

# ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 4. PREEMPTOR/TSP

2. From PREEMPTOR/TSP/SCP Submenu select 1. PREEMPT PLAN 1-10

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```

PREEMPT PLAN [ 3]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . . . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERRIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>NO NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0125.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120125.5125.5
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

```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```

PREEMPT PLAN [ 4]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . . . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERRIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0125.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120125.5125.5
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

```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```

PREEMPT PLAN [ 5]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLP .F1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERRIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0125.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120125.5125.5
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

```

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```

PREEMPT PLAN [ 6]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . . X . . . X . . . . .
DWEL PED . . . . .
DWEL OLP .F1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERRIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0125.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120125.5125.5
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

```

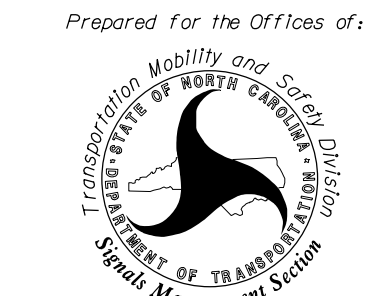
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0013 DESIGNED: MARCH 2018 SEALED: 08/21/2018 REVISED: N/A

Electrical Detail - Sheet 3 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

US 17 (Hughes Blvd.)  
at  
SR 1309 (W. Main St.)/  
W. Main St.

Division 1 Pasquotank County Elizabeth City

PLAN DATE: March 2018 REVIEWED BY: AJ Davis

PREPARED BY: DJ White REVIEWED BY: LM Moon

REVISIONS	INIT.	DATE

SEAL




SEAL 022516 ENGINEER LISA M. MOON

DocuSigned by:  
Lisa M. Moon 9/20/2018

SIG. INVENTORY NO. 01-0013

Plans Prepared By:



DRMP, Inc.  
8000 Regency Parkway, Suite 175  
Cary, NC 27519  
NC License No. C-2213 (919) 650-1038

20-SEP-2018 10:49 R:\415942\451\and\shades\gnw\11\mg401-0013-20180821.e.dgn Incon AT CAR-LMCDN1-W7

# 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 Railroad 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 . . X . . . . . . . . .
TRKCLR O .F1 .F1 . . . . . . . . . . . . .
ENA TRL . . . . . . . . . . . . . . . . .
DWEL VEH . . . . . . . . . . . . . . . . .
DWEL PED . . . . . . . . . . . . . . . . .
DWEL OLP . . . . . . . . . . . . . . . . .
CYC VEH X X X . . X . . . . . . . . . . .
CYC PED . . . . . . . . . . . . . . . . .
CYC OLP . . . . . . . . . . . . . . . . .
EXIT PH . . . X . . X . . . . . . . . . . .
EXIT CAL . . . . . . . . . . . . . . . . .
SP FUNC . . . . . . . . . . . . . . . . .
    
```

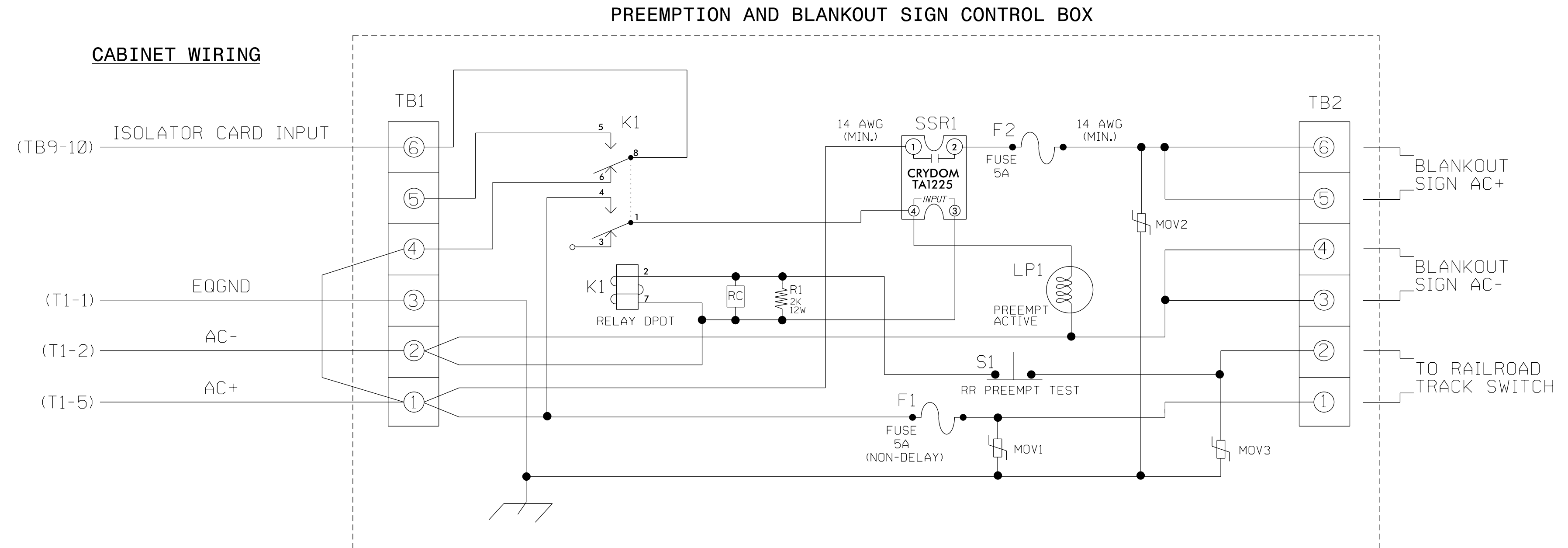
```

ENABLE... YESIPMT OVRIDE.XIINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV YESIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 7I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 0.0I 0I25.5125.5
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
    
```

NOTICE DWL/CYC-EXIT IS ADJUSTED TO 12 →

# RAILROAD PREEMPTION WIRING DETAIL

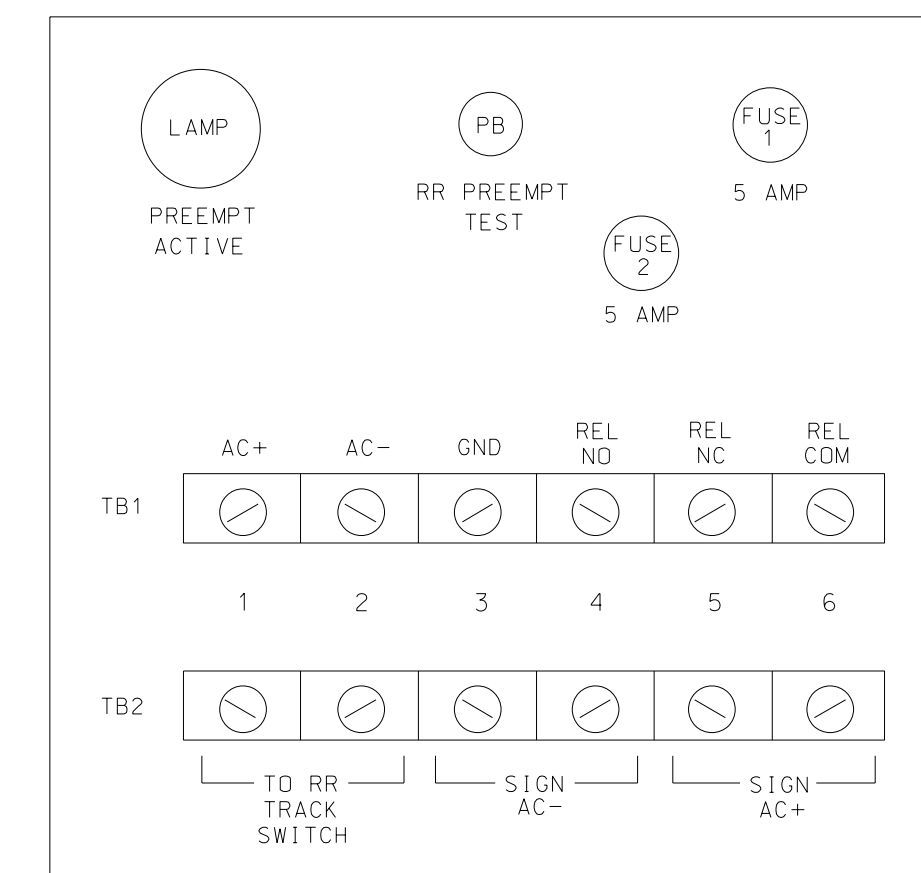
(wire as shown below)



### NOTES

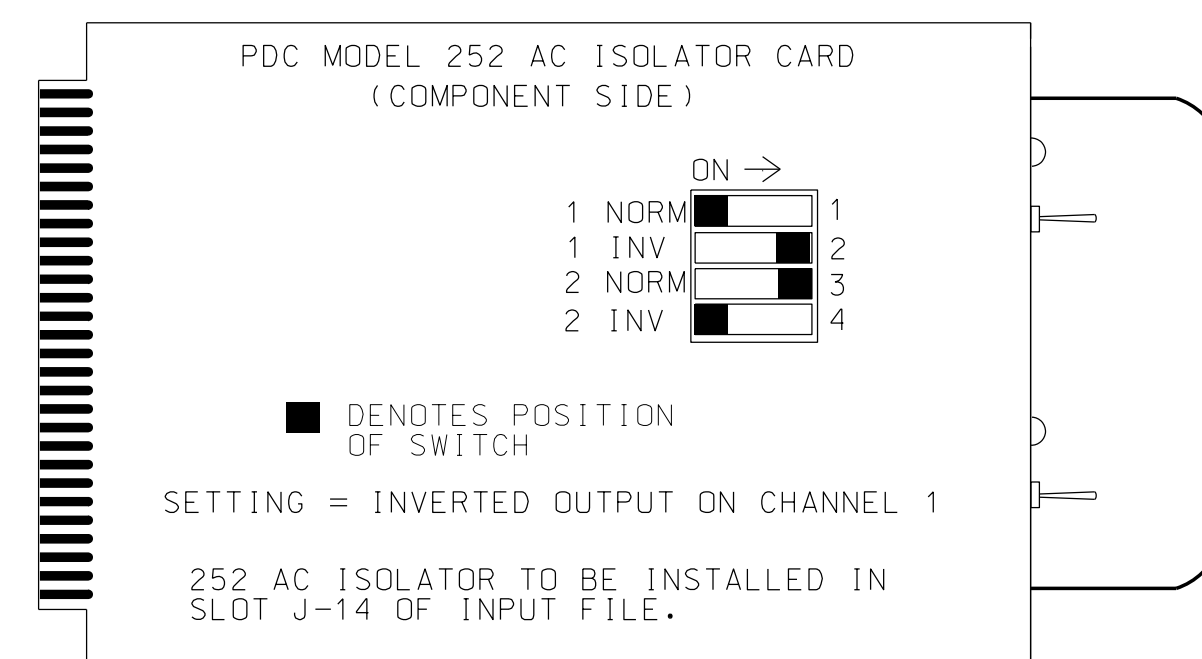
- Relay K1 is shown in the energized (Preempt not active) normal operation state.
- Relay K1 is an enclosed DPDT general purpose relay with a 12 0VAC coil, 10A contacts and octal style plug.
- Relay SSR1 is a SPST (normally open) Solid State Relay with AC input and AC (25 amp) output.
- AC Isolator Card 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!!** Terminal TB9-12 (on input panel) shall be connected to AC neutral (jumper may have to be added).

### FRONT VIEW



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

(set DIP switches as shown below)



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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0013  
 DESIGNED: MARCH 2018  
 SEALED: 08/21/2018  
 REVISED: N/A

Electrical Detail - Sheet 4 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

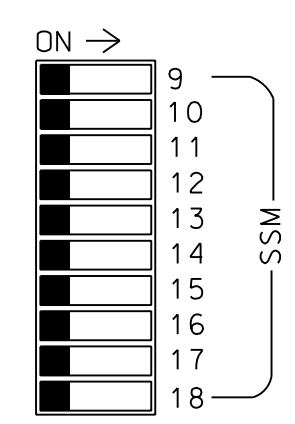
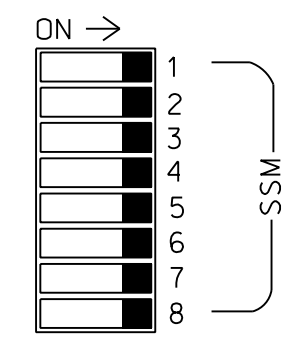
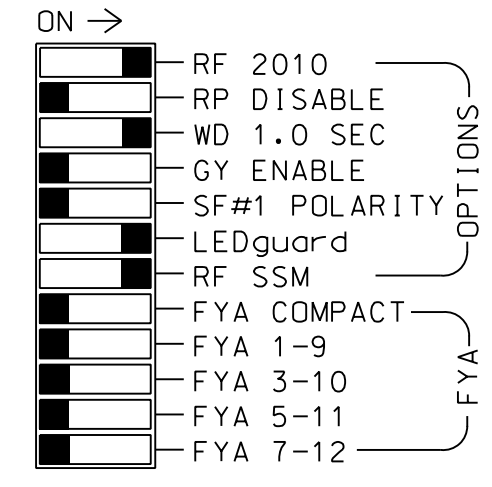
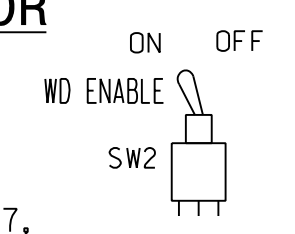
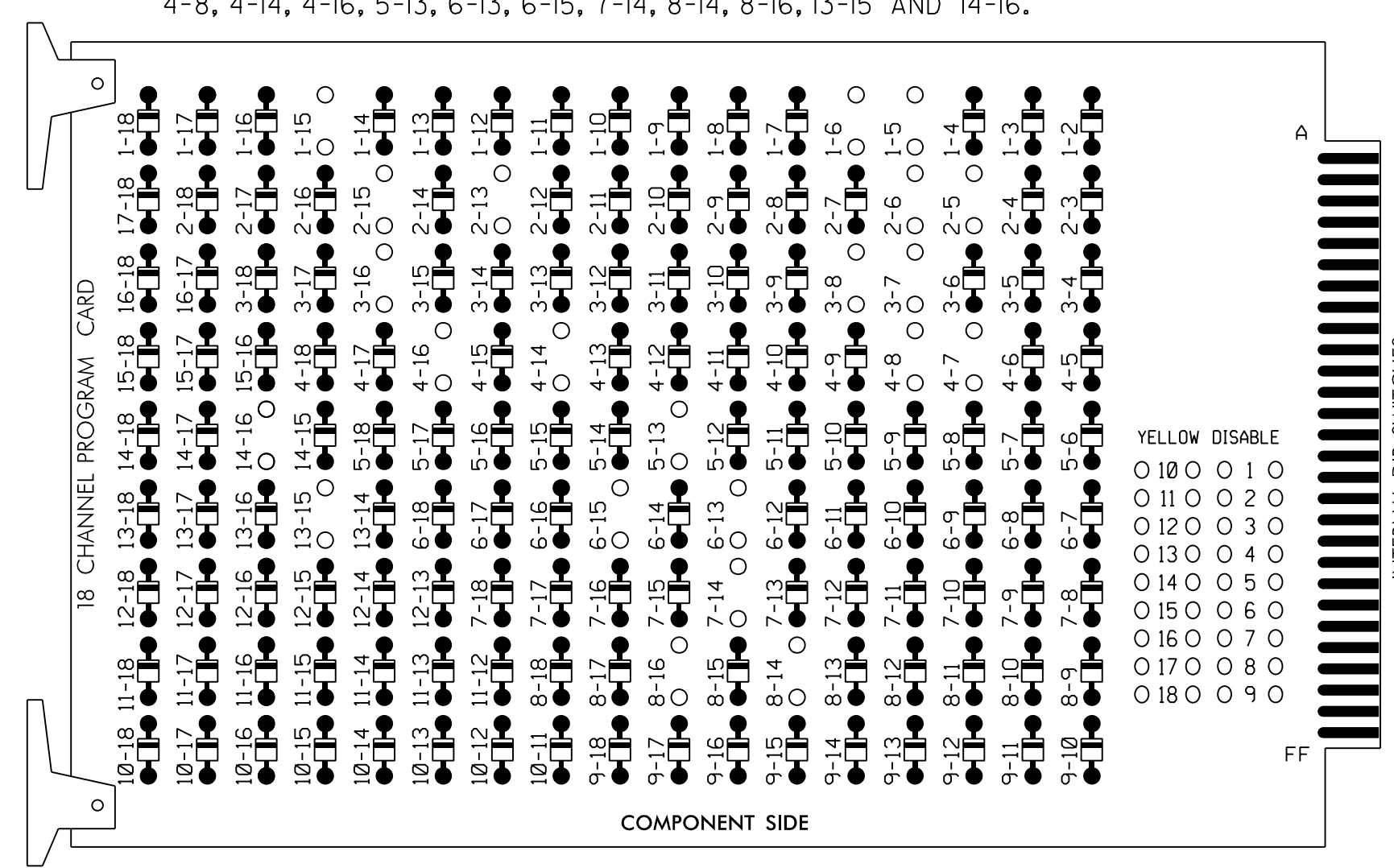
ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of:  <b>DRMP</b> DRMP, Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27519 NC License No. C-2213 (919) 650-1038	US 17 (Hughes Blvd.) at SR 1309 (W. Main St.)/ W. Main St.		SEAL 
	Division 1 Pasquotank County Elizabeth City PLAN DATE: March 2018 REVIEWED BY: AJ Davis PREPARED BY: DJ White REVIEWED BY: LM Moon		
REVISIONS INIT. DATE	REVISIONS INIT. DATE	REVISIONS INIT. DATE	DocuSigned by: Lisa M. Moon 9/20/2018 DATE SIG. INVENTORY NO. 01-0013



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

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-15, 2-5, 2-6, 2-13, 2-15, 3-7, 3-8, 3-16, 4-7, 4-8, 4-14, 4-16, 5-13, 6-13, 6-15, 7-14, 8-14, 8-16, 13-15 AND 14-16.



■ = DENOTES POSITION OF SWITCH

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 controller to start up in phase 2 WALK and 6 WALK.
- The cabinet and controller are part of the Elizabeth City Signal System.
- Ensure Delayed Green times shown in the Timing Chart on the signal design plan are accounted for to facilitate leading pedestrian interval.

#### EQUIPMENT INFORMATION

CONTROLLER.....2070LX  
 CABINET.....332 W/AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,  
 S10,S11,S12  
 PHASES USED.....1,2,3,4,5,6,7,8,2PED,4PED,  
 6PED,8PED  
 OVERLAPS.....NONE

#### 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	31	41,42	P41, P42	51	61,62	P61, P62	71	81,82	P81, P82	NU	NU	NU	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				117			132			123							
GREEN ARROW	127				118			133			124							
Hand icon					113			104			119							110
Walking person icon					115			106			121							112

NU = Not Used

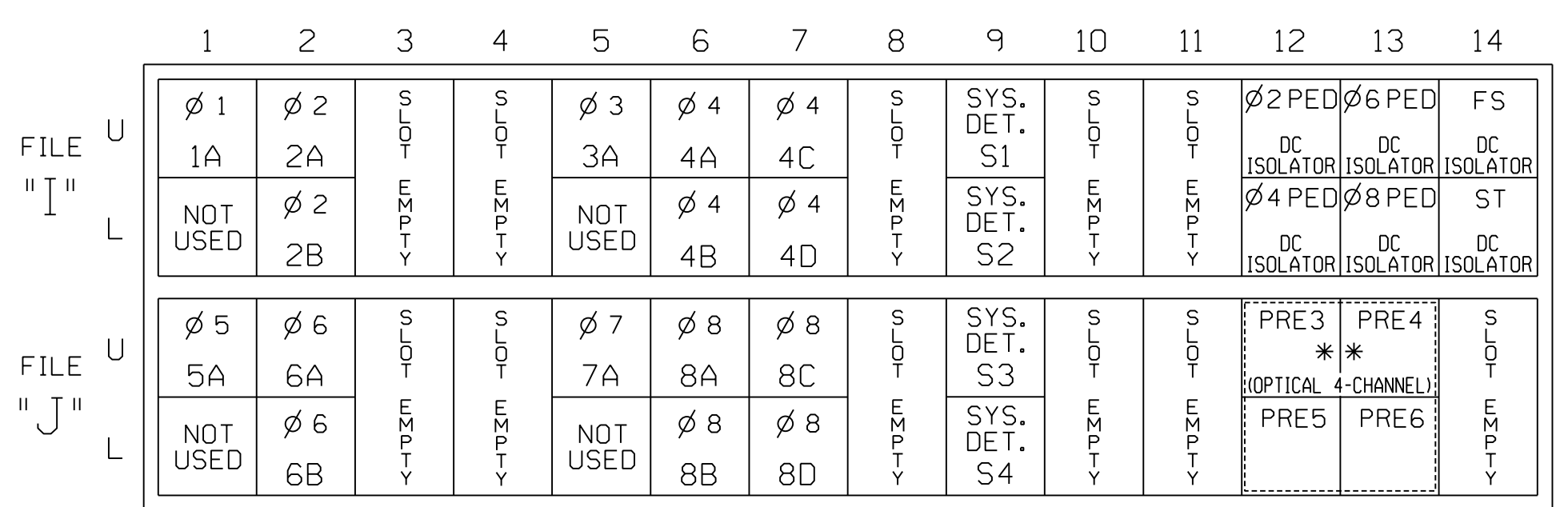
### ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select **4. PREEMPTOR/TSP**
- From PREEMPT/TSP/SCP Submenu select **2. ENABLE PREEMPT FILTERING & TSP/SCP**

INPUT	1	2	3	4	5	6	7	8	9	10
ENABLE PREEMPT FILTERING & TSP/SCP	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
FILTERED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED
PULSING	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED	BYPASSED

#### INPUT FILE POSITION LAYOUT (front view)



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

FS = FLASH SENSE  
ST = STOP TIME  
PRE = PREEMPT

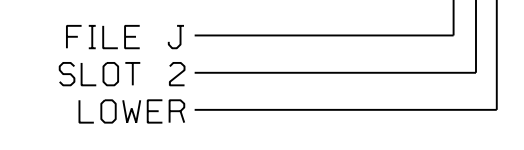
#### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES		3		S
2A	TB2-5,6	I2U	39	2	2	YES				S
2B	TB2-7,8	I2L	43	12	2	YES				S
3A	TB4-5,6	I5U	58	3	3	YES		3		S
4A	TB4-9,10	I6U	41	4	4	NO	3,4			N
4B	TB4-11,12	I6L	45	14	4	NO	3,4			N
4C	TB6-1,2	I7U	65	34	4	YES				G
4D	TB6-3,4	I7L	78	44	4	YES		10		G
* S1	TB6-9,10	I9U	60	11	SYS	NO				N
* S2	TB6-11,12	I9L	62	13	SYS	NO				N
5A	TB3-1,2	J1U	55	5	5	YES		3		S
6A	TB3-5,6	J2U	40	6	6	YES				S
6B	TB3-7,8	J2L	44	16	6	YES				S
7A	TB5-5,6	J5U	57	7	7	YES		3		S
8A	TB5-9,10	J6U	42	8	8	NO	3,4			N
8B	TB5-11,12	J6L	46	18	8	NO	3,4			N
8C	TB7-1,2	J7U	66	38	8	YES				G
8D	TB7-3,4	J7L	79	48	8	YES		10		G
* S3	TB7-9,10	J9U	59	15	SYS	NO				N
* S4	TB7-11,12	J9L	61	17	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.

\* System detector only. Remove any assigned vehicle phase.

#### INPUT FILE POSITION LEGEND: J2L



#### \*\* OPTICAL PREEMPTION SYSTEM

- Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
- Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0014  
 DESIGNED: September 2018  
 SEALED: 09/21/2018  
 REVISED: N/A

Signal Upgrade - Electrical Detail - Sheet 1 of 2

PLANS PREPARED BY:

RUMMEL, KLEPPER & KAHL, LLP  
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 RALEIGH, NORTH CAROLINA 27609-3960  
 NC LICENSE NO. F-0112 • (919) 878-9560

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

750 N. Greenfield Pkwy, Carrer, NC 27529

US 17 Business (Ehringhaus St.)  
 at  
 NC 344 (Halstead Boulevard)

Division 1 Pasquotank County Elizabeth City

PLAN DATE: September 2018 REVIEWED BY: J O Deaton

PREPARED BY: M W Yalch REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

DocuSigned by: James O. Deaton 9/21/2018

SIG. INVENTORY NO. 01-0014

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

PREEMPT PLAN [ 3 ] 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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. OINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 255I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 0I 2.0I 120I25.5I25.5
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

PREEMPT PLAN [ 4 ] 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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. OINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 255I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 0I 2.0I 120I25.5I25.5
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

PREEMPT PLAN [ 5 ] 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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. OINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 255I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 0I 2.0I 120I25.5I25.5
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

PREEMPT PLAN [ 6 ] 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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . . X . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. OINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 255I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 0I 2.0I 120I25.5I25.5
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

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

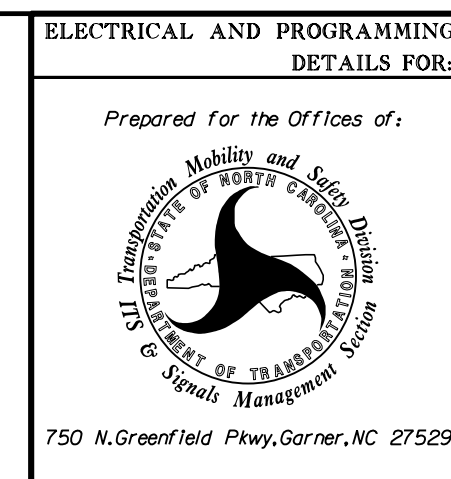
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0014 DESIGNED: September 2018 SEALED: 09/21/2018 REVISED: N/A

PLANS PREPARED BY :



RUMMEL, KLEPPER & KAHL, LLP 900 RIDGEFIELD DRIVE SUITE 350 RALEIGH, NORTH CAROLINA 27609-3960 NC LICENSE NO. F-0112 • (919) 878-9560



US 17 Business (Ehringhaus St.) at NC 344 (Halstead Boulevard)

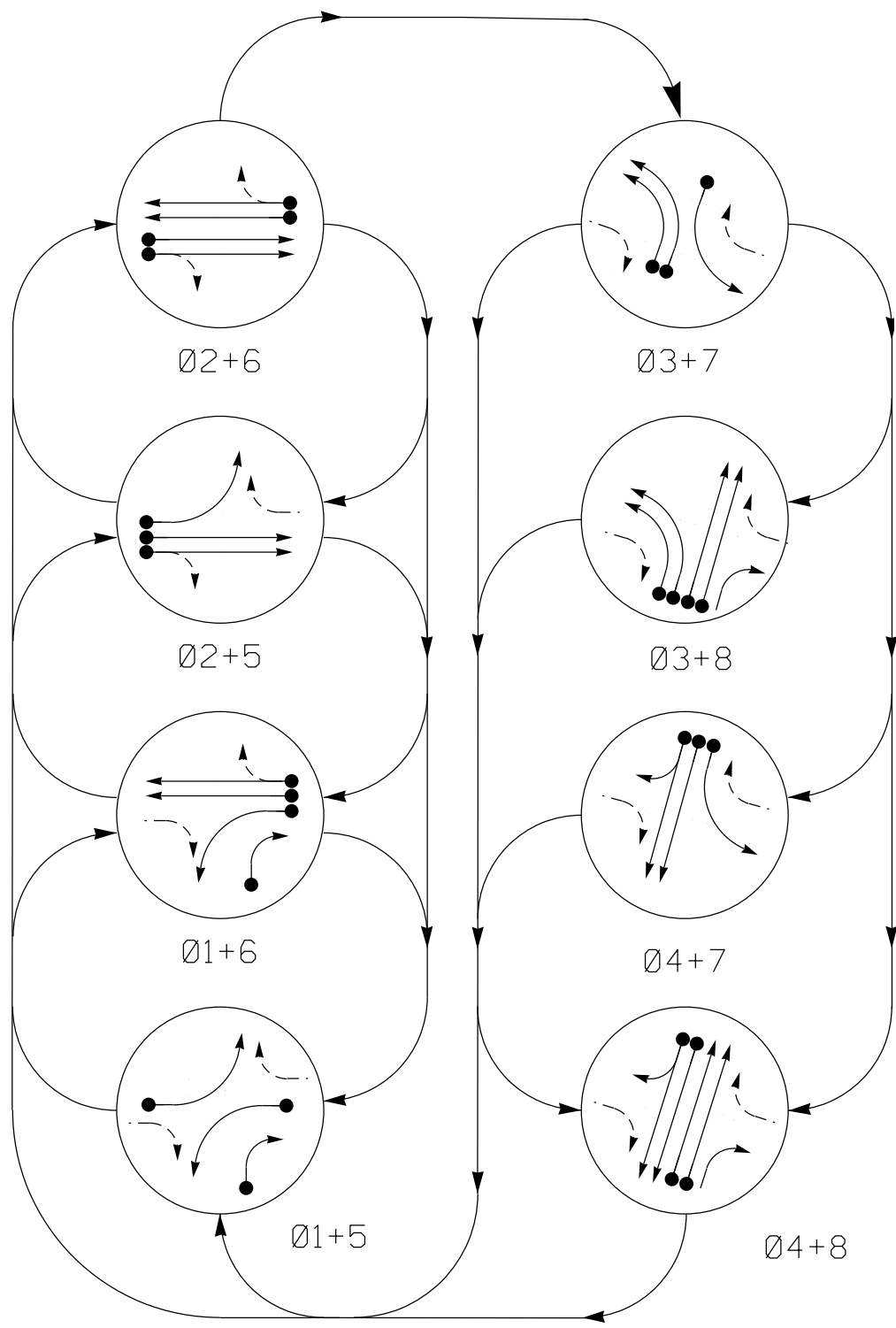
Division 1 Pasquotank County Elizabeth City PLAN DATE: September 2018 REVIEWED BY: J O Deaton PREPARED BY: M W Yalch REVIEWED BY:

Table with columns: REVISIONS, INIT., DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Professional Engineer Seal for James O. Deaton, State of North Carolina, License No. 07438

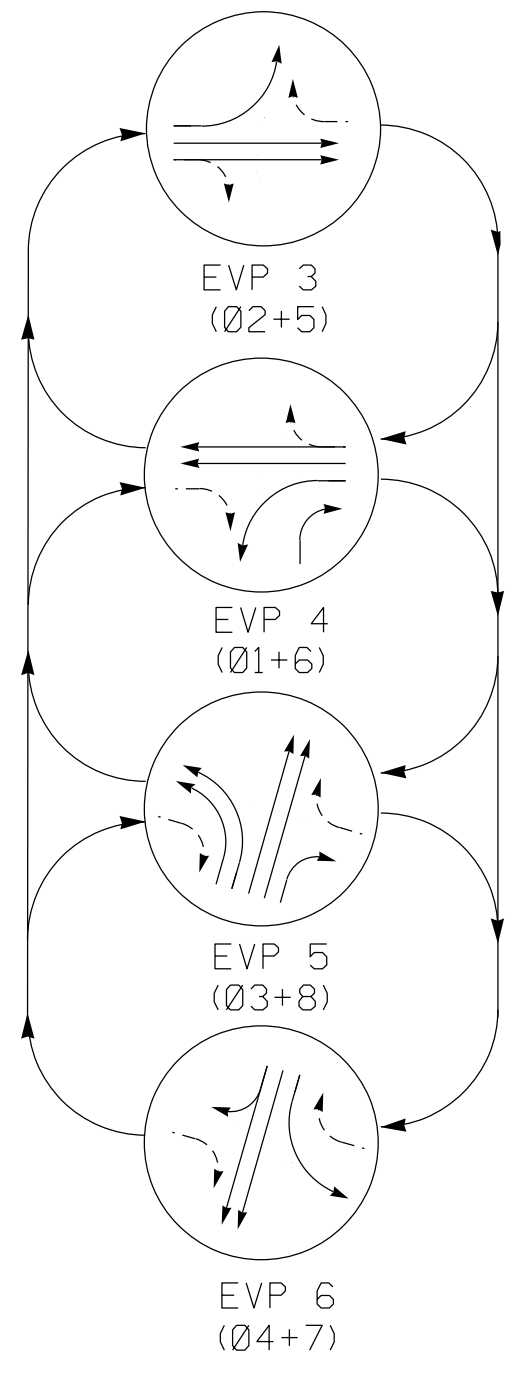
**PHASING DIAGRAM**



**PHASING DIAGRAM DETECTION LEGEND**

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

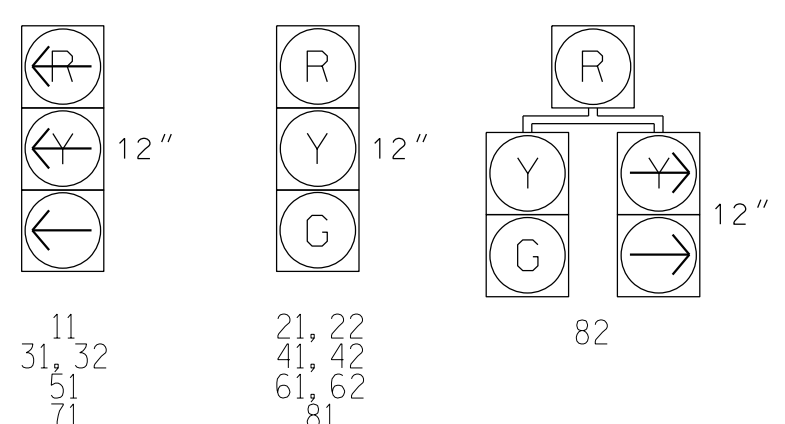
**EV PREEMPT PHASES**



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

**SIGNAL FACE I.D.**

All Heads L.E.D.

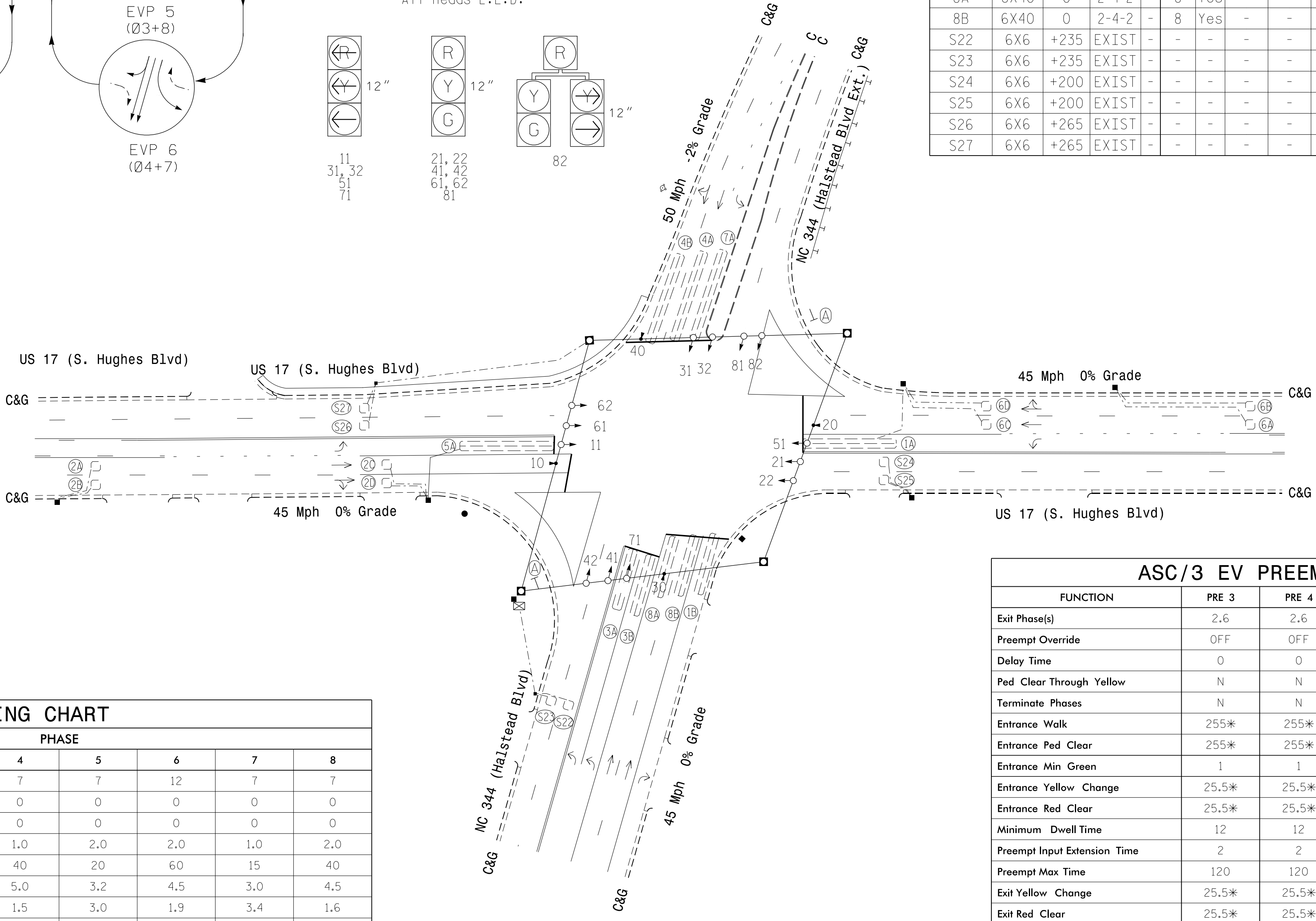


ASC/3 DETECTOR INSTALLATION CHART												
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X60	0	2-4-2	-	1	Yes	-	3	-	S	-	X
1B	6X40	0	2-4-2	-	1	Yes	-	15	-	S	-	X
2A	6X6	300	EXIST	-	2	Yes	1.6	-	-	S	-	X
2B	6X6	300	EXIST	-	2	Yes	1.6	-	-	S	-	X
2C, 2D	6X6	90	EXIST	-	2	Yes	-	-	-	S	-	X
3A	6X40	0	2-4-2	-	3	Yes	-	3	-	S	-	X
3B	6X40	0	2-4-2	-	3	Yes	-	-	-	S	-	X
4A	6X60	0	2-4-2	-	4	Yes	-	-	-	S	-	X
4B	6X60	0	2-4-2	-	4	Yes	-	10	-	S	-	X
5A	6X60	0	2-4-2	-	5	Yes	-	3	-	S	-	X
6A	6X6	300	EXIST	-	6	Yes	1.6	-	-	S	-	X
6B	6X6	300	EXIST	-	6	Yes	1.6	-	-	S	-	X
6C, 6D	6X6	96	EXIST	-	6	Yes	-	-	-	S	-	X
7A	6X60	0	2-4-2	-	7	Yes	-	-	-	S	-	X
8A	6X40	0	2-4-2	-	8	Yes	-	-	-	S	-	X
8B	6X40	0	2-4-2	-	8	Yes	-	-	-	S	-	X
S22	6X6	+235	EXIST	-	-	-	-	-	-	N	X	X
S23	6X6	+235	EXIST	-	-	-	-	-	-	N	X	X
S24	6X6	+200	EXIST	-	-	-	-	-	-	N	X	X
S25	6X6	+200	EXIST	-	-	-	-	-	-	N	X	X
S26	6X6	+265	EXIST	-	-	-	-	-	-	N	X	X
S27	6X6	+265	EXIST	-	-	-	-	-	-	N	X	X

**8 Phase Fully Actuated w/ EV Preemption (Elizabeth City Signal System)**

**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 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.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- Relocate emergency vehicle preemption equipment from existing cabinet to new cabinet.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 10 calls EVP 3; Optical detector 20 calls EVP 4; Optical detector 30 calls EVP 5; Optical detector 40 calls EVP 6;
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



**LEGEND**

- | PROPOSED                          | EXISTING                          |
|-----------------------------------|-----------------------------------|
| ○ → Traffic Signal Head           | ● → Traffic Signal Head           |
| ○ → Modified Signal Head          | ○ → Modified Signal Head          |
| ○ → Pedestrian Signal Head        | ○ → 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             |
| ○ → Guardrail                     | ○ → Guardrail                     |
| ○ → Fire Hydrant                  | ○ → Fire Hydrant                  |
| ○ → Metal Strain Pole             | ○ → Metal Strain Pole             |
| ○ → EVP Optical Detector          | ○ → EVP Optical Detector          |
| ○ → "YIELD" Sign                  | ○ → "YIELD" Sign                  |

ASC/3 EV PREEMPT				
FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Exit Phase(s)	2.6	2.6	2.6	2.6
Preempt Override	OFF	OFF	OFF	OFF
Delay Time	0	0	0	0
Ped Clear Through Yellow	N	N	N	N
Terminate Phases	N	N	N	N
Entrance Walk	255*	255*	255*	255*
Entrance Ped Clear	255*	255*	255*	255*
Entrance Min Green	1	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7	7
Preempt Input Extension Time	2	2	2	2
Preempt Max Time	120	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*	25.5*

\* Allows normal phase times to be used.

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	2.0	2.0	1.0	2.0	2.0	1.0	2.0
Max 1 *	30	60	25	40	20	60	15	40
Yellow	3.2	4.5	3.0	5.0	3.2	4.5	3.0	4.5
Red Clear	3.0	1.7	3.7	1.5	3.0	1.9	3.4	1.6
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
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.

**Signal Upgrade**

Prepared for the Offices of:  
  
 DRMP, Inc.  
 8000 Regency Parkway, Suite 175  
 Cary, NC 27518  
 NC License No. C-2213 (919) 650-1038

**US 17 (S. Hughes Blvd.) at NC 344 (Halstead Blvd./ Halstead Blvd. Ext.)**

Division 1 Pasquotank County Elizabeth City  
 PLAN DATE: March 2018 REVIEWED BY: AJ Davis  
 PREPARED BY: JA Le REVIEWED BY: LM Moon

REVISIONS: INIT. DATE

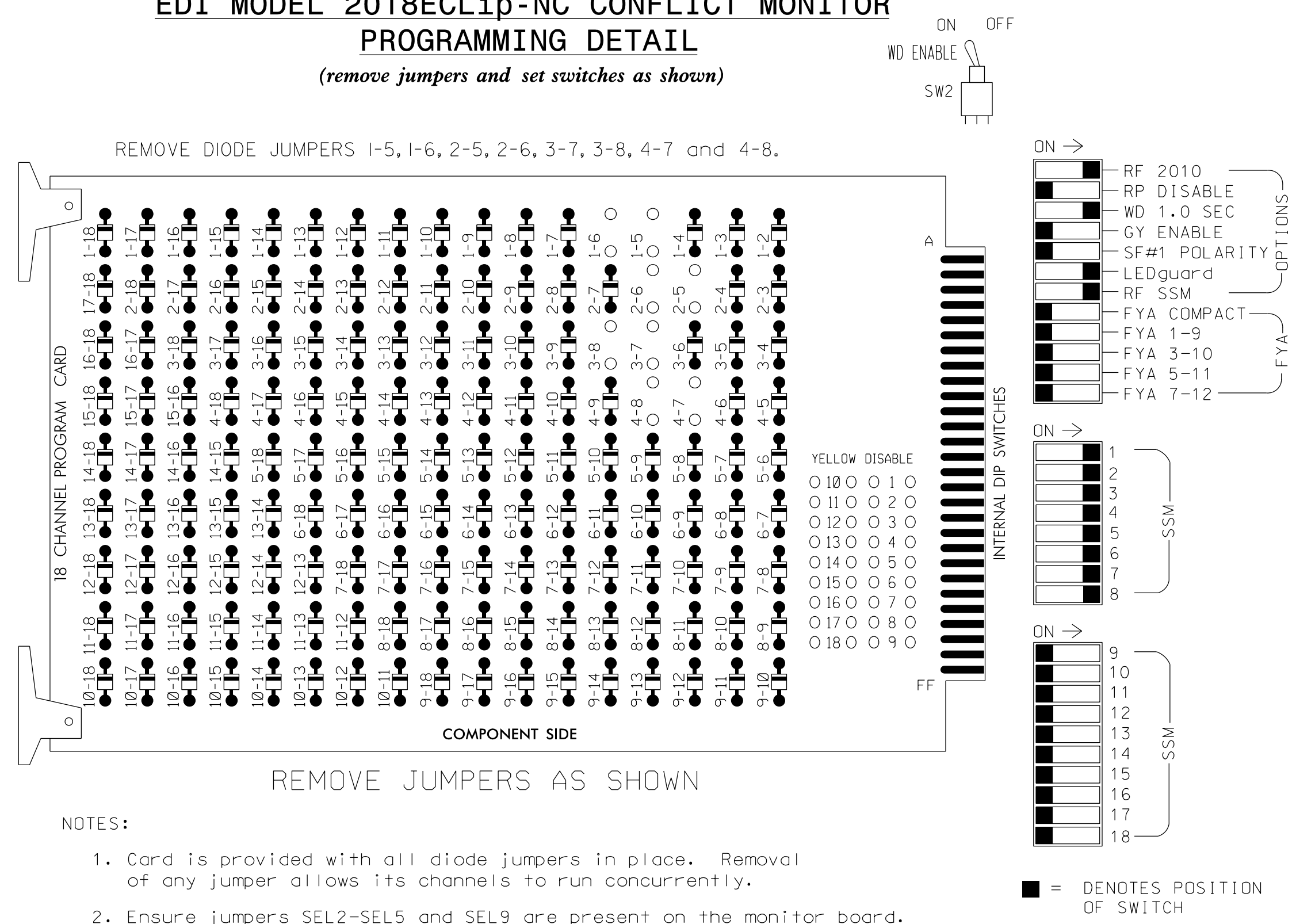
SCALE: 1" = 50'

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

SEAL  
  
 Lisa M. Moon  
 8/21/2018  
 DATE: \_\_\_\_\_  
 SIG. INVENTORY NO. 01-0015

### 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 the Elizabeth City Signal System.

### SIGNAL HEAD HOOK-UP CHART

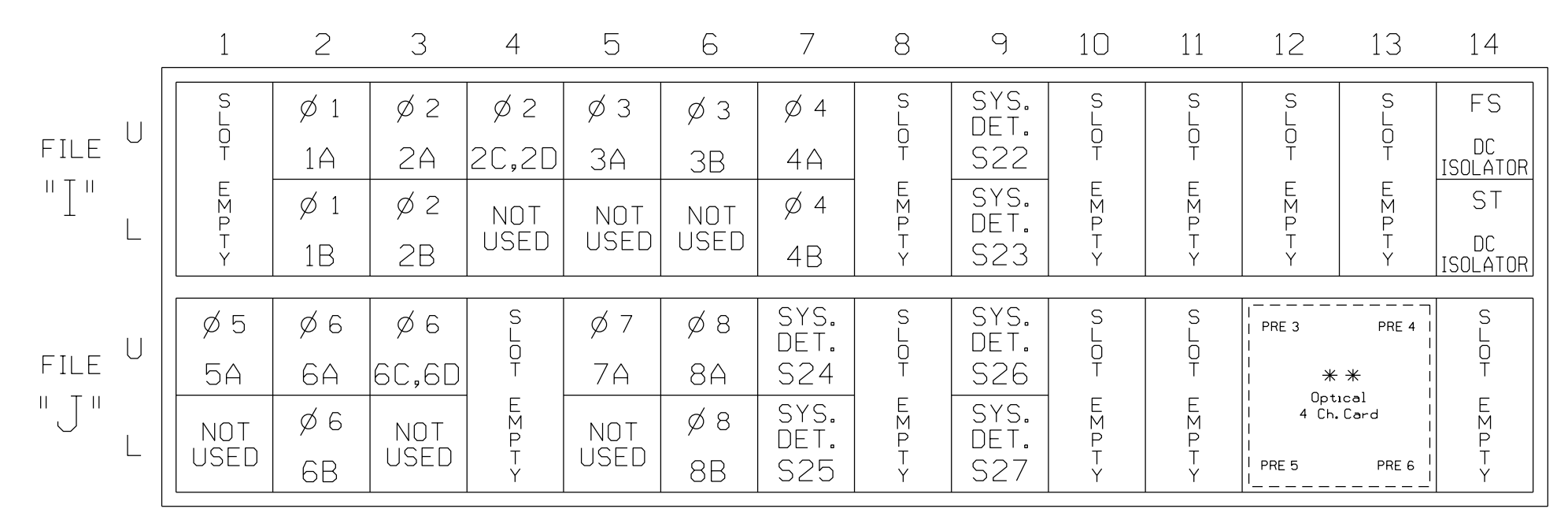
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	82	21,22	NU	31,32	41,42	NU	51	61,62	NU	71	81,82	NU	NU	NU	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	132		117			132			123								
GREEN ARROW	127	133		118			133			124								

NU = Not Used

### 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  
 PHASES USED.....1,2,3,4,5,6,7,8  
 OVERLAP "A".....NOT USED  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....NOT USED  
 OVERLAP "D".....NOT USED

### INPUT FILE POSITION LAYOUT (front view)



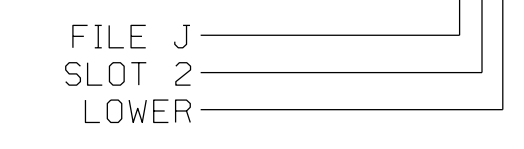
FS = FLASH SENSE  
 ST = STOP TIME  
 PRE = PREEMPT

### 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	TB2-5,6	I2U	39	2	1	YES		3		S
1B	TB2-7,8	I2L	43	12	1	YES		15		S
2A	TB2-9,10	I3U	63	32	2	YES	1.6			S
2B	TB2-11,12	I3L	76	42	2	YES	1.6			S
2C,2D	TB4-1,2	I4U	47	22	2	YES				S
3A	TB4-5,6	I5U	38	3	3	YES		3		S
3B	TB4-9,10	I6U	41	4	3	YES				S
4A	TB6-1,2	I7U	65	34	4	YES				S
4B	TB6-3,4	I6U	78	44	4	YES		10		S
*S22	TB6-9,10	I9U	60	11	SYS	NO				N
*S23	TB6-11,12	I9L	62	13	SYS	NO				N
5A	TB3-1,2	J1U	55	5	5	YES		3		S
6A	TB3-5,6	J2U	40	6	6	YES	1.6			S
6B	TB3-7,8	J2L	44	16	6	YES	1.6			S
6C,6D	TB3-9,10	J3U	64	36	6	YES				S
7A	TB5-5,6	J5U	57	7	7	YES				S
8A	TB5-9,10	J6U	42	8	8	YES				S
8B	TB5-11,12	J6L	46	18	8	YES				S
*S24	TB7-1,2	J7U	66	38	SYS	NO				N
*S25	TB7-3,4	J7L	79	48	SYS	NO				N
*S26	TB7-9,10	J9U	59	15	SYS	NO				N
*S27	TB7-11,12	J9L	61	17	SYS	NO				N

\* System detector only. Remove any assigned vehicle phase.

### INPUT FILE POSITION LEGEND: J2L



### \*\*OPTICAL PREEMPTION SYSTEM

- Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
- Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0015  
 DESIGNED: MARCH 2018  
 SEALED: 08/21/2018  
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

Electrical and Programming Details For: **US 17 (S. Hughes Blvd.) at NC 344 (Halstead Blvd./Halstead Blvd. Ext.)**

Division 1 Pasquotank County Elizabeth City

PLAN DATE: March 2018 REVIEWED BY: AJ Davis

PREPARED BY: DJ White REVIEWED BY: LM Moon

REVISIONS: INIT. DATE

DRMP Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27519 NC License No. C-2213 (919) 650-1038

Seal: Lisa M. Moon, Professional Engineer, License No. 022516

DocuSigned by: Lisa M. Moon 9/20/2018

SIG. INVENTORY NO. 01-0015

# ECONOLITE ASC/3-2070 EMERGENCY VEHICLE 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 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```

PREEMPT PLAN [ 3]   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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0125.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120125.5125.5
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

```

```

PREEMPT PLAN [ 4]   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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0125.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120125.5125.5
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

```

```

PREEMPT PLAN [ 5]   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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0125.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120125.5125.5
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

```

```

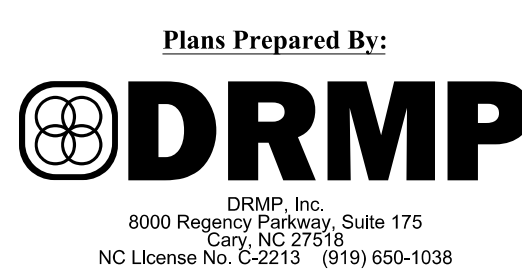
PREEMPT PLAN [ 6]   ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . . X . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT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

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0125.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120125.5125.5
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

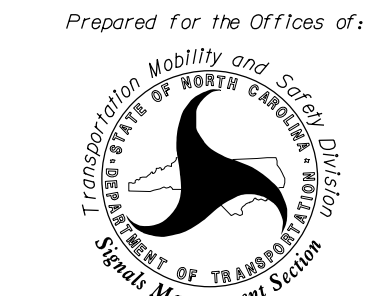

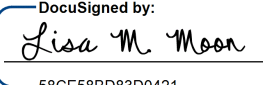
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THIS ELECTRICAL DETAIL IS FOR  
 THE SIGNAL DESIGN: 01-0015  
 DESIGNED: MARCH 2018  
 SEALED: 08/21/2018  
 REVISED: N/A



Electrical Detail - Sheet 2 of 2

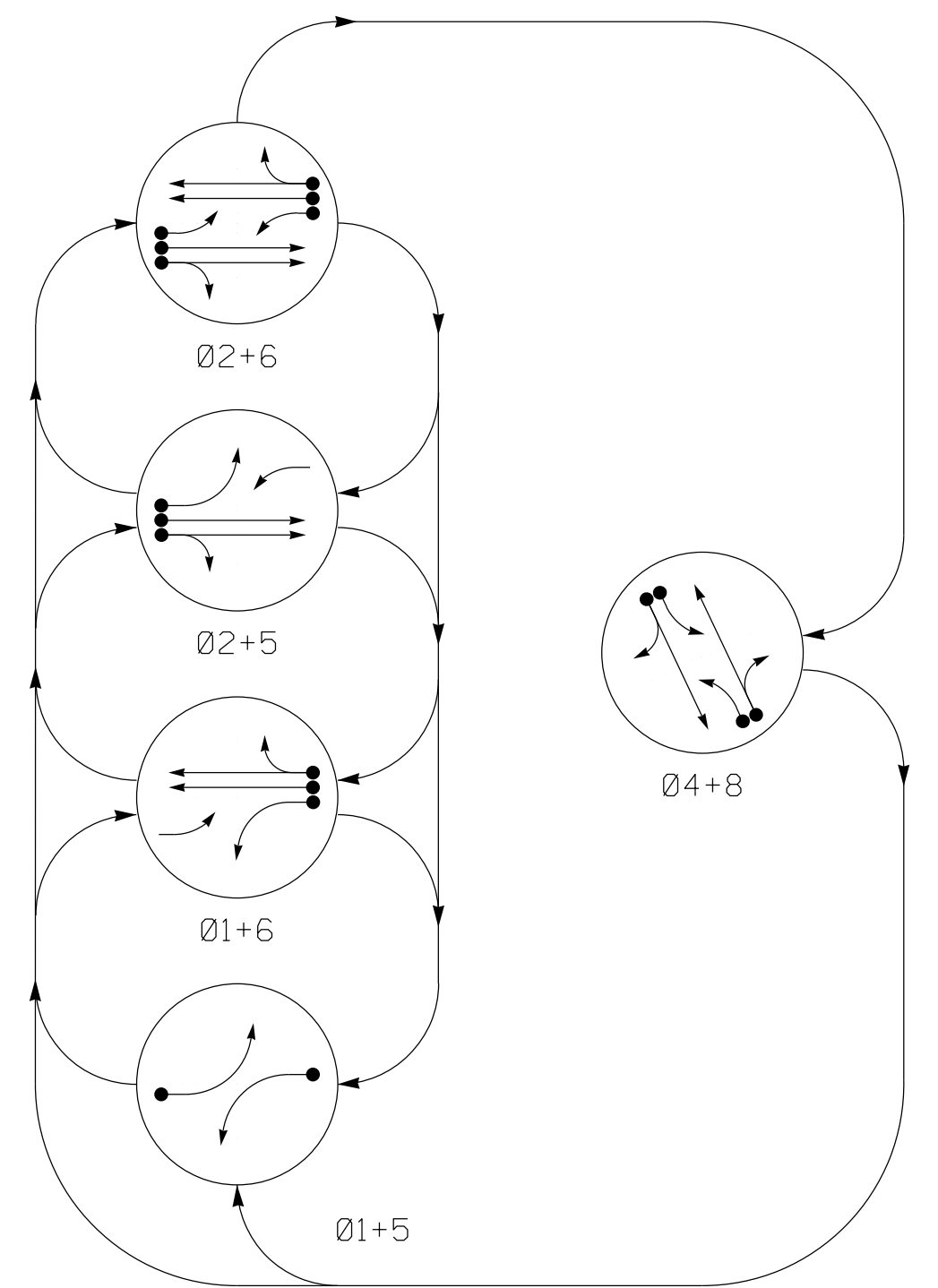
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	<b>US 17 (S. Hughes Blvd.)</b> at <b>NC 344 (Halstead Blvd./</b> <b>Halstead Blvd. Ext.)</b>		
	Division 1 Pasquotank County Elizabeth City PLAN DATE: March 2018 REVIEWED BY: AJ Davis PREPARED BY: DJ White REVIEWED BY: LM Moon		
REVISIONS _____ INIT. DATE		DocuSigned by:  9/20/2018 DATE: _____ SIG. INVENTORY NO. 01-0015	

20-SEP-2018 18:49  
 R:\415942\45\001\4\KES\gnw\1\mg01-0015-20180821.e.dgn  
 Incon AT CAR-LMCDN1-W7



**PHASING DIAGRAM**

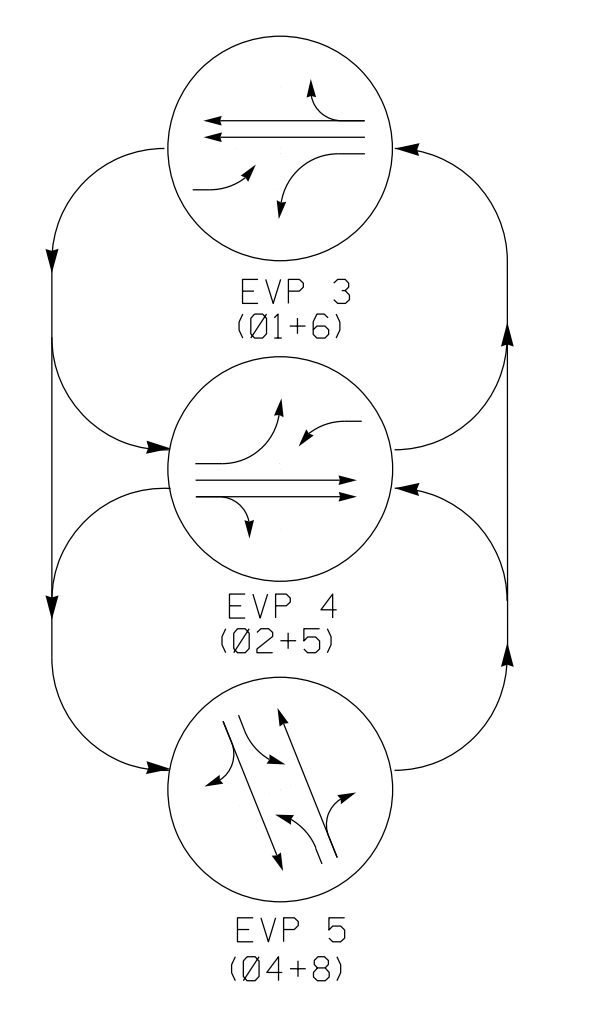


**PHASING DIAGRAM DETECTION LEGEND**

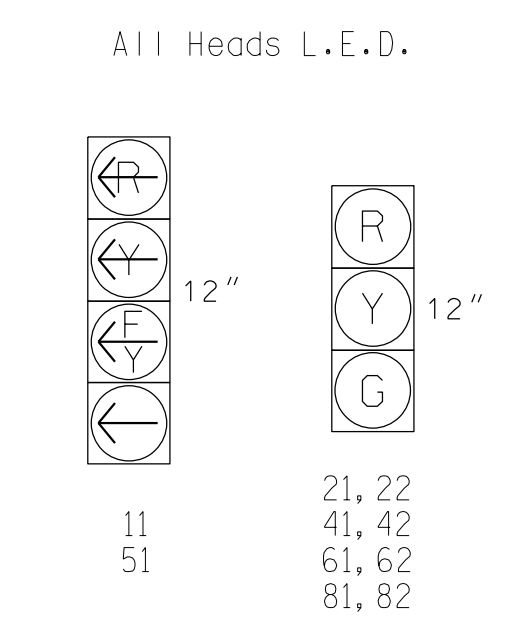
- DETECTED MOVEMENT
- ◄ UNDETECTED MOVEMENT (OVERLAP)
- ◄ UNSIGNALIZED MOVEMENT
- ◄ PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE							
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4+8	EVP 3	EVP 4	EVP 5
11	←	←	←	←	←	←	←	←
21, 22	R	R	G	G	R	R	G	R
41, 42	R	R	R	R	G	R	R	G
51	←	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	G	R	R
81, 82	R	R	R	R	G	R	R	R

**EV PREEMPT PHASES**



**SIGNAL FACE I.D.**

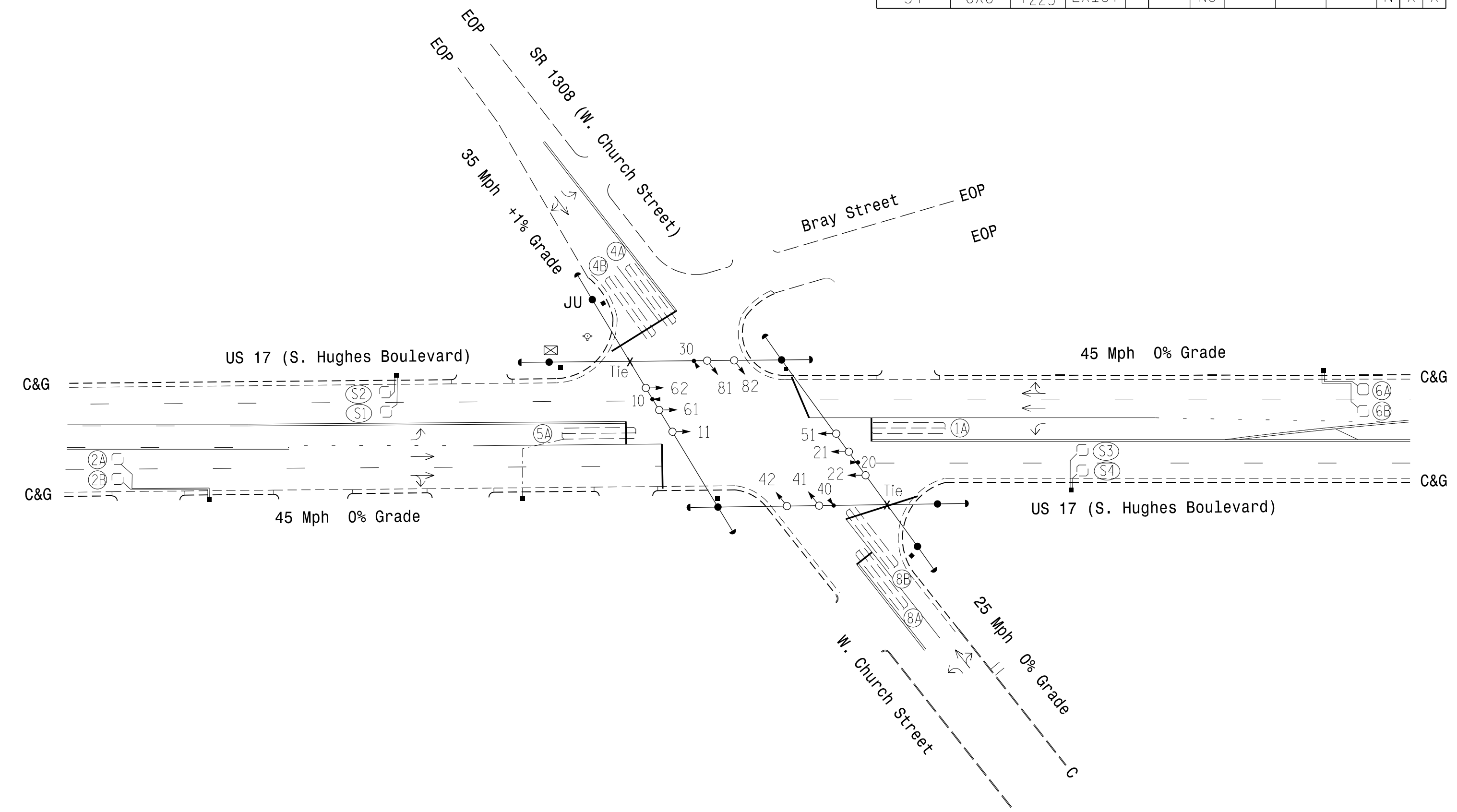


ASC/3 DETECTOR INSTALLATION CHART											
DETECTOR					PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP NEW CARD
1A	6X40	0	2-4-2	-	1	Yes	-	15	-	S	- X
2A	6X6	300	EXIST	-	2	Yes	-	-	X	N	- X
2B	6X6	300	EXIST	-	2	Yes	-	-	X	N	- X
4A	6X40	+5	2-4-2	-	4	Yes	-	3	-	S	- X
4B	6X40	+5	2-4-2	-	4	Yes	-	10	-	S	- X
5A	6X40	+5	2-4-2	-	5	Yes	-	15	-	S	- X
6A	6X6	300	5	X	6	Yes	-	-	X	N	- X
6B	6X6	300	EXIST	-	6	Yes	-	-	X	N	- X
8A	6X40	+5	2-4-2	-	8	Yes	-	-	-	S	- X
8B	6X40	+5	2-4-2	-	8	Yes	-	10	-	S	- X
S1	6X6	+225	EXIST	-	-	No	-	-	-	N	X X
S2	6X6	+225	EXIST	-	-	No	-	-	-	N	X X
S3	6X6	+225	EXIST	-	-	No	-	-	-	N	X X
S4	6X6	+225	EXIST	-	-	No	-	-	-	N	X X

**5 Phase Fully Actuated w/ EV Preemption (Elizabeth City Signal System)**

**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.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red
- Pavement markings are existing.
- This intersection features an optical preemption system. Shown location of optical detectors are conceptual only.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Relocate existing optical detection equipment from existing cabinet to new cabinet.
- Optical detector 10 calls EVP 3; Optical detector 20 calls EVP 4; Optical detector 30 calls EVP 5; Optical detector 40 calls EVP 6.
- Raise spans to obtain 17' minimum clearance for signal head heights.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede this values.



**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	0	0
Ped Clear	0	0	0	0	0	0
Veh. Extension *	2.0	6.0	2.0	2.0	6.0	2.0
Max 1 *	30	90	30	30	90	30
Yellow	3.0	4.5	3.8	3.0	4.5	3.2
Red Clear	2.8	1.6	2.2	3.1	1.6	3.2
Actions B4 Add *	-	0	-	-	0	-
Seconds/Actuation *	-	1.5	-	-	1.5	-
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	-	-	X	-	-	X
Simultaneous Gap	X	X	X	X	X	X

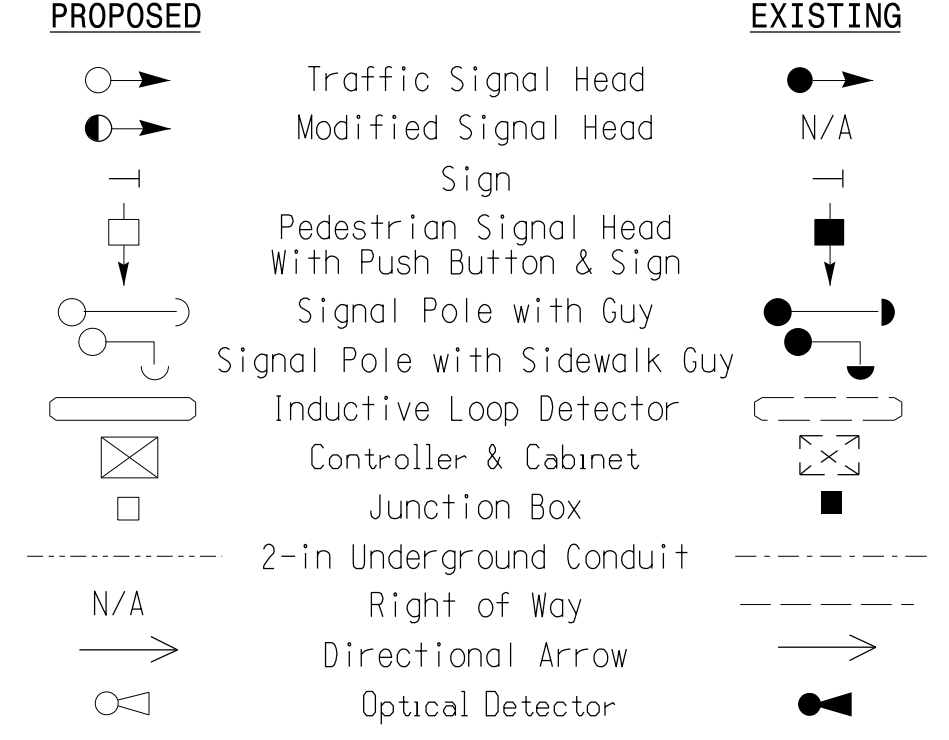
\* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

**ASC/3 EV PREEMPT**

FUNCTION	PRE 3	PRE 4	PRE 5
Exit Phase(s)	2,6	2,6	2,6
Preempt Override	OFF	OFF	OFF
Delay Time	0	0	0
Ped Clear Through Yellow	N	N	N
Terminate Phases	N	N	N
Entrance Walk	255*	255*	255*
Entrance Ped Clear	255*	255*	255*
Entrance Min Green	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*
Minimum Dwell Time	7	7	7
Preempt Input Extension Time	2	2	2
Preempt Max Time	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*

\* Allows normal phase times to be used.

**LEGEND**



**Signal Upgrade**

Prepared for the Offices of:  
 Transportation, Mobility and Signal Division  
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 SIGNAL DESIGN SECTION

US 17 (S. Hughes Blvd.) at SR 1308 (W. Church St.)

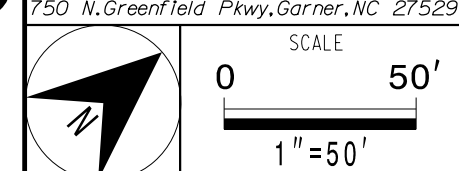
Divison 1 Pasquotank County Elizabeth City  
 PLAN DATE: February 2018 REVIEWED BY: AJ Davis  
 PREPARED BY: JA Le REVIEWED BY: LM Moon

REVISIONS: INIT. DATE

Seal: LISA M. MOON, ENGINEER, No. 022516

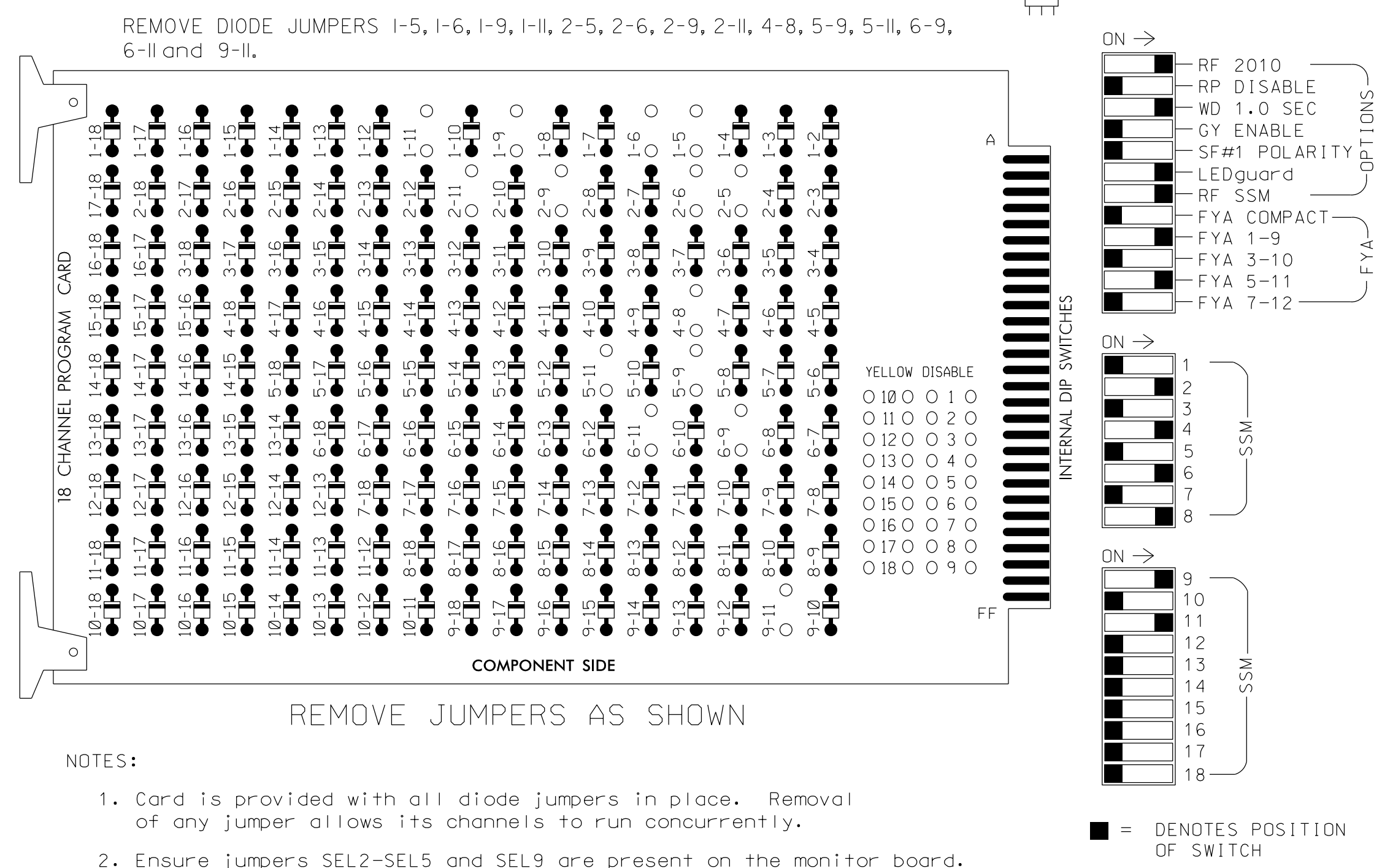
8/21/2018

SIG. INVENTORY NO. 01-0016



### 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 the Elizabeth City Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070LX  
 CABINET.....332 W/AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,S5,S7,S8,S11,AUX S1,  
 AUX S4  
 PHASES USED.....1,2,4,5,6,8  
 OVERLAP "A".....\*  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....\*  
 OVERLAP "D".....NOT USED

\* See overlap programming detail on sheet 2

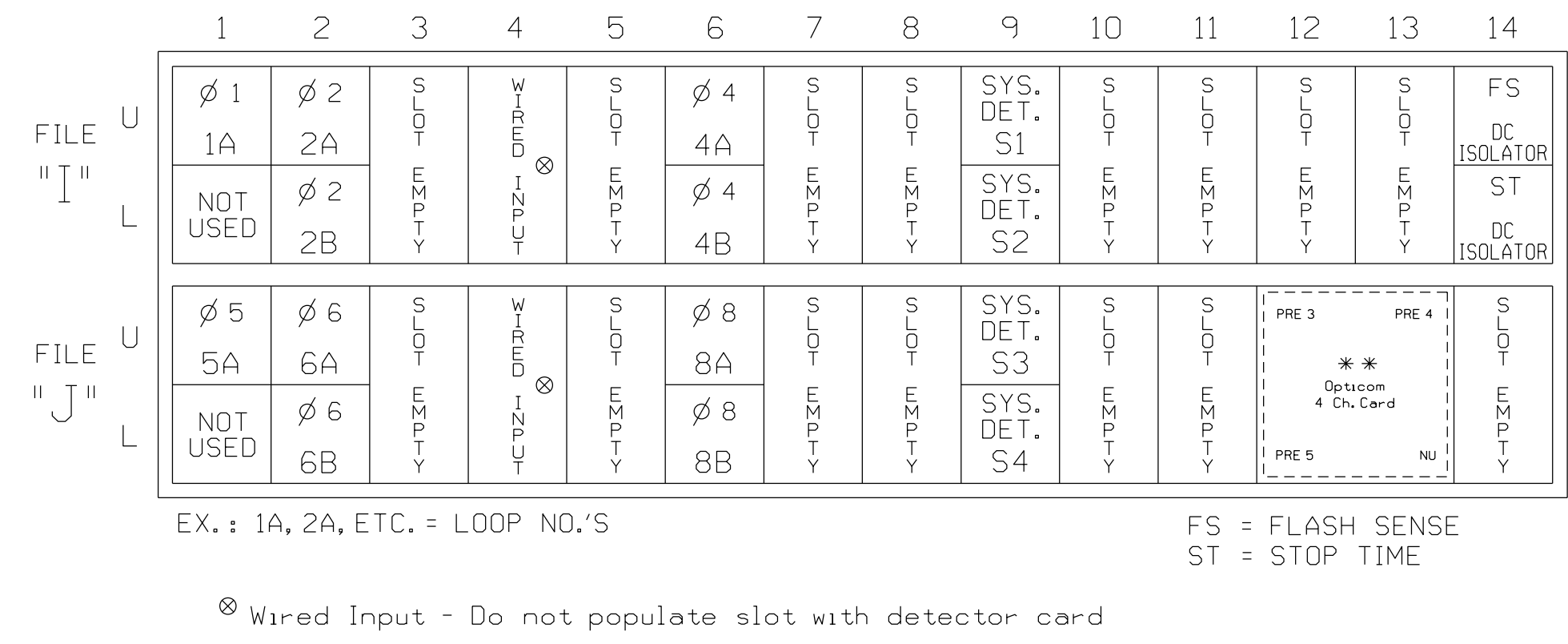
### SIGNAL HEAD HOOK-UP CHART

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
CNU 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	41,42	NU	51*	61,62	NU	NU	81,82	NU	11*	NU	NU	51*	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121				A114	
YELLOW ARROW													A122				A115	
FLASHING YELLOW ARROW													A123				A116	
GREEN ARROW	127																	

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)



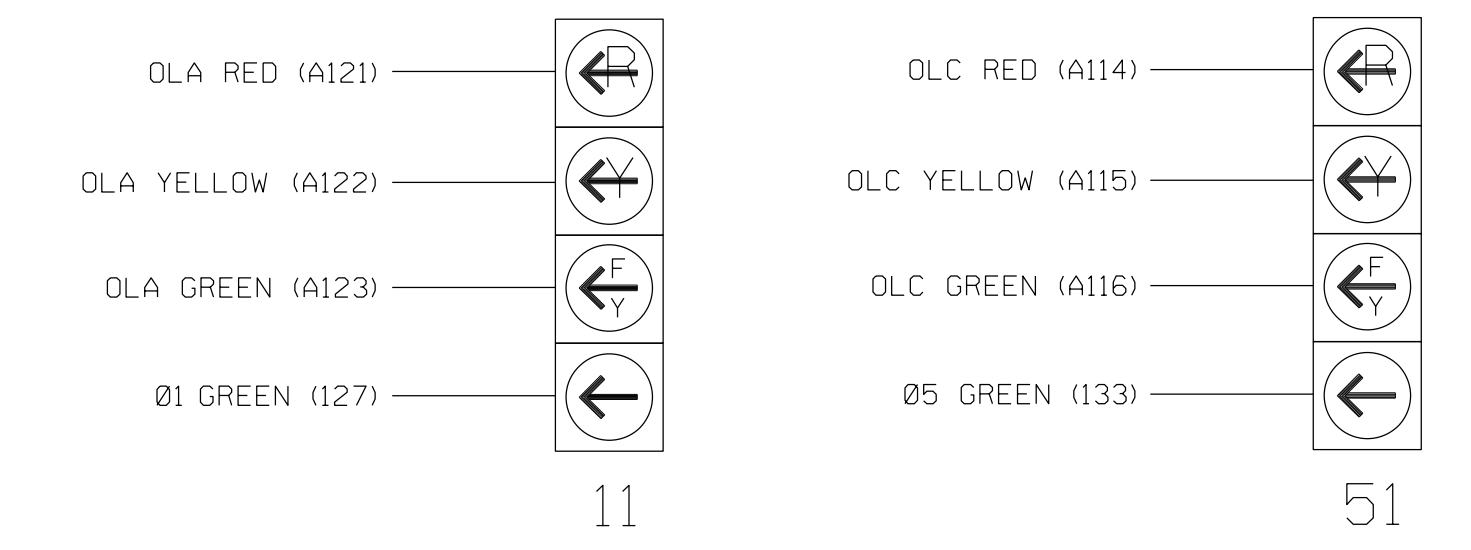
### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A <sup>1</sup>	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES		3		S
	2A	TB2-5,6	I2U	39	2	YES			X	S
	2B	TB2-7,8	I2L	43	12	2	YES		X	S
4A	TB4-9,10	I6U	41	4	4	YES		3		S
	4B	TB4-11,12	I6L	45	14	4	YES	10		S
	* S1	TB6-9,10	I9U	60	11	SYS	NO			N
	* S2	TB6-11,12	I9L	62	13	SYS	NO			N
5A <sup>2</sup>	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES		3		S
	6A	TB3-5,6	J2U	40	6	6	YES		X	S
	6B	TB3-7,8	J2L	44	16	6	YES		X	S
8A	TB5-9,10	J6U	42	8	8	YES				S
	8B	TB5-11,12	J6L	46	18	8	YES	10		S
	* S3	TB7-9,10	J9U	59	15	SYS	NO			N
	* S4	TB7-11,12	J9L	61	17	SYS	NO			N

- 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.
- \* System detector only. Remove any assigned vehicle phase.

### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

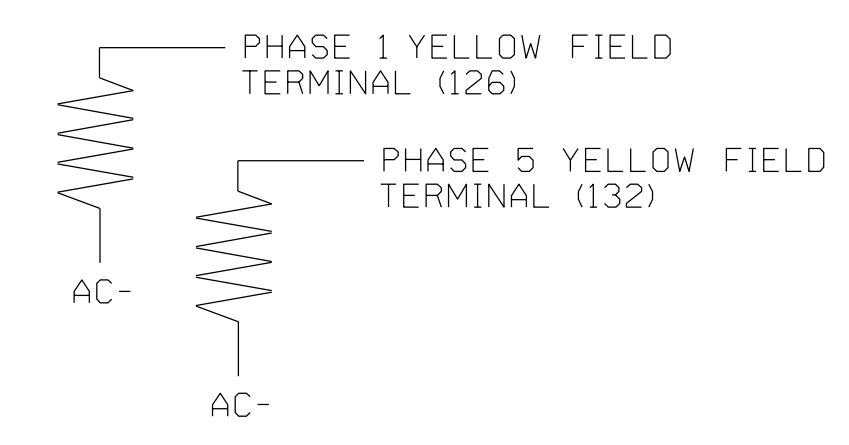


NOTE: See overlap programming instructions on sheet 2 of 3

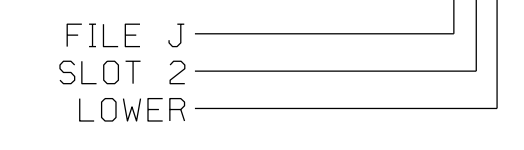
### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

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



### INPUT FILE POSITION LEGEND: J2L



### \*\*OPTICAL PREEMPTION SYSTEM

- Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
- Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.



Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: 	US 17 (S. Hughes Blvd.) at SR 1308 (W. Church St.)		SEAL 
	Divison 1 Pasquotank County Elizabeth City	February 2018	
PREPARED BY: DJ White	REVISIONS	REVIEWED BY: LM Moon	DATE
750 N. Greenfield Pkwy, Garner, NC 27529	INVENTORY NO. 01-0016	9/20/2018	DATE

## ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```

PREEMPT PLAN [ 3]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
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

```

PREEMPT PLAN [ 4]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
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

```

PREEMPT PLAN [ 5]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . . X . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
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

## 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 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: 01-0016  
DESIGNED: FEBRUARY 2018  
SEALED: 08/21/2018  
REVISED: N/A

Electrical Detail - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:



Plans Prepared By:

DRMP, Inc.  
8000 Regency Parkway, Suite 175  
Cary, NC 27519  
NC License No. C-2215 (019) 650-1038

750 N. Greenfield Pkwy, Garner, NC 27529

US 17 (S. Huhges Blvd.) at SR 1308 (W. Church St.)	
Divison 1	Pasquotank County Elizabeth City
PLAN DATE: February 2018	REVIEWED BY: AJ Davis
PREPARED BY: DJ White	REVIEWED BY: LM Moon
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by:  
*Lisa M. Moon* 9/20/2018  
SIC688030421 DATE  
SIC. INVENTORY NO. 01-0016

## ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

*(program controller as shown)*

1. From Main Menu select 4. PREEMPTOR/TSP

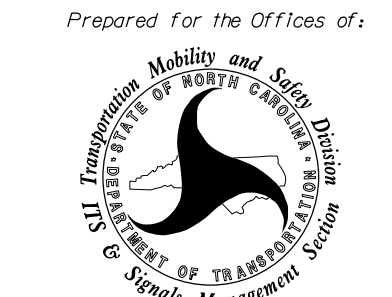
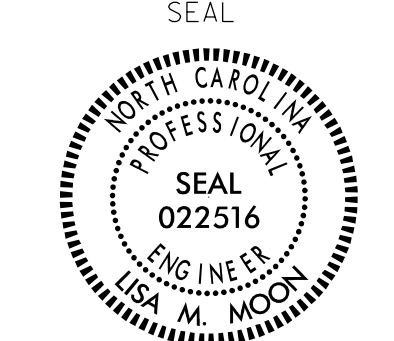
2. From PREEMPT/TSP/SCP Submenu  
select 2. ENABLE PREEMPT FILTERING & TSP/SCP

```

ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED      SOLID      PULSING
INPUT  1  ...BYPASSED...  ...BYPASSED..
        2  ...BYPASSED...  ...BYPASSED..
        3  ..PREEMPT  3.  ...BYPASSED..
        4  ..PREEMPT  4.  ...BYPASSED..
        5  ..PREEMPT  5.  ...BYPASSED..
        6  ...BYPASSED...  ...BYPASSED..
        7  ...BYPASSED...  ...BYPASSED..
        8  ...BYPASSED...  ...BYPASSED..
        9  ...BYPASSED...  ...BYPASSED..
       10 ...BYPASSED...  ...BYPASSED..
  
```

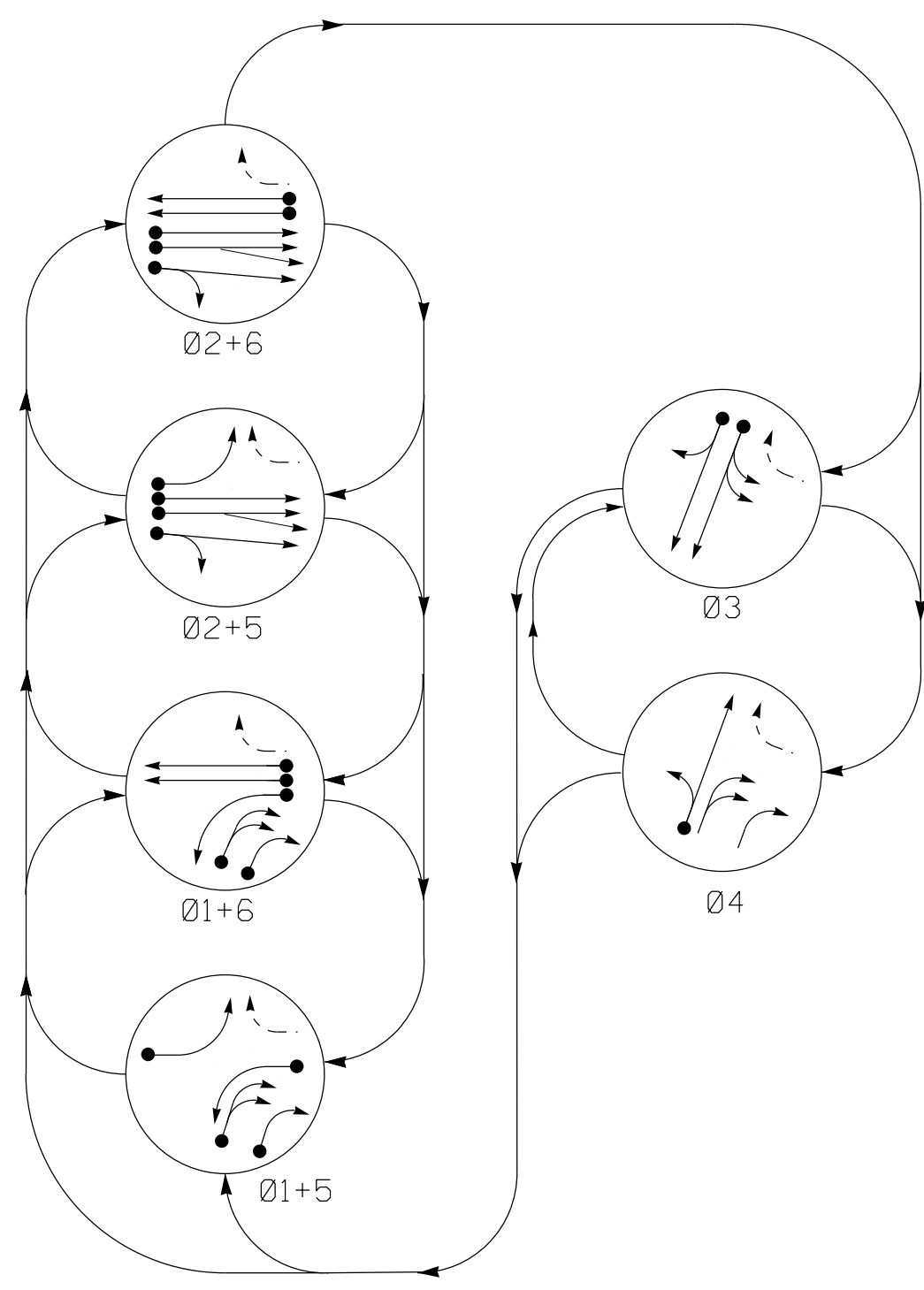
THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 01-0016  
DESIGNED: FEBRUARY 2018  
SEALED: 08/21/2018  
REVISED: N/A



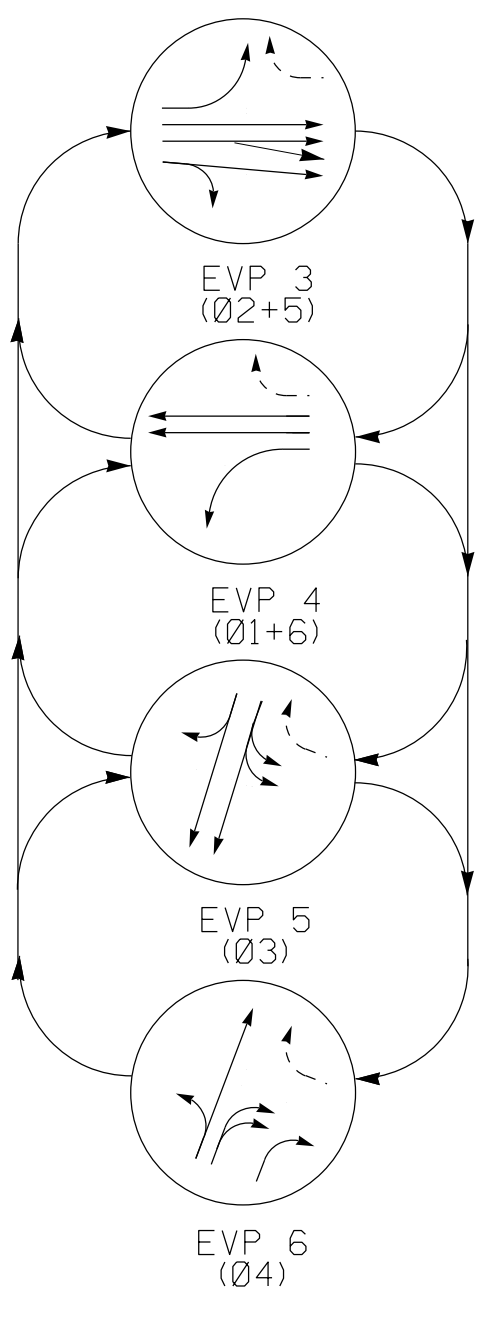
Electrical Detail - Sheet 3 of 3		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED													
<p style="font-size: 8px; text-align: center;">ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="font-size: 8px; text-align: center;">Prepared for the Offices of:</p>  <p style="font-size: 8px; text-align: center;">750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p style="font-size: 12px; font-weight: bold;">US 17 (S. Hughes Blvd.) at SR 1308 (W. Church St.)</p> <p style="font-size: 8px;">Divison 1 Pasquotank County Elizabeth City</p> <table style="width: 100%; font-size: 8px;"> <tr> <td>PLAN DATE: February 2018</td> <td>REVIEWED BY: AJ Davis</td> </tr> <tr> <td>PREPARED BY: DJ White</td> <td>REVIEWED BY: LM Moon</td> </tr> </table> <table style="width: 100%; font-size: 8px;"> <tr> <th style="width: 50%;">REVISIONS</th> <th style="width: 25%;">INIT.</th> <th style="width: 25%;">DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	PLAN DATE: February 2018	REVIEWED BY: AJ Davis	PREPARED BY: DJ White	REVIEWED BY: LM Moon	REVISIONS	INIT.	DATE							<p style="font-size: 8px;">SEAL</p>  <p style="font-size: 8px;">DocuSigned by: <i>Lisa M. Moon</i> 9/20/2018 SIC. INVENTORY NO. 01-0016</p>
PLAN DATE: February 2018	REVIEWED BY: AJ Davis														
PREPARED BY: DJ White	REVIEWED BY: LM Moon														
REVISIONS	INIT.	DATE													

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 lmoon AT CAR-LMCDM-W7

**PHASING DIAGRAM**



**EV PREEMPT PHASES**



**TABLE OF OPERATION**

SIGNAL FACE	PHASE										
	01+5	01+6	02+5	02+6	03	04	EVP 3	EVP 4	EVP 5	EVP 6	F LASH
11	←	←	←	←	←	←	←	←	←	←	←
12, 13	←	←	←	←	←	←	←	←	←	←	←
21, 22, 23	R	R	G	R	R	R	R	R	R	R	Y
31	R	R	R	R	G	R	R	R	G	R	R
32	R	R	R	R	G	R	R	R	G	R	R
41	R	R	R	R	G	R	R	R	G	R	R
42	R	R	R	R	G	R	R	R	G	R	R
51	←	←	←	←	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	R	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	TYPE	LOOP	NEW CARD	
1A	6X60	+5	2-4-2	-	1	Yes	-	-	-	-	S	-	X
1B	6X60	+5	2-4-2	-	1	Yes	-	15	-	-	S	-	X
1C	6X60	+5	2-4-2	-	1	Yes	-	-	-	-	S	-	X
2A/S1	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X	X
2B/S2	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X	X
2C/S3	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X	X
3A	6X60	+5	2-4-2	-	3/10	Yes	-	-	-	-	S	-	X
3B	6X60	+5	2-4-2	-	3/10	Yes	-	10	-	-	S	-	X
4A	6X60	+5	2-4-2	-	4	Yes	-	-	-	-	S	-	X
5A	6X60	+5	2-4-2	-	5	Yes	-	3	-	-	S	-	X
6A/S4	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	X	X
6B/S5	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	X	X

**6 Phase Fully Actuated w/ EV Preemption (Elizabeth City Signal System)**

**NOTES**

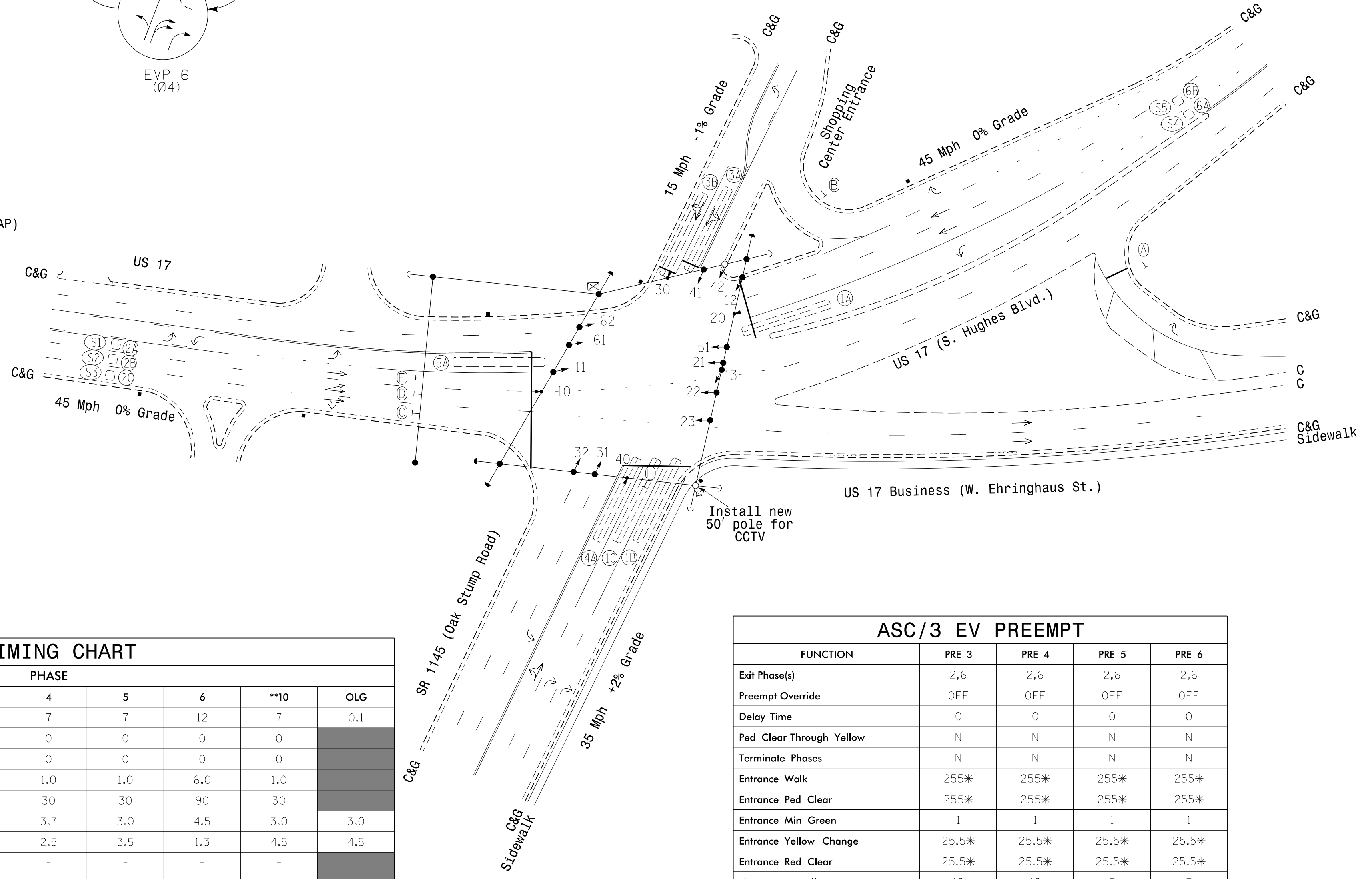
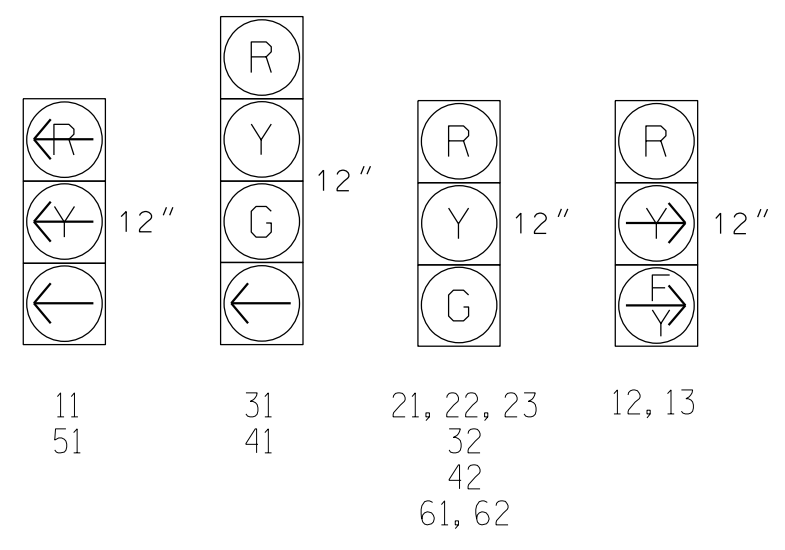
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Maintain backplates for signal heads 11 and 13.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- Relocate emergency vehicle preemption equipment from existing cabinet to new cabinet
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 10 calls EVP 3; Optical detector 20 calls EVP 4; Optical detector 30 calls EVP 5; Optical detector 40 calls EVP 6.
- 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.



**LEGEND**

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

**ASC/3 TIMING CHART**

FEATURE	PHASE						**10	OLG
	1	2	3	4	5	6		
Min Green *	7	12	7	7	7	12	7	0.1
Walk *	0	0	0	0	0	0	0	
Ped Clear	0	0	0	0	0	0	0	
Veh. Extension *	1.0	6.0	1.0	1.0	1.0	6.0	1.0	
Max 1 *	30	90	30	30	30	90	30	
Yellow	3.0	4.5	3.0	3.7	3.0	4.5	3.0	3.0
Red Clear	3.5	2.0	4.5	2.5	3.5	1.3	4.5	4.5
Actuations B4 Add *	-	-	-	-	-	-	-	
Seconds / Actuation *	-	1.5	-	-	-	1.5	-	
Max Initial *	-	34	-	-	-	34	-	
Time Before Reduction *	-	15	-	-	-	15	-	
Time To Reduce *	-	30	-	-	-	30	-	
Minimum Gap	-	3.0	-	-	-	3.0	-	
Locking Detector	-	X	-	-	-	X	-	
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	
Dual Entry	-	-	-	-	-	-	-	
Simultaneous Gap	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.  
 \*\* Phase used for timing purposes only.

**ASC/3 EV PREEMPT**

FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Exit Phase(s)	2,6	2,6	2,6	2,6
Preempt Override	OFF	OFF	OFF	OFF
Delay Time	0	0	0	0
Ped Clear Through Yellow	N	N	N	N
Terminate Phases	N	N	N	N
Entrance Walk	255*	255*	255*	255*
Entrance Ped Clear	255*	255*	255*	255*
Entrance Min Green	1	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7	7
Preempt Input Extension Time	2	2	2	2
Preempt Max Time	120	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*	25.5*

\* Allows normal phase times to be used.

**Signal Upgrade**

Prepared for the Offices of:  
  
 DRMP, Inc.  
 8000 Regency Parkway, Suite 175  
 Cary, NC 27518  
 NC License No. LC-2213 (919) 650-1038

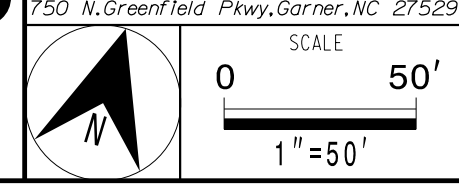
US 17 (S. Hughes Blvd.) at US 17 Bus. (W. Ehringhaus St.) / SR 1145 (Oak Stump Rd.) / Shopping Center Entrance  
 Division 1 Pasquotank County Elizabeth City  
 PLAN DATE: June 2018 REVIEWED BY: AJ Davis  
 PREPARED BY: JA Le REVIEWED BY: LM Moon

REVISIONS: \_\_\_\_\_ INIT. DATE: \_\_\_\_\_

Seal: J. M. Moon, Professional Engineer, License No. 022516

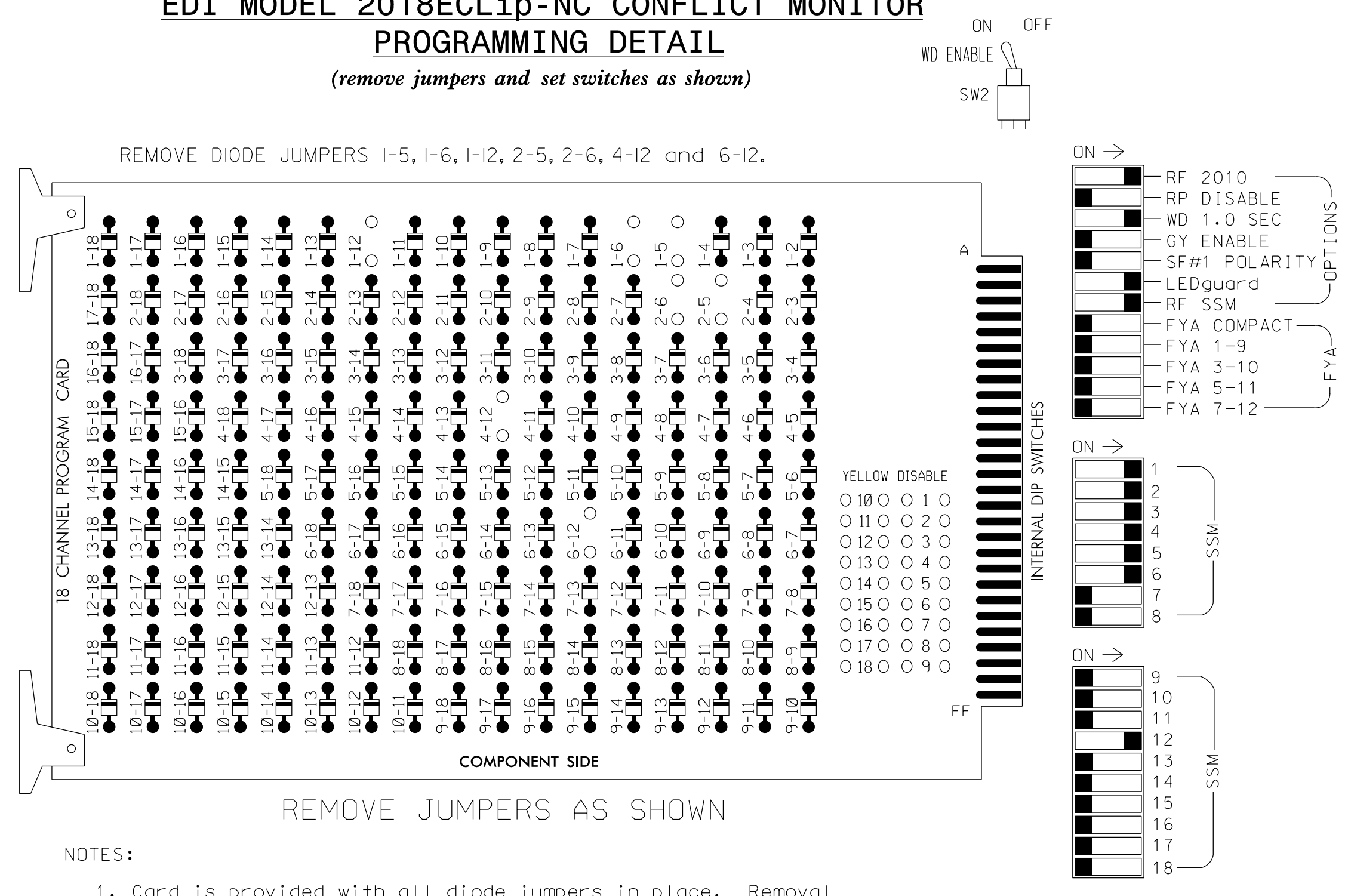
Documented by: J. M. Moon DATE: 9/24/2018  
 SIG. INVENTORY NO. 01-0019

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



### 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 the Elizabeth City Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070LX  
 CABINET.....332 W/AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,AUX S5  
 PHASES USED.....1,2,3,4,5,6,\*\*10  
 OVERLAP "A".....NOT USED  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....NOT USED  
 OVERLAP "D".....\*  
 OVERLAP "G".....\*  
 \* See overlap programming detail on sheet 2.  
 \*\* Phase used for timing purposes 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	DLG	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	DLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22,23	NU	31	32	41	42	NU	51	61,62	NU	NU	NU	NU	NU	NU	12,13	NU
RED		128		116	116	101	101			134								
YELLOW		129		117	117	102	102			135								
GREEN		130		118	118	103	103			136								
RED ARROW	125								131									A101
YELLOW ARROW	126								132									A102
FLASHING YELLOW ARROW																		A103
GREEN ARROW	127			118		103		133										

NU = Not Used

### INPUT FILE POSITION LAYOUT

(front view)

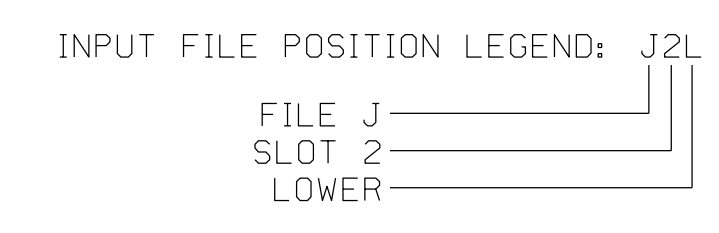
FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	∅ 1 1A	∅ 1 1B	∅ 2/SYS 2A/S1	∅ 2/SYS 2C/S3	∅ 3 3A	∅ 3 3B	∅ 4 4A	-O/S	-O/S	-O/S	-O/S	-O/S	-O/S	FS DC ISOLATOR
L	NOT USED	∅ 1 1C	∅ 2/SYS 2B/S2	NOT USED	NOT USED	NOT USED	NOT USED	←-O/S	←-O/S	←-O/S	←-O/S	←-O/S	←-O/S	DC ISOLATOR
U	∅ 5 5A	∅ 6/SYS 6A/S4	-O/S	-O/S	-O/S	-O/S	-O/S	-O/S	-O/S	-O/S	-O/S	PRE 3	PRE 4	-O/S
L	NOT USED	∅ 6/SYS 6B/S5	←-O/S	←-O/S	←-O/S	←-O/S	←-O/S	←-O/S	←-O/S	←-O/S	←-O/S	PRE 5	PRE 6	←-O/S

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

FS = FLASH SENSE  
 ST = STOP TIME  
 PRE = PREEMPT

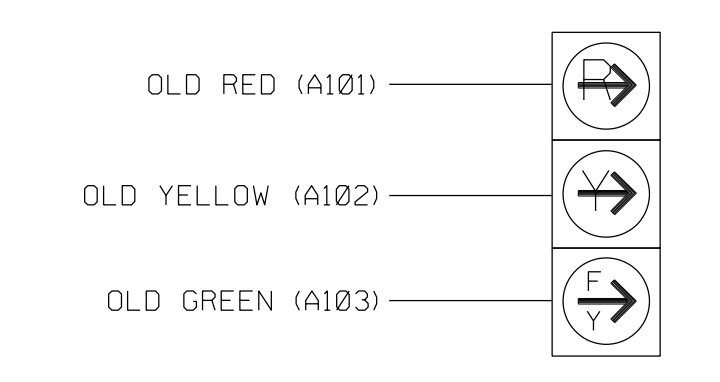
### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES				S
1B	TB2-5,6	I2U	39	2	1	YES		15		S
1C	TB2-7,8	I2L	43	12	1	YES				S
2A/S1	TB2-9,10	I3U	63	32	2/SYS	YES			X	N
2B/S2	TB2-11,12	I3L	76	42	2/SYS	YES			X	N
2C/S3	TB4-1,2	I4U	47	22	2/SYS	YES			X	N
3A	TB4-5,6	I5U	58	3	3/10	YES				S
3B	TB4-9,10	I6U	41	4	3/10	YES		10		S
4A	TB6-1,2	I7U	65	34	4	YES				S
5A	TB3-1,2	J1U	55	5	5	YES		3		S
6A/S4	TB3-5,6	J2U	40	6	6/SYS	YES			X	N
6B/S5	TB3-7,8	J2L	44	16	6/SYS	YES			X	N



### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



12,13

### \*\* OPTICAL PREEMPTION SYSTEM

- Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
- Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

Electrical Detail - Sheet 1 of 4

Electrical and Programming Details For:

US 17 (S. Hughes Blvd.) at US 17 Bus. (W. Ehringhaus St.) / SR 1145 (Oak Stump Rd.) / Shopping Center Entrance

Division 1 Pasquotank County Elizabeth City

PLAN DATE: June 2018 REVIEWED BY: AJ Davis

PREPARED BY: JA Le REVIEWED BY: LM Moon

DRMP Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27518 NC License No. C-2213 (919) 650-1038

DocuSigned by: Lisa M. Moon 9/24/2018

SIG. INVENTORY NO. 01-0019

24-SEP-2018 10:19 R:\45942\51\001\DWG\18\001-0019-08232018a.dgn AT CAR-PLAN-DWG-W7

**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	- 1 2 3 4 10 . . . . .			
R2	- 5 6 . . . . .			
R3	- . . . . .			
R4	- . . . . .			

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

**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 D

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

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

TOGGLE 3x

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 0.1 YEL 3.0 RED 4.5		

END PROGRAMMING

**ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL**

(program controller as shown)

- 1. From Main Menu select **6. DETECTORS**
- 2. From DETECTOR Submenu select **2. VEHICLE DETECTOR SETUP**

VEH DETECTOR [ 3 ] VEH DET PLAN [ 1 ]

TYPE: S-STANDARD

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

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

3 3 . . X . . . . . X . . . . .

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

USE ADDED INITIAL . CROSS SWITCH PH.. 0

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

PMT QUEUE DELAY. NO

VEH DETECTOR [ 4 ] VEH DET PLAN [ 1 ]

TYPE: S-STANDARD

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

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

4 3 . . X . . . . . X . . . . .

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

USE ADDED INITIAL . CROSS SWITCH PH.. 0

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

PMT QUEUE DELAY. NO

END PROGRAMMING

**ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL**

(program controller as shown)

To assign load switch S4 as OLE, program LD SWITCH 3 as OVLP '5' TYPE 'O' as shown below.

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

LD SWITCH ASSIGN

	PHASE /OVLP	DIMMING TYPE	---FLASH---
		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	4	V . . . + 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	R X
10	2	O . . . + A	R X
11	3	O . . . - A	R .
12	4	O . . . - A	R .
13	2	P . . . + A	. .
14	4	P . . . - A	. .
15	6	P . . . + A	. .
16	8	P . . . - A	. .

NOTICE OVLP 7 ASSIGNED TO LD SWITCH 3 →

**ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL**

(program controller as shown)

- 1. From Main Menu select **4. PREEMPTOR/TSP**
- 2. From PREEMPT/TSP/SCP Submenu select **2. ENABLE PREEMPT FILTERING & TSP/SCP**

ENABLE PREEMPT FILTERING & TSP/SCP


INPUT	FILTERED	SOLID	PULSING
1	...BYPASSED...	...BYPASSED...	...BYPASSED...
2	...BYPASSED...	...BYPASSED...	...BYPASSED...
3	..PREEMPT 3.	...BYPASSED..	...BYPASSED..
4	..PREEMPT 4.	...BYPASSED..	...BYPASSED..
5	..PREEMPT 5.	...BYPASSED..	...BYPASSED..
6	..PREEMPT 6.	...BYPASSED..	...BYPASSED..
7	...BYPASSED...	...BYPASSED..	...BYPASSED..
8	...BYPASSED...	...BYPASSED..	...BYPASSED..
9	...BYPASSED...	...BYPASSED..	...BYPASSED..
10	...BYPASSED...	...BYPASSED..	...BYPASSED..

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0019  
DESIGNED: JUNE 2018  
SEALED: 09/24/2018  
REVISED: N/A


Electrical Detail - Sheet 2 of 4

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:



Plans Prepared By:




8000 Regency Parkway, Suite 175  
Cary, NC 27518  
NC License No. C-2213 (919) 650-1038

US 17 (S. Hughes Blvd.) at US 17 Bus. (W. Ehringhaus St.)/ SR 1145 (Oak Stump Rd.)/ Shopping Center Entrance	
Division 1 Pasquotank County Elizabeth City	
PLAN DATE: June 2018	REVIEWED BY: AJ Davis
PREPARED BY: JA Le	REVIEWED BY: LM Moon
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL



SEAL 022516  
ENGINEER  
LISA M. MOON

DocuSigned by:  
Lisa M. Moon 9/24/2018  
SIG. INVENTORY NO. 01-0019

24-SEP-2018 10:19  
R:\JIS\942\K5\001\K5\001\K5\001\19-08232018a.dgn  
C:\cawton AT CAR-PLAN\DW-W7

## ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL FOR SIDE STREET PHASING

*(program controller as shown)*

1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 8. LOGIC PROCESSOR
3. 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   VEH GREEN ON PH      3 IS ON

THEN LP SET LOGIC FLAG    1      ON

ELSE
    
```

PHASE 3 GREEN SETS  
LOGIC FLAG 1 ON  
(SIDE STREET BACKUP)

ENTER A "3" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```

LP#:  3 COPY FROM:  3 ACTIVE: M (T/F)
IF   VEH GREEN ON PH      2 IS ON

THEN LP SET LOGIC FLAG    1      OFF

ELSE
    
```

TURNS LOGIC FLAG 1  
OFF TO ALLOW NORMAL  
OPERATION

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

```

LP#:  2 COPY FROM:  2 ACTIVE: M (T/F)
IF   LP FLAG                1 IS ON

THEN CTR OMIT PHASE        10     ON

ELSE
    
```

OMIT PHASE 10 SO  
PHASE 3 MOVEMENTS  
RUN ONCE PER CYCLE

4. From LOGIC PROCESSOR Submenu select 1. LOGIC STATEMENT CONTROL

ENABLE LOGIC PROCESSOR STATEMENTS 1, 2 & 3 BY POSITIONING THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE THEM.

```

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

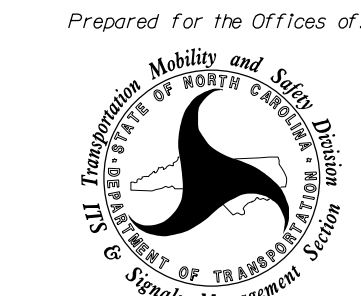
END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 01-0019  
DESIGNED: MARCH 2018  
SEALED: 09/24/2018  
REVISED: N/A


Electrical Detail - Sheet 3 of 4

**ELECTRICAL AND PROGRAMMING DETAILS FOR:**

Prepared for the Offices of:



Plans Prepared By:



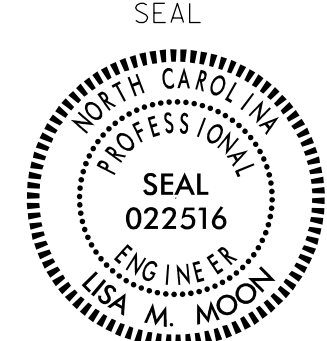
DRMP, Inc.  
8000 Regency Parkway, Suite 175  
Cary, NC 27518  
NC License No. LC-2215 (919) 650-1038

750 N. Greenfield Pkwy, Garner, NC 27529

US 17 (S. Hughes Blvd.) at US 17 Bus. (W. Ehringhaus St.)/ SR 1145 (Oak Stump Rd.)/ Shopping Center Entrance	
Division 1 Pasquotank County Elizabeth City	
PLAN DATE: March 2018	REVIEWED BY: AJ Davis
PREPARED BY: JA Le	REVIEWED BY: LM Moon
REVISIONS	INIT. DATE

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

SEAL



DocuSigned by:  
*Lisa M. Moon* 9/24/2018  
SIC68880300421 DATE  
SIG. INVENTORY NO. 01-0019



# ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 4. PREEMPTOR/TSP

2. From PREEMPTOR/TSP/SCP Submenu select 1. PREEMPT PLAN 1-10

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```

PREEMPT PLAN [ 3]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERRIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120125.5125.5
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

```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```

PREEMPT PLAN [ 4]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERRIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120125.5125.5
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

```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```

PREEMPT PLAN [ 5]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERRIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120125.5125.5
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

```

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```

PREEMPT PLAN [ 6]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERRIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120125.5125.5
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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0019  
DESIGNED: MARCH 2018  
SEALED: 09/24/2018  
REVISED: N/A

Electrical Detail - Sheet 4 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

PROFESSIONAL ENGINEER  
LISA M. MOON

DocuSigned by:  
Lisa M. Moon 9/24/2018

SIG. INVENTORY NO. 01-0019

Electrical AND PROGRAMMING DETAILS FOR:  
US 17 (S. Hughes Blvd.) at US 17 Bus. (W. Ehringhaus St.)/ SR 1145 (Oak Stump Rd.)/ Shopping Center Entrance

Division 1 Pasquotank County Elizabeth City

PLAN DATE: March 2018 REVIEWED BY: AJ Davis

PREPARED BY: JA Le REVIEWED BY: LM Moon

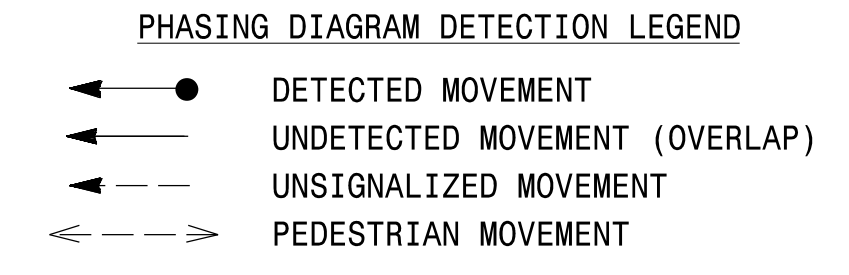
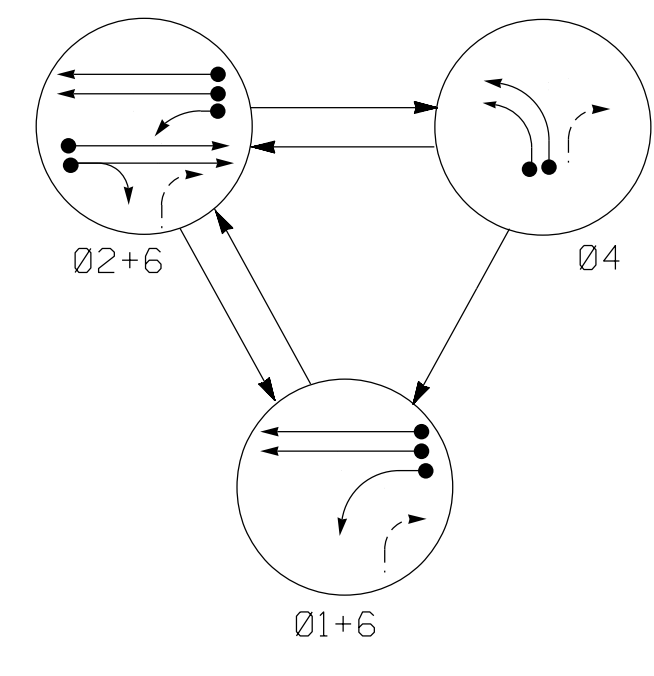
REVISIONS INIT. DATE

DRMP  
8000 Regency Parkway, Suite 175  
Cary, NC 27518  
NC License No. LC-2215 (919) 650-1038

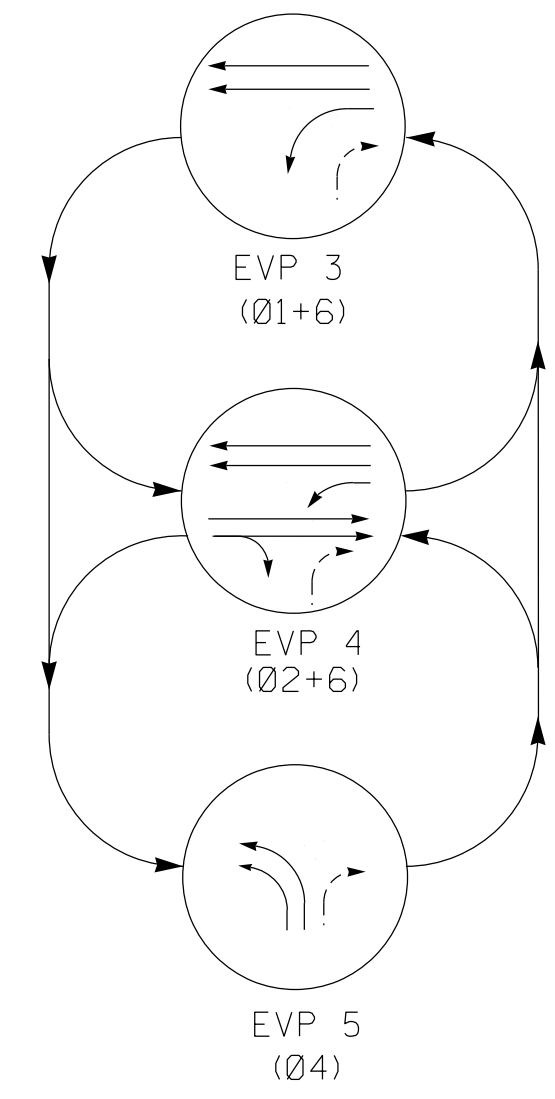
750 N. Greenfield Pkwy, Garner, NC 27529

24-SEP-2018 10:19 R:\415942\451\001\EMV\11\mg01-0019-08232018a.dgn  
C:\Users\AT\_CAB\Documents

**PHASING DIAGRAM**



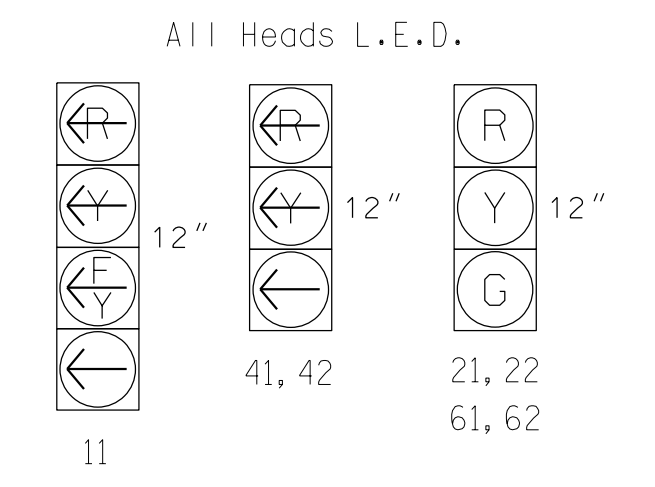
**EV PREEMPT PHASES**



**TABLE OF OPERATION**

SIGNAL FACE	PHASE							
	01+6	02+6	04	EVP 3	EVP 4	EVP 5	LEFT	RIGHT
11	←	←	←	←	←	←	←	←
21, 22	R	G	R	R	G	R	Y	
41, 42	←	←	←	←	←	←	←	←
61, 62	G	G	R	G	G	R	Y	

**SIGNAL FACE I.D.**



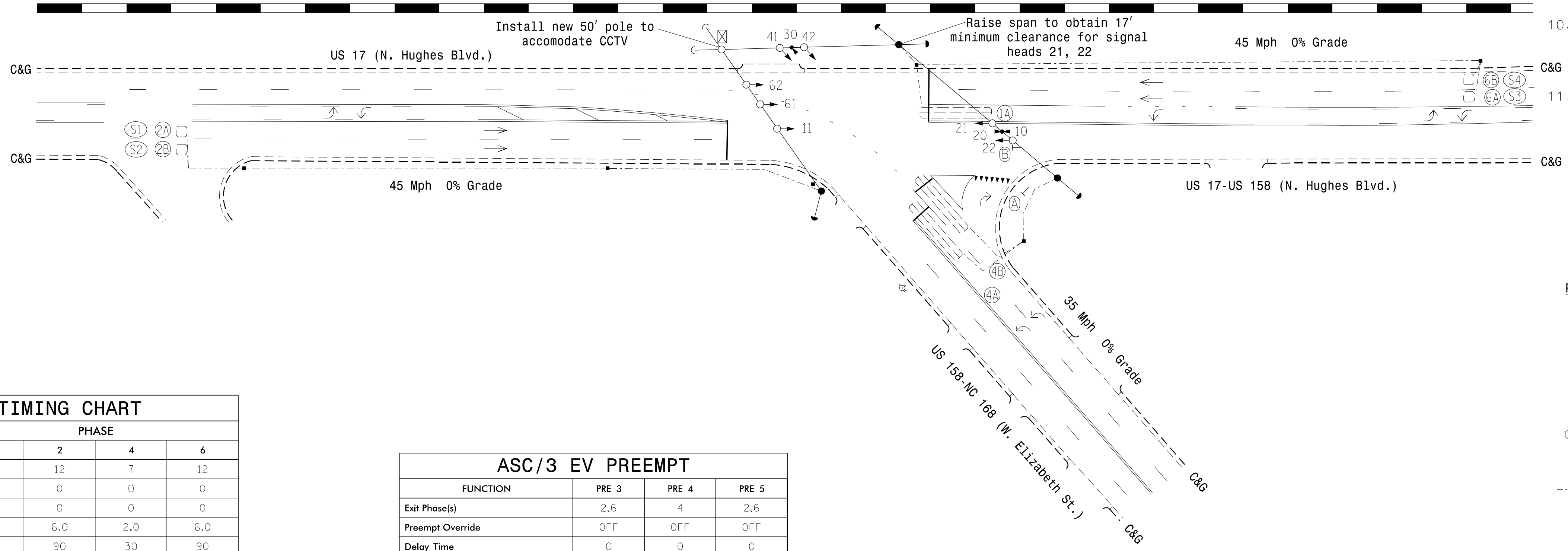
**ASC/3 DETECTOR INSTALLATION CHART**

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	LOOP	NEW CARD
1A	6X40	+5	2-4-2	-	1	Yes	-	15	-	S	-	X
					6	Yes	-	3	-	G	-	X
2A/S1	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X
2B/S2	6X6	300	EXIST	-	2	Yes	-	-	X	N	X	X
4A	6X40	+5	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X40	+5	2-4-2	-	4	Yes	-	-	-	S	-	X
6A/S3	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	X
6B/S4	6X6	300	EXIST	-	6	Yes	-	-	X	N	X	X

**3 Phase Fully Actuated w/ EV Preemption (Elizabeth City Signal System)**

**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.
- Set all detector units to presence mode.
- Phase 1 may be logged.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 10 calls EVP 3: Optical detector 20 calls EVP 4: Optical detector 30 calls EVP 5:
- Install new pole directly adjacent to existing pole and raise signal spans to obtain 17' minimum clearance for signal head heights.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Remove existing "Left Turn Yield on Green" ball sign(s)-(R10-12).



**ASC/3 TIMING CHART**

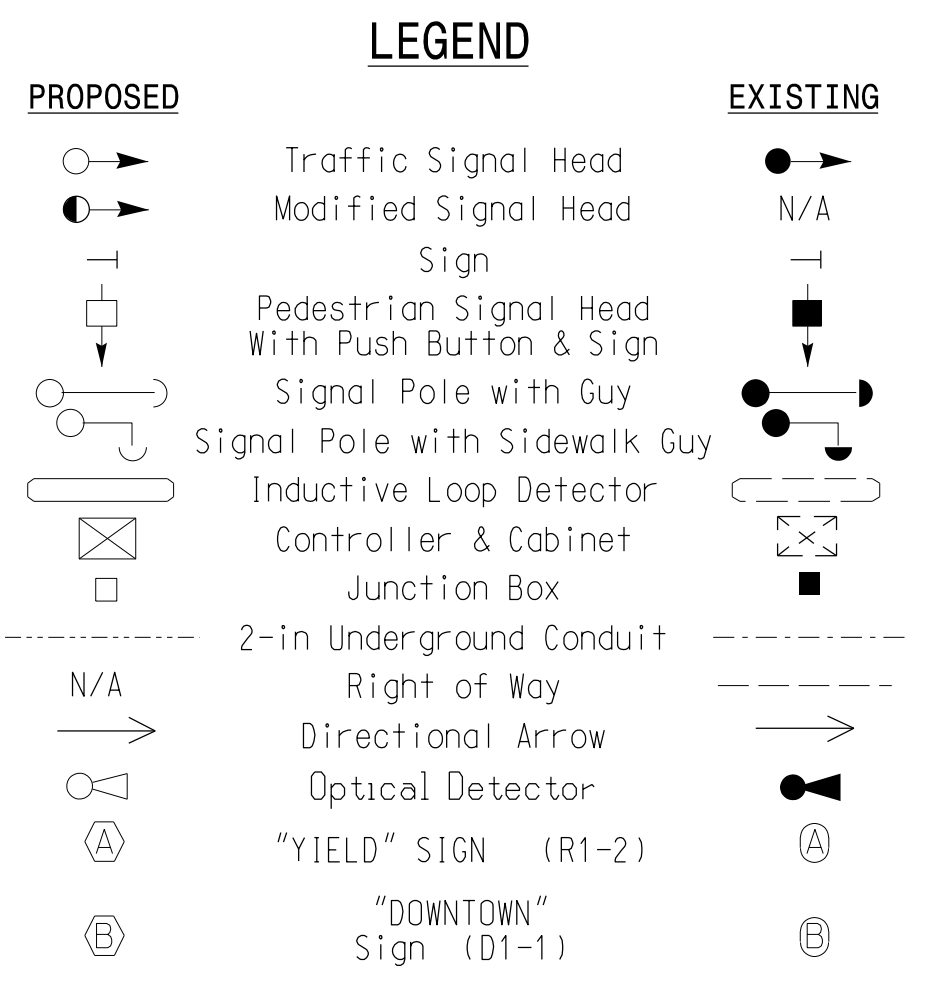
FEATURE	PHASE			
	1	2	4	6
Min Green *	7	12	7	12
Walk *	0	0	0	0
Ped Clear	0	0	0	0
Veh. Extension *	2.0	6.0	2.0	6.0
Max 1 *	30	90	30	90
Yellow	3.0	4.5	3.0	4.5
Red Clear	1.8	1.8	3.6	1.8
Actuations B4 Add *	-	0	-	0
Seconds /Actuation *	-	1.5	-	1.5
Max Initial *	-	34	-	34
Time Before Reduction *	-	15	-	15
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

\* 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 EV PREEMPT**

FUNCTION	PRE 3	PRE 4	PRE 5
Exit Phase(s)	2,6	4	2,6
Preempt Override	OFF	OFF	OFF
Delay Time	0	0	0
Ped Clear Through Yellow	N	N	N
Terminate Phases	N	N	N
Entrance Walk	255*	255*	255*
Entrance Ped Clear	255*	255*	255*
Entrance Min Green	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7
Preempt Input Extension Time	2	2	2
Preempt Max Time	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*

\* Allows normal phase times to be used.



**Signal Upgrade**

Prepared For the Offices of:

**US 17-US 158 (N. Hughes Blvd.) at US 158-NC 168 (W. Elizabeth St.)**

Division 1 Pasquotank County Elizabeth City

PLAN DATE: March 2018 REVIEWED BY: AJ Davis

PREPARED BY: JA Le REVIEWED BY: LM Moon

REVISIONS: INIT. DATE

SCALE: 0 40' 1"=40'

DRMP, Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27518 NC License No. C-2215 (919) 650-1038

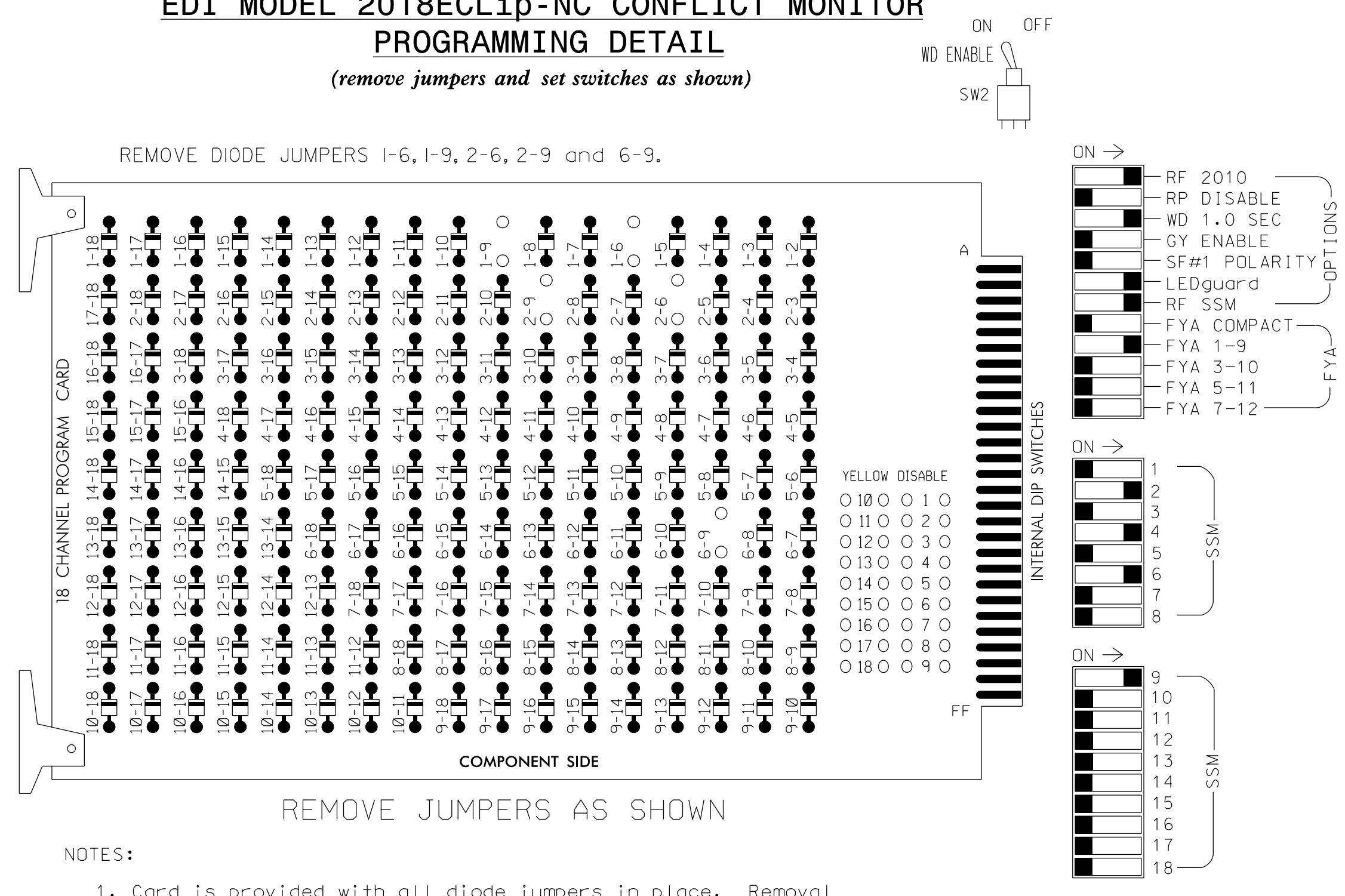
Seal of the State of North Carolina Professional Engineer License No. 022516 Lisa M. Moon

DocuSigned by: Lisa M. Moon 8/22/2018

SIG. INVENTORY NO. 01-0020

### 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 the Elizabeth City Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070LX  
 CABINET.....332 W/AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,S5,S8,AUX S1  
 PHASES USED.....1,2,4,6  
 OVERLAP "A".....\*  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....NOT USED  
 OVERLAP "D".....NOT USED

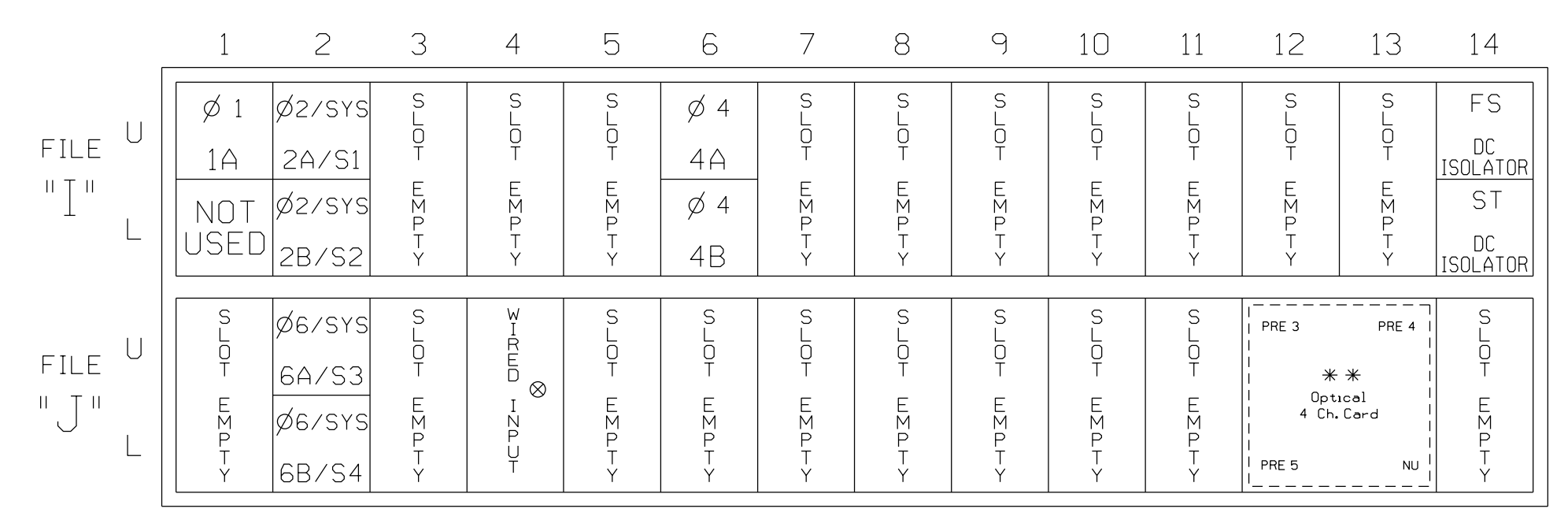
\* See overlap programming detail on sheet 2

### 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
CNU 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.	1*	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	NU	NU	11*	NU	NU	NU	NU	NU
RED		128						134										
YELLOW	*	129						135										
GREEN		130						136										
RED ARROW					101								A121					
YELLOW ARROW					102								A122					
FLASHING YELLOW ARROW													A123					
GREEN ARROW	127				103													

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)

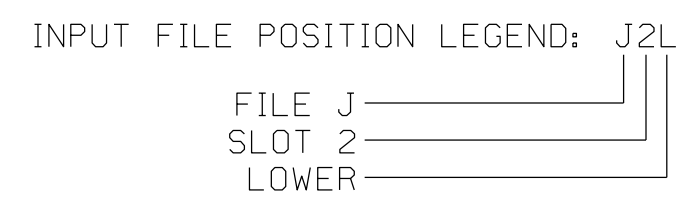


EX.: 1A, 2A, ETC. = LOOP NO.'S  
 FS = FLASH SENSE  
 ST = STOP TIME  
 PRE = PREEMPT

### INPUT FILE CONNECTION & PROGRAMMING CHART

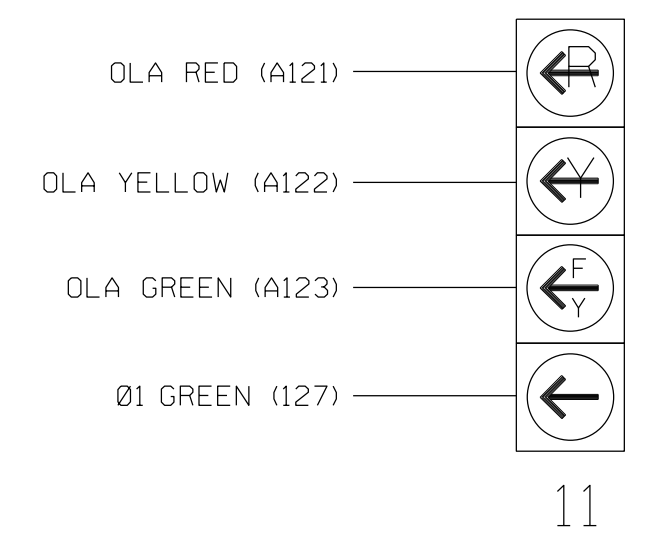
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-1,2	I1U	56	1	1	YES		15		S
		J4U	48	26	6	YES		3		G
2A/S1	TB2-5,6	I2U	39	2	2/SYS	YES			X	N
2B/S2	TB2-7,8	I2L	43	12	2/SYS	YES			X	N
4A	TB4-9,10	I6U	41	4	4	YES		3		S
4B	TB4-11,12	I6L	45	14	4	YES				S
6A/S3	TB3-5,6	J2U	40	6	6/SYS	YES			X	N
6B/S4	TB3-7,8	J2L	44	16	6/SYS	YES			X	N

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



### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

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



### \*\*OPTICAL PREEMPTION SYSTEM

- Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
- Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.



Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: DRMP, Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27518 NC License No. C-2215 (919) 650-1038	US 17-US 158 (N. Hughes Blvd.) at US 158-NC 168 (W.Elizabeth St.) Division 1 Pasquotank County Elizabeth City		SEAL Lisa M. Moon ENGINEER STATE OF NORTH CAROLINA
	PLAN DATE: March 2018 PREPARED BY: DJ White	REVIEWED BY: AJ Davis REVIEWED BY: LM Moon	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SIG. INVENTORY NO. 01-0020

### ECONOLITE ASC/3-2070 EMERGENCY VEHICLE 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 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```

PREEMPT PLAN [ 3 ]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120I25.5I25.5
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

```

```

PREEMPT PLAN [ 4 ]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120I25.5I25.5
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

```

```

PREEMPT PLAN [ 5 ]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . . . . .
EXIT CAL . X . . . X . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
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

```

THIS ELECTRICAL DETAIL IS FOR  
 THE SIGNAL DESIGN: 01-0020  
 DESIGNED: MARCH 2018  
 SEALED: 08/22/2018  
 REVISED: N/A

### 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

```

END PROGRAMMING

### ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL


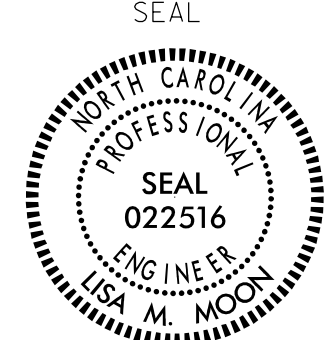
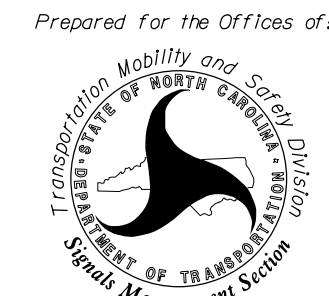
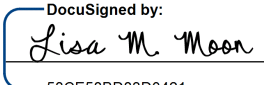
(program controller as shown)

- From Main Menu select **4. PREEMPTOR/TSP**
- From PREEMPT/TSP/SCP Submenu select **2. ENABLE PREEMPT FILTERING & TSP/SCP**

```

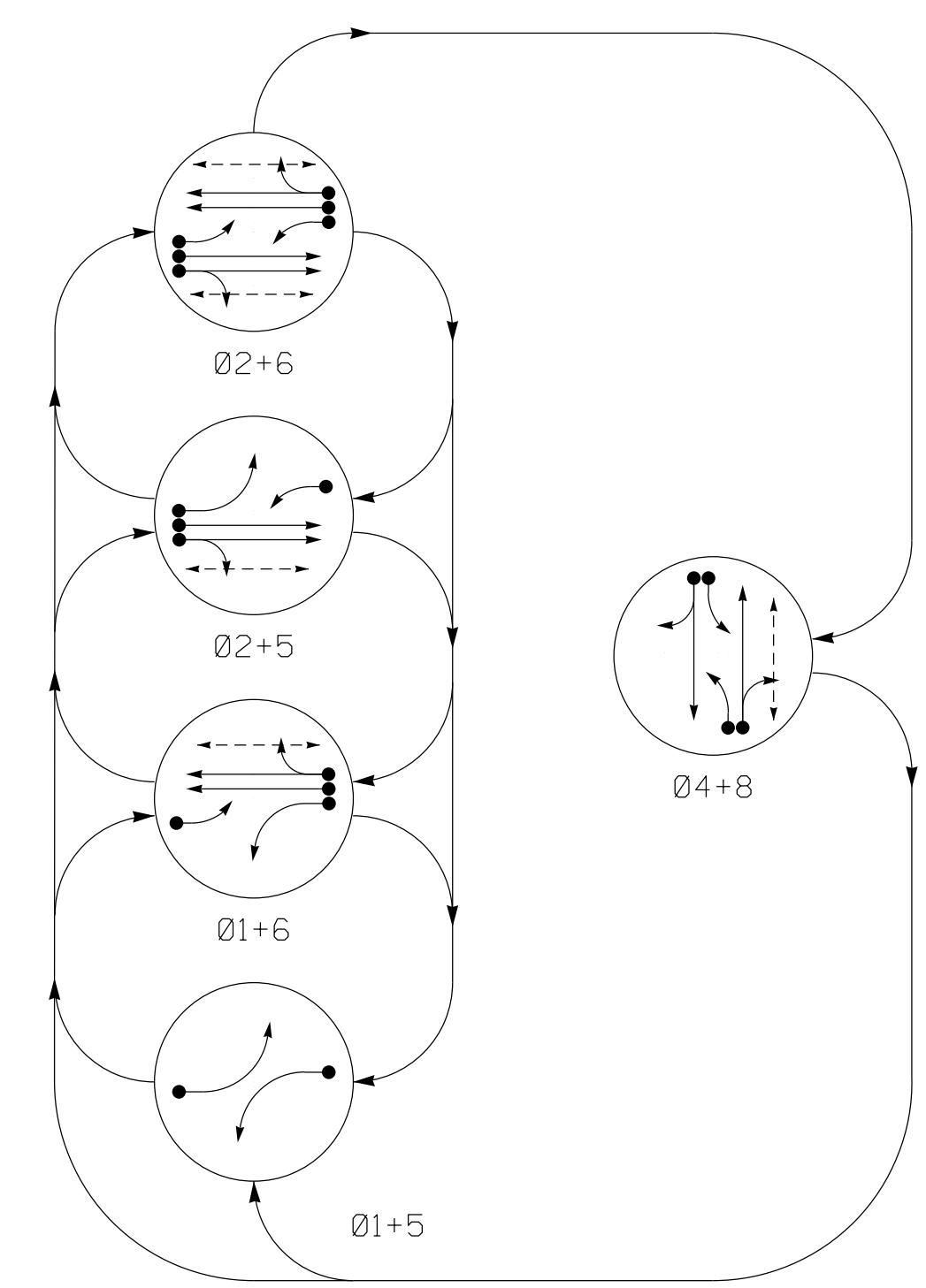
ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED SOLID PULSING
INPUT 1 ...BYPASSED.. ...BYPASSED..
2 ...BYPASSED.. ...BYPASSED..
3 ...PREEMPT 3. ...BYPASSED..
4 ..PREEMPT 4. ...BYPASSED..
5 ..PREEMPT 5. ...BYPASSED..
6 ..PREEMPT 6. ...BYPASSED..
7 ...BYPASSED.. ...BYPASSED..
8 ...BYPASSED.. ...BYPASSED..
9 ...BYPASSED.. ...BYPASSED..
10 ...BYPASSED.. ...BYPASSED..

```

 <p>DRMP, Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27518 NC License No. C-2215 (919) 650-1038</p>	<p>US 17-US 158 (N. Hughes Blvd.) at US 158-NC 168 (W.Elizabeth St.) Division 1 Pasquotank County Elizabeth City</p>		
	<p>Prepared for the Offices of:  </p>	<p>PLAN DATE: March 2018          PREPARED BY: DJ White</p>	
<p>REVISIONS</p>		<p>INIT. DATE</p>	<p>DocuSigned by:            9/20/2018          DATE</p>

20-SEP-2018 18:51 R:\05942\51001\48051\0001\1\0001\0020-08222018e.dgn Incon AT CAR-LMCDM-WT

**PHASING DIAGRAM**



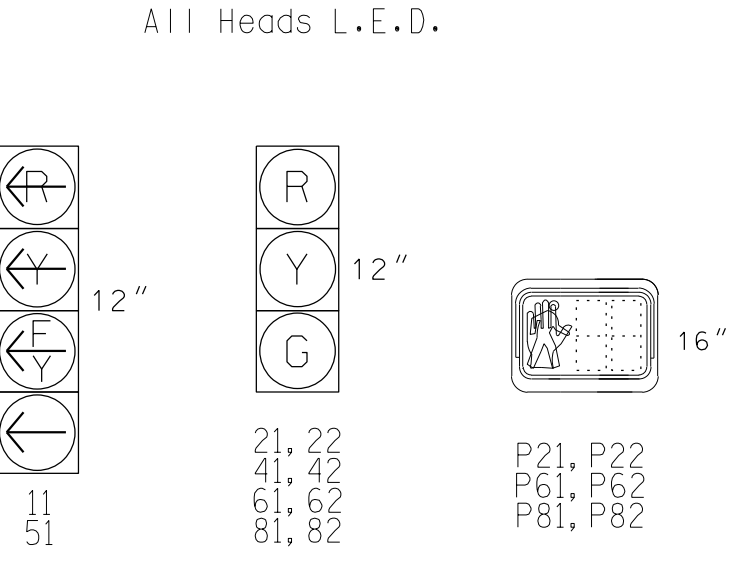
**PHASING DIAGRAM DETECTION LEGEND**

- 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
11	←	←	←	←	←
21, 22	R	R	G	G	R
41, 42	R	R	R	R	G
51	←	←	←	←	←
61, 62	R	G	R	G	R
81, 82	R	R	R	R	G
P21, P22	DW	DW	W	W	DRK
P61, P62	DW	W	DW	W	DRK
P81, P82	DW	DW	DW	W	DRK

**SIGNAL FACE I.D.**



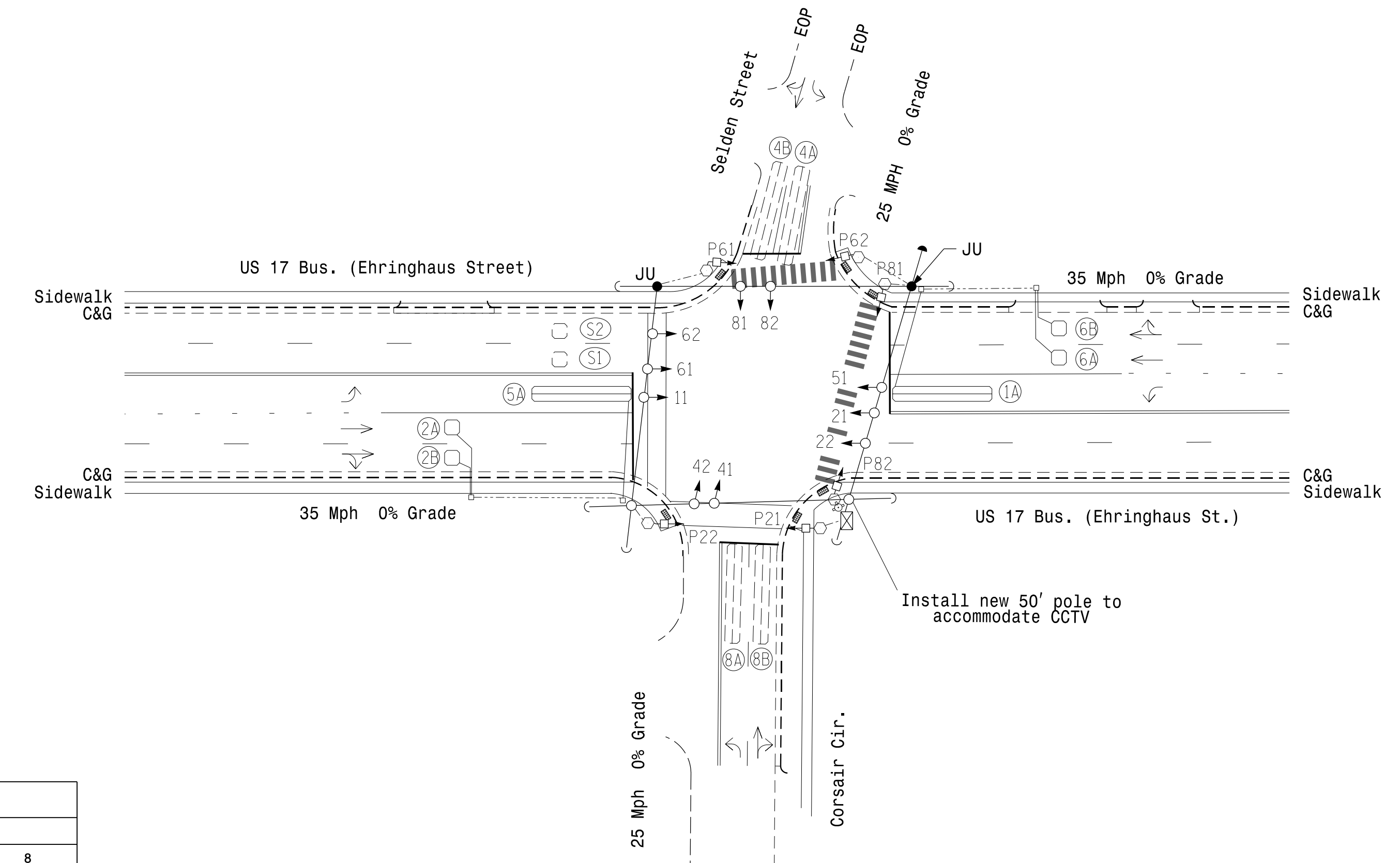
**ASC/3 DETECTOR INSTALLATION CHART**

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
1A	6X40	0	2-4-2	X	1	Yes	-	15	-	S	-	X
2A	6X40	70	3	X	2	Yes	-	-	-	S	-	X
2B	6X40	70	3	X	2	Yes	-	-	-	S	-	X
4A	6X40	0	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X40	0	2-4-2	-	4	Yes	-	10	-	S	-	X
5A	6X40	0	2-4-2	X	5	Yes	-	15	-	S	-	X
6A	6X6	70	3	X	6	Yes	-	-	-	S	-	X
6B	6X6	70	3	X	6	Yes	-	-	-	S	-	X
8A	6X40	0	2-4-2	-	8	Yes	-	3	-	S	-	X
8B	6X40	0	2-4-2	-	8	Yes	-	10	-	S	-	X
S1	6X6	+125	4	-	-	-	-	-	-	N	X	X
S2	6X6	+125	4	-	-	-	-	-	-	N	X	X

**5 Phase Fully Actuated (Elizabeth City Signal System)**

**NOTES**

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
- Program phase 8 ped detector to call phase 4 and 8 ped.
- Phase 4 ped is dummy ped to enable phase 8 leading ped interval.
- Pavement markings are existing unless otherwise noted.
- Install new poles directly adjacent to existing poles and raise signal spans to obtain 17' minimum clearance for signal head heights.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



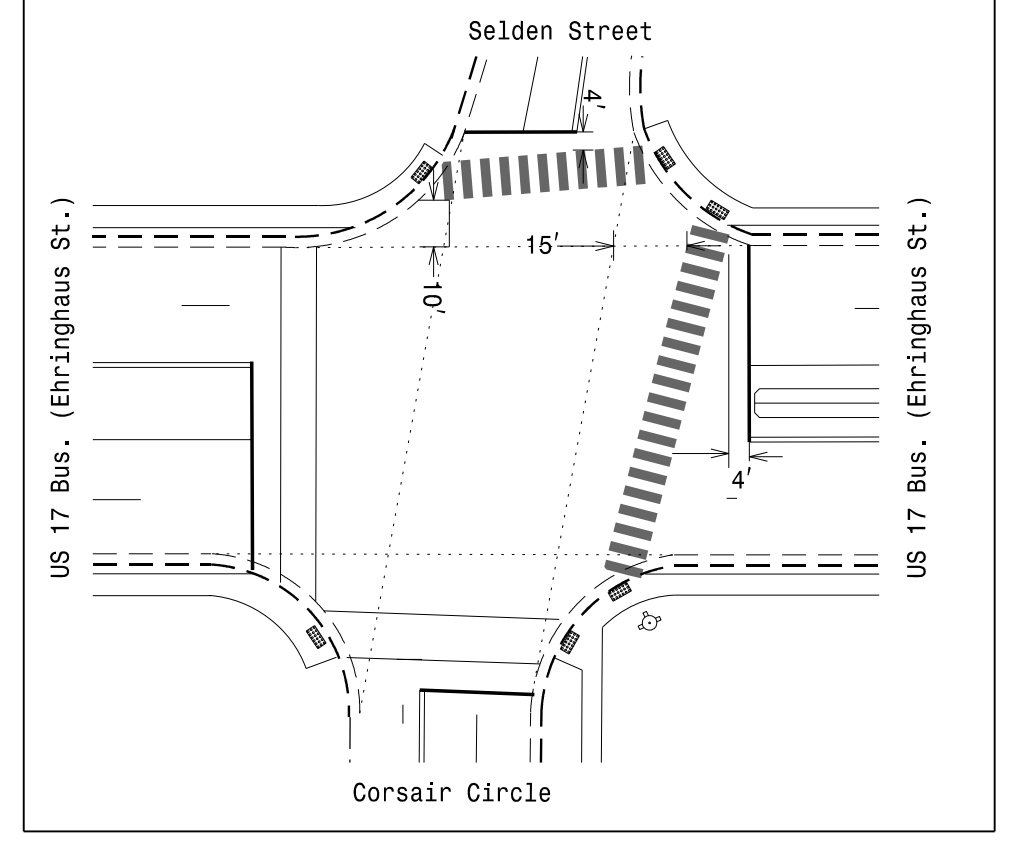
Install new 50' pole to accommodate CCTV

**ASC/3 TIMING CHART**

FEATURE	PHASE						
	1	2	4	5	6	8	
Min Green *	7	10	7	7	10	7	
Delayed Green	-	-	7	-	-	7	
Walk *	0	7	0	0	7	7	
Ped Clear	0	10	0	0	9	18	
Veh. Extension *	2.0	3.0	2.0	2.0	3.0	2.0	
Max 1 *	25	60	25	25	60	25	
Yellow	3.0	3.8	3.2	3.0	3.8	3.2	
Red Clear	3.1	2.3	2.9	2.9	2.3	3.0	
Actuations B4 Add *	-	-	-	-	-	-	
Seconds / Actuation *	-	-	-	-	-	-	
Max Initial *	-	-	-	-	-	-	
Time Before Reduction *	-	-	-	-	-	-	
Time To Reduce *	-	-	-	-	-	-	
Minimum Gap	-	-	-	-	-	-	
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.

**PROPOSED STOP BAR & CROSSWALK LOCATIONS**



**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 |
| ○ Type II Signal Pedestal                        | ○ Type II Signal Pedestal                        |
| ○ 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                              |
| ○ Fire Hydrant                                   | ○ Fire Hydrant                                   |
| ○ Truncated Dome                                 | ○ Truncated Dome                                 |

**Signal Upgrade**

Prepared for the Offices of:  
  
 DRMP, Inc.  
 8000 Regency Parkway, Suite 175  
 Cary, NC 27518  
 NC License No. C-2213 (919) 650-1038

**US 17 Bus. (Ehringhaus St.) at Selden St.**

Division 1 Pasquotank County Elizabeth City  
 PLAN DATE: February 2018 REVIEWED BY: AJ Davis  
 PREPARED BY: JA Le REVIEWED BY: LM Moon

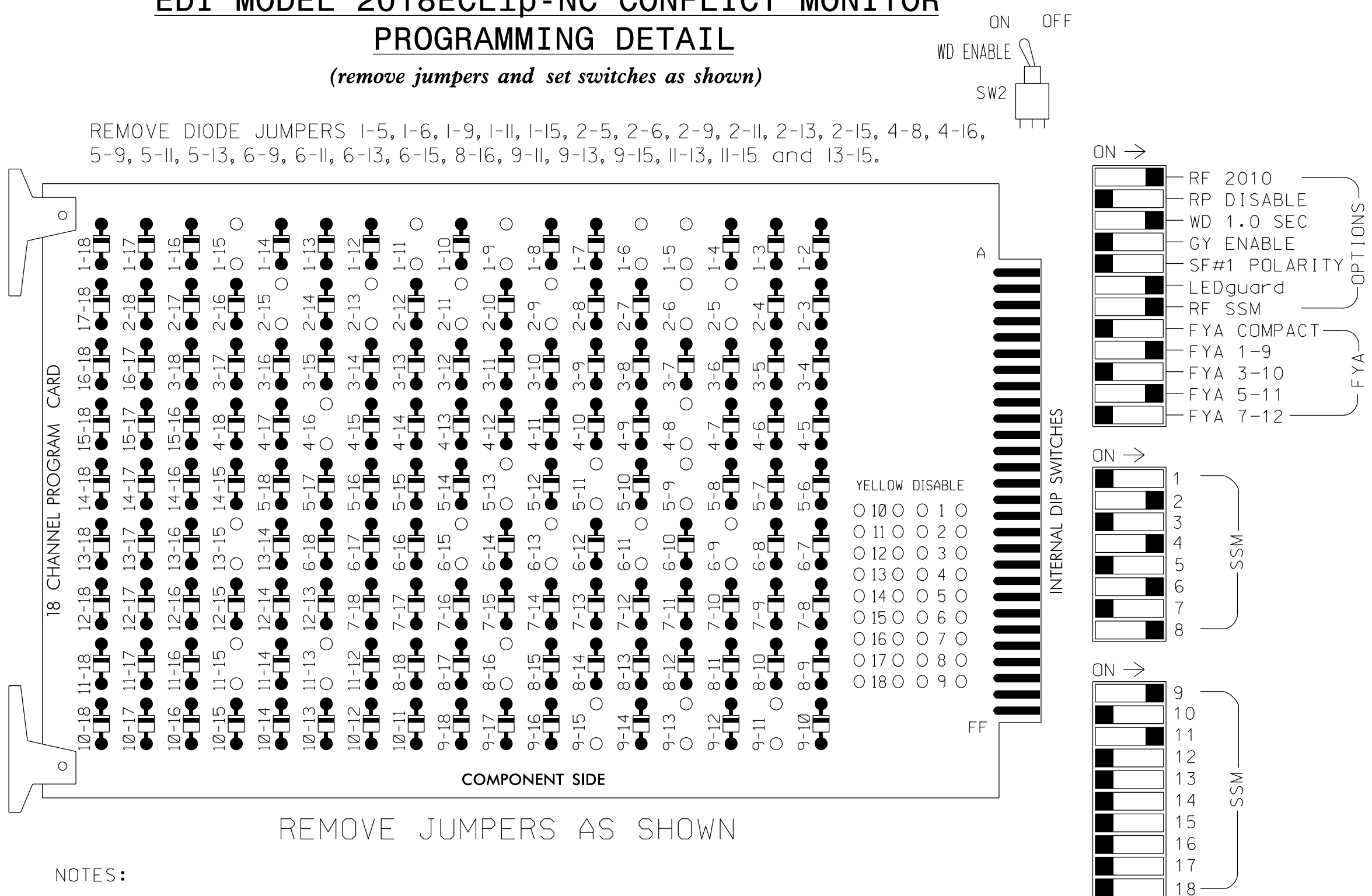
REVISIONS: \_\_\_\_\_ INIT. DATE \_\_\_\_\_

SEAL  
  
 LISA M. MOON  
 ENGINEER  
 STATE OF NORTH CAROLINA  
 No. 022516

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

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

*(remove jumpers and set switches as shown)*



**NOTES:**

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. 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 Walk and 6 Walk.
4. The cabinet and controller are part of the Elizabeth City Signal System.

5. Ensure Delayed Green times shown in the Timing Chart on the signal design plan are accounted for to facilitate leading pedestrian interval.

**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,S9,S11,  
 S12, AUX S1,AUX S4  
 PHASES USED.....1,2,2PED,4,5,6,6PED,  
 8,8PED  
 OVERLAP "A".....\*  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....\*  
 OVERLAP "D".....NOT USED  
 \* See overlap programming detail on sheet 2

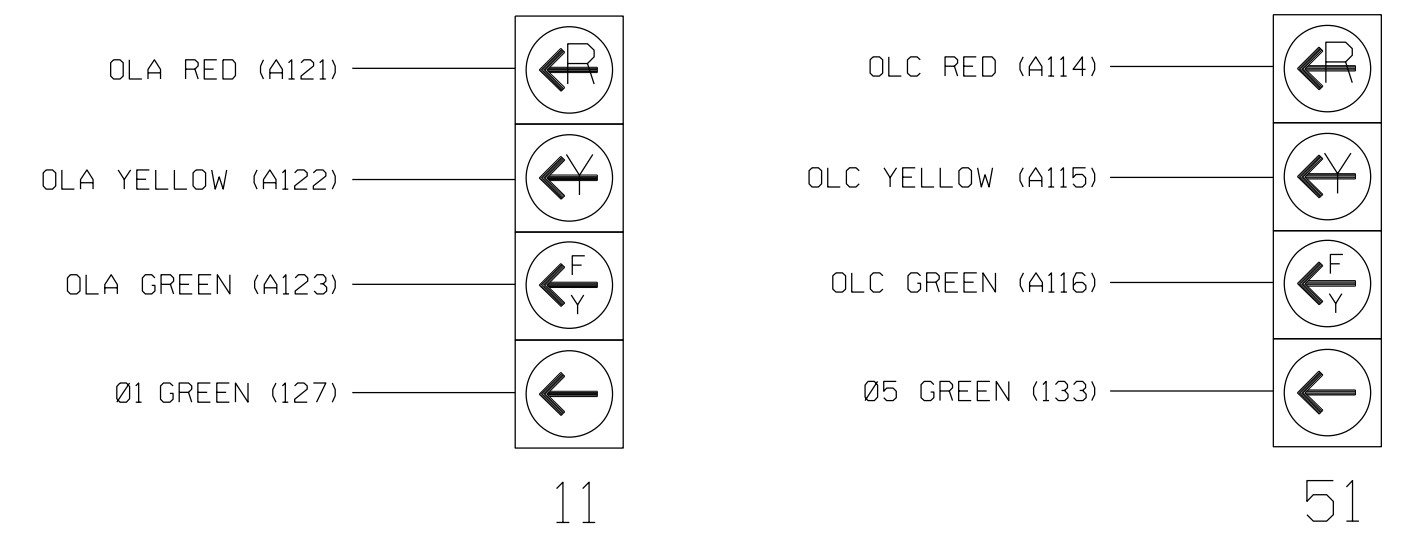
**SIGNAL HEAD HOOK-UP CHART**

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.	11	21,22	P21, P22	NU	41,42	NU	51	61,62	P61, P62	NU	81,82	P81, P82	11	NU	NU	51	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127							133										
Hand				113						119			110					
Walker									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.

**FYA SIGNAL WIRING DETAIL**

*(wire signal heads as shown)*



**INPUT FILE POSITION LAYOUT**

*(front view)*

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 7	Ø 8	SYS. DET. S1	SYS. DET. S2	Ø 2 PED	Ø 4 PED	FS	
	1A	2A	3A	4A	5A	6A	7A	8A			DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	
	NOT USED	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 7	Ø 8			NOT USED	Ø 8 PED	ST	
		2B	3B	4B	5B	6B	7B	8B			DC ISOLATOR	DC ISOLATOR	DC ISOLATOR	

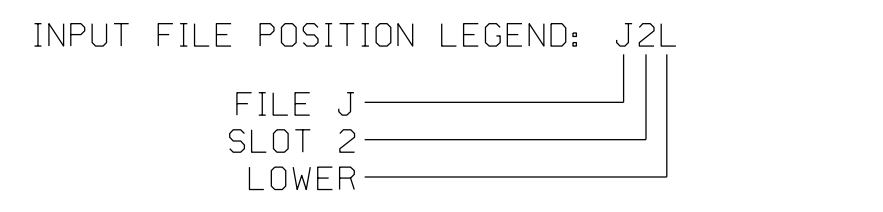
EX.: 1A, 2A, ETC. = LOOP NO.'S  
 ⊗ Wired Input - Do not populate slot with detector card  
 FS = FLASH SENSE  
 ST = STOP TIME

**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		15		S
2A	TB2-5,6	J4U	48	26	6	YES				S
2B	TB2-7,8	I2U	39	2	2	YES				S
4A	TB4-9,10	I6U	41	4	4	YES				S
4B	TB4-11,12	I6L	45	14	4	YES		10		S
* S1	TB6-9,10	I9U	60	11	SYS	NO				N
* S2	TB6-11,12	I9L	62	13	SYS	NO				N
5A	TB3-1,2	J1U	55	5	5	YES		15		S
6A	TB3-5,6	J2U	40	6	6	YES				S
6B	TB3-7,8	J2L	44	16	6	YES				S
8A	TB5-9,10	J6U	42	8	8	YES		3		S
8B	TB5-11,12	J6L	46	18	8	YES		10		S

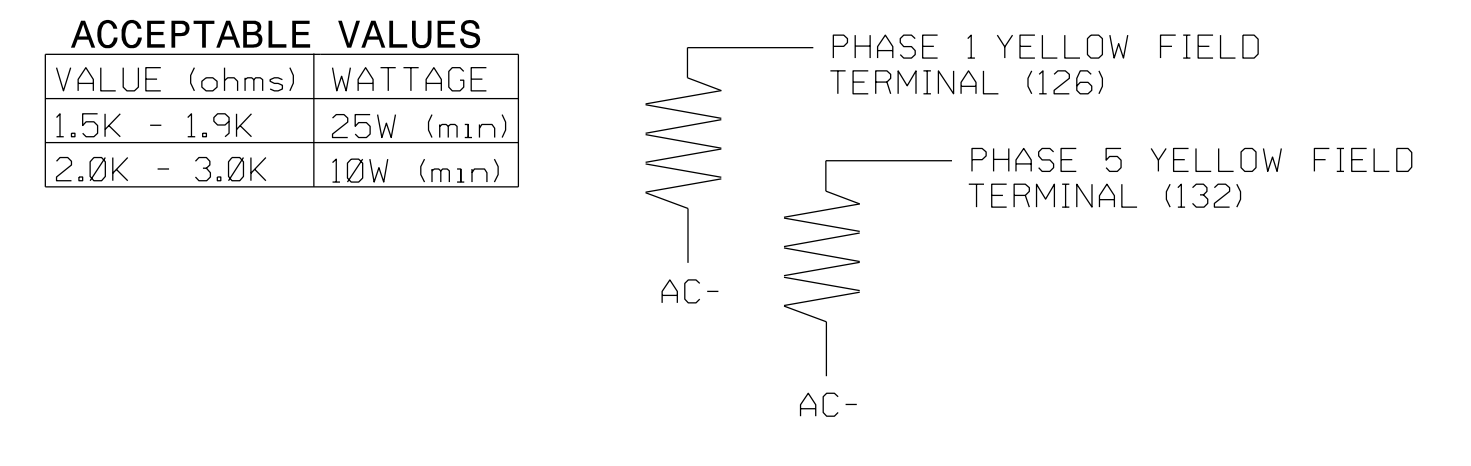
NOTE:  
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

- 1 Add jumper from I1-W to J4-W, on rear of input file.
- 2 Add jumper from J1-W to I4-W, on rear of input file.
- \* System detector only. Remove any assigned vehicle phase.



**LOAD RESISTOR INSTALLATION DETAIL**

*(install resistors 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.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0022  
 DESIGNED: FEBRUARY 2018  
 SEALED: 08/21/2018  
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of:  DRMP Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27518 NC License No. C-2213 (919) 550-1038	US 17 Bus. (Ehringhaus St.) at Selden St.	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
	Division 1 Pasquotank County Elizabeth City PLAN DATE: February 2018 REVIEWED BY: AJ Davis PREPARED BY: DJ White REVIEWED BY: LM Moon	SEAL  Lisa M. Moon ENGINEER SEAL 022516 DATE 9/20/2018 SIGNED: 9/20/2018 DATE: _____ SIGNED: _____ DATE: _____ SIGNED: _____ DATE: _____ SIGNED: _____ DATE: _____ SIGNED: _____ DATE: _____

20-SEP-2018 10:51  
 R:\059425\0001\8\05\0001\0001\0002\012018e.dgn  
 Incon. AT: CAR-LMCDM1-W7

## 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 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

## ECONOLITE ASC/3-2070 PED 4 PROGRAMMING ASSIGNMENT DETAIL

(program controller as shown)

1. From Main Menu select 6. DETECTORS
2. From DETECTOR Submenu select 3. PED DETECTOR INPUT ASSIGNMENT

PED DET PHASE ASSIGNMENT MODE: NTCIP	
PHASE	1 2 3 4 5 6 7 8
DETECTOR	0 2 0 8 0 6 0 8
PHASE	9 10 11 12 13 14 15 16
DETECTOR	0 0 0 0 0 0 0 0

← NOTICE PED DETECTOR 8  
ASSIGNED TO PHASE 4 & 8

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 01-0022  
DESIGNED: FEBRUARY 2018  
SEALED: 08/21/2018  
REVISED: N/A

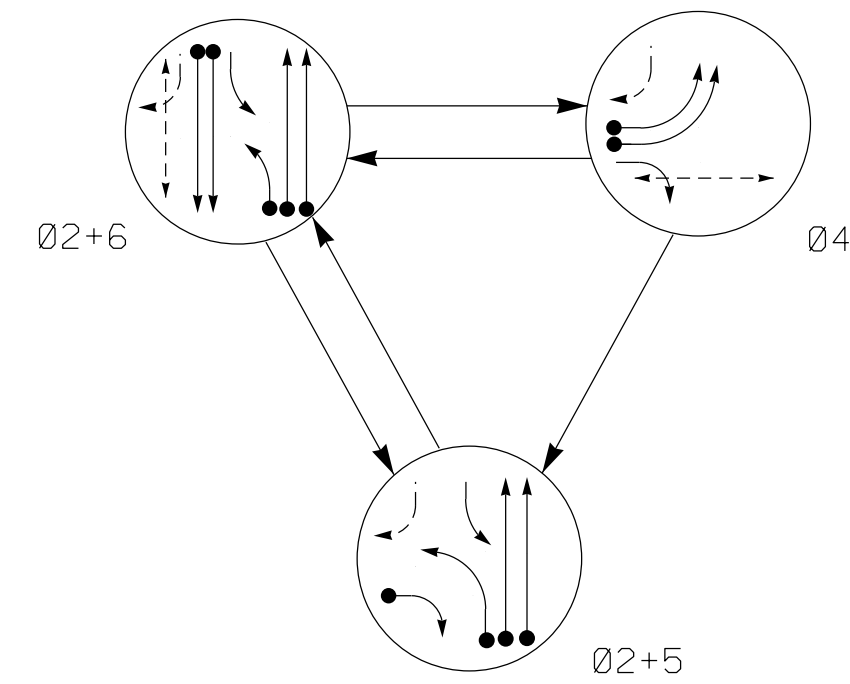
Electrical Detail - Sheet 2 of 2

<b>ELECTRICAL AND PROGRAMMING DETAILS FOR:</b>  Prepared for the Offices of:  DRMP, Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27518 NC License No. C-2215 (919) 650-1038
---

<b>US 17 Bus. (Ehringhaus St.) at Selden St.</b>	
Division 1 Pasquotank County Elizabeth City	
PLAN DATE: February 2018	REVIEWED BY: AJ Davis
PREPARED BY: DJ White	REVIEWED BY: LM Moon
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SEAL 
DocuSigned by:  9/20/2018 DATE SIG. INVENTORY NO. 01-0022

**PHASING DIAGRAM**

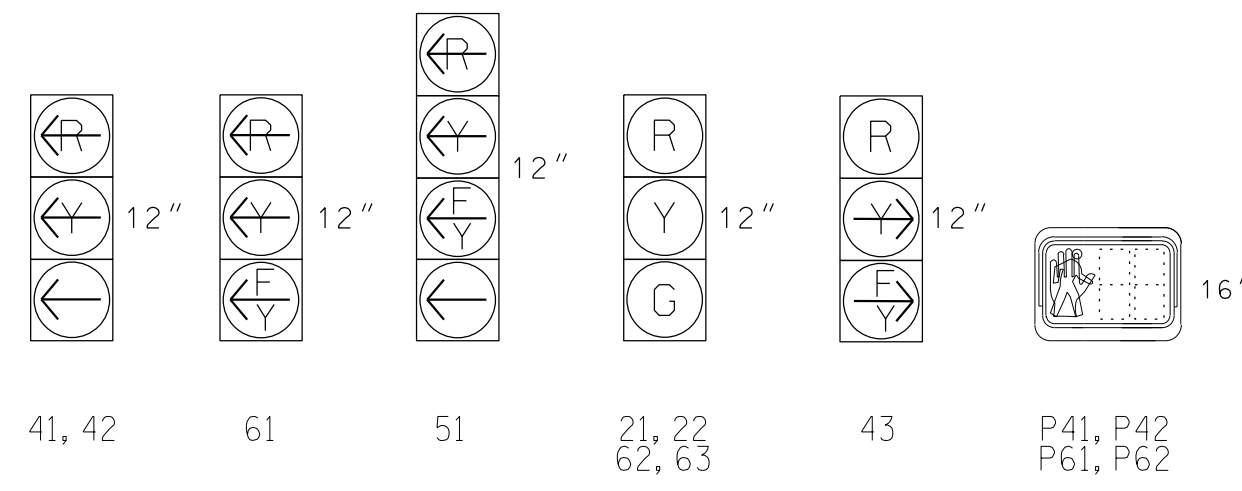


**TABLE OF OPERATION**

SIGNAL FACE	PHASE			
	02+5	02+6	04	FLASH
21, 22	G	G	R	Y
41, 42	←	←	←	←
43	←	←	←	←
51	←	←	←	←
61	←	←	←	←
62, 63	R	G	R	Y
P41, P42	DW	DW	W	DRK
P61, P62	DW	W	DW	DRK

**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	LOOP	NEW CARD
2A	6X6	70	EXIST	-	2	Yes	-	-	-	S	-	X
2B	6X6	70	EXIST	-	2	Yes	-	-	-	S	-	X
4A	6X40	0	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X40	0	2-4-2	-	4	Yes	-	-	-	S	-	X
5A	6X40	0	2-4-2	-	5	Yes	-	15	-	S	-	X
5B	6X40	0	2-4-2	-	5	Yes	-	15	-	S	-	X
6A	6X6	70	EXIST	-	6	Yes	-	-	-	S	-	X
6B	6X6	70	EXIST	-	6	Yes	-	-	-	S	-	X
S1*	6X6	+125	EXIST	-	-	No	-	-	-	N	X	X
S2*	6X6	+125	EXIST	-	-	No	-	-	-	N	X	X

\*Measured from Edge of Crosswalk Across Ehringhaus St.

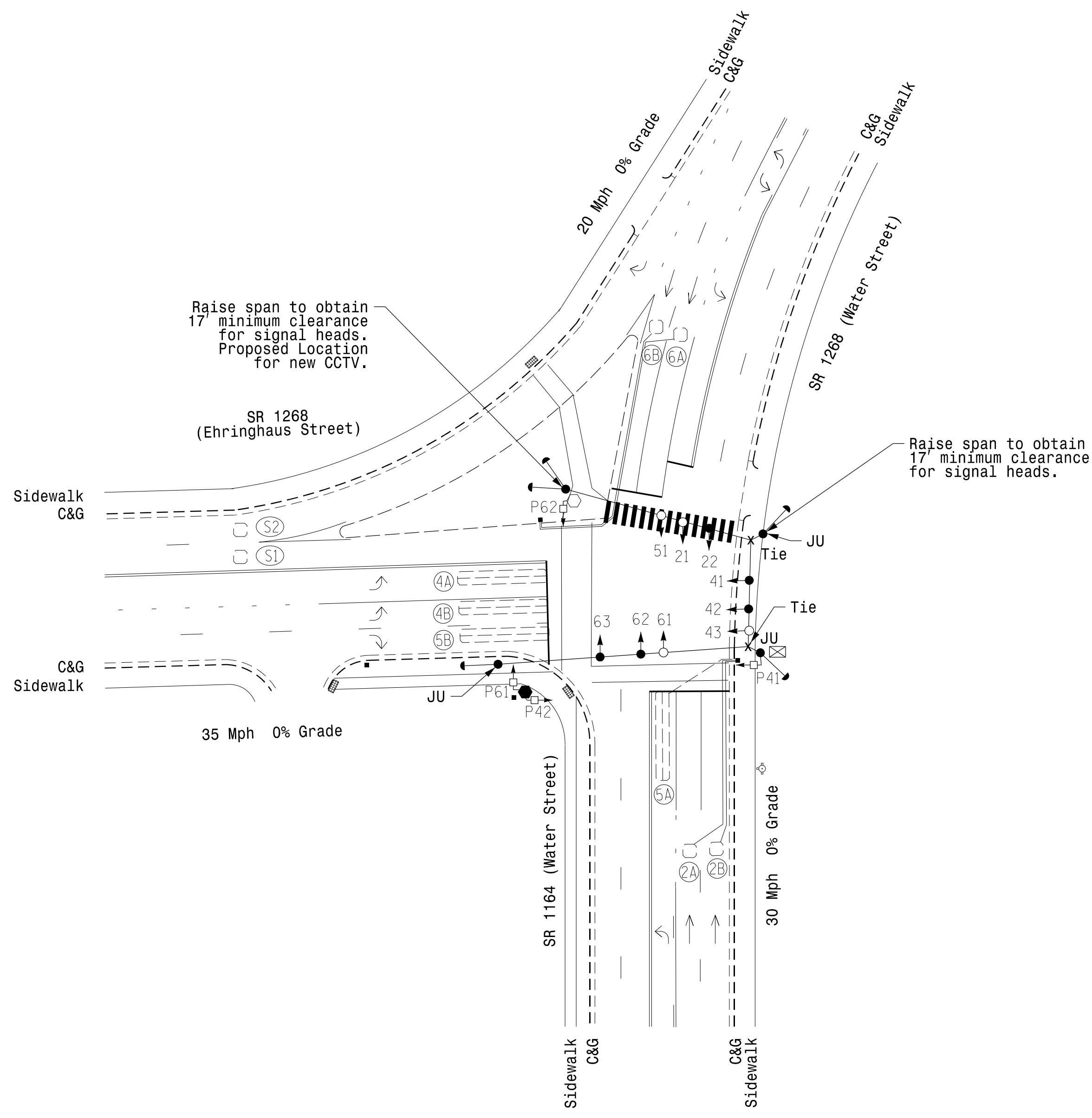
**PHASING DIAGRAM DETECTION LEGEND**

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

**3 Phase Fully Actuated (Elizabeth City Signal System)**

**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.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
- Pavement markings are existing.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



**ASC/3 TIMING CHART**

FEATURE	PHASE			
	2	4	5	6
Min Green *	10	7	7	10
Delayed Green *	-	7	-	-
Walk *	0	7	0	7
Ped Clear	0	19	0	18
Veh. Extension *	3.0	2.0	2.0	3.0
Max I *	60	60	15	60
Yellow	3.5	3.0	3.0	3.5
Red Clear	2.3	2.9	2.6	2.3
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
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   | 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      |
| N/A   | ○→ Right of Way                  |
| ○→ Directional Arrow                              | ○→ Directional Arrow             |
| N/A   | ○→ Metal Strain Pole             |
| N/A   | ○→ Fire Hydrant                  |
| N/A   | ○→ Truncated Domes               |
| ○   | ○→ Type II Signal Pedestal       |

**Signal Upgrade**

Prepared For the Office of: **SR 1268 (Water St.) / SR 1164 (Water St.) at SR 1268 (Ehringhaus St.)**

Division 1 Pasquotank County Elizabeth City

PLAN DATE: February 2018 REVIEWED BY: AJ Davis

PREPARED BY: JA Le REVIEWED BY: LM Moon

REVISIONS: \_\_\_\_\_ INIT. DATE

SCALE: 1" = 40'

DRMP 750 N. Greenfield Pkwy, Garner, NC 27529

Seal: **Lisa M. Moon, Professional Engineer, License No. 022516**

DocuSigned by: Lisa M. Moon 8/21/2018

SIG. INVENTORY NO. 01-0024

21-AUG-2018 17:03 R:\05942\51\001\4485\gnms\gnms1\gnms1\0024.dgn lmoon AT CAR-LMCDN1-W7





## 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

Toggle Once

OVERLAP D

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

TMG VEH OVLP... [D] TYPE: OTHER/ECONOLITE
PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . . X X . . . . .
PROTECT . . . . .
PED PRTC . . . . .
NOT OVLP . . . . .
FLSH GRN . . . 1 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 INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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

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

## COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

THIS ELECTRICAL DETAIL IS FOR  
 THE SIGNAL DESIGN: 01-0024  
 DESIGNED: FEBRUARY 2018  
 SEALED: 08/21/2018  
 REVISED: N/A

Electrical Detail - Sheet 2 of 2

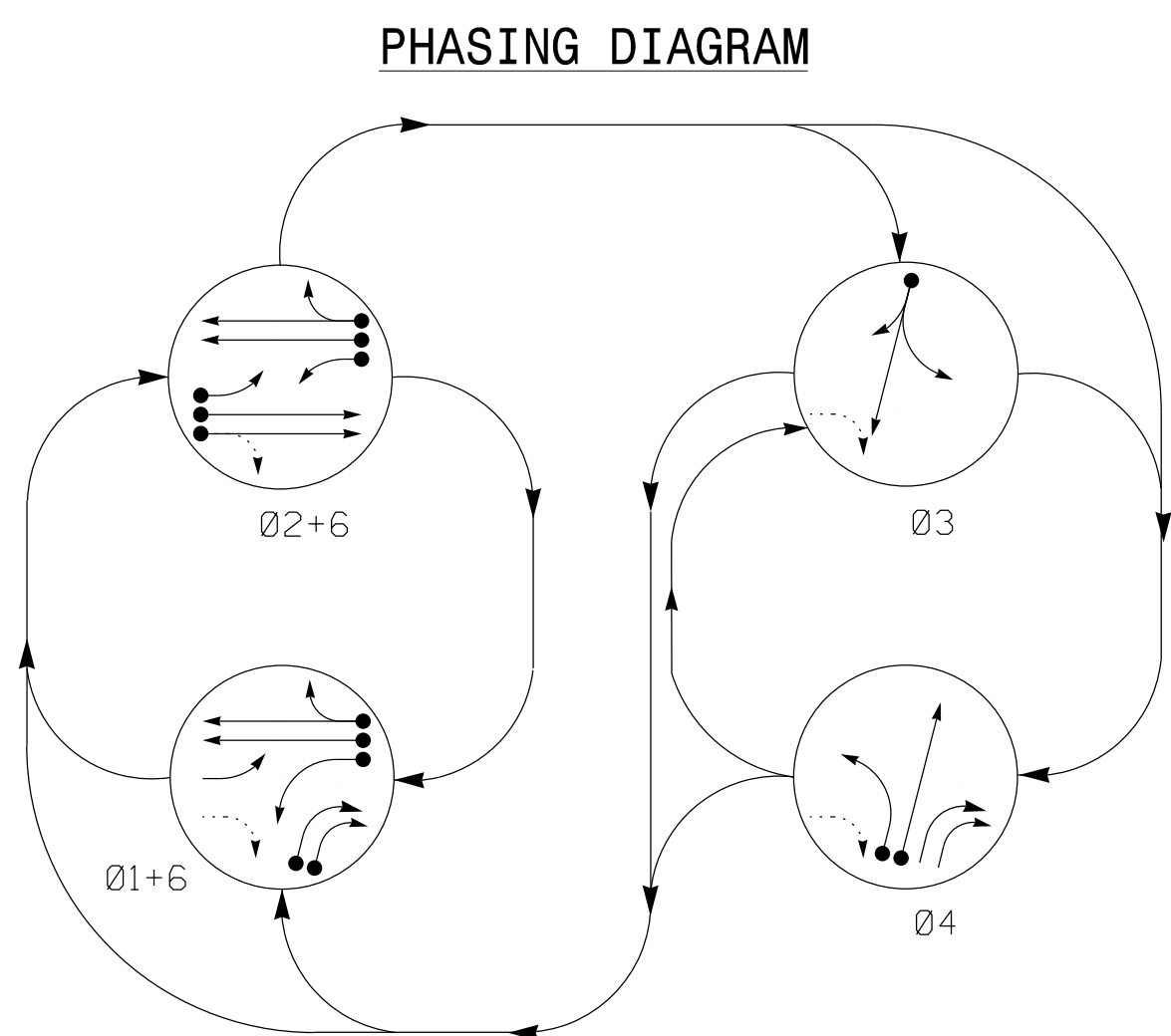
DOCUMENT NOT CONSIDERED  
FINAL UNLESS ALL  
SIGNATURES COMPLETED

<p style="text-align: center; font-size: x-small;">ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="text-align: center; font-size: x-small;">Prepared for the Offices of:</p> <div style="text-align: center;"> <p><b>DRMP</b></p> <p style="font-size: x-small;">DRMP, Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27519 NC License No. C-2213 (919) 650-1038</p> </div>	<p style="font-weight: bold; font-size: large;">SR 1268 (Water St.)/ SR 1164 (Water St.) at SR 1268 (Ehringhaus St.)</p> <p style="font-size: small;">Division 1 Pasquotank County Elizabeth City</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="font-size: x-small;">PLAN DATE: February 2018</td> <td style="font-size: x-small;">REVIEWED BY: AJ Davis</td> </tr> <tr> <td style="font-size: x-small;">PREPARED BY: DJ White</td> <td style="font-size: x-small;">REVIEWED BY: LM Moon</td> </tr> </table>	PLAN DATE: February 2018	REVIEWED BY: AJ Davis	PREPARED BY: DJ White	REVIEWED BY: LM Moon	<p style="font-size: x-small;">SEAL</p> <div style="border: 2px solid black; border-radius: 50%; padding: 10px; width: 60px; margin: 0 auto;"> <p style="font-size: x-small; text-align: center;">NORTH CAROLINA PROFESSIONAL ENGINEER LISA M. MOON</p> </div> <p style="font-size: x-small;">DocuSigned by: <i>Lisa M. Moon</i> 9/20/2018</p> <p style="font-size: x-small;">SIG. INVENTORY NO. 01-0024</p>
PLAN DATE: February 2018	REVIEWED BY: AJ Davis					
PREPARED BY: DJ White	REVIEWED BY: LM Moon					

4 Phase Fully Actuated W/ EV Preemption (Elizabeth City Signal System)

NOTES

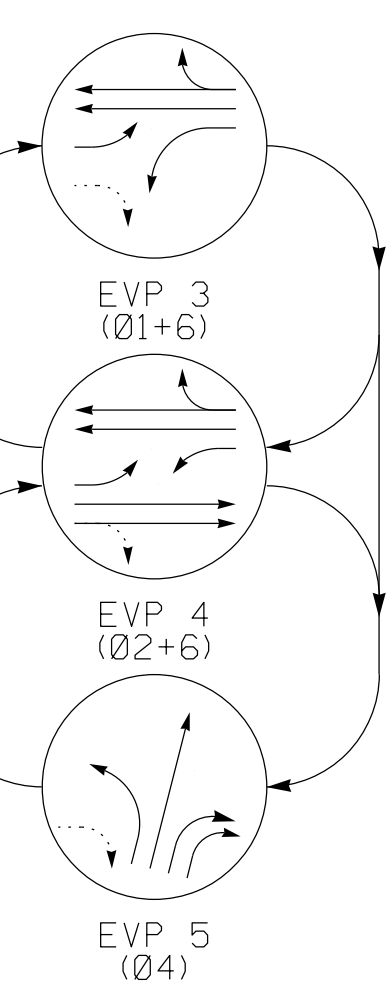
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. Pavement markings are existing.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Relocate existing optical detection equipment from existing cabinet to new cabinet.
9. Optical detector 10 calls EVP3; Optical detector 20 calls EVP4; Optical detector 30 calls EVP5.
10. Install new poles directly adjacent to existing poles and raise signal spans to obtain 17' minimum clearance for signal head heights.
11. Loop 1D serves as queue backup detector. After 5 seconds of constant actuation, the detector unit places a call to the controller to preempt normal operation to clear out the storage lanes.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



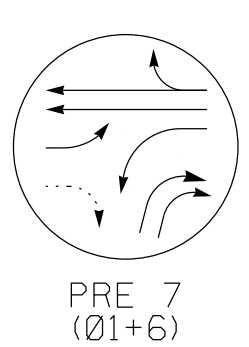
PHASING DIAGRAM DETECTION LEGEND

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

EV PREEMPT PHASES



BACKUP PREEMPT PHASES



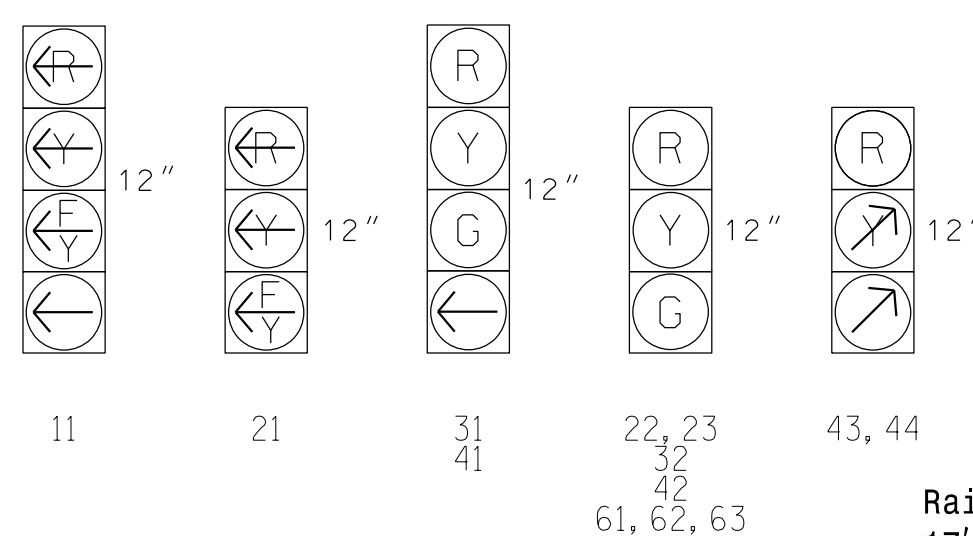
SIGNAL FACE	PHASE							
	01+6	02+6	03	04	EVP 3	EVP 4	EVP 5	PRE 7
11	F	R	R	R	F	R	R	R
21	F	R	R	R	F	R	R	R
22,23	R	G	R	R	R	R	R	R
31	R	R	G	R	R	R	R	R
32	R	R	G	R	R	R	R	R
41	R	R	R	G	R	R	G	R
42	R	R	R	G	R	R	G	R
43, 44	R	R	R	R	R	R	R	R
61, 62, 63	G	G	R	G	G	R	G	Y

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	6X60	+5	2-4-2	-	1	Yes	-	15	-	S	-	X
1B	6X60	+5	2-4-2	-	6	Yes	-	3	-	G	-	X
1C	6X60	+5	2-4-2	-	1	Yes	-	15*	-	S	-	X
1D	6X6	180	EXIST	-	Pre7	-	-	5	-	N	-	X
2A	6X6	300	EXIST	-	2	Yes	-	-	-	X	N	-
2B	6X6	300	EXIST	-	2	Yes	-	-	-	X	N	-
2C	6X60	+5	2-4-2	-	2	Yes	-	3	-	S	-	X
3A	6X60	+5	2-4-2	-	3/10	Yes	-	-	-	S	-	X
4A	6X60	+5	2-4-2	-	4	Yes	-	3	-	S	-	X
4B	6X60	+5	2-4-2	-	4	Yes	-	-	-	S	-	X
6A	6X6	300	EXIST	-	6	Yes	-	-	-	X	N	-
6B	6X6	300	EXIST	-	6	Yes	-	-	-	X	N	-

\* Disable Delay From 6:00a.m. to 7:00p.m.

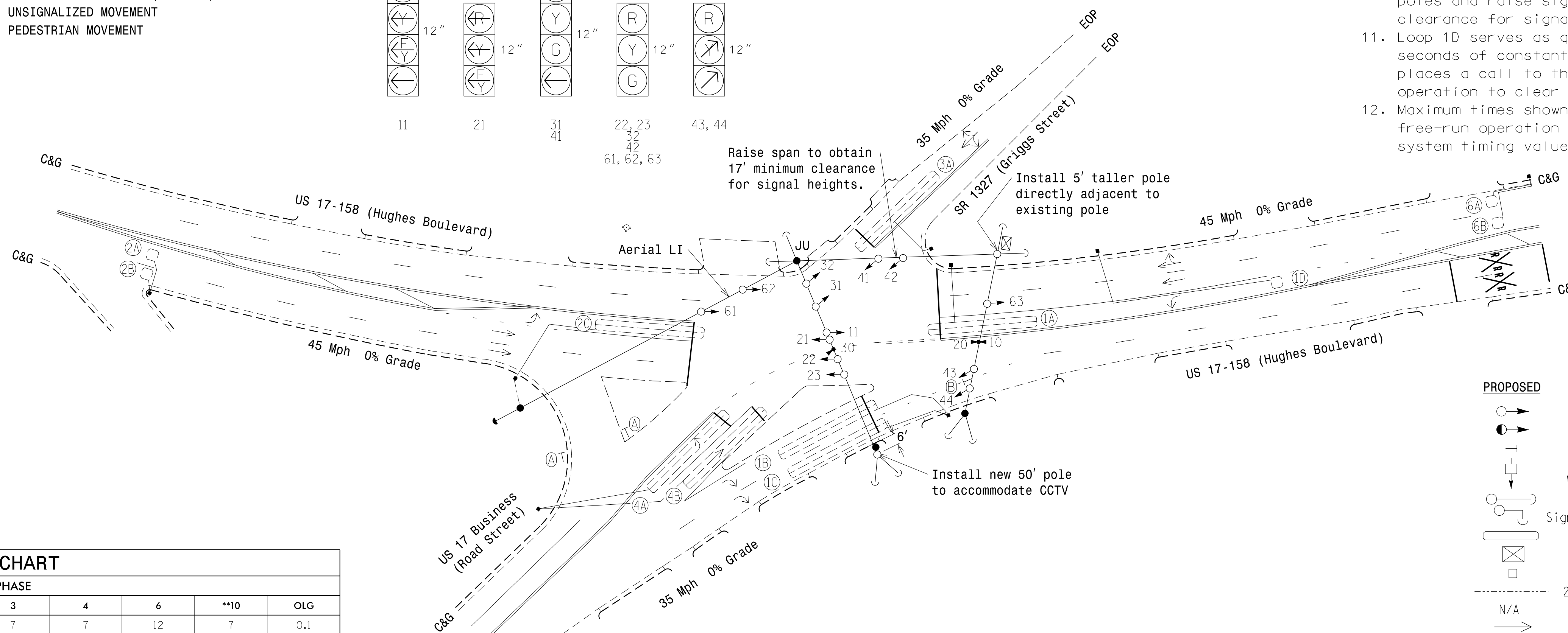
SIGNAL FACE I.D.

All Heads L.E.D.



FUNCTION	PRE 7
Exit Phase(s)	2,6
Preempt Override	OFF
Delay Time	0
Ped Clear Through Yellow	N
Terminate Phases	N
Entrance Walk	255*
Entrance Ped Clear	255*
Entrance Min Green	1
Entrance Yellow Change	25.5*
Entrance Red Clear	25.5*
Minimum Dwell Time	25
Exit Yellow Change	25.5*
Exit Red Clear	25.5*

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



FEATURE	PHASE						OLG
	1	2	3	4	6	**10	
Min Green *	7	12	7	7	12	7	0.1
Walk *	0	0	0	0	0	0	
Ped Clear	0	0	0	0	0	0	
Veh. Extension *	1.0	6.0	1.0	1.0	6.0	1.0	
Max 1 *	30	90	15	30	90	15	
Yellow	3.0	4.5	3.8	3.8	4.5	3.8	3.8
Red Clear	3.5	2.0	2.3	2.0	2.0	2.3	2.3
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	

\* 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.

\*\* Phase used for timing purposes only.

FUNCTION	PRE 3	PRE 4	PRE 5
Exit Phase(s)	2,6	3	2,6
Preempt Override	OFF	OFF	ON
Delay Time	0	0	0
Ped Clear Through Yellow	N	N	N
Terminate Phases	N	N	N
Entrance Walk	255*	255*	255*
Entrance Ped Clear	255*	255*	255*
Entrance Min Green	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7
Preempt Input Extension Time	2	2	2
Preempt Max Time	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*

\* Allows normal phase times to be used.

**LEGEND**

	PROPOSED Traffic Signal Head		EXISTING Traffic Signal Head
	PROPOSED Modified Signal Head	N/A	EXISTING N/A
	PROPOSED Pedestrian Signal Head		EXISTING Pedestrian Signal Head
	PROPOSED Signal Pole with Guy		EXISTING Signal Pole with Guy
	PROPOSED Signal Pole with Sidewalk Guy		EXISTING Signal Pole with Sidewalk Guy
	PROPOSED Inductive Loop Detector		EXISTING Inductive Loop Detector
	PROPOSED Controller & Cabinet		EXISTING Controller & Cabinet
	PROPOSED Junction Box		EXISTING Junction Box
	PROPOSED 2-in Underground Conduit		EXISTING 2-in Underground Conduit
	PROPOSED Right of Way		EXISTING Right of Way
	PROPOSED Directional Arrow		EXISTING Directional Arrow
	PROPOSED Optical Detector		EXISTING Optical Detector
	PROPOSED Fire Hydrant		EXISTING Fire Hydrant
	PROPOSED "YIELD" Sign (R1-2)		EXISTING "YIELD" Sign (R1-2)
	PROPOSED NO TURN ON RED (R10-11)		EXISTING NO TURN ON RED (R10-11)

Signal Upgrade

DRMP Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27518 NC License No. C-2213 (919) 650-1038

Plans Prepared By: DRMP

750 N. Greenfield Pkwy, Garner, NC 27529

Scale: 1" = 40'

US 17-158 (Hughes Boulevard) at US 17 Business (Road Street) / SR 1327 (Griggs Street)

Division 1 Pasquotank County Elizabeth City

PLAN DATE: March 2018 REVISIONS: J.A. Le

PREPARED BY: J.A. Le REVIEWED BY: L.M. Moon

DATE: 9/20/2018

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER LISA M. MOON

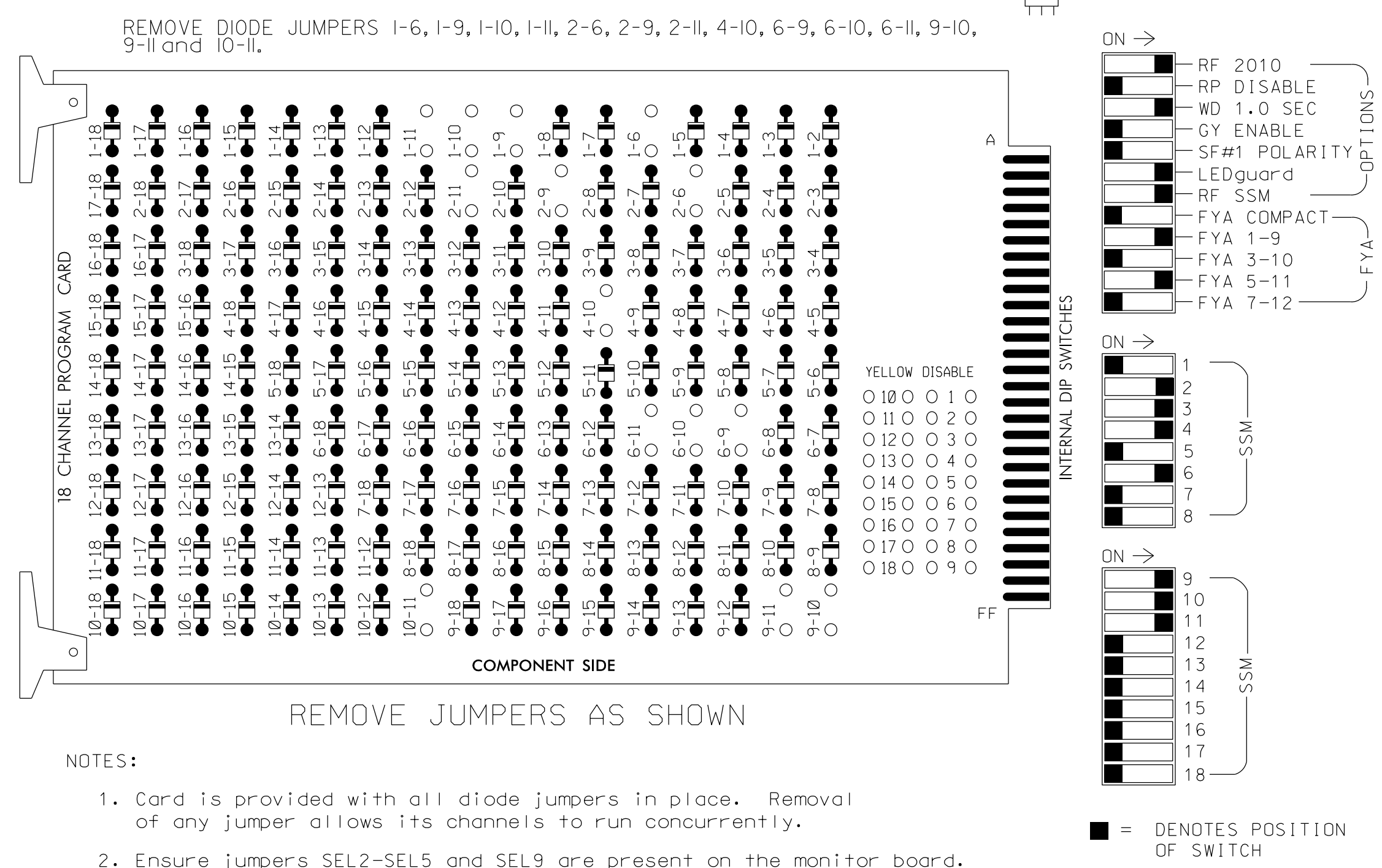
DocuSigned By: Lisa M. Moon

SIG. INVENTORY NO. 01-0025

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

### 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 controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Elizabeth City Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070LX  
 CABINET.....332 W/AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,S4,S5,S8,AUX S1,AUX S2,  
 AUX S4  
 PHASES USED.....1,2,3,4,6,\*\*10  
 OVERLAP "A".....\*  
 OVERLAP "B".....\*  
 OVERLAP "C".....\*  
 OVERLAP "D".....NOT USED  
 OVERLAP "G".....\*  
 \* See overlap programming detail on sheet 2  
 \*\* Phase used for timing purposes 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	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	22,23	NU	31	32	41	42	NU	NU	61,62,63	NU	NU	11	43,44	NU	21	NU	NU
RED		128		116	116	101	101			134				A124				
YELLOW	*	129		117	117	102	102			135								
GREEN		130		118	118	103	103			136								
RED ARROW													A121		A114			
YELLOW ARROW													A122	A125	A115			
FLASHING YELLOW ARROW													A123		A116			
GREEN ARROW	127			118		103							A126					

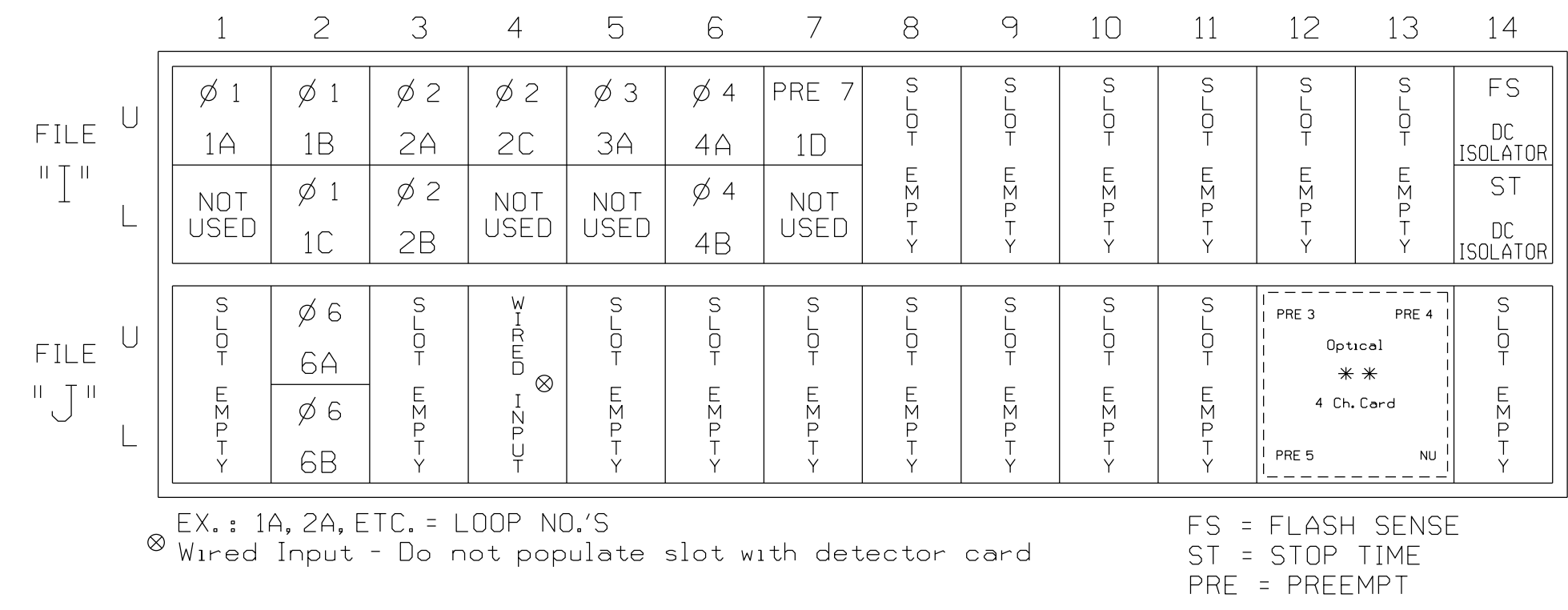
NU = Not Used

\* 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)

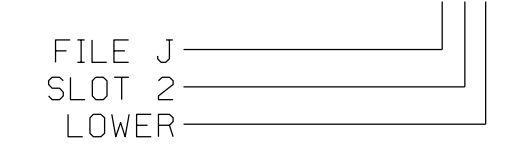


### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A <sup>1</sup>	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES		3		G
1B	TB2-5,6	I2U	39	2	★	1	YES			S
1C	TB2-7,8	I2L	43	12	★	1	YES		5	S
1D	TB6-1,2	I7U	65	34	*	PRE1	NO			N
2A	TB2-9,10	I3U	63	32	2	YES			X	N
2B	TB2-11,12	I3L	76	42	2	YES			X	N
2C	TB4-1,2	I4U	47	22	2	YES		3		G
3A	TB4-5,6	I5U	58	3	3/10	YES				S
4A	TB4-9,10	I6U	41	4	4	YES		3		S
4B	TB4-11,12	I6L	45	14	4	YES				S
6A	TB3-5,6	J2U	40	6	6	YES			X	N
6B	TB3-7,8	J2L	44	16	6	YES			X	N

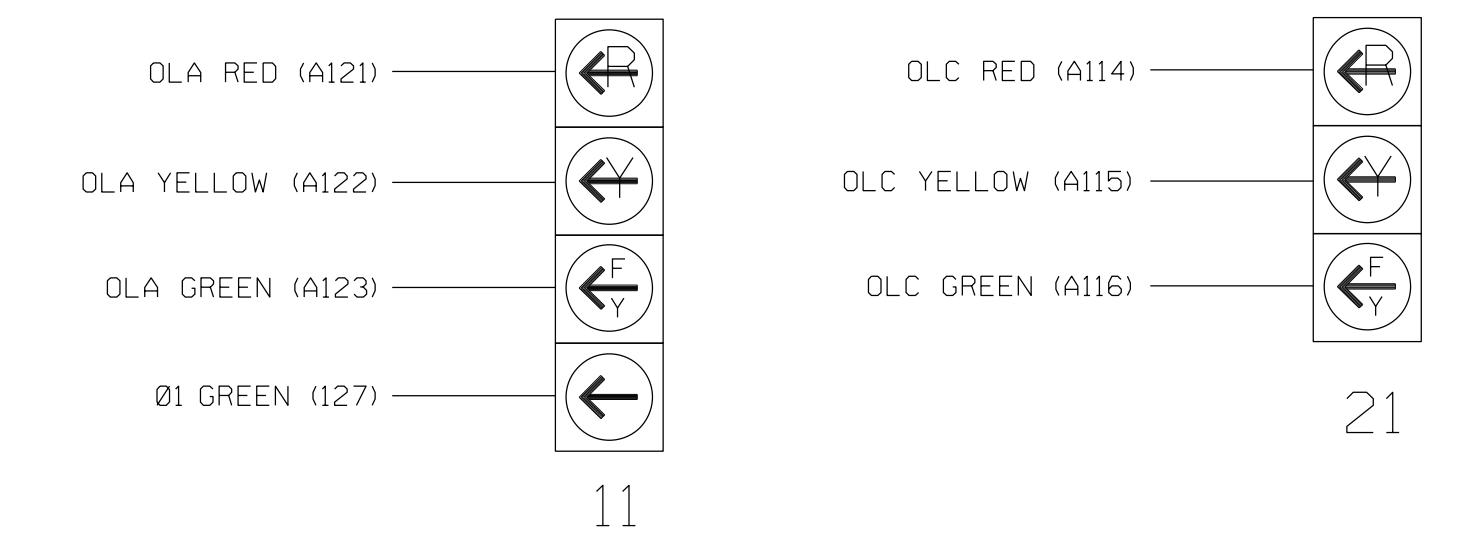
- Add jumper from I1-W to J4-W, on rear of input file.
- See Logic Processor programming detail on sheet 3 of 5 for Backup Preempt
- See vehicle detector setup programming detail for delay on loops in the Action Plan Detail & Vehicle Detector Setup Programming on sheet 4 of 5.

### INPUT FILE POSITION LEGEND: J2L



### FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)

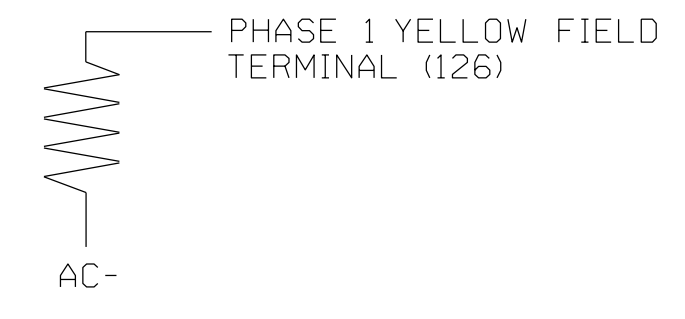


### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

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



### \*\* OPTICAL PREEMPTION SYSTEM

- Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
- Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

20-SEP-2018 18:51 R:\415942\51\and\shades\gnw\11\img\01-0025-08232018a.dgn

Electrical Detail - Sheet 1 of 5

Electrical and Programming Details For:

US 17-158 (Hughes Boulevard) at US 17 Business (Road Street) / SR 1327 (Griggs Street)

Division 1 Pasquotank County Elizabeth City

Plan Date: March 2018 Reviewed By: AJ Davis

Prepared By: DJ White Reviewed By: LM Moon

DRMP Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27518 NC License No. C-2418 (919) 650-1038

Seal: Lisa M. Moon, Professional Engineer, No. 022516

DocuSigned by: Lisa M. Moon 9/20/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Seal: Lisa M. Moon, Professional Engineer, No. 022516

DocuSigned by: Lisa M. Moon 9/20/2018

SIG. INVENTORY NO. 01-0025

### 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	-	1	2	3	4	10	.	.	.	.	.	.	.	.	.	.	
R2	-	.	6	.	.	.	.	.	.	.	.	.	.	.	.	.	
R3	-	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	
R4	-	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	

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

### ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switch S4 as DLE, program LD SWITCH 3 as OVLP '5' TYPE '0' as shown below.

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

NOTICE OVLP 7 ASSIGNED TO LD SWITCH 3

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	4	V	.	.	.	+	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	R	X
10	2	O	.	.	.	+	A	R	X
11	3	O	.	.	.	-	A	R	.
12	4	O	.	.	.	-	A	R	.
13	2	P	.	.	.	+	A	.	.
14	4	P	.	.	.	-	A	.	.
15	6	P	.	.	.	+	A	.	.
16	8	P	.	.	.	-	A	.	.

### 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 DF: FYA..0.0 CLEARANCE..0.0  
 ACTION PLAN SF BIT DISABLE..... 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 '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

Toggle 4x  
 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 0.1 YEL 3.8 RED 2.3

END PROGRAMMING

### ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL

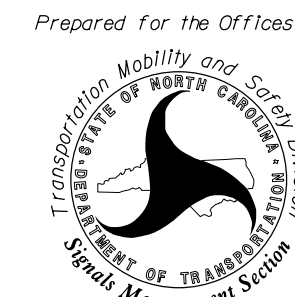
(program controller as shown)

- From Main Menu select 6. DETECTORS
- From DETECTOR Submenu select 2. VEHICLE DETECTOR SETUP


VEH DETECTOR [ 3 ] VEH DET PLAN [ 1 ]  
 TYPE: S-STANDARD  
 TS2 DETECTOR..... X ECPI LOG..... NO  
 DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6  
 3 3 . . X . . . . . X . . . . .  
 EXTEND TIME... 0.0 DELAY TIME... 0.0  
 USE ADDED INITIAL . CROSS SWITCH PH.. 0  
 LOCK IN..... NONE NTCIP VOL . OR OCC .  
 PMT QUEUE DELAY. NO

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0025  
 DESIGNED: MARCH 2018  
 SEALED: 09/20/2018  
 REVISED: N/A

ELECTRICAL AND PROGRAMMING DETAILS FOR:  
 Prepared for the Offices of:  
  
 DRMP, Inc.  
 8000 Regency Parkway, Suite 175  
 Cary, NC 27518  
 NC License No. C-2215 (019) 650-1038

US 17-158 (Hughes Boulevard)  
 at  
 US 17 Business (Road Street) / SR 1327 (Griggs Street)  
 Division 1 Pasquotank County Elizabeth City  
 PLAN DATE: March 2018 REVIEWED BY: AJ Davis  
 PREPARED BY: DJ White REVIEWED BY: LM Moon

SEAL  
  
 SEAL 022516  
 ENGINEER  
 LISA M. MOON  
 DocuSigned by:  
 Lisa M. Moon 9/20/2018  
 DATE  
 SIG. INVENTORY NO. 01-0025

# ECONOLITE ASC/3-2070 BACKUP 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 7. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Backup Preempt #7.

```

PREEMPT PLAN [ 7 ] 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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 XF1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 25I 0I 25I25.5I25.5
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

```

# ECONOLITE ASC/3-2070 LOGIC PROCESSOR PROGRAMMING DETAIL FOR SIDE STREET PHASING & FOR BACKUP PREEMPT

(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 VEH GREEN ON PH 3 IS ON

THEN LP SET LOGIC FLAG 1 ON

ELSE

```

PHASE 3 GREEN SETS LOGIC FLAG 1 ON (SIDE STREET BACKUP)

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

```

LP#: 2 COPY FROM: 2 ACTIVE: M (T/F)
IF LP FLAG 1 IS ON

THEN CTR OMIT PHASE 10 ON

ELSE

```

OMIT PHASE 10 SO PHASE 3 MOVEMENTS RUN ONCE PER CYCLE

ENTER A "3" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```

LP#: 3 COPY FROM: 3 ACTIVE: M (T/F)
IF VEH GREEN ON PH 2 IS ON

THEN LP SET LOGIC FLAG 1 OFF

ELSE

```

TURNS LOGIC FLAG 1 OFF TO ALLOW NORMAL OPERATION

ENTER A "4" IN THE LP# FIELD, PRESS 'ENTER', AND PROGRAM AS SHOWN.

```

LP#: 4 COPY FROM: 4 ACTIVE: M (T/F)
IF DET 34 IS ON

THEN LP DELAY FOR 5.0 SECONDS
PMT CALL PMT SEQ 7 ON

ELSE

```

END PROGRAMMING

- From LOGIC PROCESSOR Submenu select 1. LOGIC STATEMENT CONTROL

ENABLE LOGIC PROCESSOR STATEMENTS 1, 2, 3 & 4 BY POSITIONING THE CURSOR OVER THE FIELDS SHOWN BELOW AND USING THE TOGGLE KEY TO ENABLE THEM.

```

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

```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0025  
 DESIGNED: MARCH 2018  
 SEALED: 09/20/2018  
 REVISED: N/A



Electrical Detail - Sheet 3 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 17-158 (Hughes Boulevard) at US 17 Business (Road Street) / SR 1327 (Griggs Street) Division 1 Pasquotank County Elizabeth City

Prepared for the Offices of:

PLAN DATE: March 2018 REVIEWED BY: AJ Davis  
 PREPARED BY: DJ White REVIEWED BY: LM Moon

REVISIONS: \_\_\_\_\_ INIT: \_\_\_\_\_ DATE: \_\_\_\_\_

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL  
  
 SEAL 022516  
 LISA M. MOON  
 ENGINEER

DocuSigned by: Lisa M. Moon 9/20/2018  
 SIG. INVENTORY NO. 01-0025



## ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

```

PREEMPT PLAN [ 3 ]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120I25.5I25.5
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
    
```

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

```

PREEMPT PLAN [ 4 ]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1.F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120I25.5I25.5
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
    
```

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

```

PREEMPT PLAN [ 5 ]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . . X . . . . .
DWEL PED . . . . .
DWEL OLP . X . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
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
    
```

## ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 4. PREEMPTOR/TSP
2. From PREEMPT/TSP/SCP Submenu select 2. ENABLE PREEMPT FILTERING & TSP/SCP

```

ENABLE PREEMPT FILTERING & TSP/SCP
FILTERED SOLID PULSING
INPUT 1 ...BYPASSED...BY PASSED..
2 ...BYPASSED...BY PASSED..
3 ..PREEMPT 3. ...BYPASSED..
4 ..PREEMPT 4. ...BYPASSED..
5 ..PREEMPT 5. ...BYPASSED..
6 ...BYPASSED...BY PASSED..
7 ..PREEMPT 7. ...BYPASSED..
8 ...BYPASSED...BY PASSED..
9 ...BYPASSED...BY PASSED..
10 ...BYPASSED...BY PASSED..
    
```

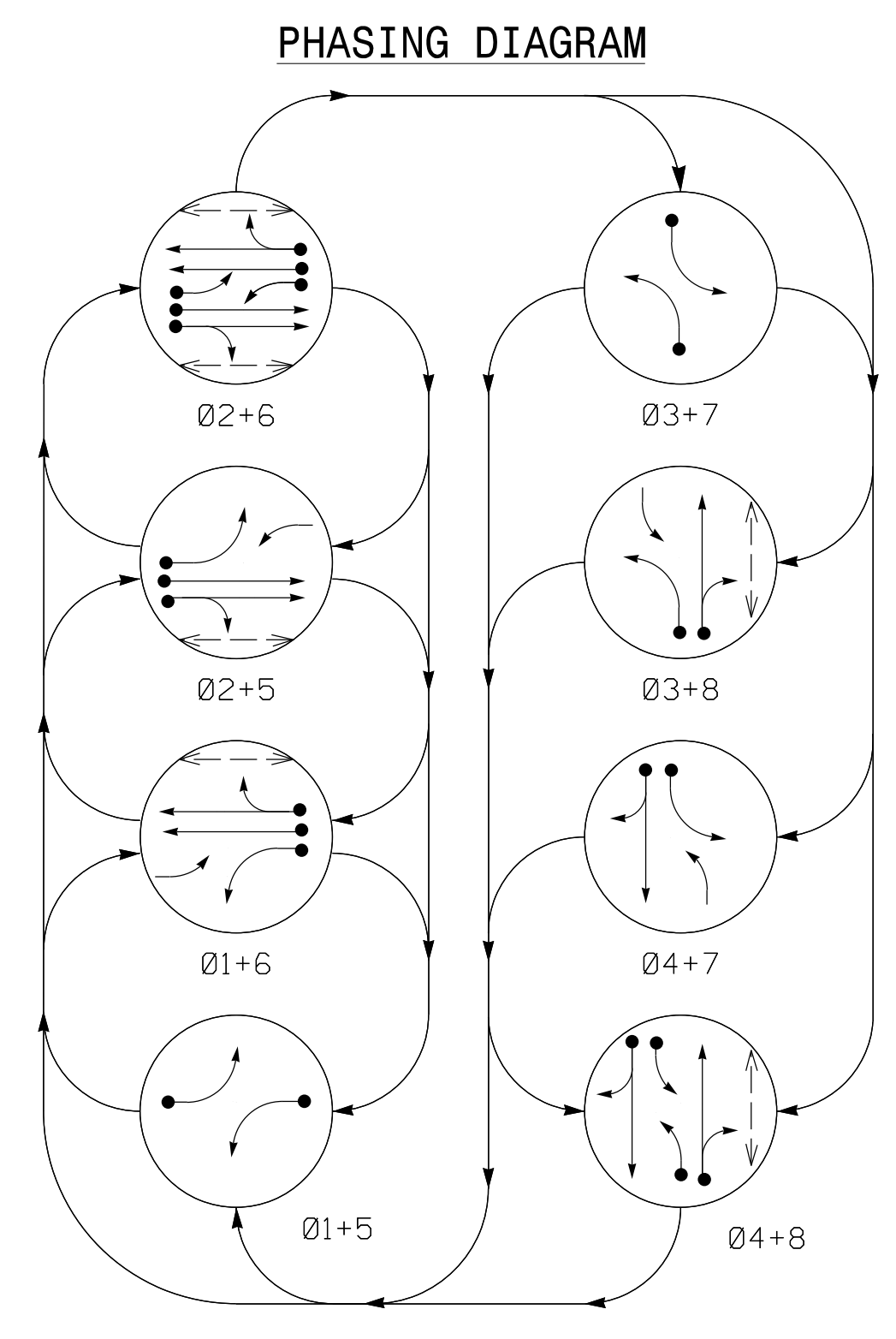
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0025  
DESIGNED: MARCH 2018  
SEALED: 09/20/2018  
REVISED: N/A

Electrical Detail - Sheet 5 of 5

**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

<p style="font-size: small;">ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="font-size: x-small;">Prepared for the Offices of:</p> <p style="font-size: x-small;">Plans Prepared By:</p> <p style="font-size: x-small;">DRMP, Inc. 8000 Regency Parkway, Suite 175 Cary, NC 27519 NC License No. C-2215 (019) 650-1038</p>	<p style="text-align: center;"><b>US 17-158 (Hughes Boulevard)</b> at <b>US 17 Business (Road Street) / SR 1327 (Griggs Street)</b> Division 1 Pasquotank County Elizabeth City</p> <p>PLAN DATE: <b>March 2018</b> REVIEWED BY: <b>AJ Davis</b></p> <p>PREPARED BY: <b>DJ White</b> REVIEWED BY: <b>LW Moon</b></p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	REVISIONS	INIT.	DATE				<p style="text-align: center; font-size: x-small;">SEAL</p> <p style="font-size: x-small;">DocuSigned by: <i>Lisa M. Moon</i> 9/20/2018 DATE</p> <p style="font-size: x-small;">SIG. INVENTORY NO. 01-0025</p>
REVISIONS	INIT.	DATE						



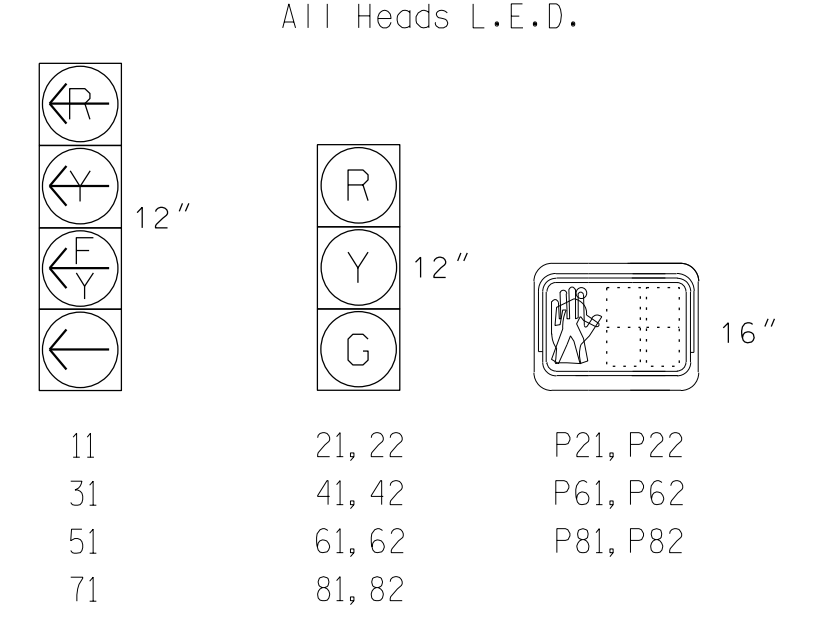


**PHASING DIAGRAM DETECTION LEGEND**

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

SIGNAL FACE	PHASE								L. E. D.
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	Ø 3 + 7	Ø 3 + 8	Ø 4 + 7	Ø 4 + 8	
11	←	←	←	←	←	←	←	←	Y
21, 22	R	R	G	G	R	R	R	R	Y
31	←	←	←	←	←	←	←	←	Y
41, 42	R	R	R	R	R	R	G	G	R
51	←	←	←	←	←	←	←	←	Y
61, 62	R	G	R	G	R	R	R	R	Y
71	←	←	←	←	←	←	←	←	Y
81, 82	R	R	R	R	R	G	R	G	R
P21, P22	DW	DW	W	W	DW	DW	DW	DRK	
P61, P62	DW	W	DW	W	DW	DW	DW	DRK	
P81, P82	DW	DW	DW	DW	DW	W	DW	DRK	

**SIGNAL FACE I.D.**

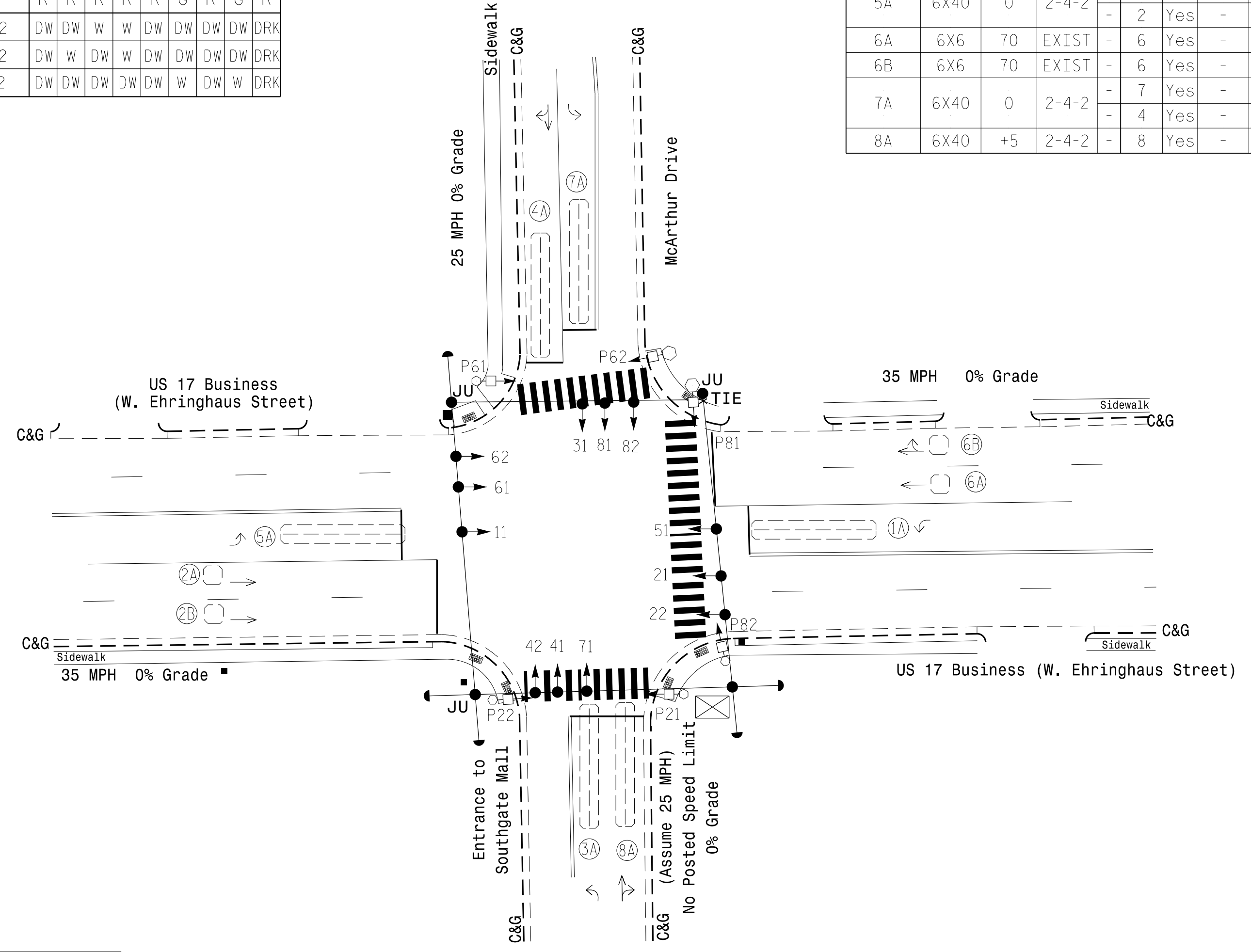


ASC/3 DETECTOR INSTALLATION CHART												
DETECTOR				PROGRAMMING								
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	-	1	Yes	-	15	-	S	-	X
2A	6X6	70	EXIST	-	2	Yes	-	-	-	S	-	X
2B	6X6	70	EXIST	-	2	Yes	-	-	-	S	-	X
3A	6X40	+5	2-4-2	-	3	Yes	-	15	-	S	-	X
4A	6X40	0	2-4-2	-	4	Yes	-	10	-	S	-	X
5A	6X40	0	2-4-2	-	5	Yes	-	15	-	S	-	X
6A	6X6	70	EXIST	-	6	Yes	-	-	-	S	-	X
6B	6X6	70	EXIST	-	6	Yes	-	-	-	S	-	X
7A	6X40	0	2-4-2	-	7	Yes	-	15	-	S	-	X
8A	6X40	+5	2-4-2	-	8	Yes	-	10	-	S	-	X

**8 Phase Fully Actuated (Elizabeth City Signal System)**

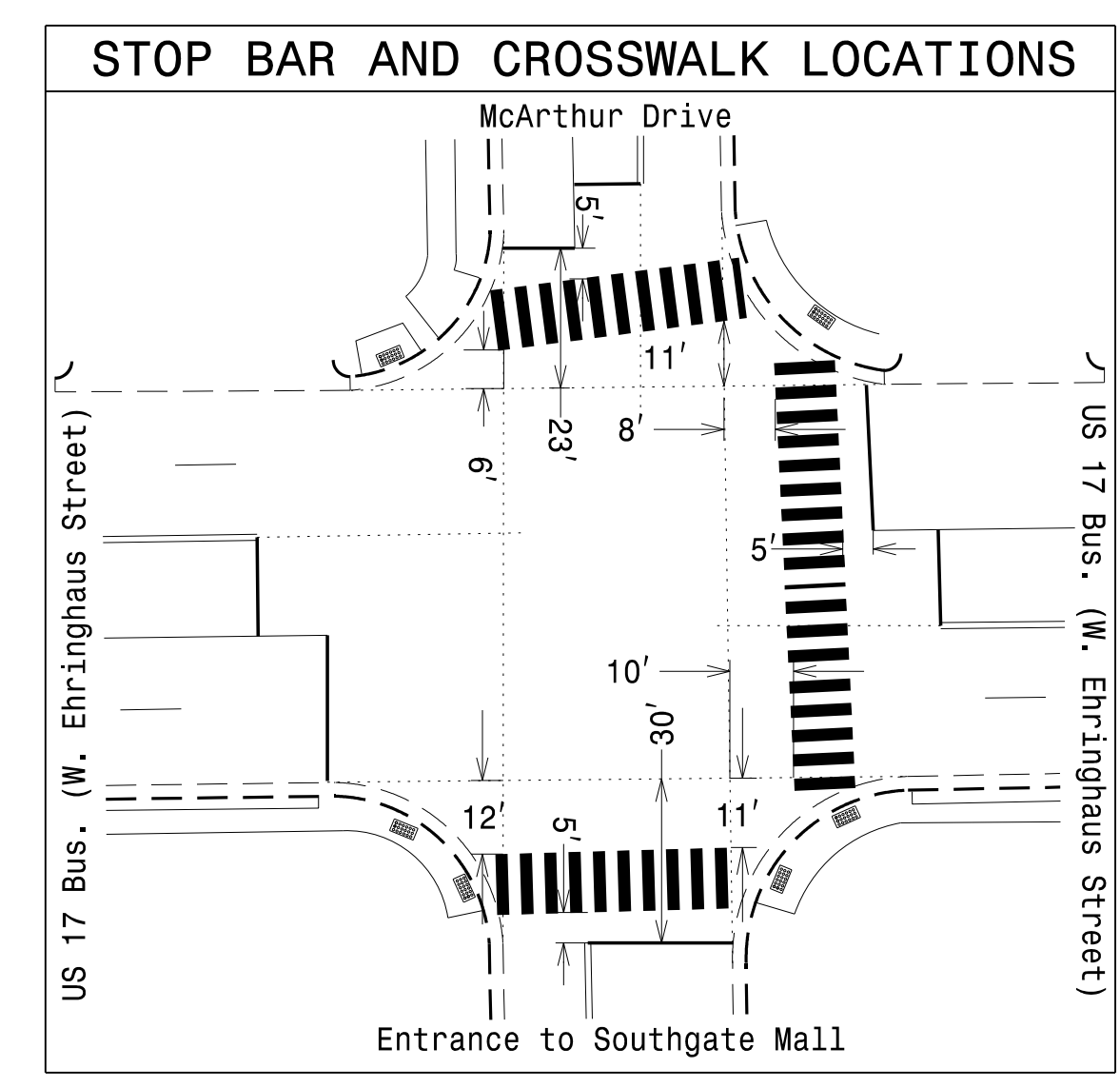
**NOTES**

- 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 detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
- Crosswalk markings and stop bars for the northbound approach and the through-left lane of the southbound approach are proposed, all other pavement markings are existing.
- 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	5	6	7	8
Min Green *	7	10	7	7	7	10	7	7
Delay Green	0	0	0	7	0	0	0	7
Walk *	0	7	0	0	0	7	0	7
Ped Clear	0	9	0	0	0	9	0	18
Veh. Extension *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max I *	20	60	20	20	20	60	20	20
Yellow	3.0	3.8	3.0	3.2	3.0	3.8	3.0	3.2
Red Clear	2.8	2.1	2.6	2.9	2.9	2.1	2.9	2.9
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
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.



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
→	Directional Arrow	→	N/A
N/A	Truncated Dome	■	N/A
○	Type II Signal Pedestal	●	N/A

**Signal Upgrade**

Prepared for the Offices of:  
 TRANSPORTATION MOBILITY AND SAFETY DIVISION  
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
 Signal Design Section

**US 17 Bus. (W. Ehringhaus St.) at McArthur Dr. / Ent. to Southgate Mall**

Division 1 Pasquotank County Elizabeth City

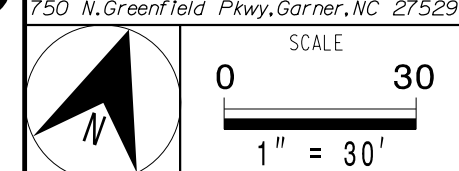
PLAN DATE: February 2018 REVIEWED BY: AJ Davis

PREPARED BY: JA Le REVIEWED BY: LM Moon

REVISIONS: INIT. DATE

DocuSigned by: Lisa M. Moon 9/20/2018

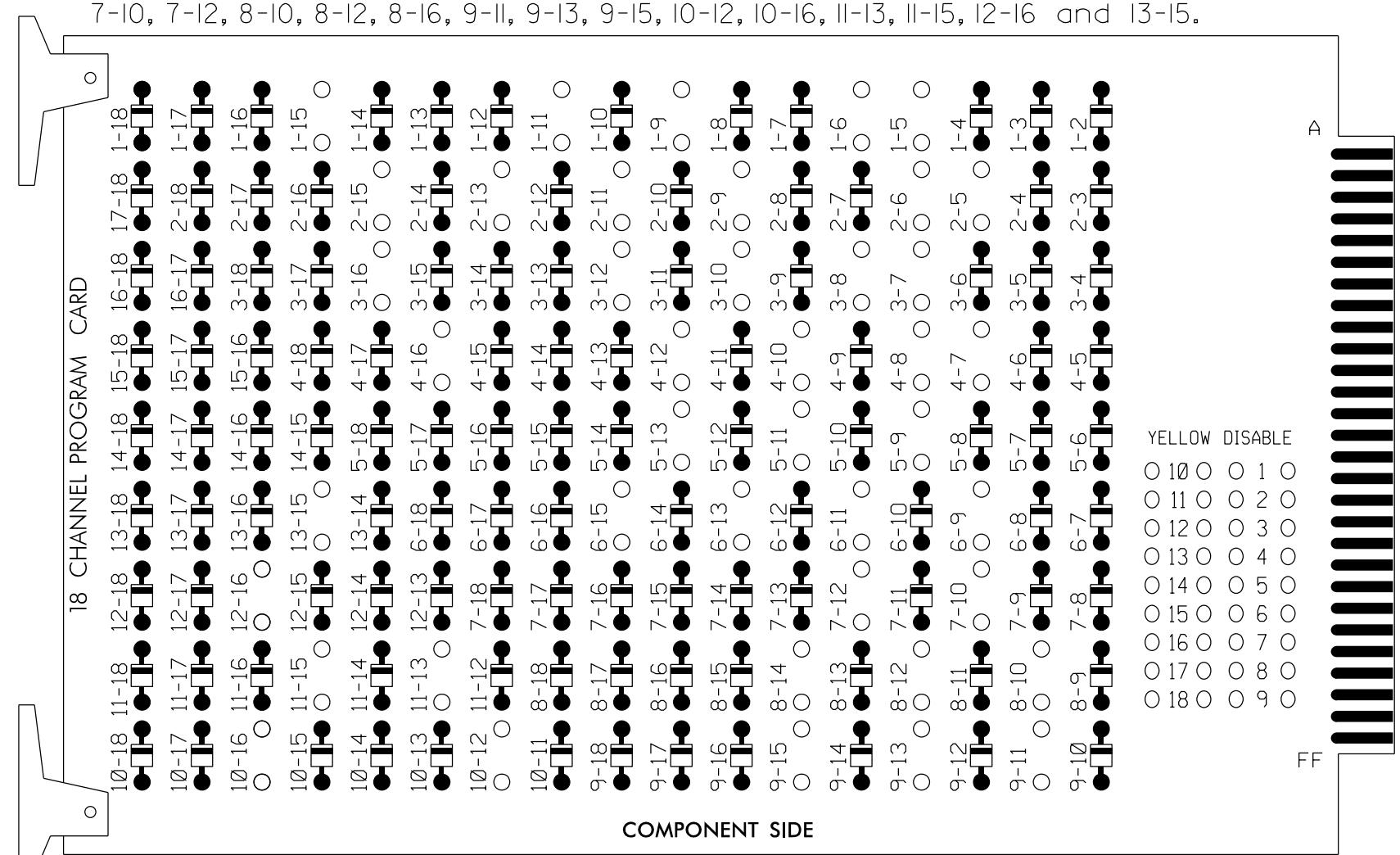
SIG. INVENTORY NO. 01-0034



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

(remove jumpers and set switches as shown)

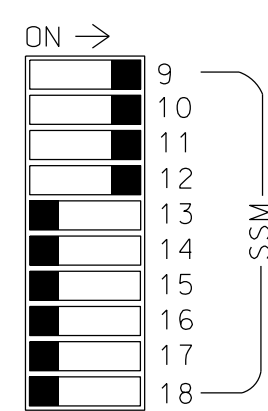
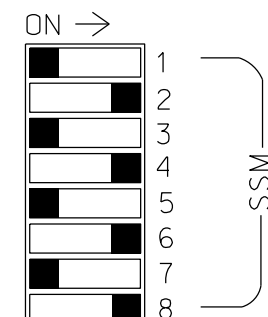
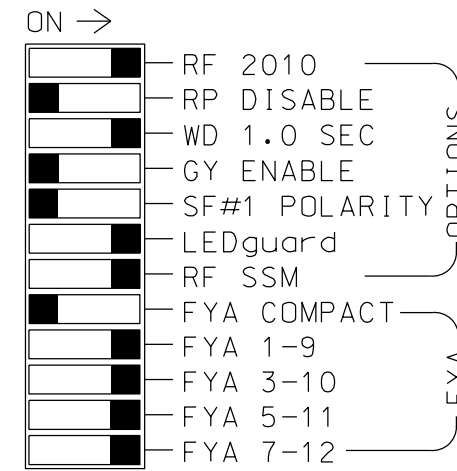
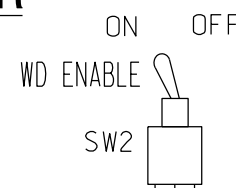
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 7-10, 7-12, 8-10, 8-12, 8-16, 9-11, 9-13, 9-15, 10-12, 10-16, 11-13, 11-15, 12-16 and 13-15.



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.



■ = 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 WALK and 6 WALK.
- The cabinet and controller are part of the Elizabeth City Signal System.

5. Ensure Delayed Green times shown in the Timing Chart on the signal design plan are accounted for to facilitate leading pedestrian interval.

### EQUIPMENT INFORMATION

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

### SIGNAL HEAD HOOK-UP CHART

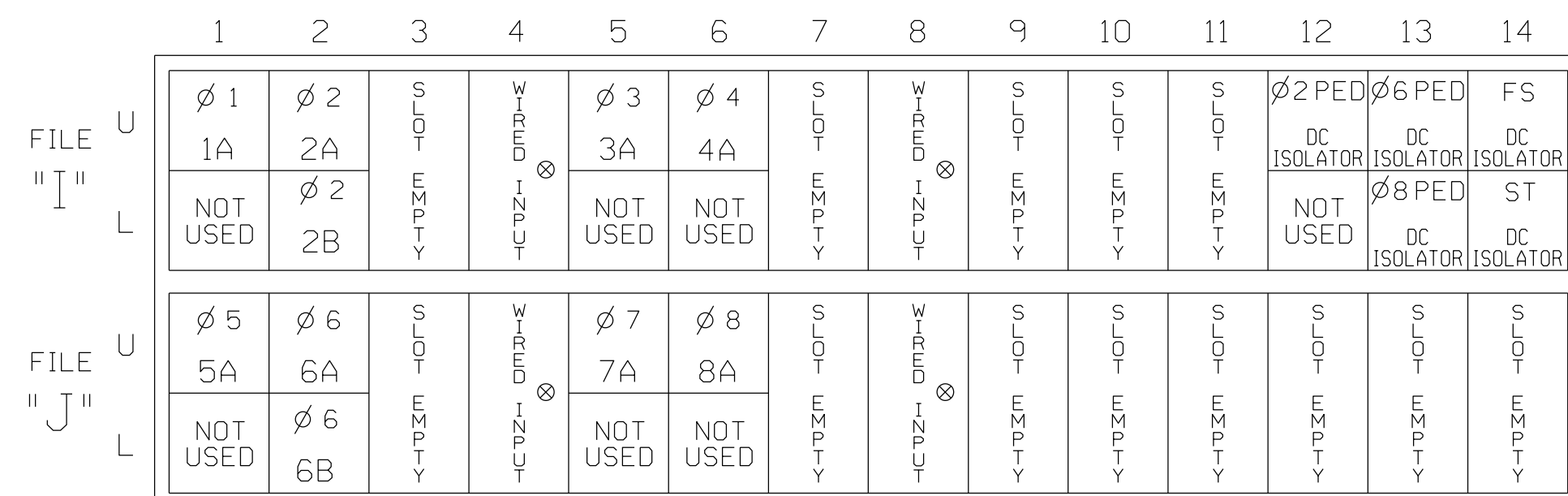
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	P21, P22	31	41,42	NU	51	61,62	P61, P62	71	81,82	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													A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118				133			124							
Hand icon				113						119			110					
Walking person icon				115						121			112					

NU = Not Used

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

### INPUT FILE POSITION LAYOUT

(front view)



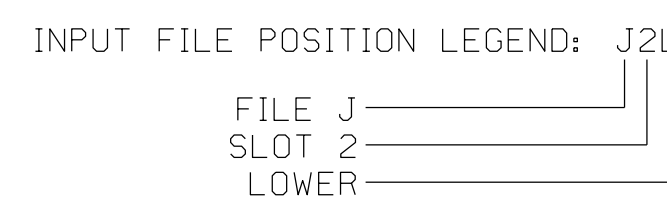
EX.: 1A, 2A, ETC. = LOOP NO.'S FS = FLASH SENSE  
 Wired Input - Do not populate slot with detector card ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A <sup>1</sup>	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES				S
2A	TB2-5,6	I2U	39	2	2	YES				S
	TB2-7,8	I2L	43	12	2	YES				S
3A <sup>2</sup>	TB4-5,6	I5U	58	3	3	YES		15		S
	-	J8U	50	28	8	YES		3		S
4A	TB4-9,10	I6U	41	4	4	YES		10		S
5A <sup>3</sup>	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES				S
6A	TB3-5,6	J2U	40	6	6	YES				S
6B	TB3-7,8	J2L	44	16	6	YES				S
7A <sup>4</sup>	TB5-5,6	J5U	57	7	7	YES		15		S
	-	I8U	49	24	4	YES		3		S
8A	TB5-9,10	J6U	42	8	8	YES		10		S
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 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.



### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

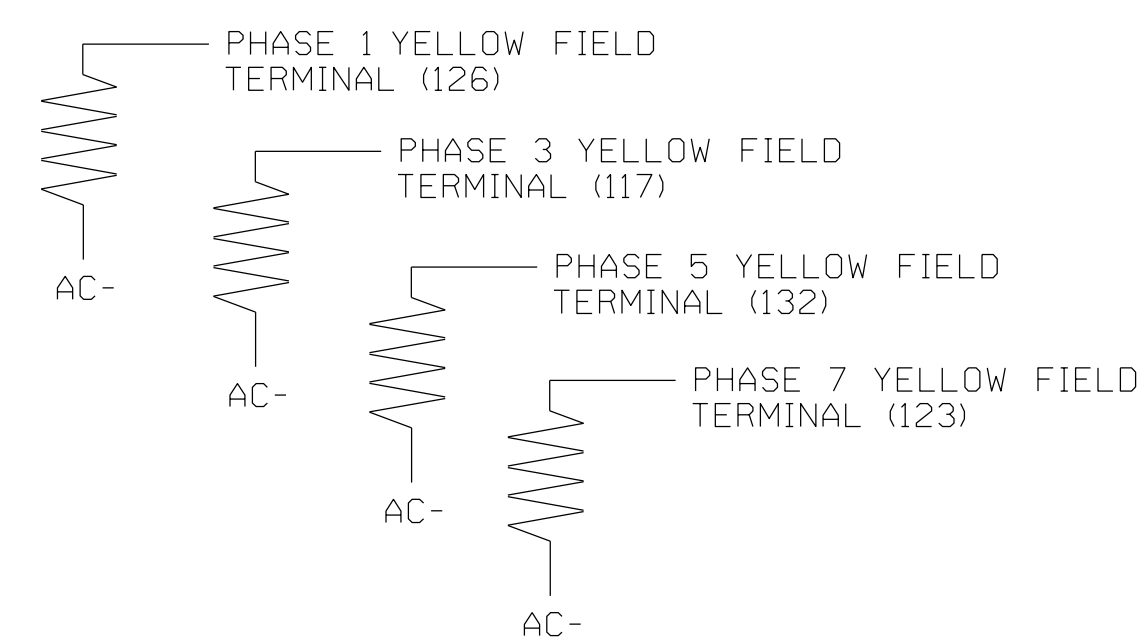
Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0034  
 DESIGNED: FEBRUARY 2018  
 SEALED: 09/20/2018  
 REVISED: N/A

### LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

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



DRMP, Inc.  
 8000 Regency Parkway, Suite 175  
 Cary, NC 27518  
 NC License No. C-2213 (019) 650-1038

Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: 	US 17 Bus. (W. Ehringhaus St.) at McArthur Dr./ Ent. to Southgate Mall Division 1 Pasquotank County Elizabeth City		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL 
	PLAN DATE: February 2018 PREPARED BY: DJ White	REVIEWED BY: AJ Davis REVIEWED BY: LM Moon	
REVISIONS INIT. DATE	DocuSigned by: Lisa M. Moon 9/20/2018 DATE	SIGNED BY: DATE	SIGNED BY: DATE



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

*(program controller as shown)*

The following logic processor configuration holds the FYA's on signal head 71 red for the duration of the delayed green time (leading ped interval) when serving a ped call on the opposing through phase.

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

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

LP#:	1	COPY FROM:	4	ACTIVE:	M	(T/F)
IF	PED ON PH WALK		8	IS	ON	
AND	VEH GREEN ON PH		8	IS	OFF	
THEN	SIG SET DLP RED		4		ON	
	SIG SET DLP YELLOW		4		OFF	
	SIG SET DVLP GREEN		4		OFF	
ELSE						

HOLD SIGNAL HEAD 71 FYA RED DURING THE PHASE 8 DELAYED GREEN TIME (LEADING PED INTERVAL)

4. From the LOGIC PROCESSOR Submenu select 1. LOGIC STATEMENT CONTROL

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

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

END PROGRAMMING

## ECONOLITE ASC/3-2070 PED 8 PROGRAMMING ASSIGNMENT DETAIL

*(program controller as shown)*

1. From Main Menu select 6. DETECTORS
2. From DETECTOR Submenu select 3. PED DETECTOR INPUT ASSIGNMENT

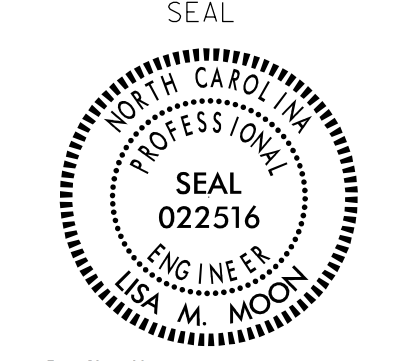
PED DET PHASE ASSIGNMENT MODE: NTCIP								
PHASE	1	2	3	4	5	6	7	8
DETECTOR	0	2	0	8	0	6	0	8
PHASE	9	10	11	12	13	14	15	16
DETECTOR	0	0	0	0	0	0	0	0

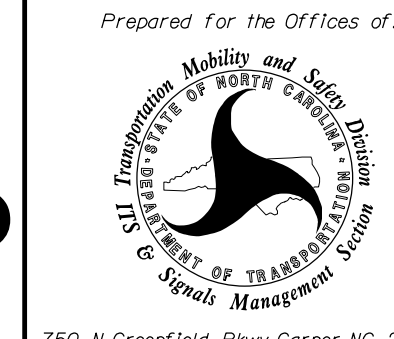
← NOTICE PED DETECTOR 8 ASSIGNED TO PHASE 4 & 8

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0034  
DESIGNED: FEBRUARY 2018  
SEALED: 09/20/2018  
REVISED: N/A

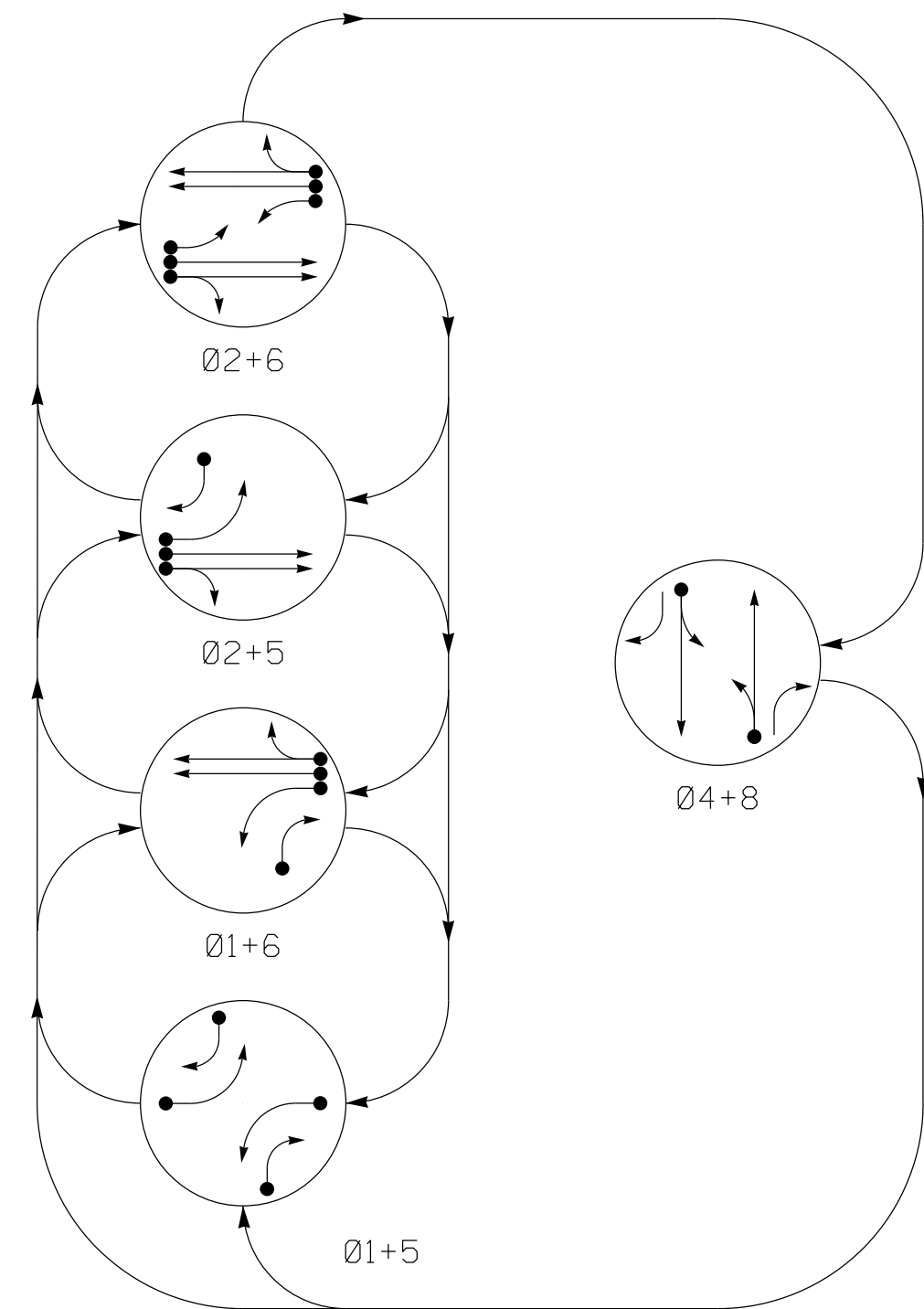
Electrical Detail - Sheet 3 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

<p style="font-size: x-small;">ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="text-align: center;">US 17 Bus. (W. Ehringhaus St.) at McArthur Dr./ Ent. to Southgate Mall</p> <p style="font-size: x-small;">Division 1 Pasquotank County Elizabeth City</p> <p style="font-size: x-small;">PLAN DATE: February 2018    REVIEWED BY: AJ Davis</p> <p style="font-size: x-small;">PREPARED BY: DJ White    REVIEWED BY: LM Moon</p>	<p style="font-size: x-small;">REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">INIT.</th> <th style="width: 50%;">DATE</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>	INIT.	DATE			<p style="text-align: center; font-size: x-small;">SEAL</p> <div style="text-align: center;">  </div> <p style="font-size: x-small;">DocuSigned by: <i>Lisa M. Moon</i>    9/20/2018</p> <p style="font-size: x-small;">SIC6880830421    DATE</p> <p style="font-size: x-small;">SIG. INVENTORY NO. 01-0034</p>
INIT.	DATE					



PHASING DIAGRAM



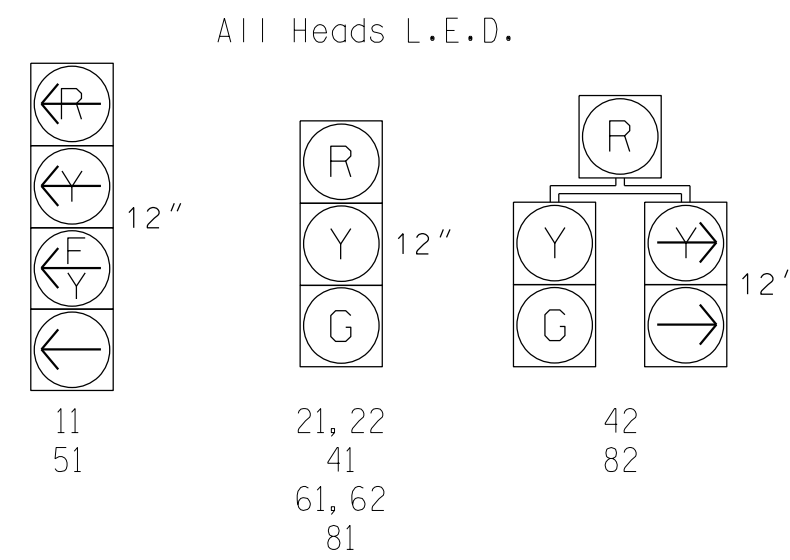
PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT (arrow with dot)
UNDETECTED MOVEMENT (OVERLAP) (arrow with line)
UNSIGNALIZED MOVEMENT (arrow with dashed line)
PEDESTRIAN MOVEMENT (arrow with vertical line)

TABLE OF OPERATION

Table with columns: SIGNAL FACE, PHASE (01+5, 01+6, 02+5, 02+6, 04+8, FLOW), and signal face IDs (11, 21, 22, 41, 42, 51, 61, 62, 81, 82).

SIGNAL FACE I.D.



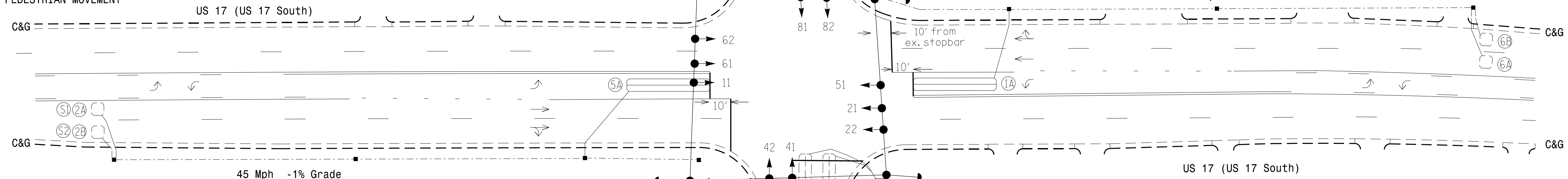
ASC/3 DETECTOR INSTALLATION CHART

Table with columns: LOOP, SIZE (FT), DISTANCE FROM STOPBAR (FT), TURNS, NEW LOOP, PHASE, CALLING, EXTEND TIME, DELAY TIME, USE ADDED INITIAL, TYPE, SYSTEM LOOP, NEW CARD. Lists detector details for loops 1A through 8A.

5 Phase Fully Actuated (Elizabeth City Signal System)

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 phase 5 may be lagged.
4. Set all detector units to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. 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.
7. Pavement markings existing unless noted.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Install new pole adjacent to existing pole and raise spans to obtain 17' minimum clearance for signal head heights.



ASC/3 TIMING CHART

Timing chart table with columns: FEATURE, PHASE (1, 2, 4, 5, 6, 8), and timing values for features like Min Green, Walk, Ped Clear, Veh. Extension, Max 1, Yellow, Red Clear, etc.

\* 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: Traffic Signal Head, Modified Signal Head, Pedestrian Signal Head, Signal Pole with Guy, Signal Pole with Sidewalk Guy, Inductive Loop Detector, Controller & Cabinet, Junction Box, 2-in Underground Conduit, Right of Way, Directional Arrow, Fire Hydrant.
EXISTING: Traffic Signal Head, Modified Signal Head, Pedestrian Signal Head, Signal Pole with Guy, Signal Pole with Sidewalk Guy, Controller & Cabinet, Junction Box, 2-in Underground Conduit, Right of Way, Directional Arrow, Fire Hydrant.

Signal Upgrade

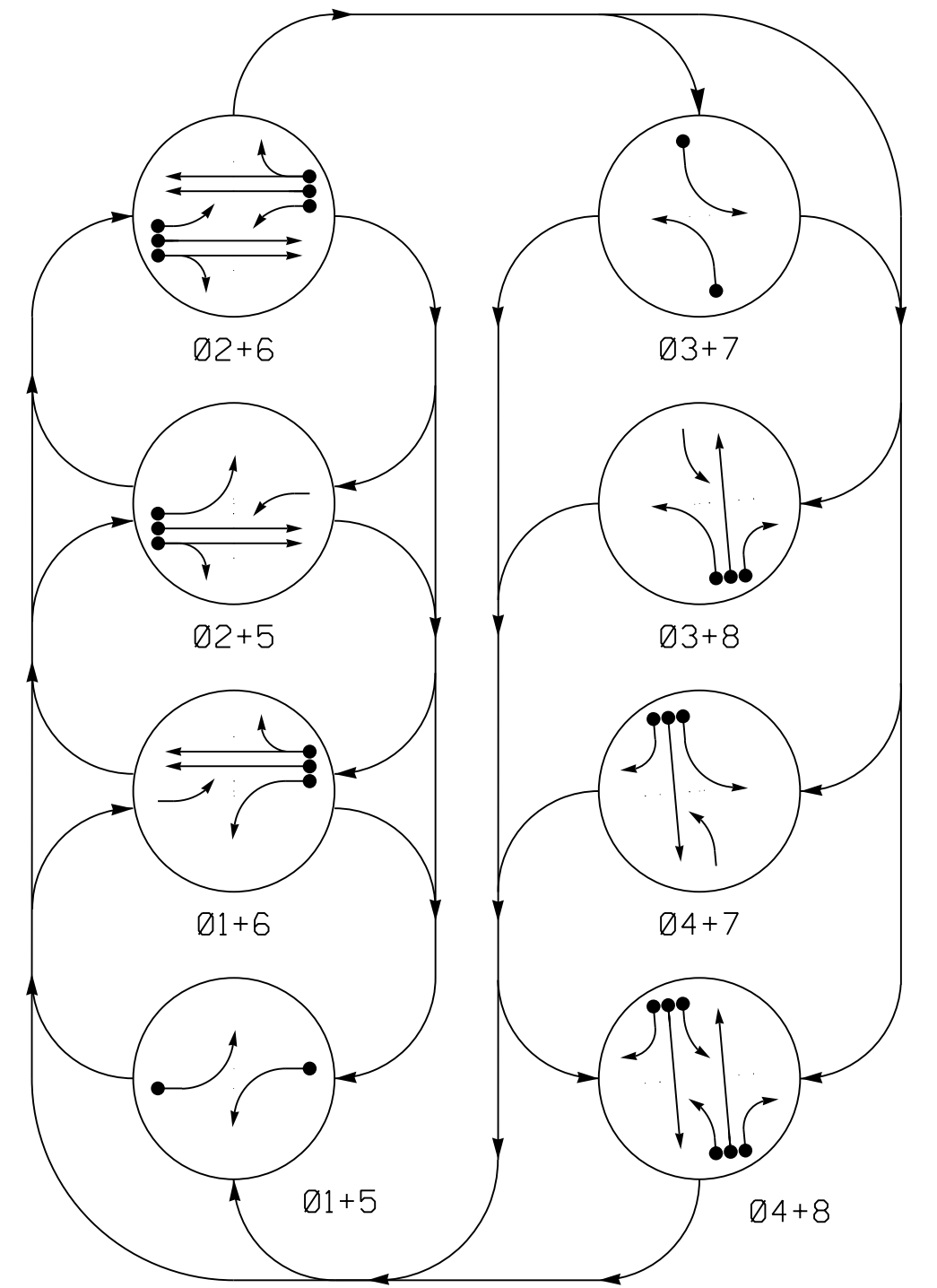
Project information block including: Plans Prepared By: DRMP; Project Name: US 17 (US 17 South) at SR 1306 (Forest Park Road)/ Central Elementary School Ent.; Date: February 2018; Engineer: Lisa M. Moon; and a seal for Lisa M. Moon, Professional Engineer, License No. 022516.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





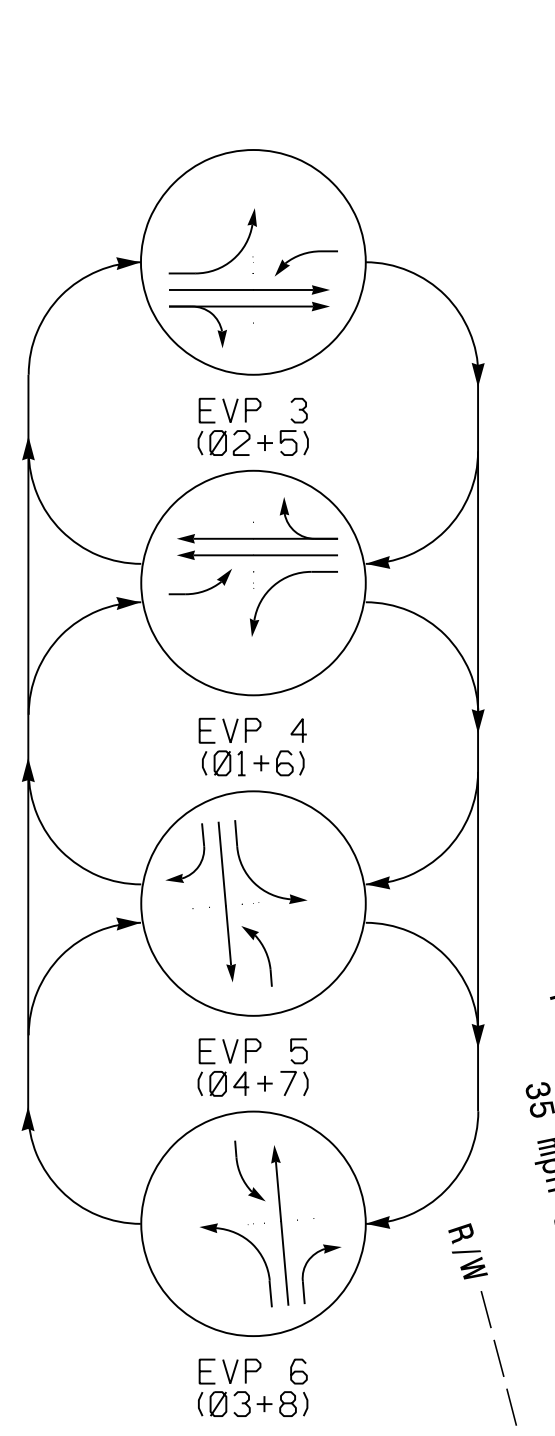
**PHASING DIAGRAM**



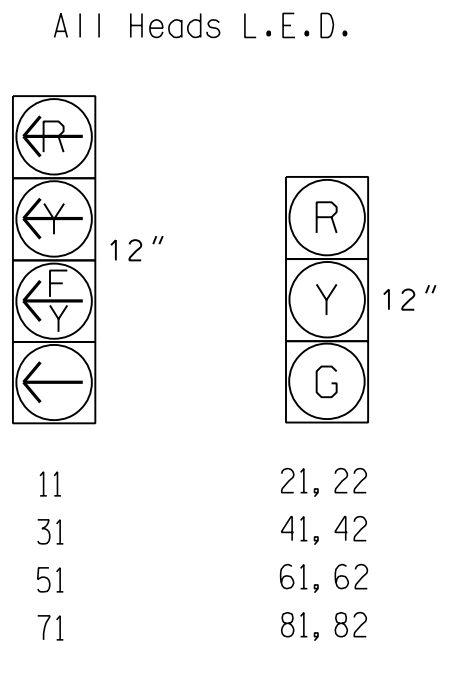
**PHASING DIAGRAM DETECTION LEGEND**

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

**EV PREEMPT PHASES**



**SIGNAL FACE I.D.**



**TABLE OF OPERATION**

SIGNAL FACE	PHASE											
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	EVP 3	EVP 4	EVP 5	EVP 6
11	←	←	←	←	←	←	←	←	←	←	←	←
21,22	R	R	G	G	R	R	R	R	G	R	R	R
31	←	←	←	←	←	←	←	←	←	←	←	←
41,42	R	R	R	R	R	R	R	G	G	R	R	G
51	←	←	←	←	←	←	←	←	←	←	←	←
61,62	R	G	R	G	R	R	R	R	G	R	R	Y
71	←	←	←	←	←	←	←	←	←	←	←	←
81,82	R	R	R	R	R	G	R	G	R	R	R	G

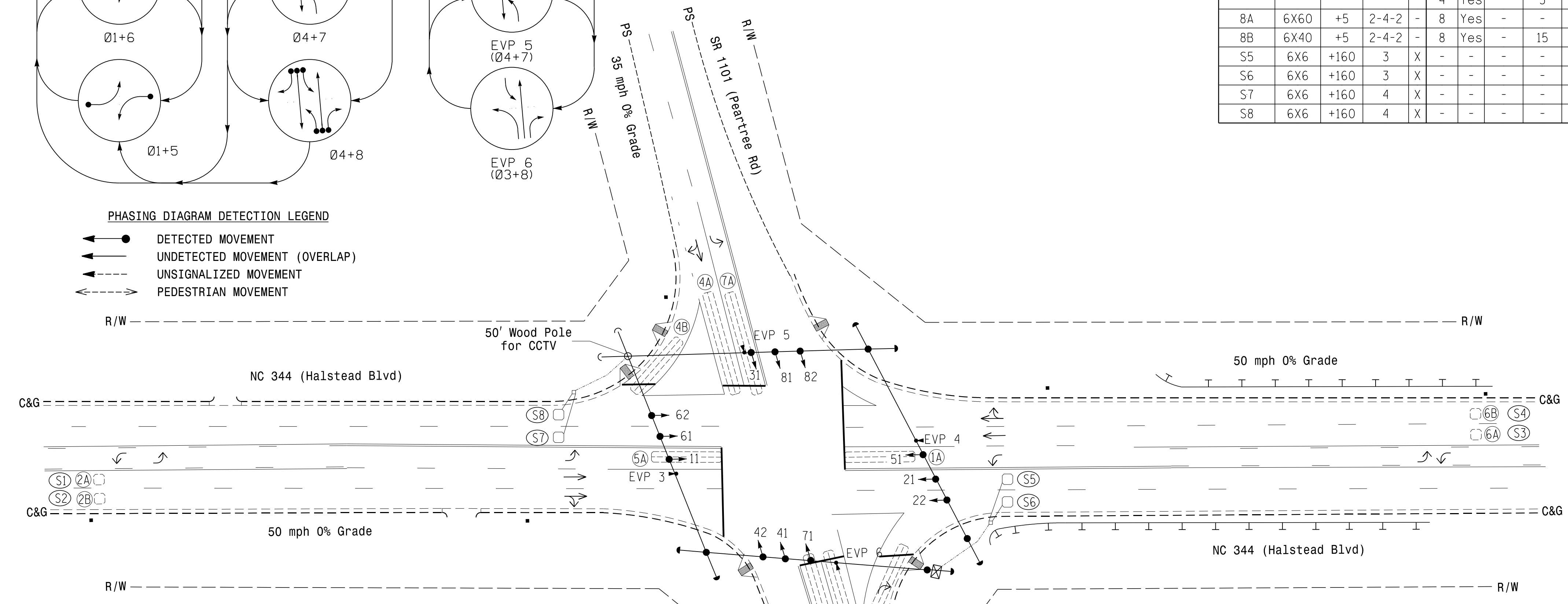
**ASC/3 DETECTOR INSTALLATION CHART**

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	-	15	-	S	-	X
2A/S1	6X6	355	EXIST	-	2	Yes	-	-	-	X	N	X
2B/S2	6X6	355	EXIST	-	2	Yes	-	-	-	X	N	X
3A	6X60	+5	2-4-2	-	3	Yes	-	15	-	S	-	X
4A	6X60	+5	2-4-2	-	4	Yes	-	-	-	S	-	X
4B	6X40	+5	2-4-2	-	4	Yes	-	15	-	S	-	X
5A	6X40	0	2-4-2	-	5	Yes	-	15	-	S	-	X
6A/S3	6X6	355	EXIST	-	6	Yes	-	-	-	X	N	X
6B/S4	6X6	355	EXIST	-	6	Yes	-	-	-	X	N	X
7A	6X60	+5	2-4-2	-	7	Yes	-	15	-	S	-	X
8A	6X60	+5	2-4-2	-	8	Yes	-	-	-	S	-	X
8B	6X40	+5	2-4-2	-	8	Yes	-	15	-	S	-	X
S5	6X6	+160	3	X	-	-	-	-	-	N	X	X
S6	6X6	+160	3	X	-	-	-	-	-	N	X	X
S7	6X6	+160	4	X	-	-	-	-	-	N	X	X
S8	6X6	+160	4	X	-	-	-	-	-	N	X	X

**8 Phase Fully Actuated w/ EV Preemption (Elizabeth City Signal System)**

**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 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.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 3 calls EVP 3; Optical detector 4 calls EVP 4; Optical detector 5 calls EVP 5; Optical detector 6 calls EVP 6.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



**ASC/3 TIMING CHART**

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	14	7	7	7	14	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 *	15	90	15	20	15	90	15	20
Yellow	3.0	4.8	3.0	4.5	3.0	4.8	3.0	4.5
Red Clear	1.8	1.0	2.9	1.8	1.8	1.0	2.6	1.8
Actuations B4 Add *	-	0	-	-	-	0	-	-
Seconds / Actuation *	-	1.5	-	-	-	1.5	-	-
Max Initial *	-	40	-	-	-	40	-	-
Time Before Reduction *	-	20	-	-	-	20	-	-
Time To Reduce *	-	50	-	-	-	50	-	-
Minimum Gap	-	3.3	-	-	-	3.3	-	-
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.

**ASC/3 EV PREEMPT**

FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Exit Phase(s)	2,6	2,6	2,6	2,6
Preempt Override	OFF	OFF	OFF	OFF
Delay Time	0	0	0	0
Ped Clear Through Yellow	N	N	N	N
Terminate Phases	N	N	N	N
Entrance Walk	255*	255*	255*	255*
Entrance Ped Clear	255*	255*	255*	255*
Entrance Min Green	1	1	1	1
Entrance Yellow Change	25.5*	25.5*	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*	25.5*	25.5*
Minimum Dwell Time	12	12	7	7
Preempt Input Extension Time	2	2	2	2
Preempt Max Time	120	120	120	120
Exit Yellow Change	25.5*	25.5*	25.5*	25.5*
Exit Red Clear	25.5*	25.5*	25.5*	25.5*

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

**LEGEND**

- |  |                           |
|--|---------------------------|
| <b>PROPOSED</b>                                  | <b>EXISTING</b>           |
| ○ → Traffic Signal Head                          | ● → N/A                   |
| ○ → Modified Signal Head                         | ○ → Sign                  |
| ⊥ Pedestrian Signal Head With Push Button & Sign | ⊥ Signal Pole with Guy    |
| ⊥ Signal Pole with Sidewalk Guy                  | ⊥ Inductive Loop Detector |
| ⊠ Controller & Cabinet                           | ⊠ Junction Box            |
| □ 2-in Underground Conduit                       | □ Right of Way            |
| → Directional Arrow                              | → Optical Detector        |

**Signal Upgrade**

Prepared for the Offices of:  
  
 750 N. Greenfield Pkwy, Garner, NC 27529  
 SCALE 1"=40'

**NC 344 (Halstead Boulevard) At SR 1101 (Peartree Road)**  
 Division 1 Pasquotank County Elizabeth City  
 PLAN DATE: September 2018 REVIEWED BY: CBHolden  
 PREPARED BY: DTSears REVIEWED BY:  
 REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  
  
 DocuSigned by: C. Byron Holden 9/21/2018  
 DATE: 9/21/2018  
 SIG. INVENTORY NO. 01-0217

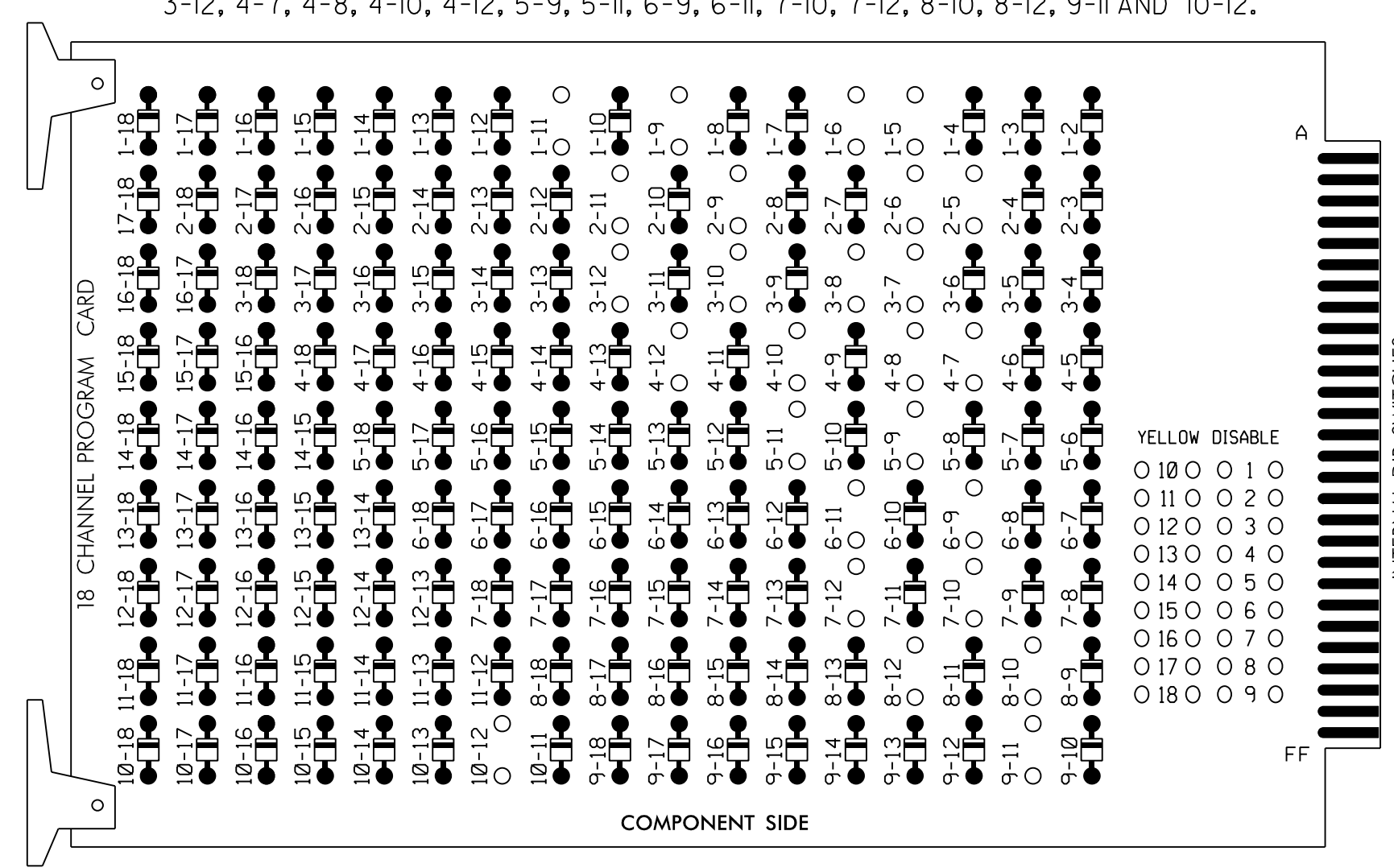
**PLANS PREPARED BY:**  
  
 RUMMEL, KLEPPER & KAHL, LLP  
 900 RIDGEFIELD DRIVE SUITE 350  
 RALEIGH, NORTH CAROLINA 27609-3960  
 NC LICENSE NO. F-0112 • (919) 878-9560



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

(remove jumpers and set switches as shown)

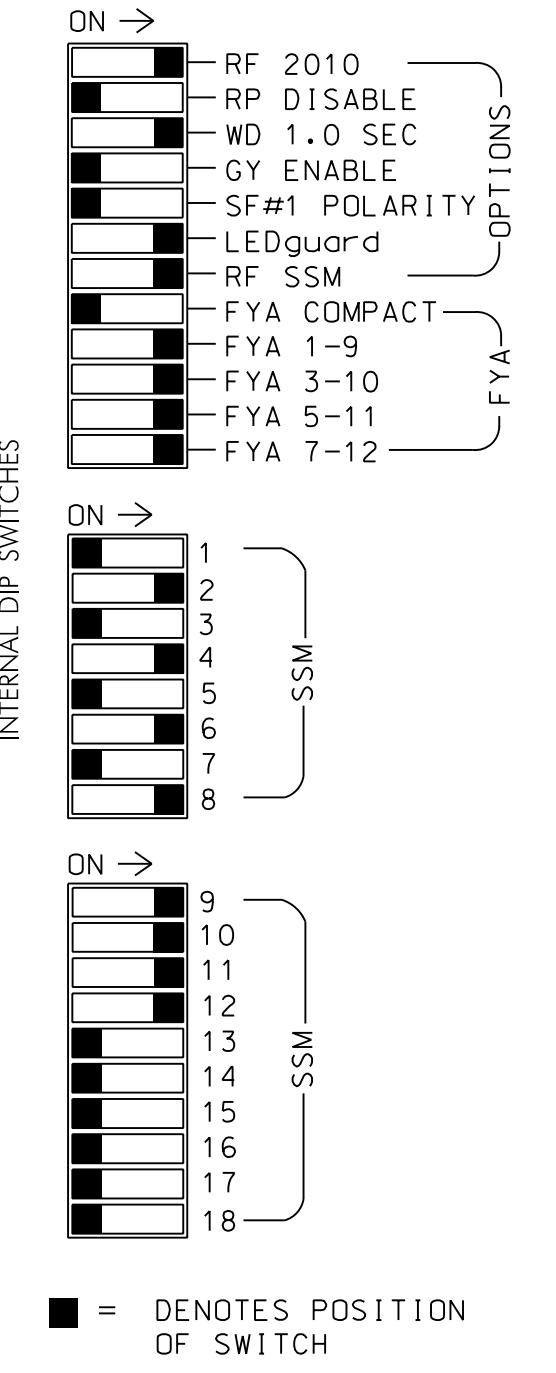
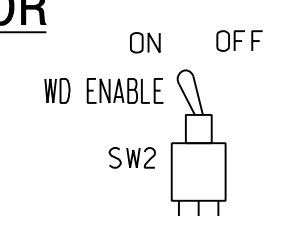
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 7-10, 7-12, 8-10, 8-12, 9-11 AND 10-12.



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 the Elizabeth City Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070LX  
 CABINET.....332 W/AUX  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,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

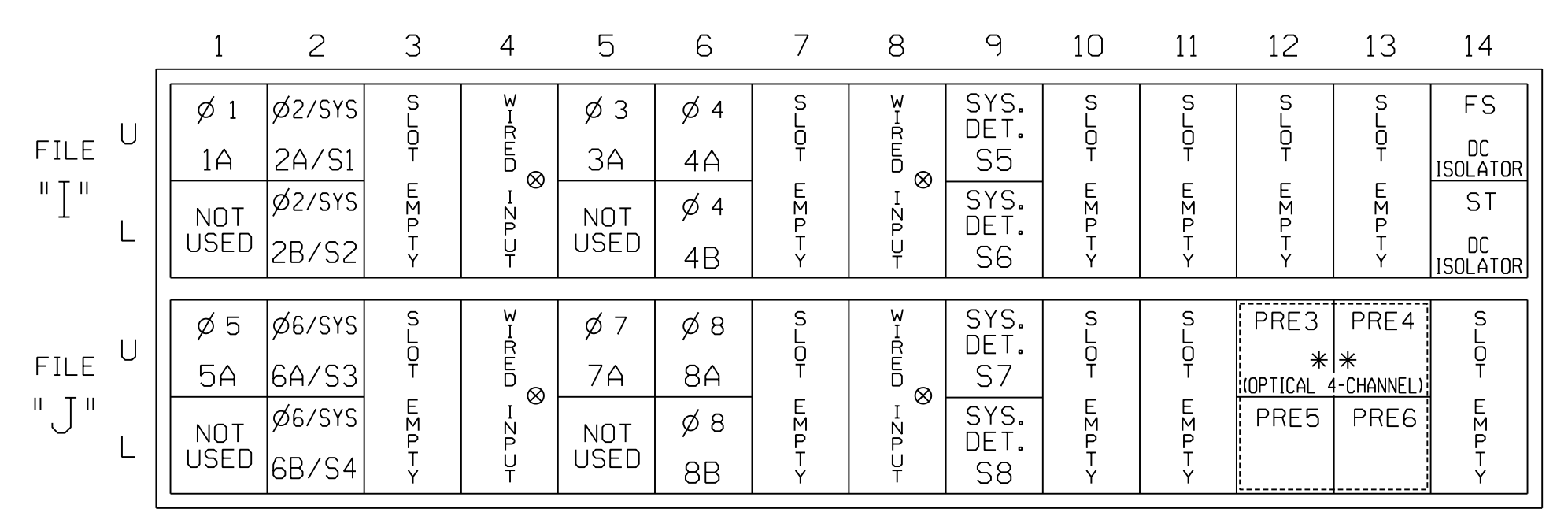
### SIGNAL HEAD HOOK-UP CHART

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 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	31	41,42	NU	51	61,62	NU	71	81,82	NU	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													A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118			133			124								

NU = Not Used

\* Denotes install load resistor. See load resistor installation detail on sheet 2 of 3.  
 ★ See pictorial of head wiring in detail this sheet.

### INPUT FILE POSITION LAYOUT (front view)



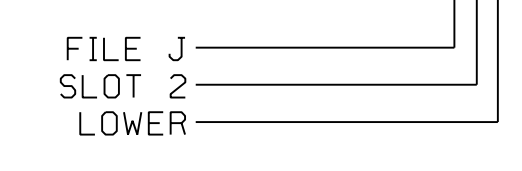
EX.: 1A, 2A, ETC. = LOOP NO.'S  
 FS = FLASH SENSE  
 ST = STOP TIME  
 PRE = PREEMPT  
 ⊗ Wired Input - Do not populate slot with detector card

### INPUT FILE CONNECTION & PROGRAMMING CHART

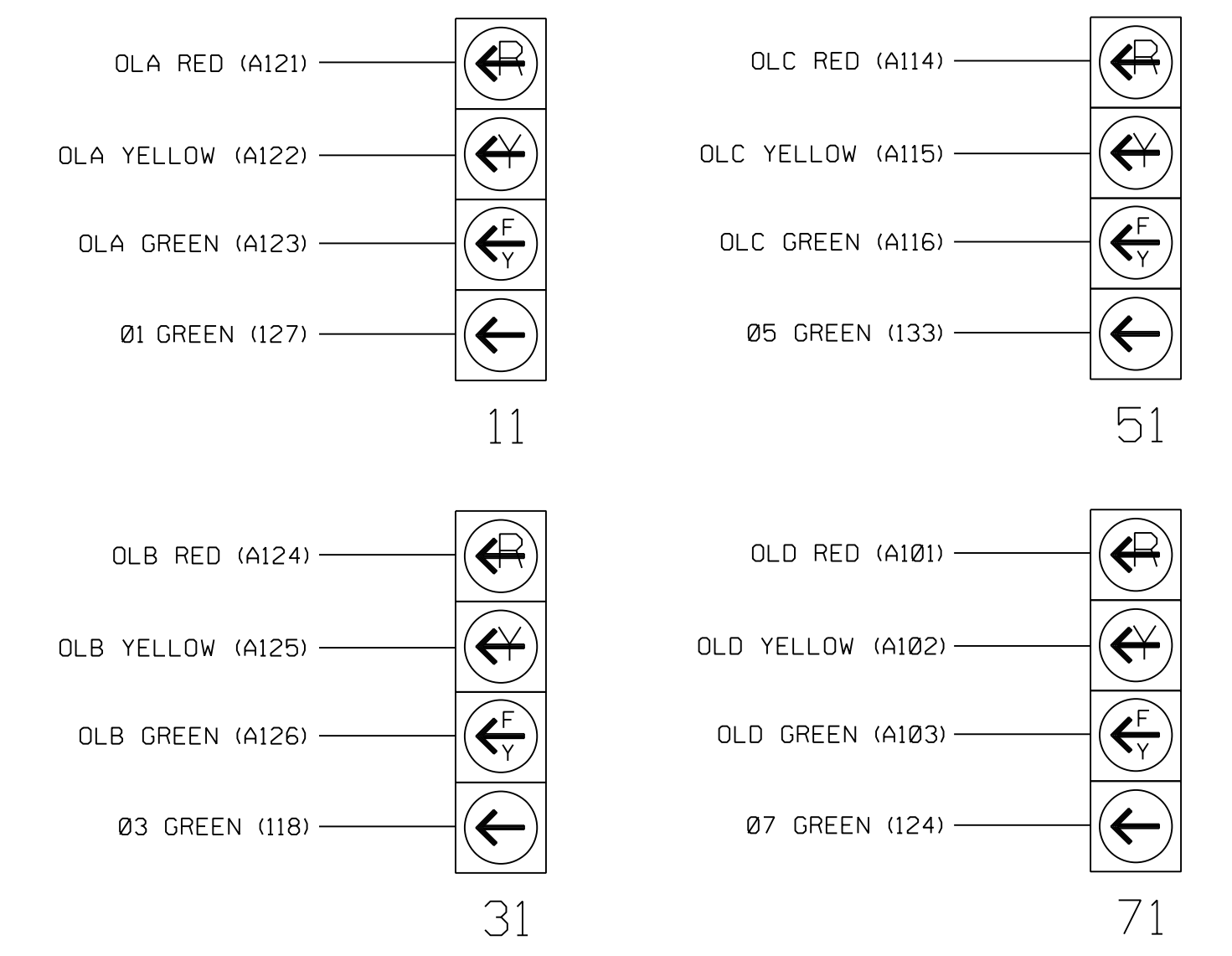
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A <sup>1</sup>	TB2-1,2	I1U	56	1	1	YES		15		S
	-	J4U	48	26	6	YES		3		G
2A/S1	TB2-5,6	I2U	39	2	2/SYS	YES			X	N
	TB2-7,8	I2L	43	12	2/SYS	YES			X	N
3A <sup>2</sup>	TB4-5,6	I5U	58	3	3	YES		15		S
	-	J8U	50	28	8	YES		3		G
4A	TB4-9,10	I6U	41	4	4	YES				S
4B	TB4-11,12	I6L	45	14	4	YES		15		S
*S5	TB6-9,10	I9U	60	11	SYS	NO				N
*S6	TB6-11,12	I9L	62	13	SYS	NO				N
5A <sup>3</sup>	TB3-1,2	J1U	55	5	5	YES		15		S
	-	I4U	47	22	2	YES		3		G
6A/S3	TB3-5,6	J2U	40	6	6/SYS	YES			X	N
6B/S4	TB3-7,8	J2L	44	16	6/SYS	YES			X	N
7A <sup>4</sup>	TB5-5,6	J5U	57	7	7	YES		15		S
	-	I8U	49	24	4	YES		3		G
8A	TB5-9,10	J6U	42	8	8	YES				S
8B	TB5-11,12	J6L	46	18	8	YES		15		S
*S7	TB7-9,10	J9U	59	15	SYS	NO				N
*S8	TB7-11,12	J9L	61	17	SYS	NO				N

\* System detector only. Remove any assigned vehicle phase.

- 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.



### FYA SIGNAL WIRING DETAIL (wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0217  
 DESIGNED: September 2018  
 SEALED: 09/21/2018  
 REVISED: N/A

### \*\* OPTICAL PREEMPTION SYSTEM

- Install an optical preemption system for emergency vehicle preemption. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the preemption schemes shown on the Signal Design Plans.
- Ensure that the Optical Preemption System is fully compatible with equipment manufactured in accordance with the specification of the type 2070 controller.

Electrical Detail - Sheet 1 of 3

PLANS PREPARED BY:  
  
 RUMMEL, KLEPPER & KAHL, LLP  
 900 RIDGEFIELD DRIVE SUITE 350  
 RALEIGH, NORTH CAROLINA 27609-3960  
 NC LICENSE NO. F-0112 • (919) 878-9560

ELECTRICAL AND PROGRAMMING DETAILS FOR:  
 Prepared for the Offices of:  
  
 750 N. Greenfield Pkwy, Garner, NC 27529

NC 344 (Halstead Boulevard)  
 at  
 SR 1101 (Peartree Road)  
 Division 1 Pasquotank County Elizabeth City  
 PLAN DATE: September 2018 REVIEWED BY: J O Deaton  
 PREPARED BY: M W Yalch REVIEWED BY:  
 REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  
 SEAL  
  
 DocuSigned by: James O. Deaton 9/21/2018  
 DATE  
 SIG. INVENTORY NO. 01-0217

## 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: ....	<b>PPLT FYA</b>
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: ....	<b>PPLT FYA</b>
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: ....	<b>PPLT FYA</b>
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: ....	<b>PPLT FYA</b>
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

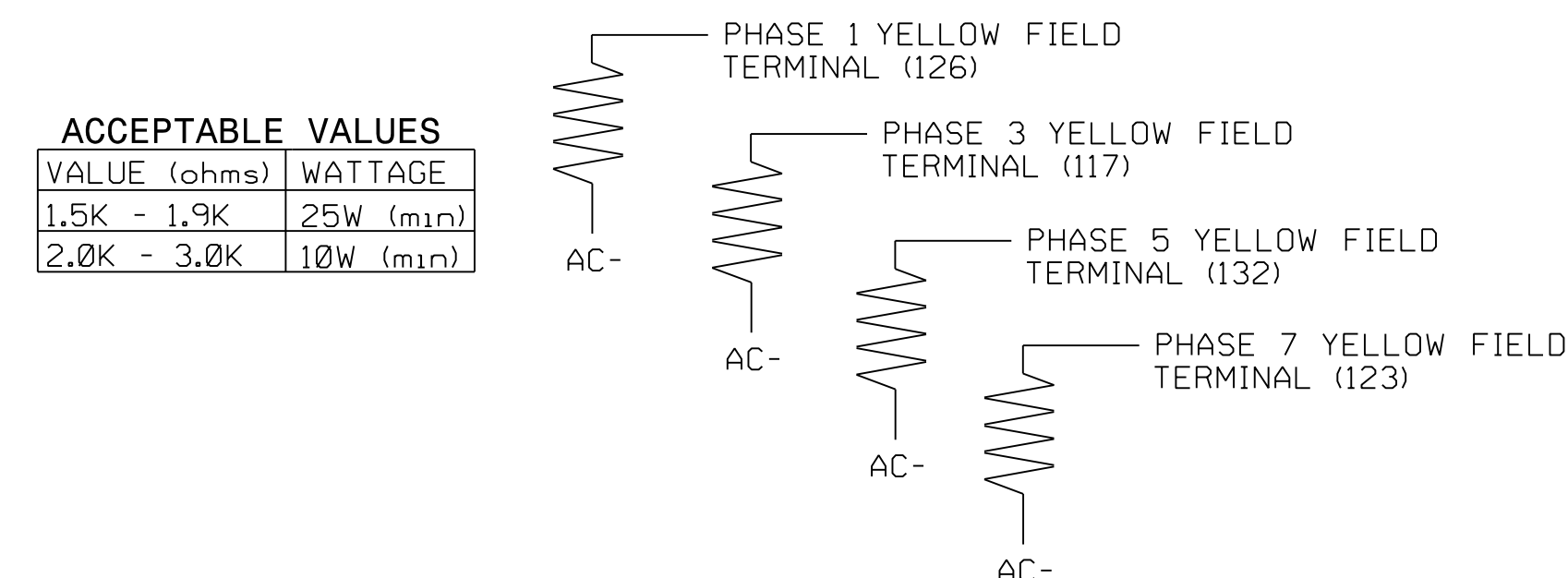
IN ORDER TO ENSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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

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

## LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)



## ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select **4. PREEMPTOR/TSP**
- From PREEMPT/TSP/SCP Submenu select **2. ENABLE PREEMPT FILTERING & TSP/SCP**

ENABLE PREEMPT FILTERING & TSP/SCP		
FILTERED	SOLID	PULSING
INPUT 1	...BYPASSED..	...BYPASSED..
2	...BYPASSED..	...BYPASSED..
3	..PREEMPT	3. ...BYPASSED..
4	..PREEMPT	4. ...BYPASSED..
5	..PREEMPT	5. ...BYPASSED..
6	..PREEMPT	6. ...BYPASSED..
7	...BYPASSED..	...BYPASSED..
8	...BYPASSED..	...BYPASSED..
9	...BYPASSED..	...BYPASSED..
10	...BYPASSED..	...BYPASSED..

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0217  
 DESIGNED: September 2018  
 SEALED: 09/21/2018  
 REVISED: N/A

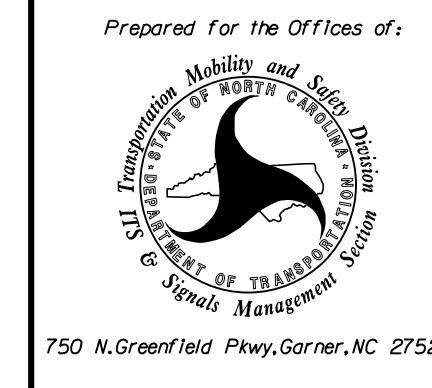
Electrical Detail - Sheet 2 of 3

PLANS PREPARED BY :



RUMMEL, KLEPPER & KAHL, LLP  
 900 RIDGEFIELD DRIVE SUITE 350  
 RALEIGH, NORTH CAROLINA 27609-3960  
 NC LICENSE NO. F-0112 • (919) 878-9560

ELECTRICAL AND PROGRAMMING DETAILS FOR:



NC 344 (Halstead Boulevard)  
 at  
 SR 1101 (Peartree Road)

Division 1 Pasquotank County Elizabeth City  
 PLAN DATE: September 2018 REVIEWED BY: J O Deaton  
 PREPARED BY: M W Yalch REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

DocuSigned by: James O. Deaton  
 9/21/2018  
 DATE  
 SIG. INVENTORY NO. 01-0217

# ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select **4. PREEMPTOR/TSP**

2. From PREEMPTOR/TSP/SCP Submenu select **1. PREEMPT PLAN 1-10**

Place cursor in [ ] next to Preempt Plan and press 3. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #3.

Place cursor in [ ] next to Preempt Plan and press 4. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #4.

Place cursor in [ ] next to Preempt Plan and press 5. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #5.

Place cursor in [ ] next to Preempt Plan and press 6. Then press the right cursor arrow and toggle the controller to YES. Next cursor down. This will select Emergency Vehicle Preempt #6.

```

PREEMPT PLAN [ 3]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120I25.5125.5
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

```

```

PREEMPT PLAN [ 4]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 12I 2.0I 120I25.5125.5
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

```

```

PREEMPT PLAN [ 5]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . . X . . X . . . . .
DWEL PED . . . . .
DWEL OLP .F1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5125.5
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

```

```

PREEMPT PLAN [ 6]  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 . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . . X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLP .F1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5125.5
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

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 01-0217  
DESIGNED: September 2018  
SEALED: 09/21/2018  
REVISED: N/A


**PLANS PREPARED BY :**



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NC LICENSE NO. F-0112 • (919) 878-9560

**ELECTRICAL AND PROGRAMMING DETAILS FOR:**

Prepared for the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

**NC 344 (Halstead Boulevard) at SR 1101 (Peartree Road)**

Division 1 Pasquotank County Elizabeth City

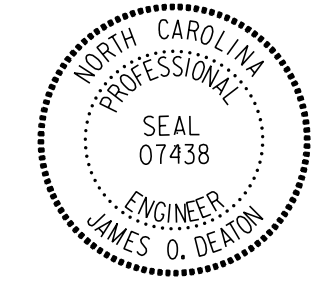
PLAN DATE: September 2018 REVIEWED BY: J O Deaton

PREPARED BY: M W Yalch REVIEWED BY:

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SEAL



DocuSigned by: **James O. Deaton** 9/21/2018

SIG. INVENTORY NO. 01-0217

9/21/2018 8:11:00 AM C:\Users\jgn\Documents\Signal\01-0217\01-0217e-04-200.dgn