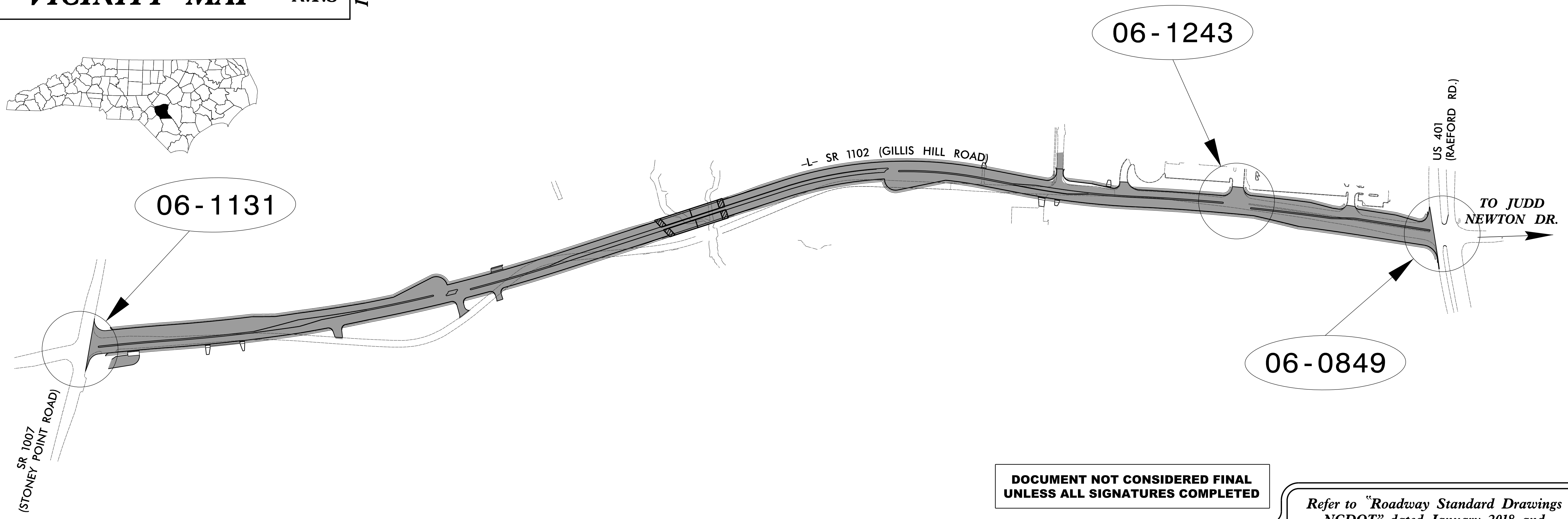
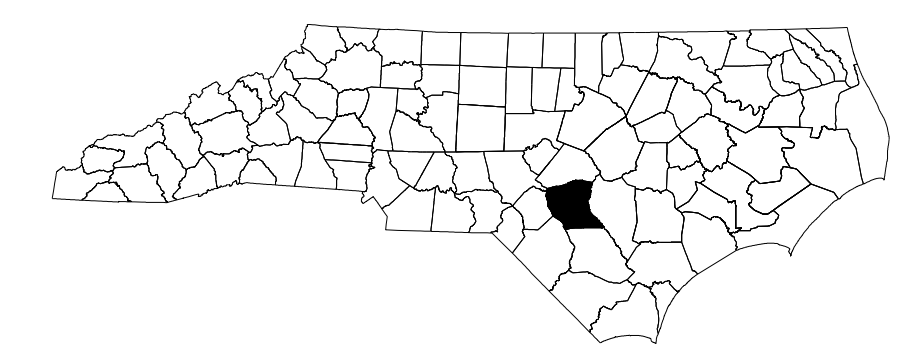
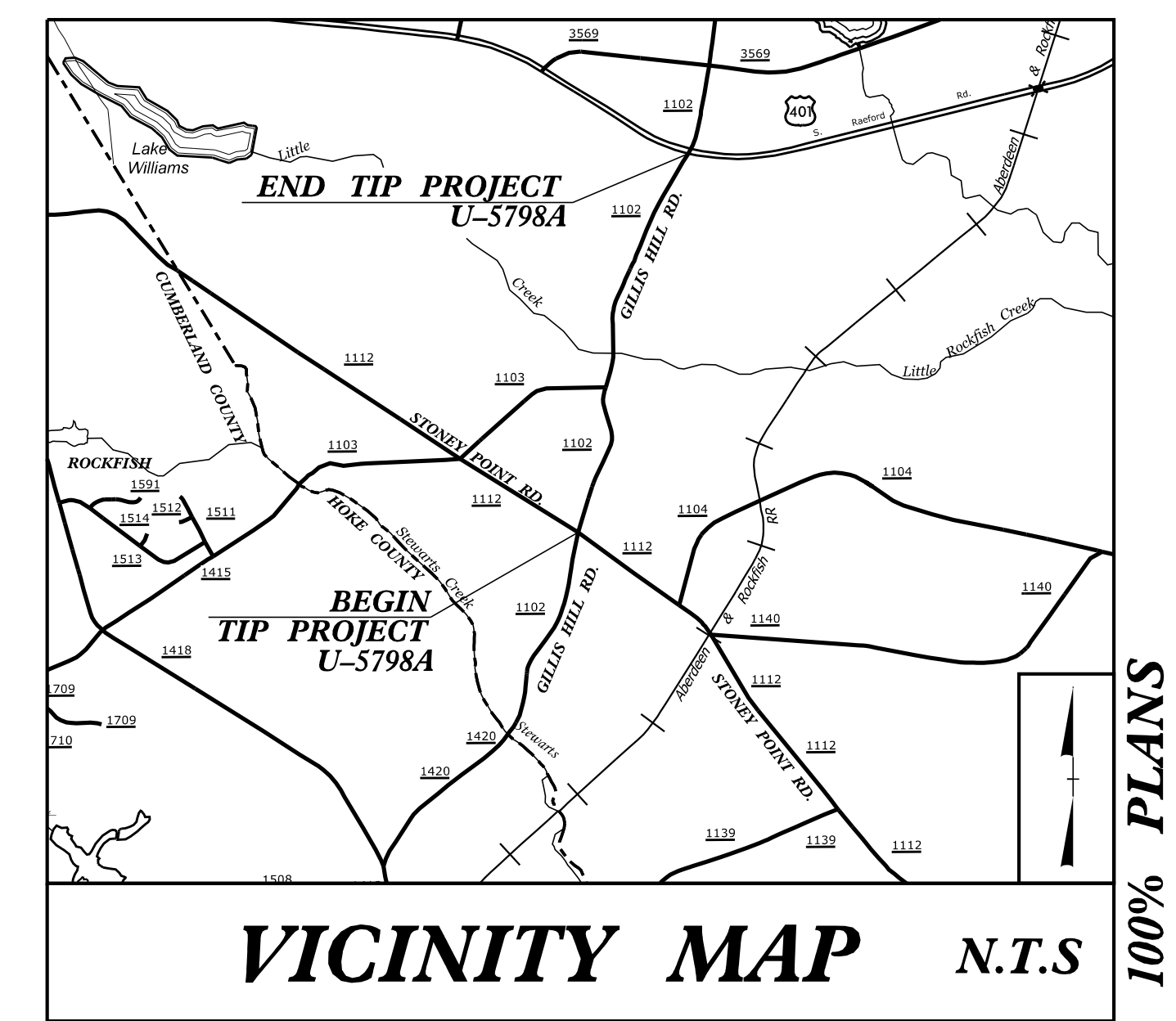
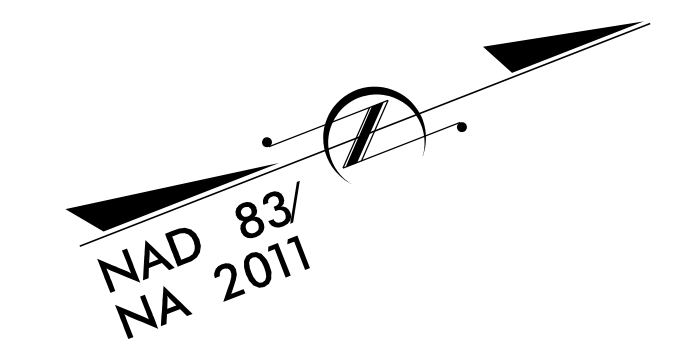


Project: U-5798A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

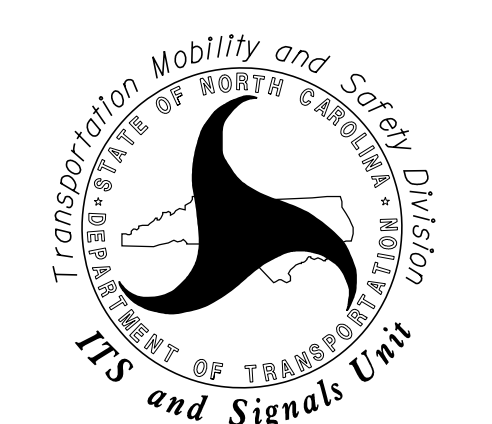
LOCATION: WIDEN SR 1102 (GILLIS HILL ROAD) TO MULTI-LANES FROM US 401 (RAEFORD ROAD) TO SR 1007 (STONEY POINT ROAD)
TYPE OF WORK: PAVING, GRADING, DRAINAGE, STRUCTURES, AND SIGNALS.



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

Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.

Prepared in the Office of:



750 N. Greenfield Parkway, Garner, NC 27529

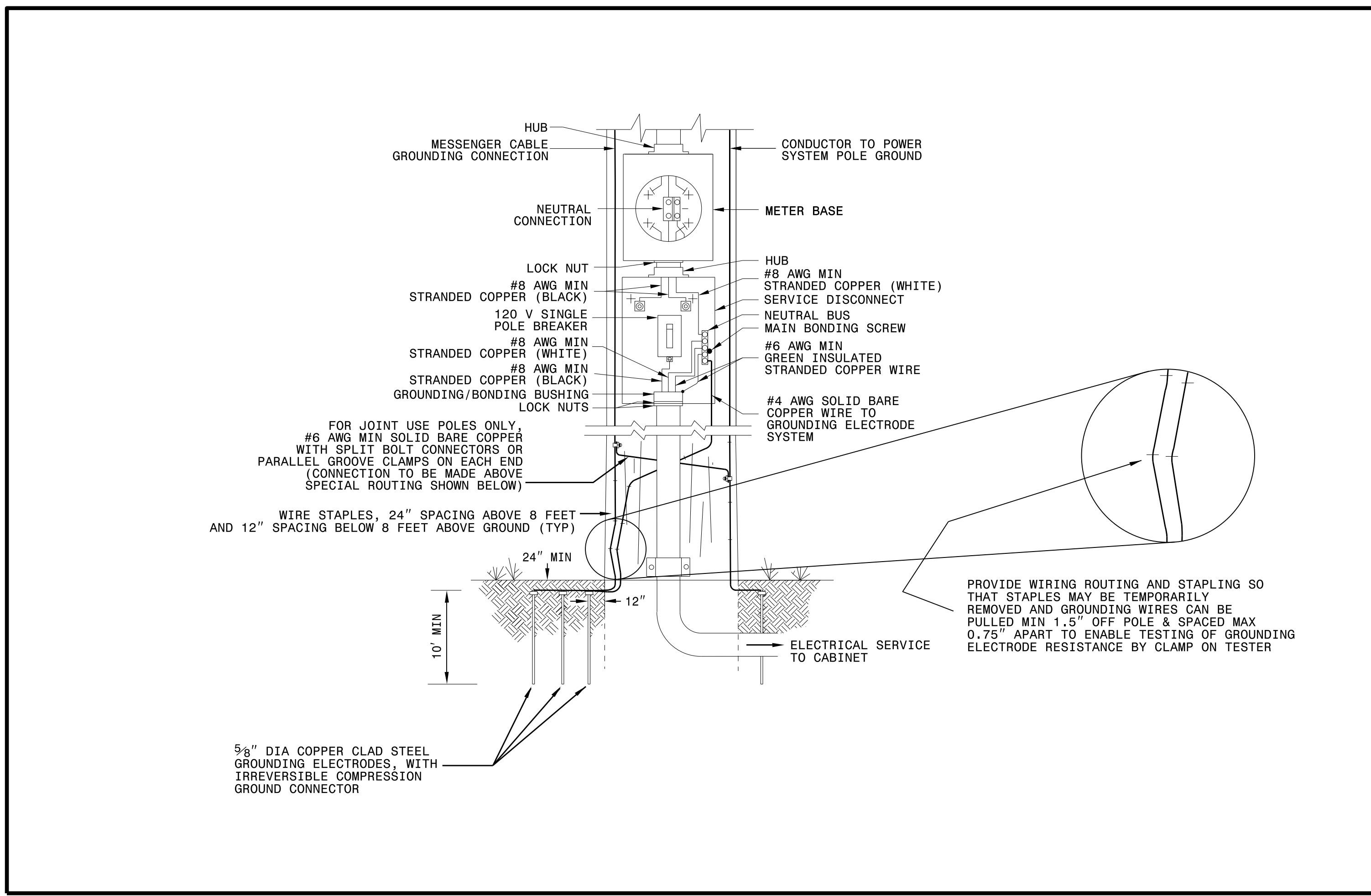
| Sheet # | Reference # | Index of Plans Location/Description |
|----------------|-------------|--|
| Sig. 1.0 | N/A | Title Sheet |
| Sig. 1.1-1.2 | N/A | Standard Plate Sheets |
| Sig. 2.0-2.2 | 06-0849 T1 | US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) |
| Sig. 3.0-3.2 | 06-0849 T2 | US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) |
| Sig. 4.0-4.2 | 06-0849 T3 | US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) |
| Sig. 5.0-5.2 | 06-0849 | US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) |
| Sig. 6.0-6.2 | 06-1243 T1 | SR 1102 (Gillis Hill Road) at Shopping Center Driveway |
| Sig. 7.0-7.2 | 06-1243 T2 | SR 1102 (Gillis Hill Road) at Shopping Center Driveway |
| Sig. 8.0-8.2 | 06-1243 T3 | SR 1102 (Gillis Hill Road) at Shopping Center Driveway |
| Sig. 9.0-9.2 | 06-1243 | SR 1102 (Gillis Hill Road) at Shopping Center Driveway |
| Sig. 10.0-10.4 | 06-1131 T1 | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) |
| Sig. 11.0-11.4 | 06-1131 T2 | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) |
| Sig. 12.0-12.4 | 06-1131 T3 | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) |
| Sig. 13.0-13.4 | 06-1131 | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) |
| Sig. MP1 - MP8 | N/A | Standard Drawings for All Metal Poles |
| SCP 1 | N/A | Signal Communications Construction Notes |
| SCP 2 | N/A | Signal Communications Legend / General Notes / Abbreviations / Roadway Standard Drawings |
| SCP 3 | N/A | Fiber-Optic Schematic |
| SCP 4 - 10 | N/A | Temporary Signal Communication Cable Routing Plans |
| SCP 11 - 16 | N/A | Proposed Signal Communication Cable Routing Plans |
| SCP 17 - 21 | N/A | Fiber-Optic Splicing Details |

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

Meghan E. LeBlanc, PE - Eastern Region Signals Project Engineer
D. Todd Joyce, PE - Signal Equipment Design Engineer
Gregory A. Green - Intelligent Transportation Systems Engineer

I:\S\2017\17-002\17-002_Signals\Design\Plan_Sheets\For_Final_Submittal\U5798A_sig_tsh_20220105.dgn
3/14/22 PM



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

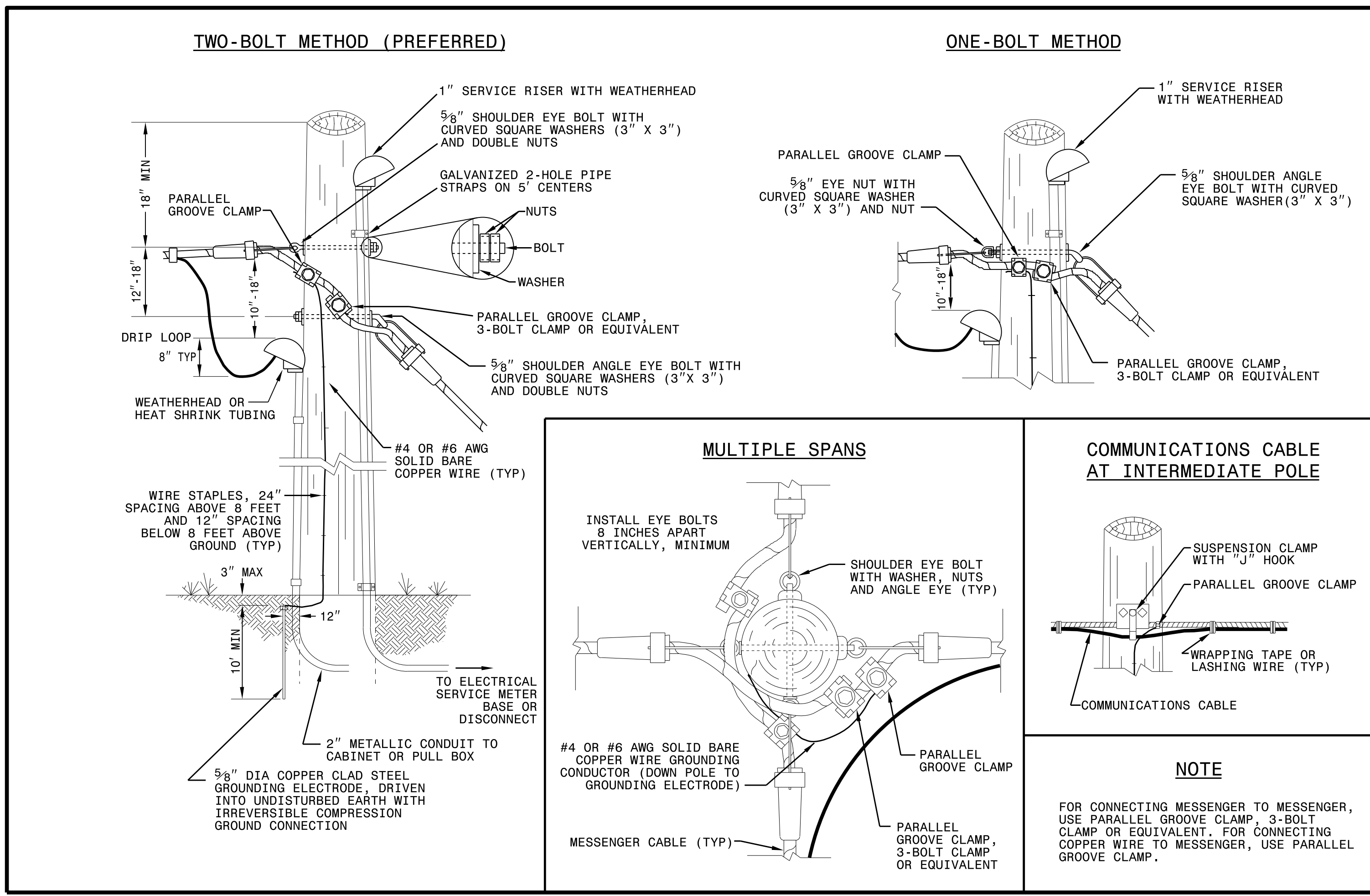
ENGLISH STANDARD DRAWING FOR

ELECTRICAL SERVICE GROUNDING

GROUNDING AND BONDING

SHEET 1 OF 1

1700D01



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR

WOOD POLES

METHODS OF ATTACHMENT AND GROUNDING

SHEET 1 OF 1

1720D01

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SIGNATURES COMPLETED

See Plate for Title

Prepared in the Offices of:

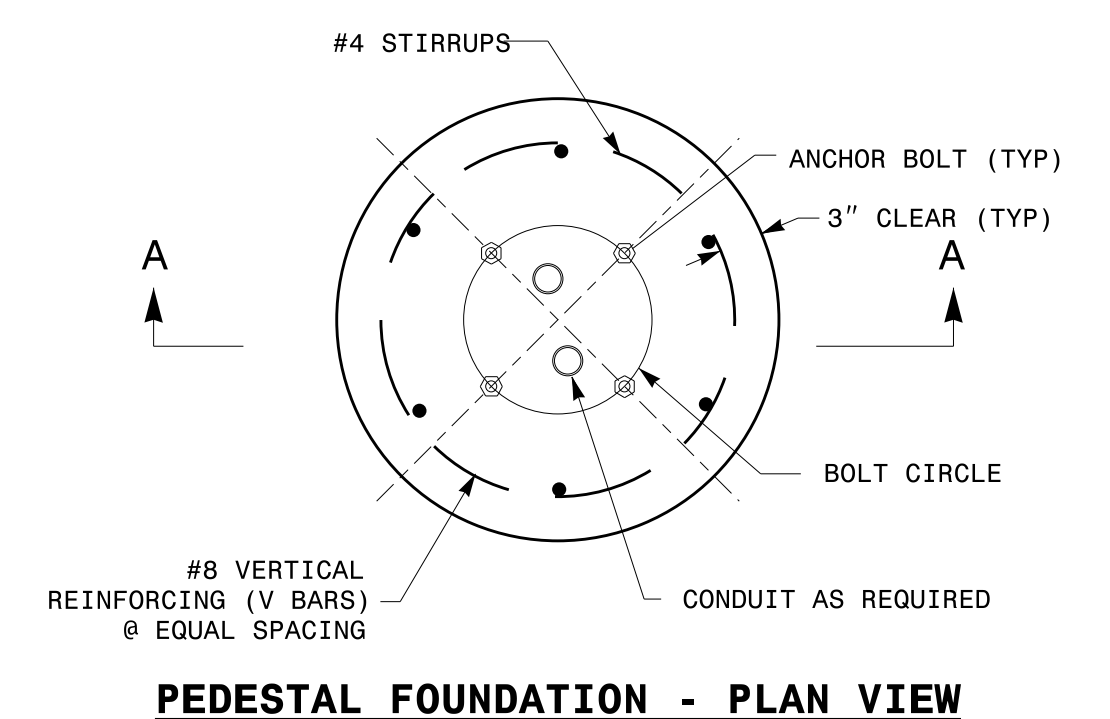
750 N. Greenfield Parkway
Garner, NC 27529

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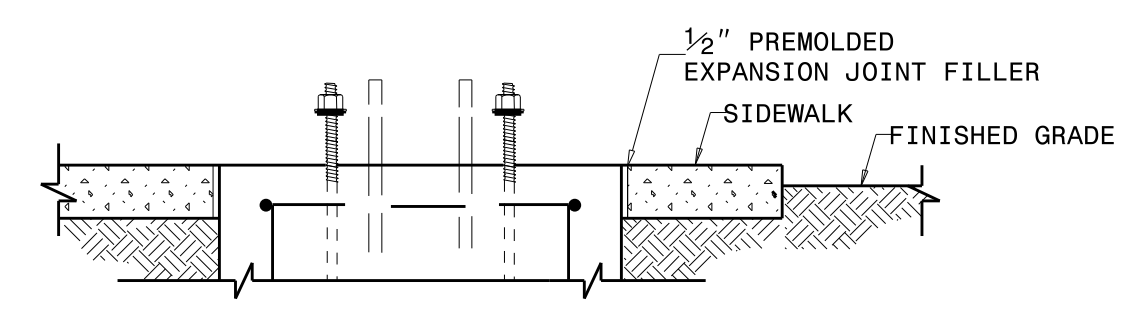
DocuSigned by:
Mohd Aslami

10/11/2017
DATE

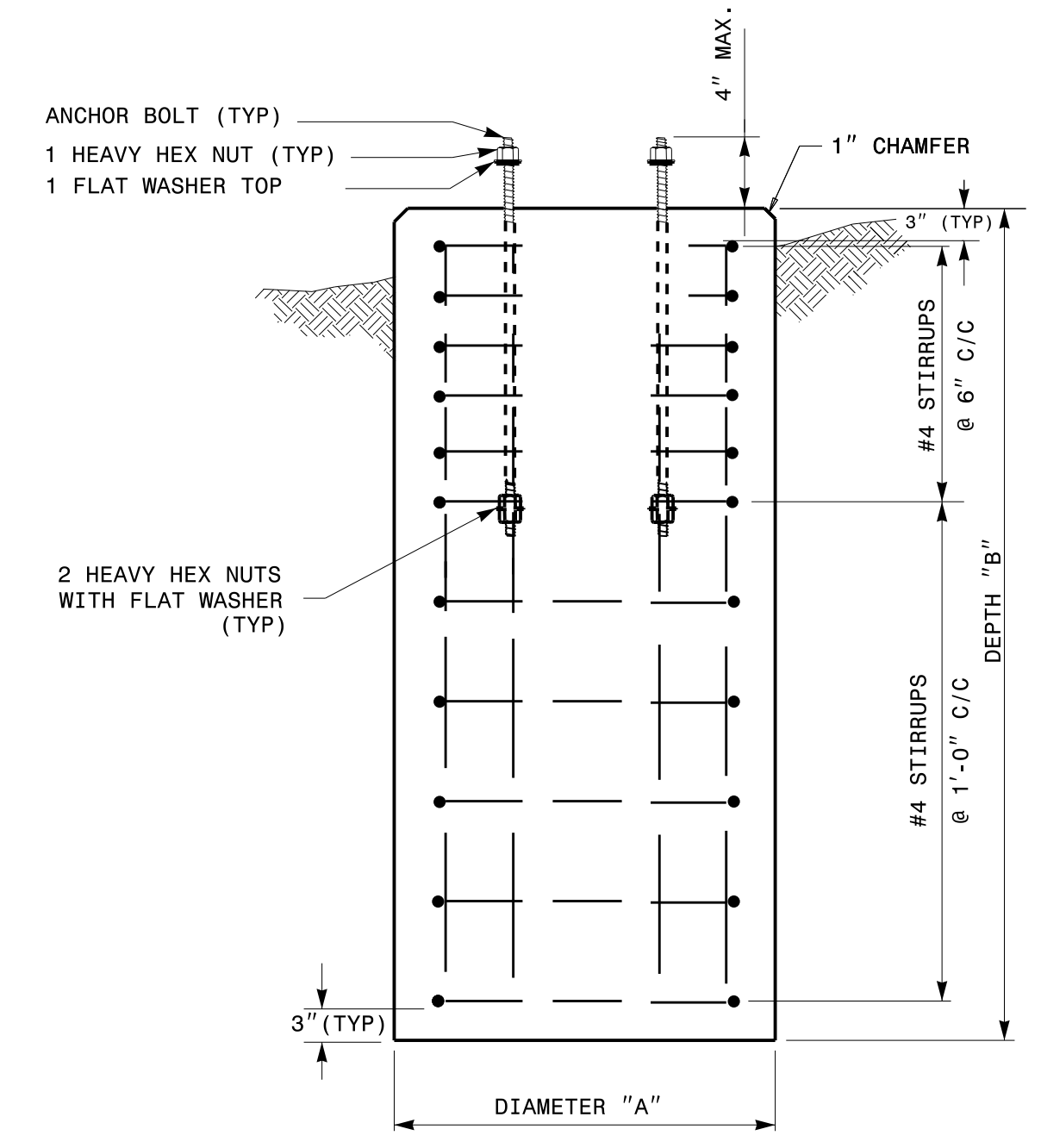
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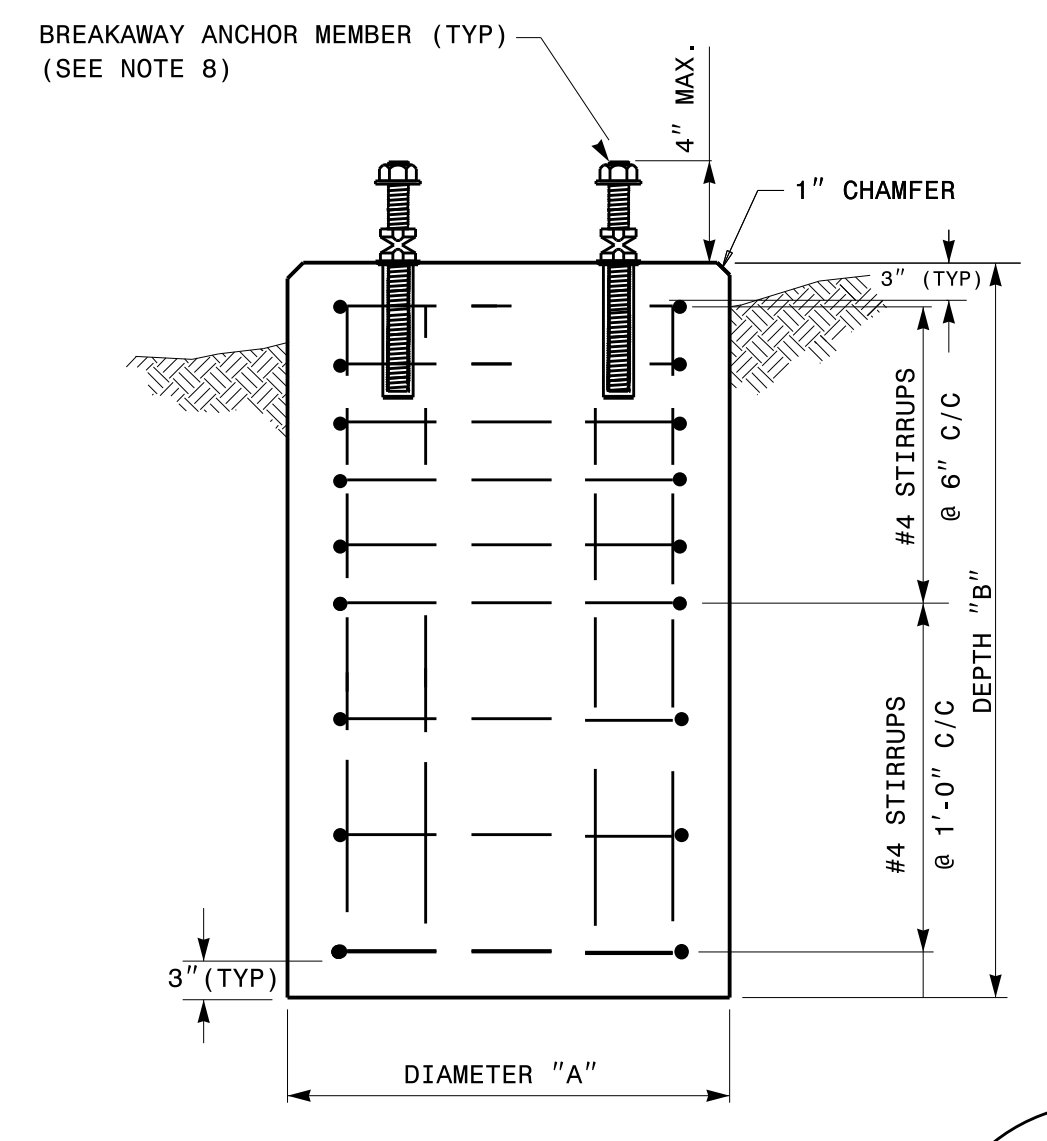
PEDESTAL FOUNDATION - PLAN VIEW



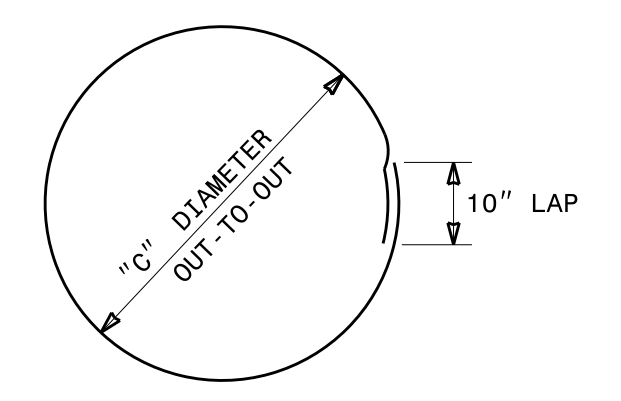
PEDESTAL FOUNDATION DETAILS FOR SIDEWALK



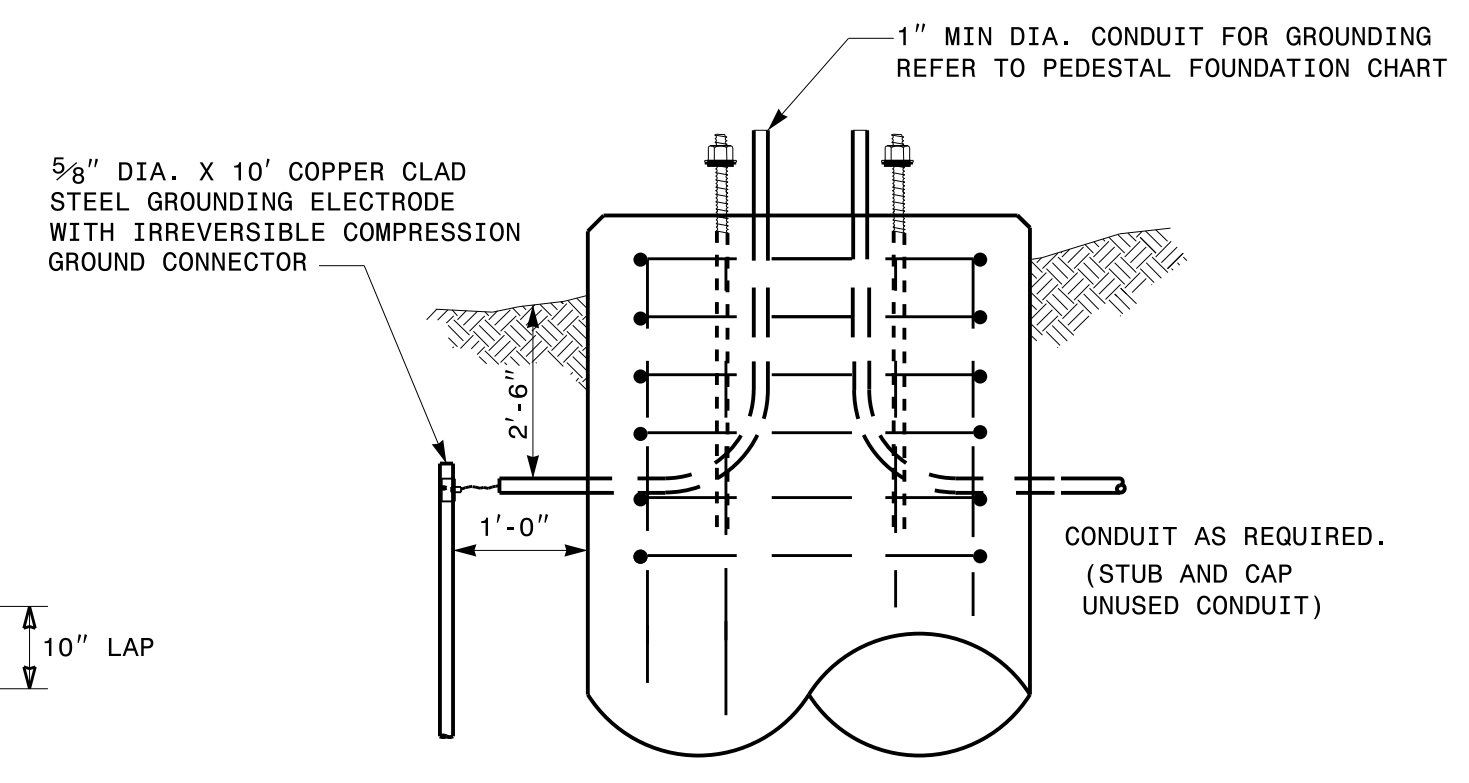
**TYPES I, II & III
SECTION A-A**



**TYPES I & II ONLY
SECTION A-A**



CLOSED HOOPS



GROUNDING & CONDUIT DETAIL

NOTES:

- CAST FOUNDATION AGAINST UNDISTURBED SOIL WHEREVER CONDITIONS PERMIT. IN UNSTABLE SOIL, CAST-IN-PLACE TUBE FORMS ARE ALLOWED WITH APPROVAL.
- COMPLY WITH APPLICABLE PROVISIONS OF SECTION 825 FOR CONCRETE CONSTRUCTION.
- USE CLASS "A" CONCRETE THAT MEETS THE REQUIREMENTS OF SECTION 1000 WITH A COMPRESSION STRENGTH AT 28 DAYS OF $F'c = 3000$ PSI (MIN.).
- USE ASTM GRADE 60 DEFORMED BARS FOR ALL REINFORCING STEEL.
- GRADE IS ASSUMED TO BE (8H:1V) OR FLATTER. FOUNDATION SIZE AND DEPTHS ARE BASED ON THE FOLLOWING SOIL DESIGN PARAMETERS:
 - SANDY TYPE SOIL
 - NO GROUND WATER WITHIN 5'-0" OF SURFACE ELEVATION
 - WIND SPEED NOT TO EXCEED 140 MPH
 IF ACTUAL CONDITIONS VARY SUBSTANTIALLY FROM THOSE ASSUMED, THE FOUNDATION DEPTH MAY BE ADJUSTED. IN THIS CASE, CONTACT THE ENGINEER.
- MAINTAIN AT LEAST 3" COVER ON ALL REINFORCEMENT.
- ORIENT CONDUIT AS REQUIRED BY THE DESIGN OR AS DICTATED BY FIELD CONDITIONS.
- USE ADHESIVE ANCHOR FOR THREADED COUPLING INSERT. FOR TYPE I MINIMUM DEPTH NECESSARY IS 0'-4 1/2" AND FOR TYPE II MINIMUM DEPTH NECESSARY IS 0'-6 5/8". FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.

| PEDESTAL FOUNDATION TYPE AND SIZE | | | | | | | |
|-----------------------------------|-----------------------|-----------------|--------------|--------------------|--------------------|--------------|-----------------------------------|
| TYPE | PEDESTAL DESCRIPTION | SIZE | | | ANCHOR BOLT | | INSTALL GROUNDING SYSTEM (YES/NO) |
| | | DIAMETER "A" FT | DEPTH "B" FT | CONCRETE VOLUME CY | DIAMETER (MIN.) IN | LENGTH FT-IN | |
| I | PEDESTRIAN PUSHBUTTON | 2'-0" | 3'-6" | .41 | 1/2 | 1'-6" | NO |
| II | NORMAL-DUTY | 2'-0" | 5'-0" | .58 | 3/4 | 2'-0" | YES |
| III | HEAVY-DUTY | 2'-6" | 7'-0" | 1.27 | 1 | 4'-0" | YES |

| REINFORCING STEEL SCHEDULE | | | | | | | | | | | | |
|----------------------------|--------|-----|--------|------------|------------------------|------------------------|-------|--------|-----------------|--------------|------------|------------------------|
| TYPE | V-BAR | | | | STIRRUP | | | | | | | |
| | SIZE # | QTY | LENGTH | WEIGHT LBS | QUANTITY | | | LENGTH | DIAMETER "C" FT | OVERLAP MIN. | WEIGHT LBS | TOTAL STEEL WEIGHT LBS |
| | | | | | VERTICAL ON 6" CENTERS | SPACING ON 12" CENTERS | TOTAL | | | | | |
| I | 8 | 6 | 3'-0" | 56 | 4 | 0 | 4 | 5'-7" | 1'-6" | 0'-10" | 15 | 71 |
| II | 8 | 6 | 4'-6" | 86 | 4 | 5 | 3 | 5'-7" | 1'-6" | 0'-10" | 30 | 116 |
| III | 8 | 6 | 6'-6" | 122 | 4 | 7 | 4 | 7'-2" | 2'-0" | 0'-10" | 53 | 175 |

STATE OF NORTH CAROLINA
 DEPT. OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 RALEIGH, N.C.

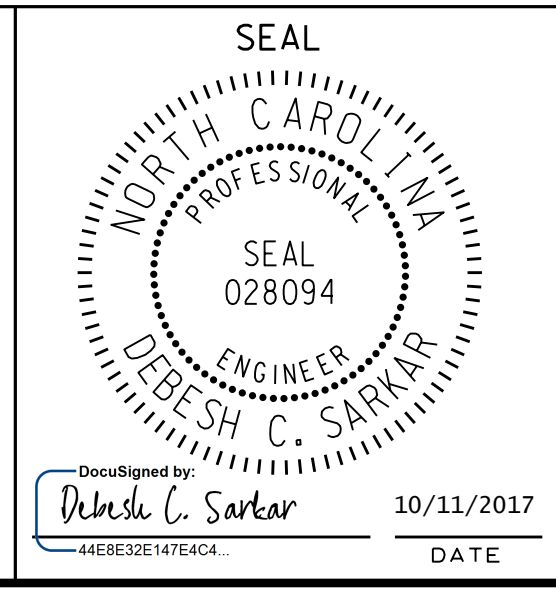
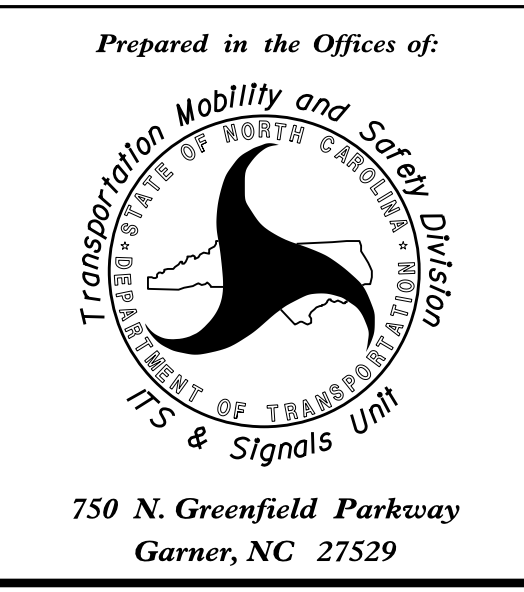
ENGLISH STANDARD DRAWING FOR
PEDESTALS
 FOUNDATIONS

SHEET 1 OF 1
1743D01

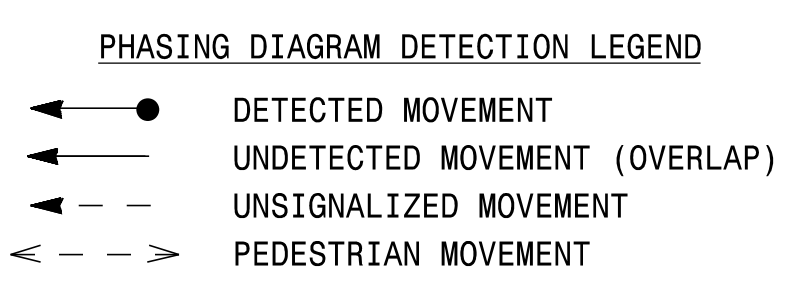
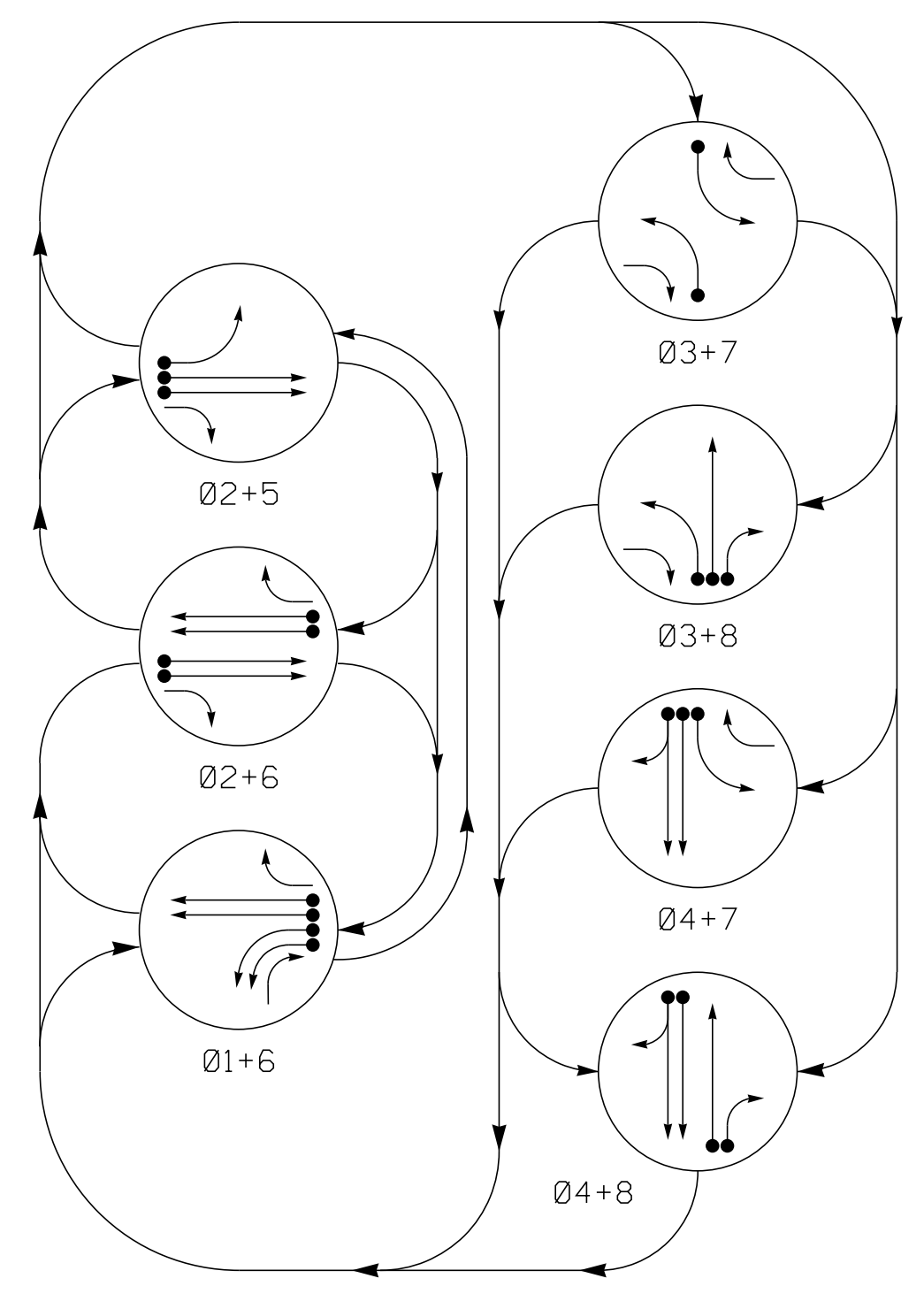
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DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED

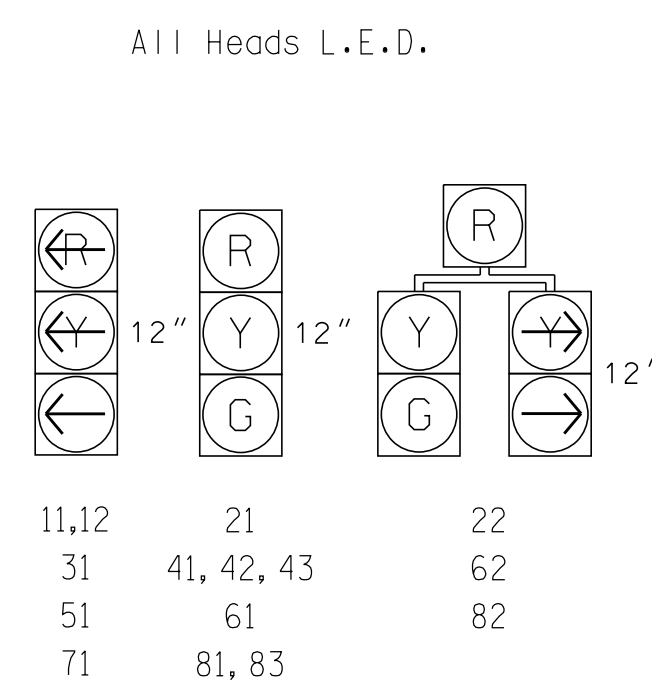
See Plate for Title



PHASING DIAGRAM



SIGNAL FACE I.D.



| SIGNAL FACE | PHASE | | | | | | | |
|-------------|-------|------|------|------|------|------|------|-------|
| | 01+6 | 02+5 | 02+6 | 03+7 | 03+8 | 04+7 | 04+8 | FLASH |
| 11,12 | ← | → | → | → | → | → | → | → |
| 21 | R | G | G | R | R | R | R | Y |
| 22 | R | G | G | R | R | R | R | Y |
| 31 | → | → | → | ← | ← | ← | ← | → |
| 41,42,43 | R | R | R | R | R | G | G | R |
| 51 | → | → | → | → | → | → | → | → |
| 61 | G | G | R | R | R | R | R | Y |
| 62 | G | G | R | R | R | R | R | Y |
| 71 | → | → | → | ← | ← | ← | ← | → |
| 81,83 | R | R | R | R | G | R | G | R |
| 82 | → | R | R | R | G | R | G | R |

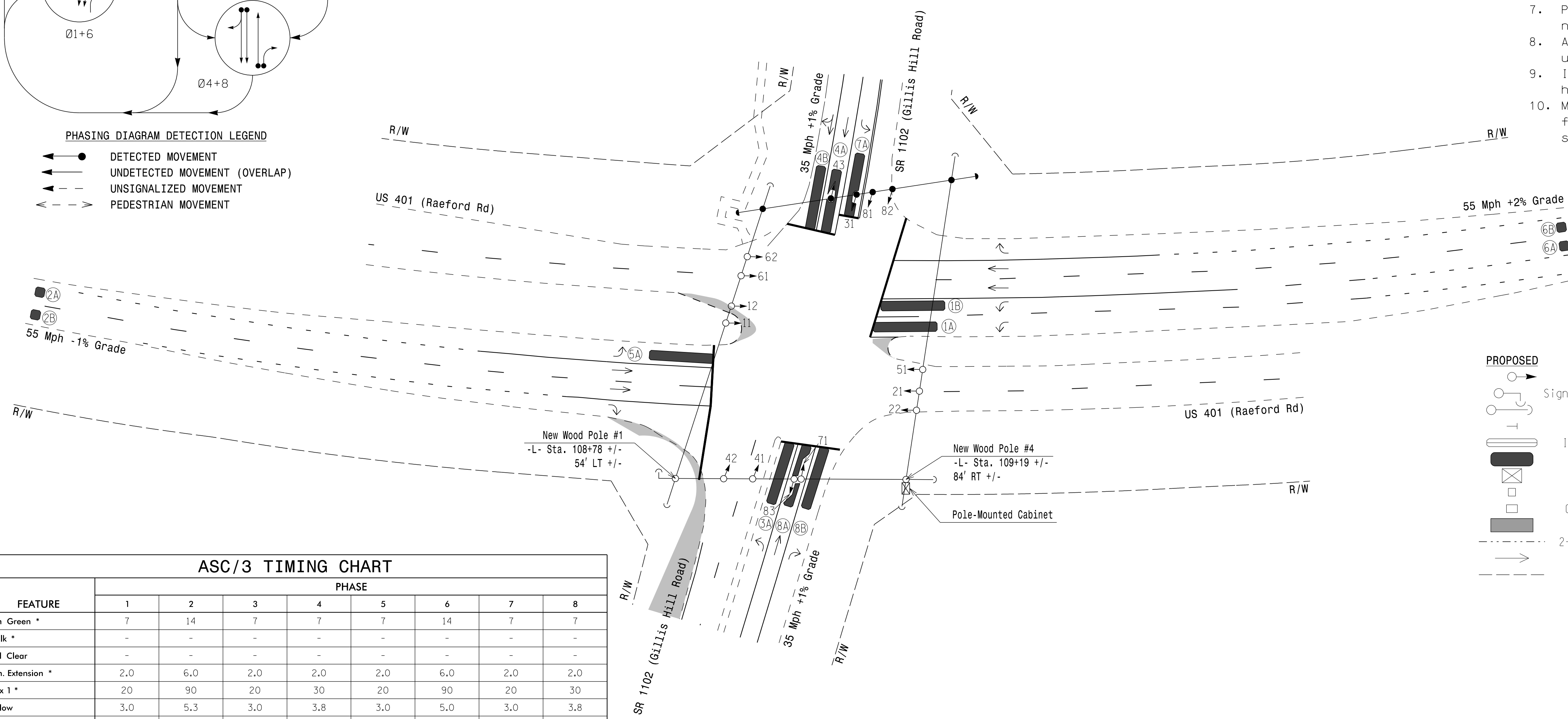
| ASC/3 DETECTOR INSTALLATION CHART | | | | | | | | | | | | |
|-----------------------------------|-----------|----------------------------|-------|-------------|-------|---------|-------------|------------|--------------------|------|-------------|----------|
| DETECTOR | | | | PROGRAMMING | | | | | | | | |
| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PHASE | CALLING | EXTEND TIME | DELAY TIME | USED ADDED INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 1A | 6X40 | 0 | * | * | 1 | YES | - | - | - | N | - | * |
| 1B | 6X40 | 0 | * | * | 1 | YES | - | - | - | N | - | * |
| 2A | 6X6 | 420 | * | * | 2 | YES | - | - | X | N | - | * |
| 2B | 6X6 | 420 | * | * | 2 | YES | - | - | X | N | - | * |
| 3A | 6X40 | 0 | * | * | 3 | YES | - | - | - | N | - | * |
| 4A | 6X40 | 0 | * | * | 4 | YES | - | - | - | N | - | * |
| 4B | 6X40 | 0 | * | * | 4 | YES | - | 10 | - | N | - | * |
| 5A | 6X40 | 0 | * | * | 5 | YES | - | - | - | N | - | * |
| 6A | 6X6 | 420 | * | * | 6 | YES | - | - | X | N | - | * |
| 6B | 6X6 | 420 | * | * | 6 | YES | - | - | X | N | - | * |
| 7A | 6X40 | 0 | * | * | 7 | YES | - | 3 | - | N | - | * |
| 8A | 6X40 | 0 | * | * | 8 | YES | - | - | - | N | - | * |
| 8B | 6X40 | 0 | * | * | 8 | YES | - | 15 | - | N | - | * |

* Video Detection Zone

7 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 3 and/or phase 7 may be lagged.
- The order of phase 1 and phase 5 may be reversed, but phase 1 and phase 5 shall not operate concurrently.
- Set all detector units to presence mode.
- Relocate eastbound approach stopbar as shown on U-5798A TMP Phase 1 Pavement Marking Plans.
- Portions of detection zones 4A, 7A, and 8A not shown for clarity.
- Avoid impacts to proposed and existing utilities at New Wood Pole #4.
- Install new signal cable for existing signal heads 31, 43, 81, and 82.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

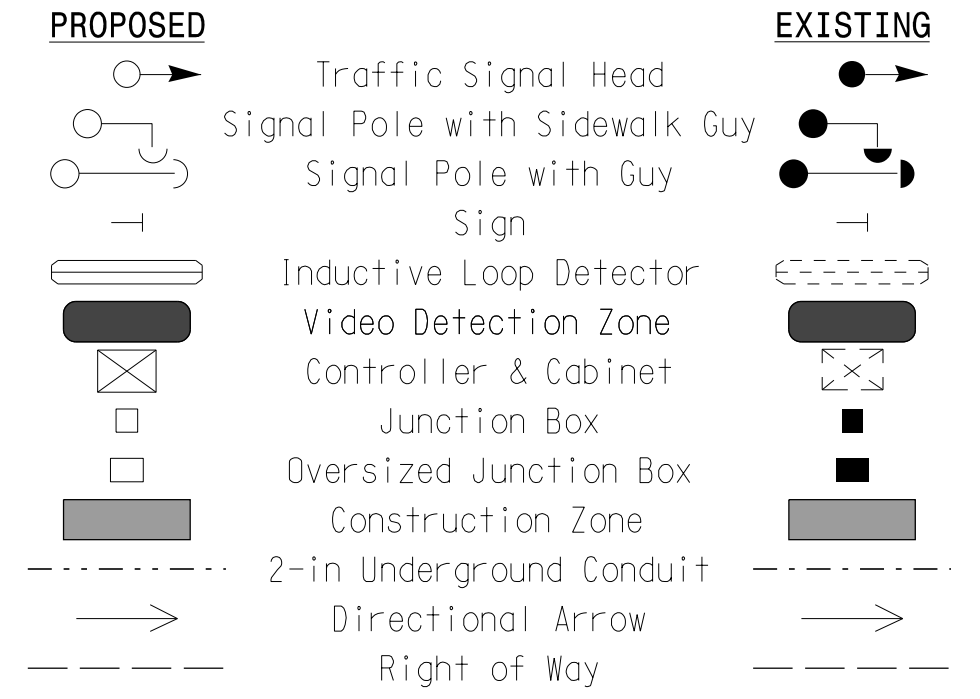


ASC/3 TIMING CHART

| 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 I * | 20 | 90 | 20 | 30 | 20 | 90 | 20 | 30 |
| Yellow | 3.0 | 5.3 | 3.0 | 3.8 | 3.0 | 5.0 | 3.0 | 3.8 |
| Red Clear | 3.4 | 1.2 | 3.1 | 2.6 | 3.6 | 1.0 | 3.3 | 2.7 |
| Actuations B4 Add * | - | 0 | - | - | - | 0 | - | - |
| Seconds / Actuation * | - | 1.8 | - | - | - | 1.8 | - | - |
| Max Initial * | - | 46 | - | - | - | 46 | - | - |
| Time Before Reduction * | - | 15 | - | - | - | 15 | - | - |
| Time To Reduce * | - | 45 | - | - | - | 45 | - | - |
| Minimum Gap | - | 3.4 | - | - | - | 3.4 | - | - |
| 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



Temporary Signal 1 - TCP Phase II

750 N. Greenfield Pkwy, Garner, NC 27528
8521 SIX FORKS ROAD, SUITE 400
RALPHIGH, NC 27615
(919) 926-4100

US 401 (S Raeford Road)
at
SR 1102 (Gillis Hill Road)
Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: S.G. Haynie

PREPARED BY: S. N. Matthews REVIEWED BY:

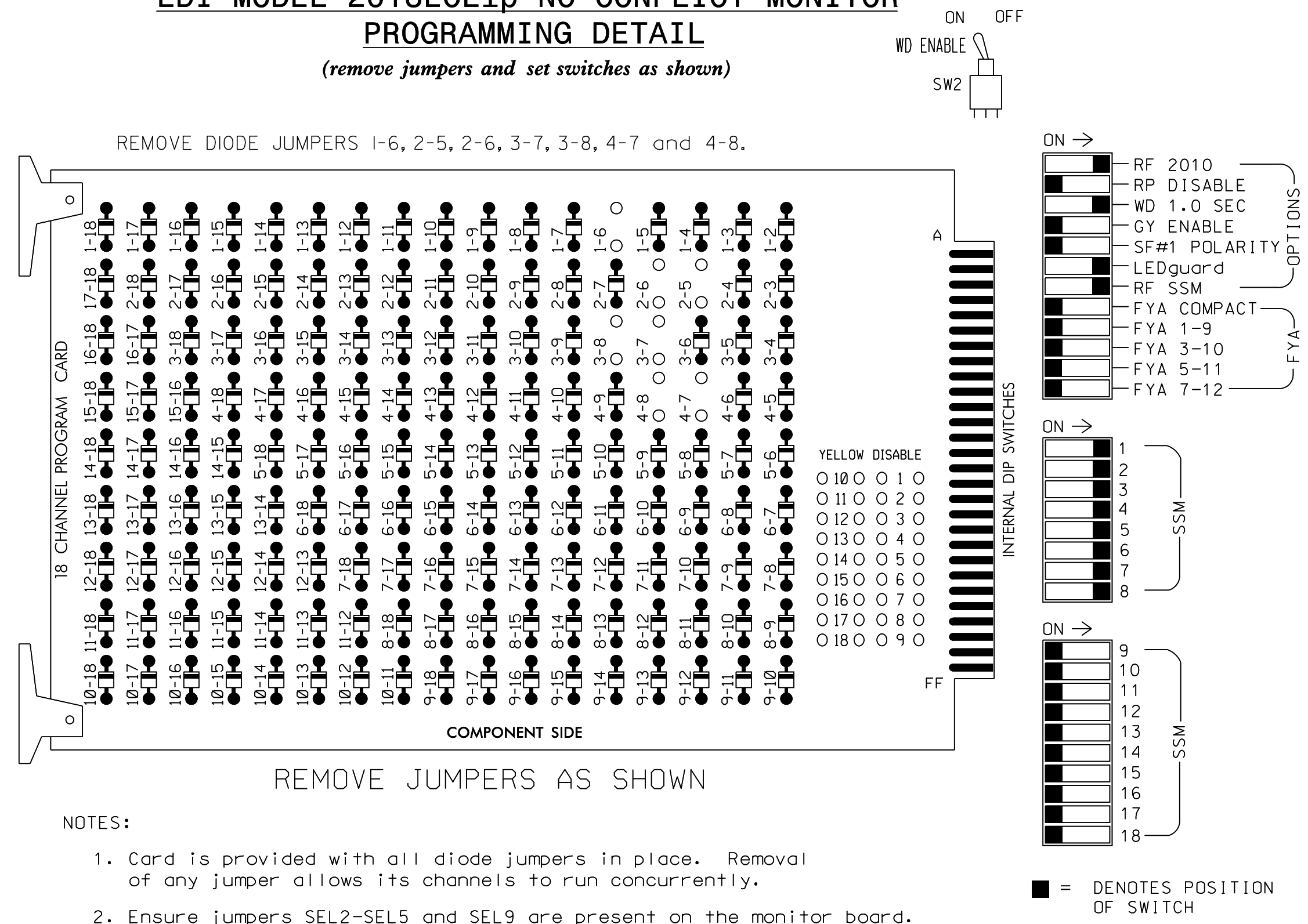
| REVISIONS | INIT. | DATE |
|-----------|-------|------|
| | | |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

1/5/2022

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 Fayetteville Signal System.

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 | 82 | 21,22 | NU | 31 | 22 | 41, 42, 43 | NU | 51 | 61, 62 | NU | 71 | 62 | 81, 82, 83 | NU |
| RED | | 128 | | | | 101 | | | 134 | | | | | 107 | |
| YELLOW | | | 129 | | | | 102 | | | 135 | | | | | 108 |
| GREEN | | | | 130 | | | | 103 | | | 136 | | | | 109 |
| RED ARROW | 125 | | | | | | | | | 131 | | | | 122 | |
| YELLOW ARROW | 126 | 126 | | | | | | | | 132 | | | | 123 | 123 |
| GREEN ARROW | 127 | 127 | | | | | | | | 133 | | | | 124 | 124 |

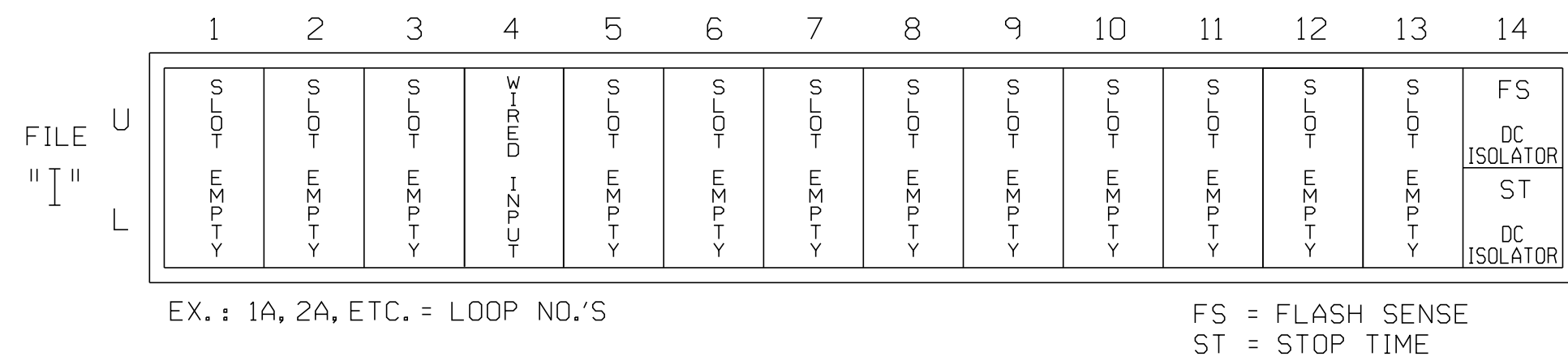
NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
 CABINET.....336
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 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

336 INPUT FILE POSITION LAYOUT

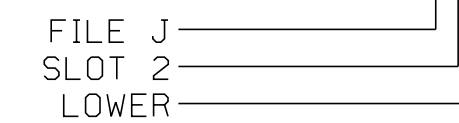
(front view)



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 |
|----------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
|----------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|

INPUT FILE POSITION LEGEND: J2L



SPECIAL DETECTOR NOTE

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0849T1
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 1 - TCP Phase II
 Electrical Detail - Sheet 1 of 2

| | | |
|---|--|--|
| NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | Prepared for the Offices of: North Carolina Department of Transportation Division 6 Cumberland County Fayetteville | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL SEAL 029531 ENGINEER STEVEN G. HAYNIE |
| | US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) | |
| Revisions Table with columns: REVISIONS, INIT., DATE | | Date: 1/5/2022 Signature: Steven G. Haynie Date: |

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- C- C- C- C- C- C- C- C- C- C- C- C- C-
R1- 01 02 03 04 . . . . .
R2- 06 05 07 08 . . . . .
R3- . . . . .
R4- . . . . .

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

```

END PROGRAMMING

ECONOLITE ASC/3-2070 SPECIAL MMU PROGRAMMING

(program controller as shown)

- From Main Menu select 1. CONFIGURATION
- From CONFIGURATION Submenu select 1. CONTROLLER SEQ
- From CONTROLLER SEQ Submenu select 2. PHASE COMPATIBILITY

```

PHASE COMPATIBILITY

CH 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2
1 . . . . . X . . . .
2 . . . . . X X . .
3 . . . . . X X . .
4 . . . . . X X . .
5 . . . . .
6 . . . . .
7 . . . . .
8 . . . . .
9 . . . . .
10 . . . . .
11 . . . . .
12 . . . . .
13 . . . . .
14 . . . . .
15 . . . . .

```

END PROGRAMMING


THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-0849T1
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 1 - TCP Phase II
Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

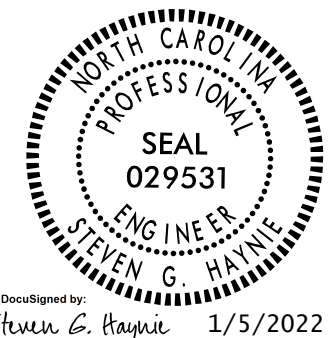
Prepared for the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

| | |
|---|--------------------------------|
| US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) | |
| Division 6 | Cumberland County Fayetteville |
| PLAN DATE: January 2022 | REVIEWED BY: V. Kaiser |
| PREPARED BY: S.G. Hoynie | REVIEWED BY: |
| REVISIONS | INIT. DATE |
| | |
| | |
| | |

SEAL



DESIGNED BY: Steven G. Hoynie
DATE: 1/5/2022

SIGNATURE DATE

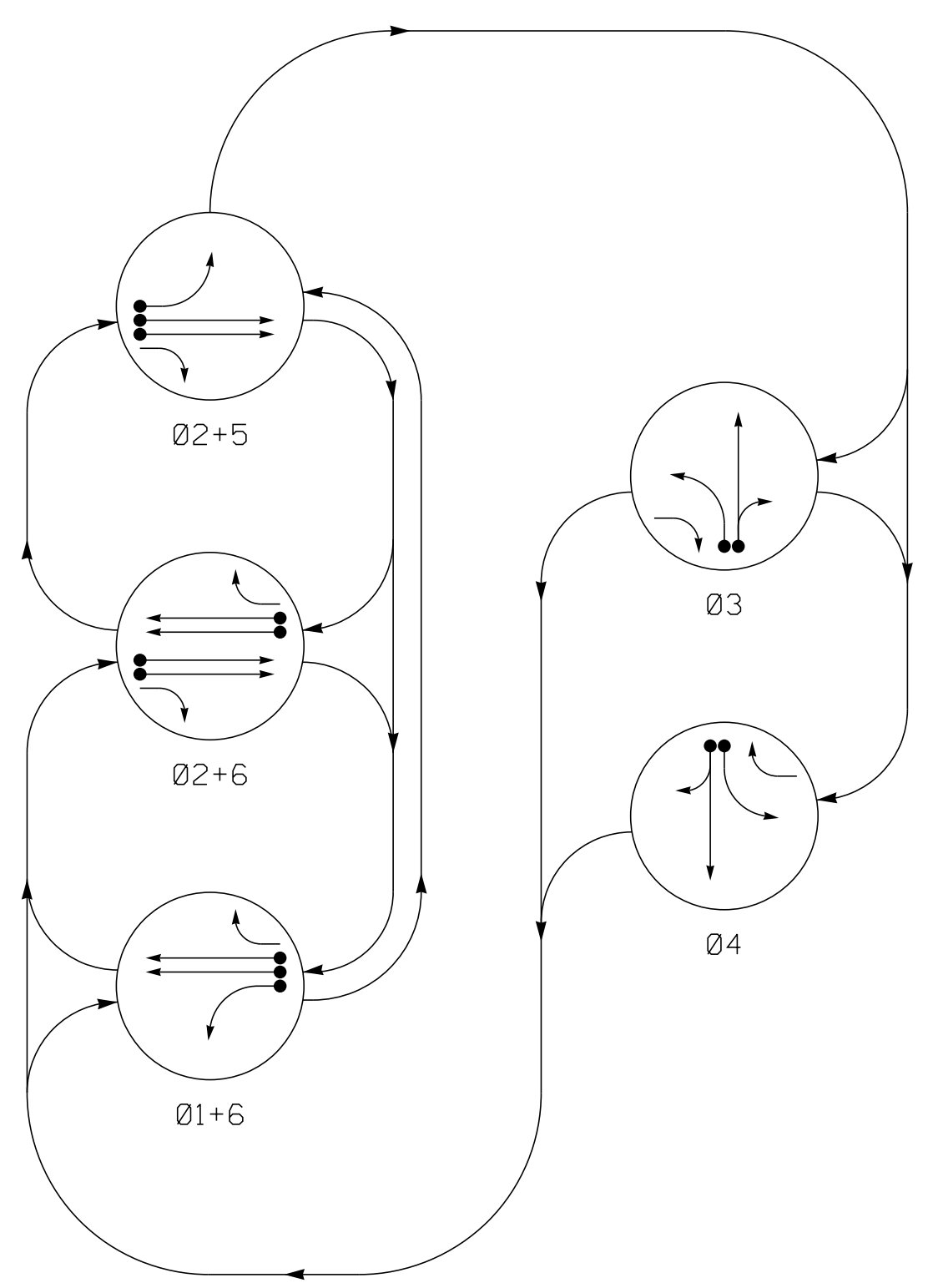
SIG. INVENTORY NO. 06-0849T1



NC FIRM LICENSE No. F-0493
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
(919) 926-4100

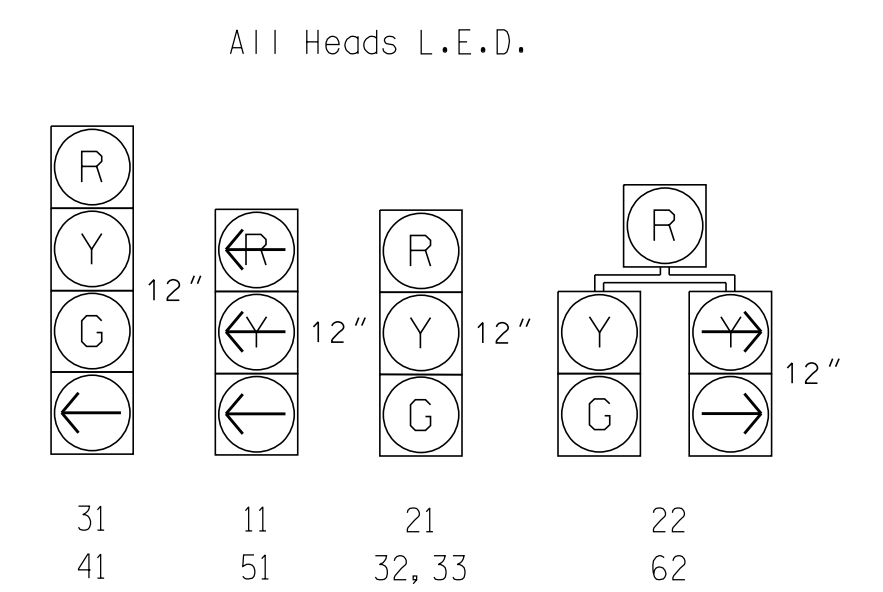
06-0849-22 144-12-01
R:\Projects\06-0849\06-0849-22\06-0849T1_sigs.dgn
144-12-01

PHASING DIAGRAM



| SIGNAL FACE | PHASE | | | | | FLSH |
|-------------|-------|------|------|----|----|------|
| | 01+6 | 02+6 | 02+5 | 03 | 04 | |
| 11 | ← | → | → | → | → | |
| 21 | R | G | G | R | Y | |
| 22 | R | G | G | R | Y | |
| 31 | R | R | R | G | R | |
| 32, 33 | R | R | R | G | R | |
| 41 | → | → | → | → | → | |
| 42, 43 | R | R | R | G | R | |
| 51 | → | → | → | → | → | |
| 61 | G | G | R | R | Y | |
| 62 | G | G | R | R | Y | |

SIGNAL FACE I.D.



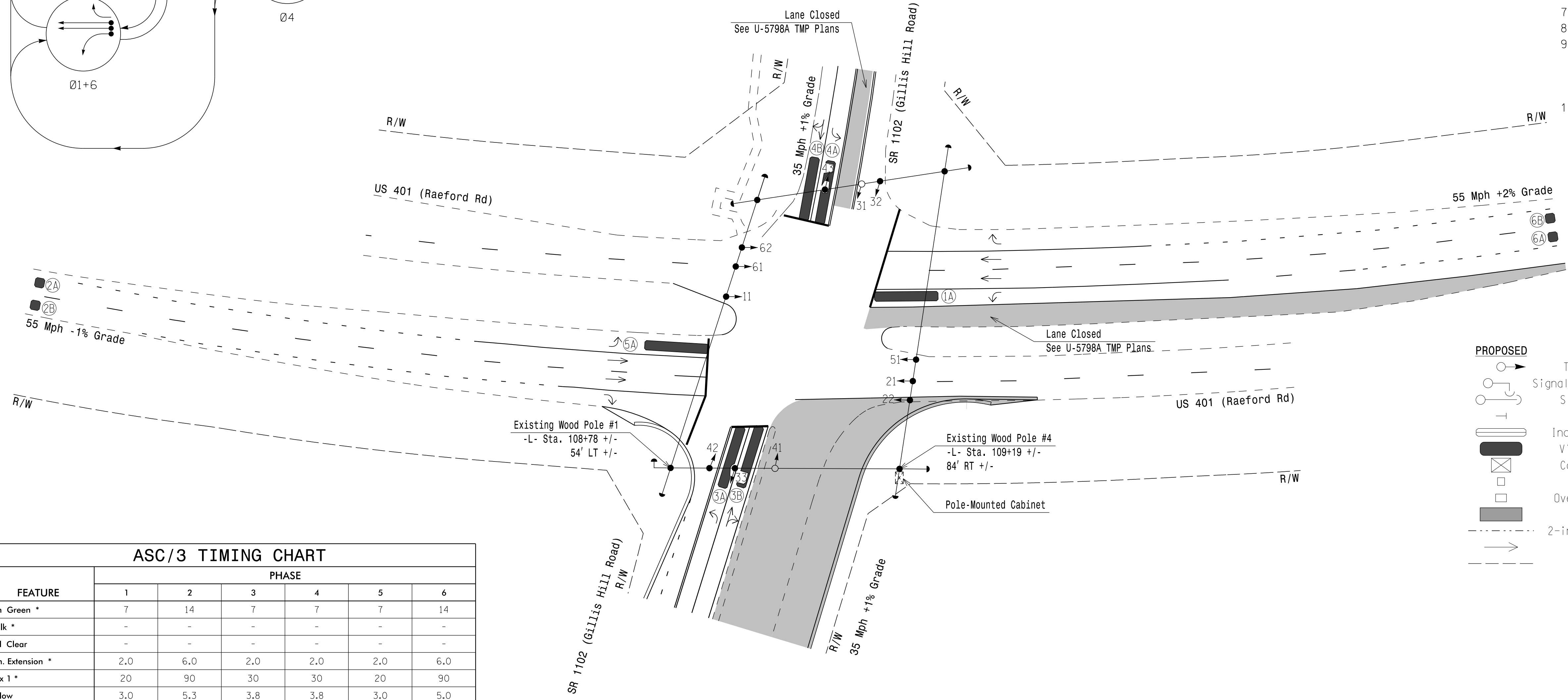
| ASC/3 DETECTOR INSTALLATION CHART | | | | | | | | | | | |
|-----------------------------------|-----------|----------------------------|-------|-------------|-------|---------|-------------|------------|--------------------|------|-------------|
| DETECTOR | | | | PROGRAMMING | | | | | | | |
| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PHASE | CALLING | EXTEND TIME | DELAY TIME | USED ADDED INITIAL | TYPE | SYSTEM LOOP |
| 1A | 6X40 | 0 | * | * | 1 | YES | - | - | - | N | * |
| 2A | 6X6 | 420 | * | - | 2 | YES | - | - | X | N | * |
| 2B | 6X6 | 420 | * | - | 2 | YES | - | - | X | N | * |
| 3A | 6X40 | 0 | * | * | 3 | YES | - | 3 | - | N | * |
| 3B | 6X40 | 0 | * | * | 3 | YES | - | - | - | N | * |
| 4A | 6X40 | 0 | * | * | 4 | YES | - | 3 | - | N | * |
| 4B | 6X40 | 0 | * | * | 4 | YES | - | - | - | N | * |
| 5A | 6X40 | 0 | * | - | 5 | YES | - | - | - | N | * |
| 6A | 6X6 | 420 | * | - | 6 | YES | - | - | X | N | * |
| 6B | 6X6 | 420 | * | - | 6 | YES | - | - | X | N | * |

* Video Detection Zone

5 Phase Fully Actuated Fayetteville Signal System

NOTES

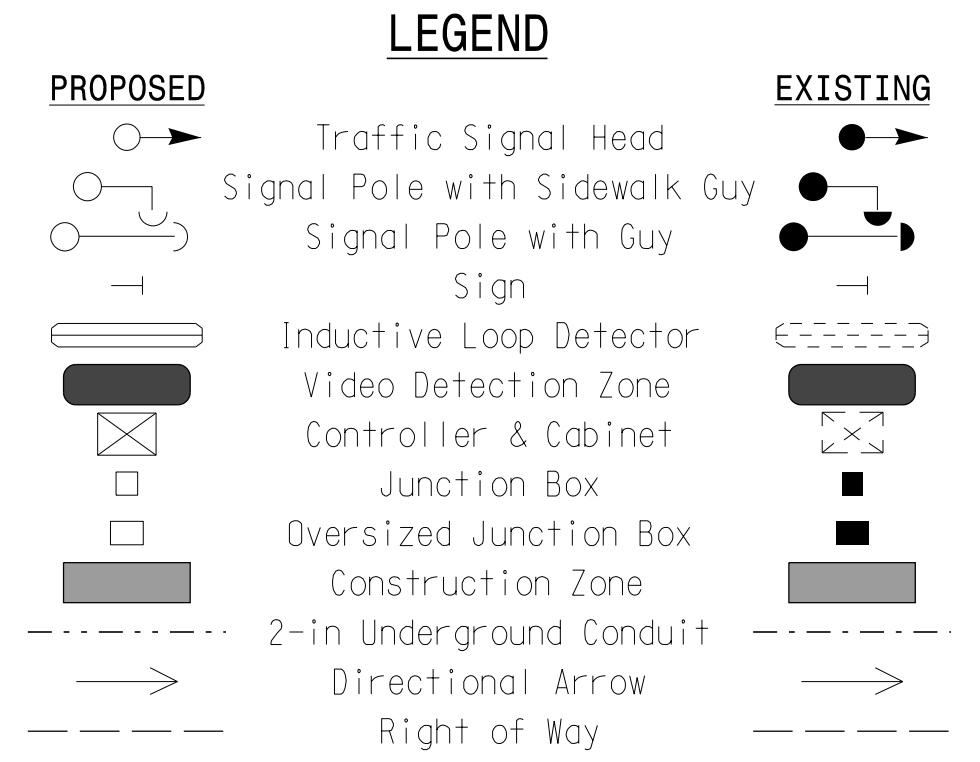
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 3 and phase 4 may be reversed.
4. The order of phase 1 and phase 5 may be reversed, but phase 1 and phase 5 shall not operate concurrently.
5. Rename existing signal head number 81 to 32 and reposition.
6. Rename existing signal head 41 to 42 and reposition.
7. Reposition existing signal head 11.
8. Set all detector units to presence mode.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
10. Portions of detection zones 3A, 3B, and 4B not shown for clarity.



ASC/3 TIMING CHART

| FEATURE | PHASE | | | | | |
|-------------------------|-------|-------------|-----|-----|-----|-------------|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| Min Green * | 7 | 14 | 7 | 7 | 7 | 14 |
| Walk * | - | - | - | - | - | - |
| Ped Clear | - | - | - | - | - | - |
| Veh. Extension * | 2.0 | 6.0 | 2.0 | 2.0 | 2.0 | 6.0 |
| Max I * | 20 | 90 | 30 | 30 | 20 | 90 |
| Yellow | 3.0 | 5.3 | 3.8 | 3.8 | 3.0 | 5.0 |
| Red Clear | 3.6 | 1.0 | 2.8 | 2.7 | 3.6 | 1.0 |
| Actuations B4 Add * | - | 0 | - | - | - | 0 |
| Seconds / Actuation * | - | 1.8 | - | - | - | 1.8 |
| Max Initial * | - | 46 | - | - | - | 46 |
| Time Before Reduction * | - | 15 | - | - | - | 15 |
| Time To Reduce * | - | 45 | - | - | - | 45 |
| Minimum Gap | - | 3.4 | - | - | - | 3.4 |
| 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.



04-Jan-22 14:22:20
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 F:\Final\Submit\15400\04Jan22\0509.dgn

Temporary Signal 2 - TCP Phase III

RS&H

NC FIRM LICENSE No: F-0493
8521 SIX FORKS ROAD, SUITE 400
RALIGH, NC 27615
(919) 926-4100

US 401 (S Raeford Road)
at
SR 1102 (Gillis Hill Road)

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: S.G. Haynie

PREPARED BY: S. N. Matthews REVIEWED BY:

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

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL

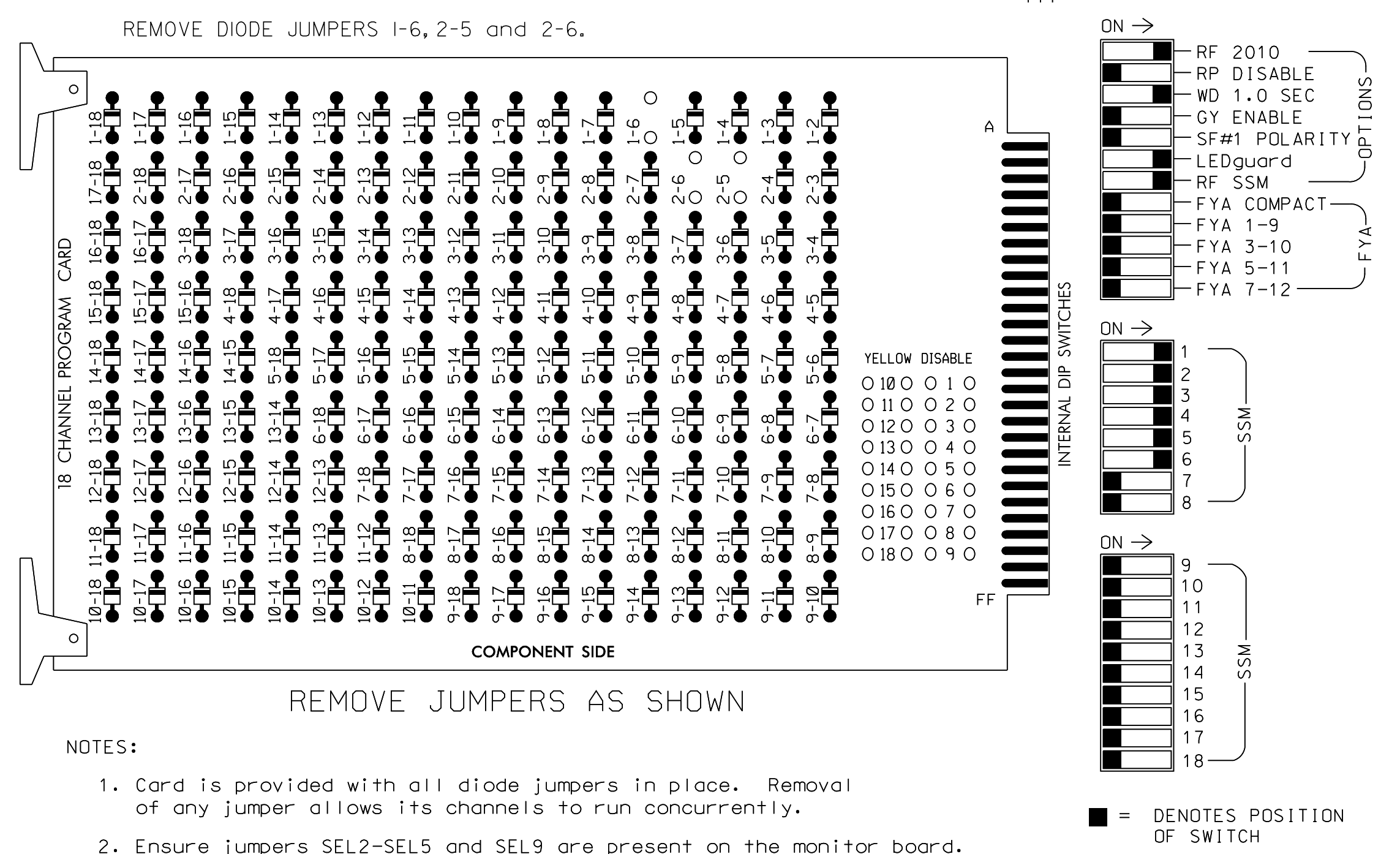
1/5/2022

SIGNATURE DATE

SIG. INVENTORY NO. 06-084972

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 Fayetteville Signal System.

EQUIPMENT INFORMATION

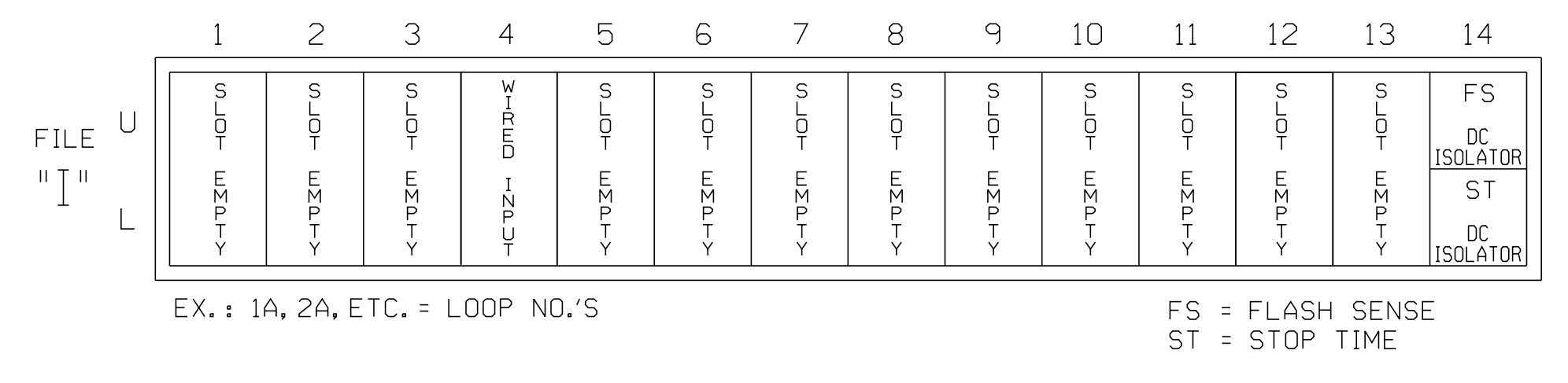
CONTROLLER.....2070LX
 CABINET.....336
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8
 PHASES USED.....1,2,3,4,5,6
 OVERLAP "A".....NOT USED
 OVERLAP "B".....NOT USED
 OVERLAP "C".....NOT USED
 OVERLAP "D".....NOT USED

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 | 21,22 | NU | 31 | 32,33 | 22 | 41 | 42,43 | 62 | NU | 51 | 61,62 | NU | NU | NU | NU |
| RED | | 128 | | 116 | 116 | | 101 | 101 | | | | 134 | | | | |
| YELLOW | | 129 | | 117 | 117 | | 102 | 102 | | | | 135 | | | | |
| GREEN | | 130 | | 118 | 118 | | 103 | 103 | | | | 136 | | | | |
| RED ARROW | 125 | | | | | | | | | | | 131 | | | | |
| YELLOW ARROW | 126 | | | | 117 | | | 102 | | | | 132 | | | | |
| GREEN ARROW | 127 | | | 118 | 118 | 103 | 103 | 103 | 133 | | | | | | | |

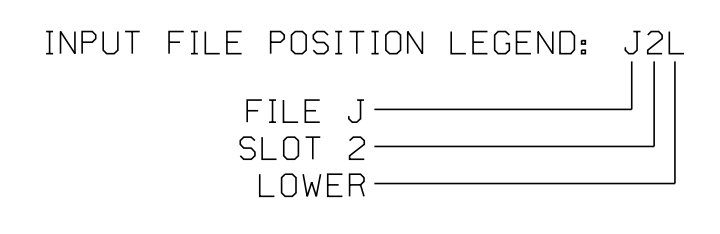
NU = Not Used

336 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 |
|----------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
|----------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|



SPECIAL DETECTOR NOTE

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0849T2
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 2 - TCP Phase III Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Division 6 Cumberland County Fayetteville

US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road)

PLAN DATE: January 2022 REVIEWED BY: V. Kaiser

PREPARED BY: S.G. Haynie REVIEWED BY:

REVISIONS INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

RS&H
NC FIRM LICENSE No. F-0493
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
(919) 926-4100

Seal of the State of North Carolina
Department of Transportation
Signal Management Section

Seal of the State of North Carolina
Professional Engineer
SEAL 029531
STEVEN G. HAYNIE

Documented by: Steven G. Haynie 1/5/2022

SIGNATURE DATE

SIG. INVENTORY NO. 06-0849T2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

Seal of the State of North Carolina
Professional Engineer
SEAL 029531
STEVEN G. HAYNIE

Documented by: Steven G. Haynie 1/5/2022

SIGNATURE DATE

SIG. INVENTORY NO. 06-0849T2

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- C- C- C- C- C- C- C- C- C- C- C- C-
R1- 01 02 03 04 . . . . .
R2- 06 05 . . . . .
R3- . . . . .
R4- . . . . .

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

```

END PROGRAMMING

ECONOLITE ASC/3-2070 SPECIAL MMU PROGRAMMING

(program controller as shown)

- From Main Menu select 1. CNFIGURATION
- From CONFIGURATION Submenu select 1. CONTROLLER SEQ
- From CONTROLLER SEQ Submenu select 2. PHASE COMPATIBILITY

```

PHASE COMPATIBILITY

CH 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2
1 . . . . . X . . . .
2 . . . . . X X . .
3 . . . . .
4 . . . . .
5 . . . . .
6 . . . . .
7 . . . . .
8 . . . . .
9 . . . . .
10 . . . . .
11 . . . . .
12 . . . . .
13 . . . . .
14 . . . . .
15 . . . . .

```

END PROGRAMMING

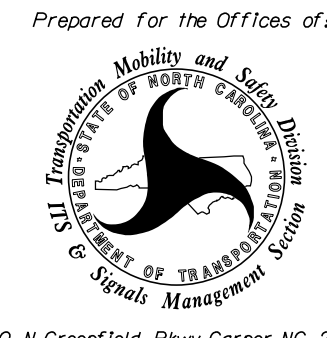
THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-0849T2
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 2 - TCP Phase III Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

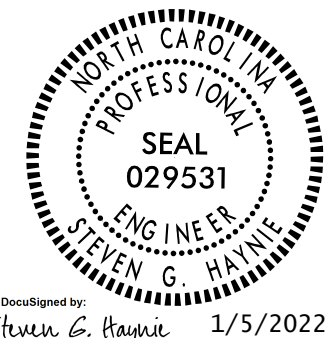
Prepared for the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

| | |
|---|--------------------------------|
| US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) | |
| Division 6 | Cumberland County Fayetteville |
| PLAN DATE: January 2022 | REVIEWED BY: V. Kaiser |
| PREPARED BY: S.G. Haynie | REVIEWED BY: |
| REVISIONS | INIT. DATE |
| | |
| | |
| | |

SEAL



SEAL
029531
ENGINEER
STEVEN G. HAYNIE

DocuSigned by:
Steven G. Haynie 1/5/2022

SIGNATURE DATE

SIG. INVENTORY NO. 06-0849T2



NC FIRM LICENSE No. F-0493
8521 SIX FORKS ROAD, SUITE 400
RALEIGH, NC 27615
(919) 926-4100

PHASING DIAGRAM

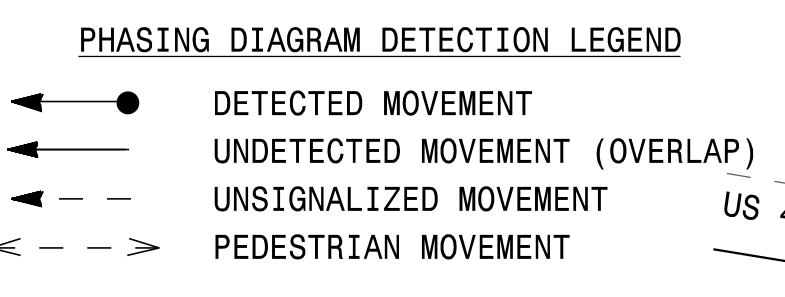
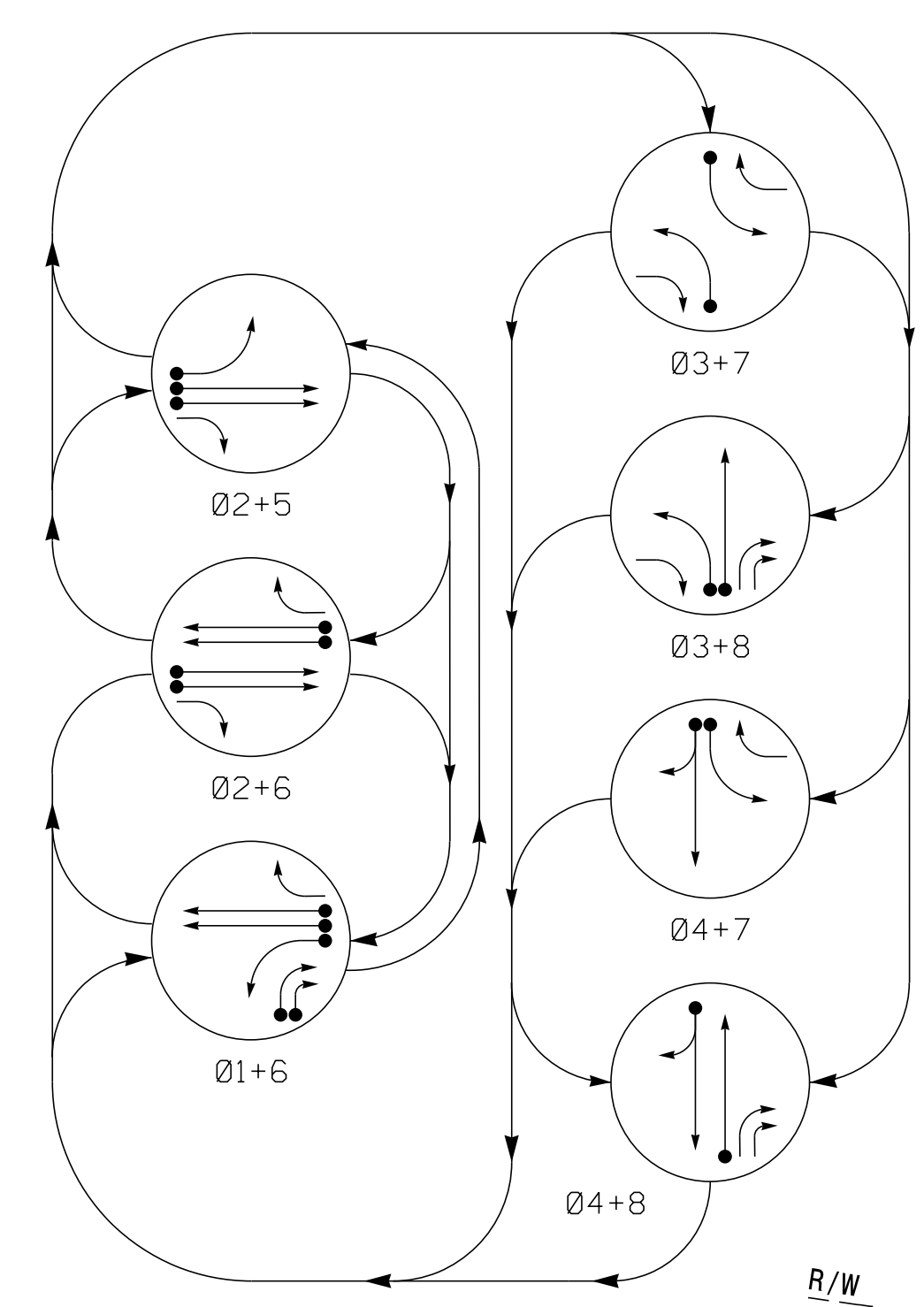
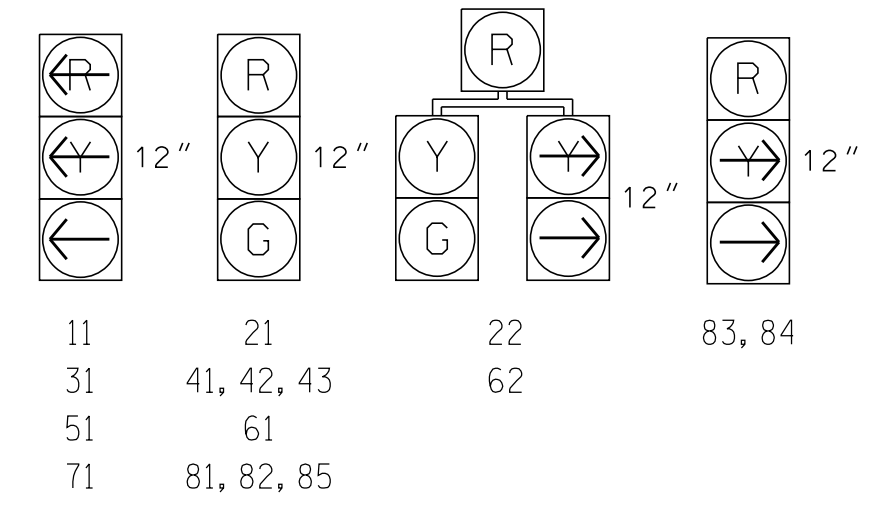


TABLE OF OPERATION

| SIGNAL FACE | PHASE | | | | | | | |
|-------------|-------|------|------|------|------|------|------|-------|
| | Ø1+6 | Ø2+5 | Ø2+6 | Ø3+7 | Ø3+8 | Ø4+7 | Ø4+8 | FLASH |
| 11 | ← | ← | ← | ← | ← | ← | ← | ← |
| 21 | R | G | G | R | R | R | R | Y |
| 22 | R | G | G | R | R | R | R | Y |
| 31 | ← | ← | ← | ← | ← | ← | ← | ← |
| 41, 42, 43 | R | R | R | R | R | G | G | R |
| 51 | ← | ← | ← | ← | ← | ← | ← | ← |
| 61 | G | G | R | R | R | R | R | Y |
| 62 | G | G | R | R | R | R | R | Y |
| 71 | ← | ← | ← | ← | ← | ← | ← | ← |
| 81, 82, 85 | R | R | R | R | G | G | G | R |
| 83, 84 | ← | R | R | R | ← | ← | ← | ← |

SIGNAL FACE I.D.

All Heads L.E.D.



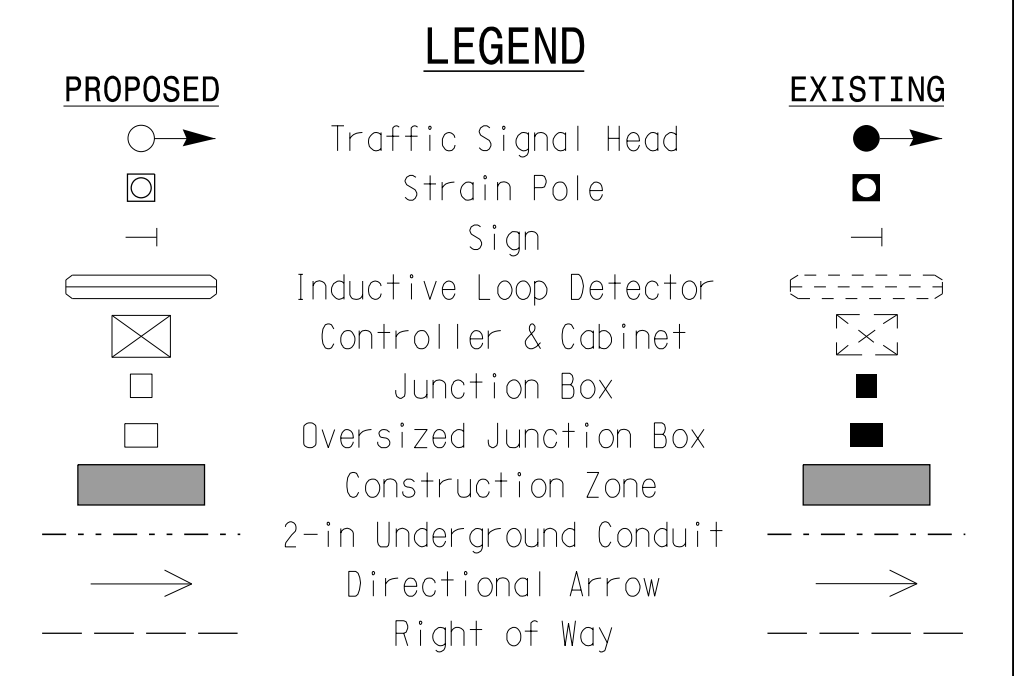
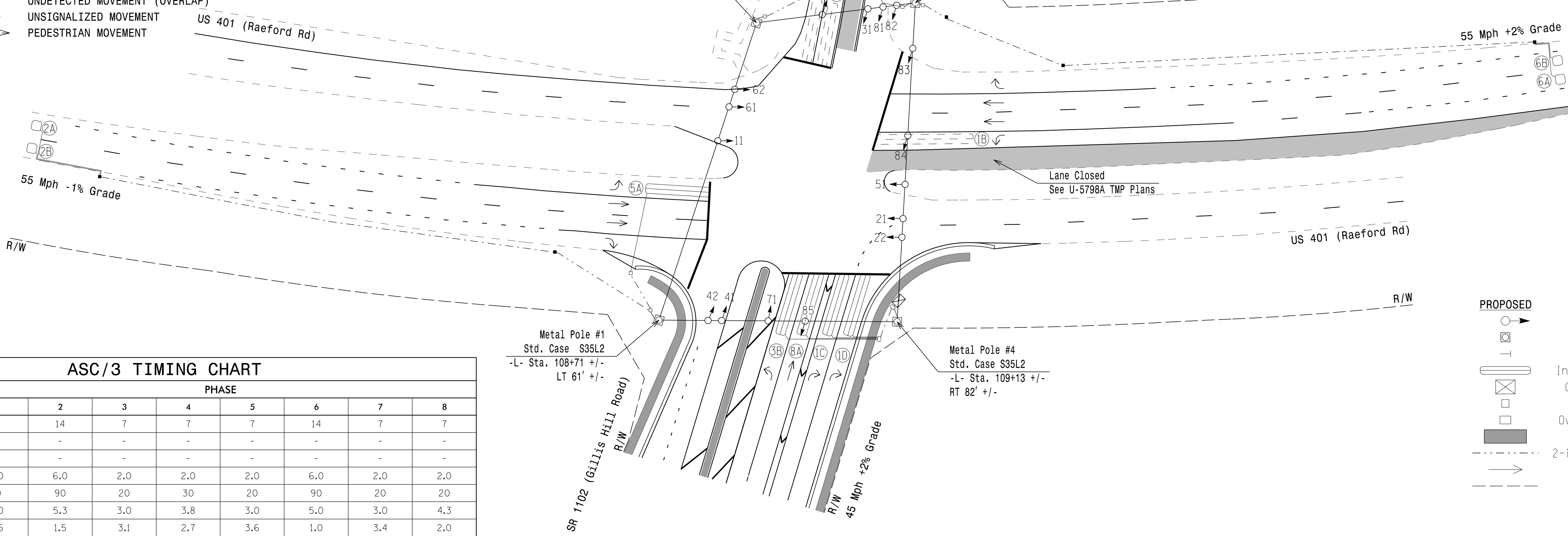
ASC/3 DETECTOR INSTALLATION CHART

| 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 |
| 1B | 6X60 | 0 | 2-4-2 | - | 1 | YES | - | - | - | N | - | X |
| 1C | 6X40 | 0 | 2-4-2 | X | 1 | YES | - | 15 | - | N | - | X |
| 1D | 6X40 | 0 | 2-4-2 | X | 1 | YES | - | 15 | - | N | - | X |
| 2A | 6X6 | 420 | 6 | X | 2 | YES | - | - | X | N | - | X |
| 2B | 6X6 | 420 | 6 | X | 2 | YES | - | - | X | N | - | X |
| 3B | 6X40 | 0 | 2-4-2 | X | 3 | YES | - | - | - | N | - | X |
| 4B | 6X40 | 0 | 2-4-2 | - | 4 | YES | - | 10 | - | N | - | X |
| 5A | 6X40 | 0 | 2-4-2 | X | 5 | YES | - | - | - | N | - | X |
| 6A | 6X6 | 420 | 6 | X | 6 | YES | - | - | X | N | - | X |
| 6B | 6X6 | 420 | 6 | X | 6 | YES | - | - | X | N | - | X |
| 7A | 6X40 | 0 | 2-4-2 | - | 7 | YES | - | - | - | N | - | X |
| 8A | 6X40 | 0 | 2-4-2 | X | 8 | YES | - | - | - | N | - | X |
| S8A | 6X6 | +175 | 4 | X | - | NO | - | - | - | N | X | X |

7 Phase Fully Actuated Fayetteville 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 3 and/or phase 7 may be lagged.
4. The order of phase 1 and phase 5 may be reversed, but phase 1 and phase 5 shall not operate concurrently.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. The cabinet should be designed to include an Auxiliary Output File for future use.
7. Set all detector units to presence mode.
8. Install new lead-in cable for existing detectors 1B, 4B, and 7A.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
10. Portions of detector 8A not shown for clarity.



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 I * | 10 | 90 | 20 | 30 | 20 | 90 | 20 | 20 |
| Yellow | 3.0 | 5.3 | 3.0 | 3.8 | 3.0 | 5.0 | 3.0 | 4.3 |
| Red Clear | 3.5 | 1.5 | 3.1 | 2.7 | 3.6 | 1.0 | 3.4 | 2.0 |
| Actuations B4 Add * | - | 0 | - | - | - | 0 | - | - |
| Seconds / Actuation * | - | 1.8 | - | - | - | 1.8 | - | - |
| Max Initial * | - | 46 | - | - | - | 46 | - | - |
| Time Before Reduction * | - | 15 | - | - | - | 15 | - | - |
| Time To Reduce * | - | 45 | - | - | - | 45 | - | - |
| Minimum Gap | - | 3.4 | - | - | - | 3.4 | - | - |
| 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.

Temporary Signal 3 - TCP Phase IV

Prepared for the Offices of:

US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road)
 Division 6 Cumberland County Fayetteville
 PLAN DATE: January 2022 REVIEWED BY: S.G. Haynie
 PREPARED BY: S. N. Matthews REVIEWED BY:
 REVISIONS: INIT. DATE
 SCALE: 1"=40'

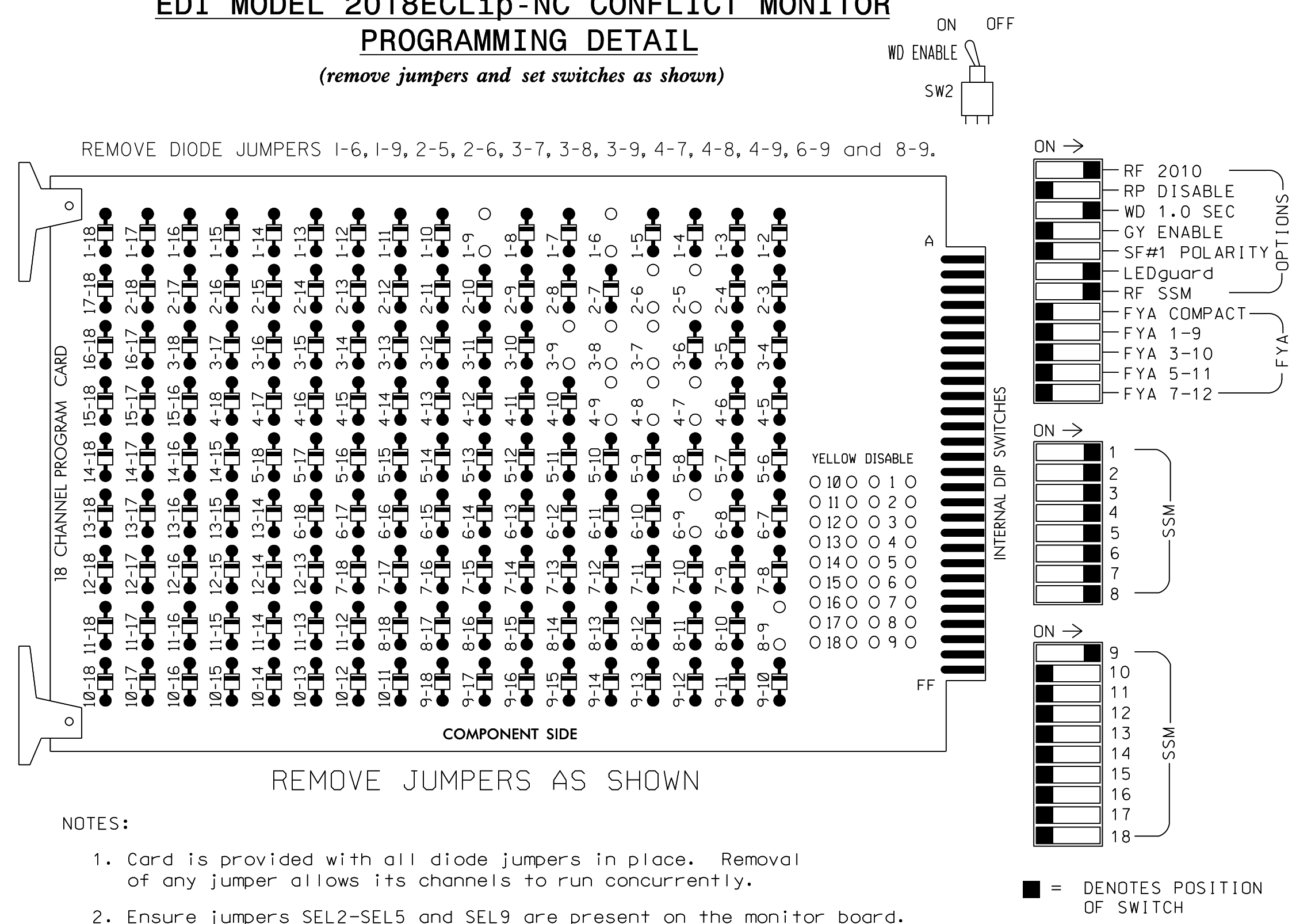
 750 N. Greenfield Pkwy, Garner, NC 27528
 NC FIRM LICENSE No: F-0493
 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 SEAL

 DEVELOPED BY: S. Nick Matthews DATE: 1/5/2022
 S.G. HAYNIE DATE:
 S.I.G. INVENTORY NO. 06-0849T3

04-Jan-22 14:30:59
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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 Fayetteville 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 | 21,22 | NU | 31 | 22 | 41, 42,43 | NU | 51 | 61,62 | NU | 71 | 62 | 81, 82,85 | NU | 83,84 | NU | NU | NU |
| RED | | 128 | | | 101 | | | 134 | | | | 107 | | | A121 | | | |
| YELLOW | | 129 | | | 102 | | | 135 | | | | 108 | | | | | | |
| GREEN | | 130 | | | 103 | | | 136 | | | | 109 | | | | | | |
| RED ARROW | 125 | | | 116 | | | 131 | | | 122 | | | | | | | | |
| YELLOW ARROW | 126 | | | 117 | 117 | | 132 | | | 123 | 123 | | | A122 | | | | |
| GREEN ARROW | 127 | | | 118 | 118 | | 133 | | | 124 | 124 | | | A123 | | | | |

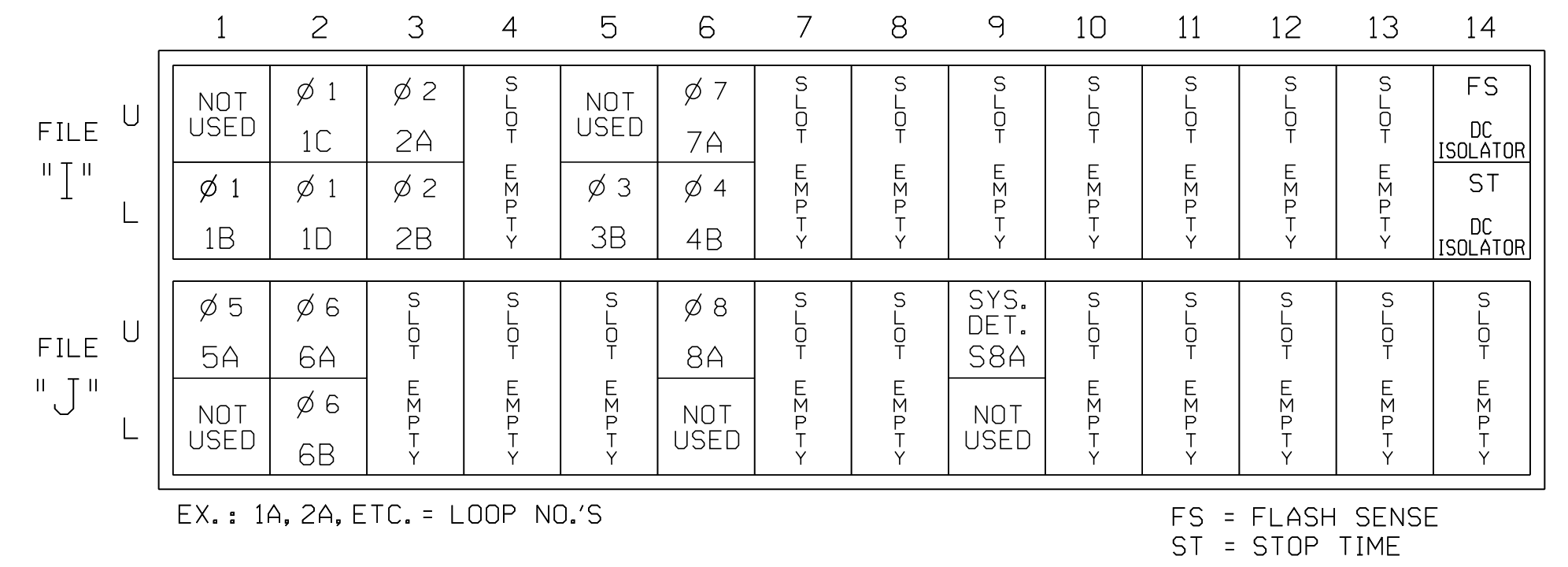
NU = Not Used

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,AUX S1
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP "A".....*
 OVERLAP "B".....NOT USED
 OVERLAP "C".....NOT USED
 OVERLAP "D".....NOT USED

INPUT FILE POSITION LAYOUT

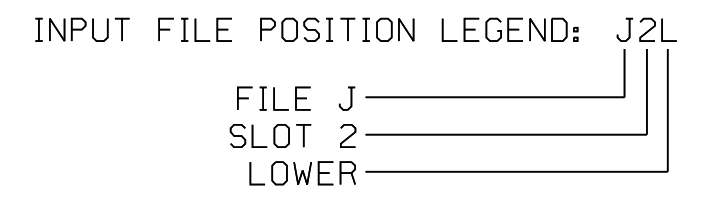
(front view)



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 |
|----------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1B | TB2-3,4 | I1L | 56 | 1 | 1 | YES | --- | --- | | N |
| 1C | TB2-5,6 | I2U | 39 | 2 | 1 | YES | --- | 15 | | N |
| 1D | TB2-7,8 | I2L | 43 | 12 | 1 | YES | --- | 15 | | N |
| 2A | TB2-9,10 | I3U | 63 | 32 | 2 | YES | --- | --- | X | N |
| 2B | TB2-11,12 | I3L | 76 | 42 | 2 | YES | --- | --- | X | N |
| 3B | TB4-7,8 | I5L | 58 | 3 | 3 | YES | --- | --- | | N |
| 7A | TB4-9,10 | I6U | 41 | 4 | 7 | YES | --- | --- | | N |
| 4B | TB4-11,12 | I6L | 45 | 14 | 4 | YES | --- | 10 | | N |
| 5A | TB3-1,2 | J1U | 55 | 5 | 5 | YES | --- | --- | | N |
| 6A | TB3-5,6 | J2U | 40 | 6 | 6 | YES | --- | --- | X | N |
| 6B | TB3-7,8 | J2L | 44 | 16 | 6 | YES | --- | --- | X | N |
| 8A | TB5-9,10 | J6U | 42 | 8 | 8 | YES | --- | --- | | N |
| *S8A | TB7-9,10 | J9U | 59 | 15 | SYS | NO | --- | --- | | N |

* System detector only. Remove any assigned vehicle phase.



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0849T3
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 3 - TCP Phase IV Electrical Detail - Sheet 1 of 2

| | | | |
|---|---|--|--|
| NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) | | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL SEVEN G. HAYNIE ENGINEER 1/5/2022 |
| | Prepared for the Offices of: | Division 6 Cumberland County Fayetteville PLAN DATE: January 2022 REVIEWED BY: V. Kaiser PREPARED BY: S.G. Haynie REVIEWED BY: | |

04-Jan-22 14:28:26
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 14:28:26

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- C- C- C- C- C- C- C- C- C- C- C- C-
R1- 01 02 03 04 . . . . .
R2- 06 05 07 08 . . . . .
R3- . . . . .
R4- . . . . .

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

```

END PROGRAMMING

ECONOLITE ASC/3-2070 SPECIAL MMU PROGRAMMING

(program controller as shown)

- From Main Menu select 1. CONFIGURATION
- From CONFIGURATION Submenu select 1. CONTROLLER SEQ
- From CONTROLLER SEQ Submenu select 2. PHASE COMPATIBILITY

```

PHASE COMPATIBILITY

CH 6 5 4 3 2 1 0 9 8 7 6 5 4 3 2
1 . . . . . X . . . .
2 . . . . . X X . . .
3 . . . . . X X . . .
4 . . . . . X X . . .
5 . . . . .
6 . . . . .
7 . . . . .
8 . . . . .
9 . . . . .
10 . . . . .
11 . . . . .
12 . . . . .
13 . . . . .
14 . . . . .
15 . . . . .

```

END PROGRAMMING

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select 2. CONTROLLER
 - From CONTROLLER Submenu select 2. VEHICLE OVERLAPS
- Toggle to "Overlap A"

```

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

LAG GRN 0.0 YEL 0.0 RED 0.0


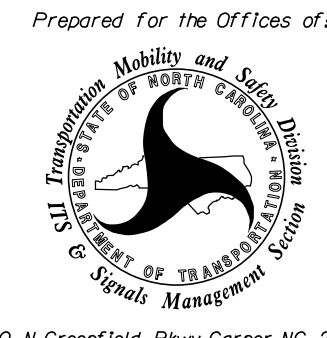
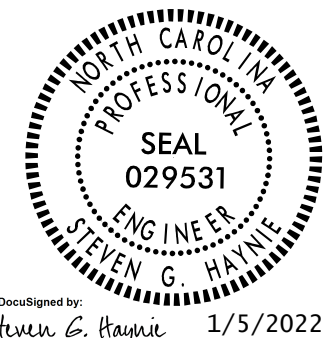
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END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-0849T3
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 3 - TCP Phase IV Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| | | | |
|--|---|---|--|
|  NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | Prepared for the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529 | US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) | SEAL  SEVEN G. HAYNIE ENGINEER 029531 |
| | ELECTRICAL AND PROGRAMMING DETAILS FOR: Division 6 Cumberland County Fayetteville | PLAN DATE: January 2022 REVIEWED BY: V. Kaiser PREPARED BY: S.G. Haynie REVIEWED BY: | REVISIONS INIT. DATE _____ _____ |

PHASING DIAGRAM

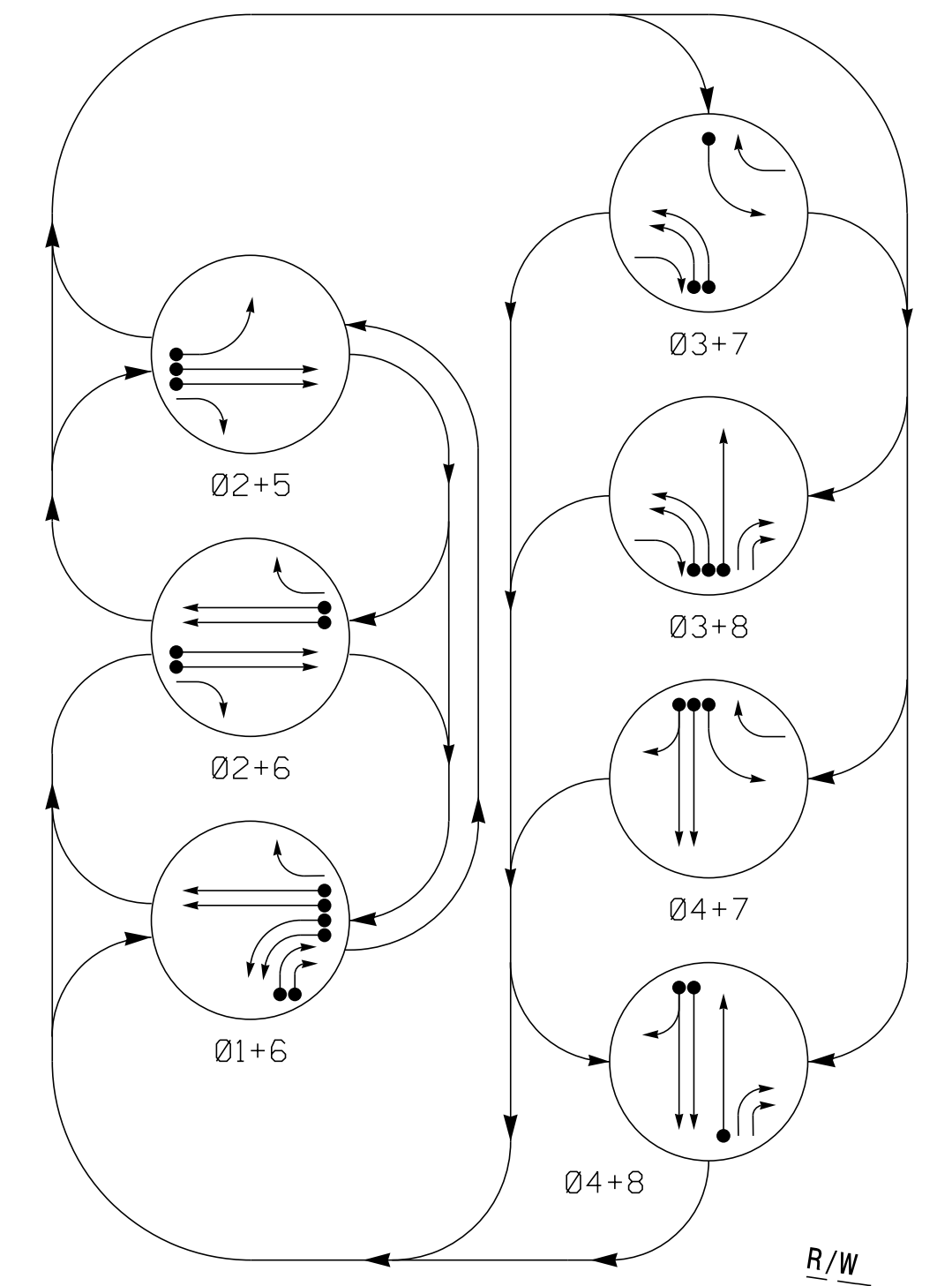
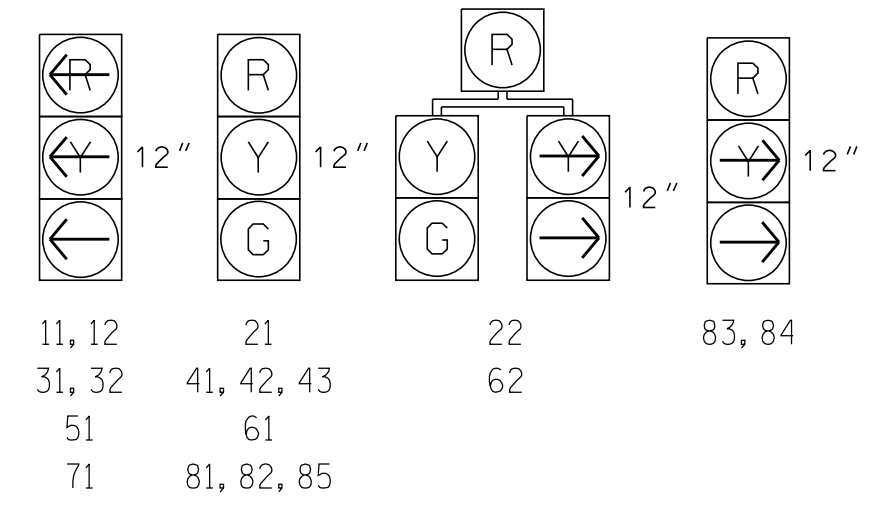


TABLE OF OPERATION

| SIGNAL FACE | PHASE | | | | | | | |
|-------------|-------|------|------|------|------|------|------|-------|
| | 01+6 | 02+5 | 02+6 | 03+7 | 03+8 | 04+7 | 04+8 | FLASH |
| 11, 12 | ← | → | → | → | → | → | → | → |
| 21 | R | G | G | R | R | R | R | Y |
| 22 | R | G | G | R | R | R | R | Y |
| 31, 32 | → | → | → | → | → | → | → | → |
| 41, 42, 43 | R | R | R | R | R | G | G | R |
| 51 | → | → | → | → | → | → | → | → |
| 61 | G | G | R | R | R | R | R | Y |
| 62 | G | G | R | R | R | R | R | Y |
| 71 | → | → | → | → | → | → | → | → |
| 81, 82, 85 | R | R | R | R | G | R | G | R |
| 83, 84 | → | R | R | → | R | → | → | → |

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 DETECTOR INSTALLATION CHART

| LOOP | DETECTOR | | | PROGRAMMING | | | | | | | | |
|------|-----------|----------------------------|-------|-------------|-------|---------|-------------|------------|-------------------|------|-------------|----------|
| | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PHASE | CALLING | EXTEND TIME | DELAY TIME | USE ADDED INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 1A | 6X60 | 0 | 2-4-2 | - | 1 | YES | - | - | - | N | - | - |
| 1B | 6X60 | 0 | 2-4-2 | - | 1 | YES | - | - | - | N | - | - |
| 1C | 6X40 | 0 | 2-4-2 | - | 1 | YES | - | 15 | - | N | - | - |
| 1D | 6X40 | 0 | 2-4-2 | - | 1 | YES | - | 15 | - | N | - | - |
| 2A | 6X6 | 420 | 6 | - | 2 | YES | - | - | X | N | - | - |
| 2B | 6X6 | 420 | 6 | - | 2 | YES | - | - | - | X | N | - |
| 3A | 6X40 | 0 | 2-4-2 | X | 3 | YES | - | - | - | N | - | - |
| 3B | 6X40 | 0 | 2-4-2 | - | 3 | YES | - | - | - | N | - | - |
| 4A | 6X40 | 0 | 2-4-2 | - | 4 | YES | - | - | - | N | - | - |
| 4B | 6X40 | 0 | 2-4-2 | - | 4 | YES | - | 10 | - | N | - | - |
| 5A | 6X40 | 0 | 2-4-2 | - | 5 | YES | - | - | - | N | - | - |
| 6A | 6X6 | 420 | 6 | - | 6 | YES | - | - | X | N | - | - |
| 6B | 6X6 | 420 | 6 | - | 6 | YES | - | - | - | X | N | - |
| 7A | 6X40 | 0 | 2-4-2 | - | 7 | YES | - | 3 | - | N | - | X |
| 8A | 6X40 | 0 | 2-4-2 | - | 8 | YES | - | - | - | N | - | - |
| S4A | 6X6 | +180 | 4 | X | - | NO | - | - | - | N | X | X |
| S4B | 6X6 | +180 | 3 | X | - | NO | - | - | - | N | X | X |
| S8A | 6X6 | +175 | 4 | - | - | NO | - | - | - | N | X | - |

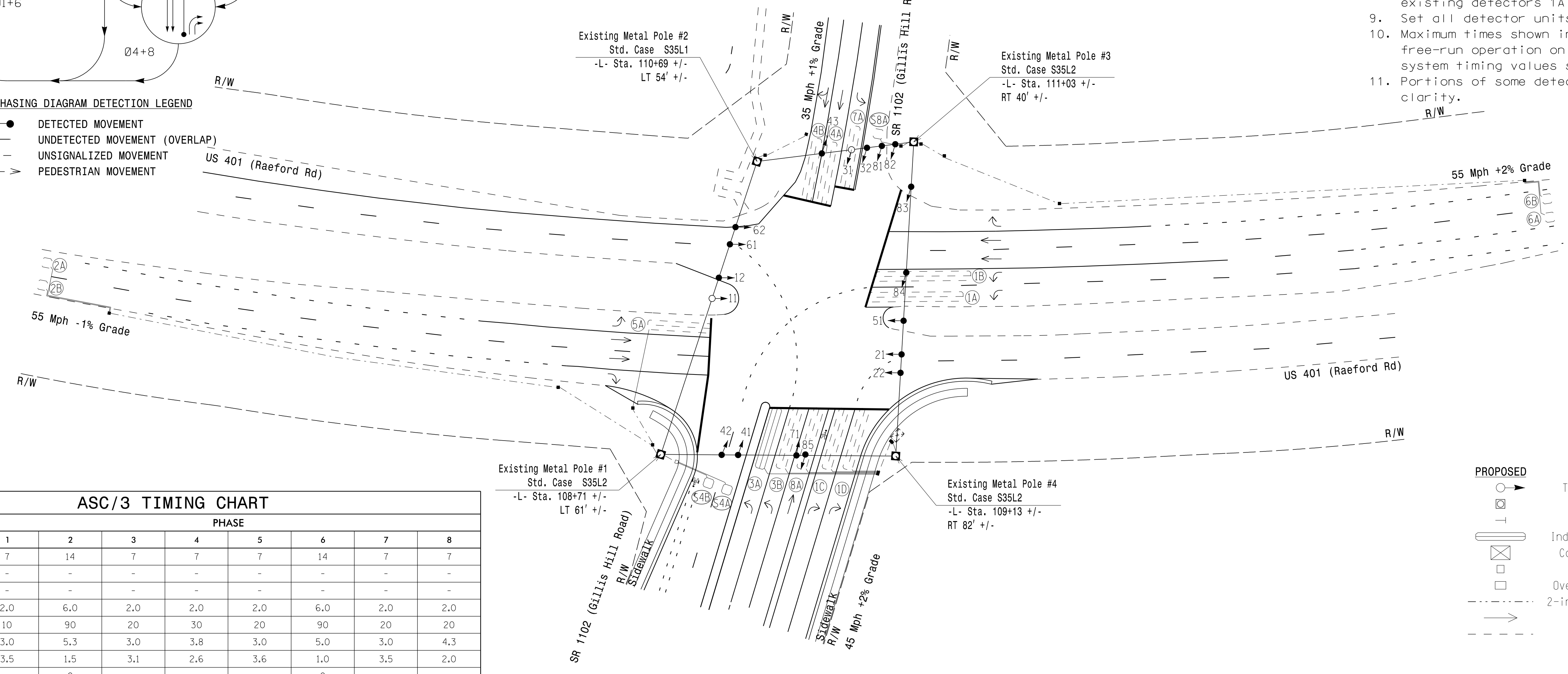
7 Phase Fully Actuated Fayetteville Signal System

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 3 and/or phase 7 may be lagged.
- The order of phase 1 and phase 5 may be reversed, but phase 1 and phase 5 shall not operate concurrently.
- Rename existing signal head 31 to 32.
- Rename existing detector 7A to 4A.
- Reposition existing signal heads 41, 42, and 71.
- Install new lead-in cable and connect to existing detectors 1A and 7A.
- Set all detector units to presence mode.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Portions of some detectors not shown for clarity.

PHASING DIAGRAM DETECTION LEGEND

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



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 I * | 10 | 90 | 20 | 30 | 20 | 90 | 20 | 20 |
| Yellow | 3.0 | 5.3 | 3.0 | 3.8 | 3.0 | 5.0 | 3.0 | 4.3 |
| Red Clear | 3.5 | 1.5 | 3.1 | 2.6 | 3.6 | 1.0 | 3.5 | 2.0 |
| Actuations B4 Add * | - | 0 | - | - | - | 0 | - | - |
| Seconds /Actuation * | - | 1.8 | - | - | - | 1.8 | - | - |
| Max Initial * | - | 46 | - | - | - | 46 | - | - |
| Time Before Reduction * | - | 15 | - | - | - | 15 | - | - |
| Time To Reduce * | - | 45 | - | - | - | 45 | - | - |
| Minimum Gap | - | 3.4 | - | - | - | 3.4 | - | - |
| Locking Detector | - | X | - | - | - | X | - | - |
| Recall Position | - | VEH. RECALL | - | - | - | VEH. RECALL | - | - |
| Dual Entry | - | - | - | X | - | - | - | X |
| Simultaneous Gap | X | X | X | X | X | X | X | X |

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

LEGEND

| PROPOSED | EXISTING |
|------------------------------|------------------------------|
| ○ Traffic Signal Head | ● Traffic Signal Head |
| ⊠ Strain Pole | ⊠ Strain Pole |
| ↑ Sign | ↑ Sign |
| ▭ Inductive Loop Detector | ▭ Inductive Loop Detector |
| ⊠ Controller & Cabinet | ⊠ Controller & Cabinet |
| ⊠ Junction Box | ⊠ Junction Box |
| ⊠ Oversized Junction Box | ⊠ Oversized Junction Box |
| --- 2-in Underground Conduit | --- 2-in Underground Conduit |
| → Directional Arrow | → Directional Arrow |
| --- Right of Way | --- Right of Way |

Signal Upgrade - Final

US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road)

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: S.G. Haynie

PREPARED BY: S. N. Matthews REVIEWED BY:

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

SEAL

1/5/2022

SIGNATURE DATE

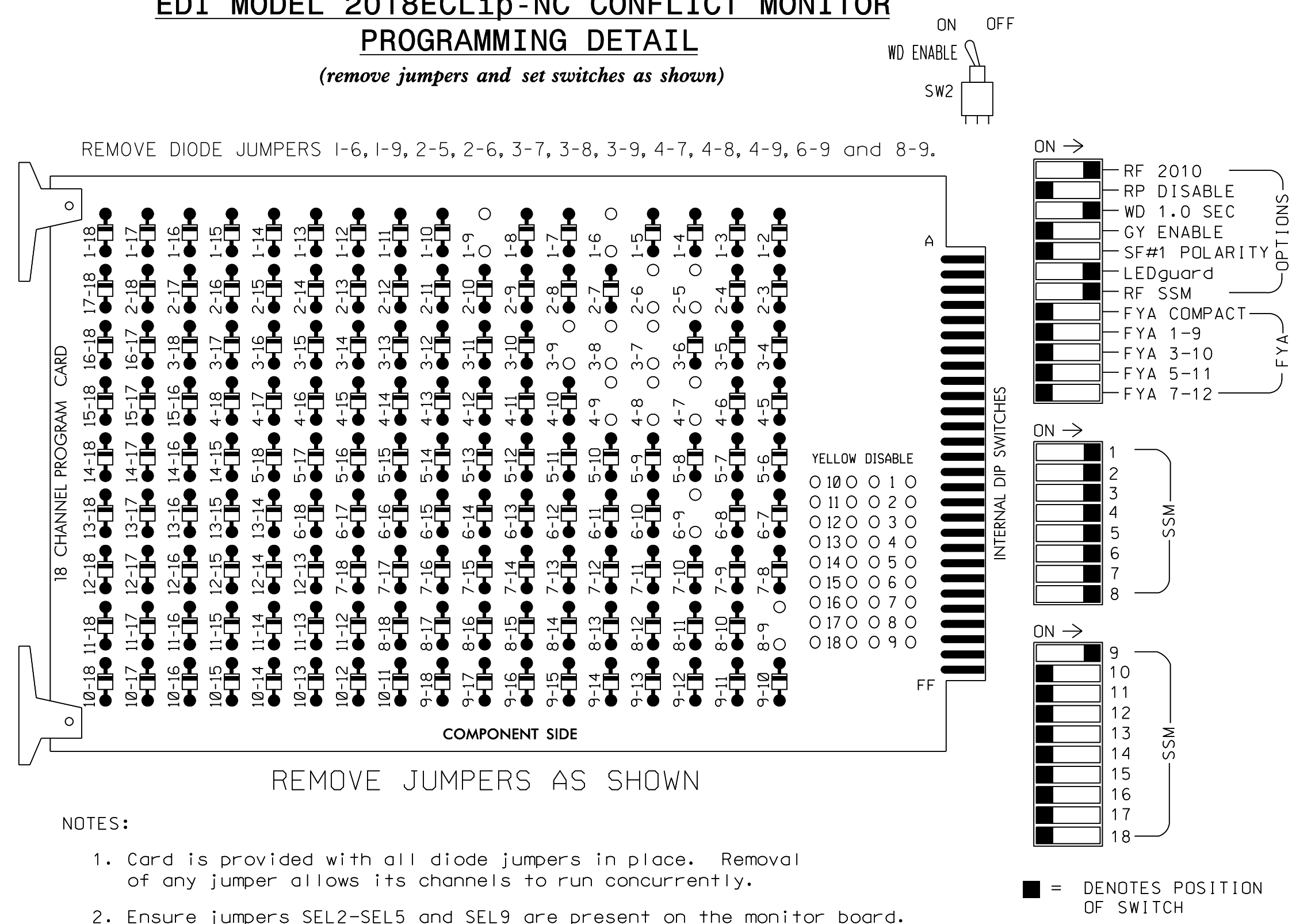
SIG. INVENTORY NO. 06-0849

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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EDI MODEL 2018ECLIP-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Program controller to start up in phase 2 Green and 6 Green.
- The cabinet and controller are part of the Fayetteville 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
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP "A".....*
 OVERLAP "B".....NOT USED
 OVERLAP "C".....NOT USED
 OVERLAP "D".....NOT USED

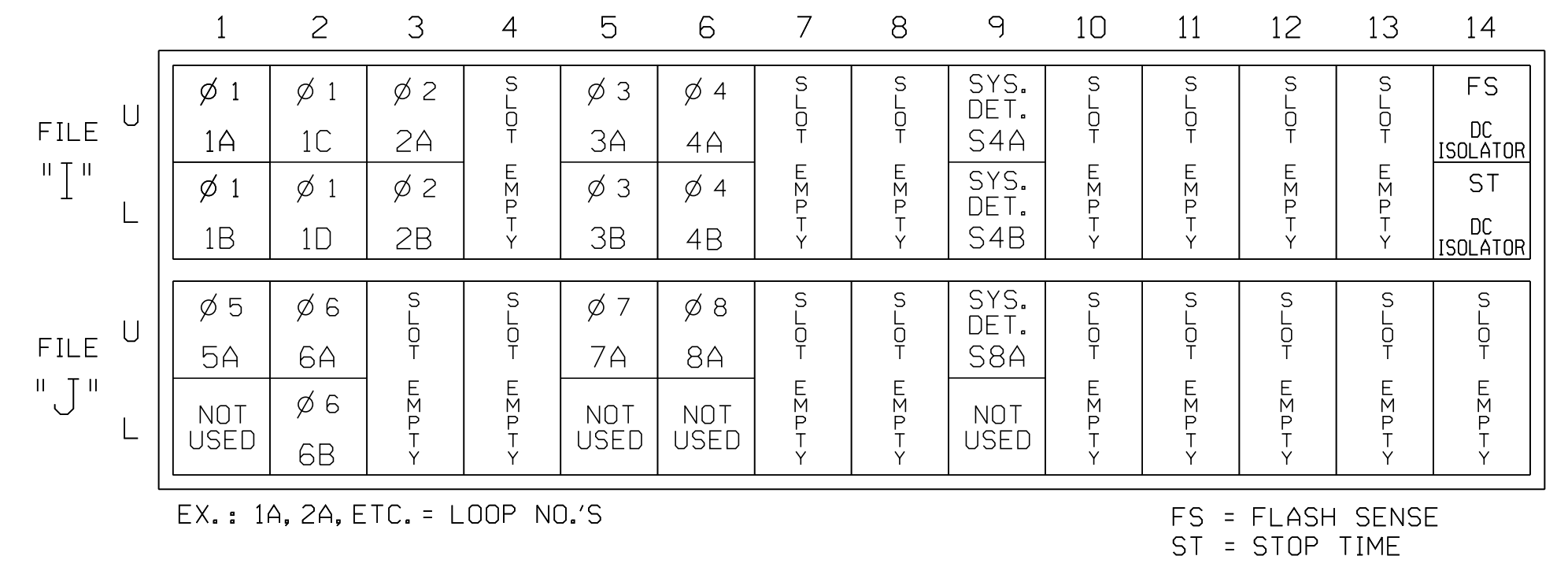
SIGNAL HEAD HOOK-UP CHART

| LOAD SWITCH NO. | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | AUX S1 | AUX S2 | AUX S3 | AUX S4 | AUX S5 | AUX S6 |
|-----------------|-------|-------|-------|-------|-----|----------|-----|-----|-------|-----|-----|-------|----------|--------|--------|--------|--------|--------|
| CMU CHANNEL NO. | 1 | 2 | 13 | 3 | 4 | 14 | 5 | 6 | 15 | 7 | 8 | 16 | 9 | 10 | 17 | 11 | 12 | 18 |
| PHASE | 1 | 2 | 2 PED | 3 | 4 | 4 PED | 5 | 6 | 6 PED | 7 | 8 | 8 PED | OLA | OLB | SPARE | OLC | OLD | SPARE |
| SIGNAL HEAD NO. | 11,12 | 21,22 | NU | 31,32 | 22 | 41,42,43 | NU | 51 | 61,62 | NU | 71 | 62 | 81,82,85 | NU | 83,84 | NU | NU | NU |
| RED | | 128 | | | 101 | | | 134 | | | | | 107 | | A121 | | | |
| YELLOW | | 129 | | | 102 | | | 135 | | | | | 108 | | | | | |
| GREEN | | 130 | | | 103 | | | 136 | | | | | 109 | | | | | |
| RED ARROW | 125 | | | 116 | | | 131 | | | 122 | | | | | | | | |
| YELLOW ARROW | 126 | | | 117 | 117 | | 132 | | | 123 | 123 | | | | A122 | | | |
| GREEN ARROW | 127 | | | 118 | 118 | | 133 | | | 124 | 124 | | | | A123 | | | |

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

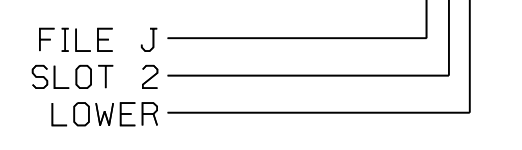


INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO. | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|----------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A | TB2-1,2 | I1U | 56 | 1 | 1 | YES | --- | --- | | N |
| 1B | TB2-3,4 | I1L | 56 | 1 | 1 | YES | --- | --- | | N |
| 1C | TB2-5,6 | I2U | 39 | 2 | 1 | YES | --- | 15 | | N |
| 1D | TB2-7,8 | I2L | 43 | 12 | 1 | YES | --- | 15 | | N |
| 2A | TB2-9,10 | I3U | 63 | 32 | 2 | YES | --- | --- | X | N |
| 2B | TB2-11,12 | I3L | 76 | 42 | 2 | YES | --- | --- | X | N |
| 3A | TB4-5,6 | I5U | 58 | 3 | 3 | YES | --- | --- | | N |
| 3B | TB4-7,8 | I5L | 58 | 3 | 3 | YES | --- | --- | | N |
| 4A | TB4-9,10 | I6U | 41 | 4 | 4 | YES | --- | --- | | N |
| 4B | TB4-11,12 | I6L | 45 | 14 | 4 | YES | --- | 10 | | N |
| 5A | TB3-1,2 | J1U | 55 | 5 | 5 | YES | --- | --- | | N |
| 6A | TB3-5,6 | J2U | 40 | 6 | 6 | YES | --- | --- | X | N |
| 6B | TB3-7,8 | J2L | 44 | 16 | 6 | YES | --- | --- | X | N |
| 7A | TB5-5,6 | J5U | 57 | 7 | 7 | YES | --- | 3 | | N |
| 8A | TB5-9,10 | J6U | 42 | 8 | 8 | YES | --- | --- | | N |
| *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 |

* System detector only. Remove any assigned vehicle phase.

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-0849
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Signal Upgrade - Final Electrical Detail - Sheet 1 of 2

| | | | | | |
|---|---|-------|---|--|--|
| NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | Prepared for the Offices of: | | US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) | | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL SEVEN G. HAYNIE ENGINEER 1/5/2022 |
| | Division 6 Cumberland County Fayetteville | | PLAN DATE: January 2022 REVIEWED BY: V. Kaiser PREPARED BY: S.G. Haynie REVIEWED BY: | | |
| REVISIONS | | INIT. | DATE | SIGNATURE DATE SIG. INVENTORY NO. 06-0849 | |

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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-  C- C- C- C- C- C- C- C- C- C- C- C- C-
R1-  01 02 03 04 . . . . .
R2-  06 05 07 08 . . . . .
R3-  . . . . .
R4-  . . . . .

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

```

END PROGRAMMING

ECONOLITE ASC/3-2070 SPECIAL MMU PROGRAMMING

(program controller as shown)

- From Main Menu select 1. CONFIGURATION
- From CONFIGURATION Submenu select 1. CONTROLLER SEQ
- From CONTROLLER SEQ Submenu select 2. PHASE COMPATIBILITY

```

PHASE COMPATIBILITY

CH  6 5 4 3 2 1 0 9 8 7 6 5 4 3 2
1  . . . . . X . . . .
2  . . . . . X X . . .
3  . . . . . X X . . .
4  . . . . . X X . . .
5  . . . . .
6  . . . . .
7  . . . . .
8  . . . . .
9  . . . . .
10 . . . . .
11 . . . . .
12 . . . . .
13 . . . . .
14 . . . . .
15 . . . . .

```

END PROGRAMMING

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

- From Main Menu select 2. CONTROLLER
- From CONTROLLER Submenu select 2. VEHICLE OVERLAPS
Toggle to "Overlap A"

OVERLAP A

Select TMG VEH DVLP [A] and 'NORMAL'

```

TMG VEH OVLP...[A] TYPE: .....NORMAL
PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED X . . . . . X . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0



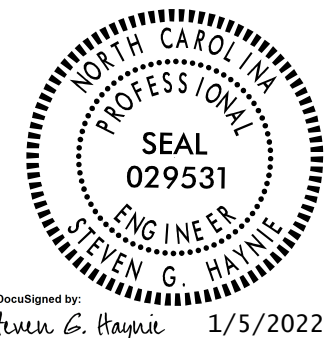
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END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-0849
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

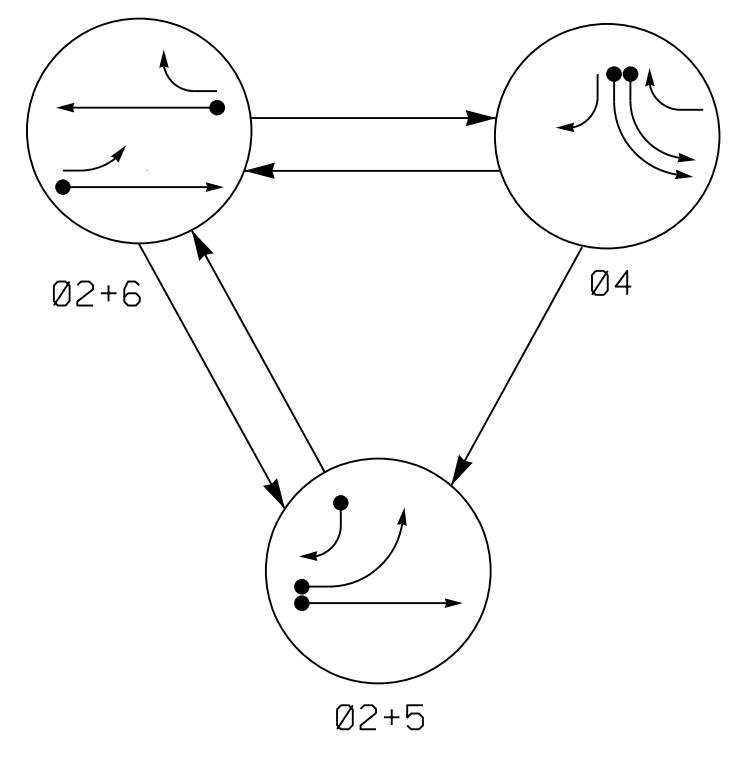
Signal Upgrade - Final
Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| | | | |
|--|---|--|--|
|  NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | Prepared for the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529 | DETAILS FOR: US 401 (S Raeford Road) at SR 1102 (Gillis Hill Road) | SEAL  SEVEN G. HAYNIE ENGINEER 029531 |
| | Division 6 Cumberland County Fayetteville PLAN DATE: January 2022 REVIEWED BY: V. Kaiser PREPARED BY: S.G. Haynie REVIEWED BY: | REVISIONS INIT. DATE _____ _____ _____ | SIGNATURE DATE _____ 1/5/2022 _____ _____ |

04-100-22 14-136-44
R:\P\T\FF\cns\gn\l\sd\as\gn\p\lon_Sheets\Final_Submittal\060849_sfg_dsn_20220105e.dgn
14-136-44

PHASING DIAGRAM



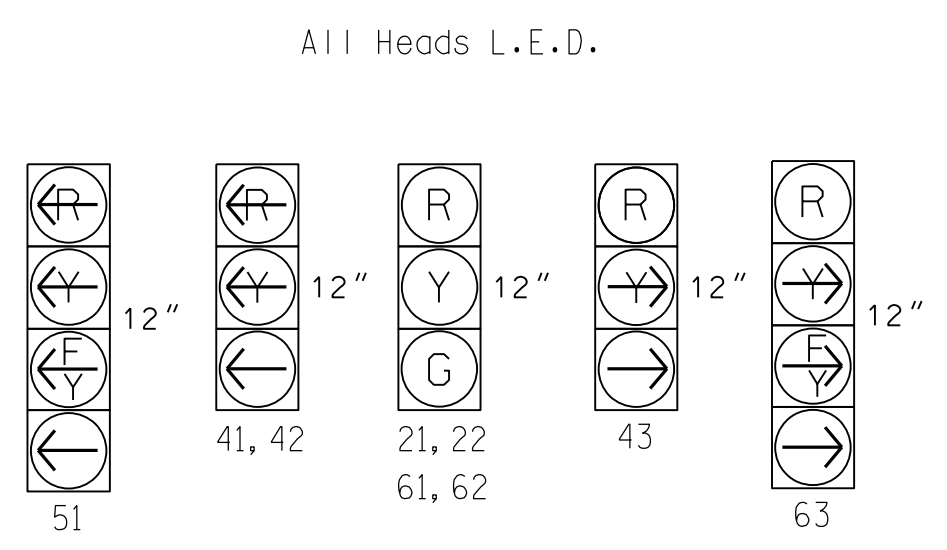
PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

| SIGNAL FACE | PHASE | | | |
|-------------|-------|------|----|---------|
| | 02+5 | 02+6 | 04 | FLIGHTS |
| 21, 22 | G | G | R | Y |
| 41, 42 | R | R | Y | R |
| 43 | Y | R | R | R |
| 51 | Y | R | Y | Y |
| 61, 62 | R | G | R | Y |
| 63 | R | Y | Y | Y |

SIGNAL FACE I.D.



ASC/3 DETECTOR INSTALLATION CHART

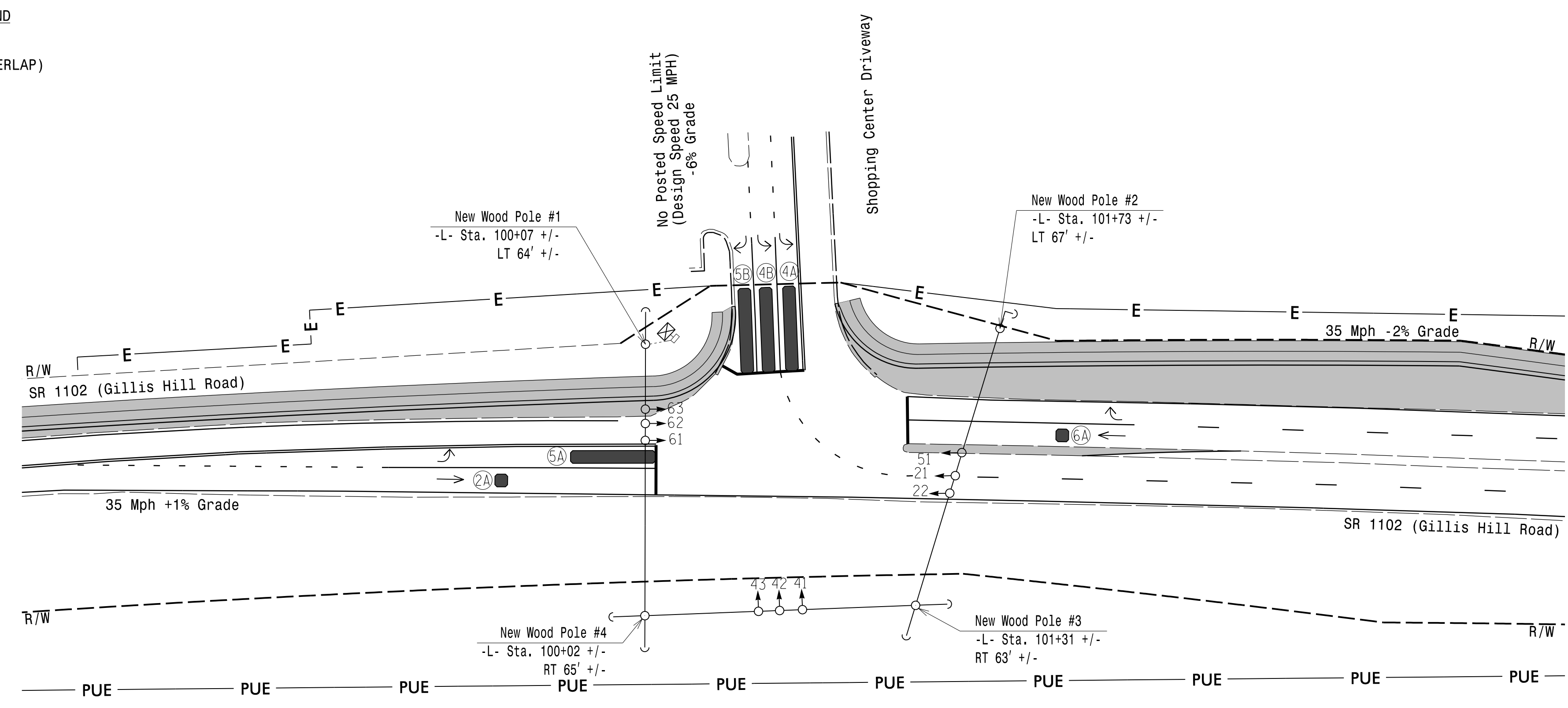
| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PROGRAMMING | | | | | | | |
|------|-----------|----------------------------|-------|----------|-------------|---------|-------------|------------|-------------------|------|-------------|----------|
| | | | | | PHASE | CALLING | EXTEND TIME | DELAY TIME | USE ADDED INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 2A | 6X6 | 70 | * | * | 2 | YES | - | - | - | N | - | * |
| 4A | 6X40 | 0 | * | * | 4 | YES | - | 3 | - | N | - | * |
| 4B | 6X40 | 0 | * | * | 4 | YES | - | - | - | N | - | * |
| 5A | 6X40 | 0 | * | * | 5 | YES | - | 15 | - | N | - | * |
| 5B | 6X40 | 0 | * | * | 5 | YES | - | 15 | - | N | - | * |
| 6A | 6X6 | 70 | * | * | 6 | YES | - | - | - | N | - | * |

* Video Detection Zone

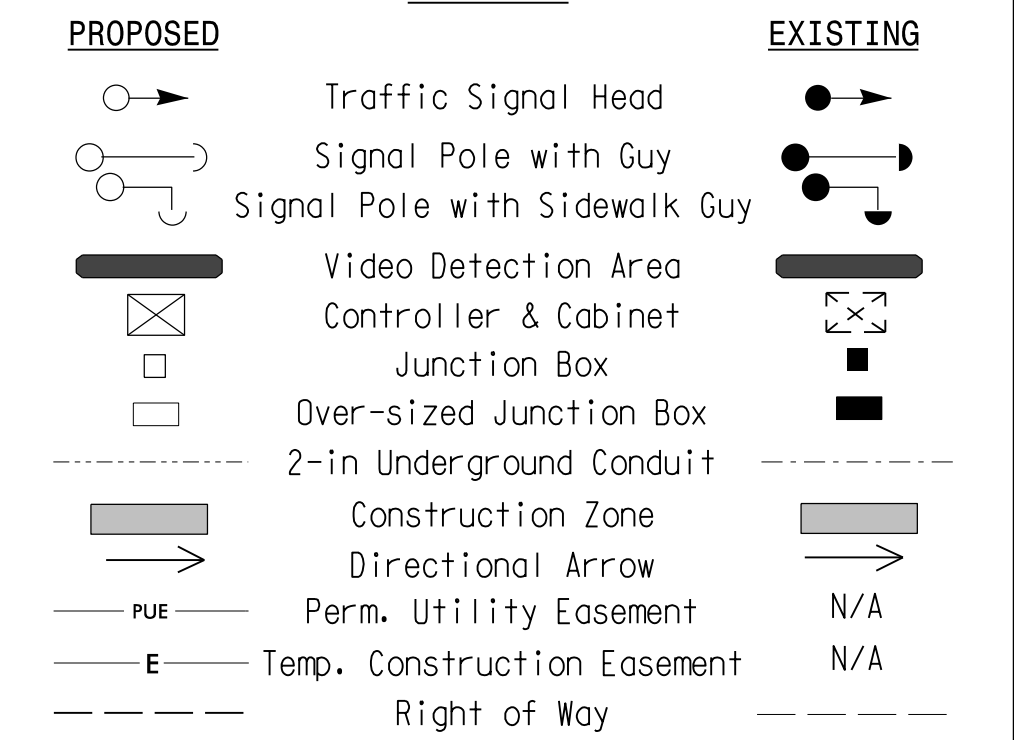
3 Phase Fully Actuated Fayetteville Signal System

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.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND



ASC/3 TIMING CHART

| FEATURE | PHASE | | | |
|-------------------------|-------------|-----|-----|-------------|
| | 2 | 4 | 5 | 6 |
| Min Green * | 10 | 7 | 7 | 10 |
| Walk * | - | - | - | - |
| Ped Clear | - | - | - | - |
| Veh. Extension * | 3.0 | 2.0 | 2.0 | 3.0 |
| Max 1 * | 50 | 30 | 20 | 50 |
| Yellow | 4.0 | 3.1 | 3.0 | 4.0 |
| Red Clear | 2.0 | 2.3 | 2.8 | 2.0 |
| Actuations B4 Add * | 0 | - | - | 0 |
| Seconds / Actuation * | - | - | - | - |
| Max Initial * | - | - | - | - |
| Time Before Reduction * | - | - | - | - |
| Time To Reduce * | - | - | - | - |
| Minimum Gap | - | - | - | - |
| Locking Detector | - | - | - | - |
| Recall Position | VEH. RECALL | - | - | VEH. RECALL |
| Dual Entry | - | - | - | - |
| Simultaneous Gap | X | X | X | X |

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

Temporary Signal 1 - TCP Phase II

5420 Wade Park Boulevard
Suite 350
Raleigh, NC 27607

SR 1102 (Gillis Hill Road)
at
Shopping Center Driveway

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: J. Reid

PREPARED BY: C. Evans REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

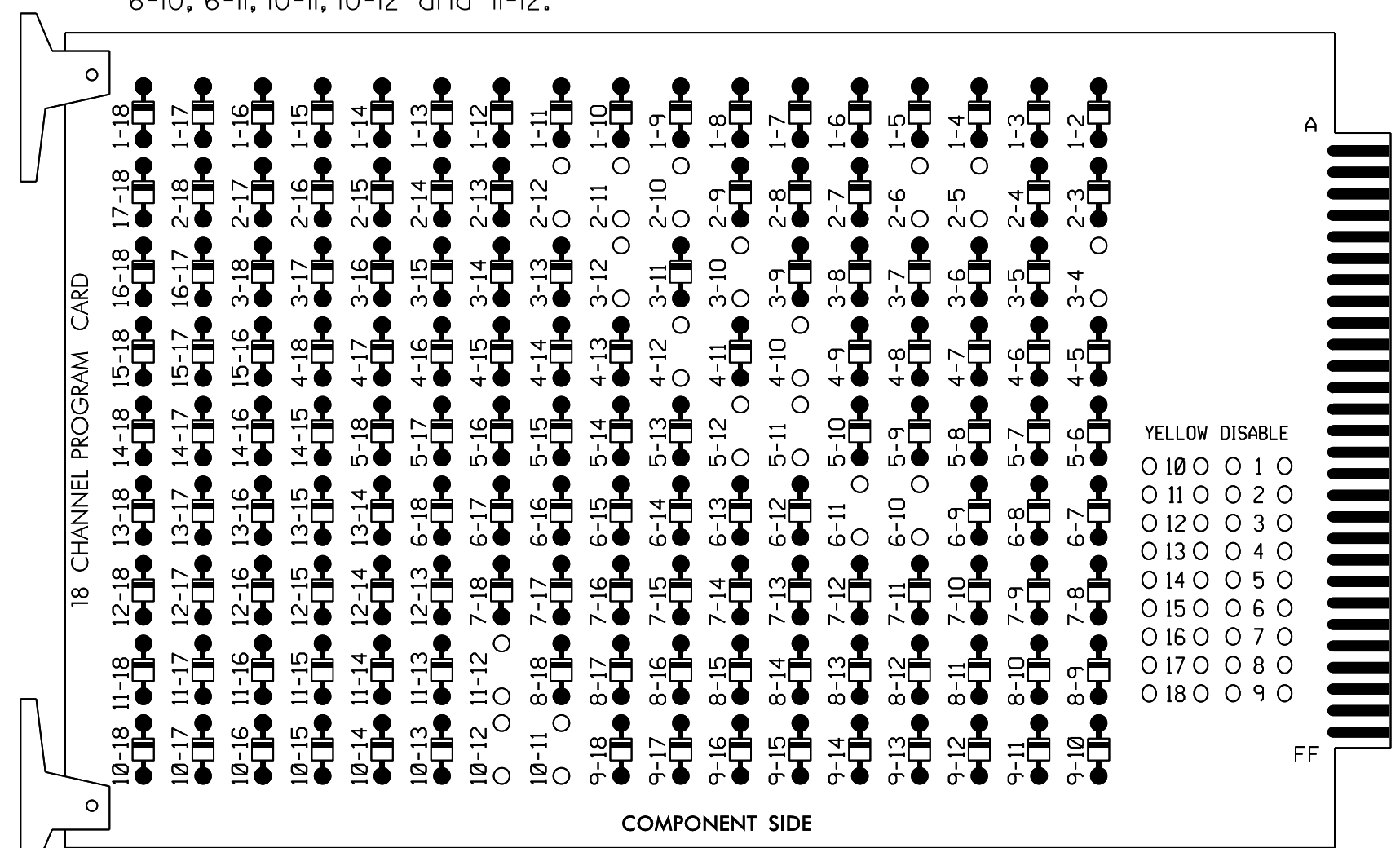
SEAL 027930
JONATHAN D. REID
2022.01.05
14:58:56-05:00

05-JAN-2022 13:10
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 C:\Users\jreid\Documents\1102_Sig.dgn
 AT C:\Users\jreid\Documents\1102_Sig.dgn

EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

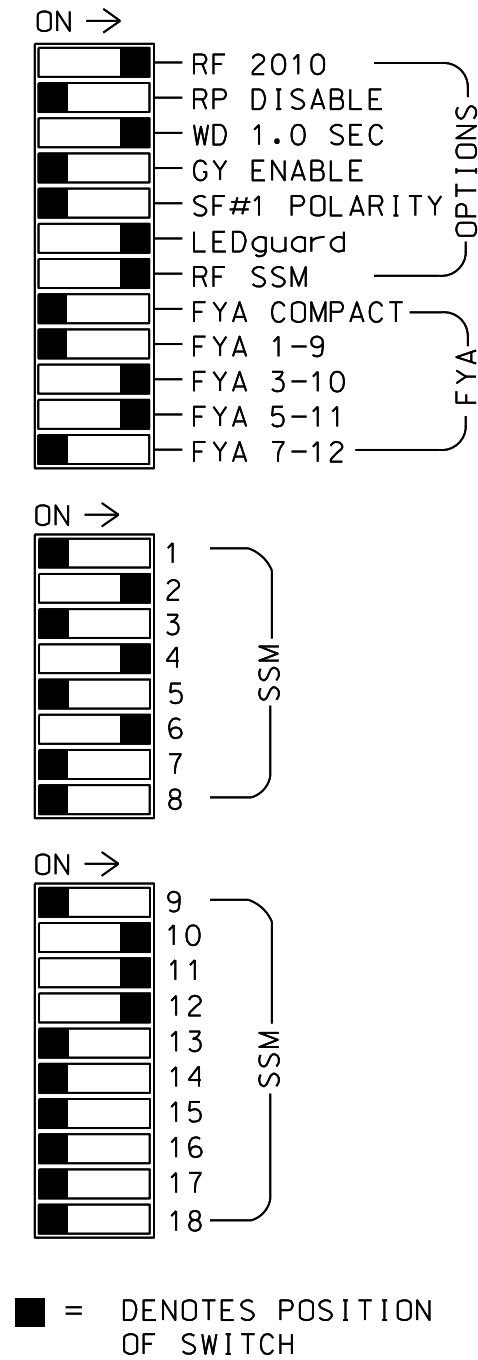
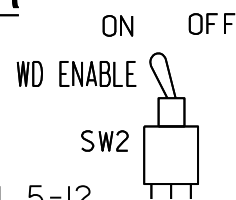
REMOVE DIODE JUMPERS 2-5, 2-6, 2-10, 2-II, 2-12, 3-4, 3-10, 3-12, 4-10, 4-12, 5-II, 5-12, 6-10, 6-II, 10-II, 10-12 and 11-12.



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

SIGNAL HEAD HOOK-UP CHART

Table with columns for LOAD SWITCH NO., S1-S6, PHASE, SIGNAL HEAD NO., RED, YELLOW, GREEN, RED ARROW, YELLOW ARROW, FLASHING YELLOW ARROW, GREEN ARROW.

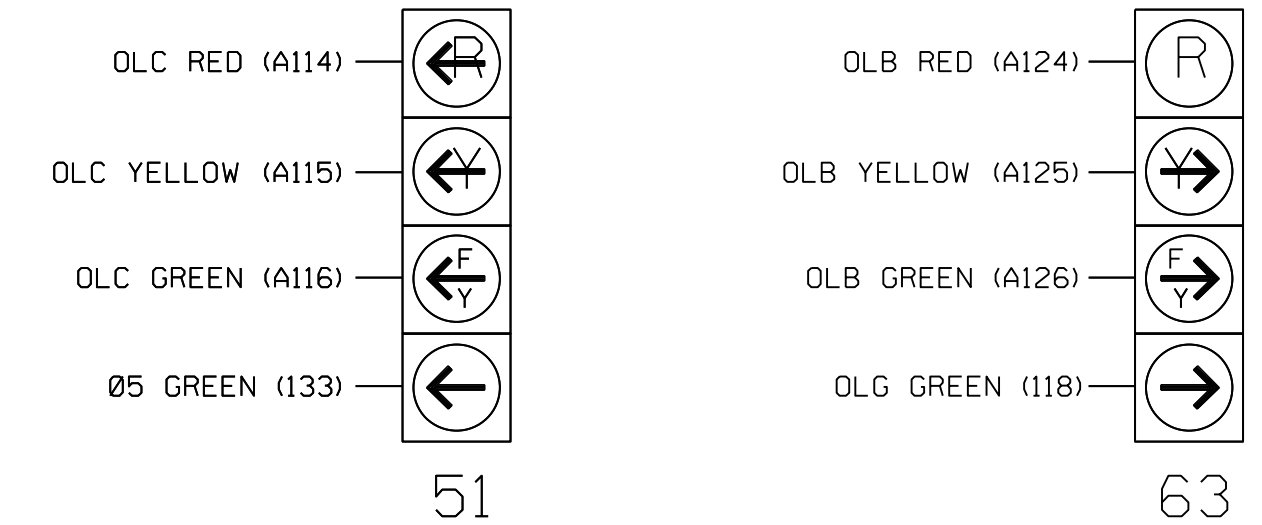
NU = Not Used

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

★ See pictorial of head wiring in detail this sheet.

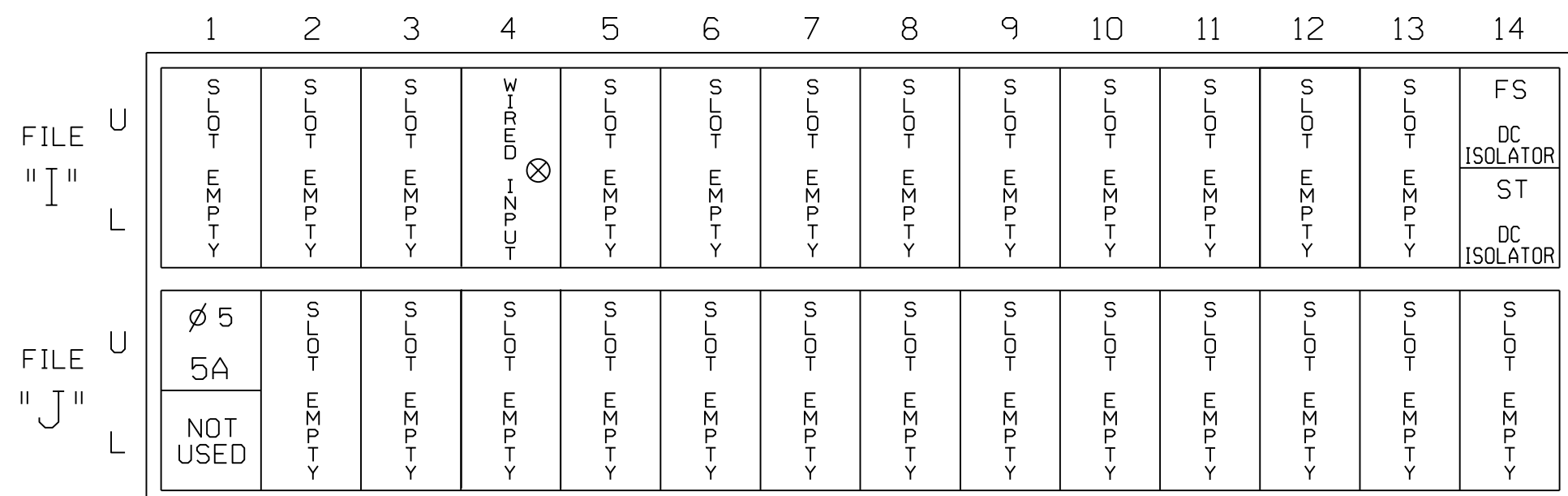
FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME

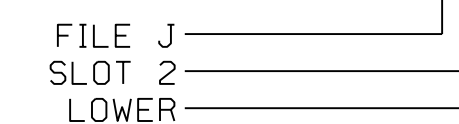
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

Table with columns: LOOP NO., LOOP TERMINAL, INPUT FILE POS., PIN NO., DETECTOR NO., NEMA PHASE, CALL, EXTEND TIME, DELAY TIME, ADDED INITIAL, DETECTOR TYPE.

^Add jumper from J1-W to 14-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L



SPECIAL DETECTOR NOTE

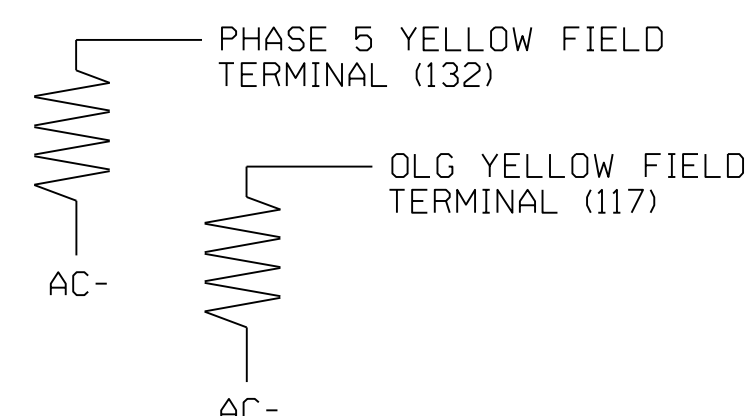
Install a video detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

For Detection Zone 5A, the equipment placement and slots reserved for wired inputs are typical for a NCDOT installation.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

Table with columns: VALUE (ohms), WATTAGE. Values: 1.5K - 1.9K (25W min), 2.0K - 3.0K (10W min).



Temporary Signal 1 - TCP Phase II
Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Logos for North Carolina Department of Transportation, ARCADIS, and other project partners.

SR 1102 (Gillis Hill Road) at Shopping Center Driveway

Table with columns: PLAN DATE, REVIEWED BY, PREPARED BY, REVISIONS, INIT., DATE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Professional Engineer seal for Jonathan D. Reid, State of North Carolina, License No. 027930.

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switch S4 as OLG, program LD SWITCH 3 as OVLP '7' TYPE '0' as shown below.

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

| LD SWITCH | ASSIGN | PHASE | DIMMING | ---FLASH--- |
|-----------|--------|-------|---------|-----------------|
| /OVLP | TYPE | R | Y | G D PWR AUT TGR |
| 1 | 1 | V | . . . + | A R X |
| 2 | 2 | V | . . . + | A Y . |
| 3 | 7 | 0 | . . . + | 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 | 0 | . . . + | A R X |
| 10 | 2 | 0 | . . . + | A Y X |
| 11 | 3 | 0 | . . . - | A Y . |
| 12 | 4 | 0 | . . . - | A R . |
| 13 | 2 | P | . . . + | A . . |
| 14 | 4 | P | . . . - | A . . |
| 15 | 6 | P | . . . + | A . . |
| 16 | 8 | P | . . . - | A . . |

Change LD SWITCH 3 from phase 3 to Overlap G →

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

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

Toggle to "Overlap G"

OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

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

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

INCLUDED . . . X

LAG GRN 0.0 YEL 0.0 RED 0.0

Toggle to "Overlap B"

OVERLAP B

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

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

PROTECTED LEFT TURN.... OVERLAP G

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH10 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 0

Toggle Once

OVERLAP C

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

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

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 0

Toggle Once

OVERLAP D

Select TMG VEH OVLP [D] and 'NORMAL'

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

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

INCLUDED . . . X X

LAG GRN 0.0 YEL 0.0 RED 0.0

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1243T1
 DESIGNED: JANUARY 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 1 - TCP Phase II
 Electrical Detail - Sheet 2 of 2



ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Department of Transportation
Seal Management Section

750 N. Greenfield Pkwy, Garner, NC 27529

| | |
|--|----------------------|
| SR 1102 (Gillis Hill Road) at Shopping Center Driveway | |
| Division 6 | Cumberland County |
| Fayetteville | |
| PLAN DATE: January 2022 | REVIEWED BY: J. Reid |
| PREPARED BY: C. Evans | REVIEWED BY: |
| REVISIONS | INIT. DATE |
| | |
| | |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

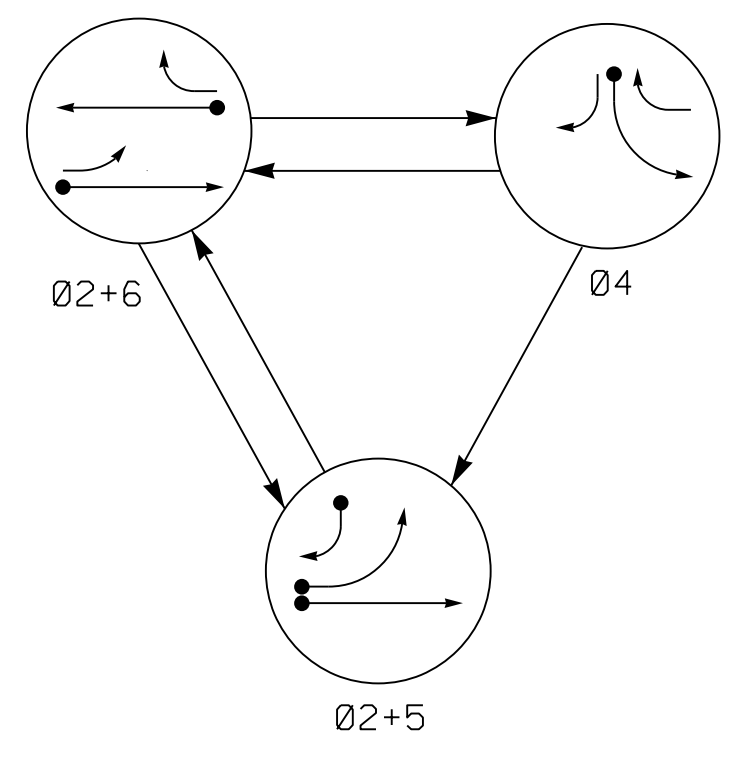
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
027930
JONATHAN D. REID

Jonathan D. Reid 2022.01.05
14:58:57-0500

DATE

SIG. INVENTORY NO. 06-1243T1

PHASING DIAGRAM



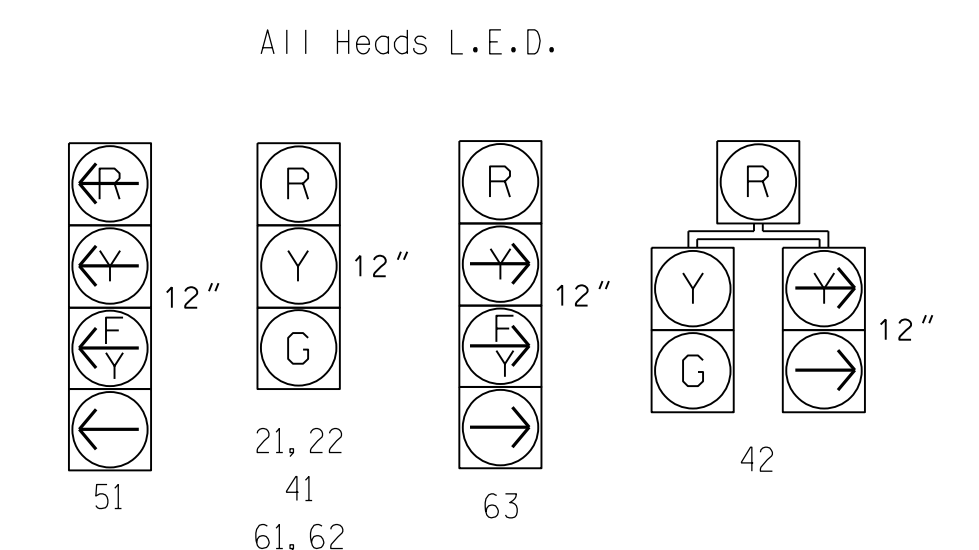
PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

| SIGNAL FACE | PHASE | | | |
|-------------|---------|---------|-----|--------|
| | Ø 2 + 5 | Ø 2 + 6 | Ø 4 | FLIGHT |
| 21, 22 | G | G | R | Y |
| 41 | R | R | G | R |
| 42 | R | R | G | R |
| 51 | ← | ← | ← | ← |
| 61, 62 | R | G | R | Y |
| 63 | R | ← | ← | ← |

SIGNAL FACE I.D.



ASC/3 DETECTOR INSTALLATION CHART

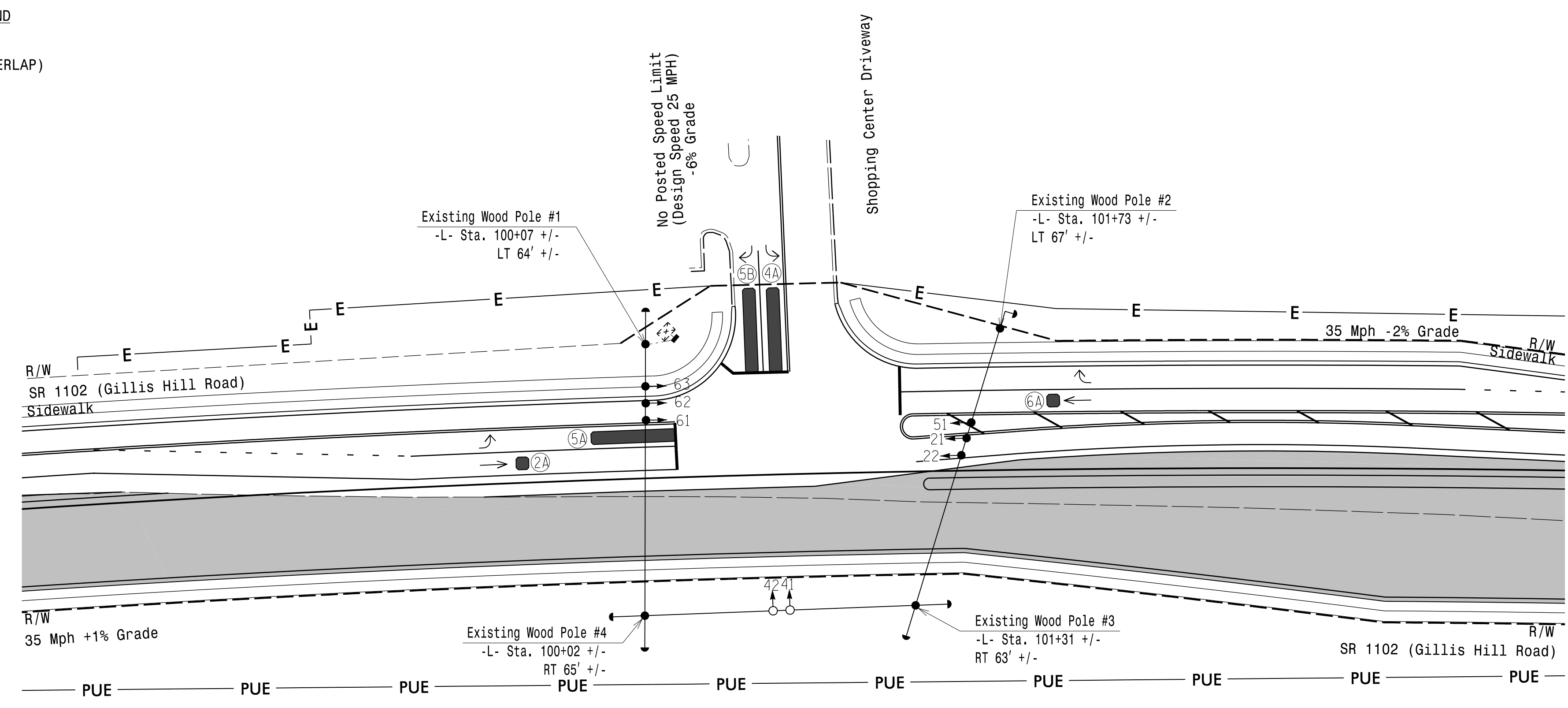
| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PROGRAMMING | | | | | | | |
|------|-----------|----------------------------|-------|----------|-------------|---------|-------------|------------|-------------------|------|-------------|----------|
| | | | | | PHASE | CALLING | EXTEND TIME | DELAY TIME | USE ADDED INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 2A | 6X6 | 70 | * | * | 2 | YES | - | - | - | N | - | * |
| 4A | 6X40 | 0 | * | * | 4 | YES | - | 3 | - | N | - | * |
| 5A | 6X40 | 0 | * | * | 5 | YES | - | 15 | - | N | - | * |
| 5B | 6X40 | 0 | * | * | 2 | YES | - | - | - | N | - | * |
| 6A | 6X6 | 70 | * | * | 5 | YES | - | 15 | - | N | - | * |
| 6A | 6X6 | 70 | * | * | 6 | YES | - | - | - | N | - | * |

* Video Detection Zone

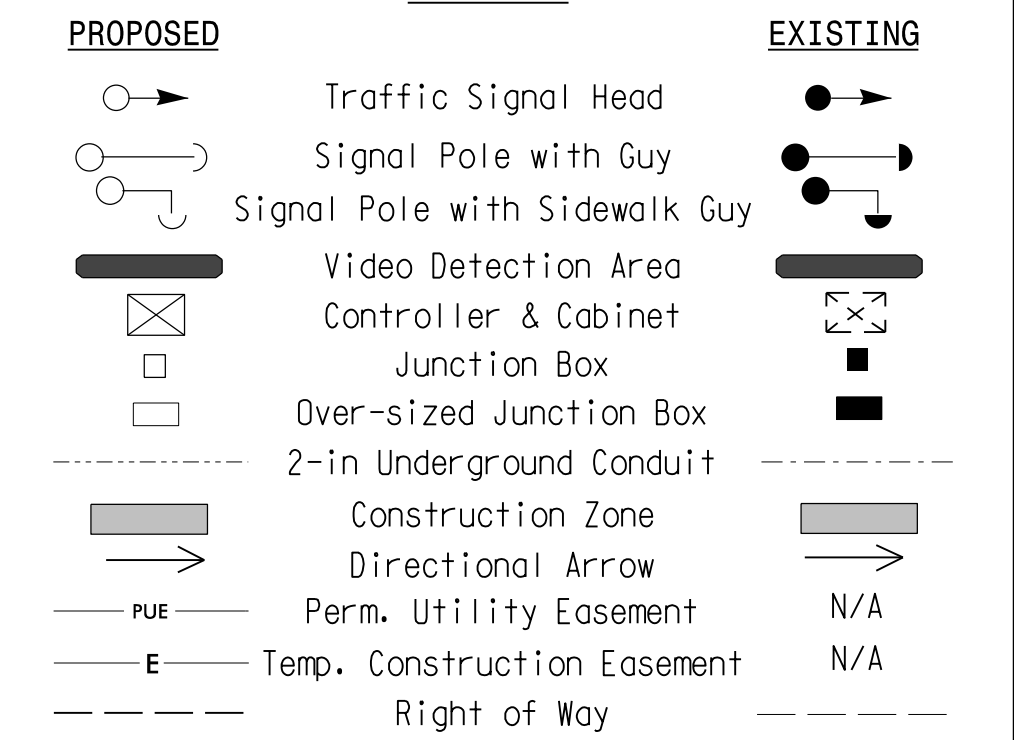
3 Phase Fully Actuated Fayetteville Signal System

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.
- Reassign existing detection zone 4B to 4A.
- Set all detector units to presence mode.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Reposition existing signal heads 21, 22, 51, 61, 62 and 63 as shown.



LEGEND



ASC/3 TIMING CHART

| FEATURE | PHASE | | | |
|-------------------------|-------------|-----|-----|-------------|
| | 2 | 4 | 5 | 6 |
| Min Green * | 10 | 7 | 7 | 10 |
| Walk * | - | - | - | - |
| Ped Clear | - | - | - | - |
| Veh. Extension * | 3.0 | 2.0 | 2.0 | 3.0 |
| Max 1 * | 50 | 30 | 20 | 50 |
| Yellow | 4.0 | 3.1 | 3.0 | 4.0 |
| Red Clear | 1.6 | 1.8 | 2.3 | 1.6 |
| Actuations B4 Add * | 0 | - | - | 0 |
| Seconds / Actuation * | - | - | - | - |
| Max Initial * | - | - | - | - |
| Time Before Reduction * | - | - | - | - |
| Time To Reduce * | - | - | - | - |
| Minimum Gap | - | - | - | - |
| Locking Detector | - | - | - | - |
| Recall Position | VEH. RECALL | - | - | VEH. RECALL |
| Dual Entry | - | - | - | - |
| Simultaneous Gap | X | X | X | X |

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

Temporary Signal 2 - TCP Phase III

5420 Wade Park Boulevard
Suite 350
Raleigh, NC 27607

SR 1102 (Gillis Hill Road)
at
Shopping Center Driveway

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: J. Reid

PREPARED BY: C. Evans REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

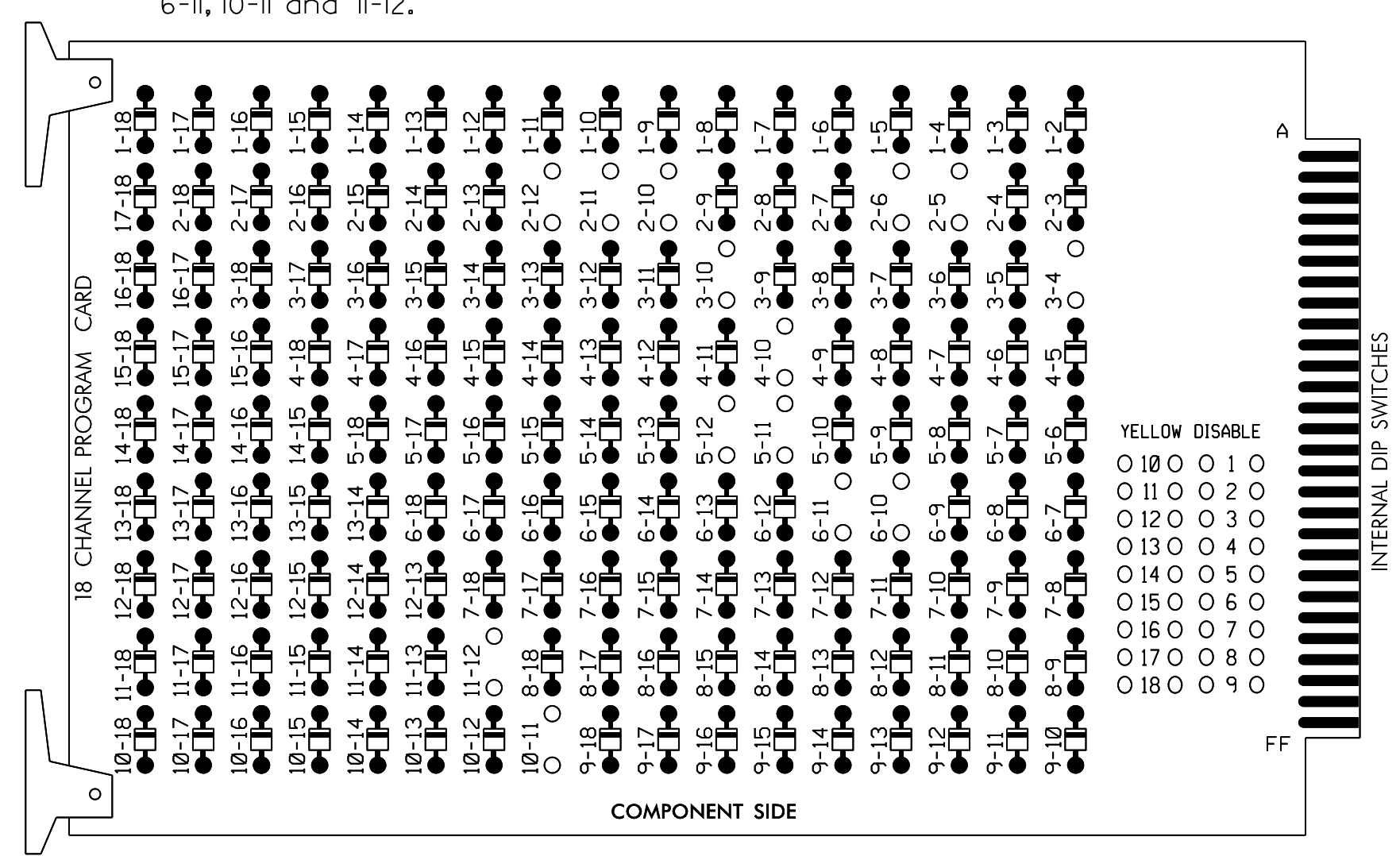
Jonathan D. Reid
2022.01.05
14:58:57-0500

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 CRE:evans AT C:\Users\evans

EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL

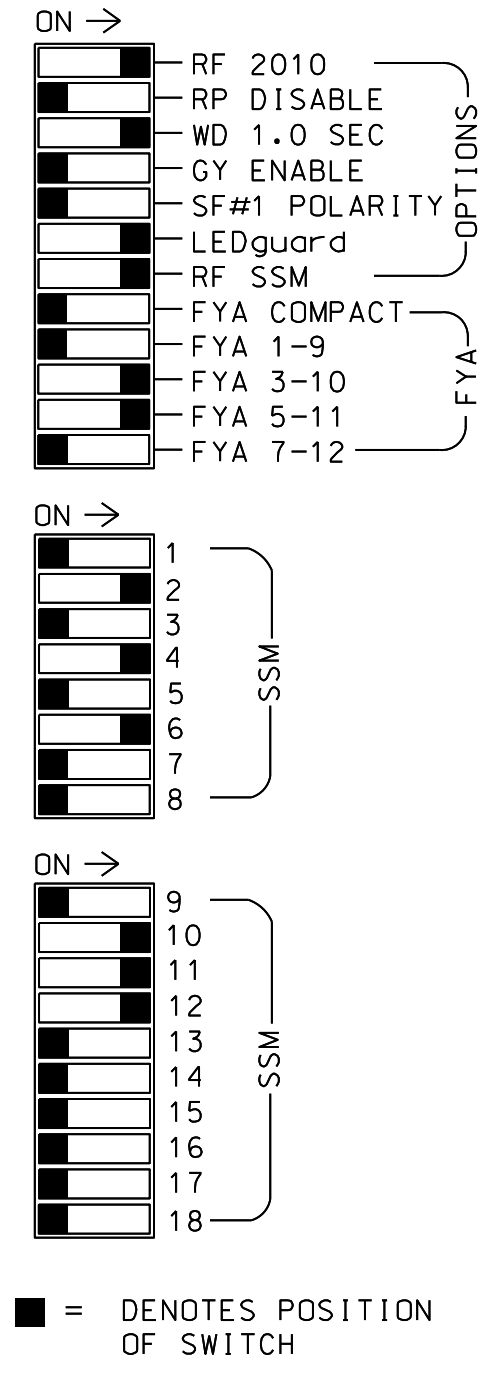
(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-5, 2-6, 2-10, 2-11, 2-12, 3-4, 3-10, 4-10, 5-11, 5-12, 6-10, 6-11, 10-11 and 11-12.



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 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.....2070LX
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE LOAD SWITCHES USED.....S2,S4,S5,S7,S8,AUX S2 AUX S4,AUX S5
 PHASES USED.....2,4,5,6
 OVERLAP "A".....NOT USED
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 OVERLAP "E".....NOT USED
 OVERLAP "F".....NOT USED
 OVERLAP "G".....*
 * 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 | OLG | 4 | 4 PED | 5 | 6 | 6 PED | 7 | 8 | 8 PED | OLA | OLB | SPARE | OLC | OLD | SPARE |
| SIGNAL HEAD NO. | NU | 21,22 | NU | 63 | 41,42 | NU | 51 | 61,62 | NU | NU | NU | NU | NU | 63 | NU | 51 | 42 | NU |
| RED | | 128 | | | 101 | | | 134 | | | | | | A124 | | | | * |
| YELLOW | | 129 | | * | 102 | | * | 135 | | | | | | | | | | |
| GREEN | | 130 | | | 103 | | | 136 | | | | | | | | | | |
| RED ARROW | | | | | | | | | | | | | | | | | | A114 |
| YELLOW ARROW | | | | | | | | | | | | | | A125 | | A115 | A102 | |
| FLASHING YELLOW ARROW | | | | | | | | | | | | | | A126 | | A116 | | |
| GREEN ARROW | | | | | 118 | | | 133 | | | | | | | | | | A103 |

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)

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

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

FS = FLASH SENSE
ST = STOP TIME

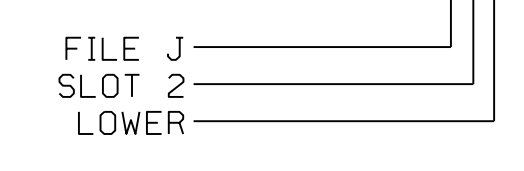
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO. | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|----------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 5A | TB3-1,2 | J1U | 55 | 5 | 5 | YES | | 15 | | N |
| | - | I4U | 47 | 22 | 2 | YES | | | | N |

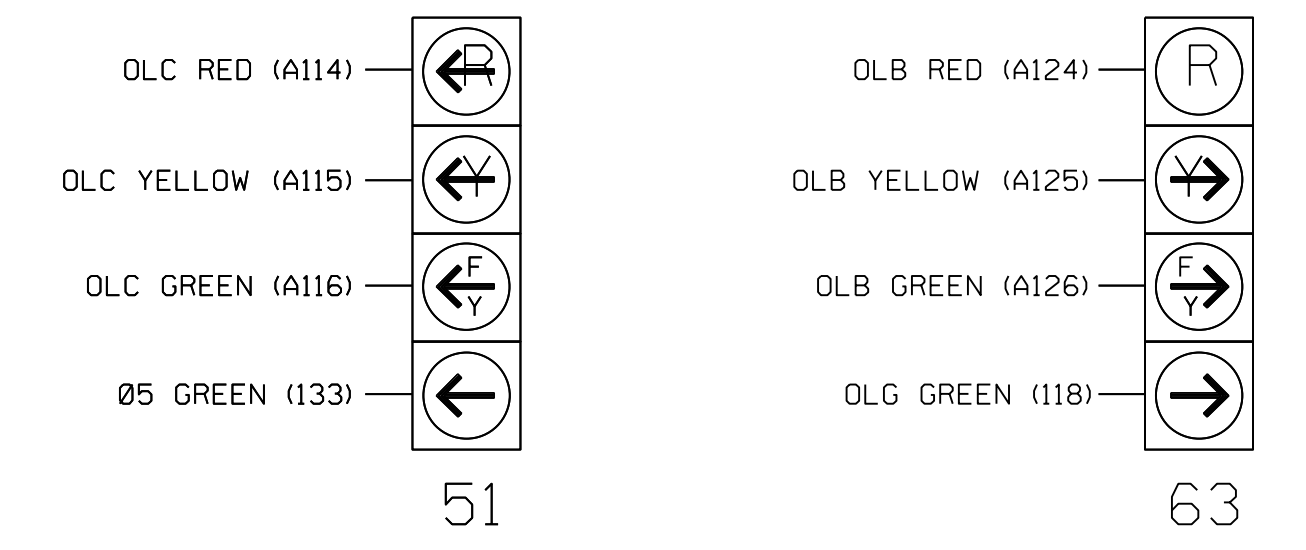
*Add jumper from J1-W to I4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

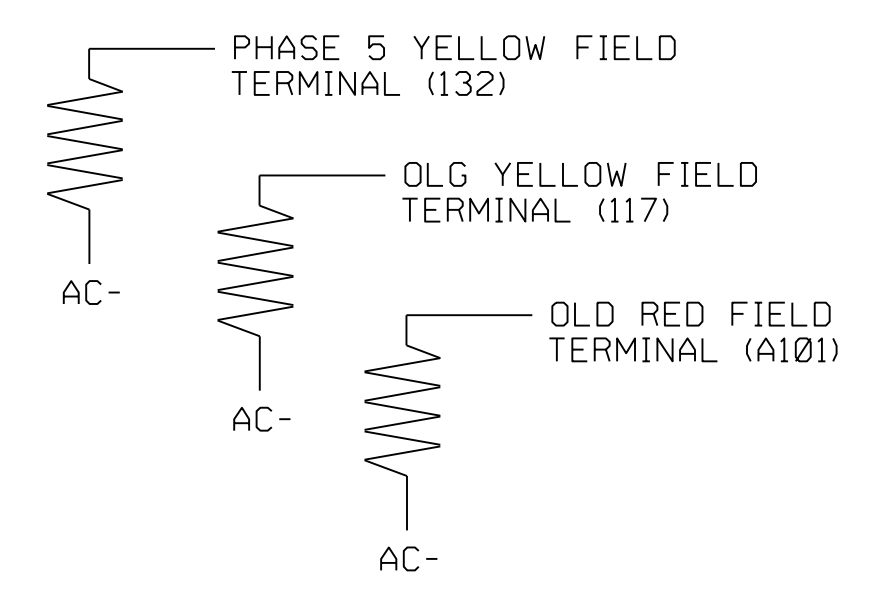
(wire signal heads as shown)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

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



SPECIAL DETECTOR NOTE

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

For Detection Zone 5A, the equipment placement and slots reserved for wired inputs are typical for a NCDOT installation.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1243T2
 DESIGNED: JANUARY 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 2 - TCP Phase III
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:
 Prepared for the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

| | |
|--|--------------------------------|
| SR 1102 (Gillis Hill Road) at Shopping Center Driveway | |
| Division 6 | Cumberland County Fayetteville |
| PLAN DATE: January 2022 | REVIEWED BY: J. Reid |
| PREPARED BY: C. Evans | REVIEWED BY: |
| REVISIONS | INIT. DATE |
| | |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 027930
 JONATHAN D. REID
 2022.01.05
 14:58:57:0500
 DATE

SIG. INVENTORY NO. 06-1243T2



ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 2. VEHICLE OVERLAPS
Toggle to "Overlap G"

OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

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

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

INCLUDED . . . X

LAG GRN 0.0 YEL 0.0 RED 0.0

↓ Toggle to "Overlap B"

OVERLAP B

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

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

PROTECTED LEFT TURN.... OVERLAP G

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH10 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 0

↓ Toggle Once

OVERLAP C

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

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

PROTECTED LEFT TURN.... PHASE 5

OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT.....CH11 ISOLATE

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

ACTION PLAN SF BIT DISABLE..... 0

↓ Toggle Once

OVERLAP D

Select TMG VEH OVLP [D] and 'NORMAL'

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

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

INCLUDED X

LAG GRN 0.0 YEL 0.0 RED 0.0

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switch S4 as OLG, program LD SWITCH 3 as OVLP '7' TYPE '0' as shown below.


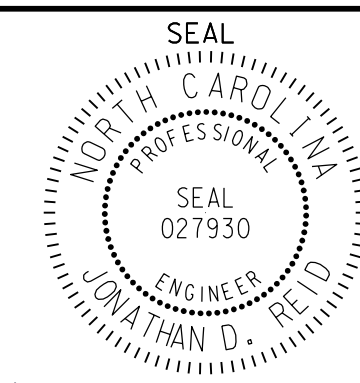
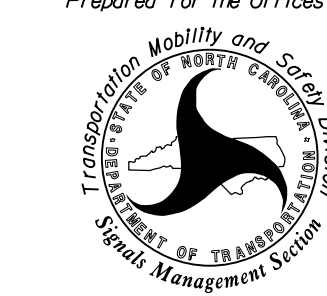
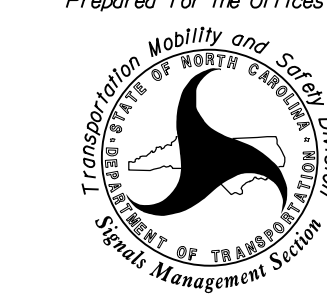
1. From Main Menu select 1. CONFIGURATION
2. From CONFIGURATION Submenu select 3. LOAD SW ASSIGN

Change LD SWITCH 3 from → phase 3 to Overlap G

| LD SWITCH ASSIGN | | | | | | | |
|------------------|------|---------|---|---|-------------|-----|---------|
| PHASE /OVLP | TYPE | DIMMING | | | ---FLASH--- | | |
| | | R | Y | G | D | PWR | AUT TGR |
| 1 | 1 | V | . | . | . | + | A R X |
| 2 | 2 | V | . | . | . | + | A Y . |
| 3 | 7 | 0 | . | . | . | + | 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 | 0 | . | . | . | + | A R X |
| 10 | 2 | 0 | . | . | . | + | A Y X |
| 11 | 3 | 0 | . | . | . | - | A Y . |
| 12 | 4 | 0 | . | . | . | - | A R . |
| 13 | 2 | P | . | . | . | + | A . . |
| 14 | 4 | P | . | . | . | - | A . . |
| 15 | 6 | P | . | . | . | + | A . . |
| 16 | 8 | P | . | . | . | - | A . . |

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1243T2
 DESIGNED: JANUARY 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 2 - TCP Phase III
 Electrical Detail - Sheet 2 of 2

|  | <p>SR 1102 (Gillis Hill Road) at Shopping Center Driveway</p> <p>Division 6 Cumberland County Fayetteville</p> <p>PLAN DATE: January 2022 REVIEWED BY: J. Reid</p> <p>PREPARED BY: C. Evans REVIEWED BY:</p> | <p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>SEAL</p>  <p>SEAL 027930</p> <p>ENGINEER</p> <p>JONATHAN D. REID</p> </div> | | | | | | | | | | | | | | | | |
|--|---|--|-------------|-------|------|--|--|--|--|--|--|--|--|--|--|--|--|-------------------------------------|
| <p>Prepared for the Offices of:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>750 N. Greenfield Pkwy, Garner, NC 27529</p> </div> <div style="text-align: center;">  <p>5420 Wade Park Boulevard, Suite 350, Raleigh, NC 27607</p> </div> </div> | | <p>Jonathan D. Reid 2022.01.05 14:58:57-0500</p> <p>DATE</p> | | | | | | | | | | | | | | | | |
| <p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> | | NO. | DESCRIPTION | INIT. | DATE | | | | | | | | | | | | | <p>SIG. INVENTORY NO. 06-1243T2</p> |
| NO. | DESCRIPTION | INIT. | DATE | | | | | | | | | | | | | | | |
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PHASING DIAGRAM

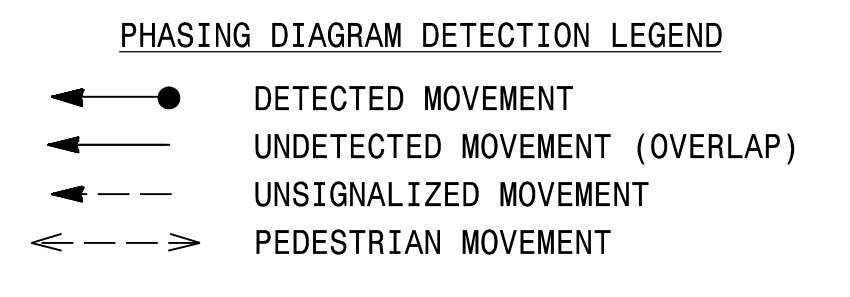
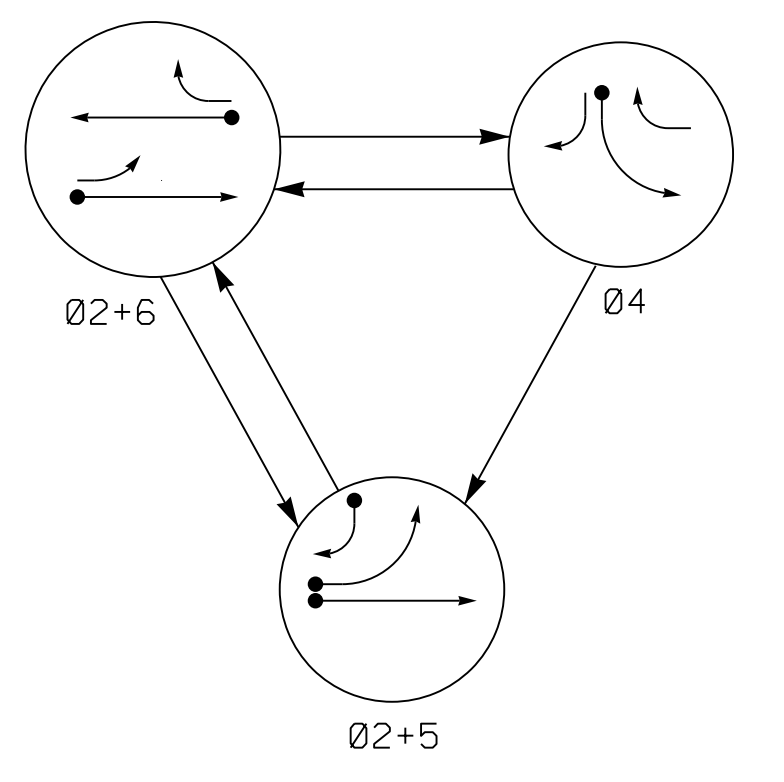
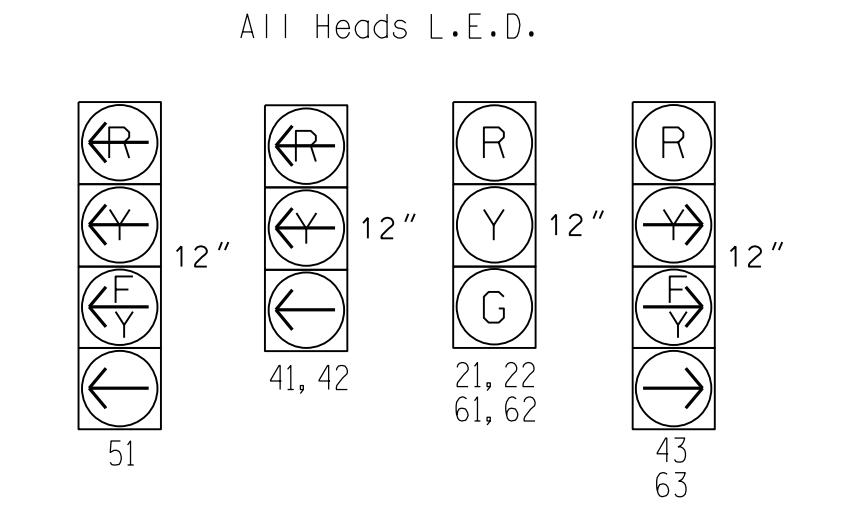


TABLE OF OPERATION

| SIGNAL FACE | PHASE | | | |
|-------------|-------|----|------|-------|
| | 02+6 | 04 | 02+5 | FLASH |
| 21, 22 | G | G | R | Y |
| 41, 42 | R | R | F | R |
| 43 | - | R | F | R |
| 51 | - | F | R | Y |
| 61, 62 | R | G | R | Y |
| 63 | R | F | - | Y |

SIGNAL FACE I.D.



ASC/3 DETECTOR INSTALLATION CHART

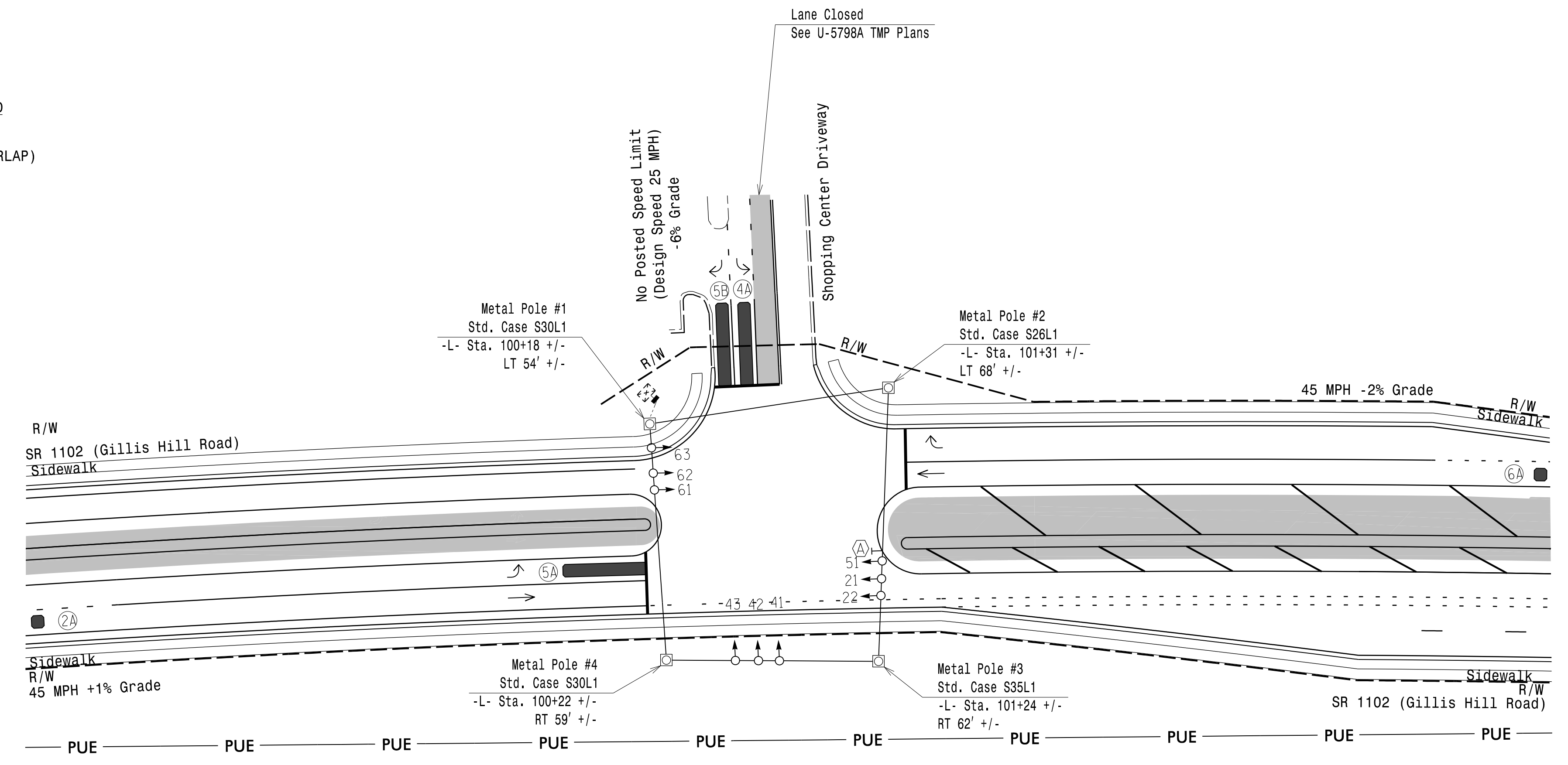
| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PROGRAMMING | | | | | | | |
|------|-----------|----------------------------|-------|----------|-------------|---------|-------------|------------|-------------------|------|------|----------|
| | | | | | PHASE | CALLING | EXTEND TIME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

* Video Detection Zone

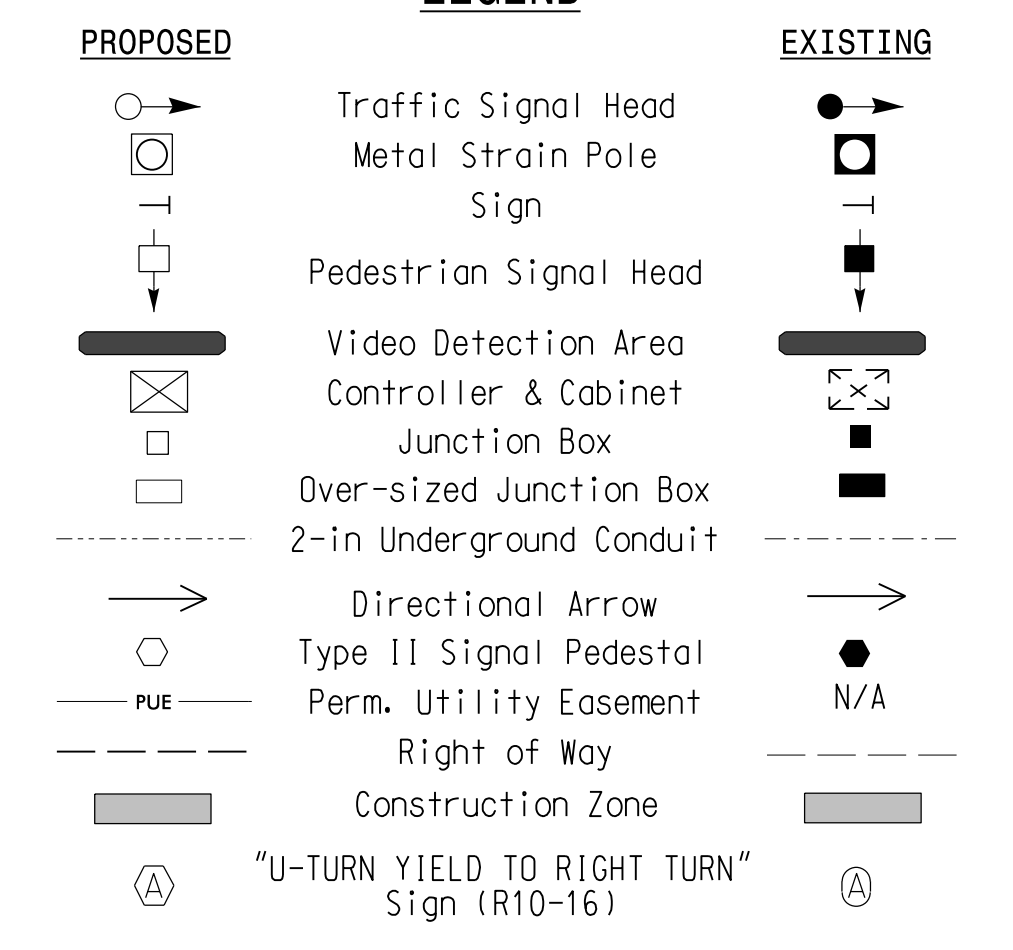
3 Phase Fully Actuated Fayetteville Signal System

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 5 may be lagged.
- Bag signal head 41.
- Set all detector units to presence mode.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Install Metal Poles #3 and #4 to maintain 10-ft separation from adjacent O/H power lines and to avoid impacts to adjacent utilities.



LEGEND



ASC/3 TIMING CHART

| FEATURE | PHASE | | | |
|-------------------------|-------------|-----|-----|-------------|
| | 2 | 4 | 5 | 6 |
| Min Green * | 12 | 7 | 7 | 12 |
| Walk * | - | - | - | - |
| Ped Clear | - | - | - | - |
| Veh. Extension * | 6.0 | 2.0 | 2.0 | 6.0 |
| Max 1 * | 50 | 30 | 20 | 50 |
| Yellow | 4.0 | 3.1 | 3.0 | 4.0 |
| Red Clear | 2.5 | 3.3 | 3.3 | 2.5 |
| Actuations B4 Add * | 0 | - | - | 0 |
| Seconds / Actuation * | 1.8 | - | - | 1.8 |
| 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.

Temporary Signal 3 - TCP Phase IV

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1102 (Gillis Hill Road)
at
Shopping Center Driveway

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: J. Reid

PREPARED BY: C. Evans REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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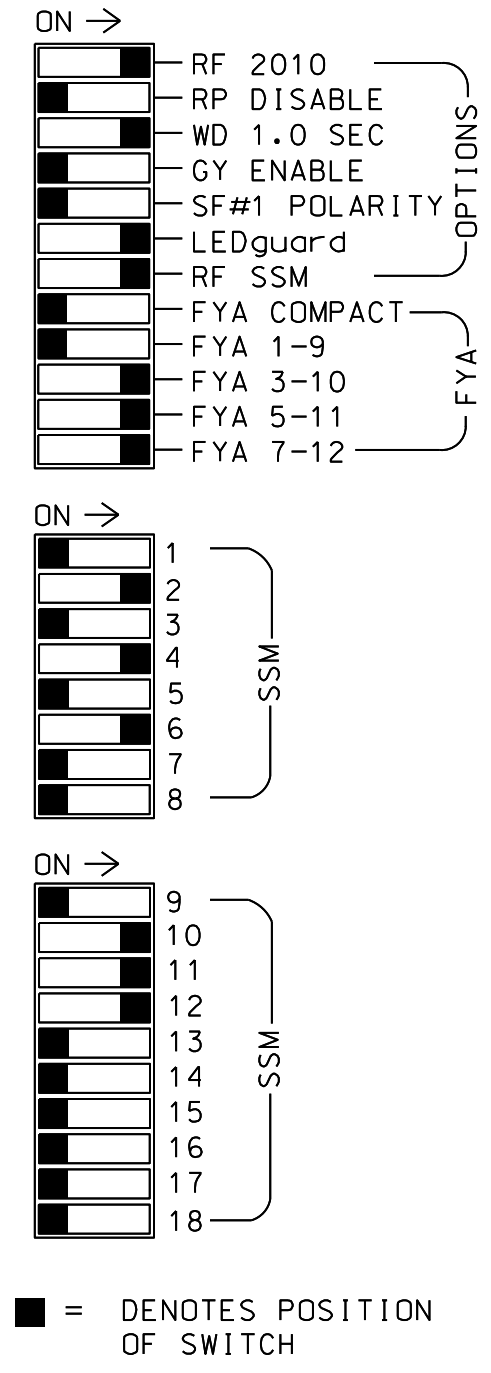
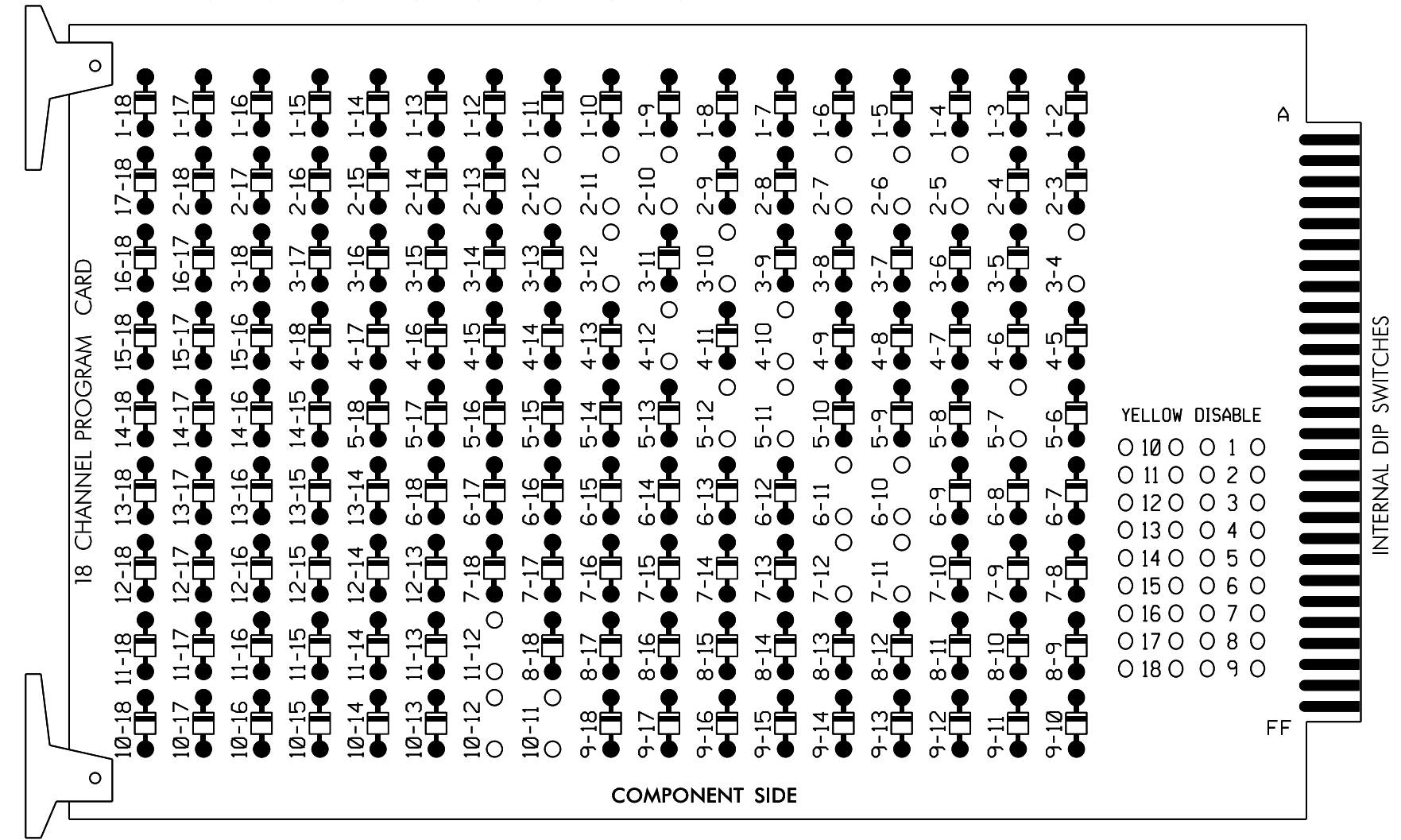
| REVISIONS | INIT. | DATE |
|-----------|-------|------|
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EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-5, 2-6, 2-7, 2-10, 2-11, 2-12, 3-4, 3-10, 3-12, 4-10, 4-12, 5-7, 5-11, 5-12, 6-10, 6-11, 7-11, 7-12, 10-11, 10-12 and 11-12.



- 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.....2070LX CABINET.....332 W/AUX SOFTWARE.....ECONOLITE ASC/3-2070 CABINET MOUNT.....BASE OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE LOAD SWITCHES USED.....S2,S4,S5,S7,S8,S10, AUX S2,AUX S4,AUX S5 PHASES USED.....2,4,5,6 OVERLAP "A".....NOT USED OVERLAP "B".....* OVERLAP "C".....* OVERLAP "D".....* OVERLAP "E".....NOT USED OVERLAP "F".....NOT USED OVERLAP "G".....* OVERLAP "H".....* * See overlap programming detail on sheet 2

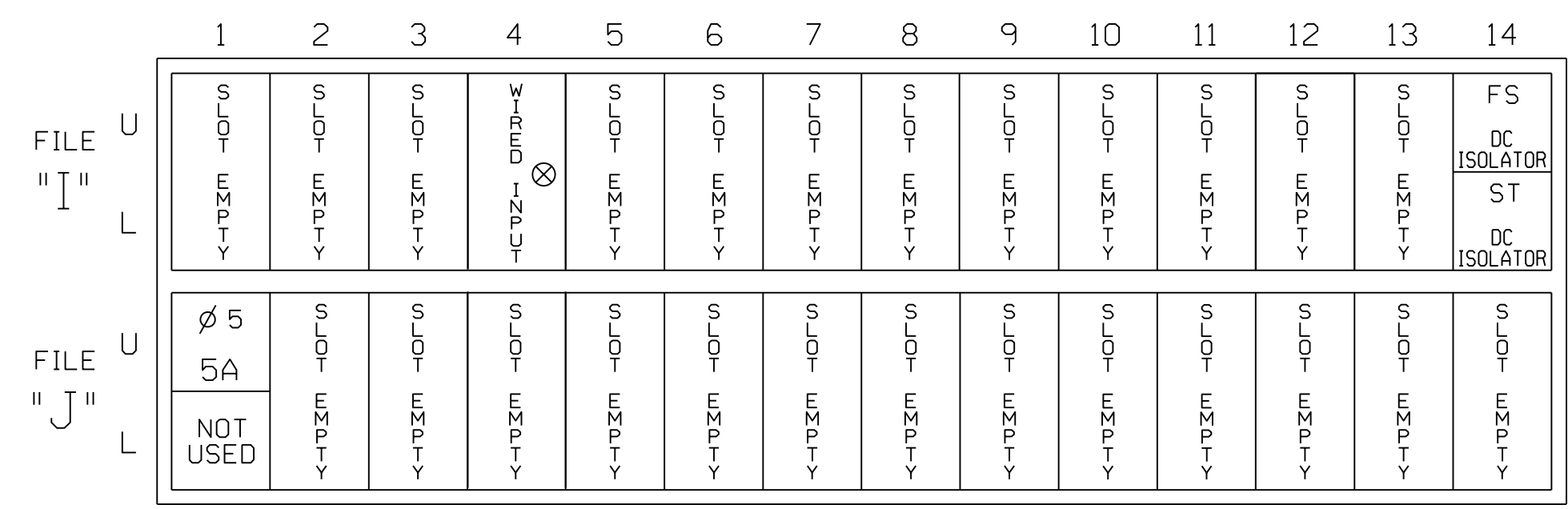
SIGNAL HEAD HOOK-UP CHART

Table with columns for LOAD SWITCH NO., CMU CHANNEL NO., PHASE, SIGNAL HEAD NO., RED, YELLOW, GREEN, RED ARROW, YELLOW ARROW, FLASHING YELLOW ARROW, GREEN ARROW and columns for S1-S12, AUX S1-AUX S6.

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

INPUT FILE POSITION LAYOUT

(front view)



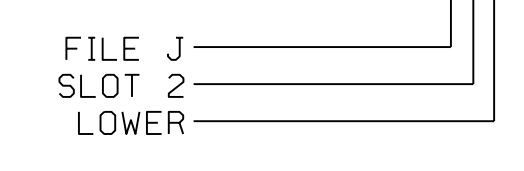
EX.: 1A, 2A, ETC. = LOOP NO.'S FS = FLASH SENSE ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

Table with columns: LOOP NO., LOOP TERMINAL, INPUT FILE POS., PIN NO., DETECTOR NO., NEMA PHASE, CALL, EXTEND TIME, DELAY TIME, ADDED INITIAL, DETECTOR TYPE.

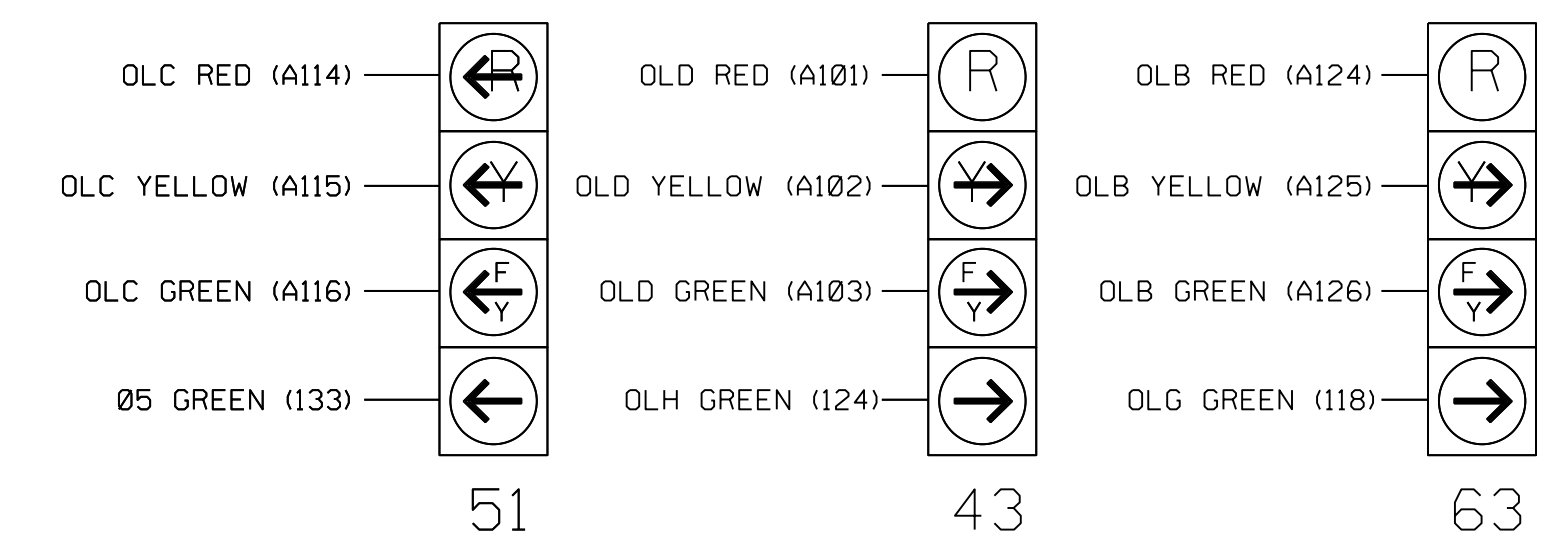
*Add jumper from J1-W to I4-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

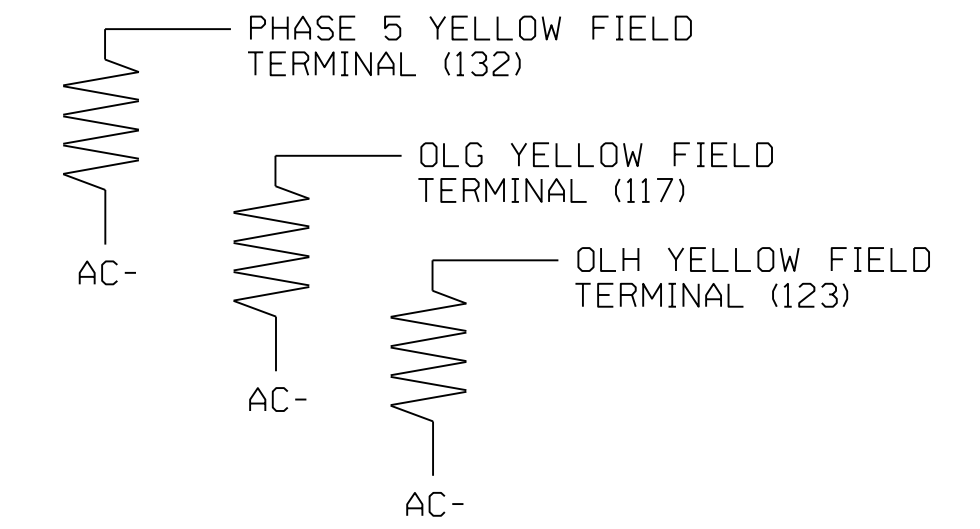
(wire signal heads as shown)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

Table with columns: VALUE (ohms), WATTAGE. Values: 1.5K - 1.9K (25W min), 2.0K - 3.0K (10W min).



SPECIAL DETECTOR NOTE

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

For Detection Zone 5A, the equipment placement and slots reserved for wired inputs are typical for a NCDOT installation.

Temporary Signal 3 - TCP Phase IV Electrical Detail - Sheet 1 of 2

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1243T3 DESIGNED: JANUARY 2022 SEALED: 1/5/2022 REVISED: N/A

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

SR 1102 (Gillis Hill Road) at Shopping Center Driveway. Division 6 Cumberland County Fayetteville. PLAN DATE: January 2022 REVIEWED BY: J. Reid. PREPARED BY: C. Evans

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED. SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027930 JONATHAN D. REID 2022.01.05 14:58:58-0500 DATE

ARCADIS 5420 Wade Park Boulevard Suite 350 Raleigh, NC 27607

05-JAN-2022 13:21 R:\IT\Projects\0615\0615.dwg\Drawings\Sheet\0615-243-sm.e (a.2022)0105.dgn CREVANS AT C:\J5693

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

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

Toggle to "Overlap G"

OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

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

Toggle once

OVERLAP H

Select TMG VEH OVLP [H] and 'NORMAL'

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

Toggle to "Overlap B"

OVERLAP B

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

| | |
|---|-----------|
| TMG VEH OVLP...[B] TYPE: | PPLT FYA |
| PROTECTED LEFT TURN.... | OVERLAP G |
| OPPOSING THROUGH..... | PHASE 6 |
| FLASHING ARROW OUTPUT.....CH10 ISOLATE | |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... 0 | |

Toggle Once

OVERLAP C

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

| | |
|---|----------|
| TMG VEH OVLP...[C] TYPE: | PPLT FYA |
| PROTECTED LEFT TURN.... | PHASE 5 |
| OPPOSING THROUGH..... | PHASE 6 |
| FLASHING ARROW OUTPUT.....CH11 ISOLATE | |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... 0 | |

Toggle Once

OVERLAP D

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

| | |
|---|-----------|
| TMG VEH OVLP...[D] TYPE: | PPLT FYA |
| PROTECTED LEFT TURN.... | OVERLAP H |
| OPPOSING THROUGH..... | PHASE 4 |
| FLASHING ARROW OUTPUT.....CH12 ISOLATE | |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... 0 | |

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switches S4 and S10 as OLG and OLH, program LD SWITCH 3 as OVLP '7' TYPE 'O' and LD SWITCH 7 as OVLP '8' TYPE 'O' as shown below.

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

Change LD SWITCH 3 from phase 3 to Overlap G →

Change LD SWITCH 7 from phase 7 to Overlap H →

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

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1243T3
DESIGNED: JANUARY 2022
SEALED: 1/5/2022
REVISED: N/A

Temporary Signal 3 - TCP Phase IV
Electrical Detail - Sheet 2 of 2

| | | |
|--|---|--|
| 5420 Wade Park Boulevard Suite 350 Raleigh, NC 27607 | Prepared for the Offices of: SR 1102 (Gillis Hill Road) at Shopping Center Driveway | SEAL SEAL 027930 JONATHAN D. REID ENGINEER |
| | Division 6 Cumberland County Fayetteville PLAN DATE: January 2022 REVIEWED BY: J. Reid PREPARED BY: C. Evans REVIEWED BY: | REVISIONS INIT. DATE _____ _____ _____ |

PHASING DIAGRAM

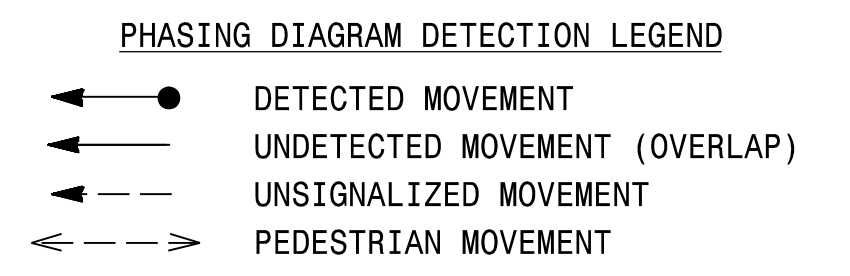
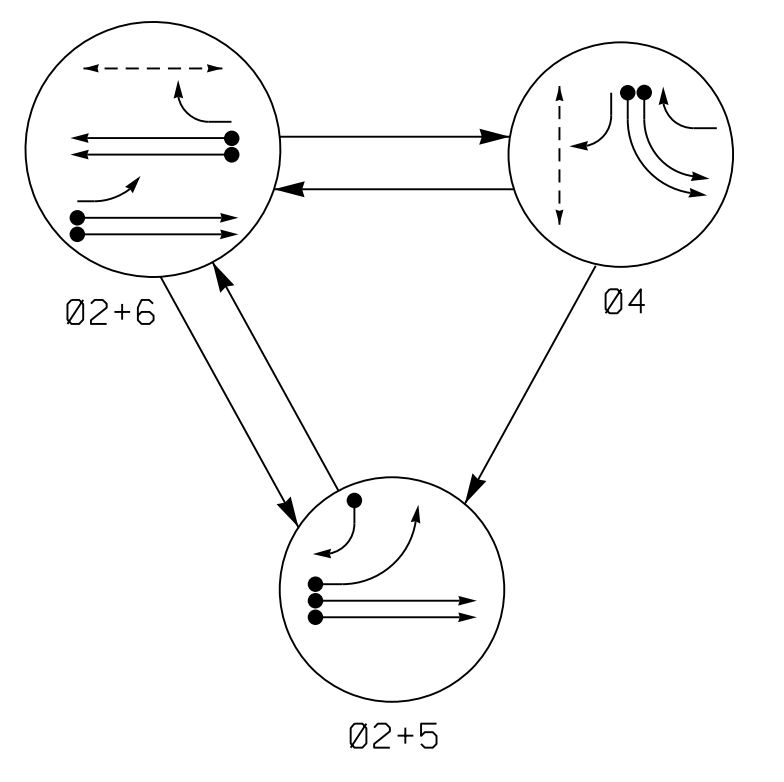
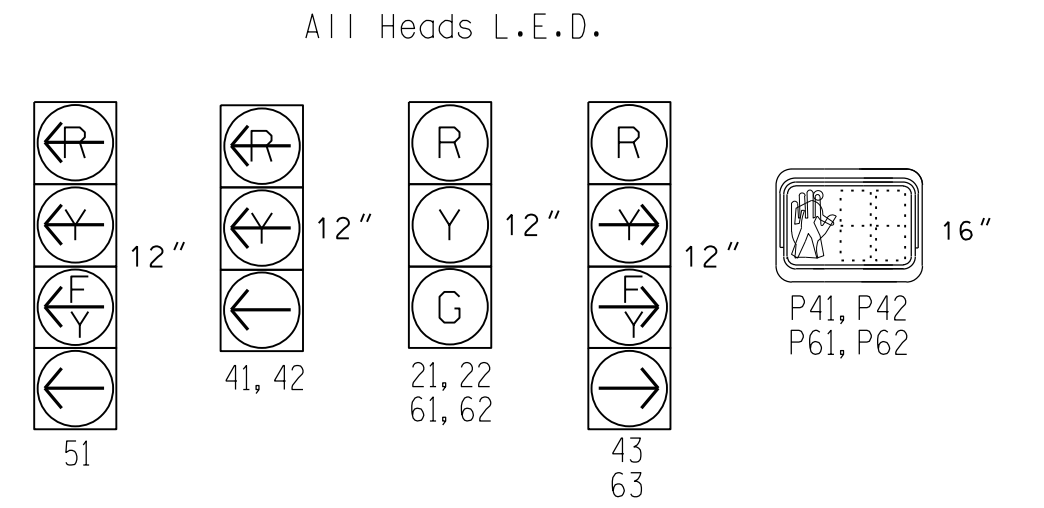


TABLE OF OPERATION

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

SIGNAL FACE I.D.



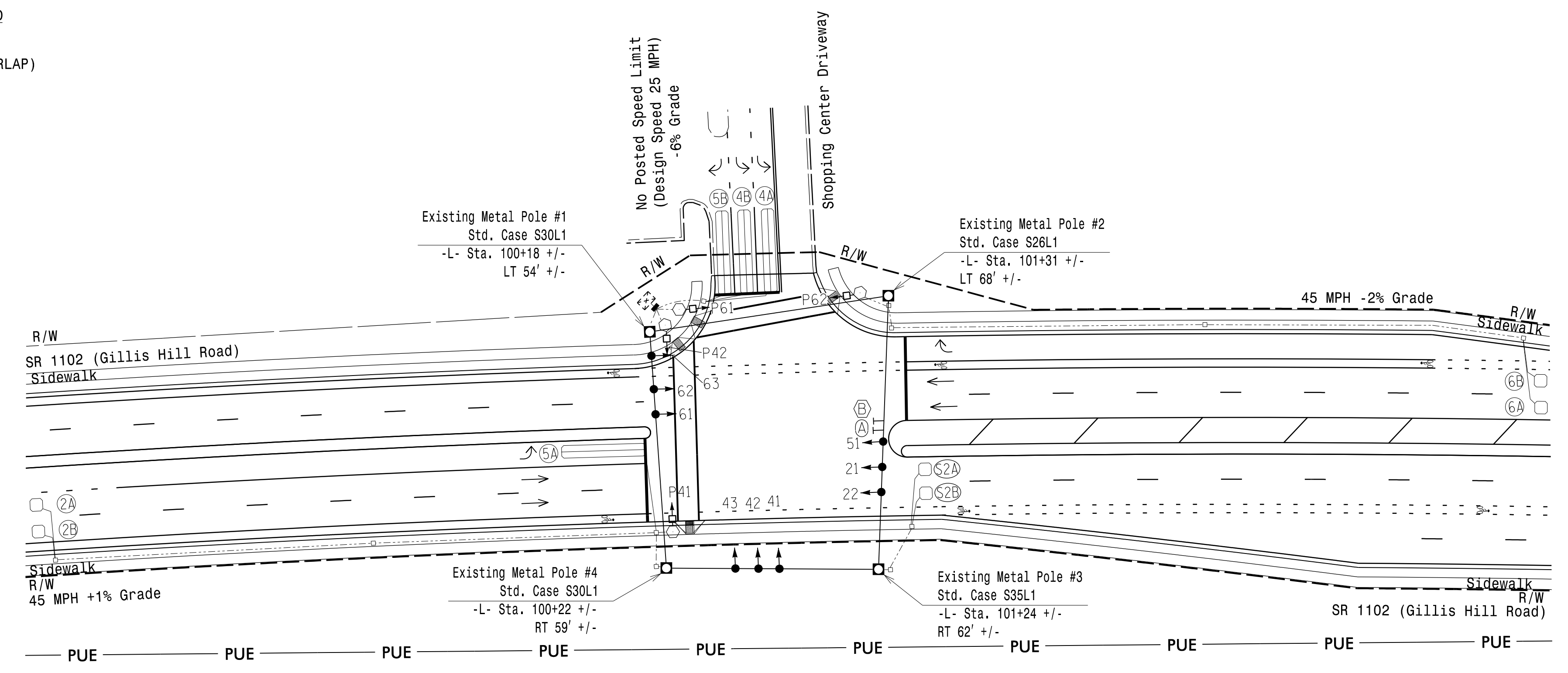
ASC/3 DETECTOR INSTALLATION CHART

| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PROGRAMMING | | | | | | | | |
|------|-----------|----------------------------|-------|----------|-------------|---------|-------------|------------|-------------------|------|-------------|----------|---|
| | | | | | PHASE | CALLING | EXTEND TIME | DELAY TIME | USE ADDED INITIAL | TYPE | SYSTEM LOOP | NEW CARD | |
| 2A | 6X6 | 300 | 5 | X | 2 | YES | - | - | - | X | N | - | X |
| 2B | 6X6 | 300 | 5 | X | 2 | YES | - | - | - | X | N | - | X |
| 4A | 6X40 | 0 | 2-4-2 | X | 4 | YES | - | 3 | - | - | N | - | X |
| 4B | 6X40 | 0 | 2-4-2 | X | 4 | YES | - | - | - | - | N | - | X |
| 5A | 6X40 | 0 | 2-4-2 | X | 5 | YES | - | 15 | - | - | N | - | X |
| 5B | 6X40 | 0 | 2-4-2 | X | 5 | YES | - | 15 | - | - | N | - | X |
| 6A | 6X6 | 300 | 5 | X | 6 | YES | - | - | - | X | N | - | X |
| 6B | 6X6 | 300 | 5 | X | 6 | YES | - | - | - | X | N | - | X |
| S2A | 6X6 | +125 | 4 | X | - | NO | - | - | - | - | N | X | X |
| S2B | 6X6 | +125 | 4 | X | - | NO | - | - | - | - | N | X | X |

3 Phase Fully Actuated Fayetteville Signal System

NOTES

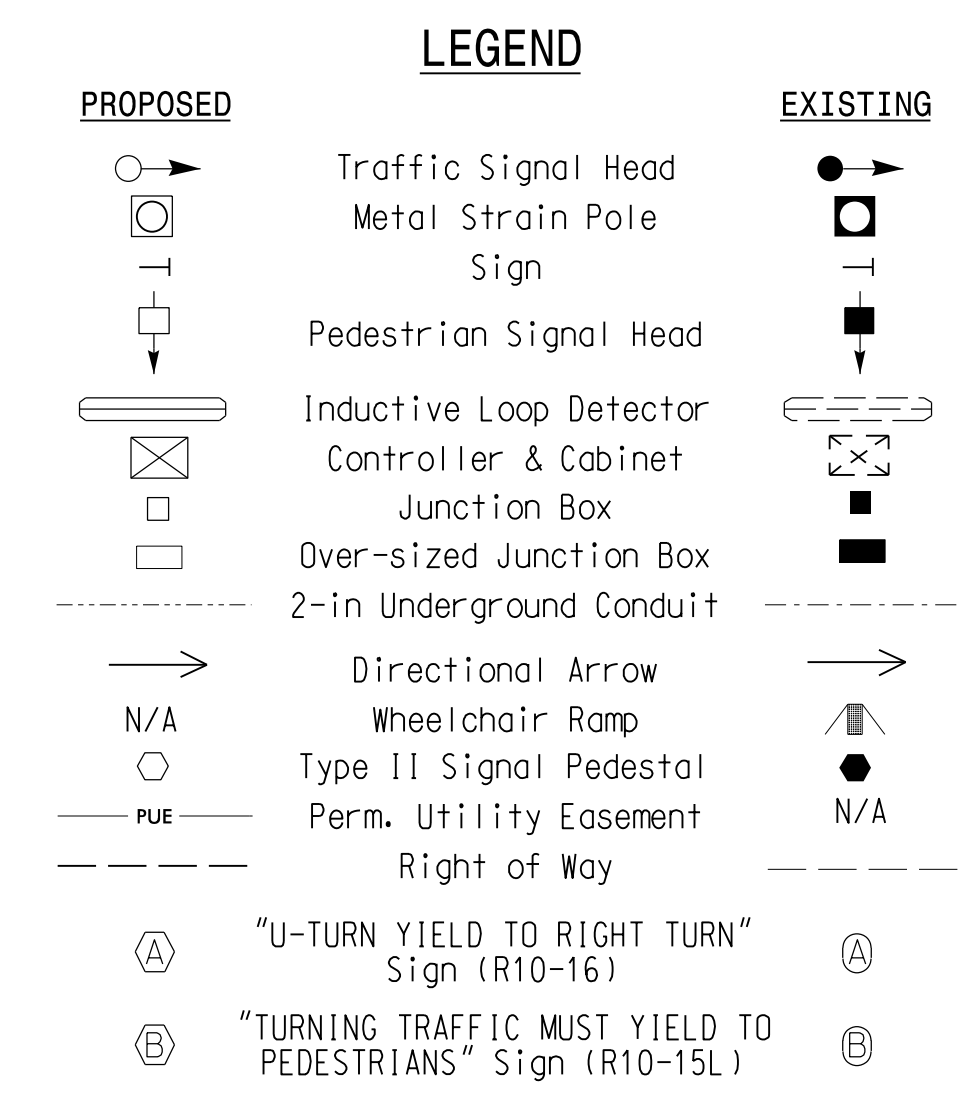
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- Reposition existing signal heads 21, 22, 51, 61, 62, 63 as shown.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Portions of crosswalk not shown for clarity.



ASC/3 TIMING CHART

| FEATURE | PHASE | | | |
|-------------------------|-------------|-----|-----|-------------|
| | 2 | 4 | 5 | 6 |
| Min Green * | 12 | 7 | 7 | 12 |
| Walk * | - | 7 | - | 7 |
| Ped Clear | - | 22 | - | 13 |
| Veh. Extension * | 6.0 | 2.0 | 2.0 | 6.0 |
| Max 1 * | 50 | 30 | 20 | 50 |
| Yellow | 4.7 | 3.1 | 3.0 | 4.7 |
| Red Clear | 1.8 | 3.3 | 3.1 | 1.8 |
| Actuations B4 Add * | 0 | - | - | 0 |
| Seconds / Actuation * | 1.8 | - | - | 1.8 |
| 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.



05-JAN-2022 13:05 R:\Projects\100150\100150.dwg Sheets\06\243.dwg den_20220105.dgn CREVANS AT C:\J5693

Signal Upgrade - Final

5420 Wade Park Boulevard
Suite 350
Raleigh, NC 27607

SR 1102 (Gillis Hill Road)
at
Shopping Center Driveway

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: J. Reid

PREPARED BY: C. Evans REVIEWED BY:

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

Jonathan D. Reid
2022.01.05
14:58:58-05'00"

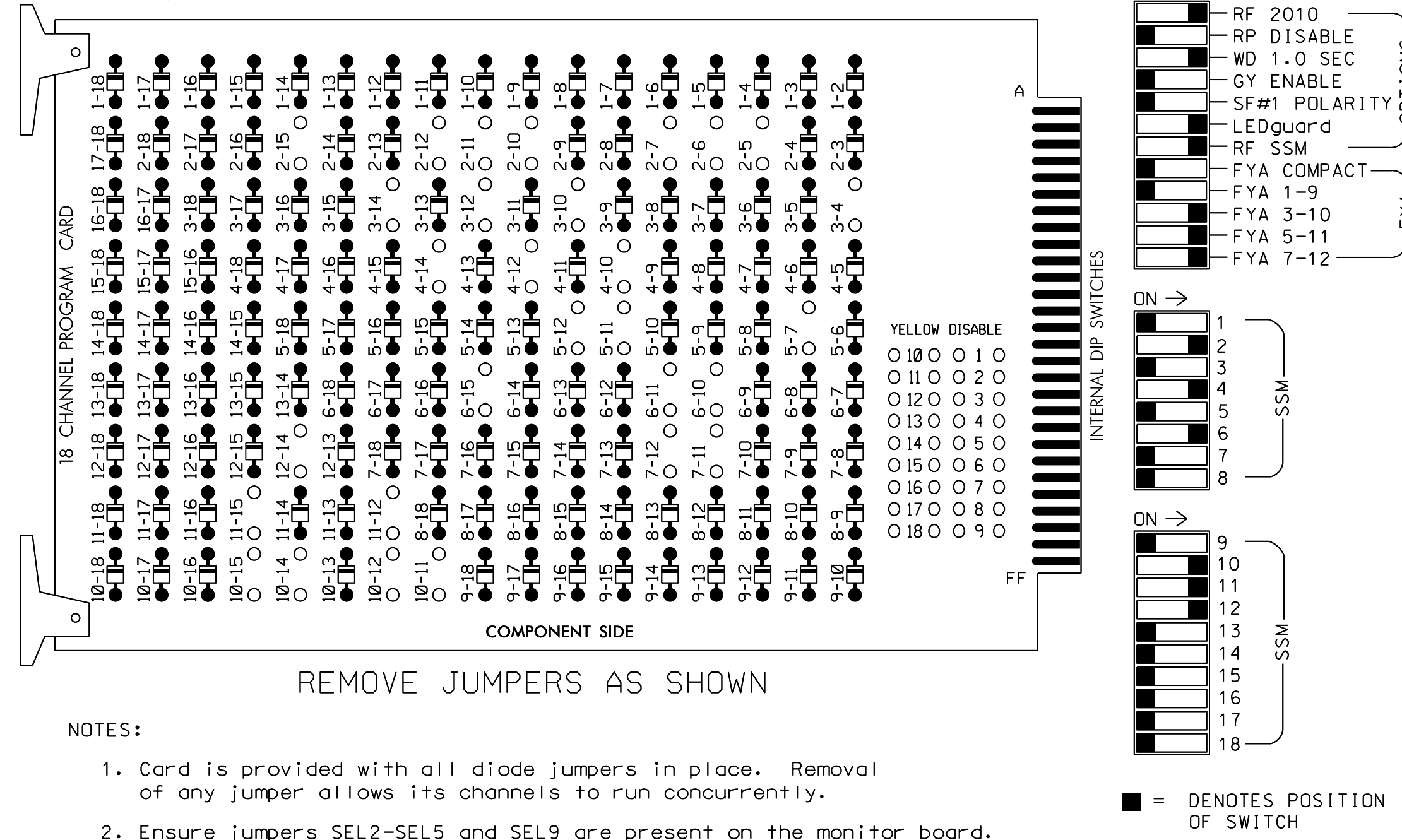
| REVISIONS | INIT. | DATE |
|-----------|-------|------|
| | | |

SCALE: 1" = 40'

EDI MODEL 2018EClip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

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



NOTES

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

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S4,S5,S6,S7,S8,S9,S10,
 AUX S2,AUX S4,AUX S5
 PHASES USED.....2,4,5,6,4PED,6PED
 OVERLAP "A".....NOT USED
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 OVERLAP "E".....NOT USED
 OVERLAP "F".....NOT USED
 OVERLAP "G".....*
 OVERLAP "H".....*
 * 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 | OLG | 4 | 4 PED | 5 | 6 | 6 PED | DLH | 8 | 8 PED | OLA | OLB | SPARE | OLC | OLD | SPARE |
| SIGNAL HEAD NO. | NU | 21,22 | NU | 63 | 41,42 | P41, P42 | 51 | 61,62 | P61, P62 | 43 | NU | NU | NU | 63 | 51 | 43 | NU | NU |
| RED | | 128 | | | | | | 134 | | | | | | A124 | | | A101 | |
| YELLOW | | 129 | | * | | | * | 135 | | * | | | | | | | | |
| GREEN | | 130 | | | | | | 136 | | | | | | | | | | |
| RED ARROW | | | | | 101 | | | | | | | | | | | | A114 | |
| YELLOW ARROW | | | | | 102 | | | | | | | | | A125 | | A115 | A102 | |
| FLASHING YELLOW ARROW | | | | | | | | | | | | | A126 | | A116 | A103 | | |
| GREEN ARROW | | | | 118 | 103 | | 133 | | | 124 | | | | | | | | |
| Hand Icon | | | | | | | 104 | | | 119 | | | | | | | | |
| Walking Icon | | | | | | | 106 | | | 121 | | | | | | | | |

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

INPUT FILE POSITION LAYOUT (front view)

| FILE | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|------|-----|-----|-----|-----|-----|---|---|---------------|---|----|----------|-------------|-------------|----|
| U | S | ∅ 2 | ∅ 2 | ∅ 4 | ∅ 4 | S | S | SYS. DET. S2A | S | S | NOT USED | ∅ 6 PED | FS | |
| L | T | 2A | 2B | 4A | 4B | T | T | SYS. DET. S2B | T | T | ∅ 4 PED | DC ISOLATOR | DC ISOLATOR | |
| U | ∅ 5 | ∅ 5 | ∅ 6 | ∅ 6 | ∅ 6 | S | S | S | S | S | S | S | S | S |
| L | 5A | 5B | 6A | 6B | 6B | T | T | T | T | T | T | T | T | T |

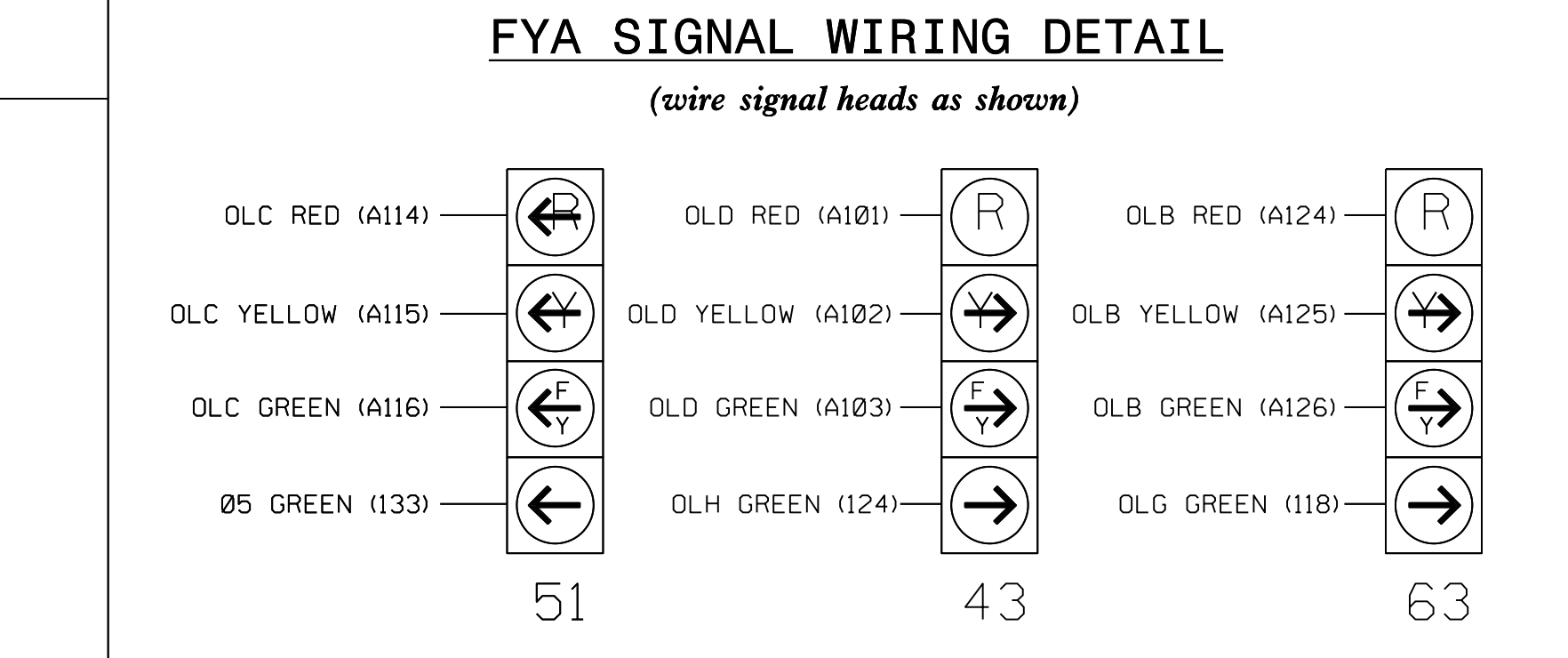
EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

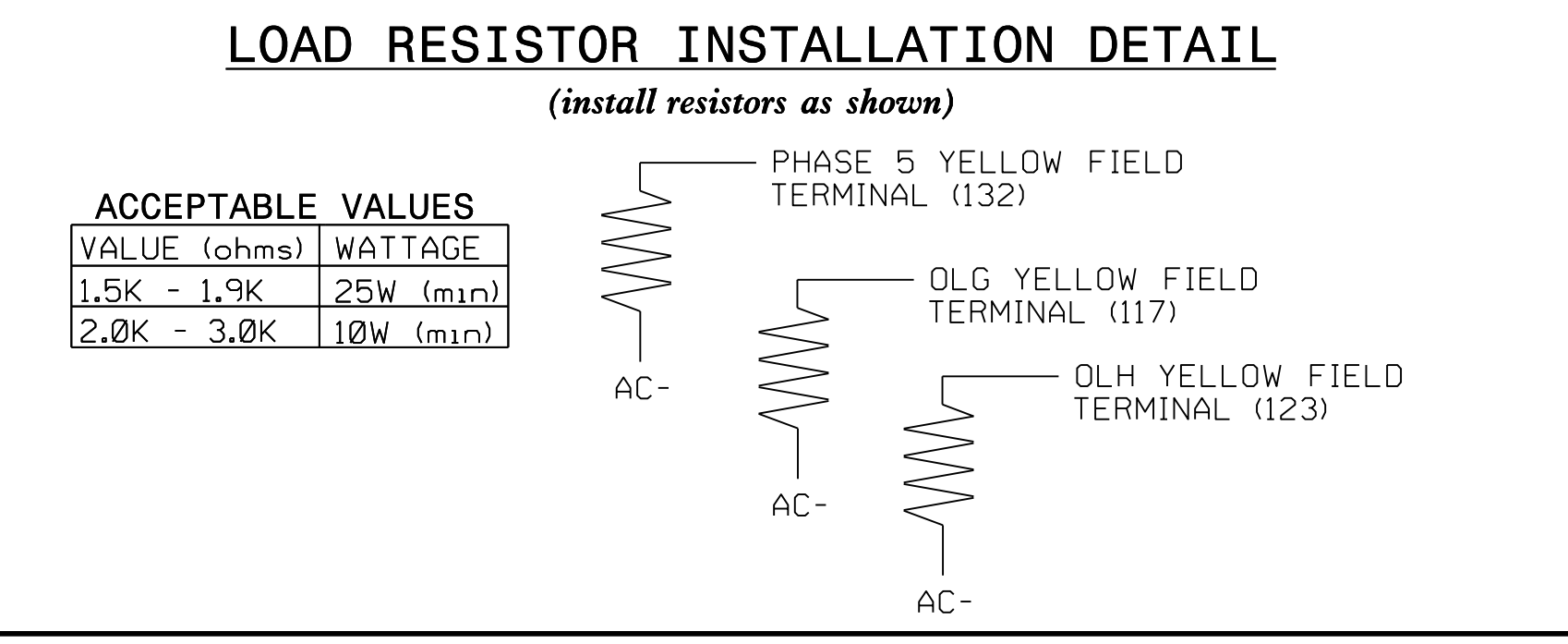
| LOOP NO. | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|------------------|---------------|-----------------|---------|--------------|------------|-------|-------------|------------|---------------|---------------|
| 2A | TB2-5,6 | I2U | 39 | 2 | 2 | YES | | | X | N |
| 2B | TB2-7,8 | I2L | 43 | 12 | 2 | YES | | | X | N |
| 4A | TB4-9,10 | I6U | 41 | 4 | 4 | YES | | 3 | | N |
| 4B | TB4-11,12 | I6L | 45 | 14 | 4 | YES | | | | N |
| *S2A | TB6-9,10 | I9U | 60 | 11 | SYS | NO | | | | N |
| *S2B | TB6-11,12 | I9L | 62 | 13 | SYS | NO | | | | N |
| 5A | TB3-1,2 | J1U | 55 | 5 | 5 | YES | | 15 | | N |
| | | I4U | 47 | 22 | 2 | YES | | 3 | | G |
| 5B | TB3-5,6 | J2U | 40 | 6 | 5 | YES | | 15 | | N |
| 6A | TB3-9,10 | J3U | 64 | 36 | 6 | YES | | | X | N |
| 6B | TB3-11,12 | J3L | 77 | 46 | 6 | YES | | | X | N |
| PED PUSH BUTTONS | | | | | | | | | | |
| P41,P42 | TB8-5,6 | I12L | 69 | 31 | PED 4 | 4 PED | | | | |
| P61,P62 | TB8-7,9 | I13U | 68 | 30 | PED 6 | 6 PED | | | | |

INPUT FILE POSITION LEGEND: J2L
 FILE J
 SLOT 2
 LOWER

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1243
 DESIGNED: JANUARY 2022
 SEALED: 1/5/2022
 REVISED: N/A



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

Final Signal Upgrade
 Electrical Detail - Sheet 1 of 2

ARCADIS
 5420 Wade Park Boulevard, Suite 350, Raleigh, NC 27607

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SR 1102 (Gillis Hill Road) at Shopping Center Driveway

Division 6 Cumberland County Fayetteville

PLANNING AND PROGRAMMING DETAILS FOR:

PREPARED BY: C. Evans
 REVISIONS: _____ INIT. DATE: _____

REVIEWED BY: J. Reid
 REVISIONS: _____ INIT. DATE: _____

SEALED: 027930
 JONATHAN D. REID, ENGINEER
 2022.01.05 14:58:58-0500

SIG. INVENTORY NO. 06-1243

05-JAN-2022 13:22
 R:\P\F\Projects\Signal\Drawings\Sheets\06-1243_sml.eia.20220105.dgn
 CREVANS AT C:\J5693

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

1. From Main Menu select 2. CONTROLLER
 2. From CONTROLLER Submenu select 2. VEHICLE OVERLAPS
- Toggle to "Overlap G"

OVERLAP G

Select TMG VEH OVLP [G] and 'NORMAL'

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

Toggle once

OVERLAP H

Select TMG VEH OVLP [H] and 'NORMAL'

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

Toggle to "Overlap B"

OVERLAP B

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

| | |
|---|--------------|
| TMG VEH OVLP...[B] TYPE: | PPLT FYA |
| PROTECTED LEFT TURN.... | OVERLAP G |
| OPPOSING THROUGH..... | PHASE 6 |
| FLASHING ARROW OUTPUT..... | CH10 ISOLATE |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... | 0 |

Toggle Once

OVERLAP C

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

| | |
|---|--------------|
| TMG VEH OVLP...[C] TYPE: | PPLT FYA |
| PROTECTED LEFT TURN.... | PHASE 5 |
| OPPOSING THROUGH..... | PHASE 6 |
| FLASHING ARROW OUTPUT..... | CH11 ISOLATE |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... | 0 |

Toggle Once

OVERLAP D

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

| | |
|---|--------------|
| TMG VEH OVLP...[D] TYPE: | PPLT FYA |
| PROTECTED LEFT TURN.... | OVERLAP H |
| OPPOSING THROUGH..... | PHASE 4 |
| FLASHING ARROW OUTPUT..... | CH12 ISOLATE |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... | 0 |

ECONOLITE ASC/3-2070 LOAD SWITCH ASSIGNMENT DETAIL

(program controller as shown)

To assign load switches S4 and S10 as OLG and OLH, program LD SWITCH 3 as OVLP '7' TYPE 'O' and LD SWITCH 7 as OVLP '8' TYPE 'O' as shown below.

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

Change LD SWITCH 3 from phase 3 to Overlap G →

Change LD SWITCH 7 from phase 7 to Overlap H →

| 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 | 8 | O | . . . - A R . |
| 8 | 8 | V | . . . - A R X |
| 9 | 1 | O | . . . + A R X |
| 10 | 2 | O | . . . + A Y X |
| 11 | 3 | O | . . . - A Y . |
| 12 | 4 | O | . . . - A R . |
| 13 | 2 | P | . . . + A . . |
| 14 | 4 | P | . . . - A . . |
| 15 | 6 | P | . . . + A . . |
| 16 | 8 | P | . . . - A . . |

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-1243
DESIGNED: JANUARY 2022
SEALED: 1/5/2022
REVISED: N/A

Final Signal Upgrade
Electrical Detail - Sheet 2 of 2



ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

 TRANSPORTATION, Mobility and Safety Division
 STATE OF NORTH CAROLINA
 Department of Transportation

750 N. Greenfield Pkwy, Garner, NC 27529

| | |
|--|----------------------|
| SR 1102 (Gillis Hill Road) at Shopping Center Driveway | |
| Division 6 | Cumberland County |
| Fayetteville | |
| PLAN DATE: January 2022 | REVIEWED BY: J. Reid |
| PREPARED BY: C. Evans | REVIEWED BY: |
| REVISIONS | INIT. DATE |
| | |
| | |

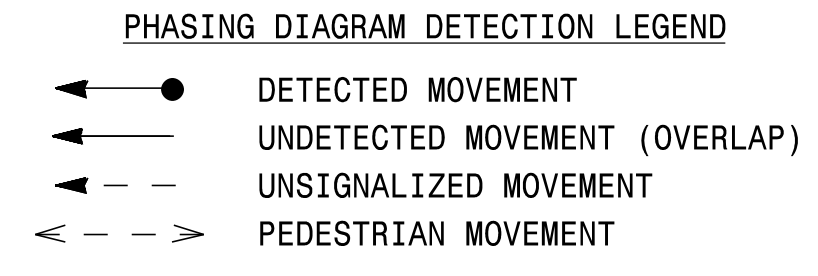
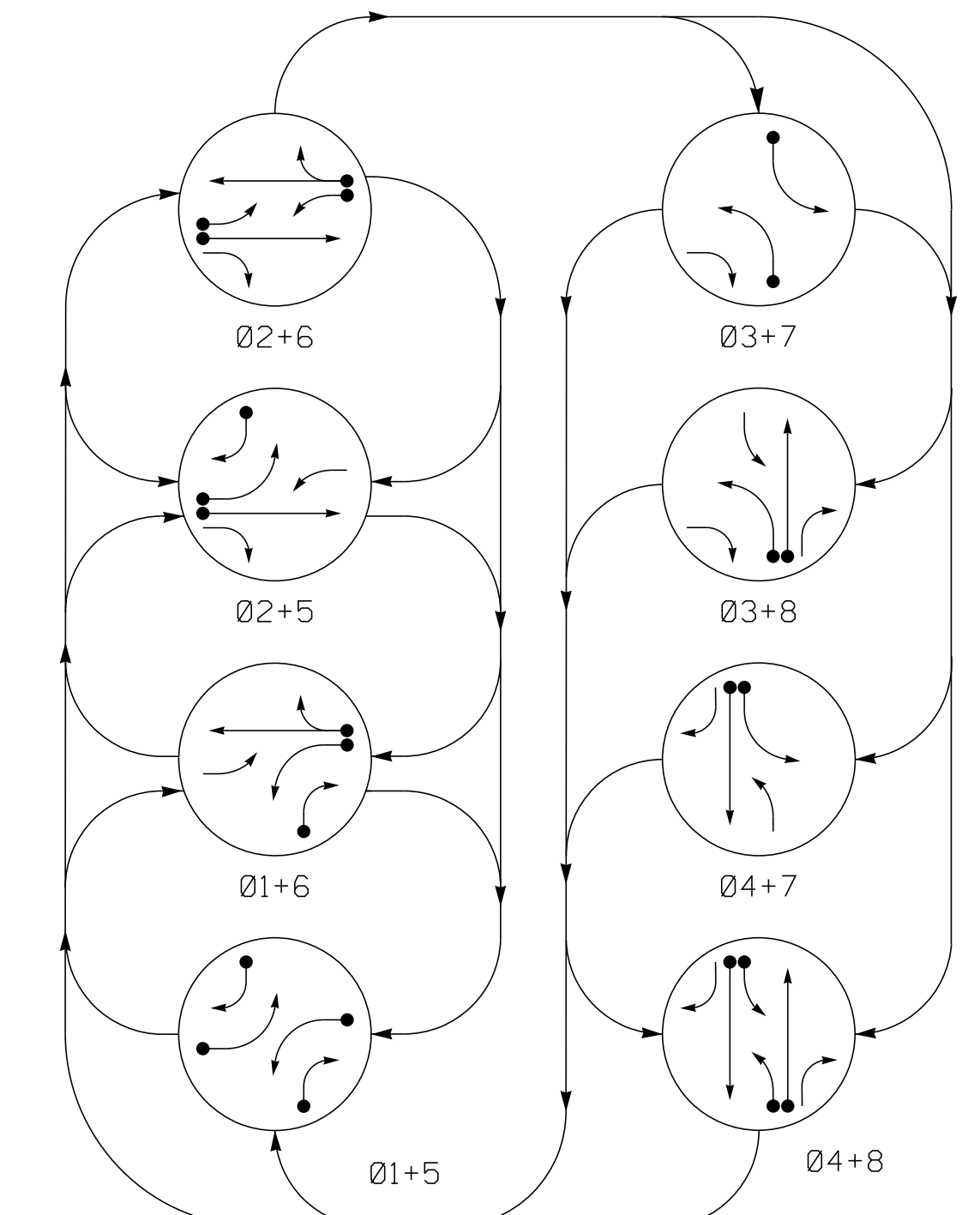
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
JONATHAN D. REID
027930

Jonathan D. Reid 2022.01.05
14:58:58-0500
DATE

SIG. INVENTORY NO. 06-1243

PHASING DIAGRAM



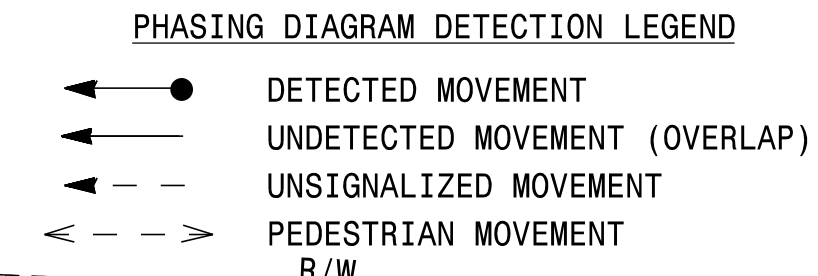
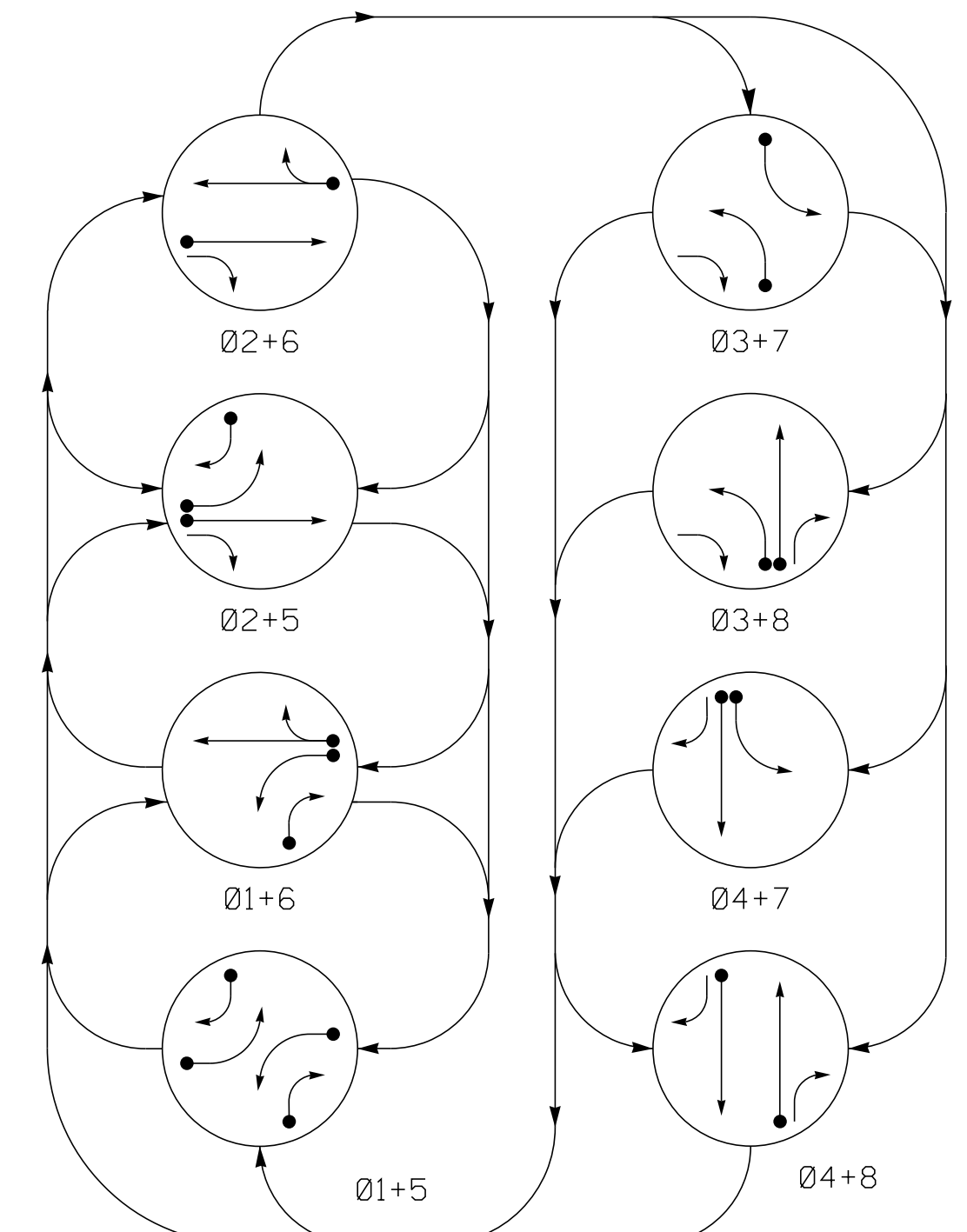
DEFAULT TABLE OF OPERATION

Table with columns for Signal Face and Phase (0-8, Flash), showing traffic signal configurations.

ALTERNATE TABLE OF OPERATION

Table with columns for Signal Face and Phase (0-8, Flash), showing alternate traffic signal configurations.

ALTERNATE PHASING DIAGRAM

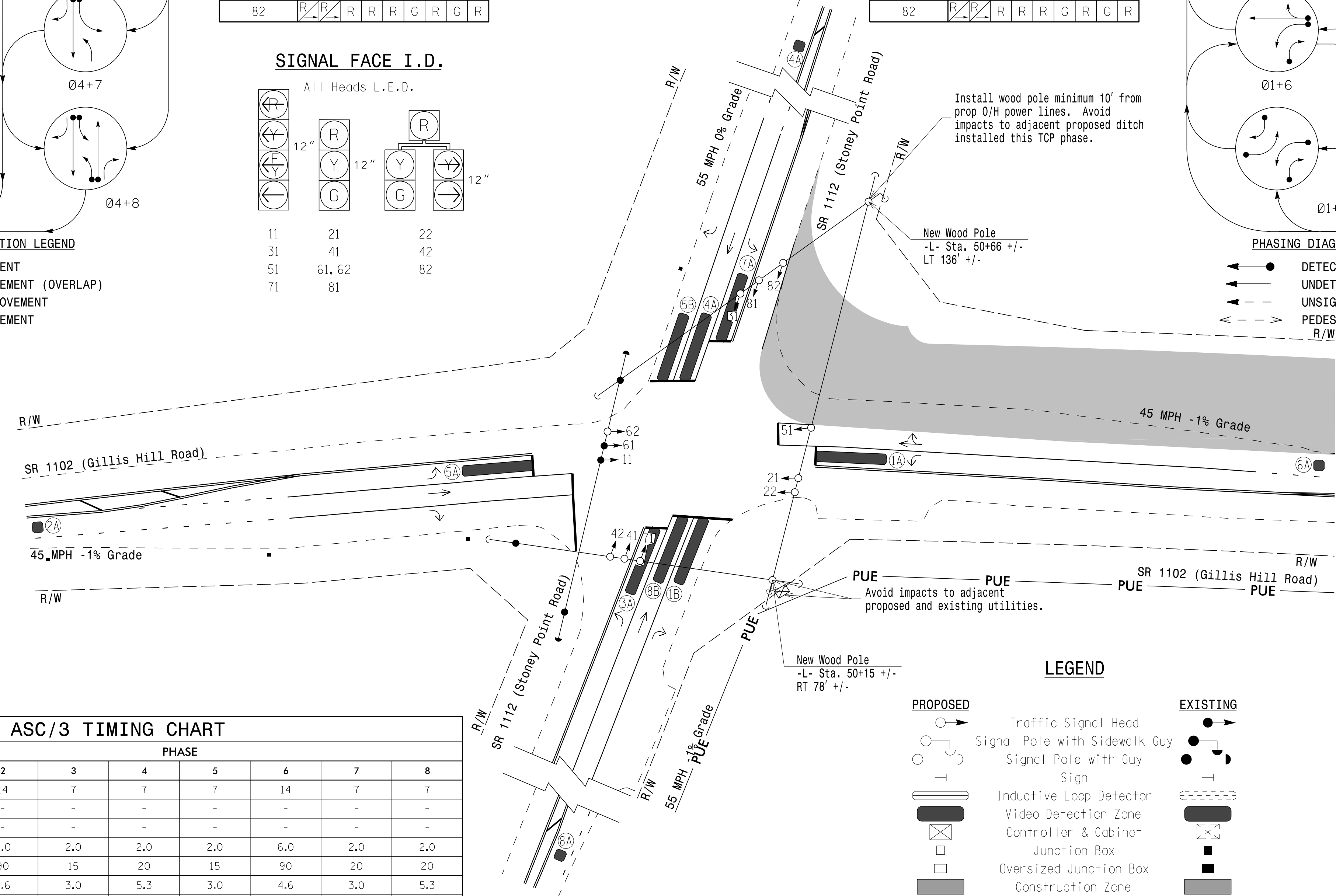
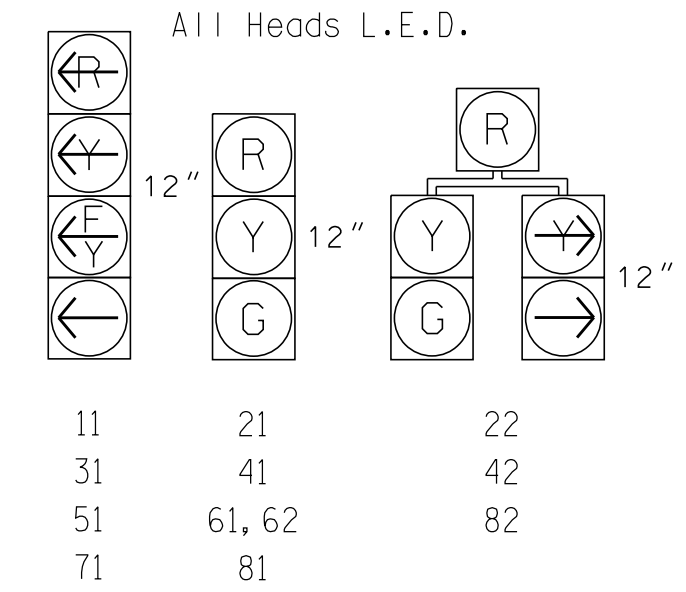


8 Phase Fully Actuated Fayetteville Signal System

NOTES

- List of 10 notes providing technical specifications and instructions for the signal system installation and operation.

SIGNAL FACE I.D.



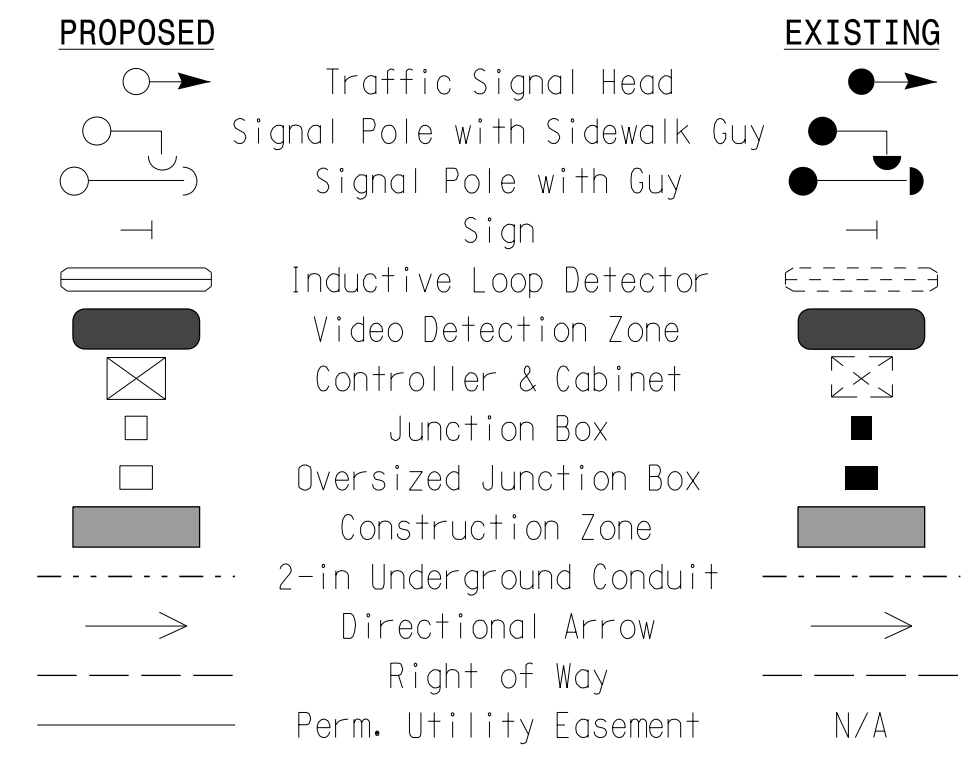
ASC/3 DETECTOR INSTALLATION CHART

Table detailing detector installation parameters including Loop, Size, Distance from Stopbar, Turns, New Loop, Phase, Calling, Extend Time, Delay Time, Used Added Initial, Type, System Loop, and New Card.

ASC/3 TIMING CHART

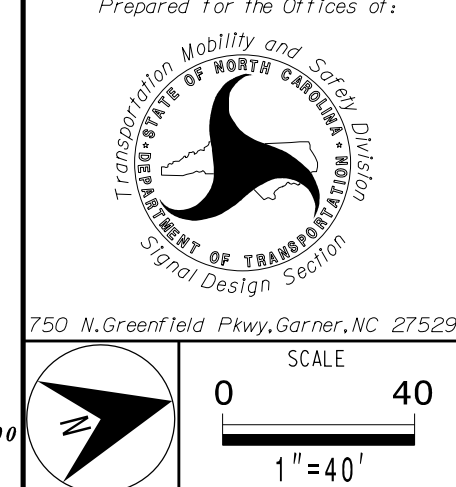
Table detailing timing parameters for each phase, including Min Green, Walk, Ped Clear, Veh. Extension, Max 1, Yellow, Red Clear, Actuations B4 Add, Seconds / Actuation, Max Initial, Time Before Reduction, Time To Reduce, Minimum Gap, Locking Detector, Recall Position, Dual Entry, and Simultaneous Gap.

LEGEND



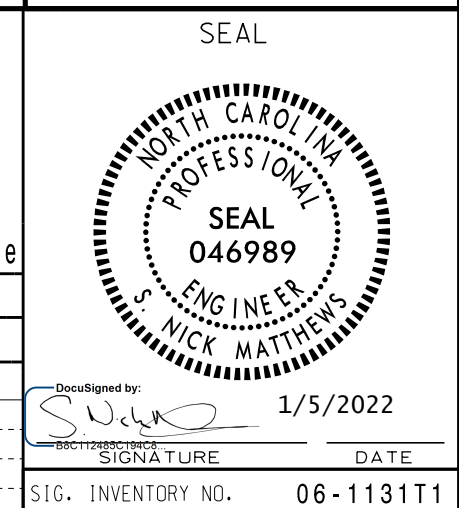
* Video Detection Zone + Reduce to 3 sec during Alt Phasing Ops @ Disable calling during Alt Phasing Ops

Temporary Signal 1 - TCP Phase II



Project information including location (SR 1102 at SR 1112), date (January 2022), and preparer (S. N. Matthews).

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETE



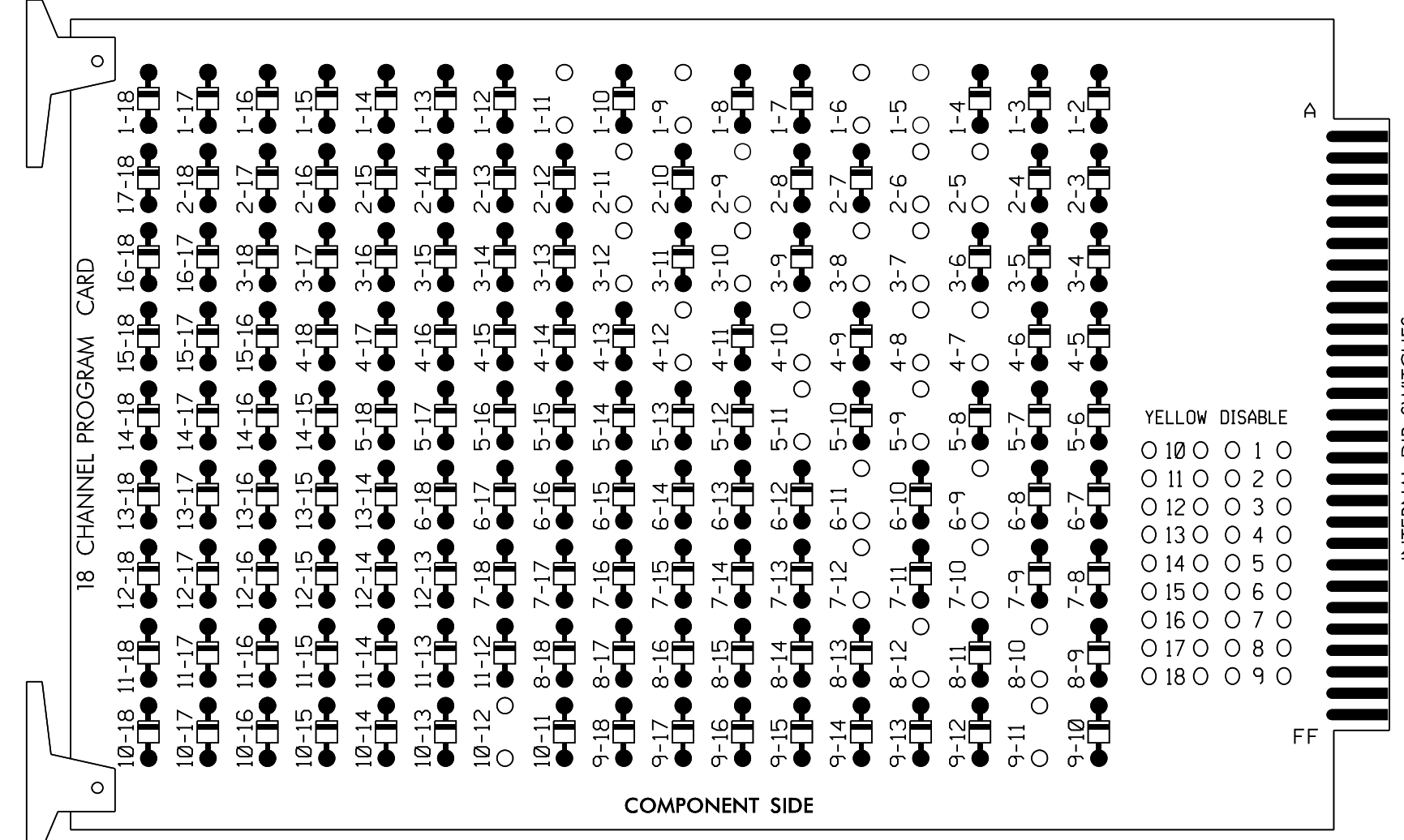
Vertical text on the left margin containing drawing file names and dates.

* 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.

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:

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

■ = DENOTES POSITION OF SWITCH

NOTES

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

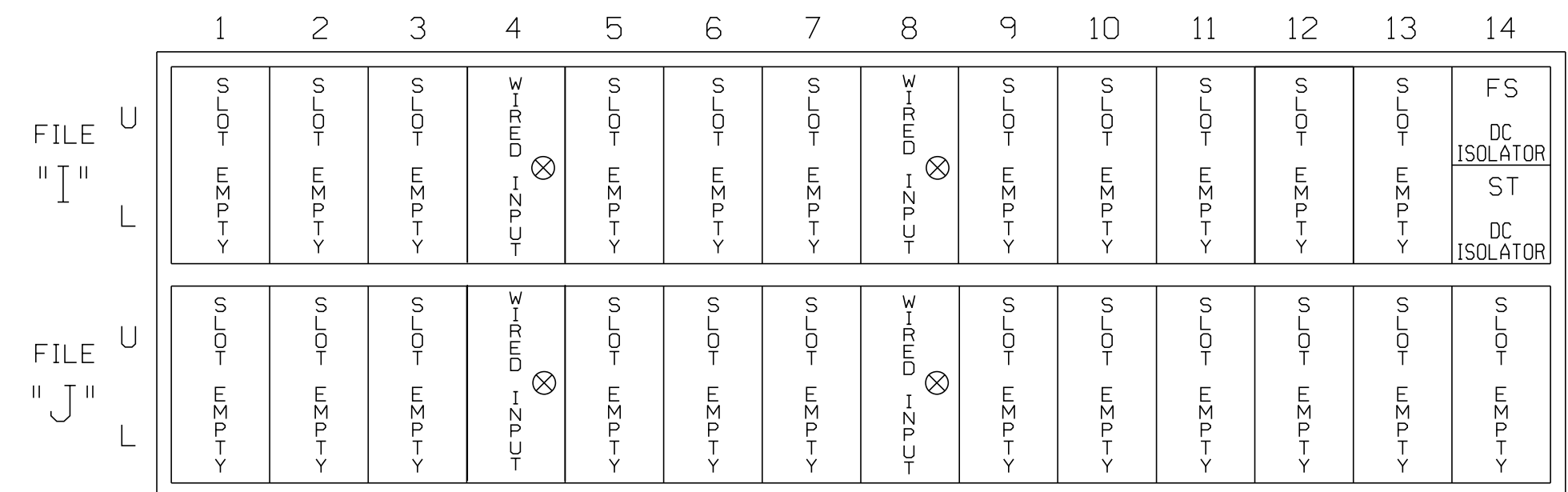
Table with columns for Load Switch No., CMU Channel No., Phase, Signal Head No., and various signal colors (RED, YELLOW, GREEN, RED ARROW, YELLOW ARROW, FLASHING YELLOW ARROW, GREEN ARROW) mapped to switch numbers S1-S10 and AUX 1-6.

NU = Not Used

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

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME

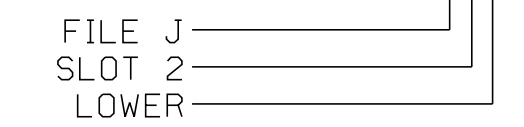
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

Table with columns: LOOP NO., LOOP TERMINAL, INPUT FILE POS., PIN NO., DETECTOR NO., NEMA PHASE, CALL, EXTEND TIME, DELAY TIME, ADDED INITIAL, DETECTOR TYPE. Lists loops 1A, 3A, 5A, 7A with their respective configurations.

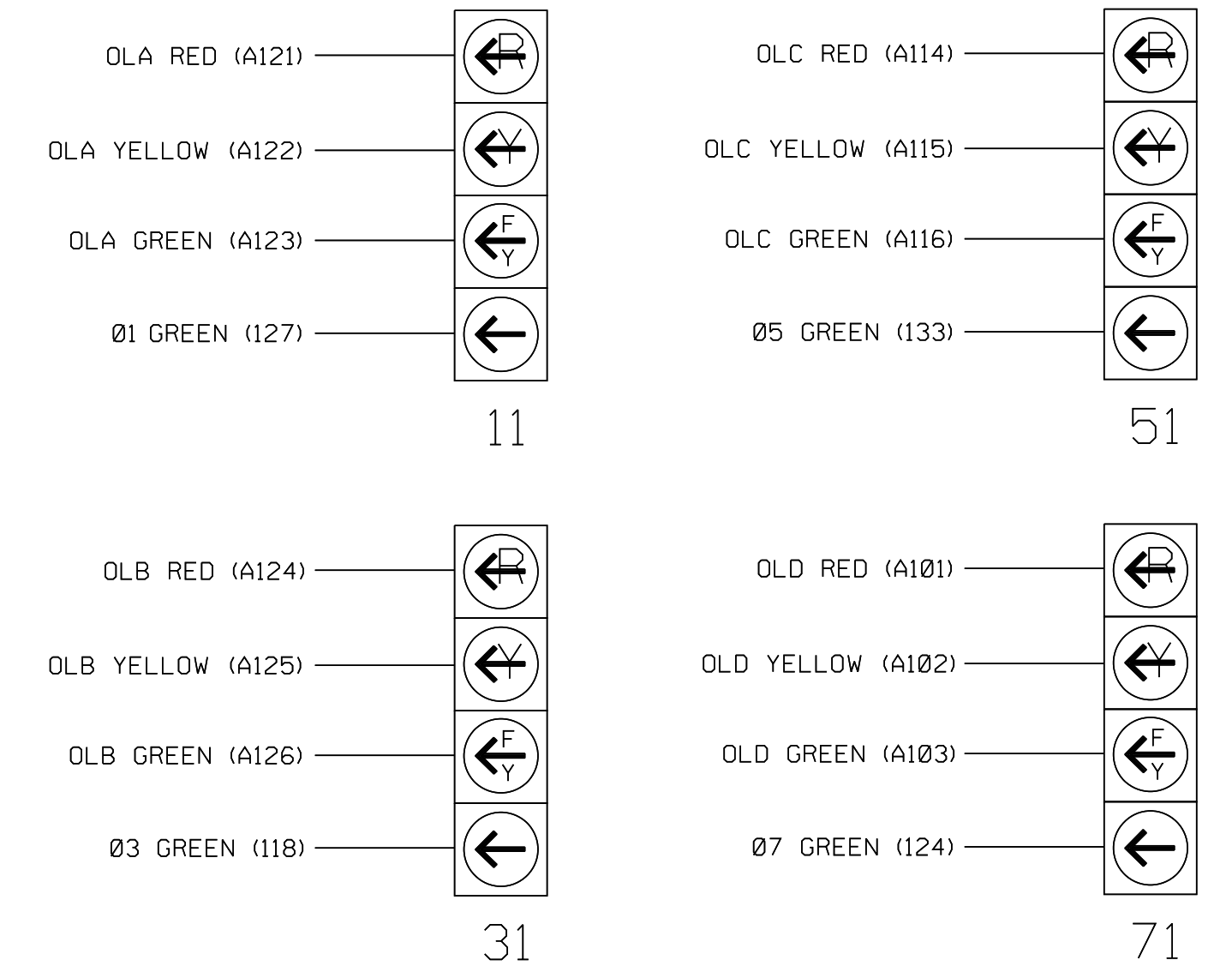
- 1. Add jumper from I1-W to J4-W, on rear of input file.
2. Add jumper from I5-W to J8-W, on rear of input file.
3. Add jumper from J1-W to I4-W, on rear of input file.
4. Add jumper from J5-W to I8-W, on rear of input file.

* See vehicle detector setup programming detail for alternate phasing on sheet 3. INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

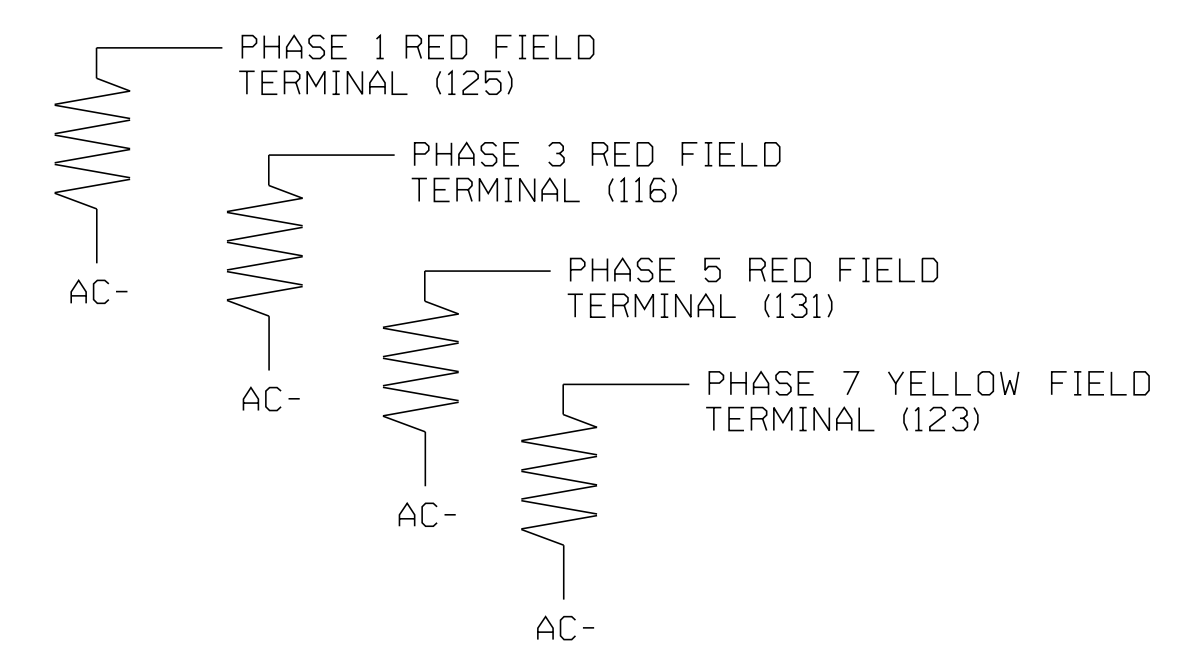
(wire signal heads as shown)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

Table with columns: VALUE (ohms), WATTAGE. Values: 1.5K - 1.9K (25W min), 2.0K - 3.0K (10W min).



SPECIAL DETECTOR NOTE

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

For Detection Zones 1A, 3A, 5A and 7A, the equipment placement and slots reserved for wired inputs are typical for a NCDOT installation.



Temporary Signal 1 - TCP Phase II Electrical Detail - Sheet 1 of 4. Includes project details, revision table, and professional engineer seal for Steven G. Haynie, License No. 029531.

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..... | 1 |

NOTICE ACTION
PLAN SF BIT "1"

Toggle Once

OVERLAP B

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

| | |
|--|---------|
| TMG VEH OVLP...[B] TYPE: PPLT FYA | |
| PROTECTED LEFT TURN.... | PHASE 3 |
| OPPOSING THROUGH..... | PHASE 4 |
| FLASHING ARROW OUTPUT.....CH10 ISOLATE | |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... | 3 |

NOTICE ACTION
PLAN SF BIT "3"

Toggle Once

OVERLAP C

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

| | |
|--|---------|
| TMG VEH OVLP...[C] TYPE: PPLT FYA | |
| PROTECTED LEFT TURN.... | PHASE 5 |
| OPPOSING THROUGH..... | PHASE 6 |
| FLASHING ARROW OUTPUT.....CH11 ISOLATE | |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... | 5 |

NOTICE ACTION
PLAN SF BIT "5"

Toggle Once

OVERLAP D

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

| | |
|--|---------|
| TMG VEH OVLP...[D] TYPE: PPLT FYA | |
| PROTECTED LEFT TURN.... | PHASE 7 |
| OPPOSING THROUGH..... | PHASE 8 |
| FLASHING ARROW OUTPUT.....CH12 ISOLATE | |
| DELAY START OF: FYA..0.0 CLEARANCE..0.0 | |
| ACTION PLAN SF BIT DISABLE..... | 7 |

NOTICE ACTION
PLAN SF BIT "7"

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 06-1131T1
DESIGNED: January 2022
SEALED: 1/5/2022
REVISED: N/A

Temporary Signal 1 - TCP Phase II Electrical Detail - Sheet 2 of 4

| <p>ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="text-align: center;"><i>Prepared for the Offices of:</i></p> <p style="text-align: center;">RS&H NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100</p> | <p>SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road)</p> <p>Division 6 Cumberland County Fayetteville</p> <p>PLAN DATE: January 2022 REVIEWED BY: V. Kaiser</p> <p>PREPARED BY: S.G. Haynie REVIEWED BY: _____</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> | REVISIONS | INIT. | DATE | | | | | | | <p style="text-align: center;">SEAL</p> <p style="text-align: center;">SEAL 029531 ENGINEER STEVEN G. HAYNIE</p> <p style="text-align: center;">1/5/2022</p> <p style="text-align: center;">SIGNATURE DATE</p> <p style="text-align: center;">SIG. INVENTORY NO. 06-1131T1</p> |
|--|---|-----------|-------|------|--|--|--|--|--|--|--|
| REVISIONS | INIT. | DATE | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A, 5A, 3A, 7A

(program controller as shown)

IMPORTANT!

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

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

```

COPY / CLEAR UTILITY
FROM          TO
PHASE TIMING... > PHASE TIMING...
TIMING PLAN... > TIMING PLAN...
PH DET OPT PLAN. > PH DET OPT PLAN.
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
TOGGLE TO SELECT A "FROM" AND A "TO"
THEN PRESS ENTER
  
```

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

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".

```

VEH DETECTOR [ 1 ]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
1 1
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

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

```

VEH DETECTOR [26]  VEH DET PLAN [ 2 ]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
26 0
EXTEND TIME... 0.0 DELAY TIME... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".

```

VEH DETECTOR [ 5 ]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
5 5
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

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

```

VEH DETECTOR [22]  VEH DET PLAN [ 2 ]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
22 0
EXTEND TIME... 0.0 DELAY TIME... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "3".
- Set delay time to "3".

```

VEH DETECTOR [ 3 ]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
3 3
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "28".
- Set assigned phase to "0".

```

VEH DETECTOR [28]  VEH DET PLAN [ 2 ]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
28 0
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
  
```

- Place cursor in VEH DETECTOR [] position and enter "7".
- Set delay time to "3".

```

VEH DETECTOR [ 7 ]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
7 7
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "24".
- Set assigned phase to "0".

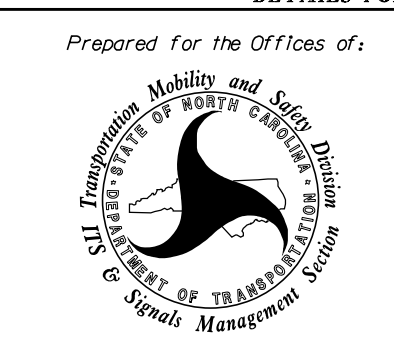
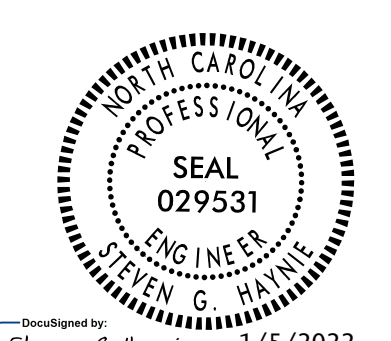
```

VEH DETECTOR [24]  VEH DET PLAN [ 2 ]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
24 0
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: 06-1131T1
DESIGNED: January 2022
SEALED: 1/5/2022
REVISED: N/A

Temporary Signal 1 - TCP Phase II
Electrical Detail - Sheet 3 of 4

| | | | |
|---|------------------------|---|--------------|
| ELECTRICAL AND PROGRAMMING DETAILS FOR: | | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) | |
| Prepared for the Offices of: | | Division 6 Cumberland County Fayetteville | |
|  | |  | |
| PLAN DATE: January 2022 | REVIEWED BY: V. Kaiser | PREPARED BY: S.G. Haynie | REVIEWED BY: |
| REVISIONS | INIT. | DATE | |
| | | | |



750 N. Greenfield Pkwy, Garner, NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
SEAL 029531
SIGNATURE: Steven G. Haynie
DATE: 1/5/2022
SIGNATURE: _____
DATE: _____
SIG. INVENTORY NO. 06-1131T1

04-Jan-22 15:11:45
 R:\Projects\06-1131T1\06-1131T1-03.dgn
 Submit to: 06-1131T1-03.dgn
 15:11:45

ECONOLITE ASC/3-2070 ACTION PLAN PROGRAMMING DETAIL

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN. SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1, 3, 5, and 7.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1, 3, 5, and 7.

| PHASING | VEH DET PLAN | SF BITS ENABLED |
|--|--------------|-----------------|
| ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u> | 1 | NONE |
| ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u> | 2 | 1, 3, 5, 7 |

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

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN SF BITS 1, 3, 5, AND 7 AND VEH DET PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

SF BITS 1,3,5,7: Modifies overlap parent phases for heads 11, 31, 51, and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 3 seconds.

Disables phase 8 call on loop 3A and reduces delay time for phase 3 call on loop 3A to 3 seconds.

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

Disables phase 4 call on loop 7A and reduces delay time for phase 7 call on loop 7A to 3 seconds.

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

```

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

```

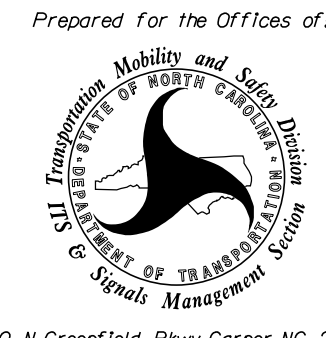
THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-113111
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 1 - TCP Phase II
Electrical Detail - Sheet 4 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

SR 1102 (Gillis Hill Road)
at
SR 1112 (Stoney Point Road)

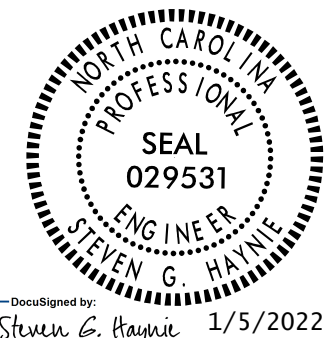
Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: V. Kaiser

PREPARED BY: S.G. Haynie REVIEWED BY:

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

SEAL



SEAL 029531

ENGINEER STEVEN G. HAYNIE

SIGNATURE: Steven G. Haynie DATE: 1/5/2022

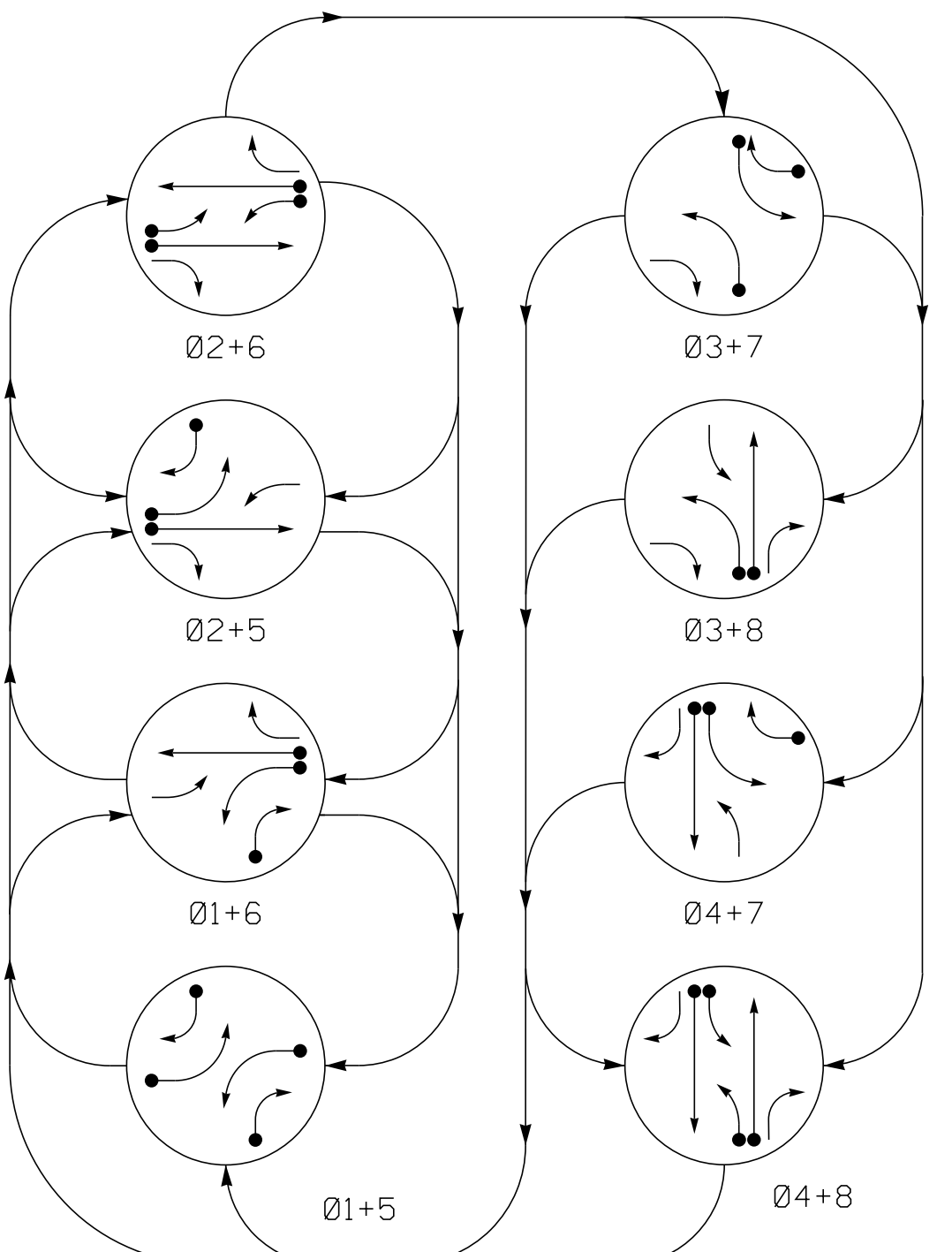
SIG. INVENTORY NO. 06-113111



NC FIRM LICENSE No. F-0493
 8521 SIX FORKS ROAD, SUITE 400
 RALEIGH, NC 27615
 (919) 926-4100

04-Jan-22 15:12:01 R:\P\F\FF\cns:gnol\SDas:gnw\Plan Sheets\W\or_F\ncal_Submittal\06113111_sig_dsn_20220105a.dgn 15:12:01

PHASING DIAGRAM



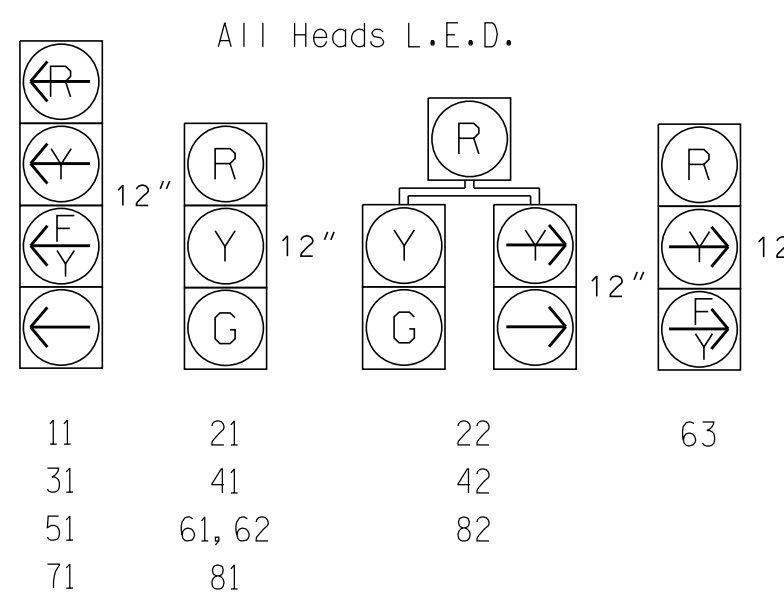
PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT (solid arrow)
UNDETECTED MOVEMENT (OVERLAP) (dashed arrow)
UNSIGNALIZED MOVEMENT (dotted arrow)
PEDESTRIAN MOVEMENT (dashed arrow with person icon)

DEFAULT TABLE OF OPERATION

Table with 8 columns (Signal Face 01-08) and 11 rows (Signal Face 11-82). Contains traffic signal phases: R (Right Turn), G (Green), Y (Yellow), and F (Flash).

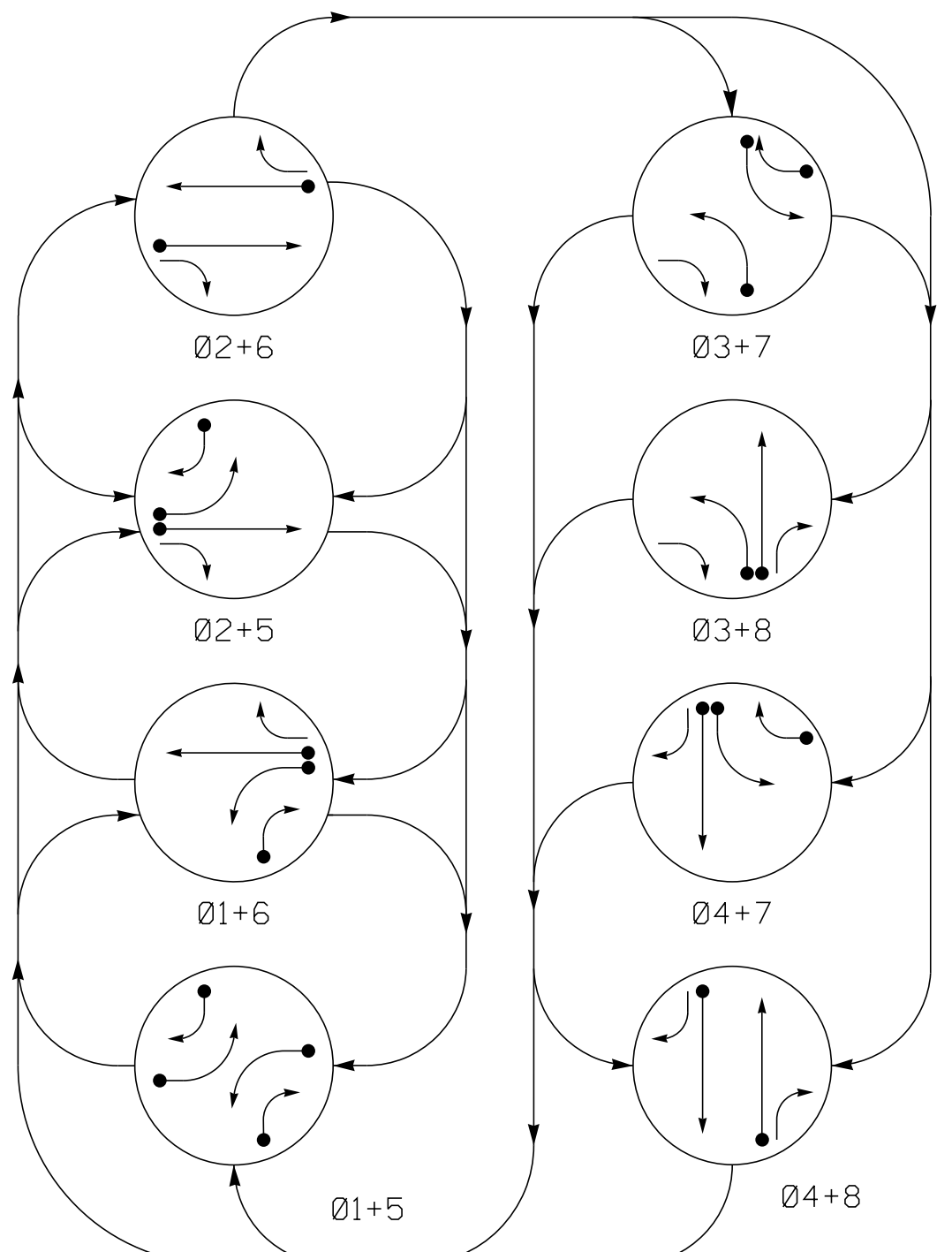
SIGNAL FACE I.D.



ALTERNATE TABLE OF OPERATION

Table with 8 columns (Signal Face 01-08) and 11 rows (Signal Face 11-82). Contains traffic signal phases: R, G, Y, and F.

ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT (solid arrow)
UNDETECTED MOVEMENT (OVERLAP) (dashed arrow)
UNSIGNALIZED MOVEMENT (dotted arrow)
PEDESTRIAN MOVEMENT (dashed arrow with person icon)

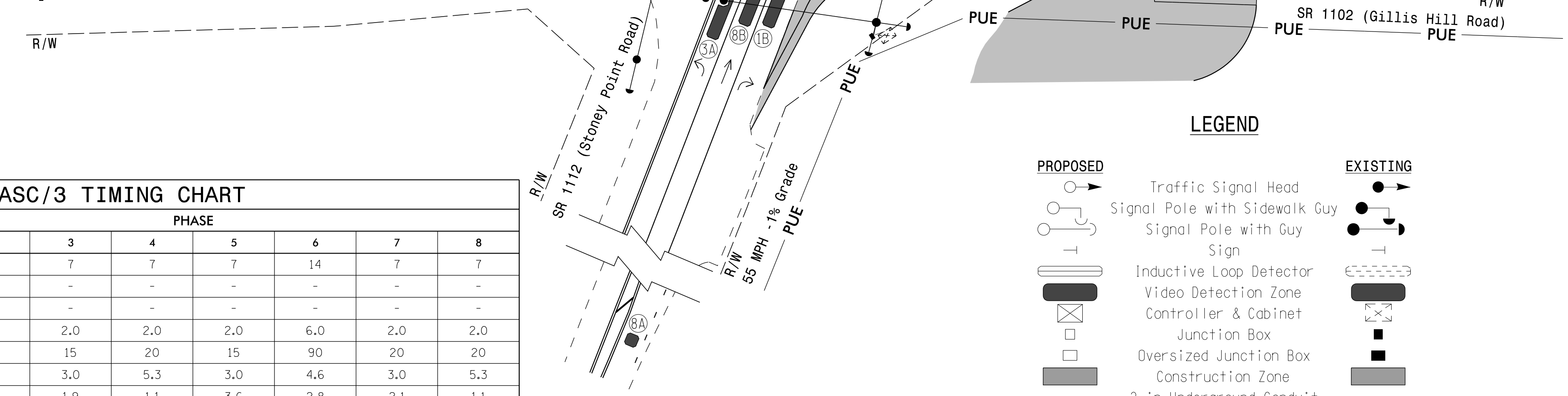
8 Phase Fully Actuated Fayetteville Signal System

NOTES

- 1. Refer to 'Roadway Standard Drawings NCDOT' dated January 2018...
2. Do not program signal for late night flashing operation...
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Reposition existing signal heads 61 and 62.
7. Portions of detection zones 3A and 7A not shown for clarity.
8. The Division Traffic Engineer will determine the hours of use for each phasing plan.

SR 1102 (Gillis Hill Road)

SR 1112 (Stoney Point Road)



LEGEND

- PROPOSED: Traffic Signal Head, Signal Pole with Sidewalk Guy, Inductive Loop Detector, Video Detection Zone, Controller & Cabinet, Junction Box, Oversized Junction Box, Construction Zone, 2-in Underground Conduit, Directional Arrow, Right of Way, Perm. Utility Easement.
EXISTING: Traffic Signal Head, Signal Pole with Guy, Sign, Video Detection Zone, Controller & Cabinet, Junction Box, Construction Zone, 2-in Underground Conduit, Directional Arrow, Right of Way, Perm. Utility Easement.

ASC/3 TIMING CHART

Timing chart table with 9 columns (Phase 1-8) and 20 rows of 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.

ASC/3 DETECTOR INSTALLATION CHART

Detector installation chart table with columns for Loop, Size, Distance, Turns, New Loop, Phase, Calling, Extend Time, Delay Time, Used Added Initial, Type, System Loop, New Card.

* Video Detection Zone
+ Reduce to 3 sec during Alt Phasing Ops
@ Disable call during Alt Phasing Ops

Temporary Signal 2 - TCP Phase III

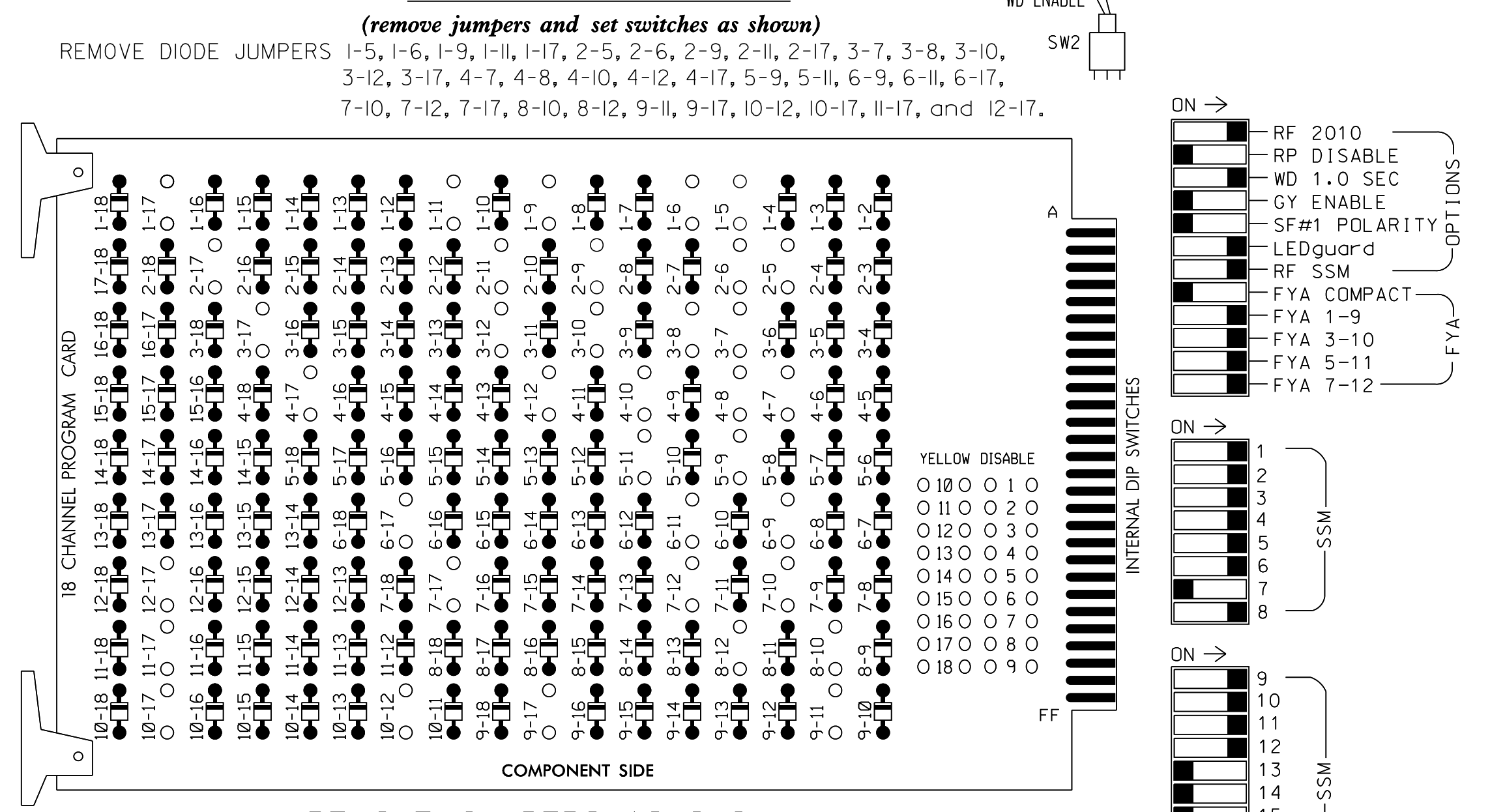
Professional engineering stamp for SR 1102 and SR 1112 at Fayetteville, including dates, signatures, and scales.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Professional engineering seal for S. N. Matthews, License No. 046989.

04-Jan-22 16:21:11 R:\P\F\OFF\cns\gnp\plan\006113112.slg_dsn_20220105.dgn

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL



- 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 Fayetteville Signal System.

SIGNAL HEAD HOOK-UP CHART

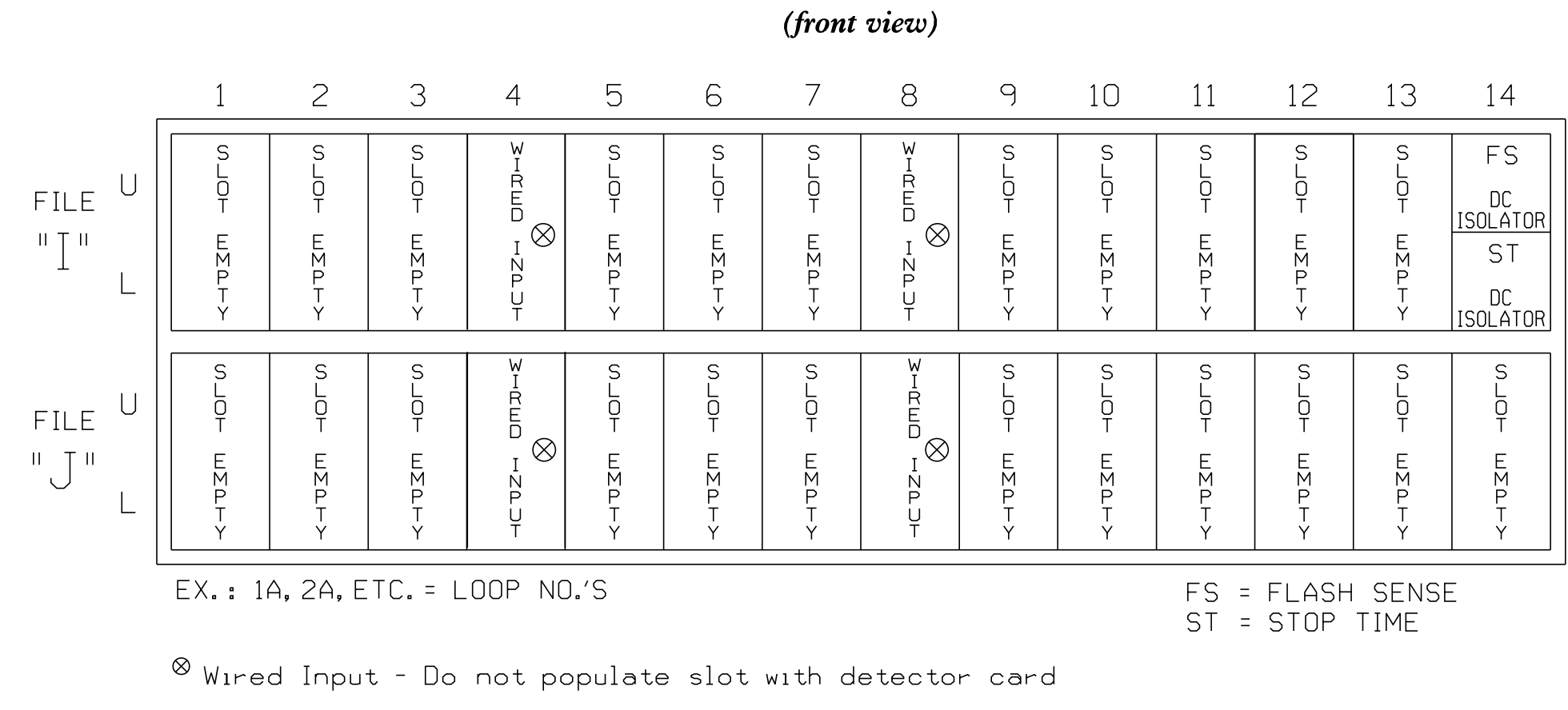
| LOAD SWITCH NO. | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | AUX S1 | AUX S2 | AUX S3 | AUX S4 | AUX S5 | AUX S6 | | | | | |
|-----------------------|-----|-----|-------|-----|-----|-------|-------|-----|-------|-----|-------|-------|--------|--------|--------|--------|--------|--------|------|------|----|--|-----|
| 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 | OLE | OLC | OLD | SPARE | | | | | |
| SIGNAL HEAD NO. | 11★ | 82 | 21,22 | NU | 22 | 31★ | 41,42 | NU | 42 | 51★ | 61,62 | NU | 71★ | 81,82 | NU | 11★ | 31★ | 63★ | 51★ | 71★ | NU | | |
| RED | * | 128 | | * | | 101 | | * | | 134 | | | | | | | | | A111 | | | | |
| YELLOW | | | 129 | | | | 102 | | | | 135 | | * | 108 | | | | | | | | | |
| GREEN | | | | 130 | | | | 103 | | | | 136 | | | 109 | | | | | | | | |
| RED ARROW | | | | | | | | | | | | | | | | A121 | A124 | | A114 | A101 | | | |
| YELLOW ARROW | | 126 | | | 117 | | | | | 132 | | | | | | A122 | A125 | A112 | A115 | A102 | | | |
| FLASHING YELLOW ARROW | | | | | | | | | | | | | | | | A123 | A126 | A113 | A116 | A103 | | | |
| GREEN ARROW | 127 | 127 | | | | | | | 118 | 118 | | | 133 | 133 | | | | | | | | | 124 |

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 ★ See pictorial of head wiring in detail on sheet 2.

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 S3,AUX S4,AUX S5
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP "A".....*
 OVERLAP "B".....*
 OVERLAP "C".....*
 OVERLAP "D".....*
 OVERLAP "E".....*
 * See overlap programming detail on sheet 2

INPUT FILE POSITION LAYOUT



INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO. | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|-----------------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A ¹ | TB2-1,2 | I1U | 56 | 1★ | 1 | YES | | 15 | --- | N |
| | - | J4U | 48 | 26★ | 6 | YES | | 3 | --- | G |
| 3A ² | TB4-5,6 | I5U | 58 | 3★ | 3 | YES | | 15 | --- | N |
| | - | J8U | 50 | 28★ | 8 | YES | | | --- | N |
| 5A ³ | TB3-1,2 | J1U | 55 | 5★ | 5 | YES | | 15 | --- | N |
| | - | I4U | 47 | 22★ | 2 | YES | | 3 | --- | G |
| 7A ⁴ | TB5-5,6 | J5U | 57 | 7★ | 7 | YES | | 15 | --- | N |
| | - | I8U | 49 | 24★ | 4 | YES | | | --- | N |

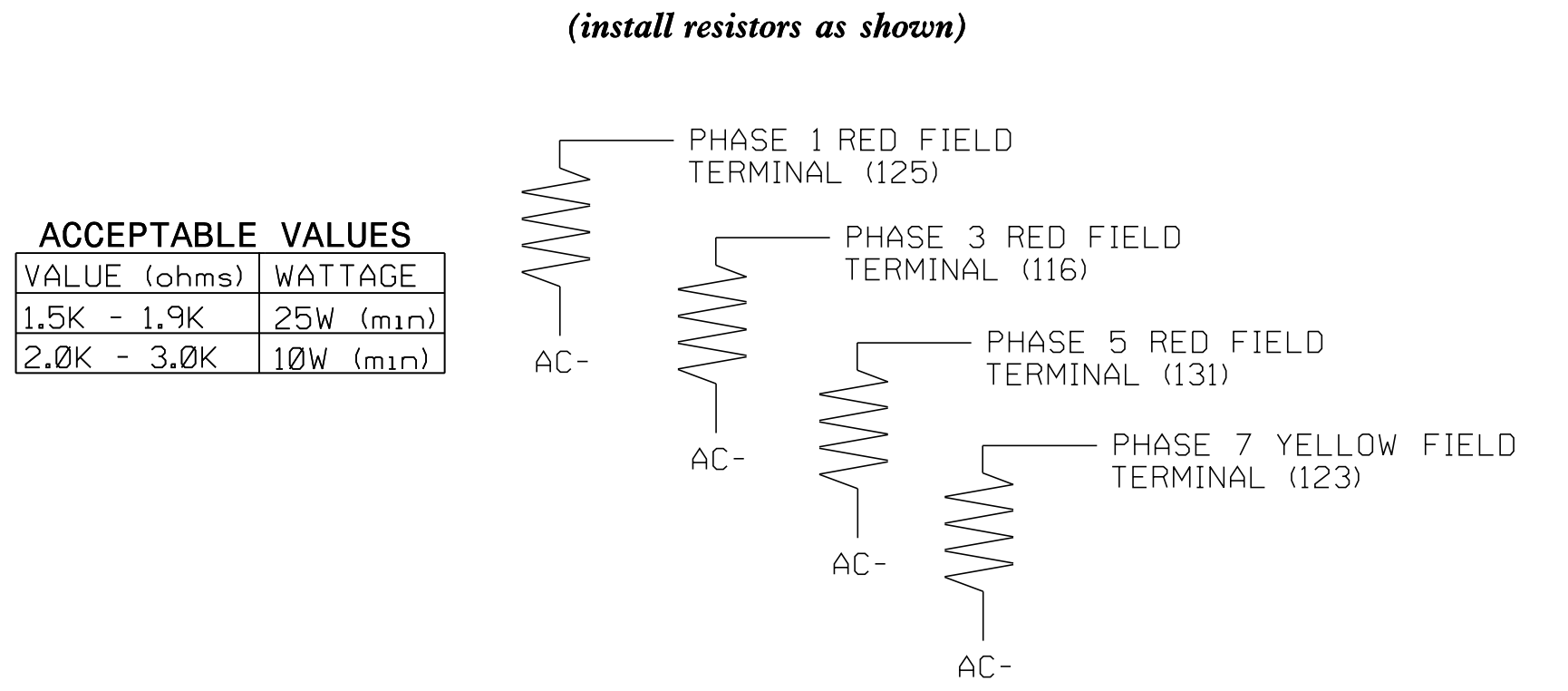
- Add jumper from I1-W to J4-W, on rear of input file.
 - Add jumper from I5-W to J8-W, on rear of input file.
 - Add jumper from J1-W to I4-W, on rear of input file.
 - Add jumper from J5-W to I8-W, on rear of input file.
- ★ See vehicle detector setup programming detail for alternate phasing on sheet 3.
- INPUT FILE POSITION LEGEND: J2L
-

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



SPECIAL DETECTOR NOTE

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

For Detection Zones 1A, 3A, 5A and 7A, the equipment placement and slots reserved for wired inputs are typical for a NCDOT installation.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1131T2
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 2 - TCP Phase III
 Electrical Detail - Sheet 1 of 4

SR 1102 (Gillis Hill Road)
 at
 SR 1112 (Stoney Point Road)

Division 6 Cumberland County Fayetteville
 PLAN DATE: January 2022 REVIEWED BY: V. Kaiser
 PREPARED BY: S.G. Haynie REVIEWED BY:

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

MOBILE PROFESSIONAL ENGINEER SEVEN G. HAYNIE

1/5/2022

SIG. INVENTORY NO. 06-1131T2

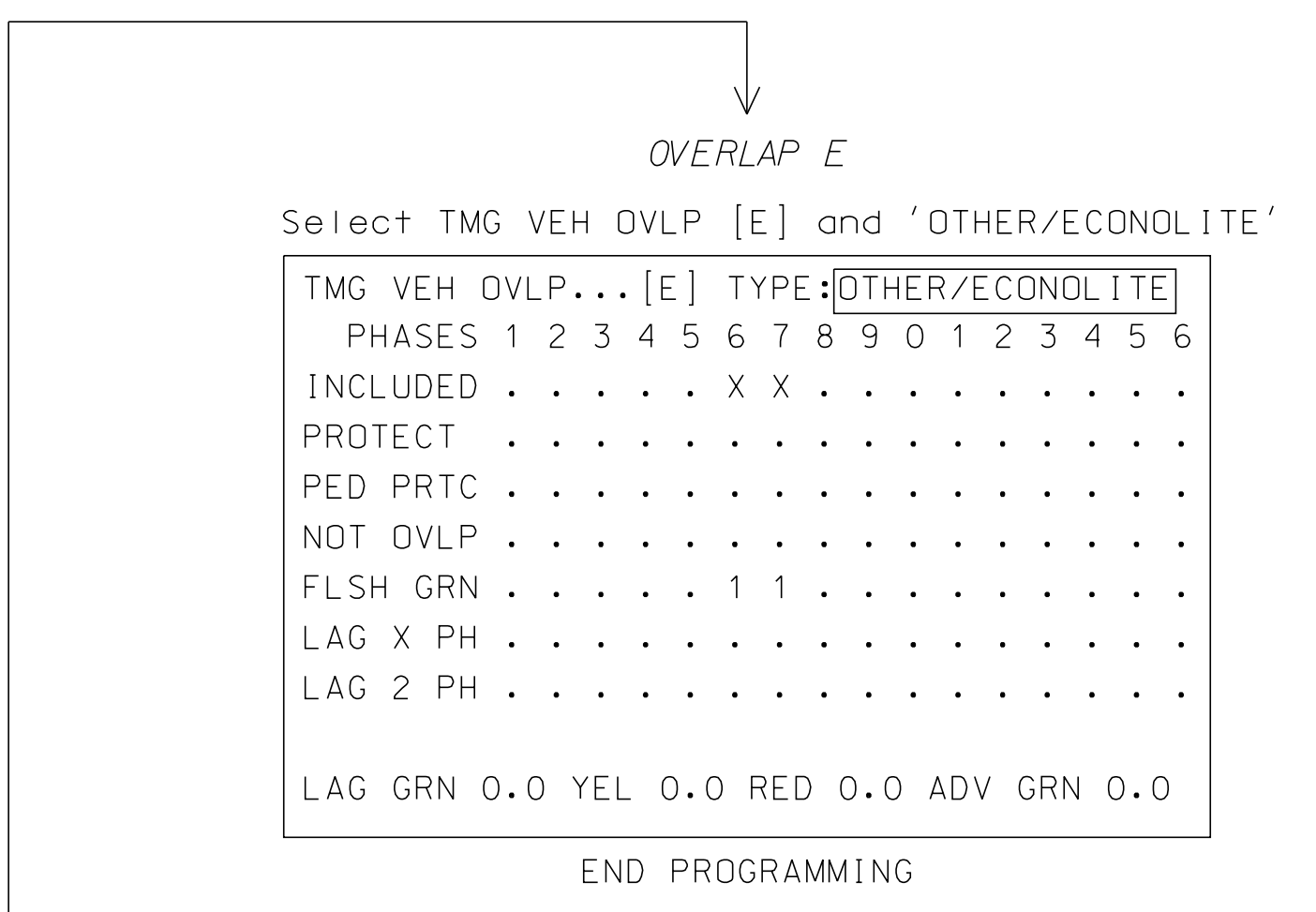
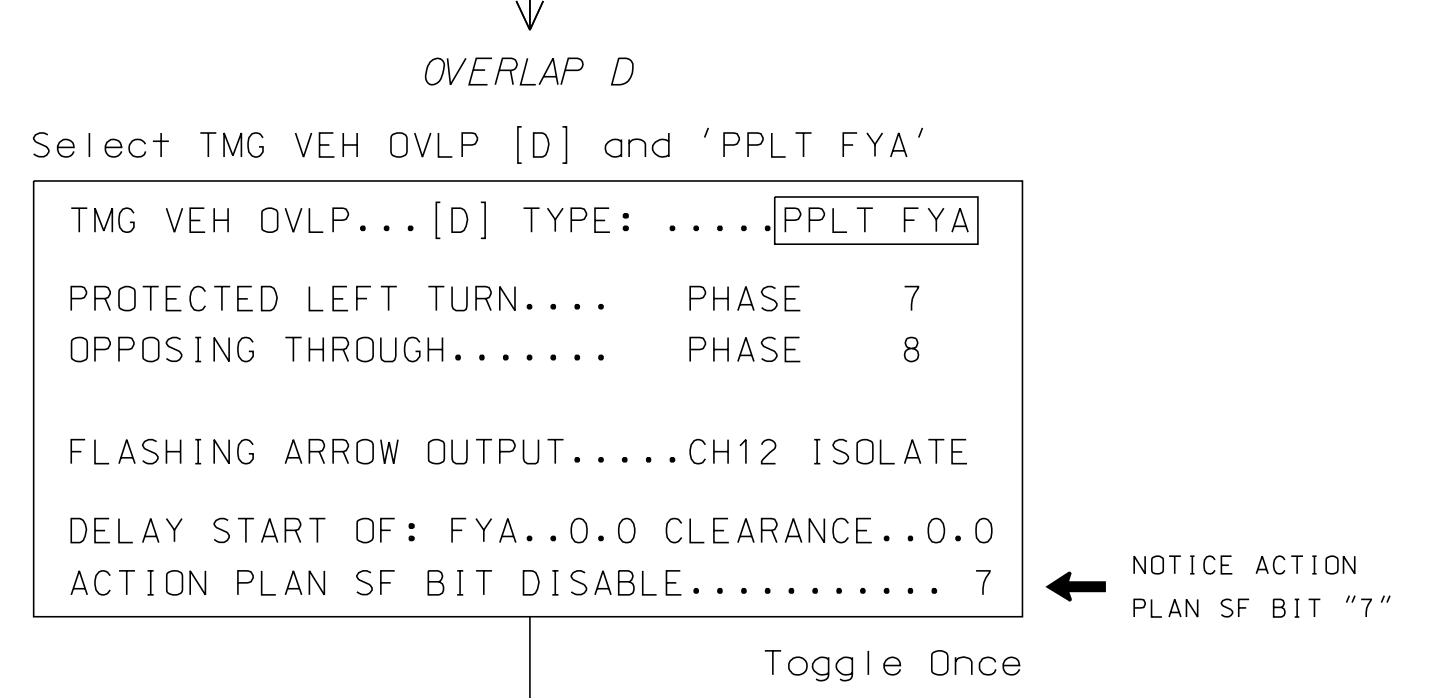
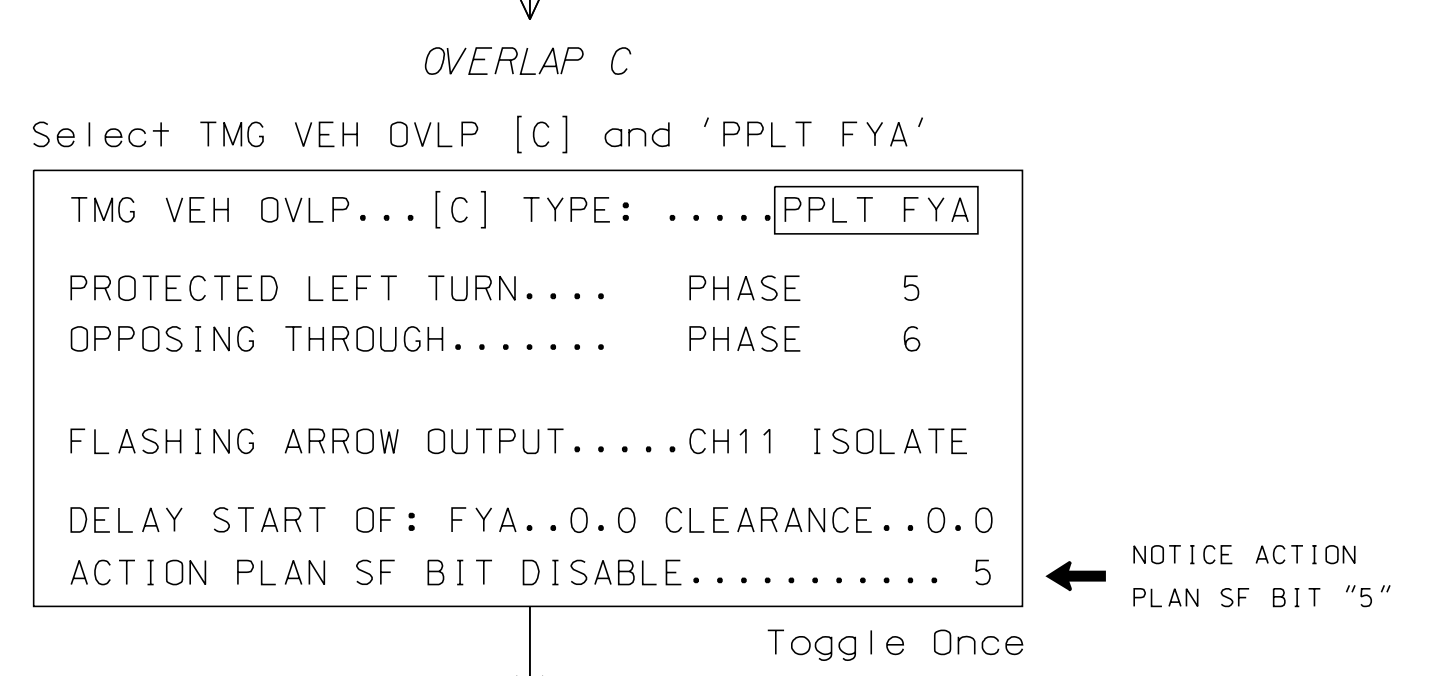
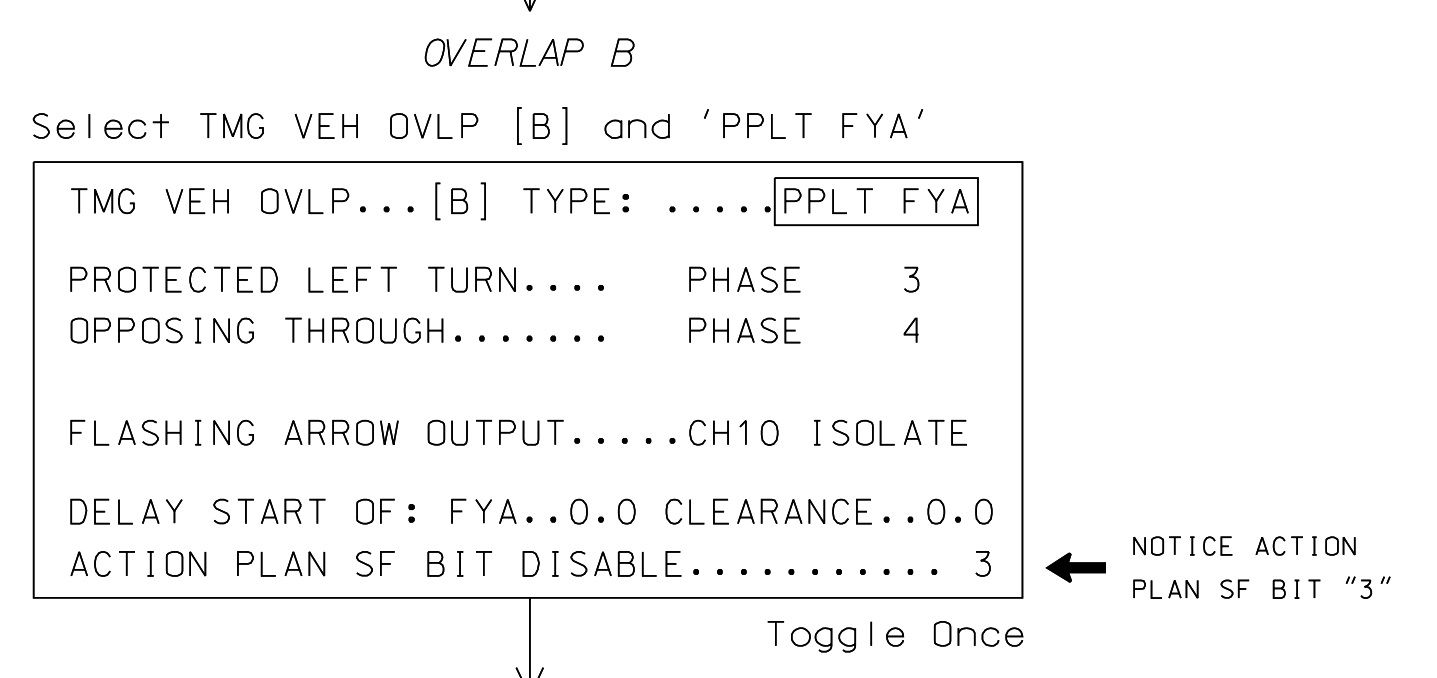
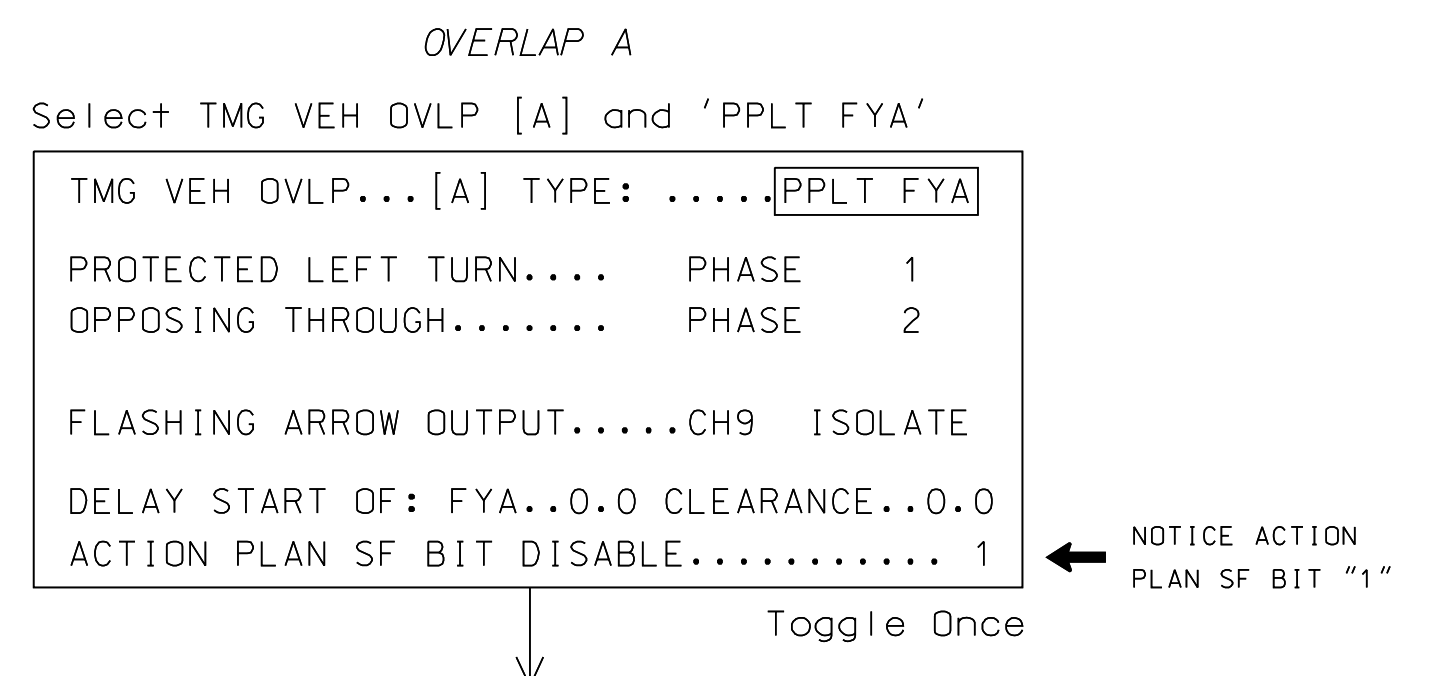


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ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

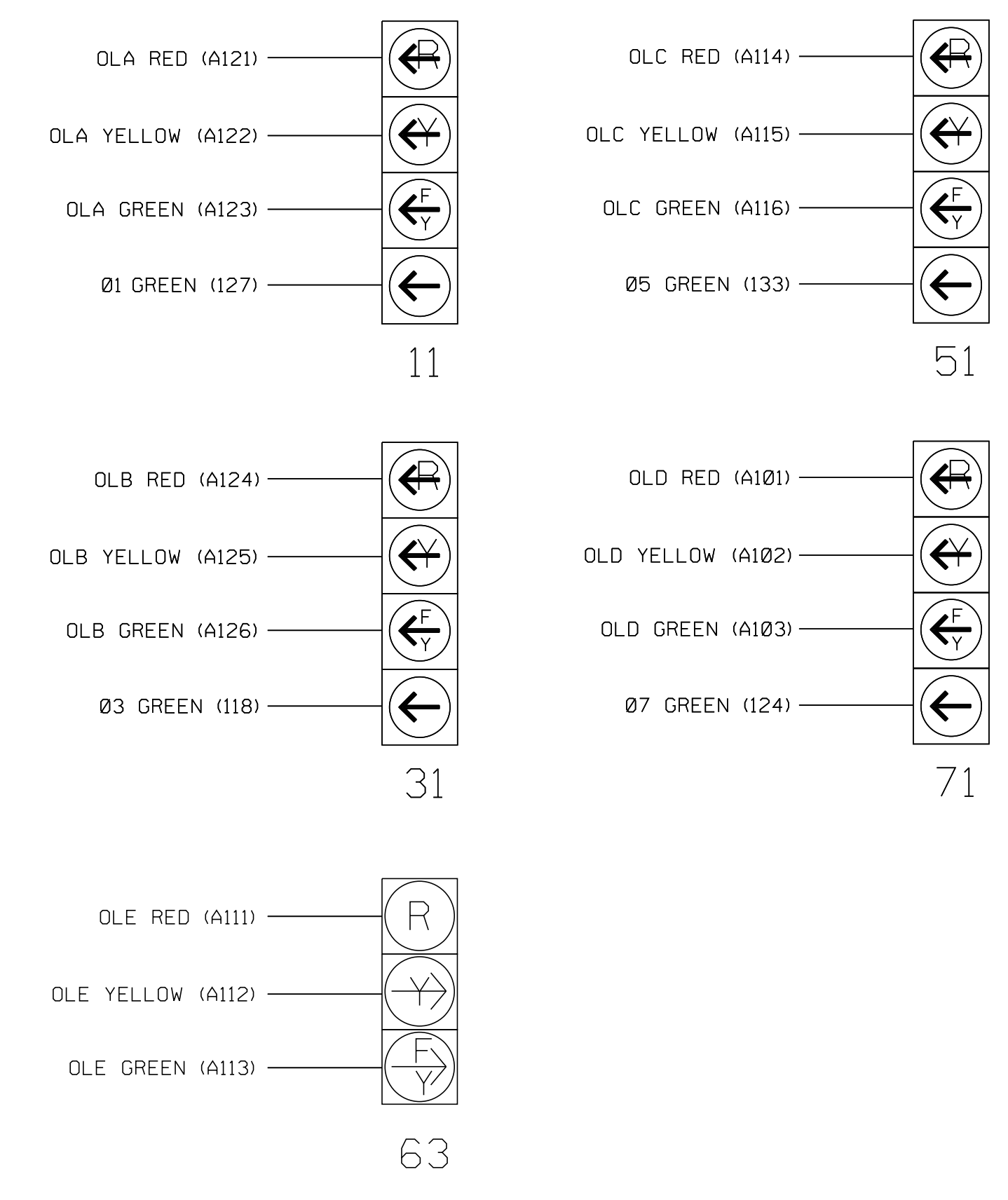
(program controller as shown)

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



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-1131T2
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 2 - TCP Phase III

Electrical Detail - Sheet 2 of 4

| <p>ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="font-size: small;">Prepared for the Offices of:</p> <p style="font-size: x-small;"> NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 </p> | <p>SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road)</p> <p>Division 6 Cumberland County Fayetteville</p> <p>PLAN DATE: January 2022 REVIEWED BY: V. Kaiser</p> <p>PREPARED BY: S.G. Haynie REVIEWED BY:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table> | REVISIONS | INIT. | DATE | | | |
|--|---|-----------|-------|------|--|--|--|
| REVISIONS | INIT. | DATE | | | | | |
| | | | | | | | |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 029531
 ENGINEER
 STEVEN G. HAYNIE

Designed by: Steven G. Haynie 1/5/2022
 Signature: _____ Date: _____
 Sig. Inventory No. 06-1131T2

04-Jan-22 16:17:50
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 16:17:50

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A, 5A, 3A, 7A

(program controller as shown)

IMPORTANT!

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

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

```

COPY / CLEAR UTILITY
FROM          TO
PHASE TIMING... > PHASE TIMING...
TIMING PLAN... > TIMING PLAN...
PH DET OPT PLAN. > PH DET OPT PLAN.
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
TOGGLE TO SELECT A "FROM" AND A "TO"
THEN PRESS ENTER
  
```

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

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".

```

VEH DETECTOR [ 1 ]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
1 1
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

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

```

VEH DETECTOR [26]  VEH DET PLAN [ 2 ]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
26 0
EXTEND TIME... 0.0 DELAY TIME... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".

```

VEH DETECTOR [ 5 ]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
5 5
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

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

```

VEH DETECTOR [22]  VEH DET PLAN [ 2 ]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
22 0
EXTEND TIME... 0.0 DELAY TIME... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "3".
- Set delay time to "3".

```

VEH DETECTOR [ 3 ]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
3 3
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "28".
- Set assigned phase to "0".

```

VEH DETECTOR [28]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
28 0
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
  
```

- Place cursor in VEH DETECTOR [] position and enter "7".
- Set delay time to "3".

```

VEH DETECTOR [ 7 ]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
7 7
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "24".
- Set assigned phase to "0".



```

VEH DETECTOR [24]  VEH DET PLAN [ 2 ]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
24 0
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: 06-1131T2
DESIGNED: January 2022
SEALED: 1/5/2022
REVISED: N/A

Temporary Signal 2 - TCP Phase III Electrical Detail - Sheet 3 of 4

| | | |
|--|--|--|
|  NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) | |
| | Division 6 Cumberland County Fayetteville PLAN DATE: January 2022 PREPARED BY: S.G. Haynie | REVIEWED BY: V. Kaiser REVIEWED BY: |
| REVISIONS _____ _____ _____ | INIT. DATE _____ _____ _____ | SEAL  SEVEN G. HAYNIE ENGINEER 029531 |

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SEAL
 SEVEN G. HAYNIE
 ENGINEER
 029531
 1/5/2022
 SIGNATURE DATE
 SIG. INVENTORY NO. 06-1131T2

ECONOLITE ASC/3-2070 ACTION PLAN PROGRAMMING DETAIL

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN. SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1, 3, 5, and 7.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1, 3, 5, and 7.

| PHASING | VEH DET PLAN | SF BITS ENABLED |
|--|--------------|-----------------|
| ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u> | 1 | NONE |
| ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u> | 2 | 1, 3, 5, 7 |

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

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN SF BITS 1, 3, 5, AND 7 AND VEH DET PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

SF BITS 1,3,5,7: Modifies overlap parent phases for heads 11, 31, 51, and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 3 seconds.

Disables phase 8 call on loop 3A and reduces delay time for phase 3 call on loop 3A to 3 seconds.

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

Disables phase 4 call on loop 7A and reduces delay time for phase 7 call on loop 7A to 3 seconds.

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

```

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

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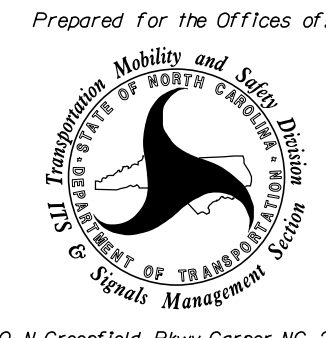
THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-1131T2
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 2 - TCP Phase III
Electrical Detail - Sheet 4 of 4

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

SR 1102 (Gillis Hill Road)
at
SR 1112 (Stoney Point Road)

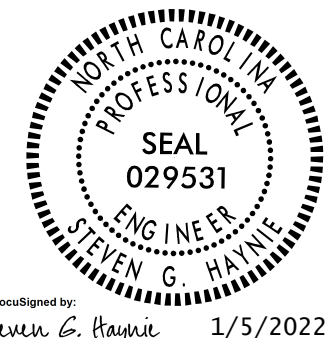
Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: V. Kaiser

PREPARED BY: S.G. Haynie REVIEWED BY:

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

SEAL



DESIGNED BY: Steven G. Haynie DATE: 1/5/2022

SIGNATURE: _____ DATE: _____

SIG. INVENTORY NO. 06-1131T2



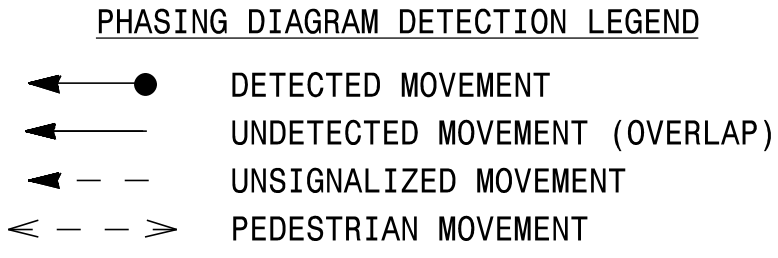
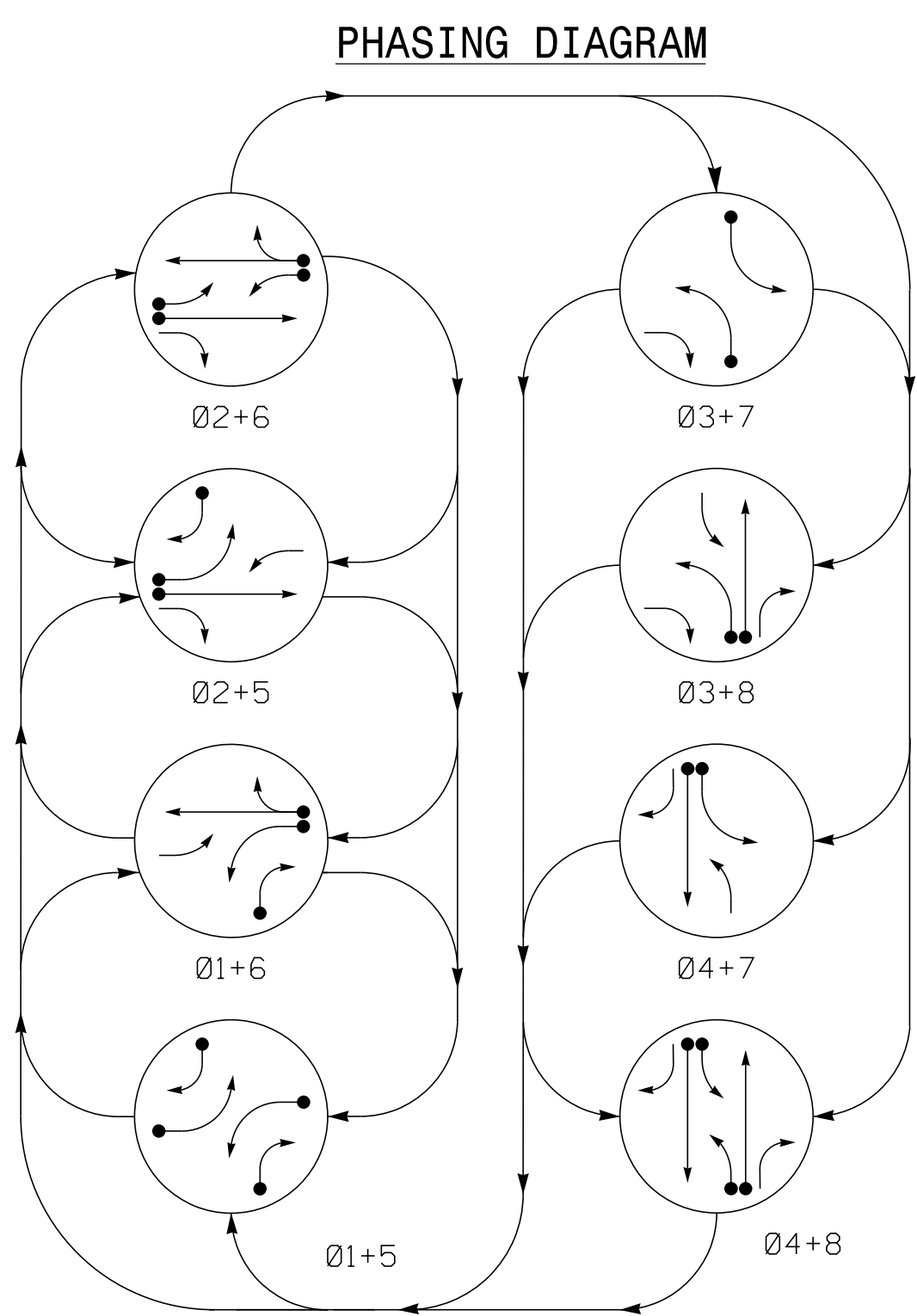
NC FIRM LICENSE No. F-0493
 8521 SIX FORKS ROAD, SUITE 400
 RALEIGH, NC 27615
 (919) 926-4100

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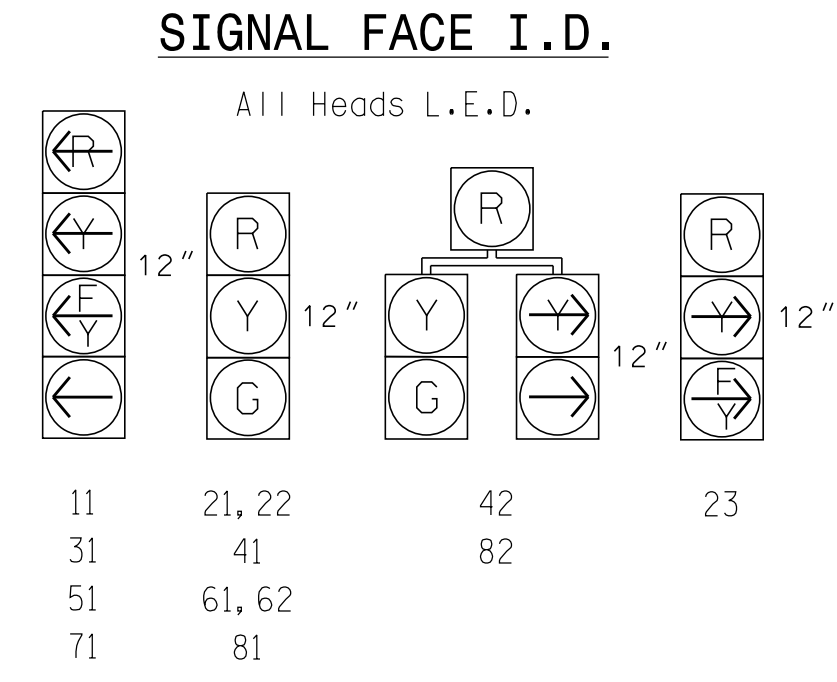
8 Phase Fully Actuated Fayetteville Signal System

NOTES

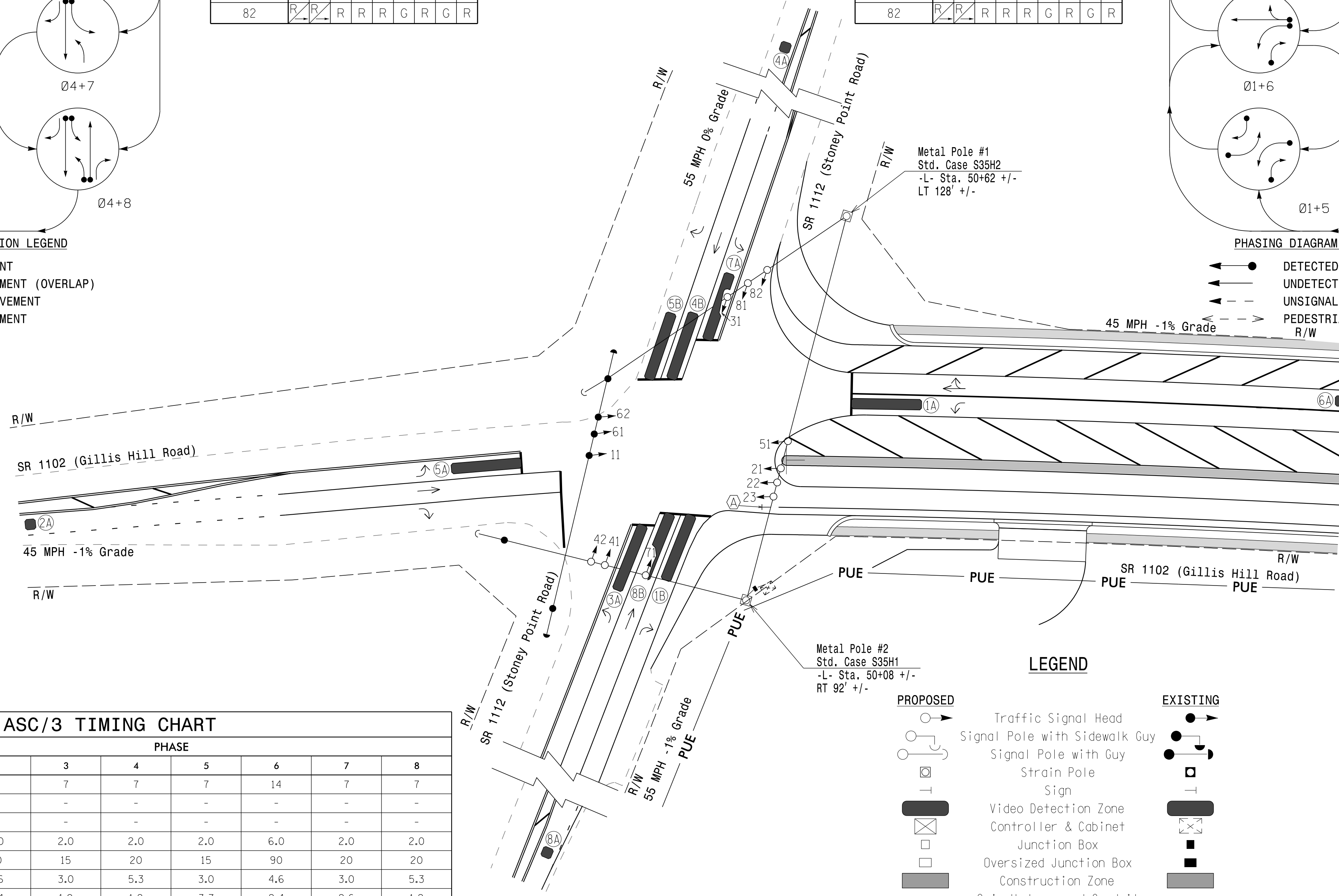
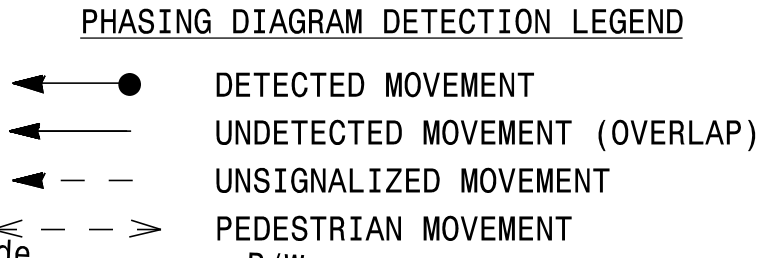
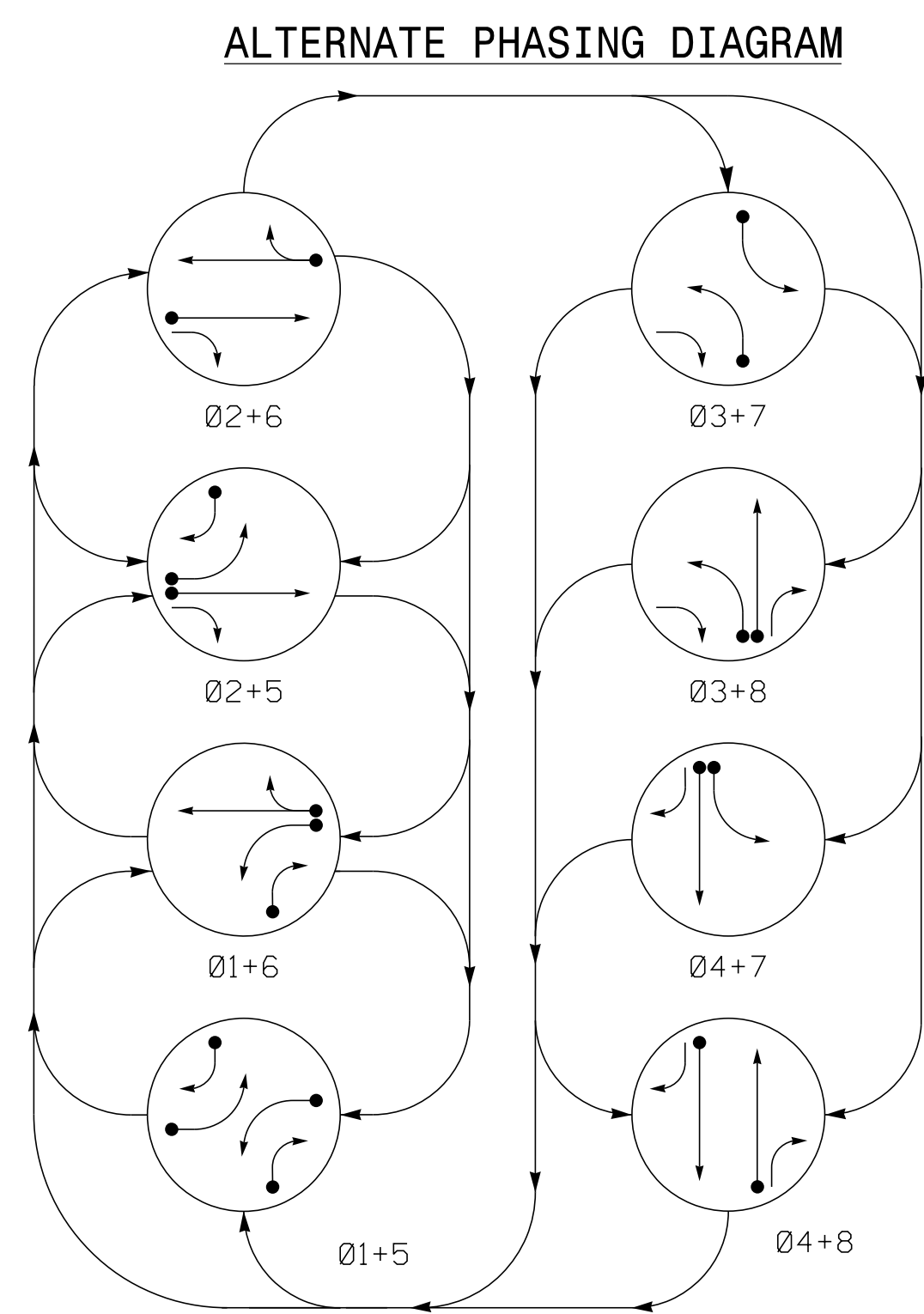
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Install Metal Pole #1 to maintain 10-ft separation from adjacent O/H power lines and to avoid impacts to adjacent ditch.
7. The Division Traffic Engineer will determine the hours of use for each phasing plan.



| SIGNAL FACE | PHASE | | | | | | | | FLASH |
|-------------|-------|------|------|------|------|------|------|------|-------|
| | Ø1+5 | Ø1+6 | Ø2+5 | Ø2+6 | Ø3+7 | Ø3+8 | Ø4+7 | Ø4+8 | |
| 11 | R | R | F | F | R | R | R | R | Y |
| 21, 22 | R | R | G | G | R | R | R | R | Y |
| 23 | R | R | F | F | F | F | R | R | Y |
| 31 | R | R | R | R | L | L | F | F | R |
| 41 | R | R | R | R | R | R | G | G | R |
| 42 | R | R | R | R | R | R | G | G | R |
| 51 | R | R | F | F | R | R | R | R | Y |
| 61, 62 | R | R | G | G | R | R | R | R | Y |
| 71 | R | R | R | R | R | R | F | F | R |
| 81 | R | R | R | R | R | R | G | G | R |
| 82 | R | R | R | R | R | R | G | G | R |

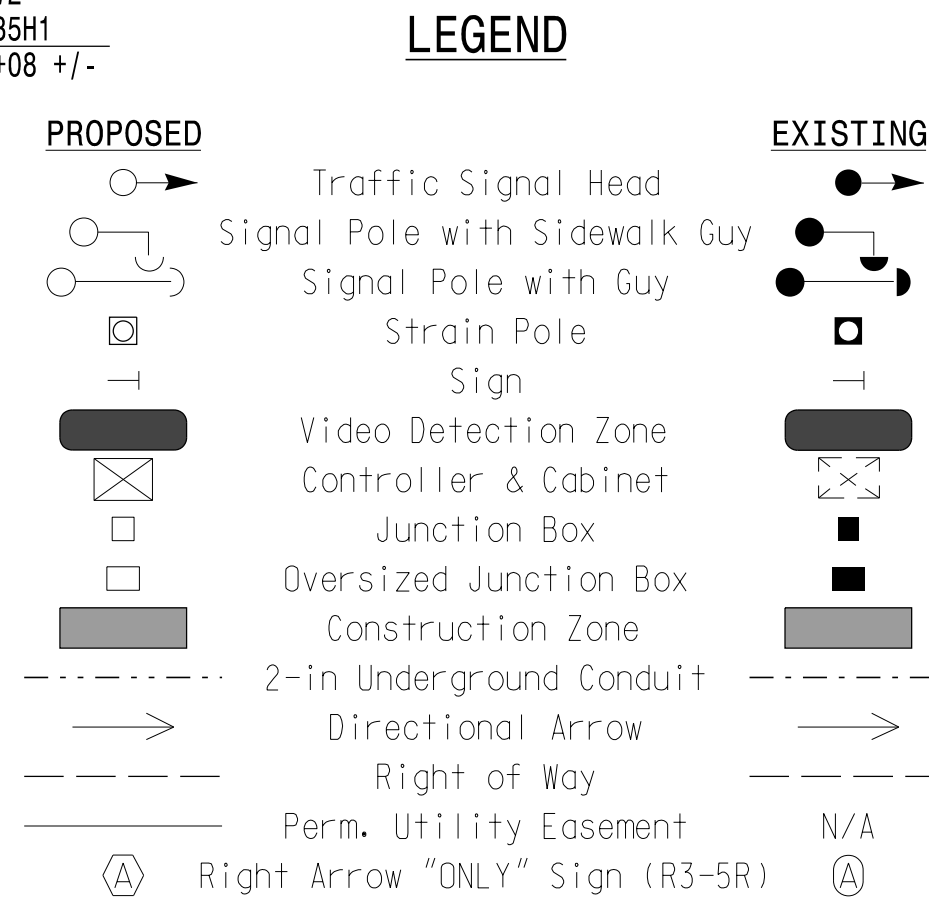


| SIGNAL FACE | PHASE | | | | | | | | FLASH |
|-------------|-------|------|------|------|------|------|------|------|-------|
| | Ø1+5 | Ø1+6 | Ø2+5 | Ø2+6 | Ø3+7 | Ø3+8 | Ø4+7 | Ø4+8 | |
| 11 | R | R | F | F | R | R | R | R | Y |
| 21, 22 | R | R | G | G | R | R | R | R | Y |
| 23 | R | R | F | F | F | F | R | R | Y |
| 31 | R | R | R | R | L | L | F | F | R |
| 41 | R | R | R | R | R | R | G | G | R |
| 42 | R | R | R | R | R | R | G | G | R |
| 51 | R | R | F | F | R | R | R | R | Y |
| 61, 62 | R | R | G | G | R | R | R | R | Y |
| 71 | R | R | R | R | R | R | F | F | R |
| 81 | R | R | R | R | R | R | G | G | R |
| 82 | R | R | R | R | R | R | G | G | R |



| 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 * | 30 | 90 | 15 | 20 | 15 | 90 | 20 | 20 |
| Yellow | 3.0 | 4.6 | 3.0 | 5.3 | 3.0 | 4.6 | 3.0 | 5.3 |
| Red Clear | 4.0 | 2.4 | 1.9 | 1.2 | 3.7 | 2.4 | 2.6 | 1.2 |
| Actuations B4 Add * | - | 0 | - | - | - | 0 | - | - |
| Seconds / Actuation * | - | 2.5 | - | - | - | 2.5 | - | - |
| Max Initial * | - | 34 | - | - | - | 34 | - | - |
| Time Before Reduction * | - | 15 | - | - | - | 15 | - | - |
| Time To Reduce * | - | 30 | - | - | - | 30 | - | - |
| Minimum Gap | - | 3.0 | - | - | - | 3.0 | - | - |
| Locking Detector | - | 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 DETECTOR INSTALLATION CHART | | | | | | | | | | | | |
|-----------------------------------|-----------|----------------------------|-------|-------------|-------|---------|-------------|-----------------|--------------------|------|------|----------|
| DETECTOR | | | | PROGRAMMING | | | | | | | | |
| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PHASE | CALLING | EXTEND TIME | DELAY TIME | USED ADDED INITIAL | TYPE | LOOP | NEW CARD |
| 1A | 6X40 | 0 | * | * | 1 | YES | - | 15 ⁺ | - | N | - | * |
| 1B | 6X40 | 0 | * | - | 1 | YES | - | 15 | - | N | - | * |
| 2A | 6X6 | 300 | * | - | 2 | YES | - | - | X | N | - | * |
| 3A | 6X40 | 0 | * | - | 3 | YES | - | 15 ⁺ | - | N | - | * |
| 4A | 6X6 | 420 | * | - | 4 | NO | 3.2 | - | - | N | - | * |
| 4B | 6X40 | 0 | * | - | 4 | YES | - | 3 | - | N | - | * |
| 5A | 6X40 | 0 | * | - | 5 | YES | - | 15 ⁺ | - | N | - | * |
| 5B | 6X40 | 0 | * | - | 5 | YES | - | 15 | - | N | - | * |
| 6A | 6X6 | 300 | * | * | 6 | YES | - | - | X | N | - | * |
| 7A | 6X40 | 0 | * | - | 7 | YES | - | 15 ⁺ | - | N | - | * |
| 8A | 6X6 | 420 | * | - | 8 | NO | 3.2 | - | - | N | - | * |
| 8B | 6X40 | 0 | * | - | 8 | YES | - | - | - | N | - | * |

* Video Detection Zone
+ Reduce to 3 sec during Alt Phasing Ops
@ Disable calling during Alt Phasing Ops

Temporary Signal 3 - TCP Phase IV

Prepared for the Offices of:
**SR 1102 (Gillis Hill Road)
at
SR 1112 (Stoney Point Road)**

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: S.G. Haynie
PREPARED BY: S.N. Matthews REVIEWED BY:

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER'S SEAL
046989
NICK MATTHEWS

1/5/2022

SIGNATURE DATE

SIG. INVENTORY NO. 06-113113

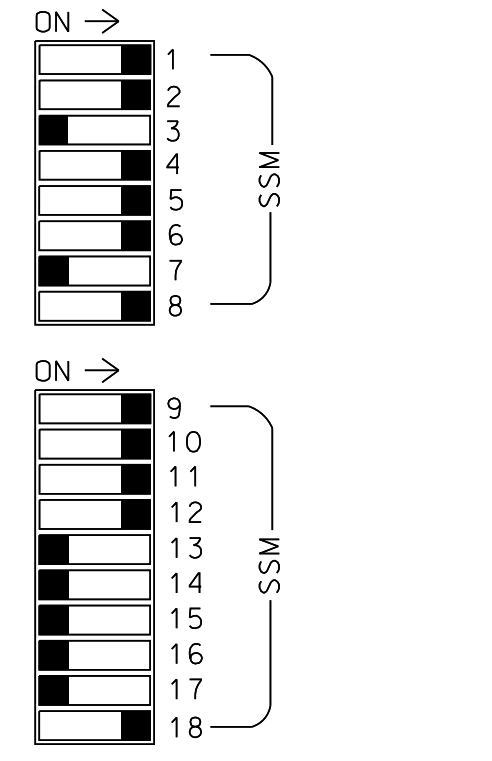
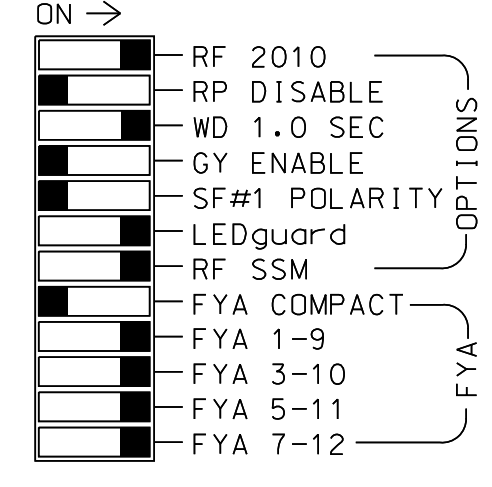
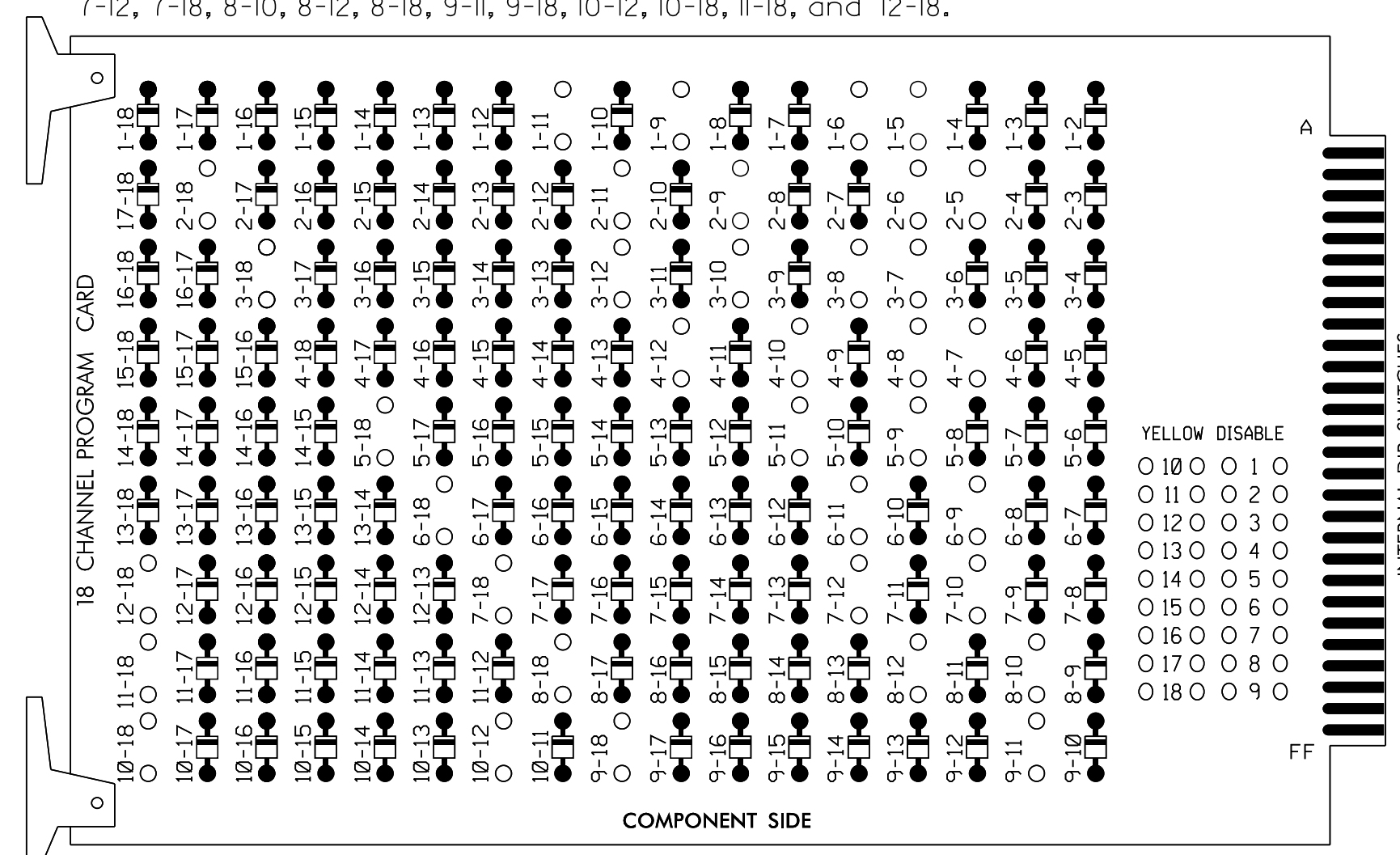
RS&H
NC FIRM LICENSE No: F-0493
8521 SIX FORKS ROAD, SUITE 400
RALLEIGH, NC 27615
(919) 926-4100

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE
0 40
1"=40'

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, 2-18, 3-7, 3-8, 3-10, 3-12, 3-18, 4-7, 4-8, 4-10, 4-12, 5-9, 5-11, 5-18, 6-9, 6-11, 6-18, 7-10, 7-12, 7-18, 8-10, 8-12, 8-18, 9-11, 9-18, 10-12, 10-18, 11-18, and 12-18.



- 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.

REMOVE JUMPERS AS SHOWN

NOTES

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

EQUIPMENT INFORMATION

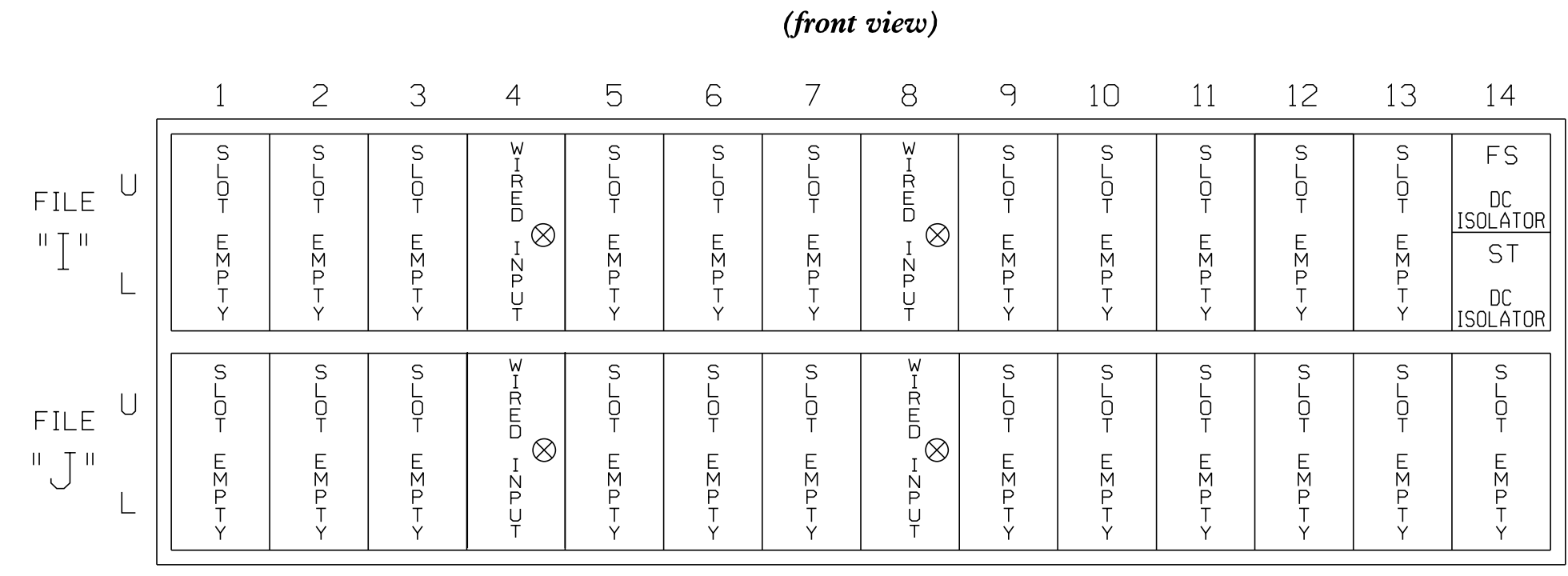
CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8, S10,S11,AUX S1,AUX S2, AUX S4,AUX S5,AUX S6
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*
OVERLAP "E".....NOT USED
OVERLAP "F".....*
* 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 | OLE | OLC | OLD | OLF | |
| SIGNAL HEAD NO. | 11★ | 82 | 21,22 | NU | 31★ | 41,42 | NU | 42 | 51★ | 61,62 | NU | 71★ | 81,82 | NU | 11★ | 31★ | 51★ | 71★ | 23★ |
| RED | | * | 128 | | 101 | | * | 134 | | 107 | | | | | | | | | A104 |
| YELLOW | | | 129 | * | 102 | | | 135 | * | 108 | | | | | | | | | |
| GREEN | | | 130 | | 103 | | | 136 | | 109 | | | | | | | | | |
| RED ARROW | | | | | | | | | | | | | A121 | A124 | | A114 | A101 | | |
| YELLOW ARROW | 126 | | | | | | 132 | | | | | | A122 | A125 | | A115 | A102 | A105 | |
| FLASHING YELLOW ARROW | | | | | | | | | | | | | A123 | A126 | | A116 | A103 | A106 | |
| GREEN ARROW | 127 | 127 | | | 118 | | 133 | 133 | | 124 | | | | | | | | | |

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

INPUT FILE POSITION LAYOUT



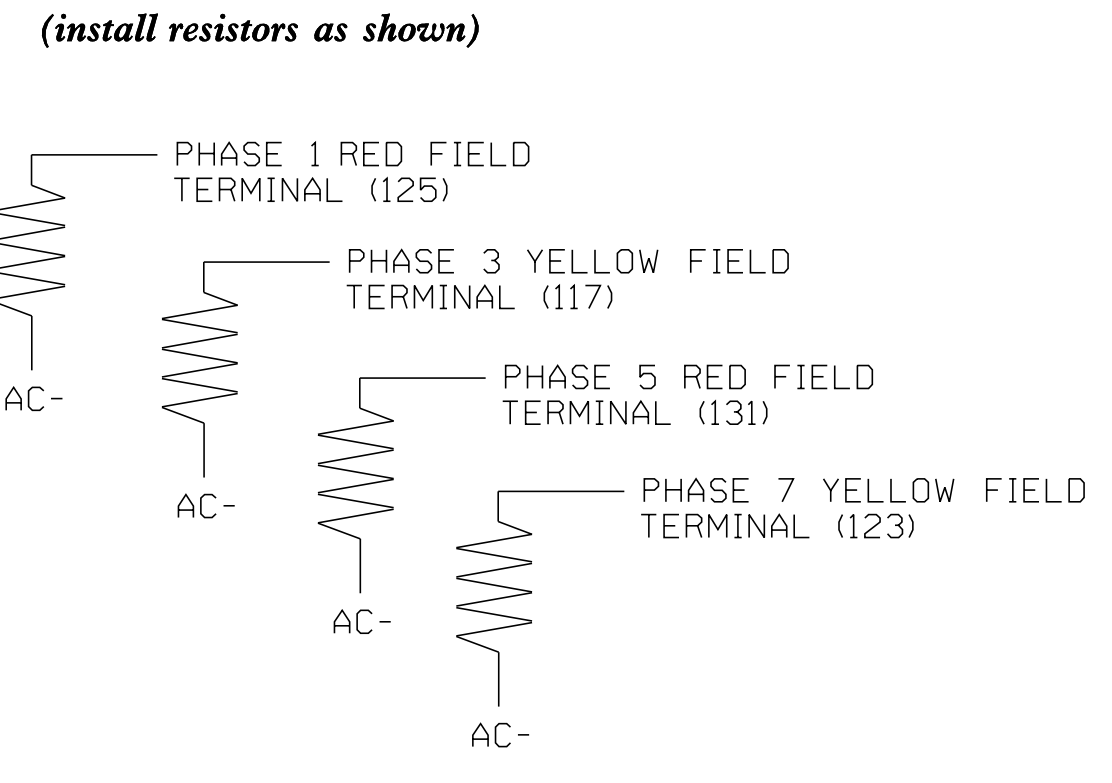
EX.: 1A, 2A, ETC. = LOOP NO.'S
FS = FLASH SENSE
ST = STOP TIME
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO. | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|-----------------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A ¹ | TB2-1,2 | I1U | 56 | 1★ | 1 | YES | | 15 | --- | N |
| | - | J4U | 48 | 26★ | 6 | YES | | 3 | --- | G |
| 3A ² | TB4-5,6 | I5U | 58 | 3★ | 3 | YES | | 15 | --- | N |
| | - | J8U | 50 | 28★ | 8 | YES | | --- | --- | N |
| 5A ³ | TB3-1,2 | J1U | 55 | 5★ | 5 | YES | | 15 | --- | N |
| | - | I4U | 47 | 22★ | 2 | YES | | 3 | --- | G |
| 7A ⁴ | TB5-5,6 | J5U | 57 | 7★ | 7 | YES | | 15 | --- | N |
| | - | I8U | 49 | 24★ | 4 | YES | | --- | --- | N |

- ¹Add jumper from I1-W to J4-W, on rear of input file.
 - ²Add jumper from I5-W to J8-W, on rear of input file.
 - ³Add jumper from J1-W to I4-W, on rear of input file.
 - ⁴Add jumper from J5-W to I8-W, on rear of input file.
- ★ See vehicle detector setup programming detail for alternate phasing on sheet 3. INPUT FILE POSITION LEGEND: J2L

LOAD RESISTOR INSTALLATION DETAIL



ACCEPTABLE VALUES

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

SPECIAL DETECTOR NOTE

Install a video detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
For Detection Zones 1A, 3A, 5A and 7A, the equipment placement and slots reserved for wired inputs are typical for a NCDOT installation.

FLASHER CIRCUIT MODIFICATION DETAIL

In order to ensure that signals flash concurrently on the Same approach, make the following flasher circuit changes:

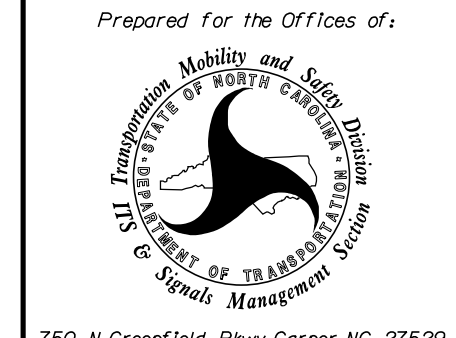
- 1. On rear of PDA - remove wire from Term. T2-4 and terminate on T2-2.
 - 2. On rear of PDA - remove wire from Term. T2-5 and terminate on T2-3.
 - 3. Remove flasher unit 2.
- The changes listed above ties all phases and overlaps to flasher unit 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1131T3
DESIGNED: January 2022
SEALED: 1/5/2022
REVISED: N/A

Temporary Signal 3 - TCP Phase IV
Electrical Detail - Sheet 1 of 4

SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road)
Division 6 Cumberland County Fayetteville
PLAN DATE: January 2022 REVIEWED BY: V. Kaiser
PREPARED BY: S.G. Haynie REVIEWED BY:
REVISIONS INIT. DATE
INIT. DATE
INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SEAL
PROFESSIONAL ENGINEER
SEVEN G. HAYNIE
1/5/2022
DATE
SIG. INVENTORY NO. 06-1131T3



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..... 1
  
```

Toggle Once

NOTICE ACTION PLAN SF BIT "1"

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

```

TMG VEH OVLP...[B] TYPE: ....PPLT FYA
PROTECTED LEFT TURN.... PHASE 3
OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT....CH10 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 3
  
```

Toggle Once

NOTICE ACTION PLAN SF BIT "3"

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

```

TMG VEH OVLP...[C] TYPE: ....PPLT FYA
PROTECTED LEFT TURN.... PHASE 5
OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT....CH11 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 5
  
```

Toggle Once

NOTICE ACTION PLAN SF BIT "5"

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

```

TMG VEH OVLP...[D] TYPE: ....PPLT FYA
PROTECTED LEFT TURN.... PHASE 7
OPPOSING THROUGH..... PHASE 8

FLASHING ARROW OUTPUT....CH12 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 7
  
```

Toggle Twice

NOTICE ACTION PLAN SF BIT "7"

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

```

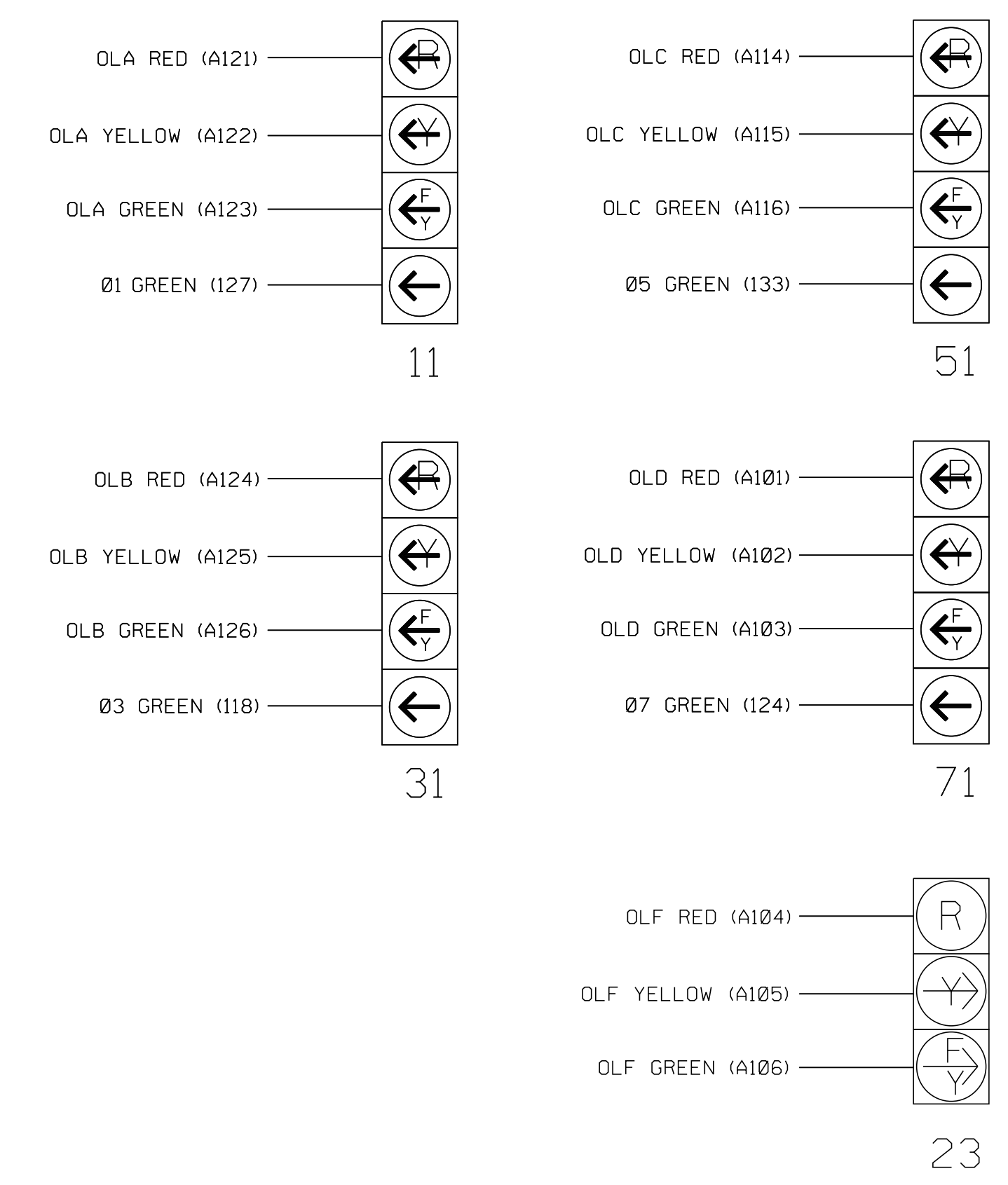
TMG VEH OVLP...[F] TYPE: OTHER/ECONOLITE
PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . X X . . . . .
PROTECT . . . . .
PED PRTC . . . . .
NOT OVLP . . . . .
FLSH GRN . 1 1 . . . . .
LAG X PH . . . . .
LAG 2 PH . . . . .

LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0
  
```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1131T3
DESIGNED: January 2022
SEALED: 1/5/2022
REVISED: N/A

FYA SIGNAL WIRING DETAIL (wire signal heads as shown)



Temporary Signal 3 - TCP Phase IV Electrical Detail - Sheet 2 of 4

| | | | |
|---|--|---|--|
| NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | Prepared for the Offices of: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Signal Management Section | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL SEVEN G. HAYNIE ENGINEER 029531 |
| | ELECTRICAL AND PROGRAMMING DETAILS FOR: PLAN DATE: January 2022 PREPARED BY: S.G. Haynie | DIVISION 6 Cumberland County Fayetteville REVIEWED BY: V. Kaiser REVIEWED BY: | REVISIONS INIT. DATE |

04-Jan-22 16:38:53
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16:38:53

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A, 5A, 3A, 7A

(program controller as shown)

IMPORTANT!

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

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

```

COPY / CLEAR UTILITY
FROM          TO
PHASE TIMING... > PHASE TIMING...
TIMING PLAN... > TIMING PLAN...
PH DET OPT PLAN. > PH DET OPT PLAN.
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
TOGGLE TO SELECT A "FROM" AND A "TO"
THEN PRESS ENTER
  
```

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

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".

```

VEH DETECTOR [ 1]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
1 1
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

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

```

VEH DETECTOR [26]  VEH DET PLAN [ 2]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
26 0
EXTEND TIME... 0.0 DELAY TIME... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".

```

VEH DETECTOR [ 5]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
5 5
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

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

```

VEH DETECTOR [22]  VEH DET PLAN [ 2]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
22 0
EXTEND TIME... 0.0 DELAY TIME... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "3".
- Set delay time to "3".

```

VEH DETECTOR [ 3]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
3 3
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "28".
- Set assigned phase to "0".

```

VEH DETECTOR [28]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
28 0
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
  
```

- Place cursor in VEH DETECTOR [] position and enter "7".
- Set delay time to "3".

```

VEH DETECTOR [ 7]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
7 7
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "24".
- Set assigned phase to "0".



```

VEH DETECTOR [24]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
24 0
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: 06-1131T3
DESIGNED: January 2022
SEALED: 1/5/2022
REVISED: N/A

Temporary Signal 3 - TCP Phase IV Electrical Detail - Sheet 3 of 4

| | | |
|--|--|--|
|  NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) | |
| | Division 6 Cumberland County Fayetteville PLAN DATE: January 2022 PREPARED BY: S.G. Haynie | REVIEWED BY: V. Kaiser REVIEWED BY: |
| REVISIONS _____ _____ _____ | INIT. DATE _____ _____ _____ | SEAL  SEVEN G. HAYNIE ENGINEER 029531 |

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

| | |
|--|--|
| SEAL  SEVEN G. HAYNIE ENGINEER 029531 | 1/5/2022 SIGNATURE DATE _____ _____ |
| SIG. INVENTORY NO. 06-1131T3 | |

06-1131T3-22 16:39:20 R:\P\T\FF\cns\gn\1540das\gn\Plan Sheets\W\or_F\Incl_Submittal\061131T3_sig_dsn_20220105a.dgn 16:39:20

ECONOLITE ASC/3-2070 ACTION PLAN PROGRAMMING DETAIL

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN. SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1, 3, 5, and 7.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1, 3, 5, and 7.

| PHASING | VEH DET PLAN | SF BITS ENABLED |
|--|--------------|-----------------|
| ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u> | 1 | NONE |
| ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u> | 2 | 1, 3, 5, 7 |

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

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN SF BITS 1, 3, 5, AND 7 AND VEH DET PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

SF BITS 1,3,5,7: Modifies overlap parent phases for heads 11, 31, 51, and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 3 seconds.

Disables phase 8 call on loop 3A and reduces delay time for phase 3 call on loop 3A to 3 seconds.

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

Disables phase 4 call on loop 7A and reduces delay time for phase 7 call on loop 7A to 3 seconds.

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

```

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

```

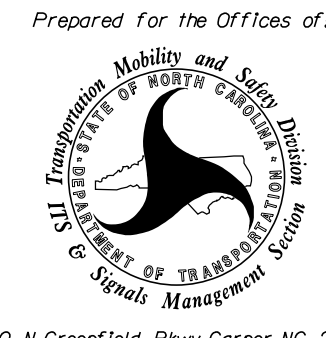
THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-1131T3
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Temporary Signal 3 - TCP Phase IV
Electrical Detail - Sheet 4 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

SR 1102 (Gillis Hill Road)
at
SR 1112 (Stoney Point Road)

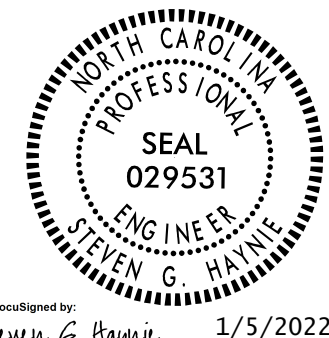
Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: V. Kaiser

PREPARED BY: S.G. Haynie REVIEWED BY:

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

SEAL



SEAL 029531

ENGINEER STEVEN G. HAYNIE

Disciplined by: Steven G. Haynie 1/5/2022

SIGNATURE DATE

SIG. INVENTORY NO. 06-1131T3



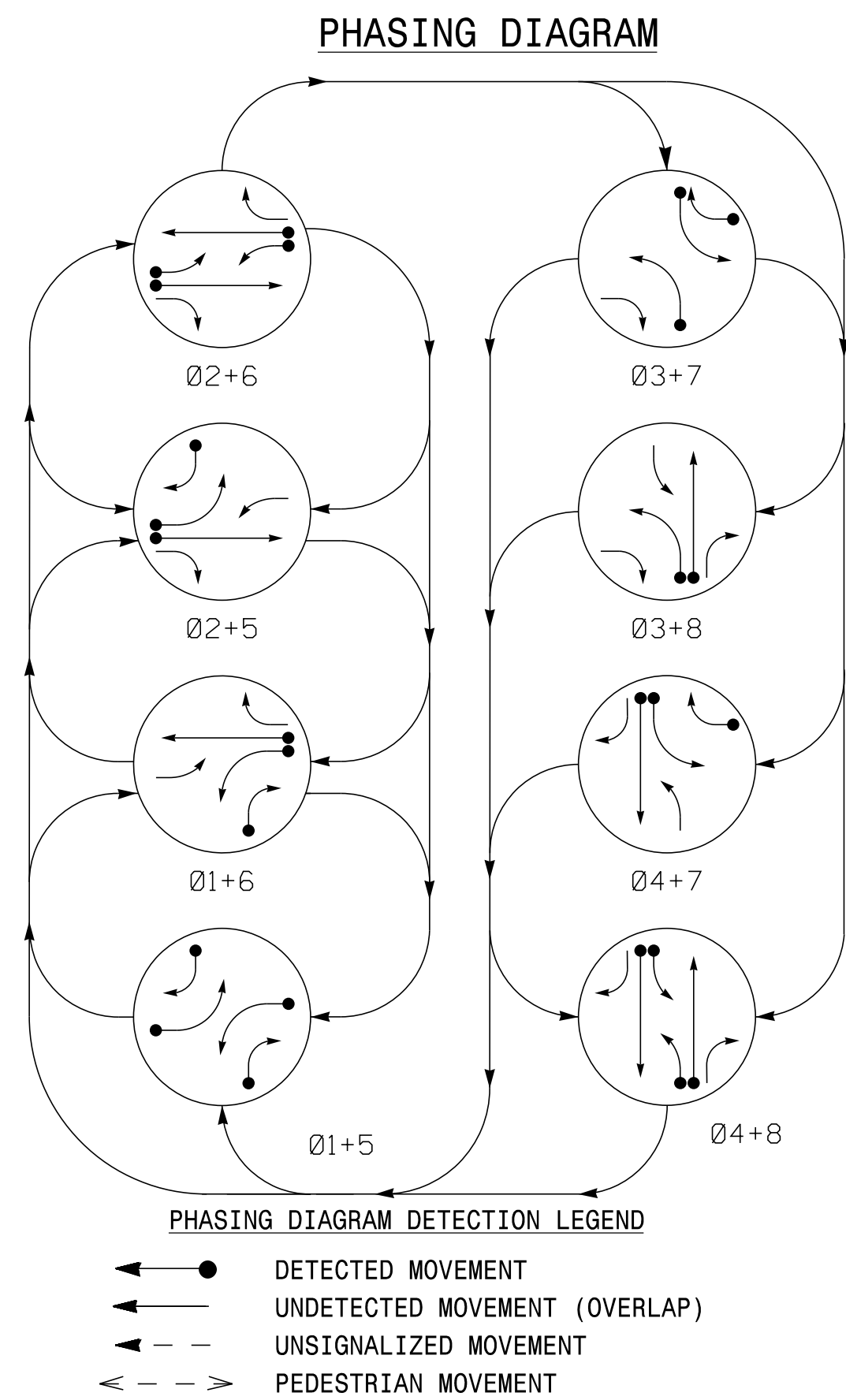
NC FIRM LICENSE No. F-0493
 8521 SIX FORKS ROAD, SUITE 400
 RALEIGH, NC 27615
 (919) 926-4100

04-Jan-22 16:39:34 R:\P\T\FF\cns\Signal\SDas\gnw\Plan_Sheets\W\or_F\Inal_Submittal\061131T3_sig_dsn_20220105a.dgn 16:39:34

8 Phase Fully Actuated Fayetteville Signal System

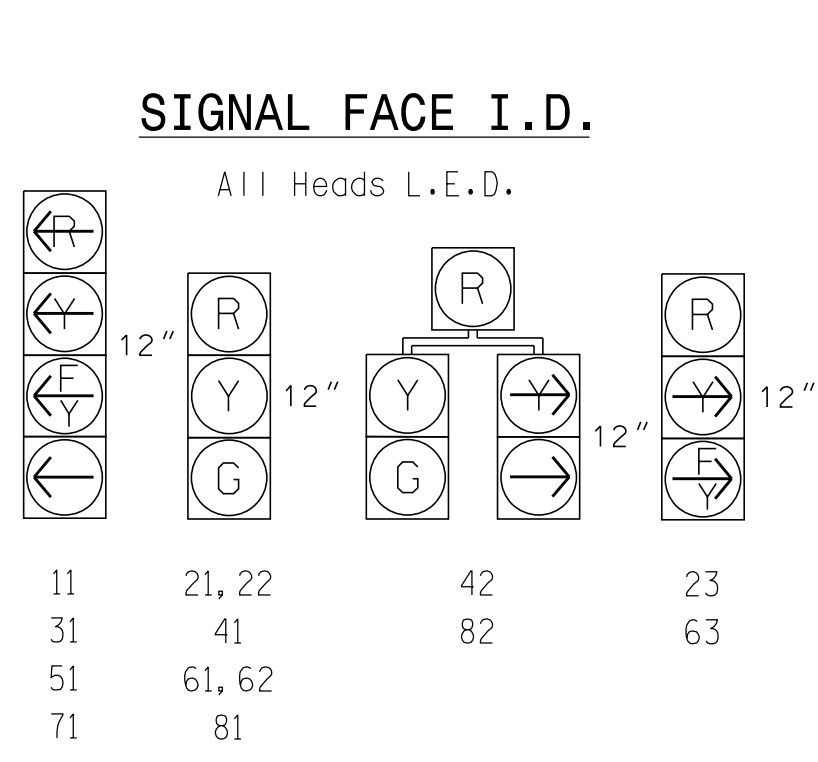
NOTES

- 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.
- Reposition existing signal heads 61, and 62.
- Install new lead-in cable for all proposed and existing detectors.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.



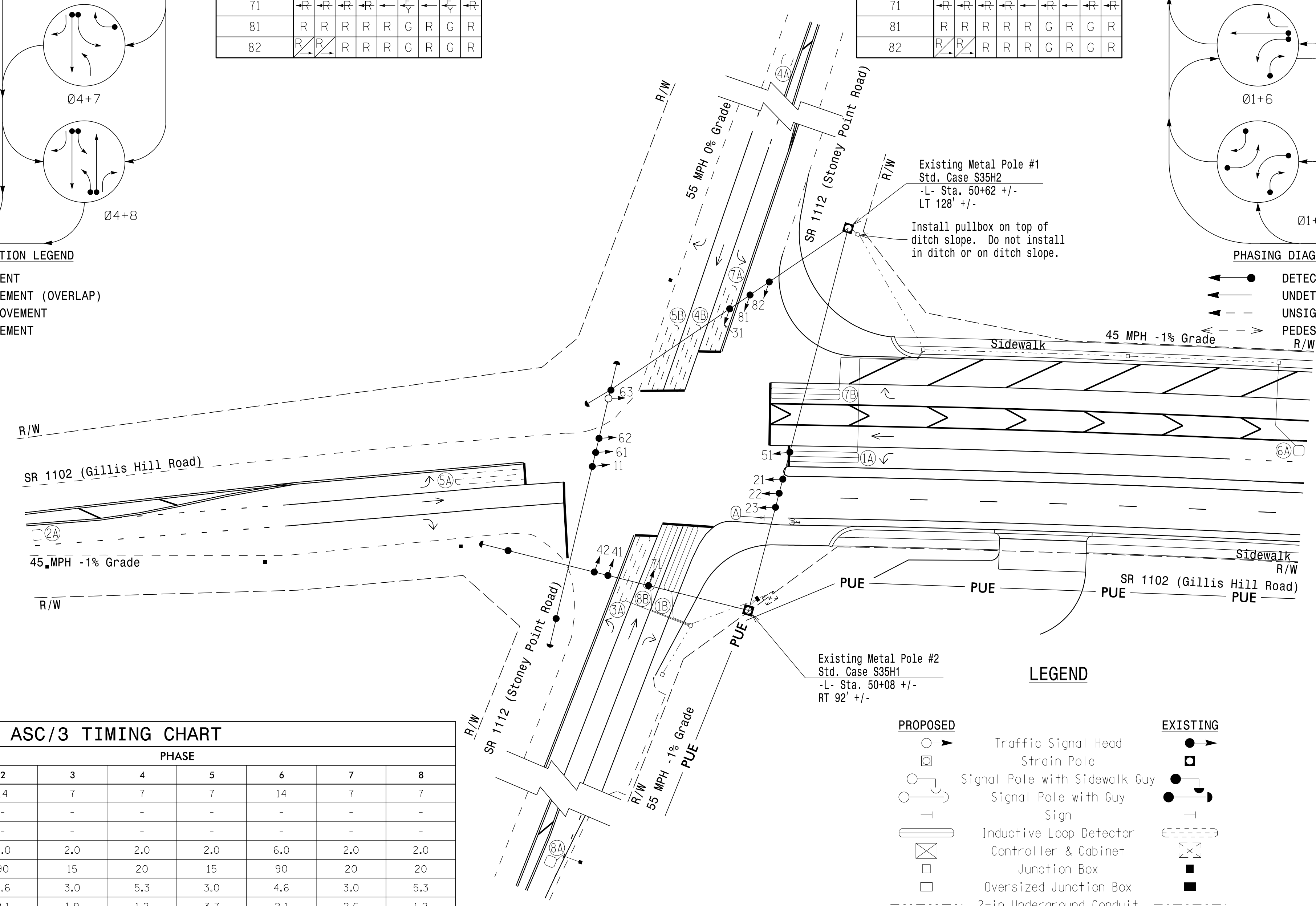
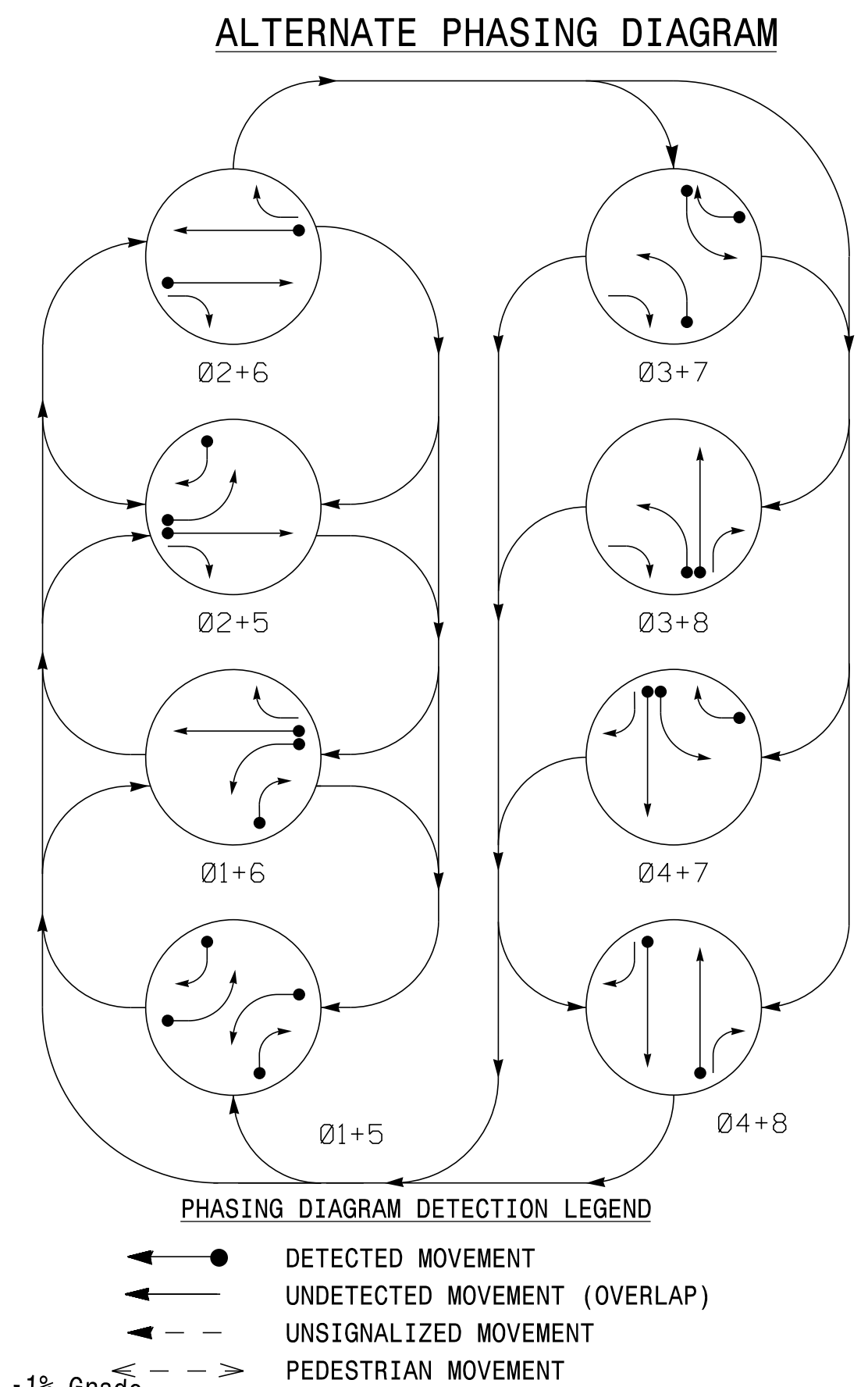
DEFAULT TABLE OF OPERATION

| SIGNAL FACE | PHASE | | | | | | | |
|-------------|-------|------|------|------|------|------|------|------|
| | Ø1+5 | Ø1+6 | Ø2+5 | Ø2+6 | Ø3+7 | Ø3+8 | Ø4+7 | Ø4+8 |
| 11 | R | R | F | F | R | R | R | Y |
| 21, 22 | R | R | G | G | R | R | R | Y |
| 23 | R | R | F | F | F | F | R | Y |
| 31 | R | R | R | R | R | R | R | R |
| 41 | R | R | R | R | R | R | G | R |
| 42 | R | R | R | R | R | R | G | R |
| 51 | R | R | F | F | R | R | R | Y |
| 61, 62 | R | R | G | G | R | R | R | Y |
| 63 | R | R | F | F | F | F | R | Y |
| 71 | R | R | R | R | R | R | F | R |
| 81 | R | R | R | R | R | R | G | R |
| 82 | R | R | R | R | R | R | G | R |



ALTERNATE TABLE OF OPERATION

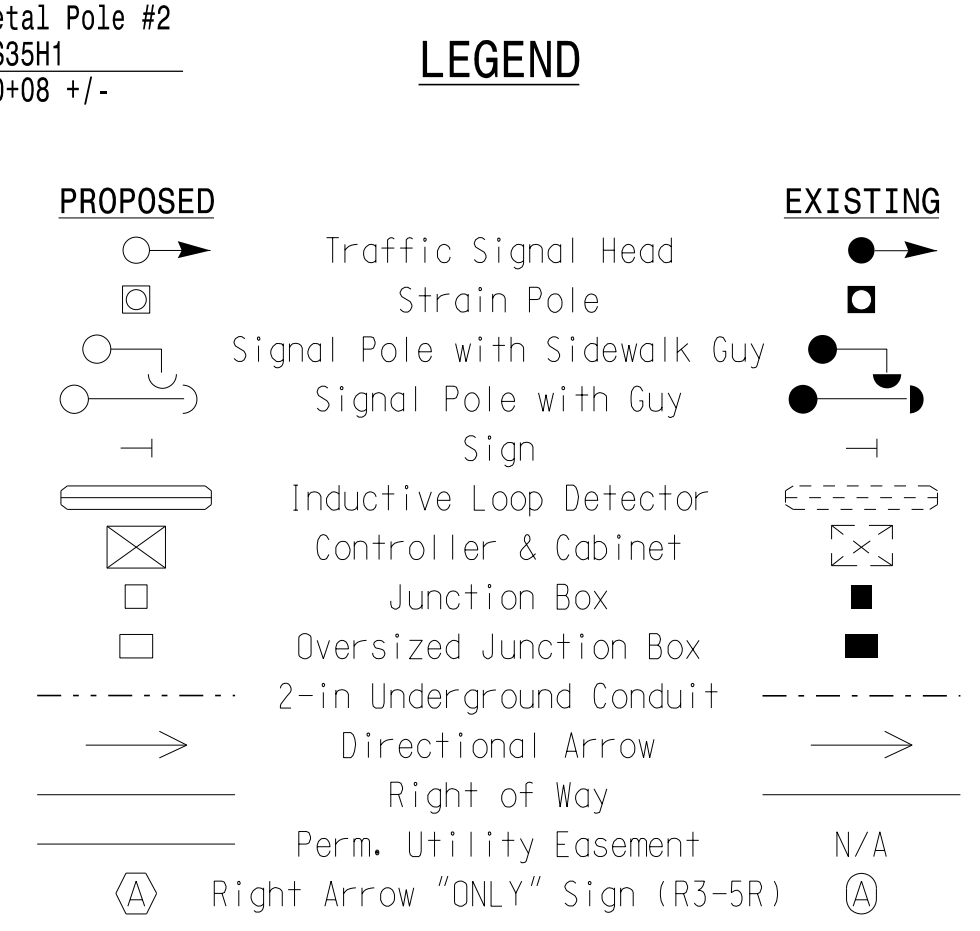
| SIGNAL FACE | PHASE | | | | | | | |
|-------------|-------|------|------|------|------|------|------|------|
| | Ø1+5 | Ø1+6 | Ø2+5 | Ø2+6 | Ø3+7 | Ø3+8 | Ø4+7 | Ø4+8 |
| 11 | R | R | R | R | R | R | R | Y |
| 21, 22 | R | R | G | G | R | R | R | Y |
| 23 | R | R | F | F | F | F | R | Y |
| 31 | R | R | R | R | R | R | R | R |
| 41 | R | R | R | R | R | R | G | R |
| 42 | R | R | R | R | R | R | G | R |
| 51 | R | R | F | F | R | R | R | Y |
| 61, 62 | R | R | G | G | R | R | R | Y |
| 63 | R | R | F | F | F | F | R | Y |
| 71 | R | R | R | R | R | R | F | R |
| 81 | R | R | R | R | R | R | G | R |
| 82 | R | R | R | R | R | R | G | R |



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 * | 30 | 90 | 15 | 20 | 15 | 90 | 20 | 20 |
| Yellow | 3.0 | 4.6 | 3.0 | 5.3 | 3.0 | 4.6 | 3.0 | 5.3 |
| Red Clear | 3.2 | 2.1 | 1.9 | 1.2 | 3.7 | 2.1 | 2.6 | 1.2 |
| Actuations B4 Add * | - | 0 | - | - | - | 0 | - | - |
| Seconds /Actuation * | - | 2.5 | - | - | - | 2.5 | - | - |
| Max Initial * | - | 34 | - | - | - | 34 | - | - |
| Time Before Reduction * | - | 15 | - | - | - | 15 | - | - |
| Time To Reduce * | - | 30 | - | - | - | 30 | - | - |
| Minimum Gap | - | 3.0 | - | - | - | 3.0 | - | - |
| Locking Detector | - | 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 DETECTOR INSTALLATION CHART

| LOOP | SIZE (FT) | DISTANCE FROM STOPBAR (FT) | TURNS | NEW LOOP | PROGRAMMING | | | | | | | |
|------|-----------|----------------------------|-------|----------|-------------|---------|-------------|-----------------|--------------------|------|-------------|----------|
| | | | | | PHASE | CALLING | EXTEND TIME | DELAY TIME | USED ADDED INITIAL | TYPE | SYSTEM LOOP | NEW CARD |
| 1A | 6X40 | 0 | 2-4-2 | X | 1 | YES | - | 15 ⁺ | - | N | - | X |
| 1B | 6X40 | 0 | 2-4-2 | X | 1 | YES | - | 15 | - | N | - | X |
| 2A | 6X6 | 300 | 5 | - | 2 | YES | - | - | X | N | - | X |
| 3A | 6X40 | 0 | 2-4-2 | - | 3 | YES | - | 15 ⁺ | - | N | - | X |
| 4A | 6X6 | 420 | 6 | - | 4 | NO | 3.2 | - | - | N | - | X |
| 4B | 6X40 | 0 | 2-4-2 | - | 4 | YES | - | 3 | - | N | - | X |
| 5A | 6X40 | 0 | 2-4-2 | - | 5 | YES | - | 15 ⁺ | - | N | - | X |
| 5B | 6X40 | 0 | 2-4-2 | - | 5 | YES | - | 15 | - | N | - | X |
| 6A | 6X6 | 300 | 5 | X | 6 | YES | - | - | X | N | - | X |
| 7A | 6X40 | 0 | 2-4-2 | - | 7 | YES | - | 15 ⁺ | - | N | - | X |
| 7B | 6X40 | 0 | 2-4-2 | X | 7 | YES | - | 15 | - | N | - | X |
| 8A | 6X6 | 420 | 6 | X | 8 | NO | 3.2 | - | - | N | - | X |
| 8B | 6X40 | 0 | 2-4-2 | X | 8 | YES | - | - | - | N | - | X |

+ Reduce to 3 sec during Alt Phasing Ops
 @ Disable calling during Alt Phasing Ops

Signal Upgrade - Final

SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road)

Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: S.G. Haynie

PREPARED BY: S.N. Matthews REVIEWED BY: S.G. Haynie

REVISIONS: _____ INIT: _____ DATE: _____

SCALE: 1"=40'

RS&H
 NC FIRM LICENSE No: F-0493
 8521 SIX FORKS ROAD, SUITE 400
 RALEIGH, NC 27615
 (919) 926-4100

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

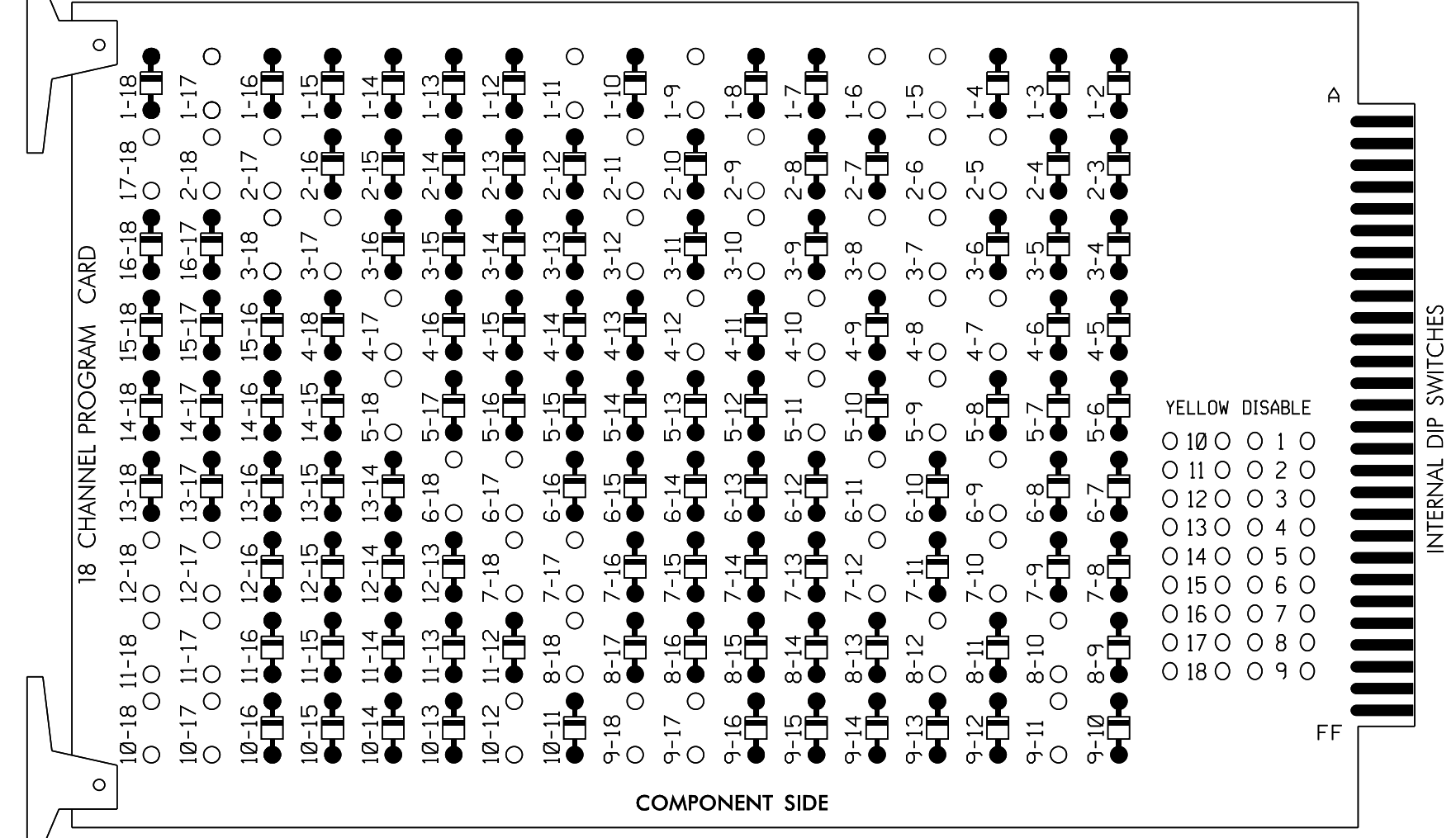
SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 046989

SIGNATURE: _____ DATE: 1/5/2022

SIG. INVENTORY NO. 06-1131

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, 1-17, 2-5, 2-6, 2-9, 2-11, 2-17, 2-18, 3-7, 3-8, 3-10, 3-12, 3-17, 3-18, 4-7, 4-8, 4-10, 4-12, 4-17, 5-9, 5-11, 5-18, 6-9, 6-11, 6-17, 6-18, 7-10, 7-12, 7-17, 7-18, 8-10, 8-12, 8-18, 9-11, 9-17, 9-18, 10-12, 10-17, 10-18, 11-17, 11-18, 12-17, 12-18, and 17-18.



REMOVE JUMPERS AS SHOWN

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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all 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 Fayetteville Signal System.

EQUIPMENT INFORMATION

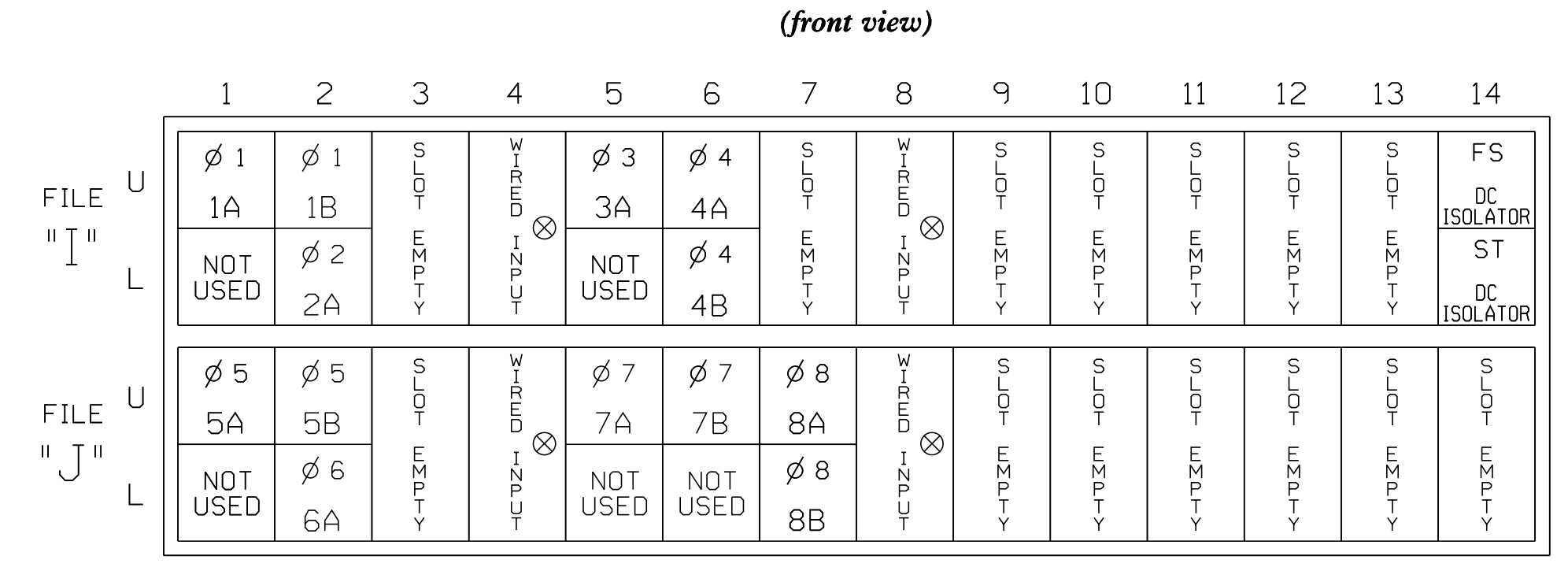
CONTROLLER.....2070LX
 CABINET.....332 W/AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,
 S10,S11,AUX S1,AUX S2,
 AUX S3,AUX S4,AUX S5,AUX S6
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP "A".....*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

SIGNAL HEAD HOOK-UP CHART

| LOAD SWITCH NO. | S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | S9 | S10 | S11 | S12 | AUX S1 | AUX S2 | AUX S3 | AUX S4 | AUX S5 | AUX S6 | | |
|-----------------------|-----|-----|-------|----|-----|-------|----|-----|-------|-------|-----|-------|--------|--------|--------|--------|--------|--------|------|------|
| CMU CHANNEL NO. | 1 | 2 | 13 | 3 | 4 | 14 | 5 | 6 | 15 | 7 | 8 | 16 | 9 | 10 | 17 | 11 | 12 | 18 | | |
| PHASE | 1 | 2 | 2 PED | 3 | 4 | 4 PED | 5 | 6 | 6 PED | 7 | 8 | 8 PED | OLA | OLB | OLE | OLC | OLD | OLF | | |
| SIGNAL HEAD NO. | 11 | 82 | 21,22 | NU | 31 | 41,42 | NU | 42 | 51 | 61,62 | NU | 71 | 81,82 | NU | 11 | 31 | 63 | 51 | 71 | 23 |
| RED | | * | 128 | | 101 | | * | 134 | | 107 | | | | | | A111 | | | | A104 |
| YELLOW | | | 129 | * | 102 | | | 135 | * | 108 | | | | | | | | | | |
| GREEN | | | 130 | | 103 | | | 136 | | 109 | | | | | | | | | | |
| RED ARROW | | | | | | | | | | | | | | | A121 | A124 | | A114 | A101 | |
| YELLOW ARROW | 126 | | | | | | | | | | | | | | A122 | A125 | A112 | A115 | A102 | A105 |
| FLASHING YELLOW ARROW | | | | | | | | | | | | | | | A123 | A126 | A113 | A116 | A103 | A106 |
| GREEN ARROW | 127 | 127 | | | 118 | | | 133 | 133 | | 124 | | | | | | | | | |

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

INPUT FILE POSITION LAYOUT

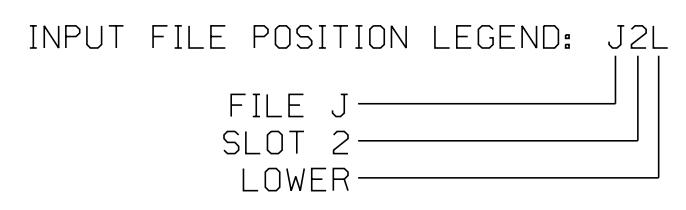


EX.: 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME
 ⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

| LOOP NO. | LOOP TERMINAL | INPUT FILE POS. | PIN NO. | DETECTOR NO. | NEMA PHASE | CALL | EXTEND TIME | DELAY TIME | ADDED INITIAL | DETECTOR TYPE |
|----------|---------------|-----------------|---------|--------------|------------|------|-------------|------------|---------------|---------------|
| 1A | TB2-1,2 | I1U | 56 | 1★ | 1 | YES | | 15 | --- | N |
| | - | J4U | 48 | 26★ | 6 | YES | | 3 | --- | G |
| 1B | TB2-5,6 | I2U | 39 | 2 | 1 | YES | --- | 15 | --- | N |
| 2A | TB2-7,8 | I2L | 43 | 12 | 2 | YES | --- | --- | X | N |
| 3A | TB4-5,6 | I5U | 58 | 3★ | 3 | YES | --- | 15 | --- | N |
| | - | J8U | 50 | 28★ | 8 | YES | --- | --- | --- | N |
| 4A | TB4-9,10 | I6U | 41 | 4 | 4 | NO | 3.2 | --- | --- | N |
| 4B | TB4-11,12 | I6L | 45 | 14 | 4 | YES | --- | 3 | --- | N |
| 5A | TB3-1,2 | J1U | 55 | 5★ | 5 | YES | --- | 15 | --- | N |
| | - | I4U | 47 | 22★ | 2 | YES | --- | 3 | --- | G |
| 5B | TB3-5,6 | J2U | 40 | 6 | 5 | YES | --- | 15 | --- | N |
| 6A | TB3-7,8 | J2L | 44 | 16 | 6 | YES | --- | --- | X | N |
| 7A | TB5-5,6 | J5U | 57 | 7★ | 7 | YES | --- | 15 | --- | N |
| | - | I8U | 49 | 24★ | 4 | YES | --- | --- | --- | N |
| 7B | TB5-9,10 | J6U | 42 | 8 | 7 | YES | --- | 15 | --- | N |
| 8A | TB5-11,12 | J6L | 46 | 18 | 8 | NO | 3.2 | --- | --- | N |
| 8B | TB7-1,2 | J7U | 66 | 38 | 8 | YES | --- | --- | --- | 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.
 - 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.
- ★ See vehicle detector setup programming detail for alternate phasing on sheets 3 and 4.



FLASHER CIRCUIT MODIFICATION DETAIL

In order to ensure that signals flash concurrently on the same approach, make the following flasher circuit changes:

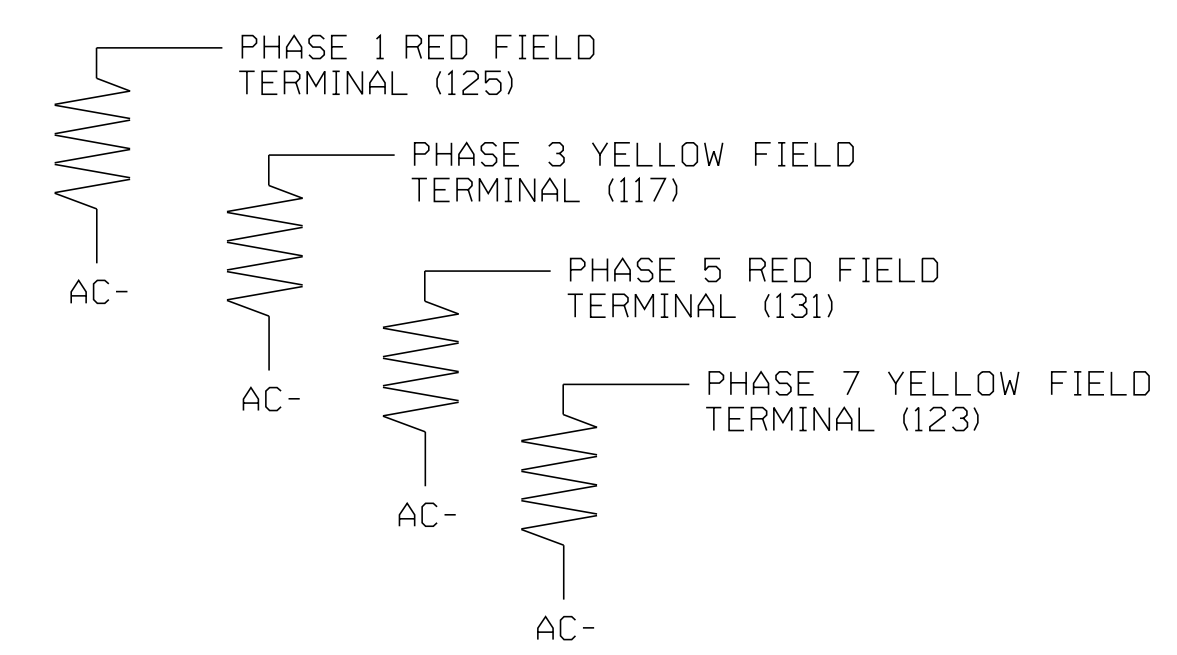
- On rear of PDA - remove wire from Term. T2-4 and terminate on T2-2.
 - On rear of PDA - remove wire from Term. T2-5 and terminate on T2-3.
 - Remove flasher unit 2.
- The changes listed above ties all phases and overlaps to flasher unit 1.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1131
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Signal Upgrade - Final
 Electrical Detail - Sheet 1 of 4

| | | | |
|---|--|-------------------------|----------|
| ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) | | SEAL |
| | Division 6 Cumberland County Fayetteville PLAN DATE: January 2022 REVIEWED BY: V. Kaiser PREPARED BY: S.G. Haynie REVIEWED BY: | REVISIONS INIT. DATE | |

8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100

750 N. Greenfield Pkwy, Garner, NC 27529

SIG. INVENTORY NO. 06-1131

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..... 1
  
```

Toggle Once

NOTICE ACTION PLAN SF BIT "1"

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

```

TMG VEH OVLP...[B] TYPE: ....PPLT FYA
PROTECTED LEFT TURN.... PHASE 3
OPPOSING THROUGH..... PHASE 4

FLASHING ARROW OUTPUT....CH10 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 3
  
```

Toggle Once

NOTICE ACTION PLAN SF BIT "3"

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

```

TMG VEH OVLP...[C] TYPE: ....PPLT FYA
PROTECTED LEFT TURN.... PHASE 5
OPPOSING THROUGH..... PHASE 6

FLASHING ARROW OUTPUT....CH11 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 5
  
```

Toggle Once

NOTICE ACTION PLAN SF BIT "5"

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

```

TMG VEH OVLP...[D] TYPE: ....PPLT FYA
PROTECTED LEFT TURN.... PHASE 7
OPPOSING THROUGH..... PHASE 8

FLASHING ARROW OUTPUT....CH12 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 7
  
```

Toggle Once

NOTICE ACTION PLAN SF BIT "7"

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

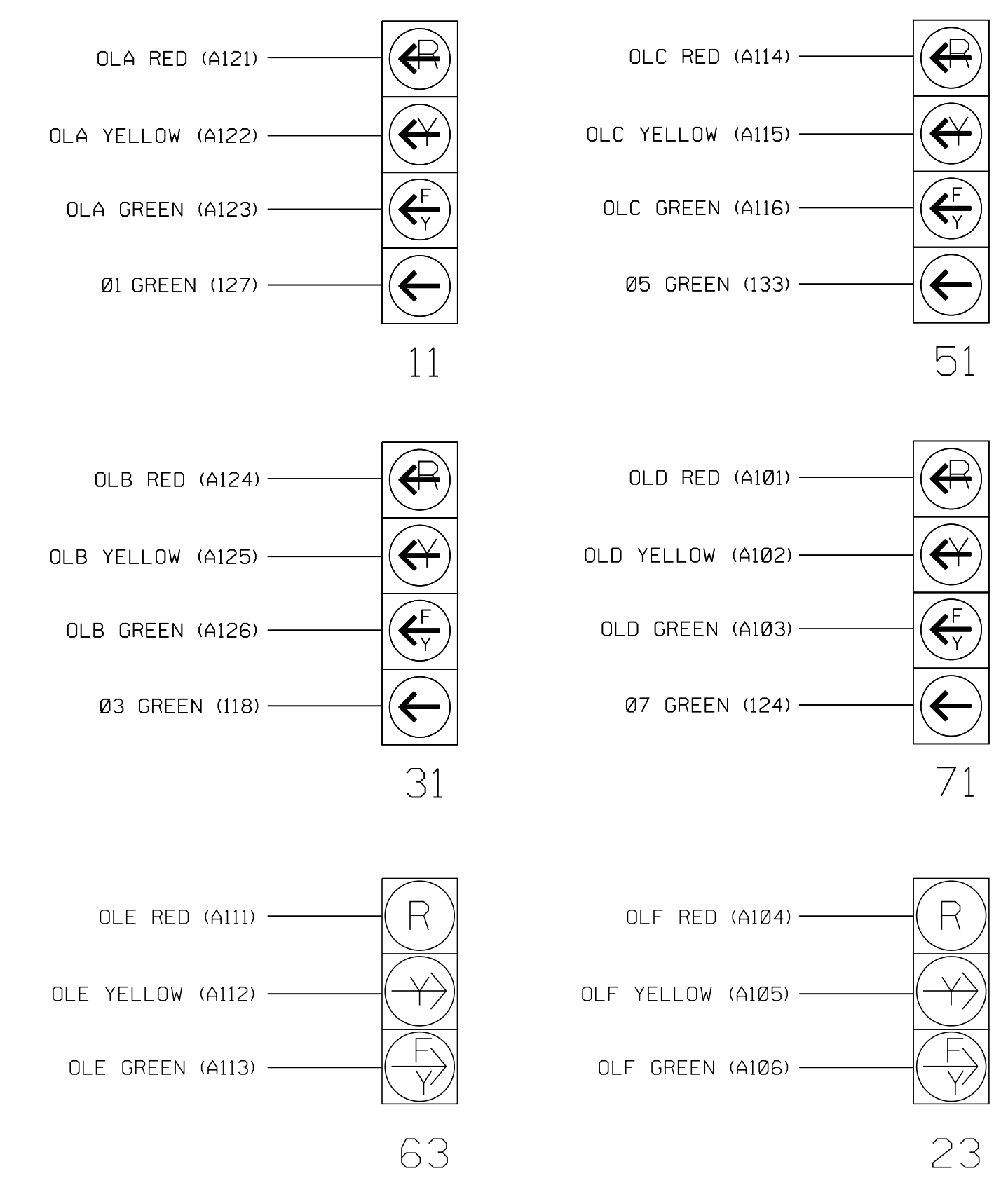
```

TMG VEH OVLP...[E] TYPE: OTHER/ECONOLITE
PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . . . . X 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 Once

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



Signal Upgrade - Final
Electrical Detail - Sheet 2 of 4

| | | | |
|---|---|-------------------------|--|
| ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: NC FIRM LICENSE No: F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) | | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL SEVEN G. HAUPT ENGINEER 1/5/2022 |
| | Division 6 Cumberland County Fayetteville PLAN DATE: January 2022 REVIEWED BY: V. Kaiser PREPARED BY: S.G. Haupt REVIEWED BY: | REVISIONS INIT. DATE | |

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 06-1131
DESIGNED: January 2022
SEALED: 1/5/2022
REVISED: N/A

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16:52:33

ECONOLITE ASC/3-2070 VEHICLE DETECTOR SETUP PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A, 5A, 3A, 7A

(program controller as shown)

IMPORTANT!

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

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

```

COPY / CLEAR UTILITY
FROM          TO
PHASE TIMING... > PHASE TIMING...
TIMING PLAN... > TIMING PLAN...
PH DET OPT PLAN. > PH DET OPT PLAN.
DETECTOR PLAN... 1 > DETECTOR PLAN... 2
TOGGLE TO SELECT A "FROM" AND A "TO"
THEN PRESS ENTER
  
```

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

- Place cursor in VEH DETECTOR [] position and enter "1".
- Set delay time to "3".

```

VEH DETECTOR [ 1]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
1 1
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

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

```

VEH DETECTOR [26]  VEH DET PLAN [ 2]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
26 0
EXTEND TIME... 0.0 DELAY TIME... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "5".
- Set delay time to "3".

```

VEH DETECTOR [ 5]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
5 5
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

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

```

VEH DETECTOR [22]  VEH DET PLAN [ 2]
TYPE: G-GREEN EXTENSION/DELAY
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
22 0
EXTEND TIME... 0.0 DELAY TIME... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "3".
- Set delay time to "3".

```

VEH DETECTOR [ 3]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
3 3
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "28".
- Set assigned phase to "0".

```

VEH DETECTOR [28]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
28 0
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
  
```

- Place cursor in VEH DETECTOR [] position and enter "7".
- Set delay time to "3".

```

VEH DETECTOR [ 7]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
7 7
EXTEND TIME... 0.0 DELAY TIME... 3.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

- Place cursor in VEH DETECTOR [] position and enter "24".
- Set assigned phase to "0".


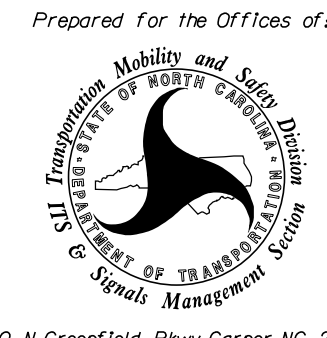
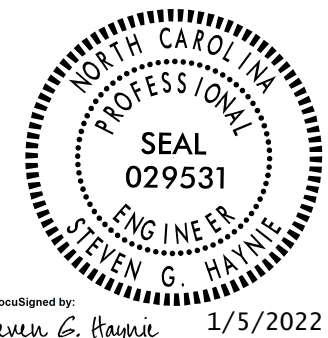
```

VEH DETECTOR [24]  VEH DET PLAN [ 2]
TYPE: N-NTCIP
TS2 DETECTOR..... ECPI LOG..... NO
DET PH - 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
24 0
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: 06-1131
DESIGNED: January 2022
SEALED: 1/5/2022
REVISED: N/A

Signal Upgrade - Final
Electrical Detail - Sheet 3 of 4

|  NC FIRM LICENSE No. F-0493 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 (919) 926-4100 | ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of:  | SR 1102 (Gillis Hill Road) at SR 1112 (Stoney Point Road) | DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED | | | | | | |
|--|---|---|---|-----------|-------|------|--|--|--|
| | Division 6 Cumberland County Fayetteville PLAN DATE: January 2022 REVIEWED BY: V. Kaiser PREPARED BY: S.G. Haynie REVIEWED BY: | SEALS  SEAL 029531 ENGINEER STEVEN G. HAYNIE | REVISIONS <table border="1"> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table> | REVISIONS | INIT. | DATE | | | |
| REVISIONS | INIT. | DATE | | | | | | | |
| | | | | | | | | | |

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ECONOLITE ASC/3-2070 ACTION PLAN PROGRAMMING DETAIL

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM CHANGES (SHOWN BELOW) IN A TIME BASED ACTION PLAN. SCHEDULE A DAY PLAN THAT INCLUDES THE ACTION PLAN PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1, 3, 5, and 7.

TO RUN ALT. PHASING DURING COORDINATION - SELECT THE TIME BASED ACTION PLAN THAT IS PROGRAMMED TO SELECT VEH DET PLAN 2 AND ENABLE SF BITS 1, 3, 5, and 7.

| PHASING | VEH DET PLAN | SF BITS ENABLED |
|--|--------------|-----------------|
| ACTIONS REQUIRED TO RUN <u>DEFAULT PHASING</u> | 1 | NONE |
| ACTIONS REQUIRED TO RUN <u>ALTERNATE PHASING</u> | 2 | 1, 3, 5, 7 |

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

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN SF BITS 1, 3, 5, AND 7 AND VEH DET PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

SF BITS 1,3,5,7: Modifies overlap parent phases for heads 11, 31, 51, and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 3 seconds.

Disables phase 8 call on loop 3A and reduces delay time for phase 3 call on loop 3A to 3 seconds.

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

Disables phase 4 call on loop 7A and reduces delay time for phase 7 call on loop 7A to 3 seconds.

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

```

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

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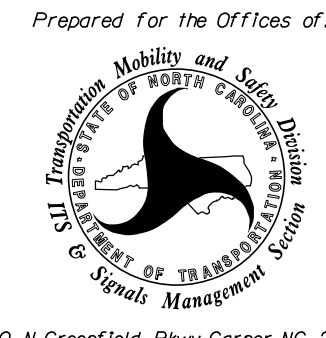
THIS ELECTRICAL DETAIL IS FOR
 THE SIGNAL DESIGN: 06-1131
 DESIGNED: January 2022
 SEALED: 1/5/2022
 REVISED: N/A

Signal Upgrade - Final
Electrical Detail - Sheet 4 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

SR 1102 (Gillis Hill Road)
at
SR 1112 (Stoney Point Road)

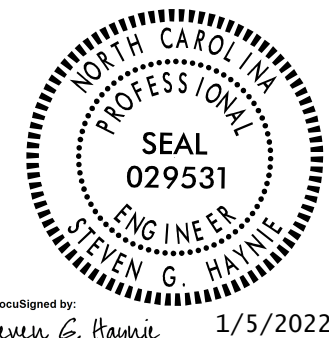
Division 6 Cumberland County Fayetteville

PLAN DATE: January 2022 REVIEWED BY: V. Kaiser

PREPARED BY: S.G. Haynie REVIEWED BY:

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

SEAL



DESIGNED BY: Steven G. Haynie DATE: 1/5/2022

SIGNATURE: _____ DATE: _____

SIG. INVENTORY NO. 06-1131



NC FIRM LICENSE No. F-0493
 8521 SIX FORKS ROAD, SUITE 400
 RALEIGH, NC 27615
 (919) 926-4100

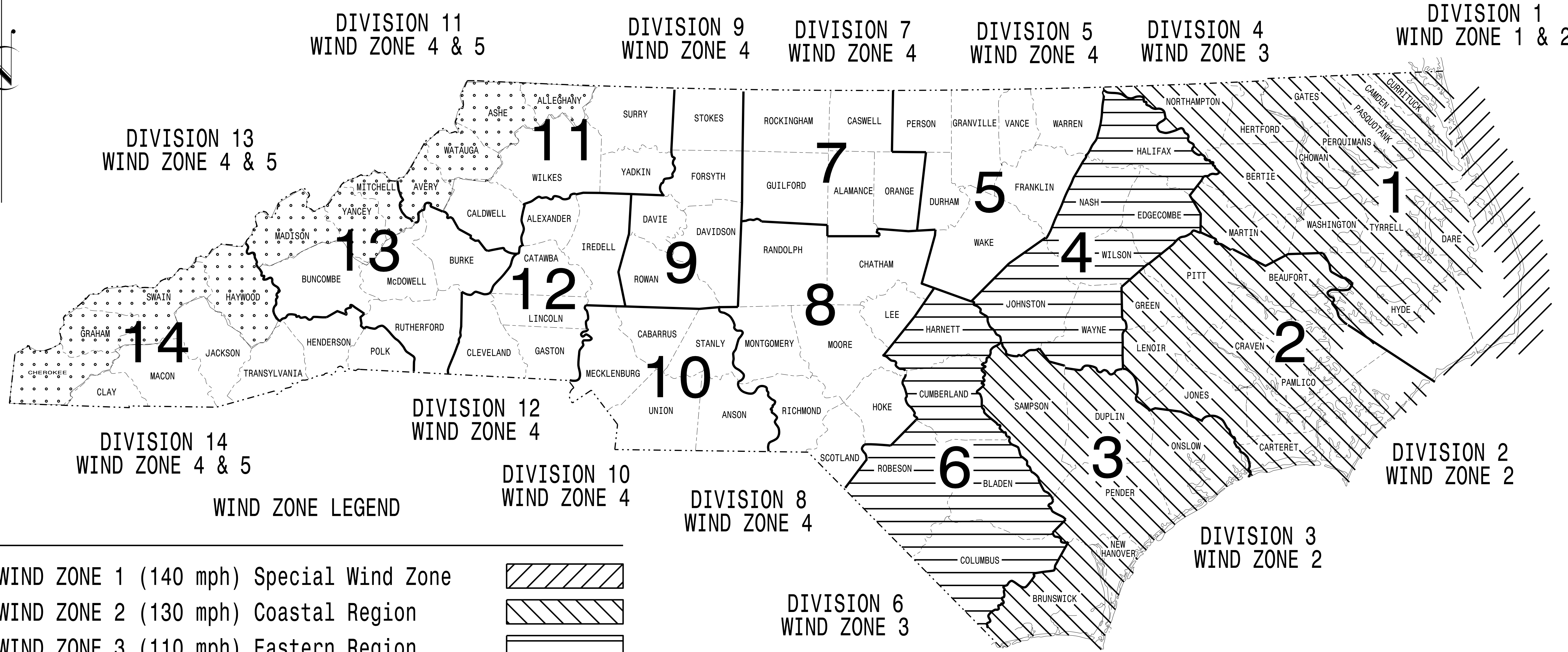
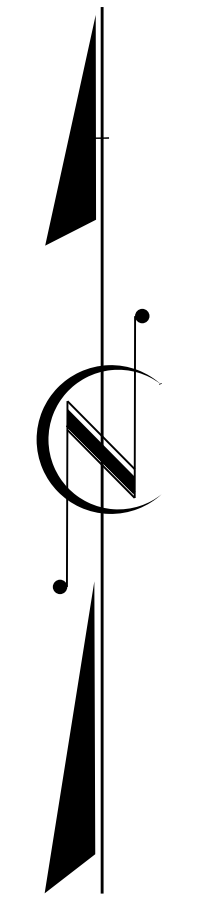
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NC DOT METAL POLE STANDARDS

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

| | |
|-----------------------------|---------------------|
| PROJECT I.D. NO. U-5798A | SHEET NO. Sig.M1 |
|-----------------------------|---------------------|

STANDARD DRAWINGS FOR ALL METAL POLES



WIND ZONE LEGEND

| | | |
|--|--|--|
| WIND ZONE 1 (140 mph) Special Wind Zone | | |
| WIND ZONE 2 (130 mph) Coastal Region | | |
| WIND ZONE 3 (110 mph) Eastern Region | | |
| WIND ZONE 4 (90 mph) Central & Mtn. Region | | |
| WIND ZONE 5 (120 mph) Special Wind Zone | | |

<https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>

Prepared In the Offices of:

750 N. Greenfield Pkwy.
Garner, NC 27529

Designed in conformance
with the latest
2015 Interim to the
6th Edition 2013
AASHTO
Standard Specifications for
Structural Supports for
Highway Signs, Luminaires,
and Traffic Signals

INDEX OF PLANS

| DRAWING NUMBER | DESCRIPTION |
|----------------|---|
| Sig. M 1 | Statewide Wind Zone Map |
| Sig. M 2 | Typical Fabrication Details-All Metal Poles |
| Sig. M 3 | Typical Fabrication Details-Strain Poles |
| Sig. M 4 | Typical Fabrication Details-Mast Arm Poles |
| Sig. M 5 | Typical Fabrication Details-Mast Arm Connection |
| Sig. M 6 | Typical Fabrication Details-Strain Pole Attachments |
| Sig. M 7 | Construction Details-Foundations |
| Sig. M 8 | Standard Strain Pole Foundation-All Soil Conditions |

NC DOT CONTACTS:

MOBILITY AND SAFETY DIVISION - ITS AND SIGNALS UNIT

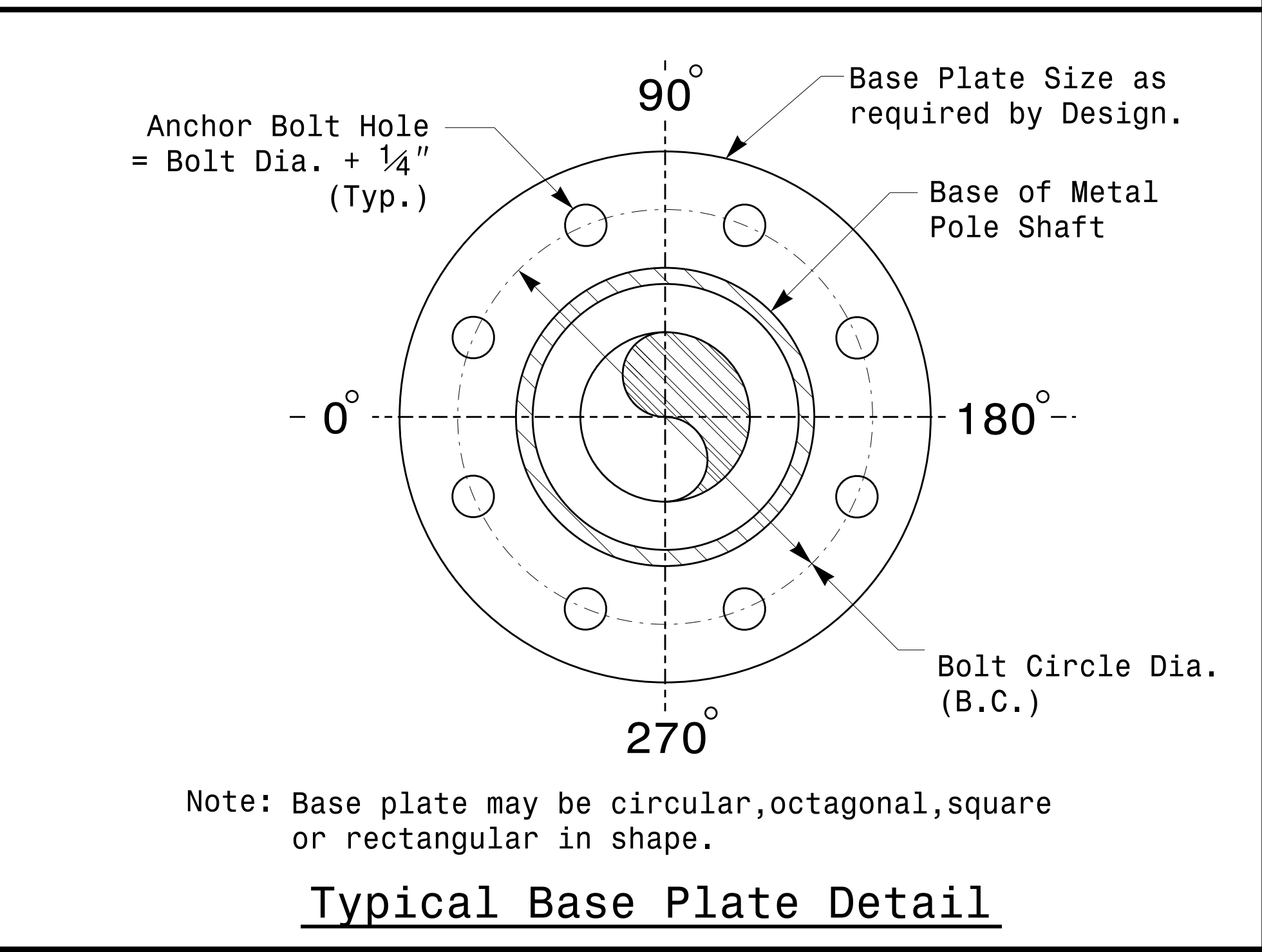
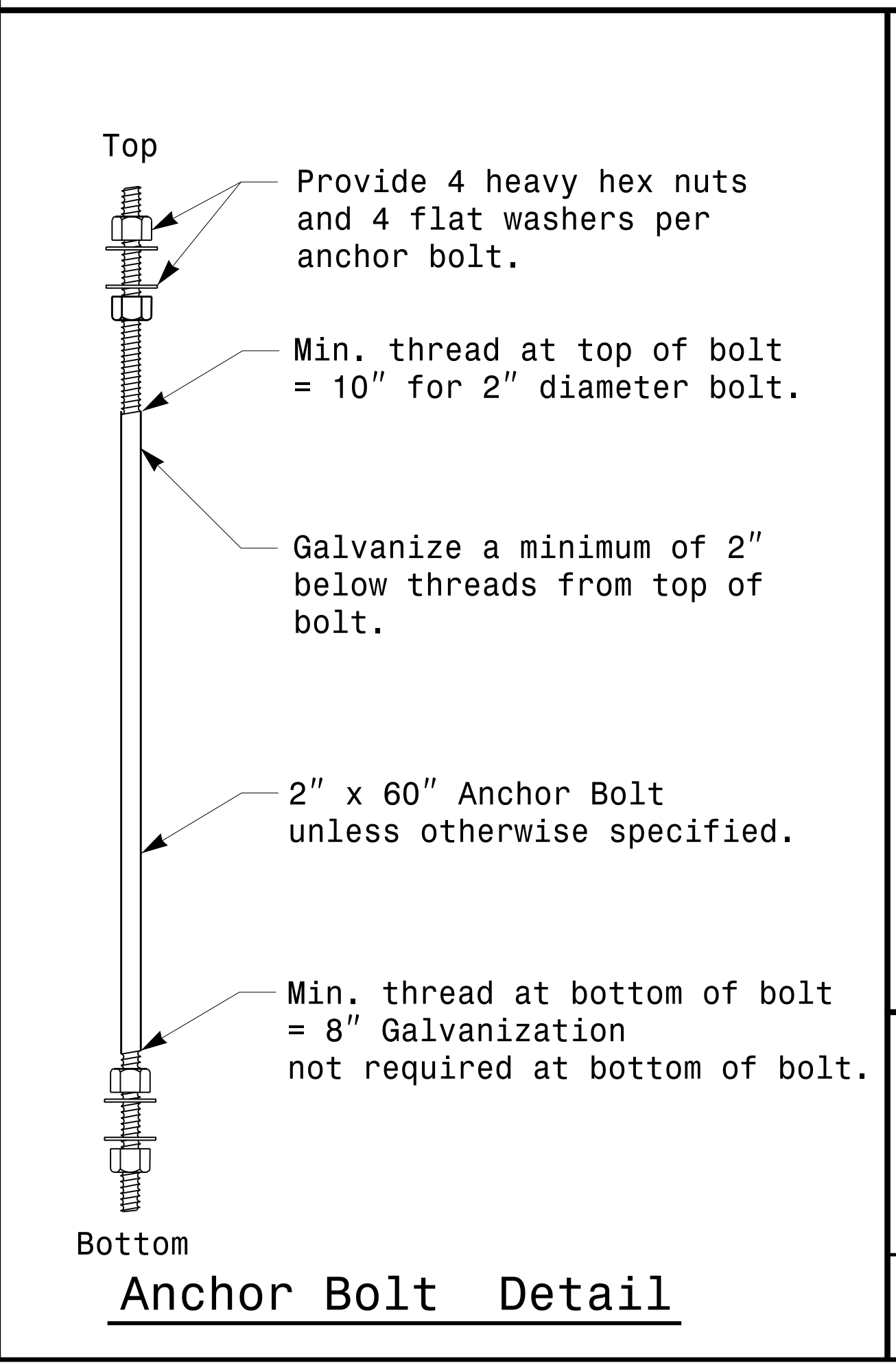
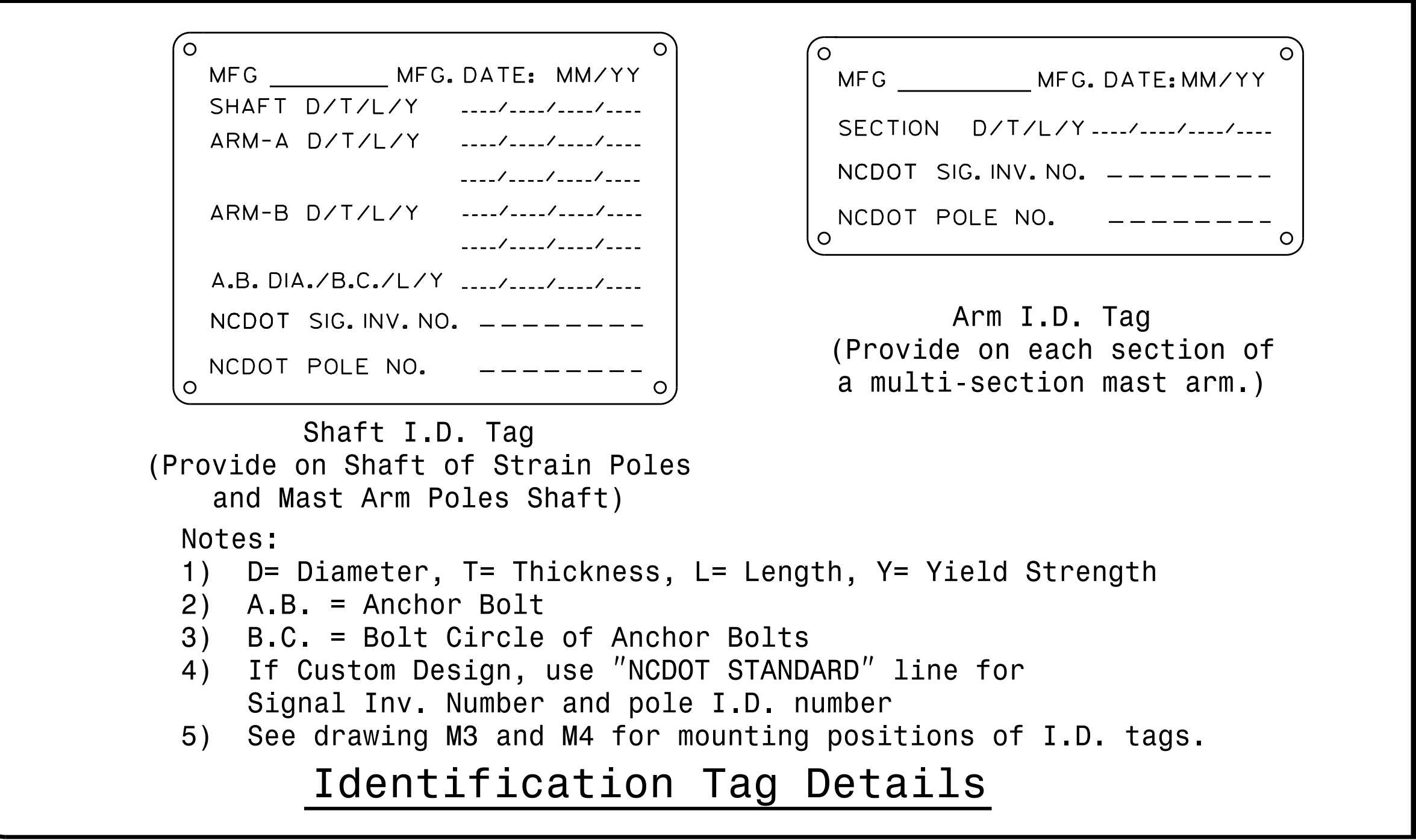
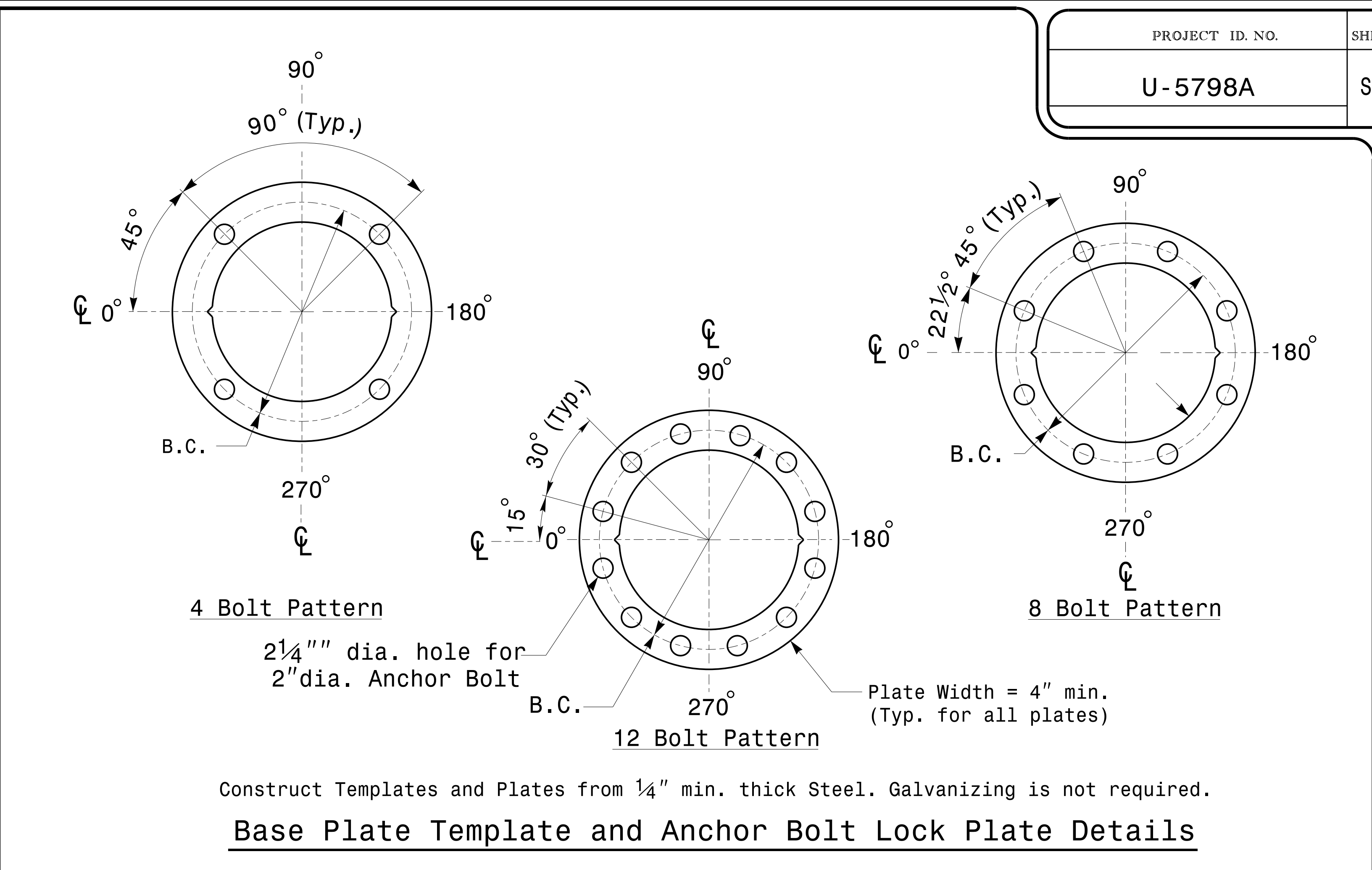
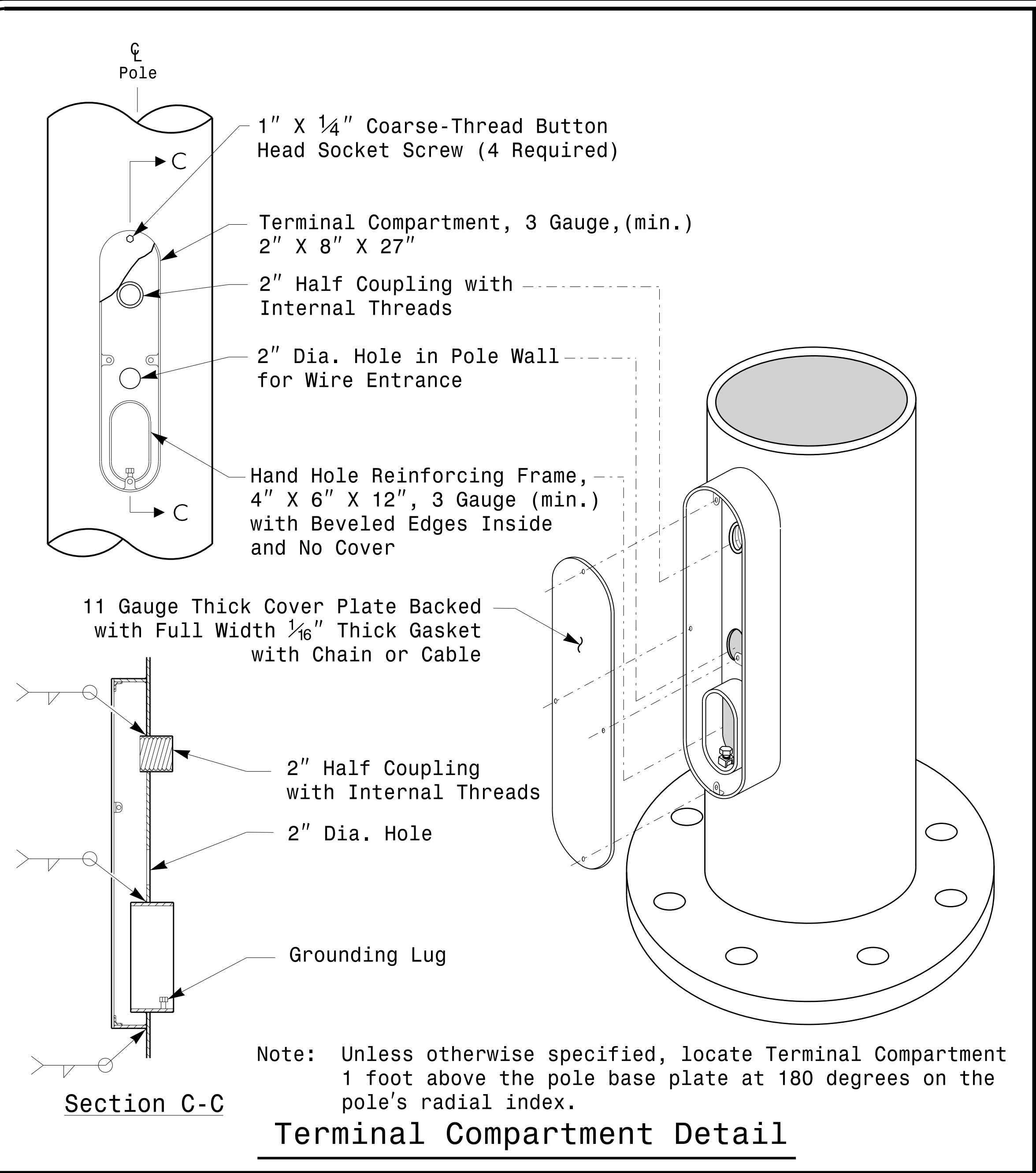
M.M. MCDIARMID, P.E. - STATE ITS AND SIGNALS ENGINEER
 J.P. GALLOWAY, P.E. - STATE SIGNALS ENGINEER
 D.C. SARKAR, P.E. - ITS AND SIGNALS SENIOR STRUCTURAL ENGINEER

SEAL

DocuSigned by:
Debesh C. Sarkar
DATE: 10/11/2017

| | |
|-----------------|-----------|
| PROJECT ID. NO. | SHEET NO. |
| U-5798A | Sig.M2 |

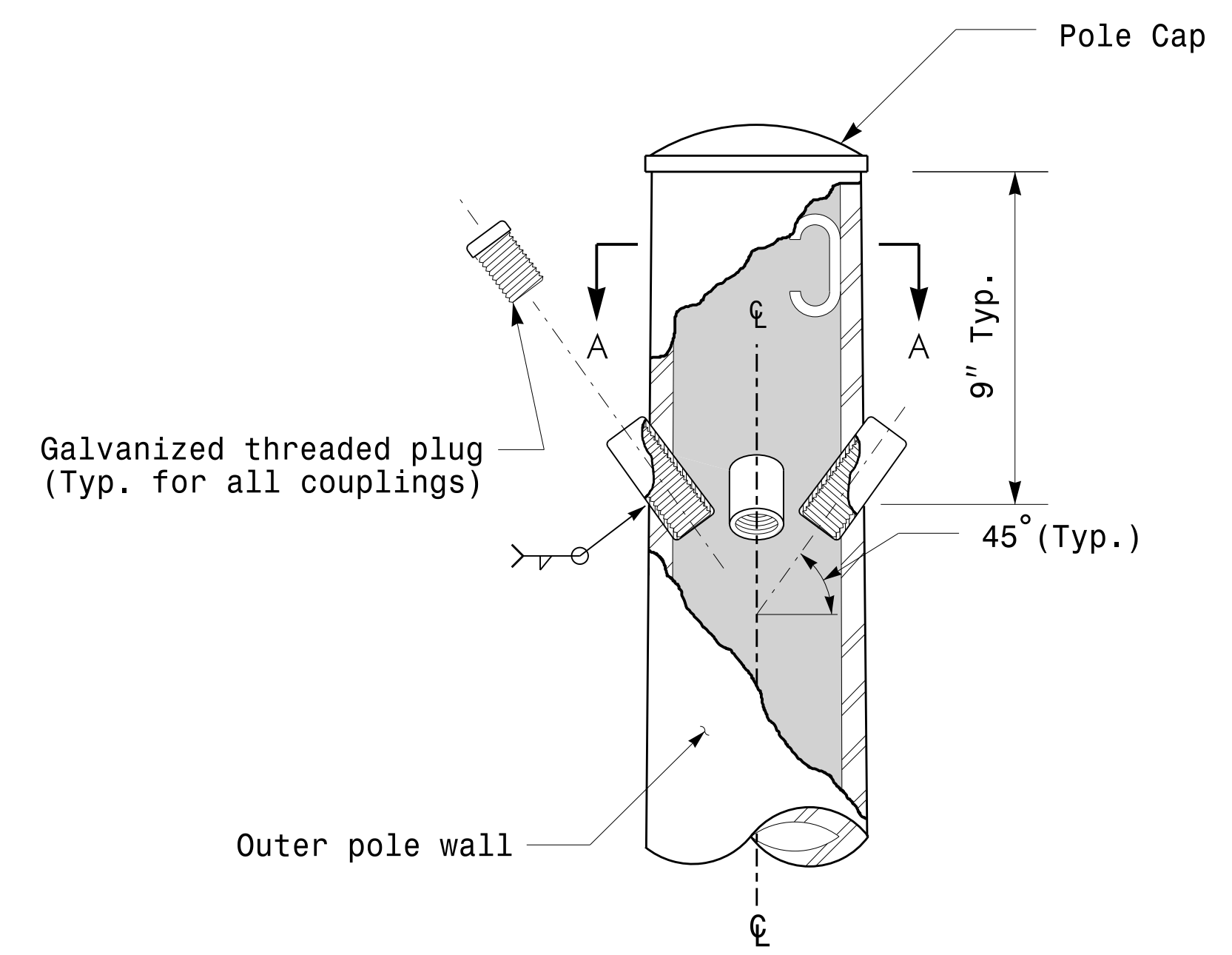
Fabrication Details – All Metal Poles



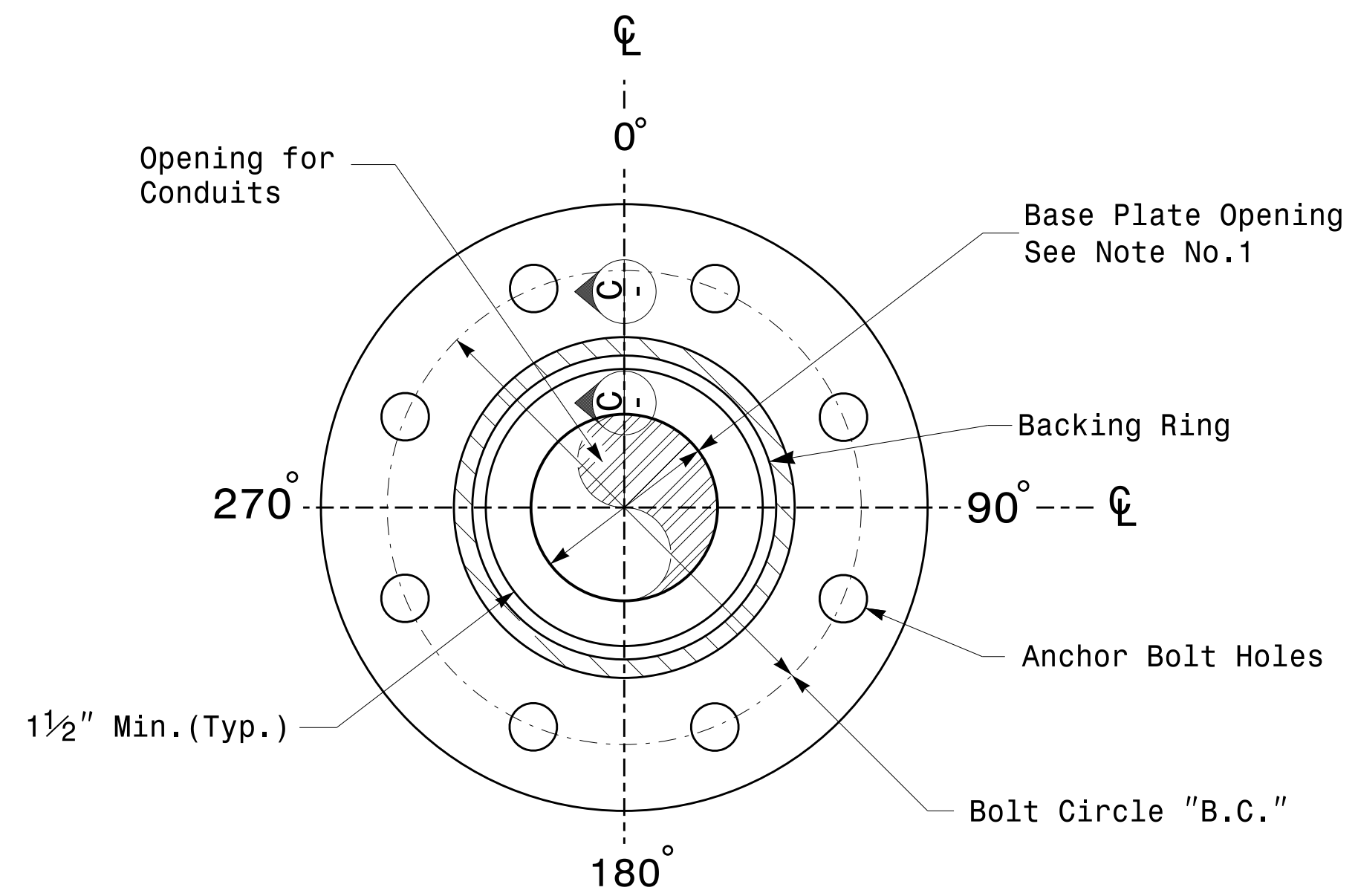
| | | | | |
|------------------|--|---|---|-------------------------|
| | Prepared In the Offices of: | | Typical Fabrication Details For All Metal Poles | |
| | PLAN DATE: OCTOBER 2017 PREPARED BY: N. BITTING | DESIGNED BY: C.F. ANDREWS REVIEWED BY: D.C. SARKAR | REVISIONS _____ _____ | INITI _____ _____ |
| SCALE: 0 NA NONE | | DocuSigned by: Debesh C. Sarkar 44E8E328 | | |

11-0CT-2017-08:30 136504115 Signal&Sgnl Design Section Eastern RegionM Sheets20162014 Sig.M2 Std. Fabrication Detail: All Poles.dgn

Note:
 1. Opening in pole base plate shall be equal to pole base inside diameter minus 3 1/2" but shall not be less than 8 1/2".

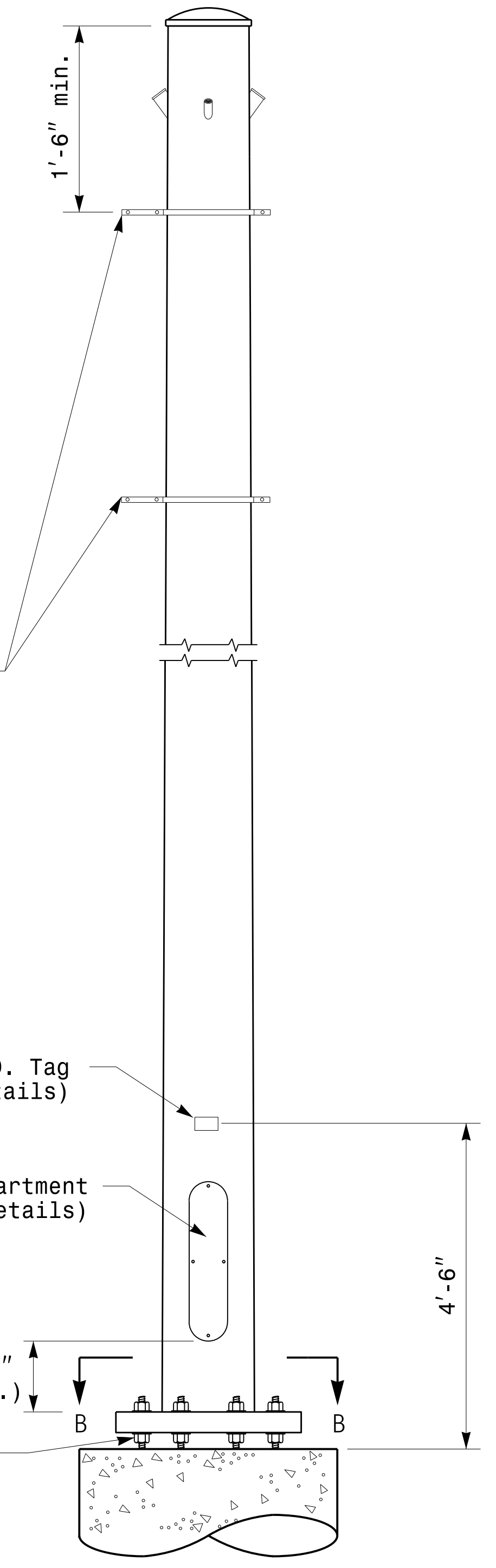


Cable Entrances at Top of Pole

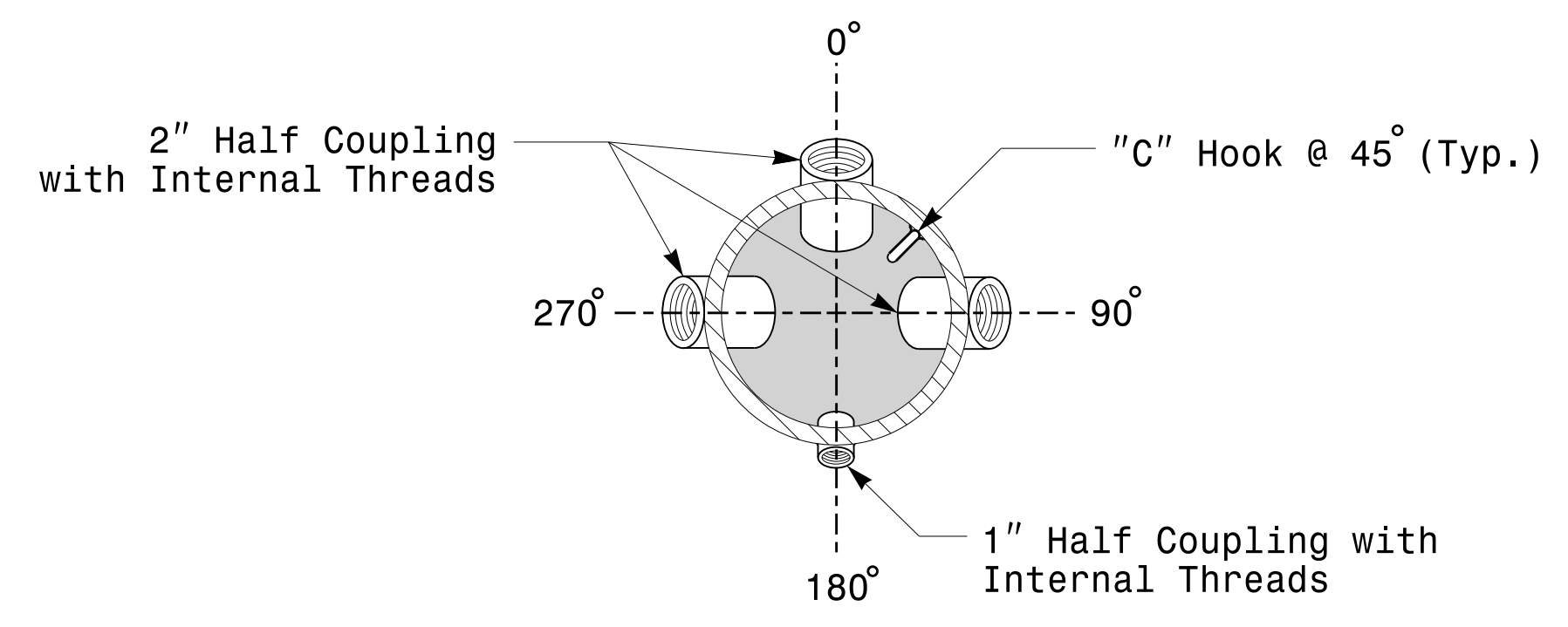


Section B-B
Pole Base Plate Details
(8 and 12 Bolt Pattern)

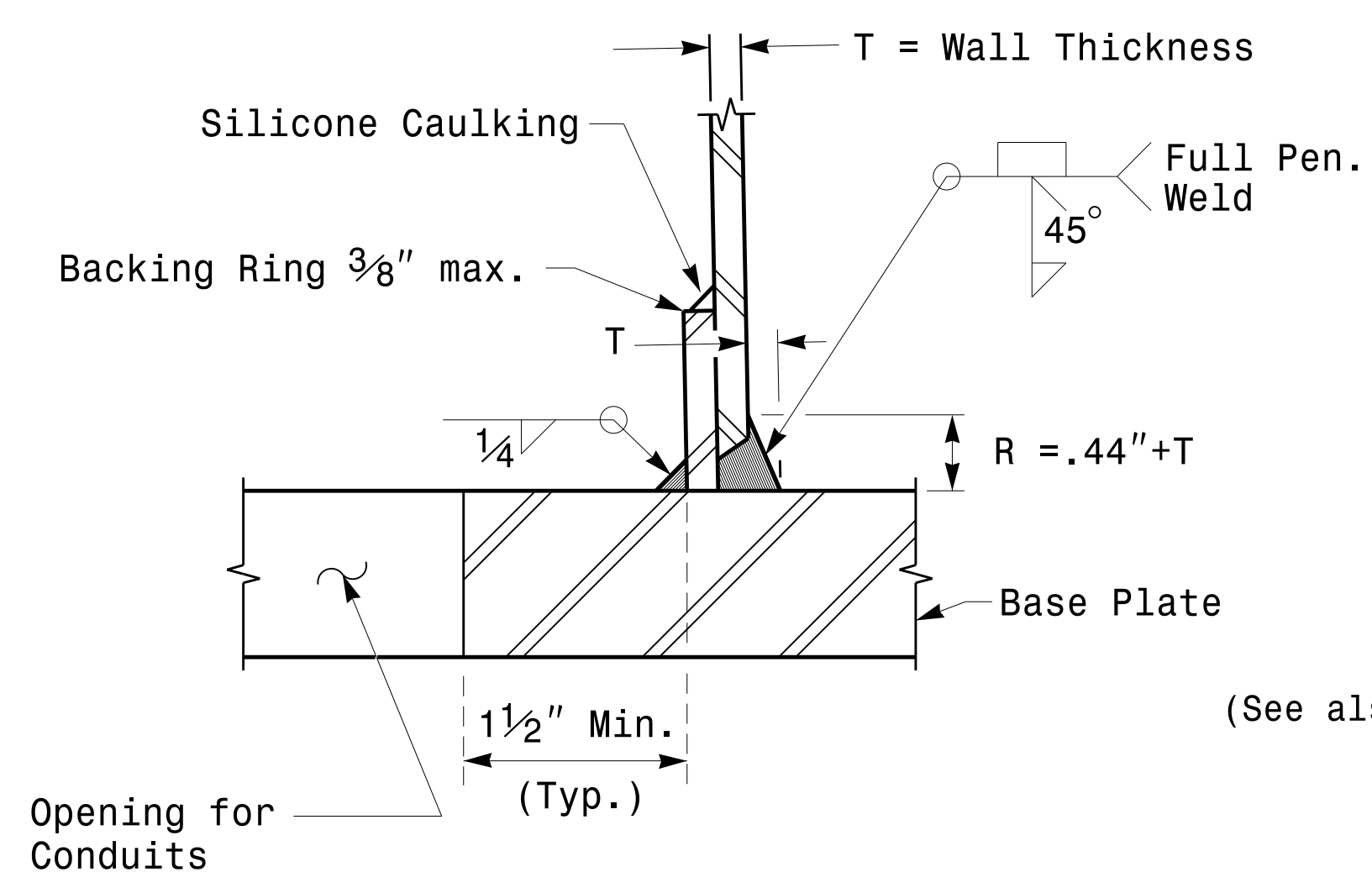
2 Cable Clamps designed for variable attachment heights from 1'-6" to 5'-0" below the top of the pole.



Monotube Strain Pole



Section A-A
Radial Orientation for Factory Installed
Accessories at Top of Pole



Section C-C
(Pole Attachment to Base Plate)
Full-Penetration
Groove Weld Detail

Prepared in the Offices of:

 750 N. Greenleaf Pkwy, Garner, NC 27529

| | |
|--|---------------------------|
| Typical Fabrication Details For Strain Poles | |
| PLAN DATE: OCTOBER 2017 | DESIGNED BY: K.C. DURIGON |
| PREPARED BY: N. BITTING | REVIEWED BY: D.C. SARKAR |
| REVISIONS | INIT. DATE |
| | |
| | |
| | |

SEAL

 DocuSigned by:
 Debesh C. Sarkar
 44EB87816FA74F9E
 10/11/2017
 DATE

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 11/11/2017

Fabrication Details – Strain Poles