y
23, 24	G	G	R	G	R	Y
31, 32	R	G	R	R	G	R
33, 34	R	G	R	R	G	R
41, 42	R	R	G	R	G	R
43, 44	R	R	G	R	G	R
61, 62, 65	G	G	R	R	R	Y
63	G	R	G	R	R	Y
64	G	R	G	R	R	Y
SIGN B	OFF	OFF	OFF	ON	ON	*
SIGN C	OFF	OFF	OFF	ON	ON	*

*SEE NOTE 6.

SIGNAL FACE I.D.

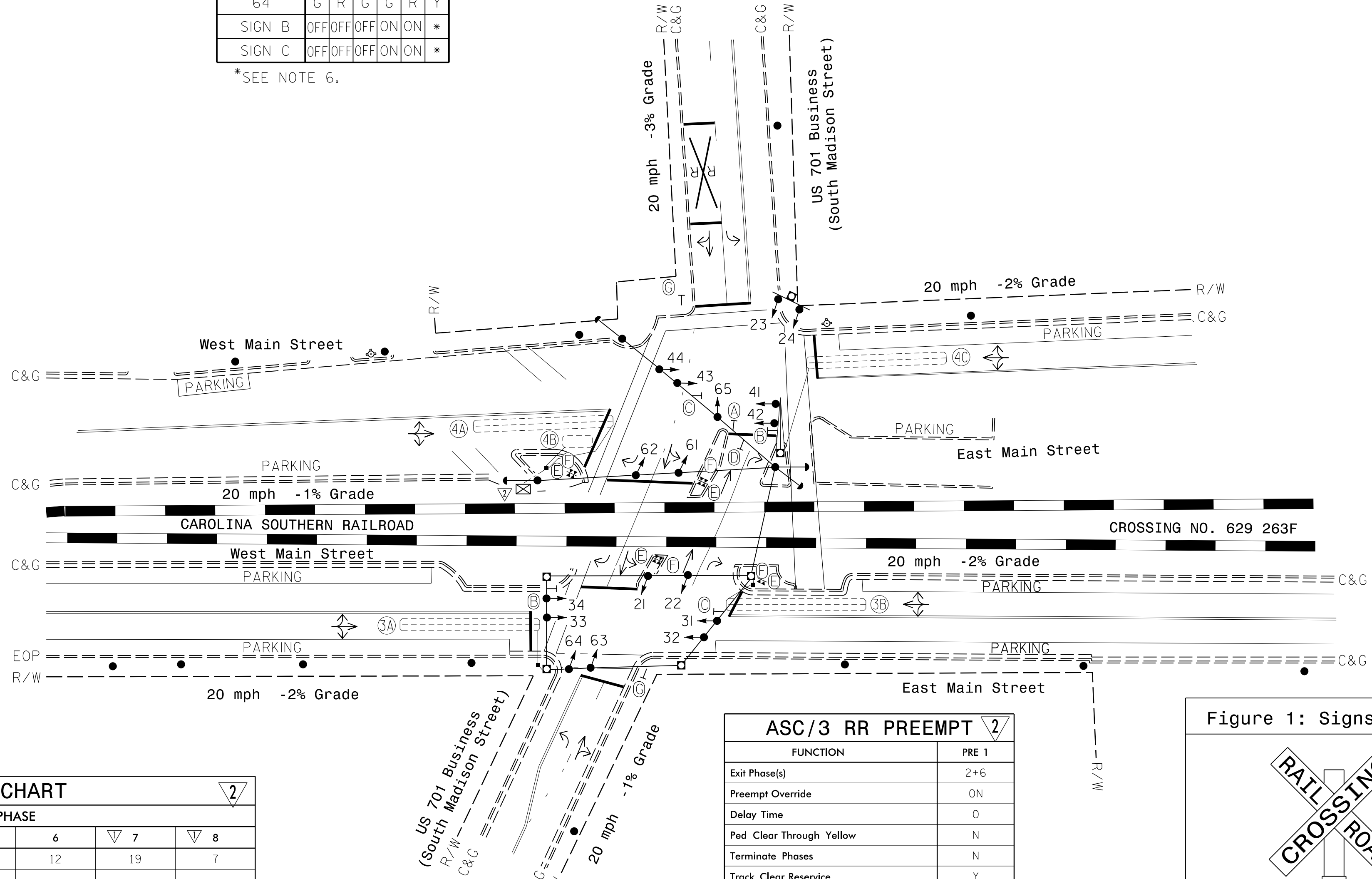


ASC/3 DETECTOR INSTALLATION CHART												
DETECTOR				PROGRAMMING								
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
3A	6X70	+5	2-4-2	-	3	Yes	-	10	-	N	-	-
3B	6X70	+5	2-4-2	-	3	Yes	-	10	-	N	-	-
4A	6X70	+5	2-4-2	-	4	Yes	-	10	-	N	-	-
4B	6X15	0	EXIST	-	4	Yes	-	15	-	N	-	-
4C	6X70	+5	2-4-2	-	4	Yes	-	10	-	N	-	-

2/3 Phase Semi-Actuated w/ Railroad Preempt System #10605

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
- During coordination, the order of phase 3 and phase 4 may be reversed.
- Set all detector units to presence mode.
- Ensure flashing operation does not alter operation of blankout signs.
- Sign (E) to be installed by Railroad Personnel.
- This location contains railroad preemption phasing. Do not program signal for late night flashing operation.

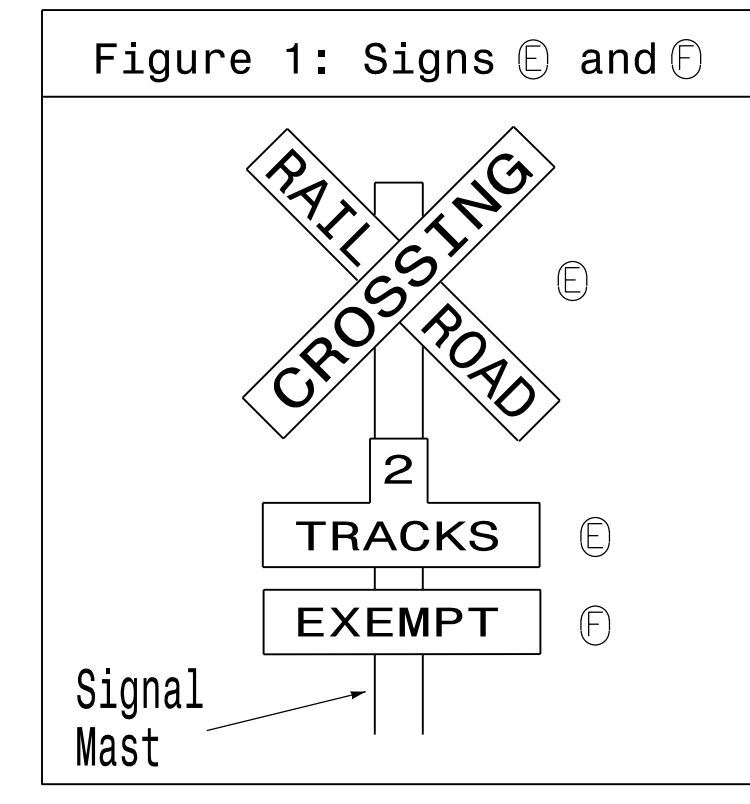


FEATURE	ASC/3 TIMING CHART					
	2	3	4	6	7	8
Min Green *	12	7	7	12	19	7
Walk *	-	-	-	-	-	-
Ped Clear	-	-	-	-	-	-
Veh. Extension *	-	1.0	1.0	-	-	-
Max 1 *	30	20	20	30	-	-
Yellow	4.0	4.0	4.0	4.0	4.0	4.0
Red Clear	2.0	2.5	2.5	2.0	2.0	2.5
Actuations B4 Add *	-	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Locking Detector	-	-	-	-	-	-
Recall Position	MAX RECALL	-	-	MAX RECALL	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	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.

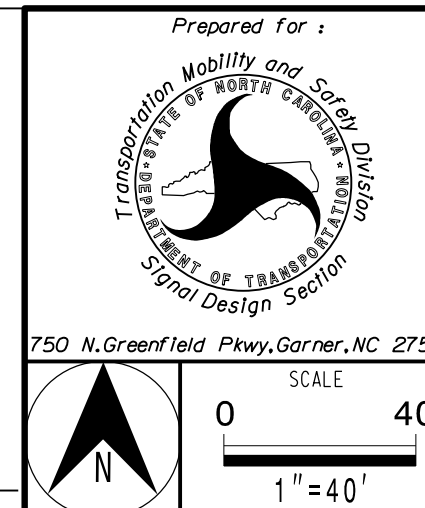
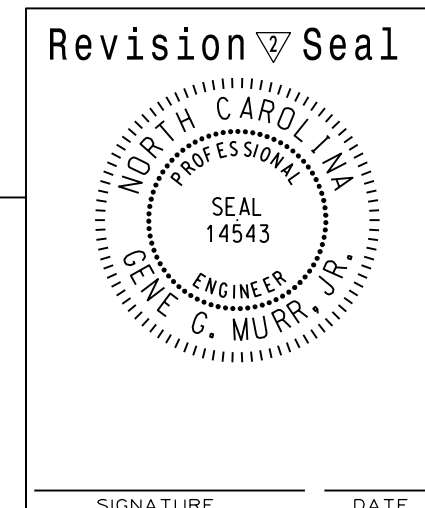
ASC/3 RR PREEMPT	
FUNCTION	PRE 1
Exit Phase(s)	2+6
Preempt Override	ON
Delay Time	0
Ped Clear Through Yellow	N
Terminate Phases	N
Track Clear Reserve	Y
Entrance Walk	0
Entrance Ped Clear	0
Entrance Min Green	1
Entrance Yellow Change	25.5*
Entrance Red Clear	25.5*
Track Clear Min Green	19
Track Clear Yellow Change	4.0
Track Clear Red Clear	2.0
Min Dwell Time	7
Exit Yellow Change	25.5*
Exit Red Clear	25.5*

This intersection is designed for Simultaneous Preemption



LEGEND	
PROPOSED	EXISTING
	N/A
N/A	
N/A	
N/A	
N/A	
N/A	
N/A	
(A)	Left Arrow "ONLY" Sign (R3-5L)
(B)	"NO RIGHT TURN - TRAIN" L.E.D. Blankout Sign
(C)	"NO LEFT TURN - TRAIN" L.E.D. Blankout Sign
(D)	No Left Turn Sign (R3-2)
(E)	Highway-Rail Grade Crossing (Crossbuck) Sign (R15-1) with Number of Tracks Sign (R15-2) (See Figure 1)
(F)	"EXEMPT" Sign (R15-3) (See Figure 1)
(G)	"DO NOT BLOCK INTERSECTION" Sign (R10-7)

Signal Revision



US 701 Business (South Madison Street) at East Main Street and West Main Street	
Division 6	Columbus County
Whiteville	
PLAN DATE: August 2003	REVIEWED BY: R.J. Ziembe
PREPARED BY: C.E. Carter	REVIEWED BY:
REVISIONS	INIT. DATE
✓ REVISE TIMING CHART FOR PHASES 7 & 8 - RJZ	TJW 11/16/04
✓ Controller changed to ASC/3 with new cabinet	GM 05/15/20

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

Not a certified document. This document originally issued and sealed by Timothy J. Williams, PE, no. 24393 on (1/24/13). This document shall not be considered a certified document.

SIGNATURE DATE

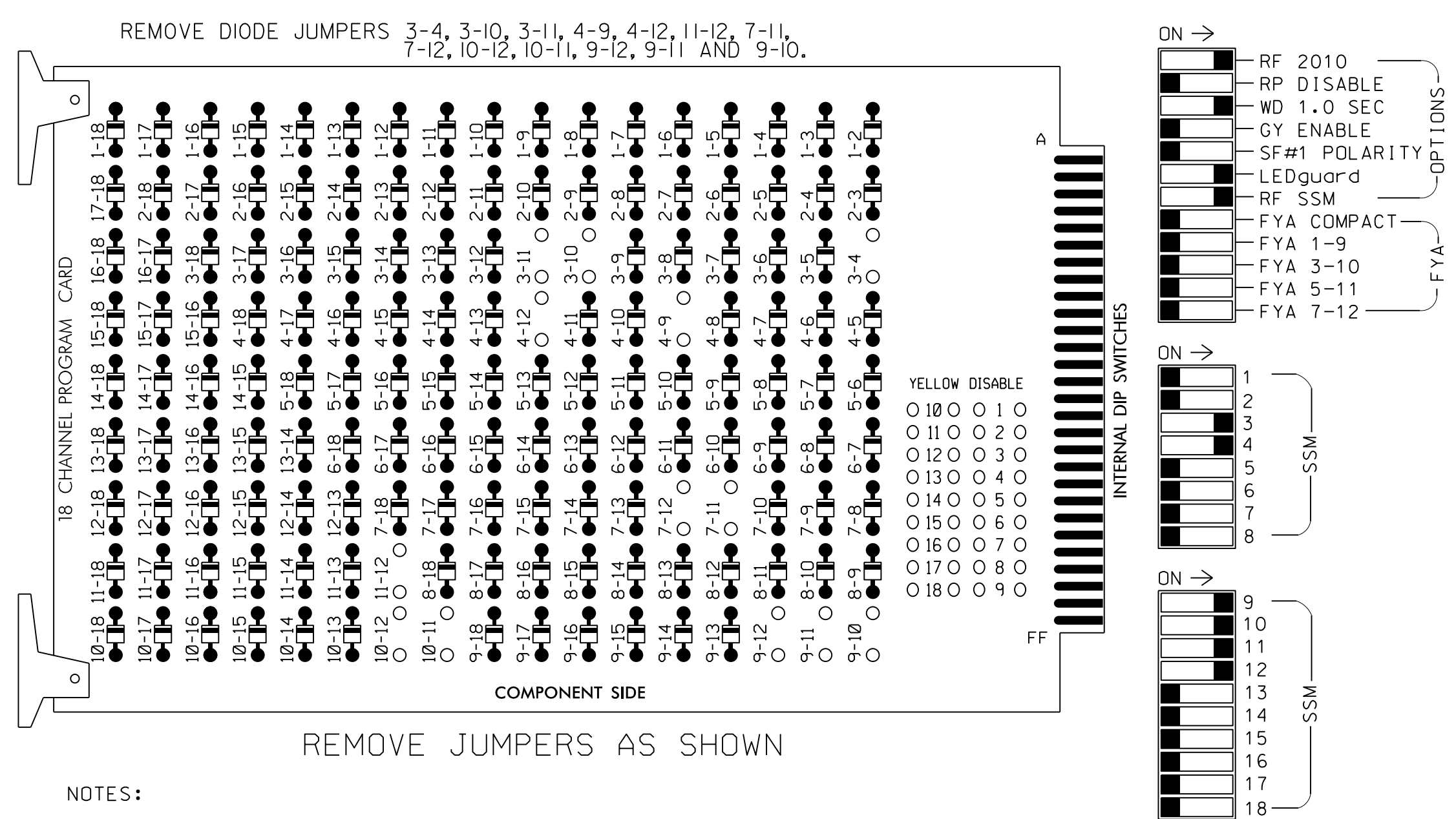
SIG. INVENTORY NO. 06-0111

SEPI Engineering & Construction, Inc.

1 Glenwood Avenue
Raleigh, NC 27603
Tel: 919.789.9977
Fax: 919.789.9591
License: C-2197

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- 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 unused 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 Signal System # 10605.

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.....S4,S5,S10,AUX S1,AUX S2,
 AUX S4,AUX S5
 PHASES USED.....2,3,4,6,7*,8**
 OVERLAP "A".....2+4
 OVERLAP "B".....3+6
 OVERLAP "C".....2+3+7
 OVERLAP "D".....4+6+7
 OVERLAP "G".....3+8
 OVERLAP "H".....4+8

* USED IN RR CLEAR ONLY
 ** USED IN RR PREEMPT ONLY

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	OLG	OLH	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	NC	NU	31,32,33,34	41,42,43,44	NU	NU	NC	NU	63	NC	NU	21,22	61,62,65	NU	23,24	63,64	NU
RED				116	101								A121	A124		A114	A101	
YELLOW				117	102					*			A122	A125		A115	A102	
GREEN				118	103								A123	A126		A116	A103	
RED ARROW																		
YELLOW ARROW																		
GREEN ARROW										124								

NC = NO CONNECTION; HOWEVER, PHASE IS USED FOR TIMING PURPOSES.
 NU = Not Used

* DENOTES INSTALL LOAD RESISTOR, SEE LOAD RESISTOR INSTALLATION DETAIL THIS SHEET.

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

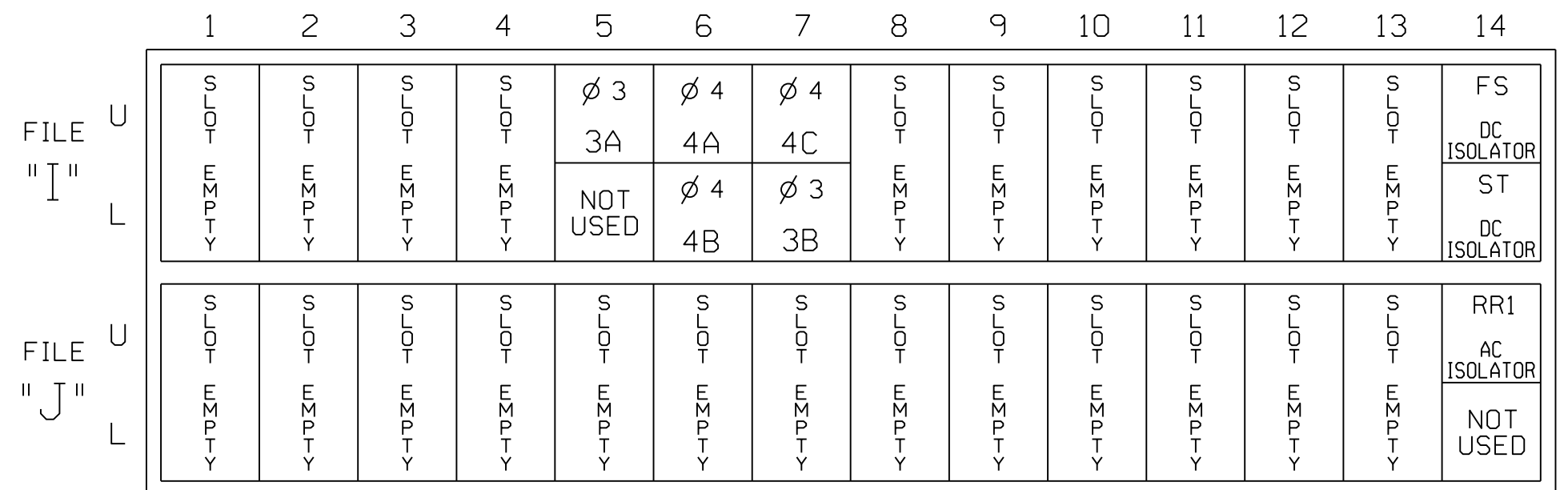
To assign load switches S4 and S5 as OLG and OLH, program LD SWITCH 3 as OVLP '7' TYPE '0' and LD SWITCH 4 as OVLP '8' TYPE '0' as shown below.

- From Main Menu select **1. CONFIGURATION**
- 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 Y .
3	7	O	. . . + A R X
4	8	O	. . . + A R .
5	5	V	. . . - A R .
6	6	V	. . . - A Y X
7	7	V	. . . - A R .
8	8	V	. . . - A R X
9	1	O	. . . + A Y X
10	2	O	. . . + A Y X
11	3	O	. . . - A Y .
12	4	O	. . . - A Y .
13	2	P	. . . + A . .
14	4	P	. . . - A . .
15	6	P	. . . + A . .
16	8	P	. . . - A . .

INPUT FILE POSITION LAYOUT

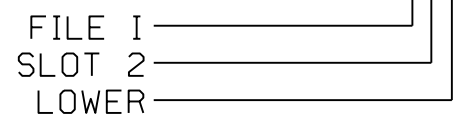
(front view)



INPUT FILE CONNECTION & PROGRAMMING CHART

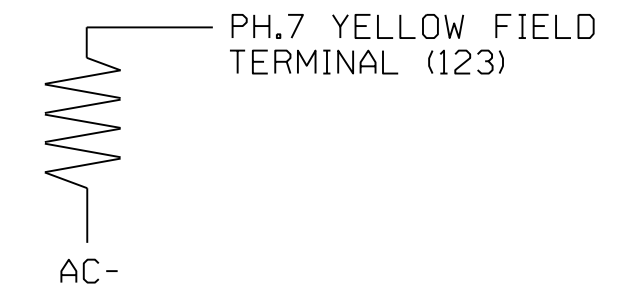
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
3A	TB4-5,6	15U	58	3	3	YES		10		N
3B	TB6-3,4	17L	78	44	3	YES		10		N
4A	TB4-9,10	16U	41	4	4	YES		10		N
4B	TB4-11,12	16L	45	14	4	YES		15		N
4C	TB6-1,2	17U	65	34	4	YES		10		N

INPUT FILE POSITION LEGEND: I2L



LOAD RESISTOR INSTALLATION DETAIL

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0111
 DESIGNED: AUGUST 2003
 SEALED: 11/4/03
 1 REVISED: 11/16/04
 2 REVISED: 05/15/20

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 License: C-2197

ELECTRICAL DETAIL - SHEET 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 701 BUSINESS (SOUTH MADISON STREET) at EAST MAIN STREET and WEST MAIN STREET

Prepared for the Offices of: **STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION**

Division 06 COLUMBUS COUNTY WHITEVILLE

PLAN DATE: APRIL 2020 REVIEWED BY: J. Rowe
 PREPARED BY: M. Copple REVIEWED BY:

REVISIONS INIT. DATE

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 27771
 M. COPPLE

SIGNATURE DATE
 SIG. INVENTORY NO. 06-0111

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select **2. CONTROLLER**
- From CONTROLLER Submenu select **2. VEHICLE OVERLAPS**

OVERLAP A
 Select TMG VEH OVLP [A] and 'NORMAL'
 TMG VEH OVLP...[A] TYPE:**NORMAL**
 PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 INCLUDED . X . X
 LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle Once

OVERLAP B
 Select TMG VEH OVLP [B] and 'NORMAL'
 TMG VEH OVLP...[B] TYPE:**NORMAL**
 PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 INCLUDED . . X . . X
 LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle Once

OVERLAP C
 Select TMG VEH OVLP [C] and 'NORMAL'
 TMG VEH OVLP...[C] TYPE:**NORMAL**
 PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 INCLUDED . X X . . . X
 LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle Once

OVERLAP D
 Select TMG VEH OVLP [D] and 'NORMAL'
 TMG VEH OVLP...[D] TYPE:**NORMAL**
 PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 INCLUDED . . . X . X X
 LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle Thrice

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 X
 LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle Once

OVERLAP H
 Select TMG VEH OVLP [H] and 'NORMAL'
 TMG VEH OVLP...[H] TYPE:**NORMAL**
 PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
 INCLUDED . . . X . . . X
 LAG GRN 0.0 YEL 0.0 RED 0.0

END PROGRAMMING

ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL FOR PREEMPT ONLY PHASE OMIT

(program controller as shown)

- From Main Menu select **1. CONFIGURATION**
- From CONFIGURATION Submenu select **8. LOGIC PROCESSOR**
- From 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 PMT PREEMPT ACTIVE 1 IS OFF
THEN CTR OMIT PHASE 7 ON
      CTR OMIT PHASE 8 ON
ELSE
  
```

LOGIC FOR OMITTING PHASES 7 AND 8 AT STARTUP AND/OR WHEN NOT IN PREEMPT

END PROGRAMMING

- From Main Menu select **1. CONFIGURATION**
- From CONFIGURATION Submenu select **8. LOGIC PROCESSOR**
- From LOGIC PROCESSOR Submenu select **1. LOGIC STATEMENT CONTROL**

ENABLE LOGIC PROCESSOR STATEMENTS 1 BY POSITIONING THE CURSOR OVER THE FIELD SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE IT.

```

LOGIC STATEMENT CONTROL
      1 2 3 4 5 6 7 8 9 0 1 2 3 4 5
LP 1-15 E . . . . .
LP 16-30 . . . . .
LP 31-45 . . . . .
LP 46-60 . . . . .
LP 61-75 . . . . .
LP 76-90 . . . . .
  
```

END PROGRAMMING

ECONOLITE ASC/3-2070 CONTROLLER SEQUENCE PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select **1. CONFIGURATION**
- From CONFIGURATION Submenu select **1. CONTROLLER SEQ**
- From CONTROLLER SEQUENCE Submenu select **1. PHASE RING SEQUENCE AND ASSIGNMENT**

```

CONTROLLER SEQUENCE [ 1 ]
SEQUENCE COMMANDS . HW ALT SEQ ENA. NO.
      01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16
BC-B - B - B - - - - -
R1-01 02 03 04 07 08 . . . . .
R2-05 06 . . . . .
R3- . . . . .
R4- . . . . .

R1-R4=RING 1-4, DATA ENTRY, PHASES 1-16
BC=BARRIER CONTROL, VALUES: B,C
B=BARRIER MODE
C=COMPATIBILITY MODE
  
```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0111
 DESIGNED: AUGUST 2003
 SEALED: 11/4/03
 1 REVISD: 11/16/04
 2 REVISD: 05/15/20

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ELECTRICAL DETAIL - SHEET 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 701 BUSINESS (SOUTH MADISON STREET) at EAST MAIN STREET and WEST MAIN STREET

Prepared for the Offices of:

DIVISION 06 COLUMBUS COUNTY WHITEVILLE

PLAN DATE: APRIL 2020 REVIEWED BY: J. Rowe

PREPARED BY: M. Copple REVIEWED BY:

REVISIONS	INIT.	DATE

SIGNATURE DATE

SIG. INVENTORY NO. 06-0111

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEERS
 SEAL 27771
 MATTHEW B. COPPLE

5/15/2020
 11:46:01 AM
 USER:MCopple

ECONOLITE ASC/3-2070 RAILROAD PREEMPT PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select **4. PREEMPTOR/TSP**
- From PREEMPTOR/TSP/SCP Submenu select **1. PREEMPT PLAN 1-10**

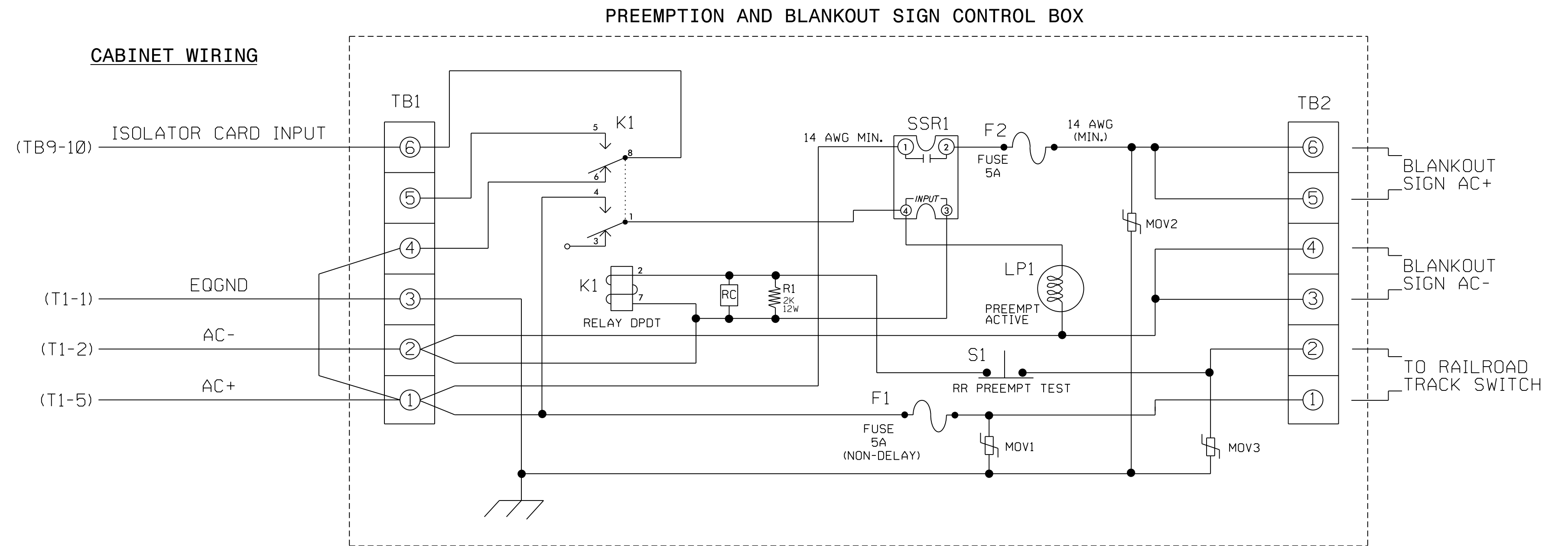
Place cursor in [] next to Preempt Plan and press 1. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Preempt #1.

PREEMPT PLAN [1]	ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6	
OVERLAP A B C D E F G H I J K L M N O P	
TRKCLR V X	
TRKCLR D . . X X	
ENA TRL	
DWEL VEH X	
DWEL PED	
DWEL OLP X X	
CYC VEH	
CYC PED	
CYC OLP	
EXIT PH . X X	
EXIT CAL	
SP FUNC	

ENABLE... YES	IPMT	OVRIDE..X	INTERLOCK..NO
DET LOCK... X	IDELAY..	OINHIBIT... 0	
OVERIDE FL. .	IDURATION	OICLR-GRN... NO	
TERM OLP. .	NOIPC>YEL	NOITERM PH NO	
PED DARK..	NOITC RESRV	YESIDWELL FL OFF	
LINK PMT....	OIX FLCOLR	REDIEXIT OPT. OFF	
X TMG PLN...O	IRE-SERV..	OIFLT TYPE.HARD	
FREE DUR PMT	IR1 NOIR2	NOIR3 NOIR4 NO	
--TIMING----	WALKIPED	CLIMN GRI YELI RED	
ENTRANCE TM. 01	01	1125.5125.5	
-----MIN	GRIEXT GRIMX	GRI YELI RED	
TRACK CLEAR	191 01	01 4.01 2.0	
-----MIN	DLIPMTEXTIMX	TMI YELI RED	
DWL/CYC-EXIT	71 0.01	0125.5125.5	
PMT ACTIVE OUT..ON	PMT ACT	DWELL...NO	
OTHER - PRI	PMT.OFF	NON-PRI PMT....OFF	
INH EXT TIME... 0.0	PED PR	RETURN...OFF	
PRIORITY RETURN.OFF	QUEUE	DELAY.... OFF	
COND DELAY.....OFF			
PHASES	1 2 3 4 5 6 7 8		
PR RTN%	0 0 0 0 0 0 0 0		
PHASES	9 10 11 12 13 14 15 16		
PR RTN%	0 0 0 0 0 0 0 0		

RAILROAD PREEMPTION WIRING DETAIL

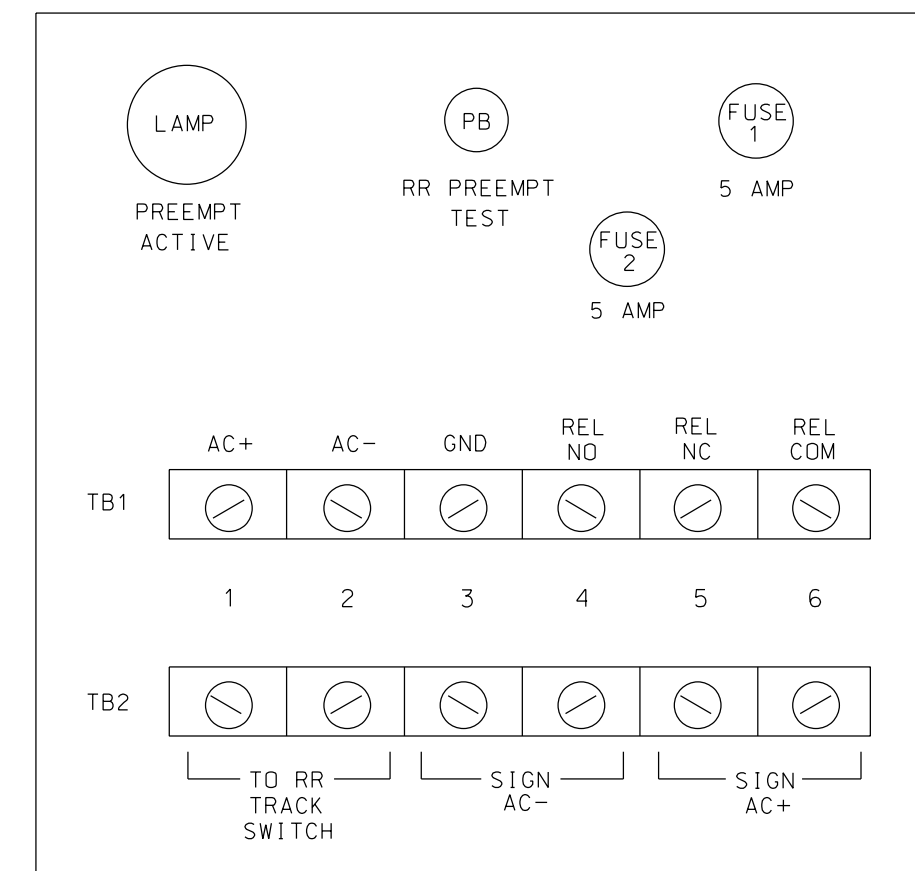
(wire as shown below)



NOTES

- Relay K1 is shown in the energized (Preempt not active) normal operation state.
- Relay K1 is a DPDT with 120VAC coil with octal base.
- Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output.
- AC Isolator Card shall activate preemption upon removal of AC+ from the input (as shown above). To accomplish this set invert dip switch on AC Isolator Card.
- IMPORTANT!! A jumper must be added between input file terminals J14-E and J14-K if not already present. Also, terminal TB9-12 (on input panel) shall be connected to AC neutral (jumper may have to be added).

FRONT VIEW



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0111
 DESIGNED: AUGUST 2003
 SEALED: 11/4/03
 1 REVISED: 11/16/04
 2 REVISED: 05/15/20

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ELECTRICAL DETAIL - SHEET 3 of 3

US 701 BUSINESS (SOUTH MADISON STREET)
 at
 EAST MAIN STREET and WEST MAIN STREET

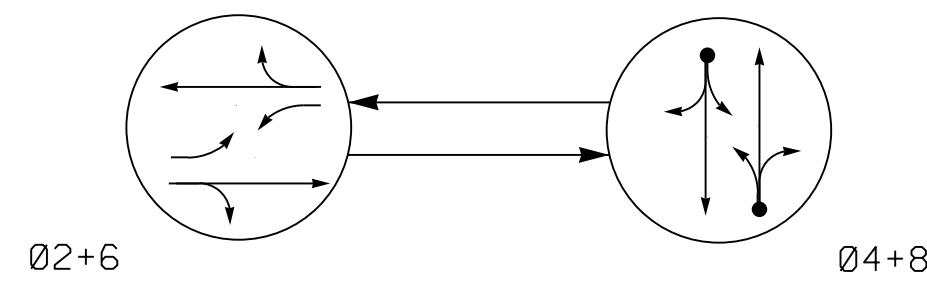
DIVISION 06 COLUMBUS COUNTY WHITEVILLE

PLAN DATE: APRIL 2020 REVIEWED BY: J. Rowe
 PREPARED BY: M. Copple REVIEWED BY:

REVISIONS INIT. DATE

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEERS & SURVEYORS
 SEAL 27771
 SIGNATURE DATE
 SIG. INVENTORY NO. 06-0111

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

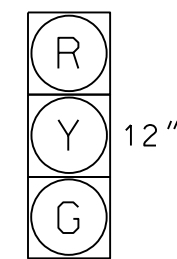
- ← DETECTED MOVEMENT
- ← UNDETECTED MOVEMENT (OVERLAP)
- ← UNSIGNALIZED MOVEMENT
- ← - - - PEDESTRIAN MOVEMENT

TABLE OF OPERATION

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

SIGNAL FACE I.D.

All Heads L.E.D.



21, 22
41, 42
61, 62
81, 82

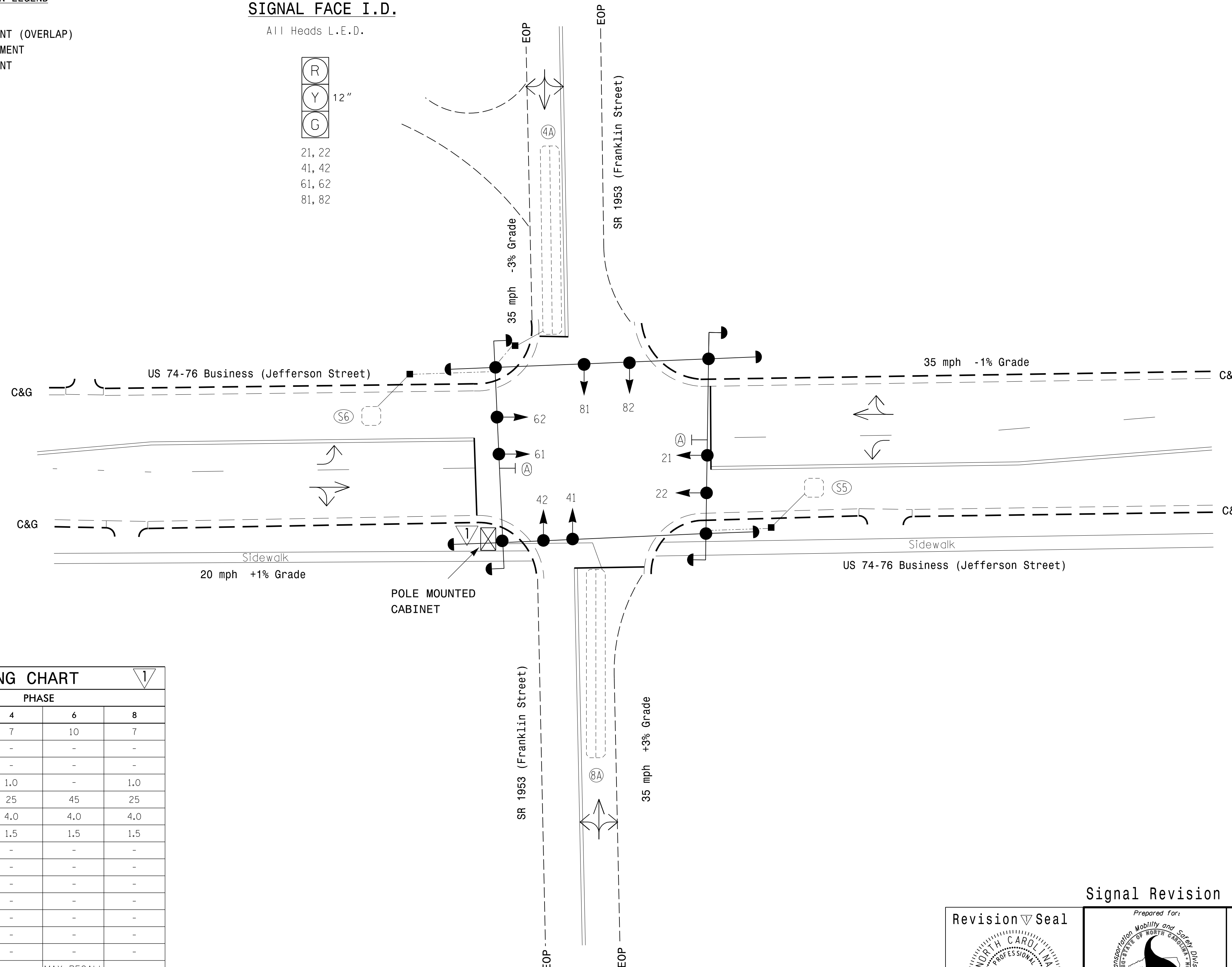
ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	PROGRAMMING							
				NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
4A	6X60	0	2-4-2	-	4	Yes	-	10	-	N	-
8A	6X60	0	2-4-2	-	8	Yes	-	10	-	N	-
S5	6X6	+105	EXIST	-	-	No	-	-	-	N	X
S6	6X6	+105	EXIST	-	-	No	-	-	-	N	X

2 Phase Semi-Actuated System #10605

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2002 and "Standard Specifications for Roads and Structures" dated January 2002.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Pavement markings are existing.
4. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values shall supersede these values.
5. Set all detector units to presence mode.



ASC/3 TIMING CHART

FEATURE	PHASE			
	2	4	6	8
Min Green *	10	7	10	7
Walk *	-	-	-	-
Ped Clear	-	-	-	-
Veh. Extension *	-	1.0	-	1.0
Max 1 *	45	25	45	25
Yellow	4.0	4.0	4.0	4.0
Red Clear	1.5	1.5	1.5	1.5
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	-	-	-	-
Recall Position	MAX RECALL	-	MAX RECALL	-
Dual Entry	-	X	-	X
Simultaneous Gap	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	⊥ Sign
⊥ Pedestrian Signal Head With Push Button & Sign	⊥ Pedestrian Signal Head With Push Button & 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
⊠ Controller & Cabinet	⊠ Controller & Cabinet
⊠ Junction Box	⊠ Junction Box
--- 2-in Underground Conduit	--- 2-in Underground Conduit
N/A Right of Way	--- Right of Way
→ Directional Arrow	→ Directional Arrow
→ Pavement Marking Arrow	→ Pavement Marking Arrow
ⓐ Left Arrow "ONLY" Sign (R3-5L)	ⓐ Left Arrow "ONLY" Sign (R3-5L)

Signal Revision

Revision Seal

US 74-76 Business (Jefferson Street) at SR 1953 (Franklin Street)

Division 6 Columbus County Whiteville

PLAN DATE: July 2003 REVIEWED BY: R.J. Ziemba

PREPARED BY: Carter/Hambright REVIEWED BY:

REVISIONS

NO.	DESCRIPTION	INIT.	DATE
1	Controller changed to ASC/3 with new cabinet	GGM	05/15/20

SEAL

Not a certified document. This document originally issued and sealed by Timothy J. Williams, PE, no. 24393 on 11/04/03. This document shall not be considered a certified document.

SIGNATURE DATE

SIG. INVENTORY NO. 06-0114

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