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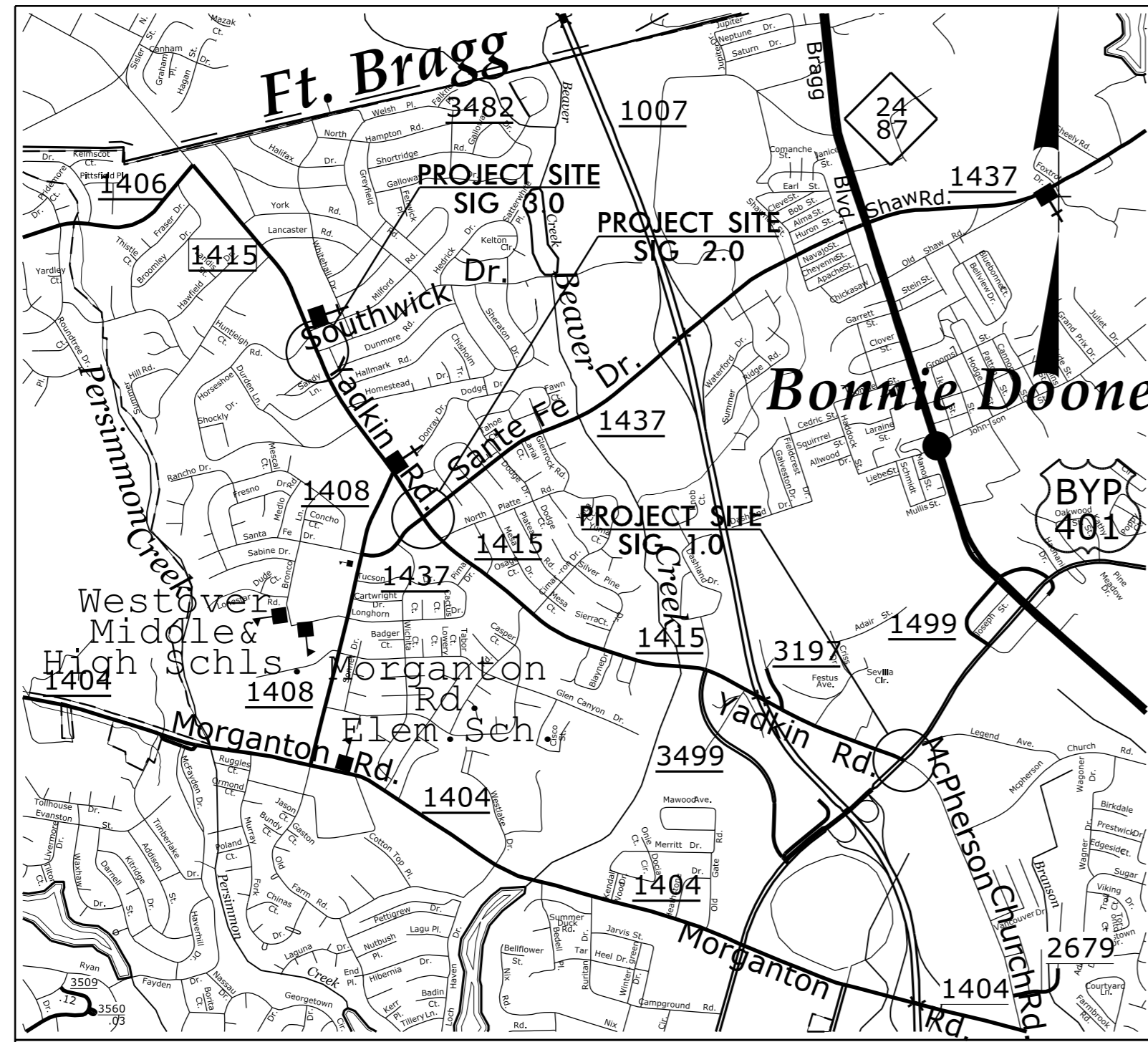
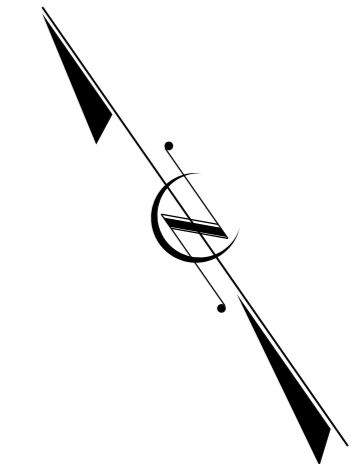
| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.   | TOTAL SHEETS |
|-----------------|-----------------------------|-------------|--------------|
| N.C.            | HS-2006A                    | 1           |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION |              |
| 49312.1.2       | HSIP-1415 (005)             | PE          |              |
| 49312.3.2       | HSIP-1415 (005)             | CONST       |              |
|                 |                             |             |              |
|                 |                             |             |              |
|                 |                             |             |              |

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CUMBERLAND COUNTY

**LOCATION:** SR 1415(YADKIN ROAD) AT US 401 BYP (SKIBO ROAD), AT SR 1437 (SANTE FE DRIVE), AND AT SOUTHWICK DRIVE

**TYPE OF WORK:** ADD SIGNALIZED PERDESTRIAN CROSSINGS TO ALL THREE INTERSECTIONS, AND UPGRADE SIGNAL AT SOUTHWICK DRIVE.



**VICINITY MAP**

**TIP PROJECT: HS-2006A**

**CONTRACT: DF00431**

**SHEET 4**

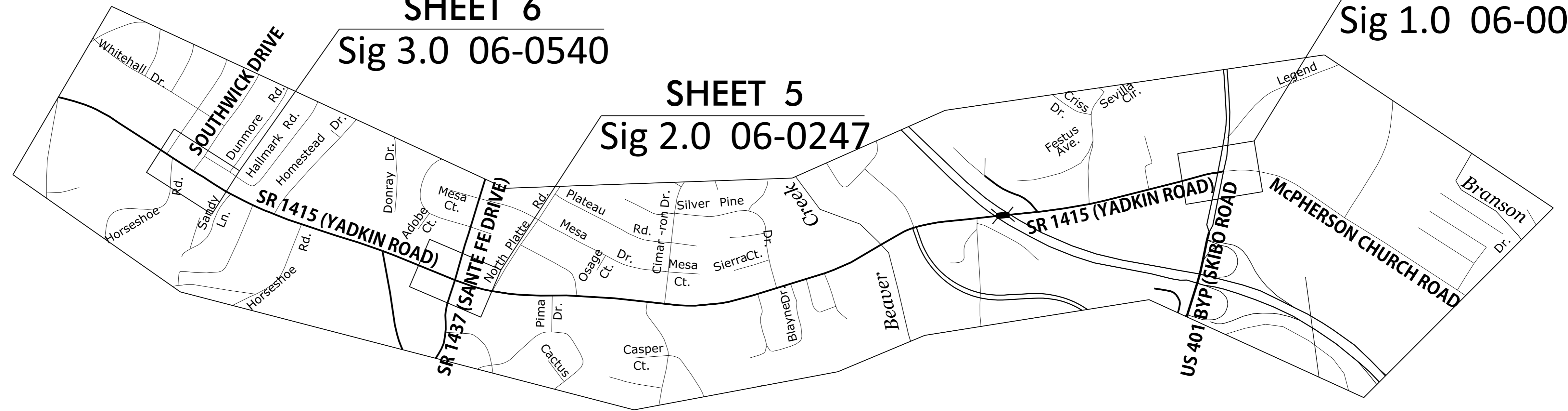
**Sig 1.0 06-0055**

**SHEET 6**

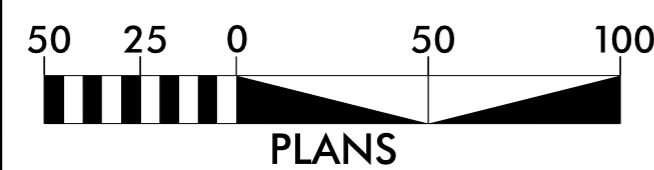
**Sig 3.0 06-0540**

**SHEET 5**

**Sig 2.0 06-0247**



**GRAPHIC SCALES**



PLANS

**DESIGN DATA**

**PROJECT LENGTH**

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
DIVISION 6

431 Transportation Dr., Fayetteville NC, 28301

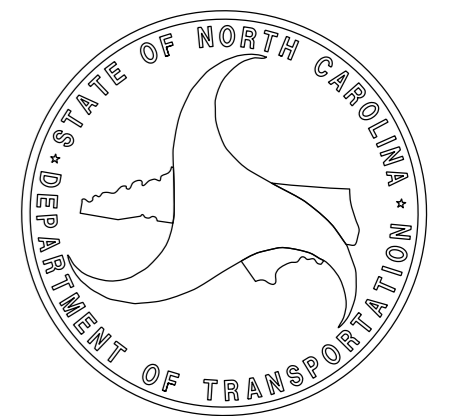
2018 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
N/A

**LETTING DATE:**  
AUGUST 23, 2023

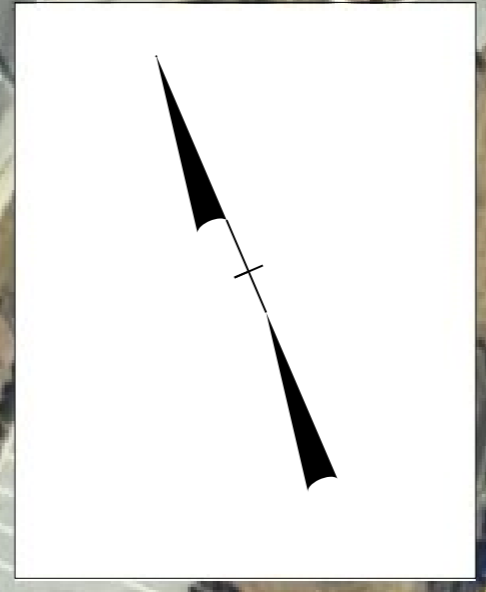
**JOHN GAUTHIER**  
PROJECT ENGINEER

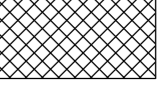
PROJECT DESIGN ENGINEER





|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.<br><i>HS-2006A</i> | SHEET NO.<br><i>04</i> |
| R/W SHEET NO.                            |                        |
| ROADWAY DESIGN ENGINEER                  | HYDRAULICS ENGINEER    |



 PAVEMENT REMOVAL  
 NOTE: REMOVE RAILROAD TRACK WITHIN THE LIMITS OF PAVEMENT REMOVAL AND TO THE EXTENT POSSIBLE ALONG SKIBO ROAD ON WEST SIDE BERM.  
 FOR SIGNAL PLAN SEE SHETT SIG. 1.0

5/14/99  
 17-JUL-2023 15:24  
 HS-2006A\_Yadkin rd\Roadway\proj\HS-2006A\_Rdy\_psh\_04.dgn



|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.<br><i>HS-2006A</i> | SHEET NO.<br><i>05</i> |
| RW SHEET NO.                             |                        |
| ROADWAY DESIGN ENGINEER                  | HYDRAULICS ENGINEER    |

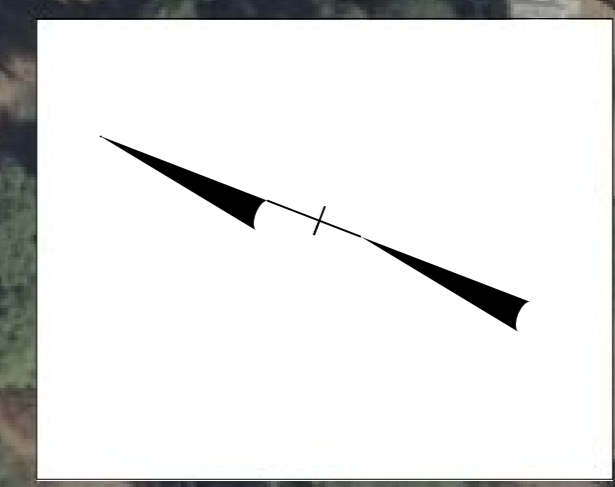


FOR SIGNAL PLAN SEE SHETT SIG. 2.0

5/14/99  
 17-JUL-2023 15:42  
 HS-2006A\_Yadkin 0108300223  
 \Roadway\proj\HS-2006A\_Rdy\_psh\_05.dgn



|  |                        |
|--|------------------------|
| PROJECT REFERENCE NO.<br><i>HS-2006A</i> | SHEET NO.<br><i>06</i> |
| RW SHEET NO.                             |                        |
| ROADWAY DESIGN ENGINEER                  | HYDRAULICS ENGINEER    |



5/14/99



I:\JUL-2023\_16122\HS-2006A\_Yadkin\0106-30022.dgn  
 I:\JUL-2023\_16122\HS-2006A\_Roadway\proj\HS-2006A\_Rdy\_psh\_06.dgn

FOR SIGNAL PLAN SEE SHETT SIG. 3.0

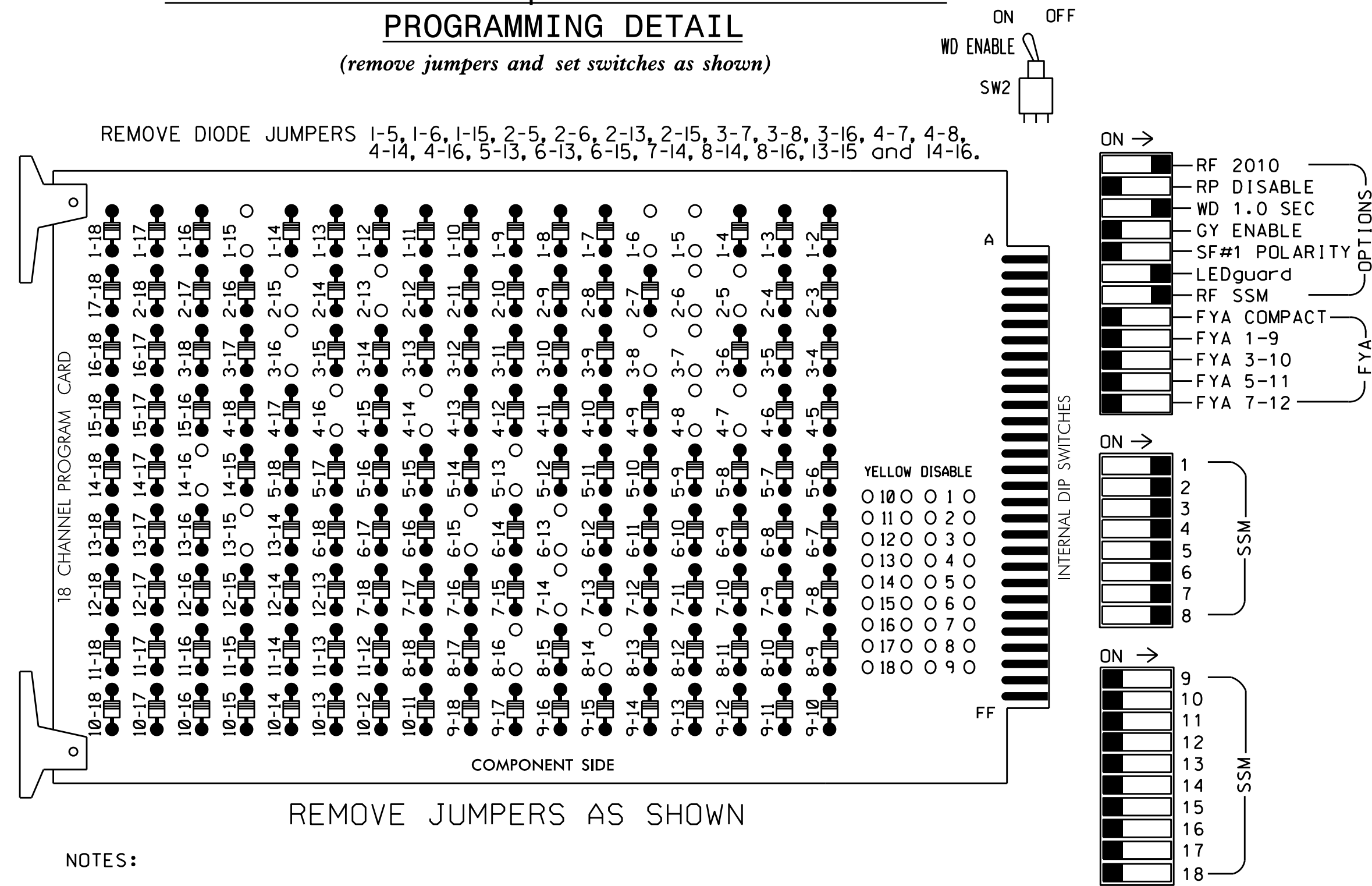






**EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL**

(remove jumpers and set switches as shown)



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 Green and 6 Green.
- The cabinet and controller are part of the Fayetteville Signal System.

**EQUIPMENT INFORMATION**

CONTROLLER.....2070  
 CABINET.....332  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,  
 S9,S10,S11,S12  
 PHASES USED.....1,2,2 PED,3,4,4 PED,5,6,  
 6 PED,7,8,8 PED  
 OVERLAPS.....NONE

**SIGNAL HEAD HOOK-UP CHART**

| LOAD SWITCH NO.     | S1          | S2  | S3          | S4          | S5  | S6    | S7          | S8          | S9    | S10   | S11            | S12         |    |             |       |             |
|---------------------|-------------|-----|-------------|-------------|-----|-------|-------------|-------------|-------|-------|----------------|-------------|----|-------------|-------|-------------|
| CMU CHANNEL NO.     | 1           | 2   | 13          | 3           | 4   | 14    | 5           | 6           | 15    | 7     | 8              | 16          |    |             |       |             |
| PHASE               | 1           | 2   | 2 PED       | 3           | 4   | 4 PED | 5           | 6           | 6 PED | 7     | 8              | 8 PED       |    |             |       |             |
| SIGNAL HEAD NO.     | 11,12<br>13 | 82  | 21,22<br>23 | P21,<br>P22 | 23  | 31,32 | 41,42<br>43 | P41,<br>P42 | 42    | 51,52 | 61,62<br>63,64 | P61,<br>P62 | 63 | 71,72<br>73 | 81,82 | P81,<br>P82 |
| RED                 |             | 128 |             |             | 101 |       |             | 134         |       |       |                | 107         |    |             |       |             |
| YELLOW              |             | 129 |             |             | 102 |       |             | 135         |       |       |                | 108         |    |             |       |             |
| GREEN               |             | 130 |             |             | 103 |       |             | 136         |       |       |                | 109         |    |             |       |             |
| RED ARROW           | 125         |     |             | 116         |     |       | 131         |             |       |       | 122            |             |    |             |       |             |
| YELLOW ARROW        | 126         | 126 |             | 117         | 117 |       | 132         | 132         |       |       | 123            | 123         |    |             |       |             |
| GREEN ARROW         | 127         | 127 |             | 118         | 118 |       | 133         | 133         |       |       | 124            | 124         |    |             |       |             |
| Hand icon           |             |     | 113         |             |     | 104   |             |             | 119   |       |                | 110         |    |             |       |             |
| Walking person icon |             |     | 115         |             |     | 106   |             |             | 121   |       |                | 112         |    |             |       |             |

NU = Not Used

**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.

**INPUT FILE POSITION LAYOUT**

(front view)

| FILE "I" | 1   | 2       | 3       | 4        | 5        | 6   | 7        | 8        | 9             | 10       | 11       | 12          | 13          | 14          |
|----------|-----|---------|---------|----------|----------|-----|----------|----------|---------------|----------|----------|-------------|-------------|-------------|
| U        | ∅ 1 | ∅ 1     | ∅ 2/SYS | ∅ 2/SYS  | S        | ∅ 3 | ∅ 4      | ∅ 4      | SYS. DET. S4A | S        | S        | ∅ 2 PED     | ∅ 6 PED     | FS          |
| L        | 1A  | 1C      | 2B/S2B  | 2D/S2D   | NOT USED | 3A  | 4A,4B    | 4D       | S4A           | NOT USED | NOT USED | DC ISOLATOR | DC ISOLATOR | DC ISOLATOR |
| U        | ∅ 1 | ∅ 2/SYS | ∅ 2/SYS | NOT USED | ∅ 4      | ∅ 4 | ∅ 7      | ∅ 8      | SYS. DET. S4B | S        | S        | ∅ 4 PED     | ∅ 8 PED     | ST          |
| L        | 1B  | 2A/S2A  | 2C/S2C  | NOT USED | 3B       | 4C  | NOT USED | NOT USED | S4B           | NOT USED | NOT USED | DC ISOLATOR | DC ISOLATOR | DC ISOLATOR |
| U        | ∅ 5 | ∅ 5     | ∅ 6/SYS | S        | ∅ 7      | ∅ 8 | ∅ 7      | ∅ 8      | SYS. DET. S8A | S        | S        | ∅ 7         | ∅ 8         | S           |
| L        | 5A  | 5C      | 6B/S6B  | NOT USED | 7A       | 8A  | NOT USED | NOT USED | S8A           | NOT USED | NOT USED | ∅ 7         | ∅ 8         | ∅ 7         |
| U        | ∅ 5 | ∅ 6/SYS | ∅ 6/SYS | ∅ 7      | ∅ 7      | ∅ 8 | ∅ 7      | ∅ 8      | SYS. DET. S8B | S        | S        | ∅ 7         | ∅ 8         | S           |
| L        | 5B  | 6A/S6A  | 6C/S6C  | NOT USED | 7B       | 8B  | NOT USED | NOT USED | S8B           | NOT USED | NOT USED | ∅ 7         | ∅ 8         | ∅ 7         |

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

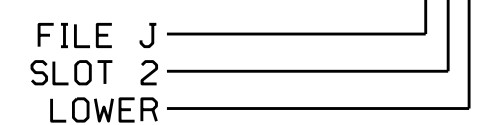
FS = FLASH SENSE  
 ST = STOP TIME

**INPUT FILE CONNECTION & PROGRAMMING CHART**

| LOOP NO.         | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|------------------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A               | TB2-1,2       | I1U             | 56      | 1            | 1          | YES  |             |            |               | N             |
| 1B               | TB2-3,4       | I1U             | 56      | 1            | 1          | YES  |             |            |               | N             |
| 1C               | TB2-5,6       | I2U             | 39      | 2            | 1          | YES  |             | 20         |               | N             |
| 2A/S2A           | TB2-7,8       | I2L             | 43      | 12           | 2/SYS      | YES  |             |            |               | N             |
| 2B/S2B           | TB2-9,10      | I3U             | 63      | 32           | 2/SYS      | YES  |             |            |               | N             |
| 2C/S2C           | TB2-11,12     | I3L             | 76      | 42           | 2/SYS      | YES  |             |            |               | N             |
| 2D/S2D           | TB4-1,2       | I4U             | 47      | 22           | 2/SYS      | YES  |             |            |               | N             |
| 3A               | TB4-9,10      | I6U             | 41      | 4            | 3          | YES  |             |            |               | N             |
| 3B               | TB4-11,12     | I6L             | 45      | 14           | 3          | YES  |             |            |               | N             |
| 4A,4B            | TB6-1,2       | I7U             | 65      | 34           | 4          | NO   | 2,2         |            |               | N             |
| 4C               | TB6-3,4       | I7L             | 78      | 44           | 4          | YES  |             |            |               | N             |
| 4D               | TB6-5,6       | I8U             | 49      | 24           | 4          | YES  |             |            |               | N             |
| 5A               | TB3-1,2       | J1U             | 55      | 5            | 5          | YES  |             |            |               | N             |
| 5B               | TB3-3,4       | J1U             | 55      | 5            | 5          | YES  |             |            |               | N             |
| 5C               | TB3-5,6       | J2U             | 40      | 6            | 5          | YES  |             | 20         |               | N             |
| 6A/S6A           | TB3-7,8       | J2L             | 44      | 16           | 6/SYS      | YES  |             |            |               | N             |
| 6B/S6B           | TB3-9,10      | J3U             | 64      | 36           | 6/SYS      | YES  |             |            |               | N             |
| 6C/S6C           | TB3-11,12     | J3L             | 77      | 46           | 6/SYS      | YES  |             |            |               | N             |
| 7A               | TB5-9,10      | J6U             | 42      | 8            | 7          | YES  |             |            |               | N             |
| 7B               | TB5-11,12     | J6L             | 46      | 18           | 7          | YES  |             |            |               | N             |
| 8A               | TB7-1,2       | J7U             | 66      | 38           | 8          | YES  |             |            |               | N             |
| 8B               | TB7-3,4       | J7L             | 79      | 48           | 8          | YES  |             |            |               | N             |
| *S4A             | TB6-9,10      | I9U             | 60      | 11           | SYS        | NO   |             |            |               | N             |
| *S4B             | TB6-11,12     | I9L             | 62      | 13           | SYS        | NO   |             |            |               | N             |
| *S8A             | TB7-9,10      | J9U             | 59      | 15           | SYS        | NO   |             |            |               | N             |
| *S8B             | 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.

**INPUT FILE POSITION LEGEND: J2L**

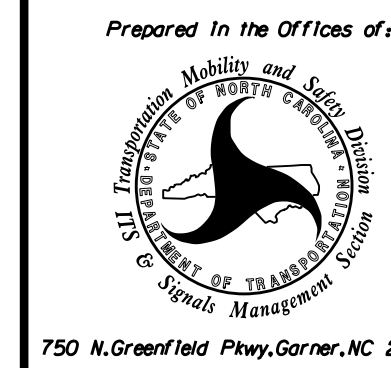


\* System detector only. Remove any assigned vehicle phase.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0055  
 DESIGNED: December 2022  
 SEALED: 2/1/2023  
 REVISED: N/A

Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:



US 401 Bypass (Skibo Road) at SR 1415 (Yadkin Road)/ McPherson Church Road

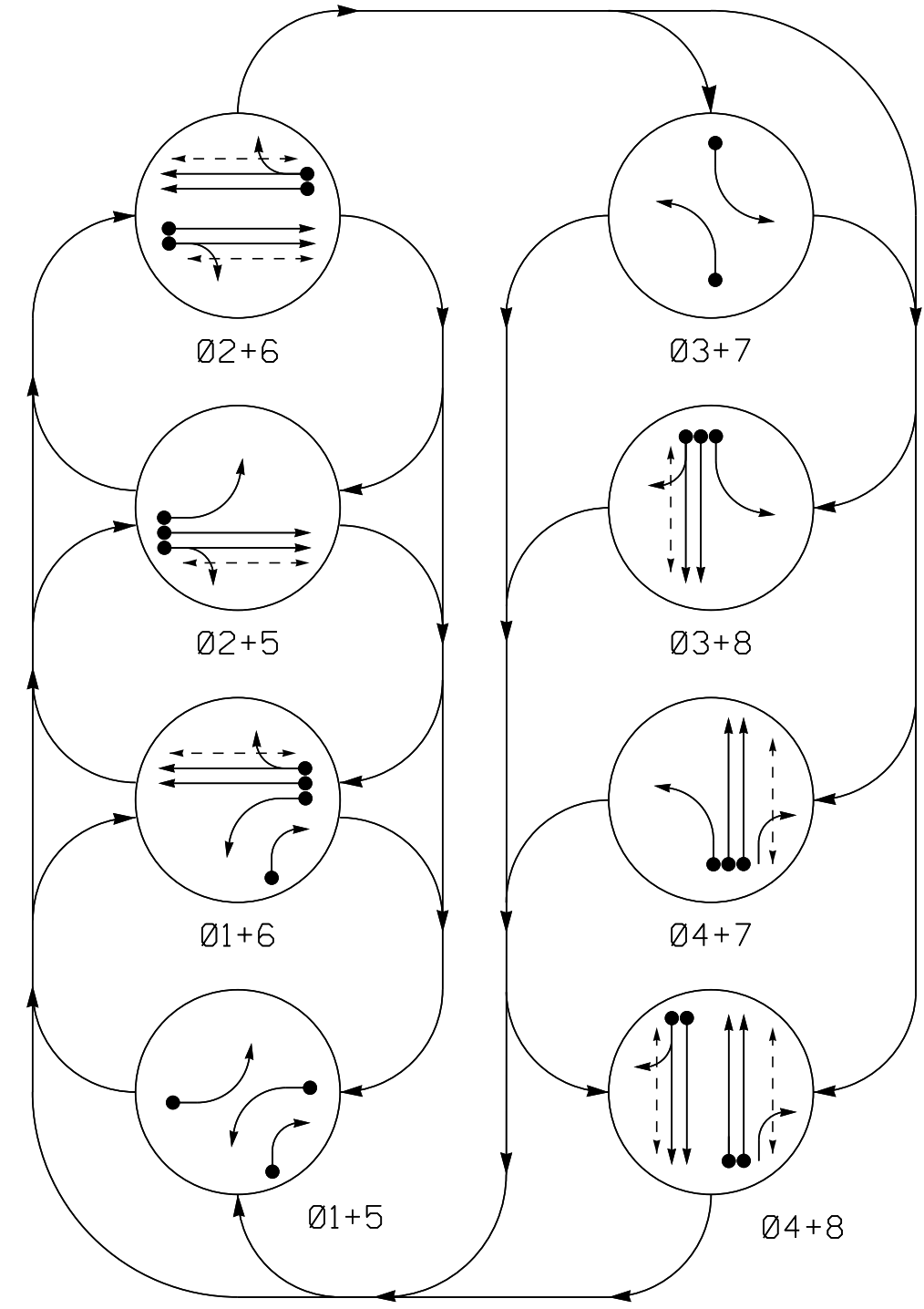
|                           |                   |              |
|---------------------------|-------------------|--------------|
| Division 6                | Cumberland County | Fayetteville |
| PLAN DATE: January 2023   | REVIEWED BY:      |              |
| PREPARED BY: Zarrar Zafar | REVIEWED BY:      |              |
| REVISIONS                 | INIT.             | DATE         |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Seal of Todd Joye, Professional Engineer, License No. 031001, State of North Carolina.



**PHASING DIAGRAM**



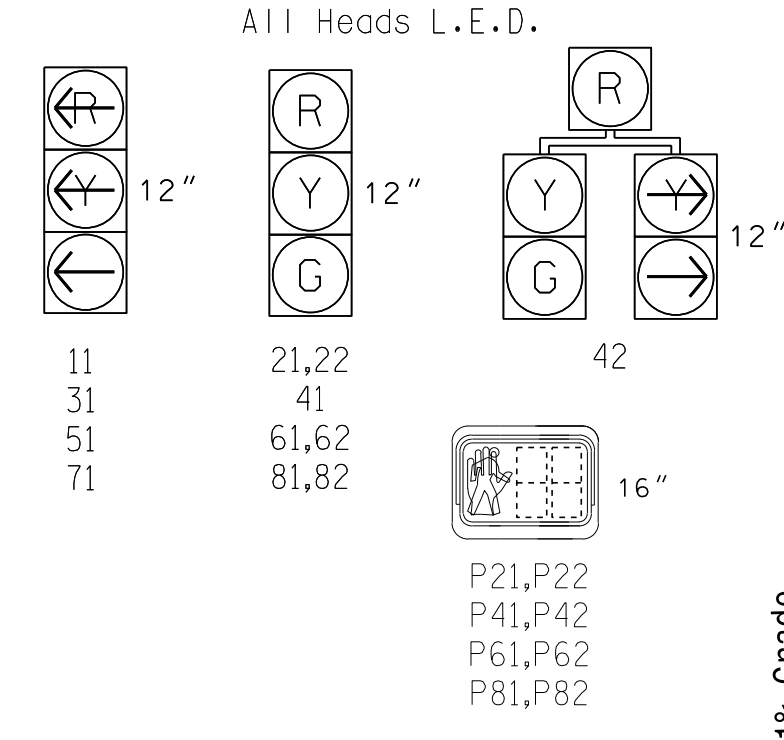
**PHASING DIAGRAM DETECTION LEGEND**

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

**TABLE OF OPERATION**

| SIGNAL FACE | PHASE |      |      |      |      |      |      |      |
|-------------|-------|------|------|------|------|------|------|------|
|             | 01+5  | 01+6 | 02+5 | 02+6 | 03+7 | 03+8 | 04+7 | 04+8 |
| 11          | ←     | ←    | ←    | ←    | ←    | ←    | ←    | ←    |
| 21,22       | R     | R    | G    | G    | R    | R    | R    | Y    |
| 31          | ←     | ←    | ←    | ←    | ←    | ←    | ←    | ←    |
| 41          | R     | R    | R    | R    | R    | G    | G    | R    |
| 42          | ←     | ←    | R    | R    | R    | R    | G    | G    |
| 51          | ←     | ←    | ←    | ←    | ←    | ←    | ←    | ←    |
| 61,62       | R     | G    | R    | G    | R    | R    | R    | Y    |
| 71          | ←     | ←    | ←    | ←    | ←    | ←    | ←    | ←    |
| 81,82       | R     | R    | R    | R    | R    | G    | R    | G    |
| P21,P22     | DW    | DW   | W    | W    | DW   | DW   | DW   | DRK  |
| P41,P42     | DW    | DW   | DW   | DW   | DW   | W    | W    | DRK  |
| P61,P62     | DW    | W    | DW   | W    | DW   | DW   | DW   | DRK  |
| P81,P82     | DW    | DW   | DW   | DW   | W    | DW   | W    | DRK  |

**SIGNAL FACE I.D.**



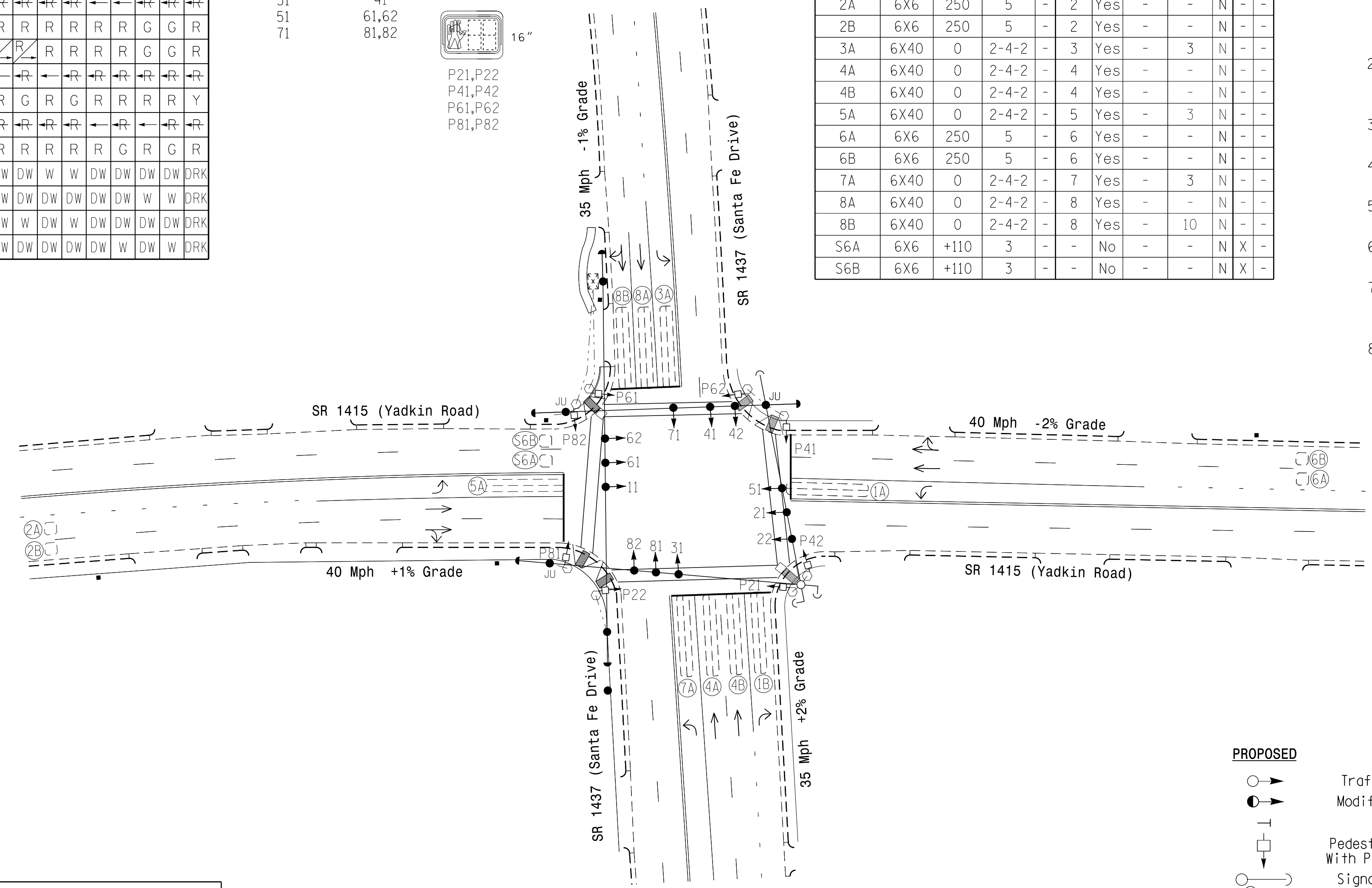
**ASC/3 DETECTOR INSTALLATION CHART**

| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PROGRAMMING |         |             |            |      |             |
|------|-----------|----------------------------|-------|----------|-------------|---------|-------------|------------|------|-------------|
|      |           |                            |       |          | PHASE       | CALLING | EXTEND TIME | DELAY TIME | TYPE | SYSTEM LOOP |
| 1A   | 6X40      | +3                         | 2-4-2 | -        | 1           | Yes     | -           | 3          | N    | -           |
| 1B   | 6X40      | 0                          | 2-4-2 | -        | 1           | Yes     | -           | 15         | N    | -           |
| 2A   | 6X6       | 250                        | 5     | -        | 2           | Yes     | -           | -          | N    | -           |
| 2B   | 6X6       | 250                        | 5     | -        | 2           | Yes     | -           | -          | N    | -           |
| 3A   | 6X40      | 0                          | 2-4-2 | -        | 3           | Yes     | -           | 3          | N    | -           |
| 4A   | 6X40      | 0                          | 2-4-2 | -        | 4           | Yes     | -           | -          | N    | -           |
| 4B   | 6X40      | 0                          | 2-4-2 | -        | 4           | Yes     | -           | -          | N    | -           |
| 5A   | 6X40      | 0                          | 2-4-2 | -        | 5           | Yes     | -           | 3          | N    | -           |
| 6A   | 6X6       | 250                        | 5     | -        | 6           | Yes     | -           | -          | N    | -           |
| 6B   | 6X6       | 250                        | 5     | -        | 6           | Yes     | -           | -          | N    | -           |
| 7A   | 6X40      | 0                          | 2-4-2 | -        | 7           | Yes     | -           | 3          | N    | -           |
| 8A   | 6X40      | 0                          | 2-4-2 | -        | 8           | Yes     | -           | -          | N    | -           |
| 8B   | 6X40      | 0                          | 2-4-2 | -        | 8           | Yes     | -           | 10         | N    | -           |
| S6A  | 6X6       | +110                       | 3     | -        | -           | No      | -           | -          | N    | X           |
| S6B  | 6X6       | +110                       | 3     | -        | -           | No      | -           | -          | N    | X           |

**8 Phase Fully Actuated Fayetteville Signal System**

**NOTES**

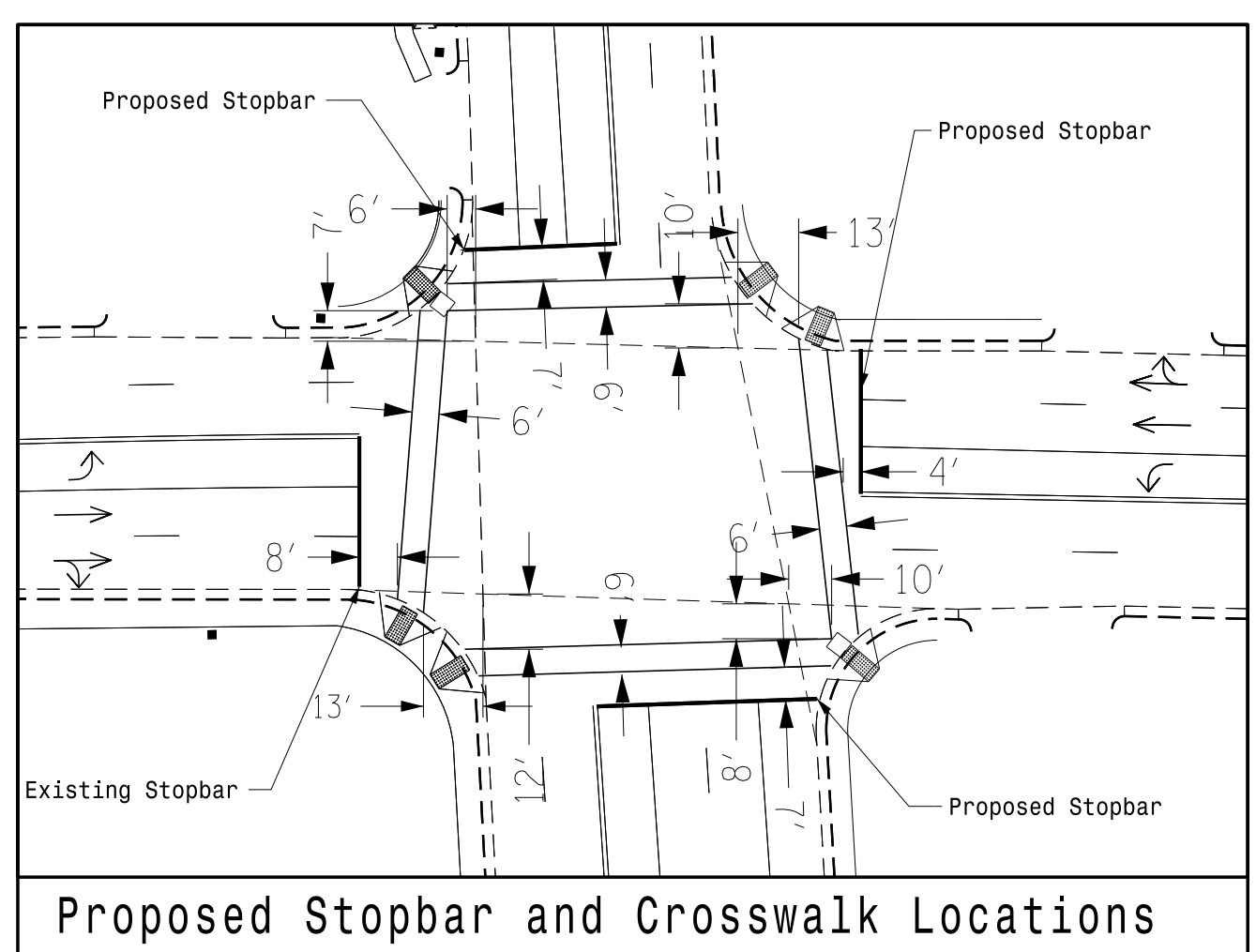
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase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



**ASC/3 TIMING CHART**

| FEATURE                 | PHASE |             |     |     |     |             |     |     |
|-------------------------|-------|-------------|-----|-----|-----|-------------|-----|-----|
|                         | 1     | 2           | 3   | 4   | 5   | 6           | 7   | 8   |
| Min Green *             | 7     | 12          | 7   | 7   | 7   | 12          | 7   | 7   |
| Delay Green *           | 0     | 7           | 0   | 7   | 0   | 6           | 0   | 6   |
| Walk *                  | 0     | 7           | 0   | 7   | 0   | 7           | 0   | 7   |
| Ped Clear               | 0     | 21          | 0   | 17  | 0   | 17          | 0   | 17  |
| Veh. Extension *        | 2.0   | 6.0         | 2.0 | 2.0 | 2.0 | 6.0         | 2.0 | 2.0 |
| Max 1 *                 | 40    | 90          | 20  | 90  | 40  | 90          | 20  | 90  |
| Yellow                  | 3.0   | 4.3         | 3.0 | 3.9 | 3.0 | 4.3         | 3.0 | 3.9 |
| Red Clear               | 2.6   | 1.8         | 2.8 | 1.8 | 2.4 | 1.7         | 2.6 | 1.8 |
| Actuations B4 Add *     | -     | 0           | -   | -   | -   | 0           | -   | -   |
| Seconds / Actuation *   | -     | 1.5         | -   | -   | -   | 1.5         | -   | -   |
| Max Initial *           | -     | 29          | -   | -   | -   | 29          | -   | -   |
| Time Before Reduction * | -     | 15          | -   | -   | -   | 15          | -   | -   |
| Time To Reduce *        | -     | 45          | -   | -   | -   | 45          | -   | -   |
| Minimum Gap             | -     | 3.0         | -   | -   | -   | 3.0         | -   | -   |
| Locking Detector        | -     | X           | -   | -   | -   | X           | -   | -   |
| Recall Position         | -     | VEH. RECALL | -   | -   | -   | VEH. RECALL | -   | -   |
| Dual Entry              | -     | -           | -   | -   | -   | -           | -   | -   |
| Simultaneous Gap        | X     | X           | X   | X   | X   | X           | X   | X   |

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



**LEGEND**

- | PROPOSED   | EXISTING  |
|--|-----------|
| ○ → Traffic Signal Head                            | ● → N/A   |
| ● → Modified Signal Head                           | ○ → N/A   |
| ⊥ → Sign   | ⊥ → N/A   |
| ⊥ → Pedestrian Signal Head With Push Button & Sign | ⊥ → N/A   |
| ⊥ → Signal Pole with Guy                           | ⊥ → N/A   |
| ⊥ → Signal Pole with Sidewalk Guy                  | ⊥ → N/A   |
| ⊥ → Inductive Loop Detector                        | ⊥ → N/A   |
| ⊥ → Controller & Cabinet                           | ⊥ → N/A   |
| ⊥ → Junction Box                                   | ⊥ → N/A   |
| --- → 2-in Underground Conduit                     | --- → N/A |
| N/A → Right of Way                                 | N/A → N/A |
| → → Directional Arrow                              | → → N/A   |
| N/A → Curb Ramp                                    | N/A → N/A |
| ○ → Type II Signal Pedestal                        | ● → N/A   |

**Signal Upgrade - Corr. File No. 06-19-59136**

**SR 1415 (Yadkin Road) at SR 1437 (Santa Fe Drive)**

Division 6 Cumberland County Fayetteville

PLAN DATE: December 2022 REVIEWED BY: ZML

PREPARED BY: KGP, Jr. REVIEWED BY:

SEAL

02/01/2023

DATE

SIG. INVENTORY NO. 06-0247

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 0 40 1"=40'

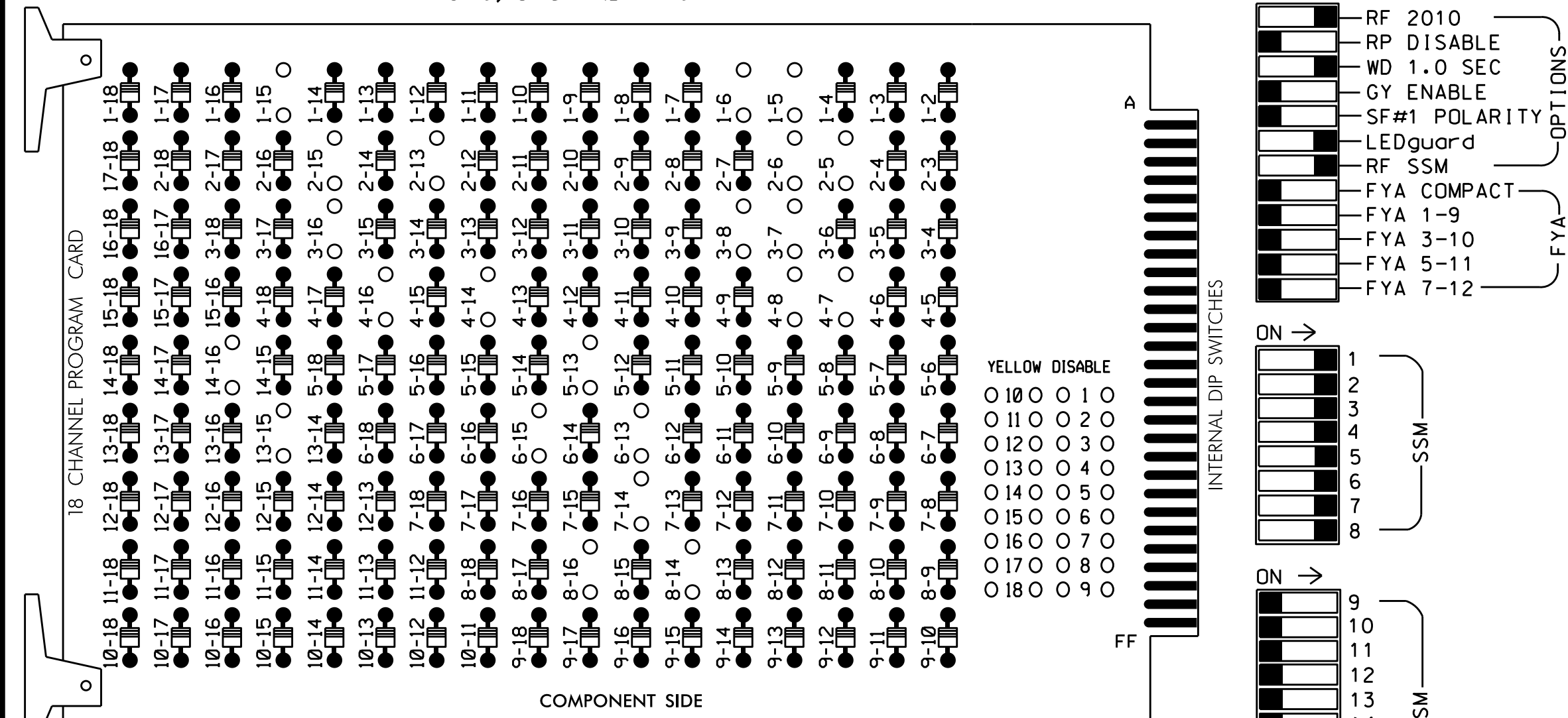
31-Jan-2023, 12:09  
 S:\IT\5451\T5\SigDes\06-19-59136\06-19-59136-0247\060247\_L\_sig\_dsn\_2022.mxd.dgn  
 kgpdesd1n



### 18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

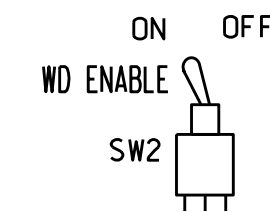
REMOVE DIODE JUMPERS 1-5, 1-6, 1-15, 2-5, 2-6, 2-13, 2-15, 3-7, 3-8, 3-16, 4-7, 4-8, 4-14, 4-16, 5-13, 6-13, 6-15, 7-14, 8-14, 8-16, 13-15 AND 14-16



REMOVE JUMPERS AS SHOWN

NOTES:

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



### NOTES

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

### EQUIPMENT INFORMATION

CONTROLLER.....2070  
 CABINET.....332  
 SOFTWARE.....ECONOLITE ASC/3-2070  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,  
 S10,S11,S12  
 PHASES USED.....1,2,2 PED,3,4,4 PED,5,6,  
 6 PED,7,8,8 PED  
 OVERLAPS.....NONE

### SIGNAL HEAD HOOK-UP CHART

| LOAD SWITCH NO.     | S1  | S2  | S3    | S4       | S5  | S6    | S7       | S8  | S9    | S10      | S11 | S12   |          |
|---------------------|-----|-----|-------|----------|-----|-------|----------|-----|-------|----------|-----|-------|----------|
| CMU CHANNEL NO.     | 1   | 2   | 13    | 3        | 4   | 14    | 5        | 6   | 15    | 7        | 8   | 16    |          |
| PHASE               | 1   | 2   | 2 PED | 3        | 4   | 4 PED | 5        | 6   | 6 PED | 7        | 8   | 8 PED |          |
| SIGNAL HEAD NO.     | 11  | 42  | 21,22 | P21, P22 | 31  | 41,42 | P41, P42 | 51  | 61,62 | P61, P62 | 71  | 81,82 | P81, P82 |
| RED                 |     | 128 |       |          | 101 |       |          | 134 |       |          | 107 |       |          |
| YELLOW              |     |     | 129   |          |     | 102   |          |     | 135   |          |     | 108   |          |
| GREEN               |     |     |       | 130      |     |       | 103      |     |       | 136      |     |       | 109      |
| RED ARROW           | 125 |     |       |          | 116 |       |          | 131 |       |          | 122 |       |          |
| YELLOW ARROW        | 126 | 126 |       |          | 117 |       |          | 132 |       |          | 123 |       |          |
| GREEN ARROW         | 127 | 127 |       |          | 118 |       |          | 133 |       |          | 124 |       |          |
| Hand icon           |     |     |       | 113      |     |       | 104      |     |       | 119      |     | 110   |          |
| Walking person icon |     |     |       | 115      |     |       | 106      |     |       | 121      |     | 112   |          |

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      | ∅ 1      | ∅ 2 | S   | ∅ 3      | ∅ 4 | S   | S   | S             | S   | S   | ∅ 2 PED     | ∅ 6 PED     | FS          |
| L        | 1A       | 1B       | 2A  | ←-→ | 3A       | 4A  | ←-→ | ←-→ | ←-→           | ←-→ | ←-→ | DC ISOLATOR | DC ISOLATOR | DC ISOLATOR |
| U        | NOT USED | NOT USED | ∅ 2 | ←-→ | NOT USED | ∅ 4 | ←-→ | ←-→ | ←-→           | ←-→ | ←-→ | ∅ 4 PED     | ∅ 8 PED     | ST          |
| L        |          |          | 2B  | ←-→ |          | 4B  | ←-→ | ←-→ | ←-→           | ←-→ | ←-→ | DC ISOLATOR | DC ISOLATOR | DC ISOLATOR |
| U        | ∅ 5      | ∅ 6      | S   | S   | ∅ 7      | ∅ 8 | S   | S   | SYS. DET. S6A | S   | S   | S           | S           | S           |
| L        | 5A       | 6A       | ←-→ | ←-→ | 7A       | 8A  | ←-→ | ←-→ | ←-→           | ←-→ | ←-→ | ←-→         | ←-→         | ←-→         |
| U        | NOT USED | ∅ 6      | ←-→ | ←-→ | NOT USED | ∅ 8 | ←-→ | ←-→ | ←-→           | ←-→ | ←-→ | ←-→         | ←-→         | ←-→         |
| L        |          | 6B       | ←-→ | ←-→ |          | 8B  | ←-→ | ←-→ | ←-→           | ←-→ | ←-→ | ←-→         | ←-→         | ←-→         |

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

FS = FLASH SENSE  
 ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

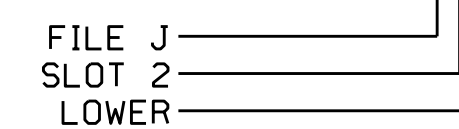
| LOOP NO.         | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|------------------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A               | TB2-1,2       | I1U             | 56      | 1            | 1          | YES  |             | 3          |               | N             |
| 1B               | TB2-5,6       | I2U             | 39      | 2            | 1          | YES  |             | 15         |               | N             |
| 2A               | TB2-9,10      | I3U             | 63      | 32           | 2          | YES  |             |            |               | N             |
| 2B               | TB2-11,12     | I3L             | 76      | 42           | 2          | YES  |             |            |               | N             |
| 3A               | TB4-5,6       | I5U             | 58      | 3            | 3          | YES  |             | 3          |               | N             |
| 4A               | TB4-9,10      | I6U             | 41      | 4            | 4          | YES  |             |            |               | N             |
| 4B               | TB4-11,12     | I6L             | 45      | 14           | 4          | YES  |             |            |               | N             |
| 5A               | TB3-1,2       | J1U             | 55      | 5            | 5          | YES  |             | 3          |               | N             |
| 6A               | TB3-5,6       | J2U             | 40      | 6            | 6          | YES  |             |            |               | N             |
| 6B               | TB3-7,8       | J2L             | 44      | 16           | 6          | YES  |             |            |               | N             |
| 7A               | TB5-5,6       | J5U             | 57      | 7            | 7          | YES  |             | 3          |               | N             |
| 8A               | TB5-9,10      | J6U             | 42      | 8            | 8          | YES  |             |            |               | N             |
| 8B               | TB5-11,12     | J6L             | 46      | 18           | 8          | YES  |             | 10         |               | N             |
| *S6A             | TB7-9,10      | J9U             | 59      | 15           | SYS        | NO   |             |            |               | N             |
| *S6B             | 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



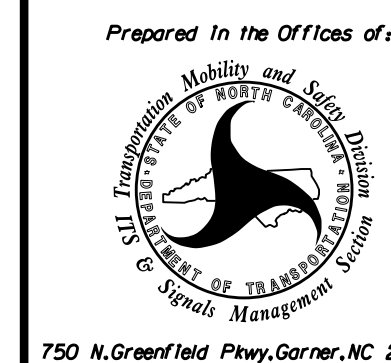
### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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: 06-0247  
 DESIGNED: December 2022  
 SEALED: 2/1/2023  
 REVISED: N/A

### Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1415 (Yadkin Road)  
 at  
 SR 1437 (Santa Fe Drive)

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2023 REVIEWED BY:

PREPARED BY: Zarrar Zafar REVIEWED BY:

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 031001  
 TODD JOYCE  
 02/02/2023  
 DATE  
 SIG. INVENTORY NO. 06-0247

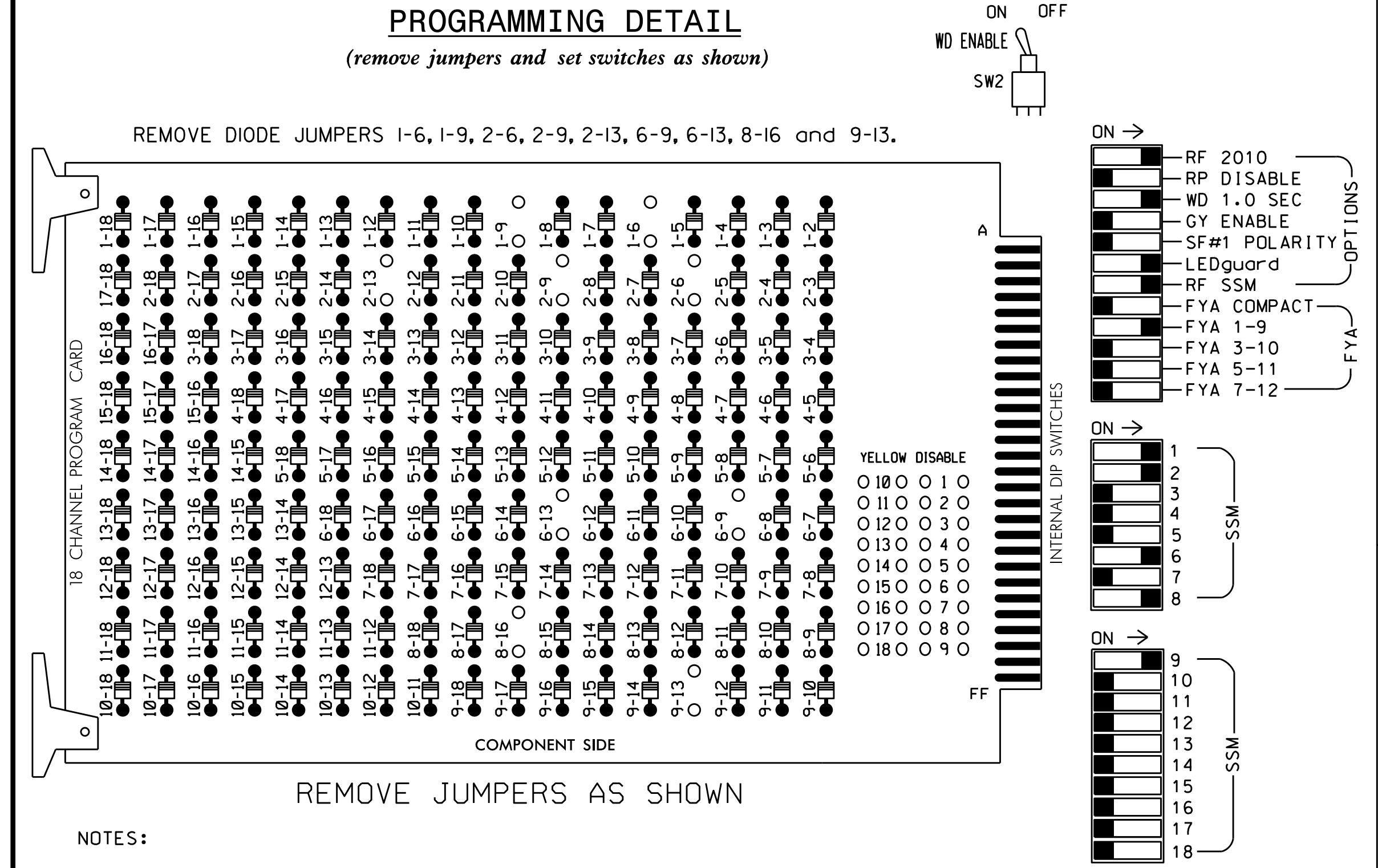






### 18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(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 controller to start up in phase 2 Green and 6 Green.
3. The cabinet and controller are part of the Fayetteville Signal System.

### EQUIPMENT INFORMATION

CONTROLLER.....2070  
 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,S8,S11,S12,AUX S1  
 PHASES USED.....1,2,2 PED,6,8,8 PED  
 OVERLAP "A".....\*  
 OVERLAP "B".....NOT USED  
 OVERLAP "C".....NOT USED  
 OVERLAP "D".....NOT USED  
 \* See overlap programming detail on sheet 2

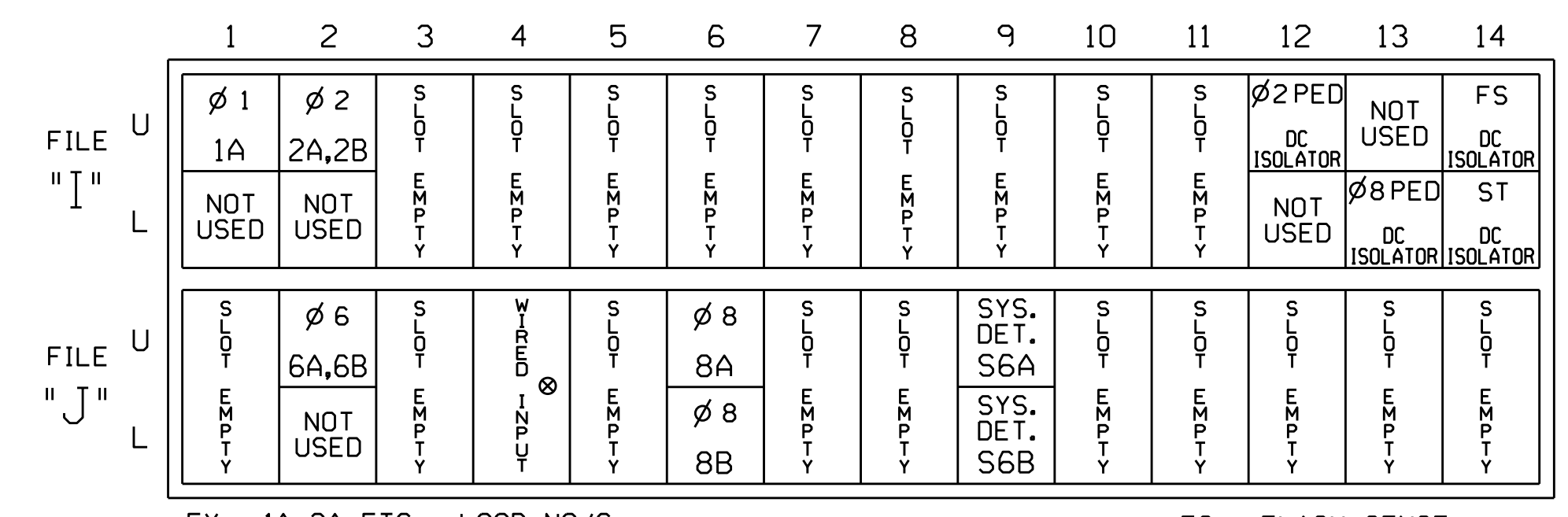
### SIGNAL HEAD HOOK-UP CHART

| 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 |
|-----------------------|-----|-----|-------|----------|----|-------|----|-------|-------|-----|-------|----------|--------|--------|--------|--------|--------|--------|
| CMU CHANNEL NO.       | 1   | 2   | 13    | 3        | 4  | 14    | 5  | 6     | 15    | 7   | 8     | 16       | 9      | 10     | 17     | 11     | 12     | 18     |
| PHASE                 | 1   | 2   | 2 PED | 3        | 4  | 4 PED | 5  | 6     | 6 PED | 7   | 8     | 8 PED    | OLA    | OLB    | SPARE  | OLC    | OLD    | SPARE  |
| SIGNAL HEAD NO.       | 11  | 82  | 21,22 | P21, P22 | NU | NU    | NU | 61,62 | NU    | NU  | 81,82 | P81, P82 | 11     | NU     | NU     | NU     | NU     | NU     |
| RED                   | *   | 128 |       |          |    |       |    | 134   |       |     | 107   |          |        |        |        |        |        |        |
| YELLOW                |     | 129 |       |          |    |       |    | 135   |       |     |       |          |        |        |        |        |        |        |
| GREEN                 |     | 130 |       |          |    |       |    | 136   |       |     |       |          |        |        |        |        |        |        |
| RED ARROW             |     |     |       |          |    |       |    |       |       |     |       |          |        |        |        |        |        | A121   |
| YELLOW ARROW          | 126 |     |       |          |    |       |    |       |       |     | 108   |          |        |        |        |        |        | A122   |
| FLASHING YELLOW ARROW |     |     |       |          |    |       |    |       |       |     |       |          |        |        |        |        |        | A123   |
| GREEN ARROW           | 127 | 127 |       |          |    |       |    |       |       |     | 109   |          |        |        |        |        |        |        |
| Hand                  |     |     |       |          |    |       |    |       |       |     |       |          |        |        |        |        |        | 110    |
| Hand                  |     |     |       |          |    |       |    |       |       |     |       |          |        |        |        |        |        | 115    |

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

### INPUT FILE POSITION LAYOUT

(front view)

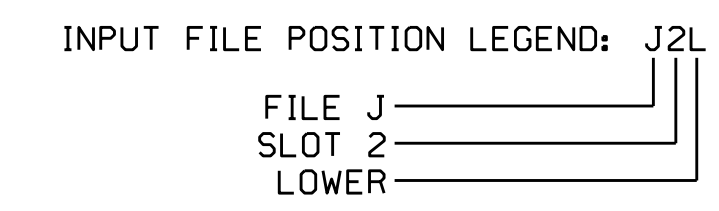


### INPUT FILE CONNECTION & PROGRAMMING CHART

| 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         |               | N             |
|                  |               | J4U             | 48      | 26           | 6          | YES  |             | 3          |               | G             |
| 2A,2B            | TB2-5,6       | I2U             | 39      | 2            | 2          | YES  |             |            |               | N             |
| 6A,6B            | TB3-5,6       | J2U             | 40      | 6            | 6          | YES  |             |            |               | N             |
| 8A               | TB5-9,10      | J6U             | 42      | 8            | 8          | YES  |             | 3          |               | N             |
| 8B               | TB5-11,12     | J6L             | 46      | 18           | 8          | YES  |             | 15         |               | N             |
| * S6A            | TB7-9,10      | J9U             | 59      | 15           | SYS        | NO   |             |            |               | N             |
| * S6B            | TB7-11,12     | J9L             | 61      | 17           | SYS        | NO   |             |            |               | N             |
| PED PUSH BUTTONS |               |                 |         |              |            |      |             |            |               |               |
| P21,P22          | TB8-4,6       | I12U            | 67      | PED 2        | 2 PED      |      |             |            |               |               |
| P81,P82          | TB8-8,9       | I13L            | 70      | PED 8        | 8 PED      |      |             |            |               |               |

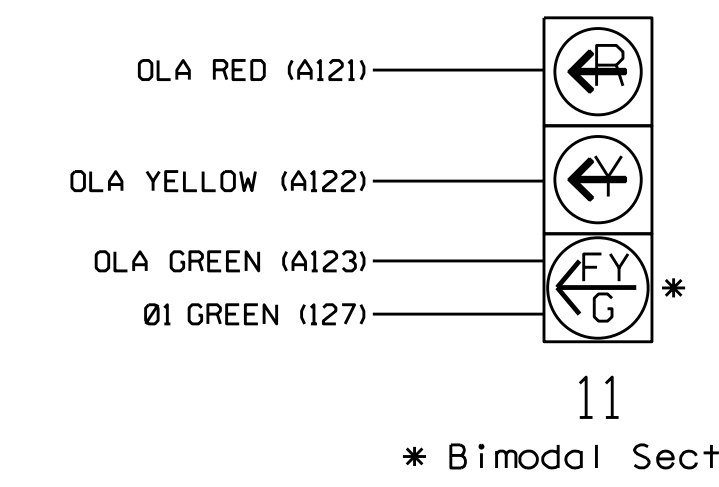
NOTE:  
 INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

<sup>1</sup>Add jumper from I1-W to J4-W, on rear of input file.  
 \* System detector only. Remove any assigned vehicle phase.



### FYA SIGNAL WIRING DETAIL

(wire signal head as shown)



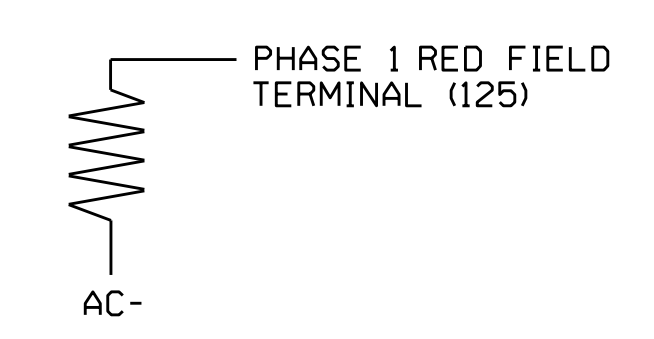
### COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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: 06-0540  
 DESIGNED: December 2022  
 SEALED: 2/01/2023  
 REVISED: N/A

### LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown)



Electrical Detail Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

SR 1415 (Yadkin Road) at Southwick Road

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2023 REVIEWED BY: DTJ

PREPARED BY: D.J. Craddock REVIEWED BY:

| REVISIONS | INIT. | DATE |
|-----------|-------|------|
|           |       |      |

DocuSigned by:  
  
 02/02/2023

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 031001  
 D. TODD JOYCE

SIG. INVENTORY NO. 06-0540

02-FEB-2023 07:51 S:\17565\17565\Sig\18 Channel IP Conflict Monitor\18 Channel IP Conflict Monitor\06-0540\_49312\_1\_2\060540.sm.dwg 2/1/2023 10:09:28 jccoy-jgm dj-craddock1



## 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 heads  
11 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: | 1 | ACTIVE: | M   | (T/F) |
| IF   | PED ON PH WALK     |            | 2 | IS      | ON  |       |
| AND  | VEH GREEN ON PH    |            | 2 | IS      | OFF |       |
| ELSE |                    |            |   |         |     |       |
| THEN | SIG SET OLP RED    |            | 1 |         | ON  |       |
|      | SIG SET OLP YELLOW |            | 1 |         | OFF |       |
|      | SIG SET OVLP GREEN |            | 1 |         | OFF |       |

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

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

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

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

END PROGRAMMING

## 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: ....   | <span style="border: 1px solid black; padding: 2px;">PPLT FYA</span> |
| 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

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 06-0540  
DESIGNED: December 2022  
SEALED: 2/01/2023  
REVISED: N/A

| <p style="font-size: x-small;">ELECTRICAL AND PROGRAMMING<br/>DETAILS FOR:</p> <p style="font-size: x-small;">Prepared in the Offices of:</p> <p style="font-size: x-small;">750 N. Greenfield Pkwy, Garner, NC 27529</p> | <p style="font-size: large;">SR 1415 (Yadkin Road)<br/>at<br/>Southwick Road</p> <p style="font-size: x-small;">Division 6 Cumberland County Fayetteville</p> <p style="font-size: x-small;">PLAN DATE: January 2023 REVIEWED BY: DTJ</p> <p style="font-size: x-small;">PREPARED BY: D.J. Craddock REVIEWED BY:</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> <tr> <td> </td> <td> </td> <td> </td> </tr> </table> | REVISIONS | INIT. | DATE |  |  |  |  |  |  | <p style="font-size: x-small;">SEAL</p> <p style="font-size: x-small;">DocuSigned by:<br/><i>Todd Joyce</i> 02/02/2023</p> <p style="font-size: x-small;">SIG. INVENTORY NO. 06-0540</p> |
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| REVISIONS   | INIT.   | DATE      |       |      |  |  |  |  |  |  |  |
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