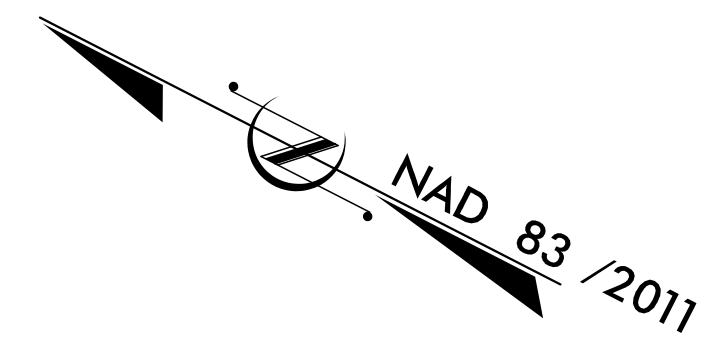
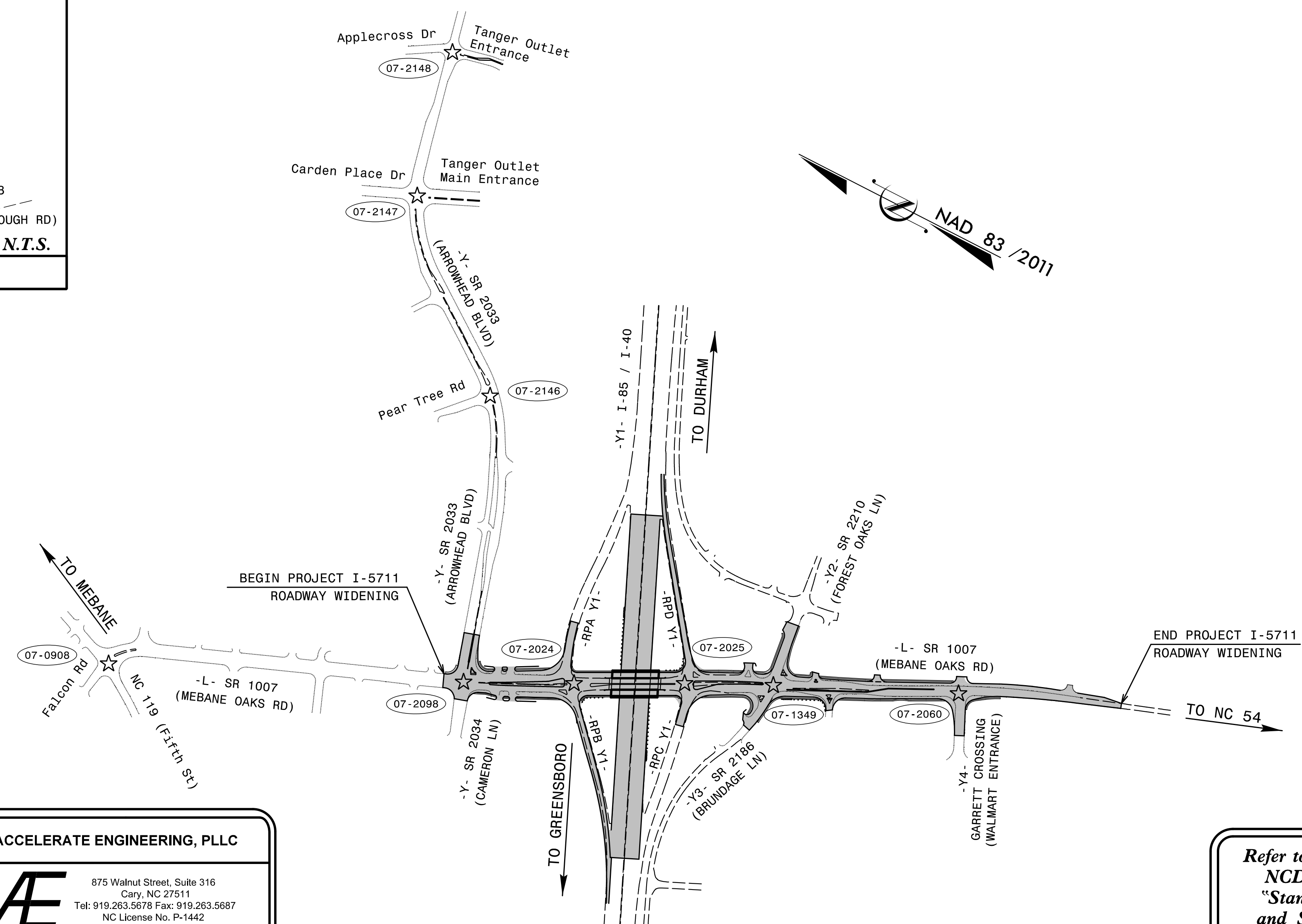
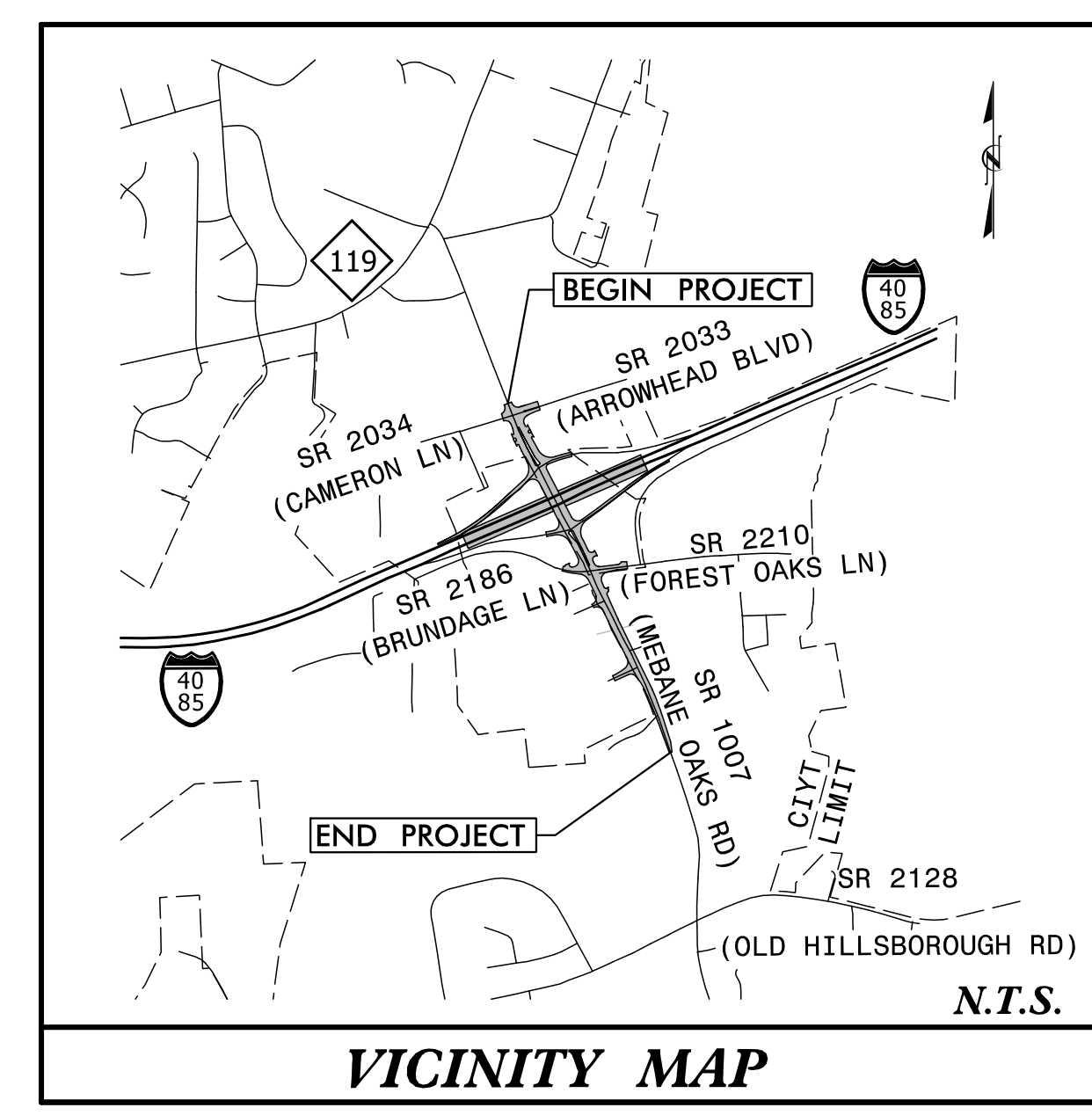



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ALAMANCE COUNTY

**LOCATION: INTERCHANGE IMPROVEMENTS AT I-40 /I-85
AND SR 1007 (MEBANE OAKS RD) IN MEBANE**
TYPE OF WORK: TRAFFIC SIGNALS AND SIGNAL COMMUNICATIONS

T.I.P. Project: I-5711



PLAN PREPARED BY:	ACCELERATE ENGINEERING, PLLC
ZHAOLONG (GAVIN) TENG, PE, PTOE PROJECT MANAGER	 875 Walnut Street, Suite 316 Cary, NC 27511 Tel: 919.263.5678 Fax: 919.263.5687 NC License No. P-1442

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

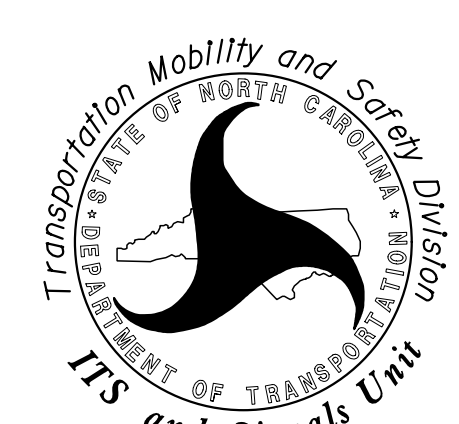
Sheet #	Reference #	Index of Plans	Location/Description
Sig. 1.0	-----	Title Sheet	
Sig. 2.0-2.2	07-0908	NC 119 (S. Fifth Street) at SR 1007 (Mebane Oaks Road) and Falcon Road	
Sig. 3.0-6.3	07-2098	SR 1007 (Mebane Oaks Road) at SR 2033 (Arrowhead Boulevard) and SR 2034 (Cameron Lane)	
Sig. 7.0-10.2	07-2024	SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps	
Sig. 11.0-14.2	07-2025	SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps	
Sig. 15.0-18.6	07-1349	SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane)	
Sig. 19.0-22.3	07-2060	SR 1007 (Mebane Oaks Rd) at Garrett Crossing (Walmart Entrance)	
Sig. 23.0-23.3	07-2146	SR 2033 (Arrowhead Boulevard) at Pear Tree Road	
Sig. 24.0-24.4	07-2147	SR 2033 (Arrowhead Boulevard) at Carden Place Drive / Tanger Outlet Main Entrance	
Sig. 25.0-25.2	07-2148	SR 2033 (Arrowhead Boulevard) at Applecross Drive / Tanger Outlet Entrance	
Sig. 26.0-26.1	-----	Standard Plate Sheets	
Sig. MI-M8	-----	Metal Pole Standard Drawings	
Scp. 1-13	-----	Signal Communications Plans	

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

Robert J. Ziemba, PE - Central Region Signals Engineer
Keith M. Mims, PE - Signal Equipment Design Engineer
Neil Avery - Intelligent Transportation Systems Engineer

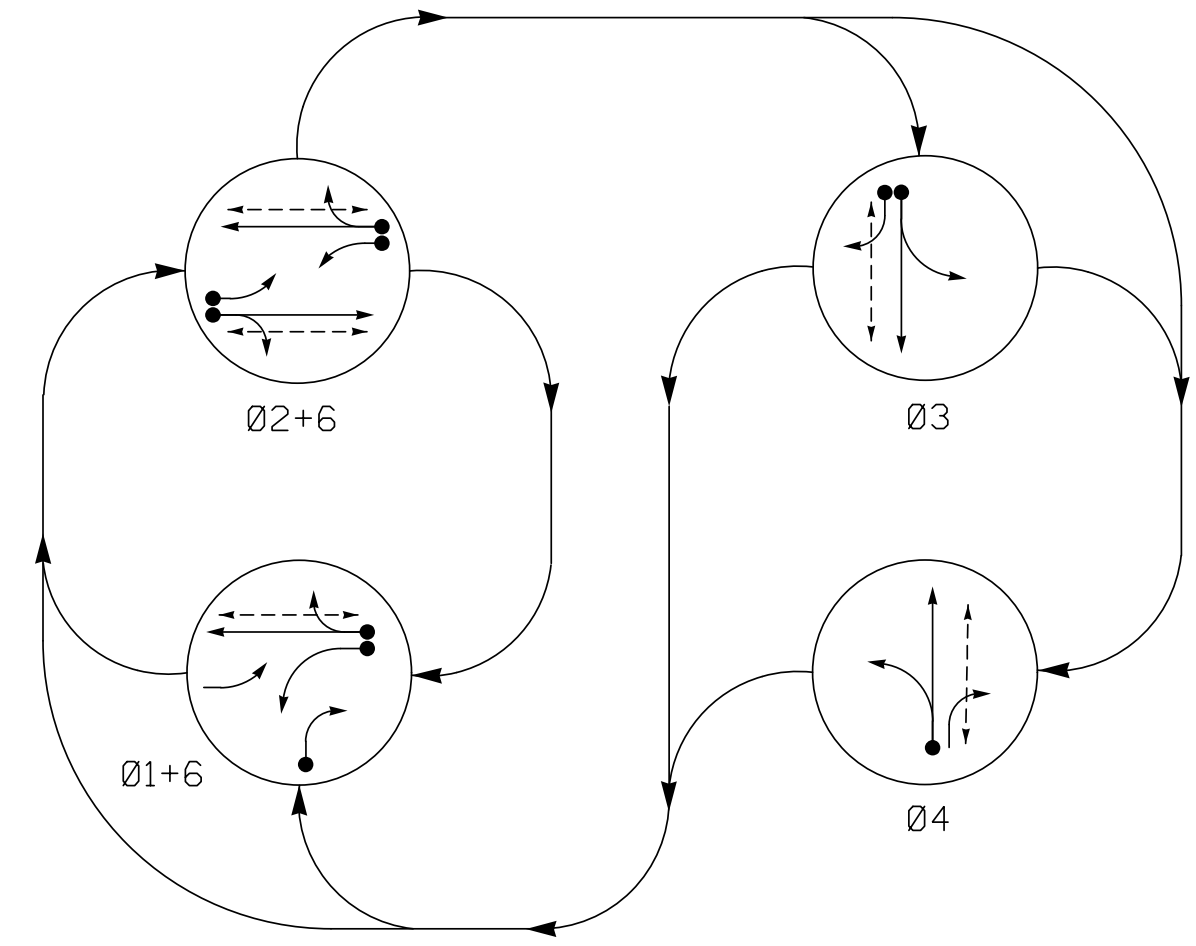
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY
DIVISION



750 N. Greenfield Parkway, Garner, NC 27529

CONTRACT: C204352

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.

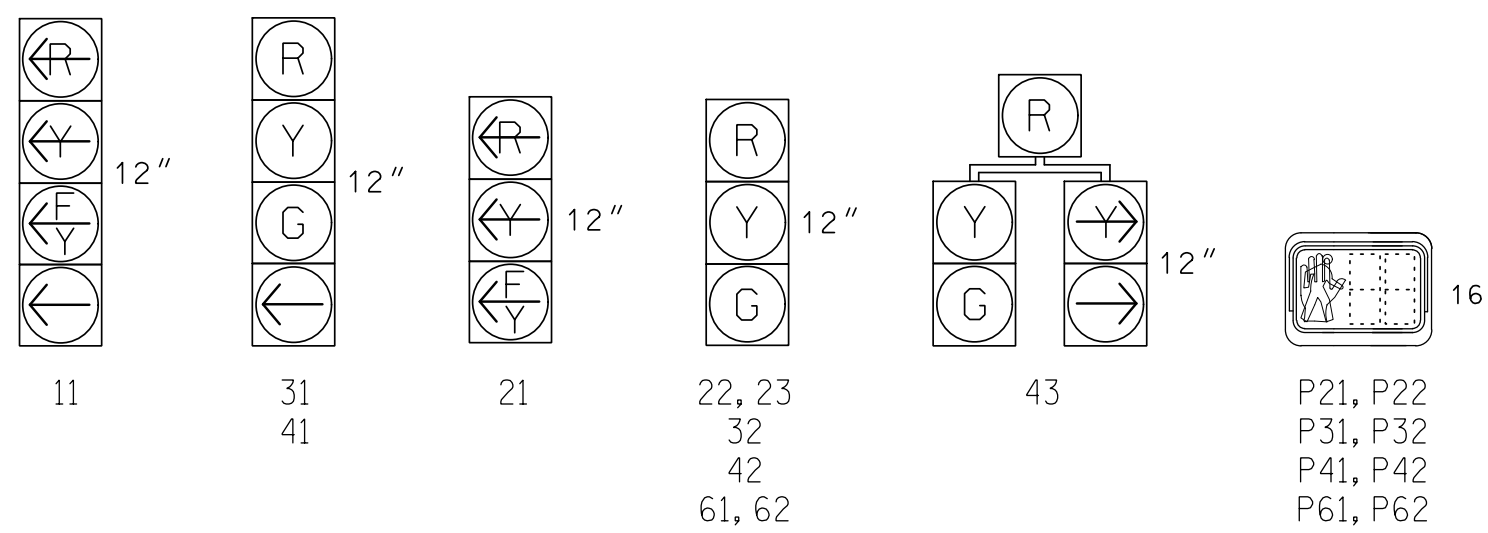


TABLE OF OPERATION

Table with columns: SIGNAL FACE, PHASE (01+6, 02+6, 03, 04, FLASH), and rows for various signal faces and pedestrian phases.

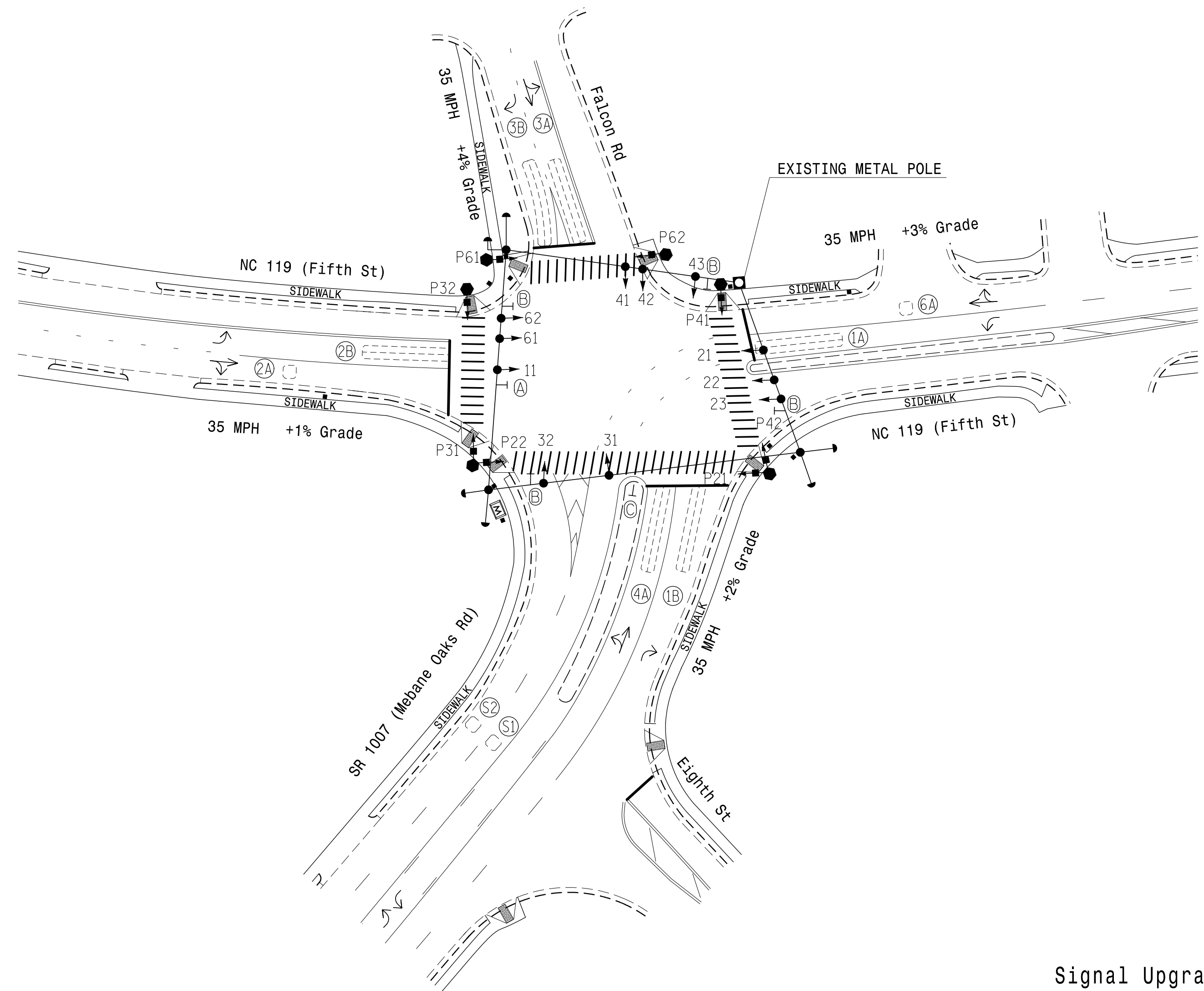
ASC/3 DETECTOR INSTALLATION CHART

Table with columns: DETECTOR (LOOP, SIZE, DISTANCE FROM STOPBAR, TURNS, NEW LOOP) and PROGRAMMING (PHASE, CALLING, EXTEND TIME, DELAY TIME, USE ADDED INITIAL, TYPE, SYSTEM LOOP, NEW CARD).

4 Phase Fully Actuated SR 1007 (Mebane Oaks Rd) CLS Signal System: 10705

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 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. Pavement markings are existing.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Closed loop system data: Master Asset #: 10705, Controller Asset #: 0908.



LEGEND

- PROPOSED: Traffic Signal Head, Pedestrian Signal Head, Signal Pole with Guy, Signal Pole with Sidewalk Guy, Inductive Loop Detector, Master Controller & Cabinet, Junction Box, 2-in Underground Conduit, Right of Way, Directional Arrow, Metal Strain Pole, Type II Signal Pedestal, Curb Ramp.
EXISTING: Traffic Signal Head, Pedestrian Signal Head, Signal Pole with Guy, Signal Pole with Sidewalk Guy, Inductive Loop Detector, Master Controller & Cabinet, Junction Box, Right of Way, Directional Arrow, Metal Strain Pole, Type II Signal Pedestal, Curb Ramp, "U-TURN YIELD TO RIGHT TURN" Sign (R10-16), Right "TURNING VEHICLES" Yield "TO" Pedestrians Sign (R10-15R), No U Turn Sign (R3-4).

ASC/3 TIMING CHART

Timing chart table with columns: FEATURE, PHASE (1, 2, 3, 4, 6), and rows for Min Green, Walk, Ped Clear, Veh. Extension, Max I, Yellow, Red Clear, Red Revert, Actuations B4 Add, Seconds / Actuation, Max Initial, Time Before Reduction, Time To Reduce, Minimum Gap, Locking Detector, Recall Position, Dual Entry, Simultaneous Gap.

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

Signal Upgrade

Accelerate Engineering, PLLC logo and contact information: 875 Walnut Street, Suite 316, Cary, NC 27511. Tel: 919.263.5678 Fax: 919.263.5687 NC License No. P-1442

Project details: NC 119 (S. Fifth Street) at SR 1007 (Mebane Oaks Road) and Falcon Road. Includes plan date (November 2019), prepared by (Z. "Gavin" Teng), reviewed by (Z. "Gavin" Teng), and a signature block with a professional seal for Zhaolong Teng, Engineer No. 032179.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER ZHAOLONG TENG 032179

Vertical barcode and alphanumeric string on the left margin.

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

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

```

OVERLAP A
Select TMG VEH OVLP [A] and 'PPLT FYA'
TMG VEH OVLP...[A] TYPE: ....PPLT FYA
PROTECTED LEFT TURN.... PHASE 1
OPPOSING THROUGH..... PHASE 2

FLASHING ARROW OUTPUT.....CH9 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 0
    
```

Toggle Twice

```

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

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

END PROGRAMMING

ECONOLITE ASC/3-2070 PED 3 PROGRAMMING ASSIGNMENT DETAIL

(program controller as shown)

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

```

PED DET PHASE ASSIGNMENT MODE: NTCIP

PHASE 1 2 3 4 5 6 7 8
DETECTOR 0 2 8 4 0 6 0 0

PHASE 9 10 11 12 13 14 15 16
DETECTOR 0 0 0 0 0 0 0 0
    
```

← NOTICE PED DETECTOR 8
ASSIGNED TO PHASE 3

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

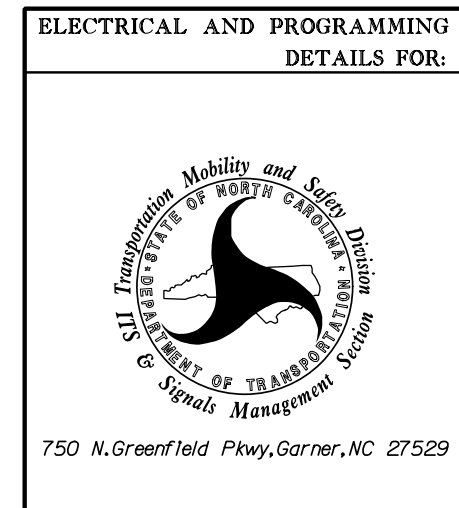
1 1 V . . . + A R X
2 2 V . . . + A Y .
3 3 V . . . + A R X
4 4 V . . . + A R .
5 5 V . . . - A R .
6 6 V . . . - A Y X
7 7 V . . . - A R .
8 8 V . . . - A R X
9 1 0 . . . + A R X
10 2 0 . . . + A R X
11 3 0 . . . - A R .
12 4 0 . . . - A R .
13 2 P . . . + A . .
14 4 P . . . - A . .
15 6 P . . . + A . .
16 3 P . . . - A . .
    
```

NOTICE PHASE 3 PED
ASSIGNED TO LD SWITCH 16 →

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-0908
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

Electrical Detail - Sheet 2 of 2



**NC 119 (S. Fifth Street)
at
SR 1007 (Mebane Oaks Road)
and Falcon Road**

Division 7 Alamance County Mebane
PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
ZHAOLONG TENG
032179

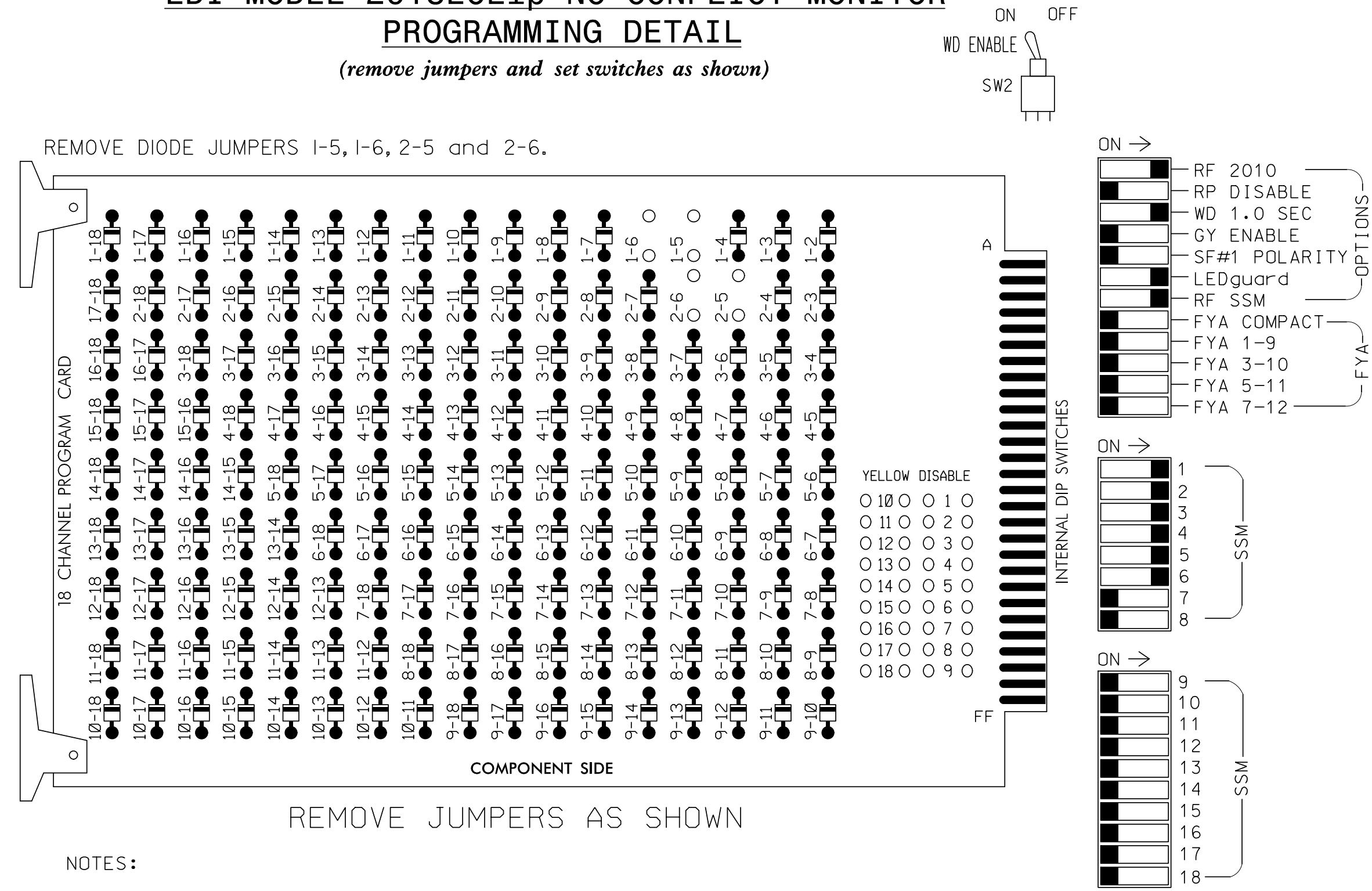
DocuSigned by:
Zhaolong Teng
12/17/2019
DATE

SIG. INVENTORY NO. 07-0908

\$\$\$\$\$\$SYTIME\$\$\$\$\$\$
 \$\$\$\$\$\$DATE\$\$\$\$\$\$
 \$\$\$\$\$\$USER\$\$\$\$\$\$
 \$\$\$\$\$\$NAME\$\$\$\$\$\$

EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and phase 6 Green.
3. The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop 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	44	21,22	NU	31	32,33	41, 42	43	44	NU	51	61,62 63	NU	NU	NU	NU	NU	NU
RED		128		116	101	101		134										
YELLOW		129		117	102	102		135										
GREEN		130		118	103	103		136										
RED ARROW	125			116	101			131										
YELLOW ARROW	126	126		117	102			132										
GREEN ARROW	127	127		118	103	103		133										

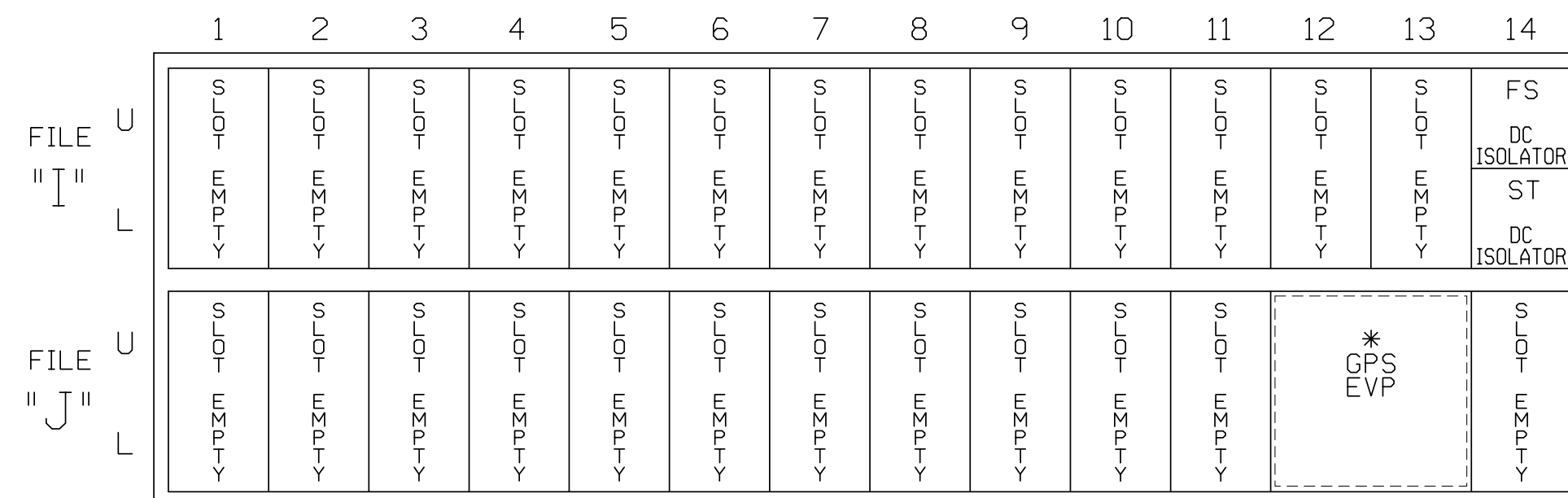
NU = Not Used

EQUIPMENT INFORMATION

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

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 See GPS Preemption Installation Note Below

FS = FLASH SENSE
 ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO 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: 07-2098T1
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 1
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING
 DETAILS FOR:

SR 1007 (Mebane Oaks Road)

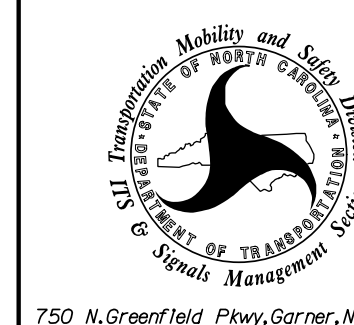
at
 SR 2033 (Arrowhead Boulevard)
 and SR 2034 (Cameron Lane)

Division 7 Alamance County Mebane

PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng

PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS INIT. DATE

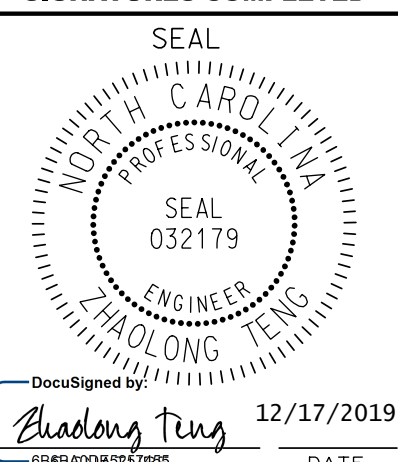


750 N. Greenfield Pkwy, Garner, NC 27529

PREPARED IN THE OFFICE OF:

Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

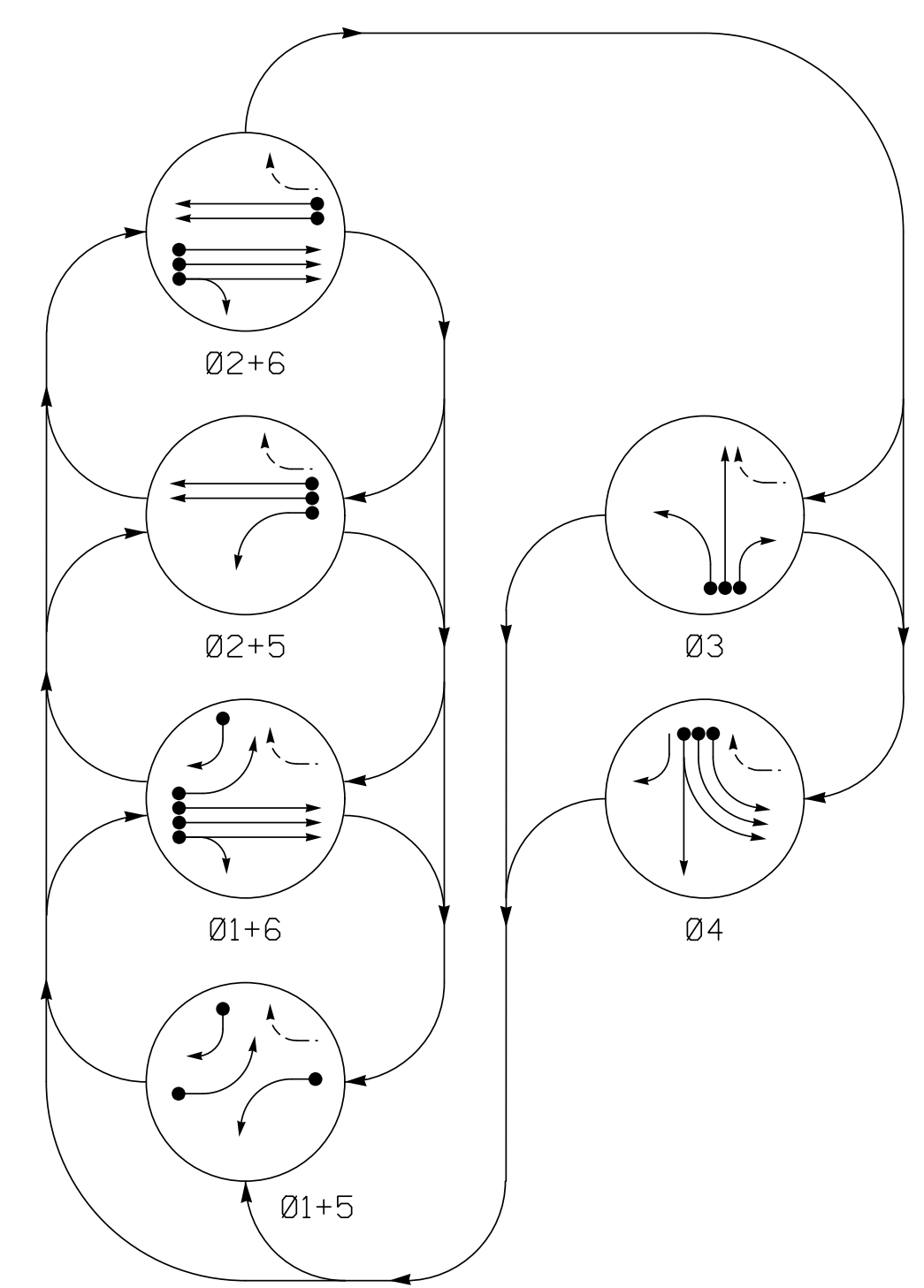
DOCUMENT NOT CONSIDERED
 FINAL UNLESS ALL
 SIGNATURES COMPLETED



DocuSigned by
 Zhaolong Teng 12/17/2019

SIG. INVENTORY NO. 07-2098T1

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

EV PREEMPT PHASES (Medium Priority)

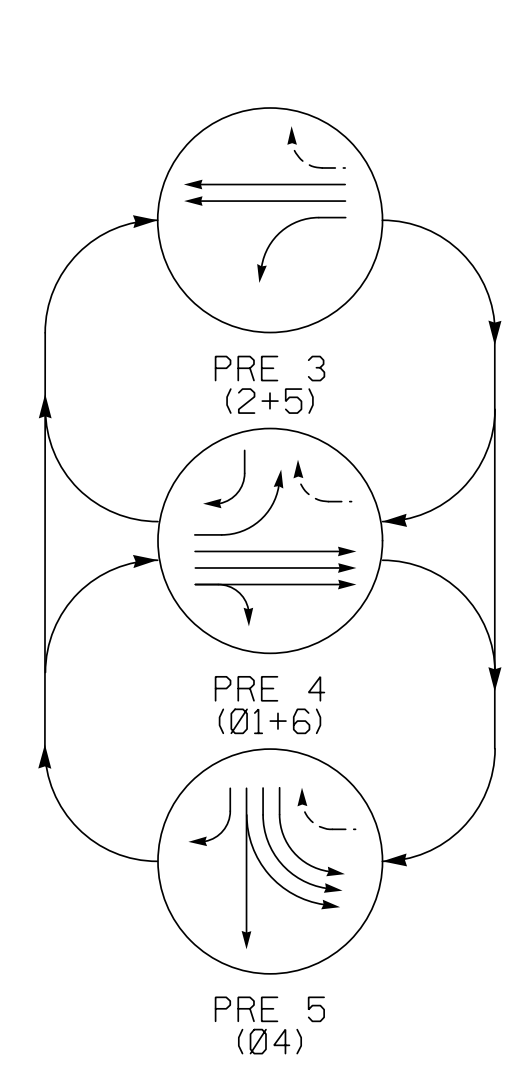


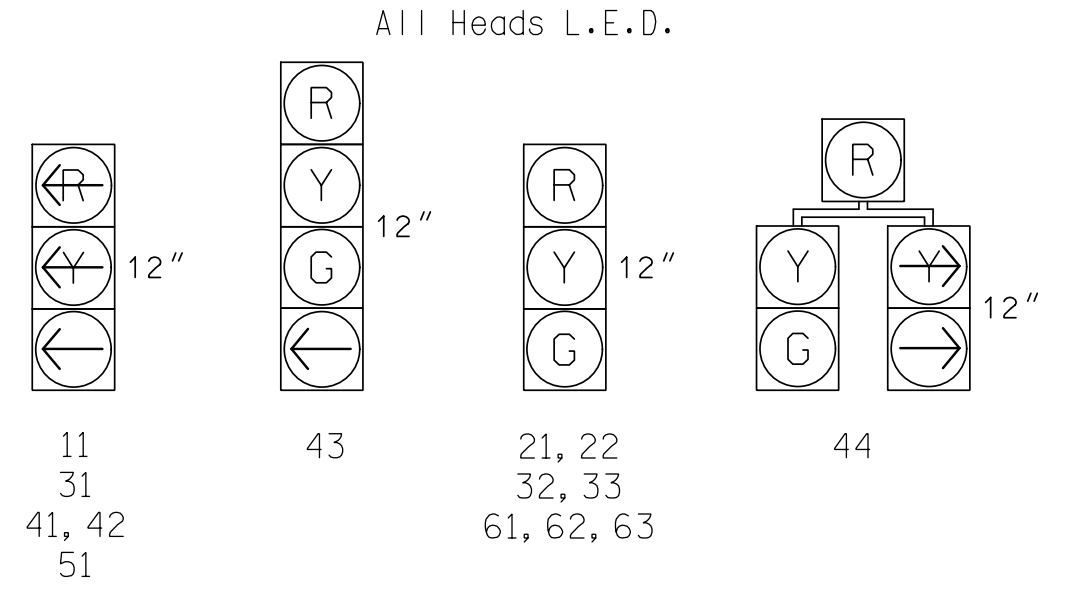
TABLE OF OPERATION

SIGNAL FACE	PHASE											
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	PRE 3	PRE 4	PRE 5	FLASH	Y	H
11	←	←	←	←	←	←	←	←	←	←	←	←
21, 22	R	R	G	G	R	R	G	R	R	Y		
31	←	←	←	←	←	←	←	←	←	←	←	←
32, 33	R	R	R	R	G	R	R	R	R	R		
41, 42	←	←	←	←	←	←	←	←	←	←	←	←
43	R	R	R	R	R	G	R	R	G	R		
44	←	←	←	←	←	←	←	←	←	←	←	←
51	←	←	←	←	←	←	←	←	←	←	←	←
61, 62, 63	R	G	R	G	R	R	R	G	R	Y		

ASC/3 DETECTOR INSTALLATION CHART

ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	LOOP	NEW CARD
1A	6x40	0	*	*	1	Yes	-	3	-	S	-	*
1B	6x40	0	*	*	1	Yes	-	15	-	S	-	*
2A	6x6	70	*	*	2	Yes	-	-	-	S	-	*
2B	6x6	70	*	*	2	Yes	-	-	-	S	-	*
3A	6x40	0	*	*	3	Yes	-	3	-	S	-	*
3B	6x40	0	*	*	3	Yes	-	-	-	S	-	*
3C	6x40	0	*	*	3	Yes	-	15	-	S	-	*
4A	6x40	0	*	*	4	Yes	-	-	-	S	-	*
4B	6x40	0	*	*	4	Yes	-	-	-	S	-	*
4C	6x40	0	*	*	4	Yes	-	-	-	S	-	*
5A	6x40	0	*	*	5	Yes	-	-	-	S	-	*
6A	6x6	70	*	*	6	Yes	-	-	-	S	-	*
6B	6x6	70	*	*	6	Yes	-	-	-	S	-	*
6C	6x6	70	*	*	6	Yes	-	-	-	S	-	*
S3	6X6	+165	*	*	-	No	-	-	-	N	X	*
S4	6X6	+165	*	*	-	No	-	-	-	N	X	*
S5	6X6	+165	*	*	-	No	-	-	-	N	X	*
S26	6X6	+130	*	*	-	No	-	-	-	N	X	*
S27	6X6	+130	*	*	-	No	-	-	-	N	X	*

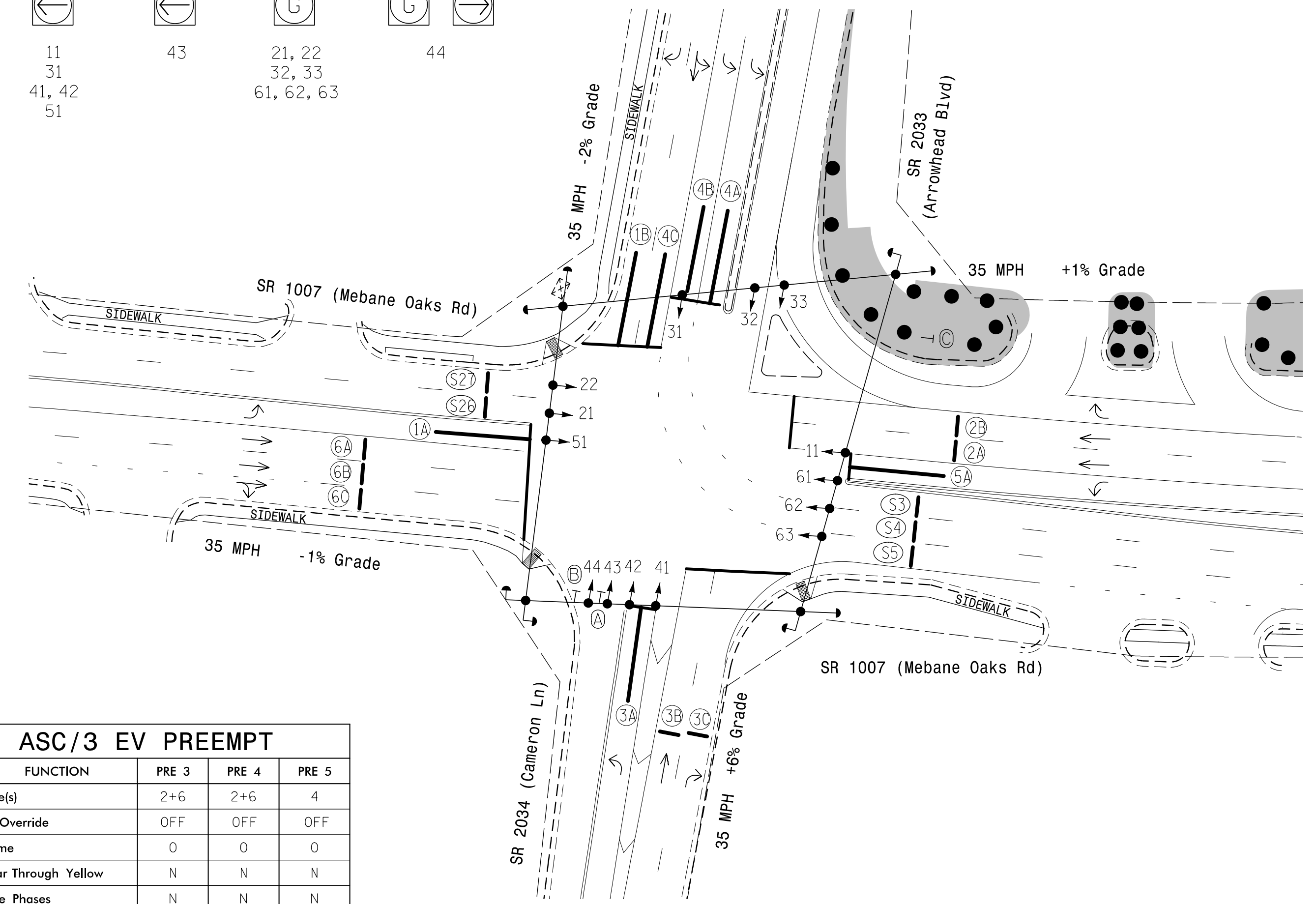
SIGNAL FACE I.D.



6 Phase Fully Actuated w/ Emergency Vehicle Preemption SR 1007 (Mebane Oaks Rd) CLS Signal System: 10705

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. The order of phase 3 and phase 4 may be reversed.
5. Reposition existing signal heads numbered 51, 21 and 22.
6. Set all detector units to presence mode.
7. This intersection features a GPS Emergency Vehicle Preemption system.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data: Controller Asset #: 2098.



ASC/3 TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green *	7	10	7	7	7	10
Walk *	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0
Veh. Extension *	2.0	3.0	2.0	2.0	2.0	3.0
Max 1 *	30	60	15	50	15	60
Yellow	3.0	3.8	3.5	4.0	3.0	3.9
Red Clear	2.9	1.7	2.4	2.1	3.3	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-	-
Seconds /Actuation *	-	-	-	-	-	-
Max Initial *	-	-	-	-	1	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X

ASC/3 EV PREEMPT

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

LEGEND

PROPOSED	EXISTING
○ → Traffic Signal Head Sign	● → Traffic Signal Head Sign
○ → Signal Pole with Guy	● → Signal Pole with Guy
○ → Signal Pole with Sidewalk Guy	● → Signal Pole with Sidewalk Guy
⊠ → Controller & Cabinet Junction Box	⊠ → Controller & Cabinet Junction Box
□ → 2-in Underground Conduit	□ → 2-in Underground Conduit
N/A → Right of Way	N/A → Right of Way
→ → Directional Arrow	→ → Directional Arrow
● → Construction Zone Drums	● → Construction Zone Drums
■ → Construction Zone	■ → Construction Zone
■ → Video Detection Area	■ → Video Detection Area
N/A → Curb Ramp	▲ → Curb Ramp
Ⓐ → Combined Through and Left Arrow Sign (R3-6L)	Ⓐ → Combined Through and Left Arrow Sign (R3-6L)
Ⓑ → Right Arrow "ONLY" Sign (R3-5R)	Ⓑ → Right Arrow "ONLY" Sign (R3-5R)
Ⓒ → Added Lane Sign (W4-3) w/ "Free Flow Right Lane Keep Moving" Sign	Ⓒ → Added Lane Sign (W4-3) w/ "Free Flow Right Lane Keep Moving" Sign

(TMP Phase II) Signal Upgrade - Temporary Design 2

SR 1007 (Mebane Oaks Road) at SR 2033 (Arrowhead Boulevard) and SR 2034 (Cameron Lane)
 Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY: Z. "Gavin" Teng

REVISIONS: _____ INIT. DATE

SCALE: 1" = 40'

750 N. Greenfield Pkwy, Garner, NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: ZHAOLONG TENG, ENGINEER, STATE OF NORTH CAROLINA, PROFESSIONAL ENGINEER, 032179

12/17/2019

SIG. INVENTORY NO. 07-2098T2

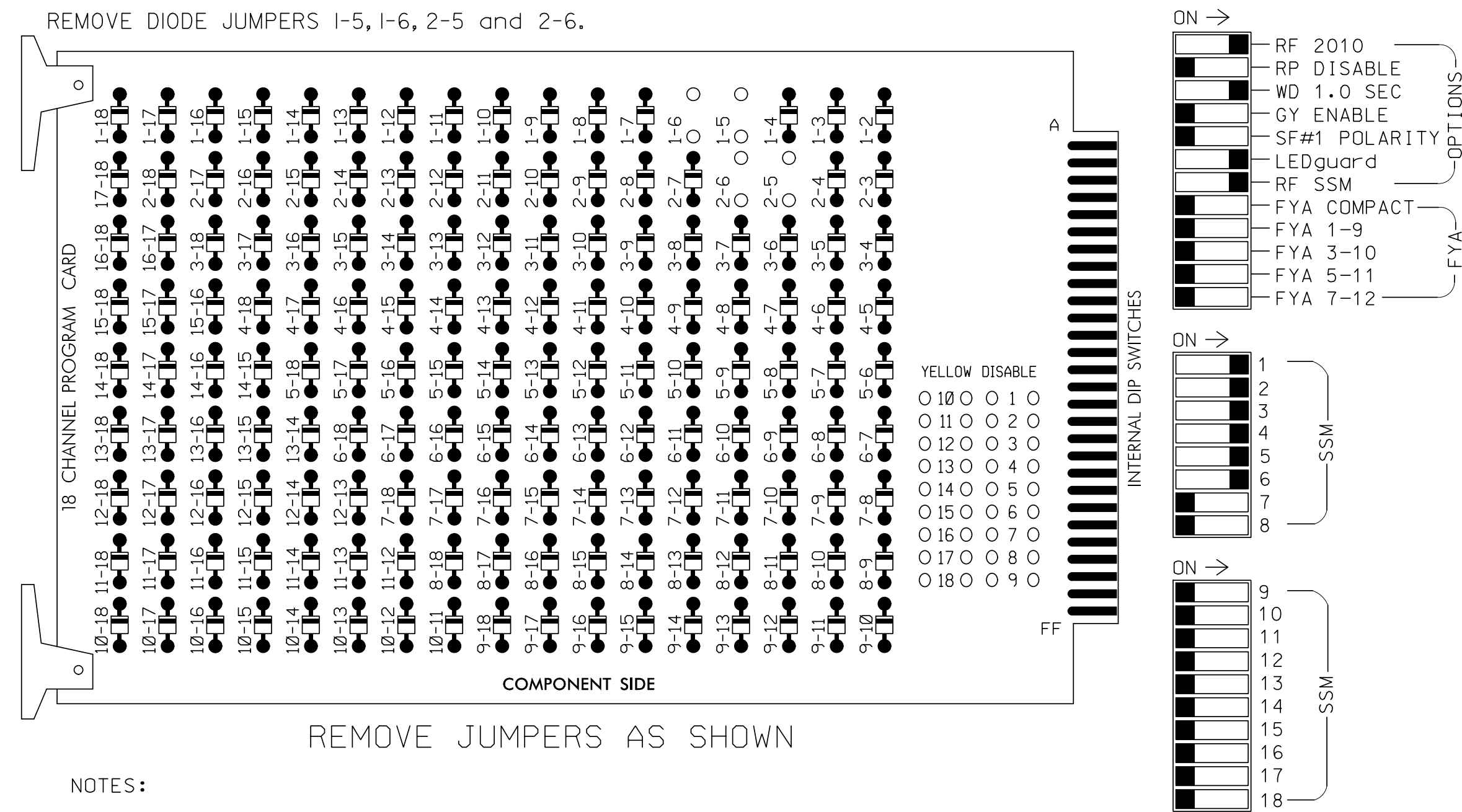
AE Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

* 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.

* Time defaults to time used for phase during normal operation

EDI MODEL 2018ECLip-NC CONFLICT MONITOR
PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and phase 6 Green.
3. The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop 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	44	21,22	NU	31	32,33	41, 42	43	44	NU	51	61,62 63	NU	NU	NU	NU	NU	NU
RED		128		116	101	101		134										
YELLOW		129		117	102	102		135										
GREEN		130		118	103	103		136										
RED ARROW	125			116	101			131										
YELLOW ARROW	126	126		117	102			132										
GREEN ARROW	127	127		118	103	103		133										

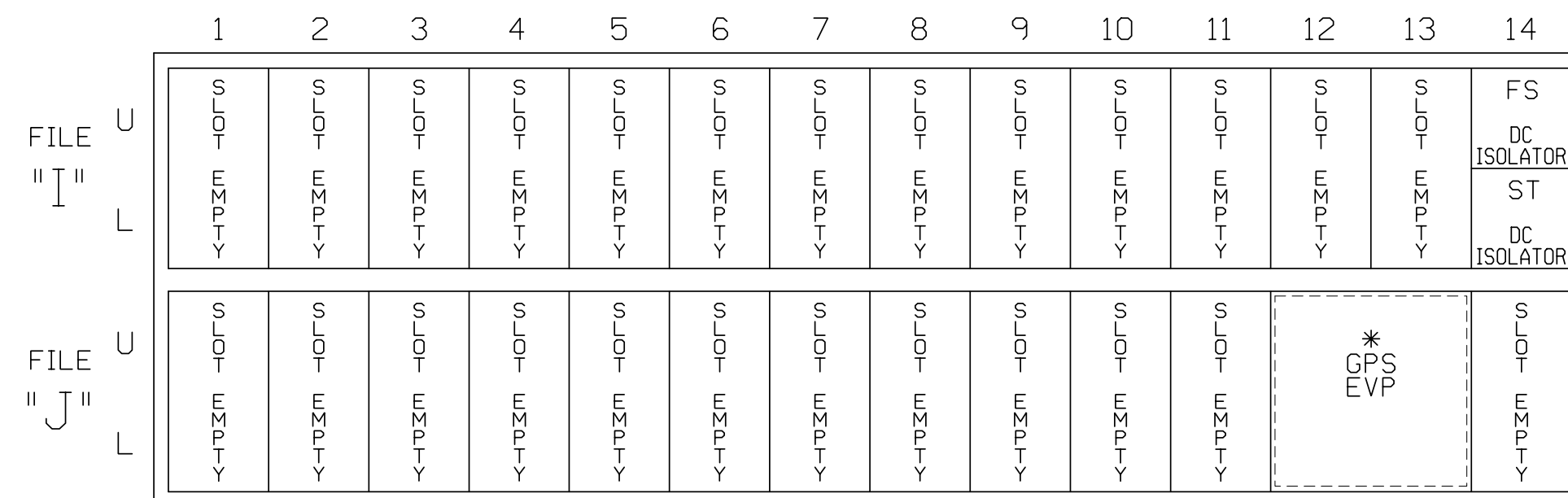
NU = Not Used

EQUIPMENT INFORMATION

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

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 See GPS Preemption Installation Note Below

FS = FLASH SENSE
 ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO 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: 07-2098T2
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 2
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road) at SR 2033 (Arrowhead Boulevard) and SR 2034 (Cameron Lane)

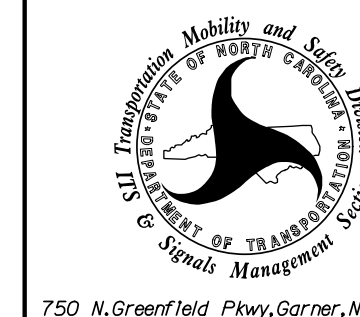
Division 7 Alamance County Mebane

PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng

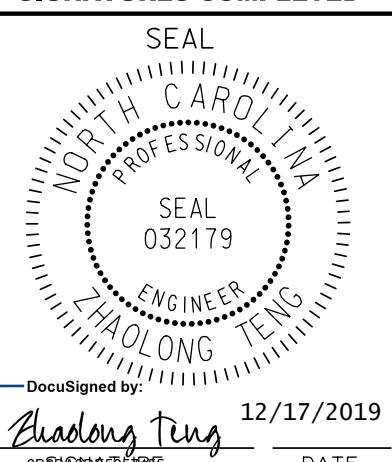
PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS INIT. DATE

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by: Zhaolong Teng 12/17/2019

SIG. INVENTORY NO. 07-2098T2

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$DOCSIGN\$\$\$\$\$
 \$\$\$\$SENAME\$\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

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

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

```

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

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

```

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

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

```

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

```

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

```

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-2098T2
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Temporary Design 2
Electrical Detail - Sheet 2 of 2

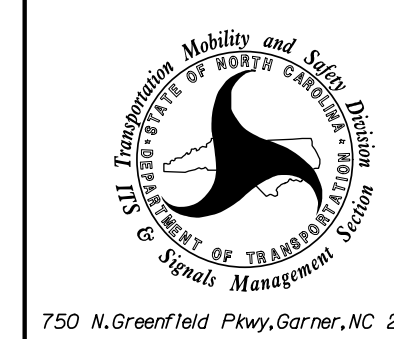
ELECTRICAL AND PROGRAMMING
DETAILS FOR:

SR 1007 (Mebane Oaks Road)
at
SR 2033 (Arrowhead Boulevard)
and **SR 2034 (Cameron Lane)**

Division 7 Alamance County Mebane
PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

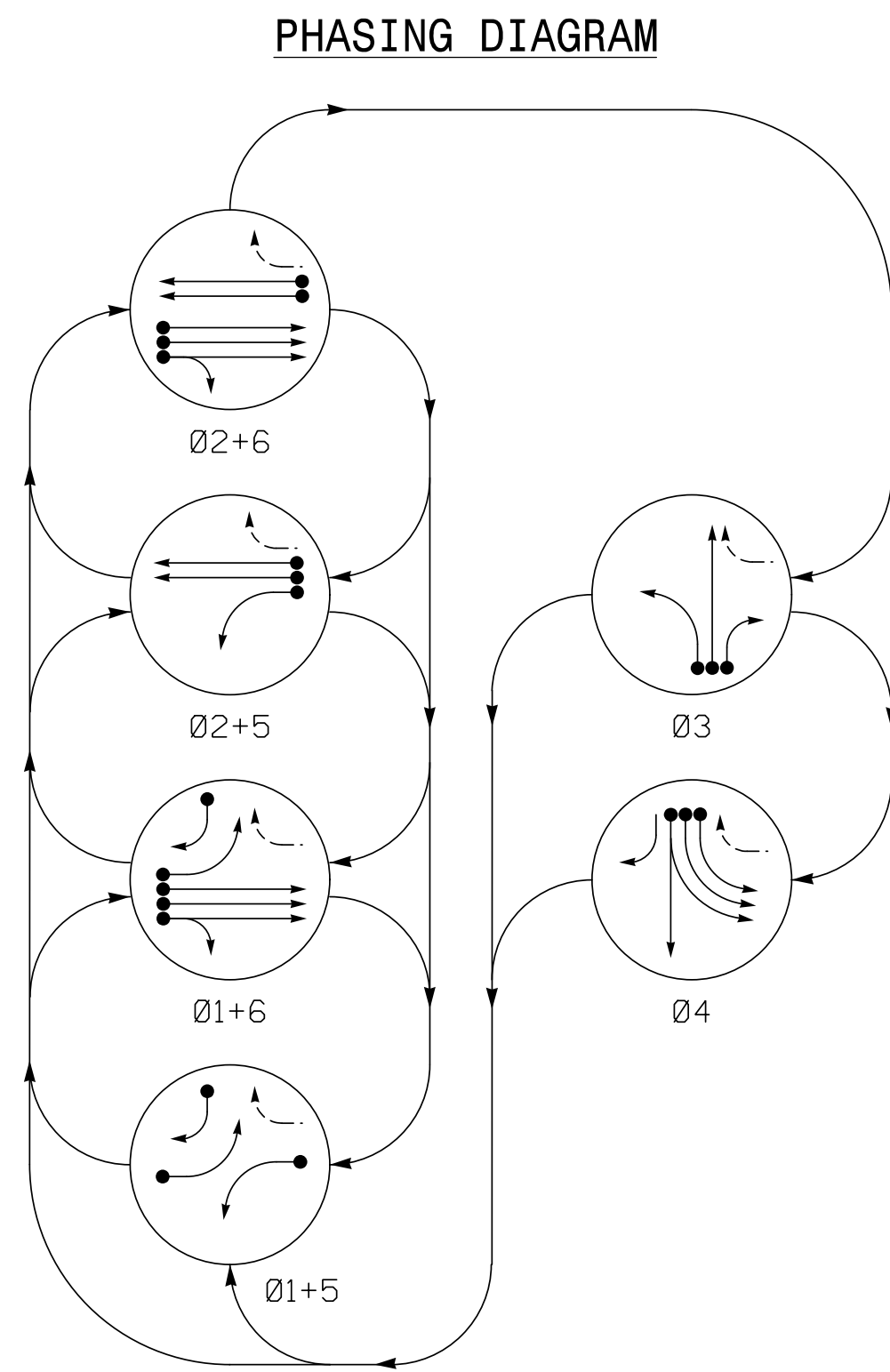
PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442



DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

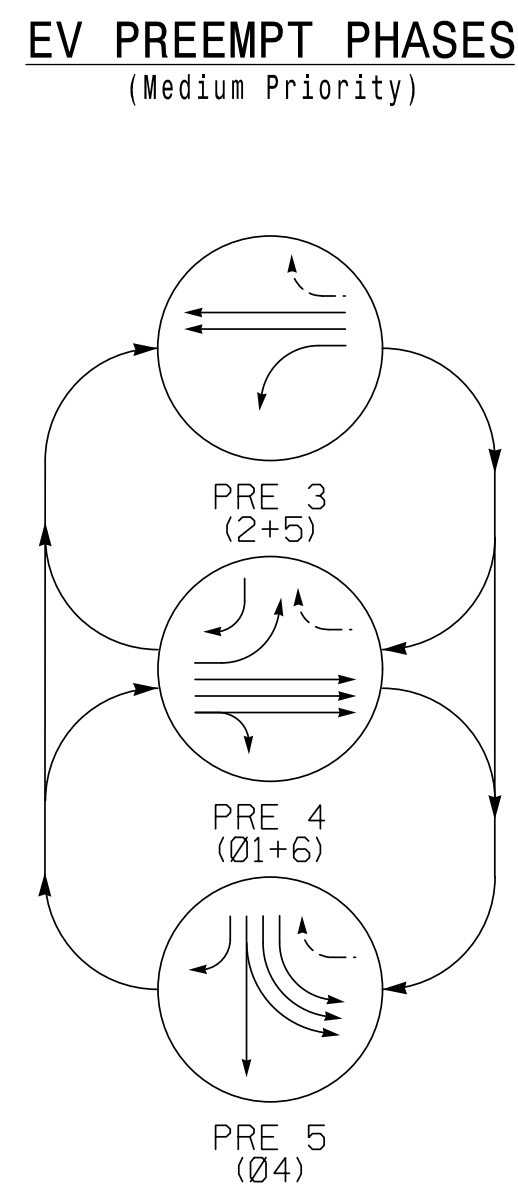
SEAL
NORTH CAROLINA
PROFESSIONAL
ENGINEER
ZHAOLONG TENG
032179
DocuSigned by:
Zhaolong Teng
12/17/2019
DATE
SIG. INVENTORY NO. 07-2098T2

*****CYTIME*****
 *****DOCSIGN*****
 *****SEQUENCE*****



PHASING DIAGRAM DETECTION LEGEND

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



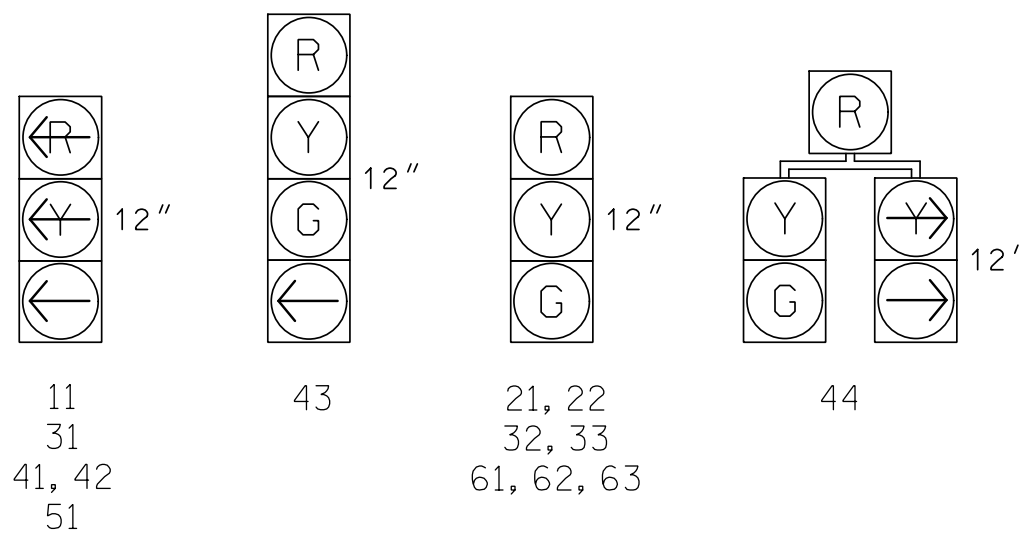
SIGNAL FACE	PHASE											
	Ø 1+5	Ø 1+6	Ø 2+5	Ø 2+6	Ø 3	Ø 4	PRE 3	PRE 4	PRE 5	F	L	S
11	←	←	←	←	←	←	←	←	←	←	←	←
21, 22	R	R	G	G	R	R	G	R	R	Y		
31	←	←	←	←	←	←	←	←	←	←	←	←
32, 33	R	R	R	R	G	R	R	R	R	R	R	R
41, 42	←	←	←	←	←	←	←	←	←	←	←	←
43	R	R	R	R	R	G	R	R	G	R		
44	←	←	←	←	←	←	←	←	←	←	←	←
51	←	←	←	←	←	←	←	←	←	←	←	←
61, 62, 63	R	G	R	G	R	R	R	G	R	Y		

ASC/3 DETECTOR INSTALLATION CHART												
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	LOOP	NEW CARD
1A	6x40	0	*	*	1	Yes	-	3	-	S	-	*
1B	6x40	0	*	*	1	Yes	-	15	-	S	-	*
2A	6x6	70	*	*	2	Yes	-	-	-	S	-	*
2B	6x6	70	*	*	2	Yes	-	-	-	S	-	*
3A	6x40	0	*	*	3	Yes	-	3	-	S	-	*
3B	6x40	0	*	*	3	Yes	-	-	-	S	-	*
3C	6x40	0	*	*	3	Yes	-	15	-	S	-	*
4A	6x40	0	*	*	4	Yes	-	-	-	S	-	*
4B	6x40	0	*	*	4	Yes	-	-	-	S	-	*
4C	6x40	0	*	*	4	Yes	-	-	-	S	-	*
5A	6x40	0	*	*	5	Yes	-	-	-	S	-	*
6A	6x6	70	*	*	6	Yes	-	-	-	S	-	*
6B	6x6	70	*	*	6	Yes	-	-	-	S	-	*
6C	6x6	70	*	*	6	Yes	-	-	-	S	-	*
S3	6X6	+165	*	*	-	No	-	-	-	N	X	*
S4	6X6	+165	*	*	-	No	-	-	-	N	X	*
S5	6X6	+165	*	*	-	No	-	-	-	N	X	*
S26	6X6	+135	*	*	-	No	-	-	-	N	X	*
S27	6X6	+135	*	*	-	No	-	-	-	N	X	*

* Video Detection Zone

SIGNAL FACE I.D.

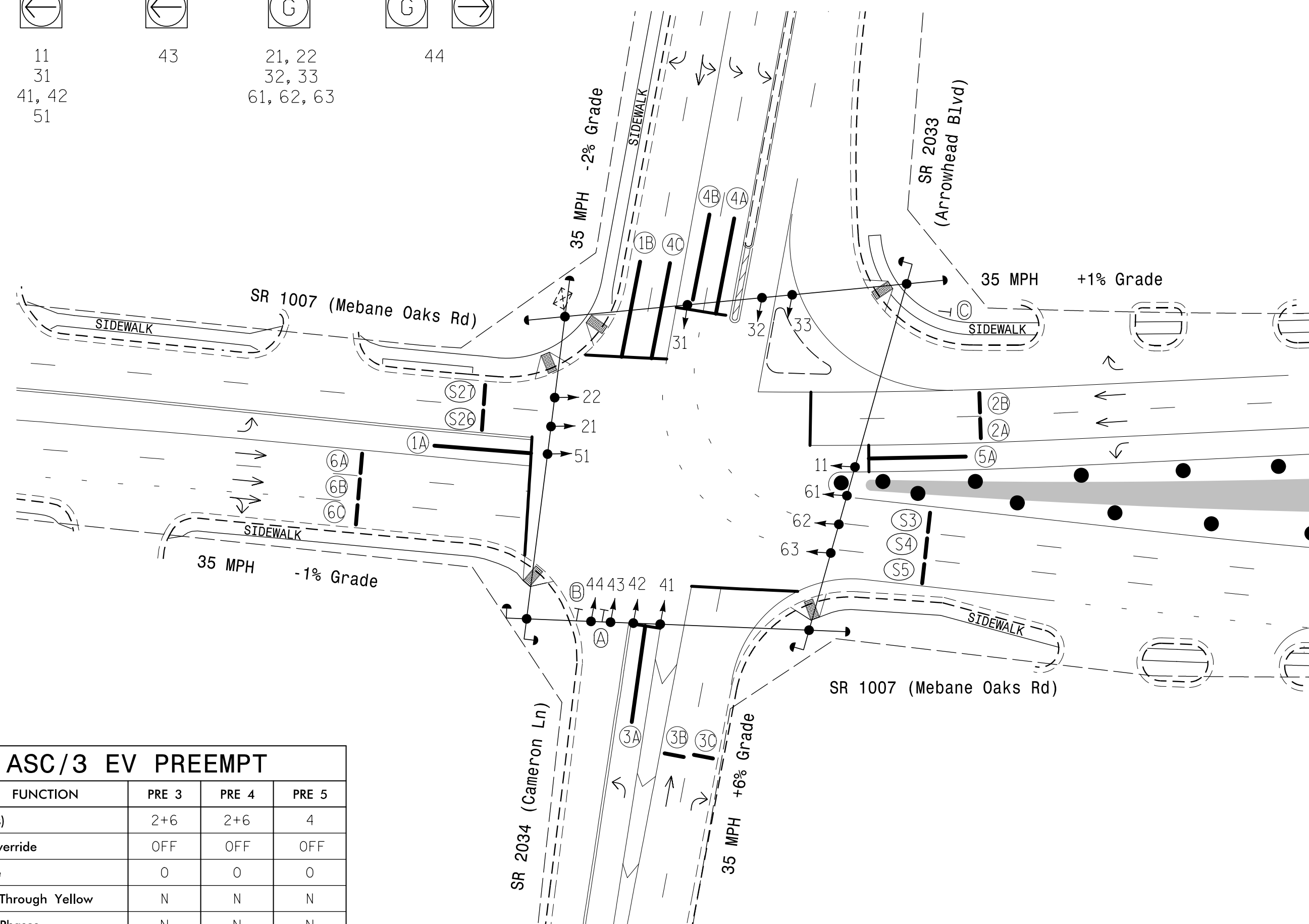
All Heads L.E.D.



6 Phase Fully Actuated w/ Emergency Vehicle Preemption
SR 1007 (Mebane Oaks Rd) CLS
Signal System: 10705

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. The order of phase 3 and phase 4 may be reversed.
5. Reposition existing signal heads numbered 51, 21 and 22, and relocate existing sign C.
6. Set all detector units to presence mode.
7. This intersection features a GPS Emergency Vehicle Preemption system.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data:
Controller Asset #: 2098.



FEATURE	ASC/3 TIMING CHART					
	1	2	3	4	5	6
Min Green *	7	10	7	7	7	10
Walk *	0	0	0	0	0	0
Ped Clear	0	0	0	0	0	0
Veh. Extension *	2.0	3.0	2.0	2.0	2.0	3.0
Max 1 *	30	60	15	50	15	60
Yellow	3.0	3.8	3.5	4.0	3.0	3.9
Red Clear	3.1	1.8	2.4	2.1	3.3	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	1
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	X	X	X	X	X	X

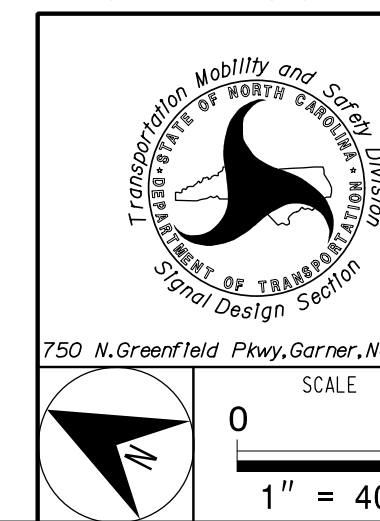
* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

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

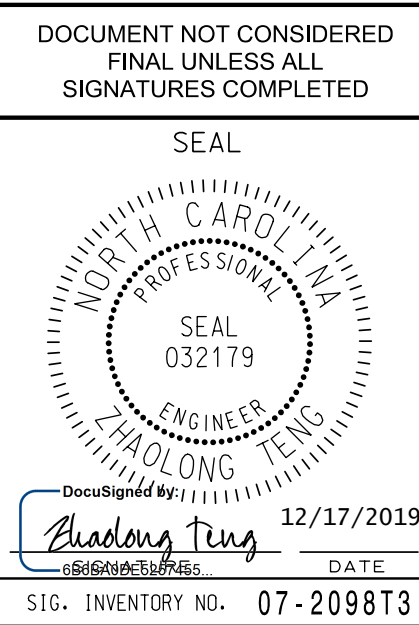
* Time defaults to time used for phase during normal operation

LEGEND	
PROPOSED	EXISTING
○ →	● →
○ ⊥	● ⊥
○ ⊥ ⊥	● ⊥ ⊥
⊠	⊠
□	■
—	---
N/A	N/A
→	→
●	●
■	■
N/A	N/A
⊠	⊠
⊠	⊠
⊠	⊠

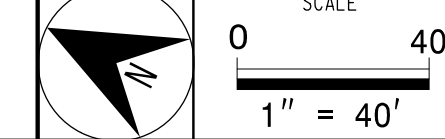
(TMP Phase III)
Signal Upgrade - Temporary Design 3



SR 1007 (Mebane Oaks Road) at SR 2033 (Arrowhead Boulevard) and SR 2034 (Cameron Lane)	
Division 7	Alamance County
MEBANE	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:
REVISIONS	INIT. DATE



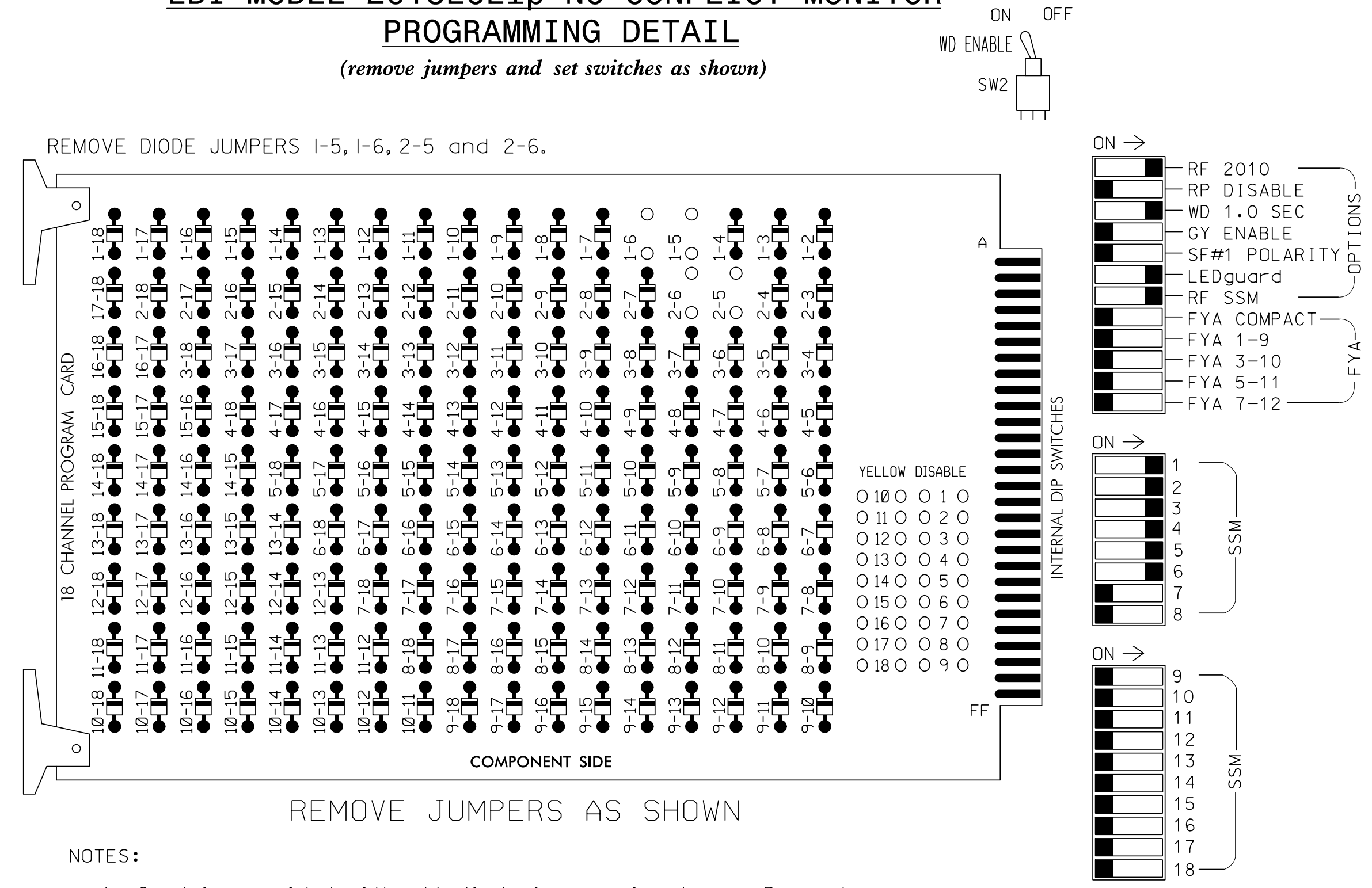
PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
SEAL
STATE OF NORTH CAROLINA
PROFESSIONAL ENGINEER
ZHAOLONG TENG
032179
DATE 12/17/2019
SIG. INVENTORY NO. 07-2098T3

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and phase 6 Green.
- The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop 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	44	21,22	NU	31	32,33	41, 42	43	44	NU	51	61,62 63	NU	NU	NU	NU	NU	NU
RED		128		116	101	101		134										
YELLOW		129		117	102	102		135										
GREEN		130		118	103	103		136										
RED ARROW	125			116	101			131										
YELLOW ARROW	126	126		117	102			132										
GREEN ARROW	127	127		118	103	103		133										

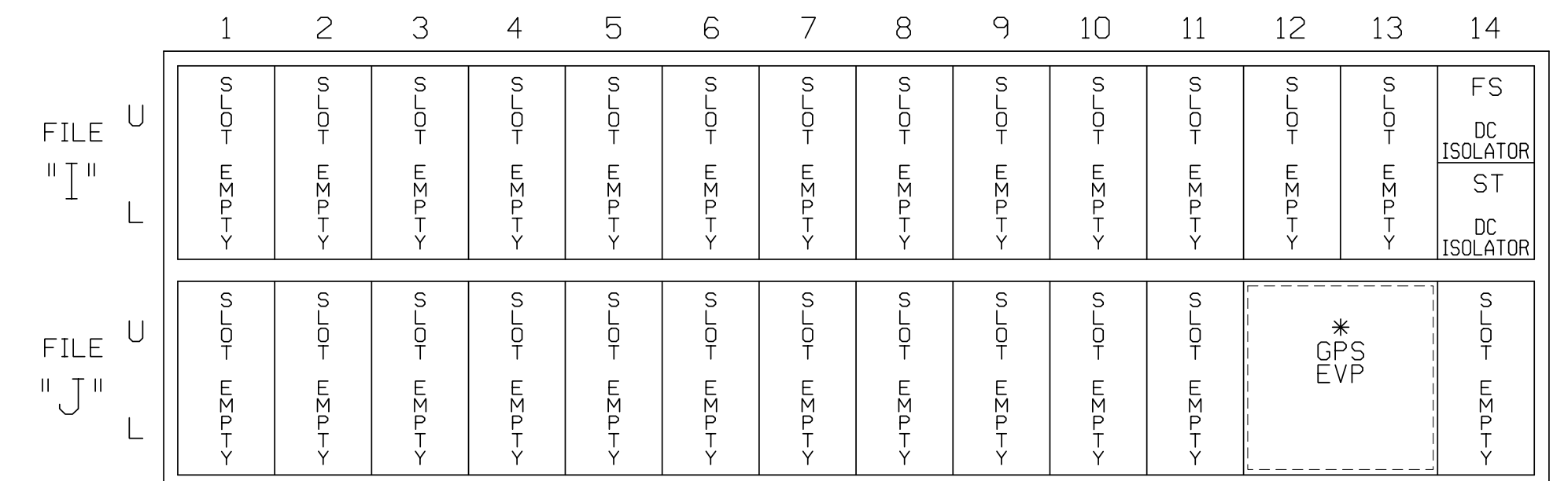
NU = Not Used

EQUIPMENT INFORMATION

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

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
See GPS Preemption Installation Note Below

FS = FLASH SENSE
ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO 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: 07-2098T3
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 3
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road)
 at
 SR 2033 (Arrowhead Boulevard)
 and SR 2034 (Cameron Lane)



PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2098T3

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$DOCSIGN\$\$\$\$\$
 \$\$\$\$\$\$FORMNAME\$\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

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

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

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

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0INHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
```

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

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0INHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
```

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

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0INHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL


(program controller as shown)

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

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

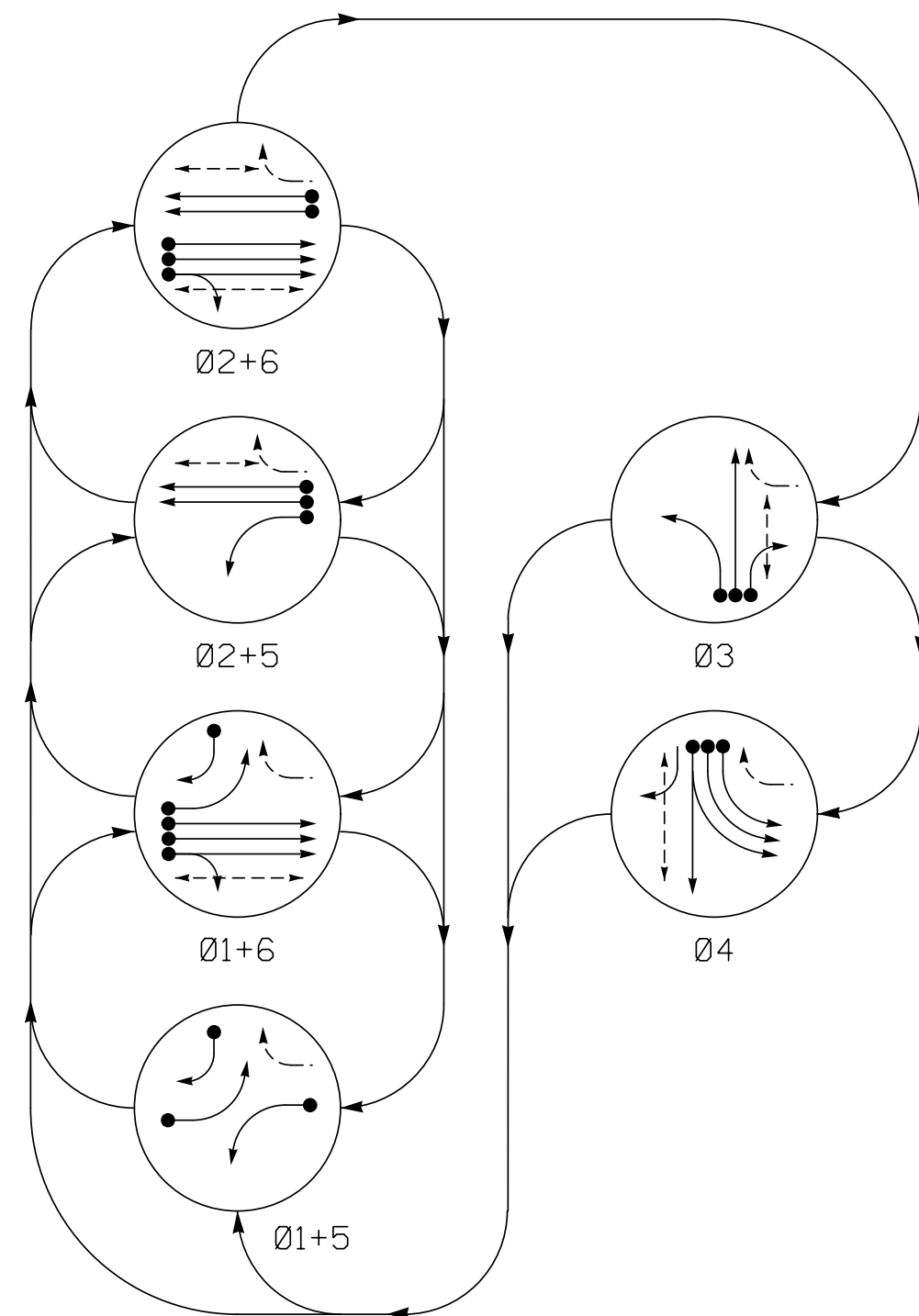
THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-2098T3
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Temporary Design 3
Electrical Detail - Sheet 2 of 2

	<p>ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="text-align: center;">SR 1007 (Mebane Oaks Road) at SR 2033 (Arrowhead Boulevard) and SR 2034 (Cameron Lane)</p>	<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p>				
	<p>Prepared in the Office of: Accelerate Engineering, PLLC 875 Walnut Street, Suite 316 Cary, NC 27511 Tel: 919.263.5678 Fax: 919.263.5687 NC License No. P-1442</p>	<p>Division 7 Alamance County Mebane</p> <p>PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng</p> <p>PREPARED BY: Z. "Gavin" Teng REVIEWED BY:</p>	<p>SEAL NORTH CAROLINA PROFESSIONAL SEAL 032179 ENGINEER ZHAOLONG TENG</p>			
	<p>REVISIONS</p> <table border="1"> <tr> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>	INIT.	DATE			<p>DocuSigned by: <i>Zhaolong Teng</i> 12/17/2019</p>
	INIT.	DATE				
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SIG. INVENTORY NO. 07-2098T3</p>	<p>DATE</p>				

11/17/2019 11:45:58 AM
 I:\Projects\2019\SR 1007\07-2098T3\Drawings\07-2098T3-Electrical\07-2098T3-Electrical-Sheet 2 of 2.dwg
 User: zhaolong.teng
 Plot: 11/17/2019 11:45:58 AM
 Plot Device: HP DesignJet 500 Series

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

EV PREEMPT PHASES (Medium Priority)

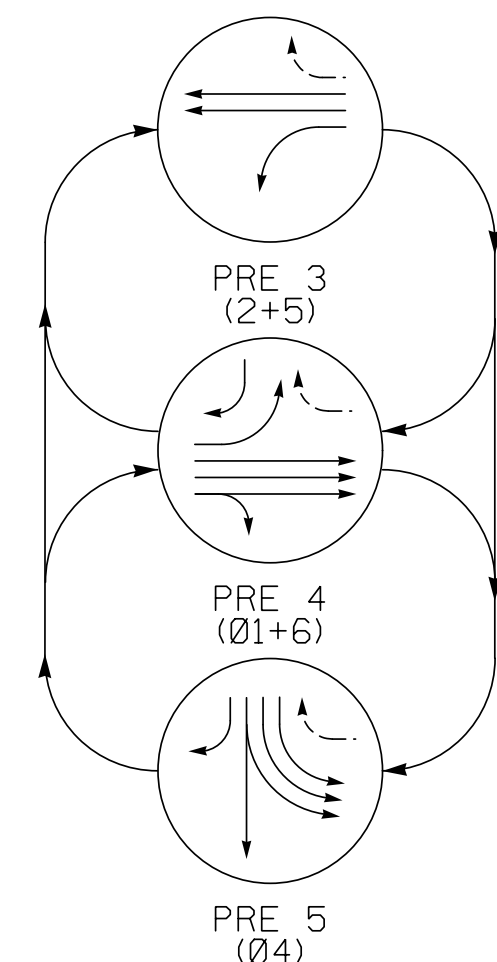
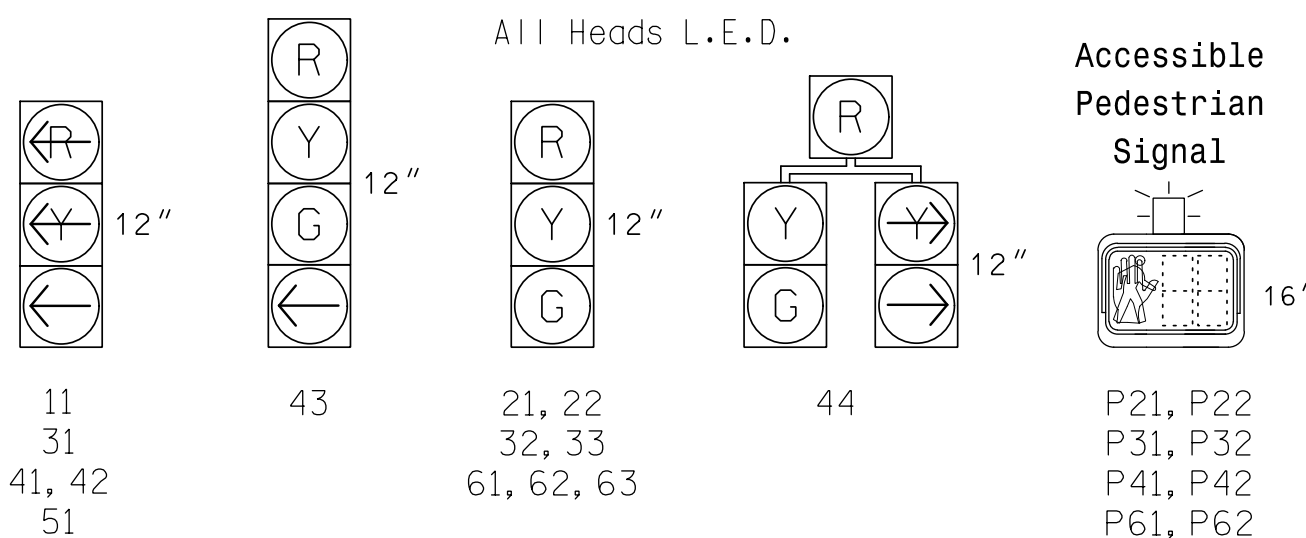


TABLE OF OPERATION

Table with columns: SIGNAL FACE, PHASE, and various signal configurations for faces 11, 21, 22, 31, 32, 33, 41, 42, 43, 44, 51, 61, 62, 63, P21, P22, P31, P32, P41, P42, P61, P62.

SIGNAL FACE I.D.



ASC/3 DETECTOR INSTALLATION CHART

Table with columns: LOOP, DETECTOR, PROGRAMMING, and various signal parameters for loops 1A through S27.

6 Phase Fully Actuated w/ Emergency Vehicle Preemption SR 1007 (Mebane Oaks Rd) CLS Signal System: 10705

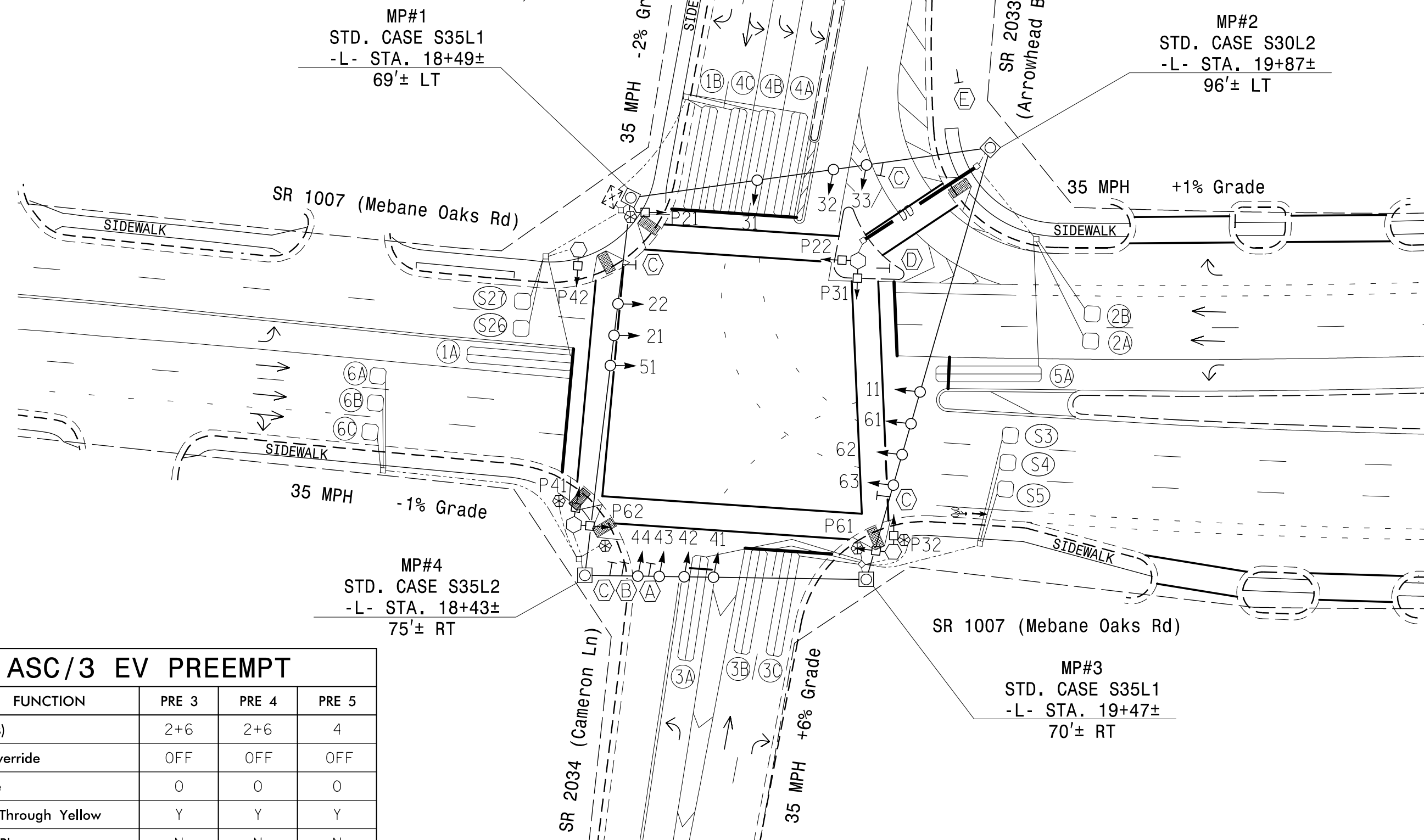
NOTES

- 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. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. This intersection features a GPS Emergency Vehicle Preemption system.
9. This intersection features accessible pedestrian signals utilizing percussive tone walk indications and speech messages. Refer to section 4E.11 of the 2009 MUTCD for tone rate and frequency requirements.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
11. Closed loop system data: Controller Asset #: 2098.

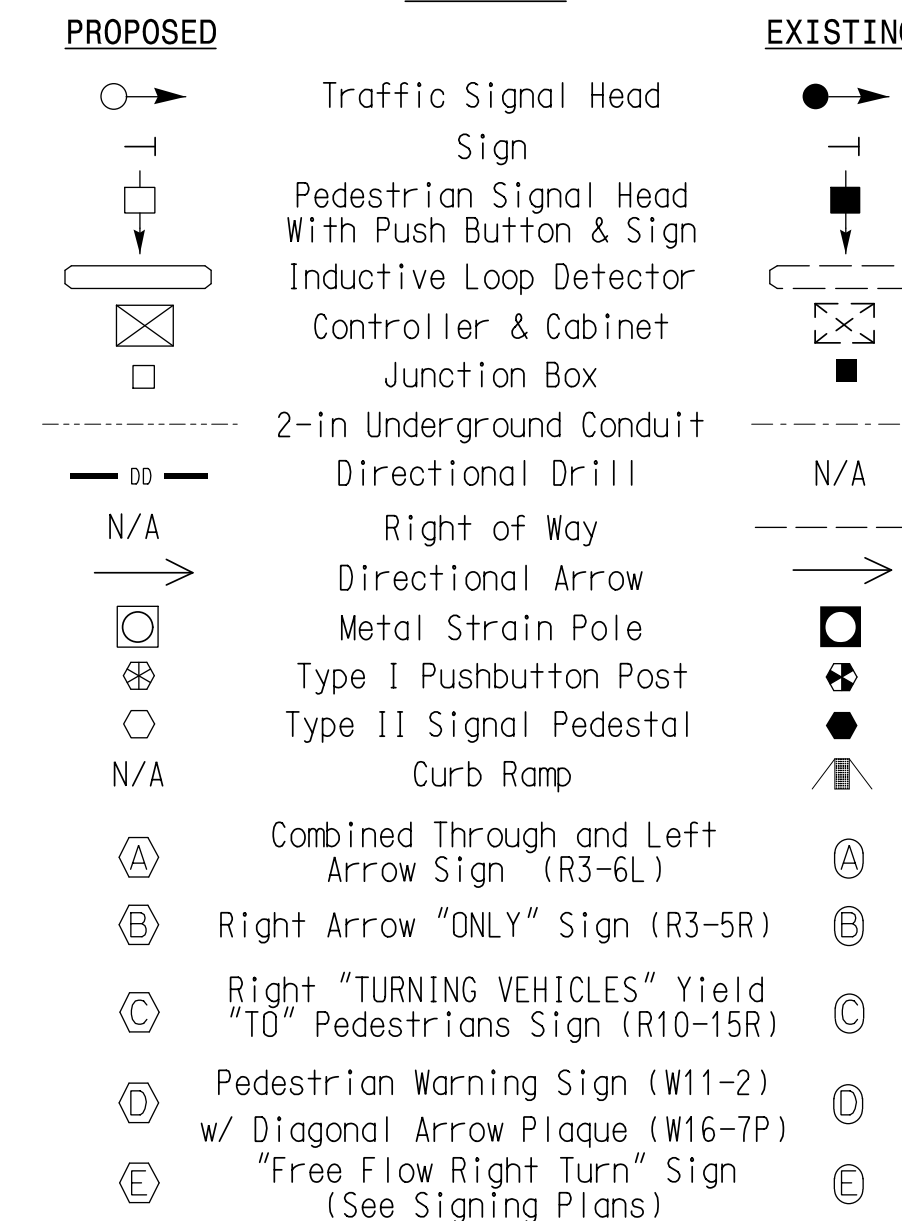
ACCESSIBLE PEDESTRIAN SIGNAL OPERATION table with columns: SIGNAL FACE, VOICE, TONES, INTERVAL, and SPEECH MESSAGE.

ASC/3 TIMING CHART table with columns: FEATURE, PHASE (1-6), and timing values.

ASC/3 EV PREEMPT table with columns: FUNCTION, PRE 3, PRE 4, PRE 5.



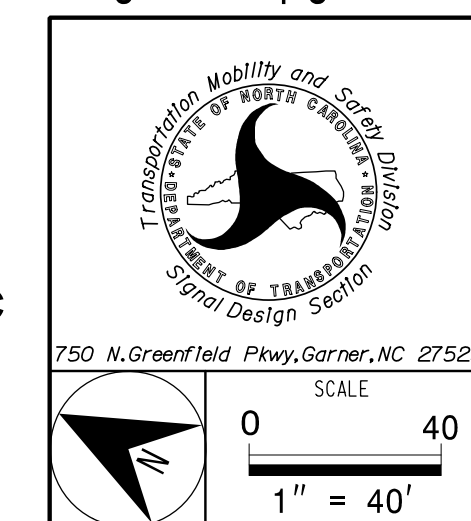
LEGEND



Signal Upgrade - Final Design

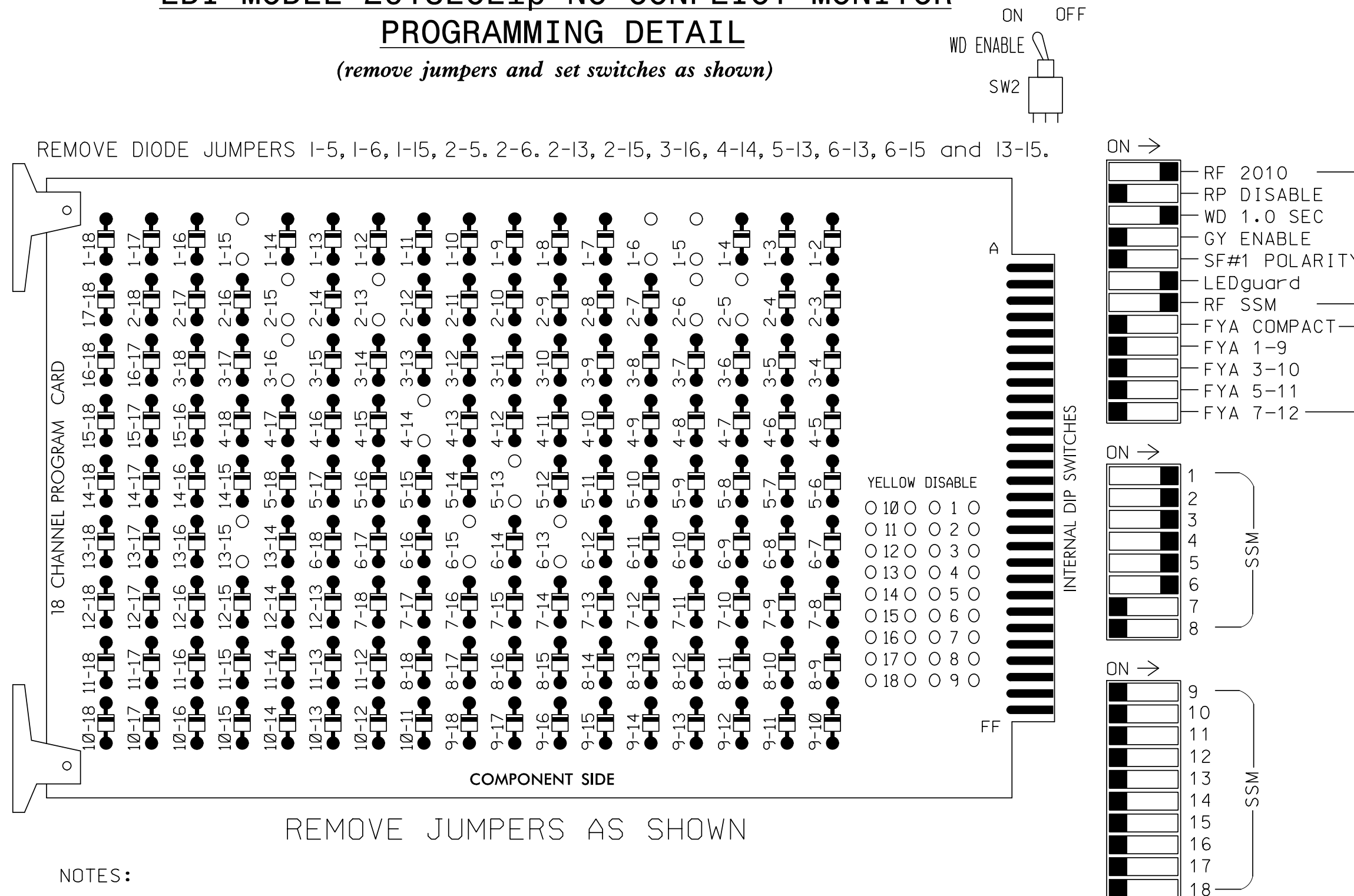
Project information block including: SR 1007 (Mebane Oaks Road) at SR 2033 (Arrowhead Boulevard) and SR 2034 (Cameron Lane), Division 7 Alamance County Mebane, PLAN DATE: November 2019, REVIEWED BY: Z. "Gavin" Teng, PREPARED BY: Z. "Gavin" Teng, REVIEWED BY: Z. "Gavin" Teng, SCALE 1" = 40', DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED, SEAL, 12/17/2019, SIG. INVENTORY NO. 07-2098.

Accelerate Engineering, PLLC logo and contact information: 875 Walnut Street, Suite 316 Cary, NC 27511, Tel: 919.263.5678 Fax: 919.263.5687 NC License No. P-1442



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.

■ = DENOTES POSITION OF SWITCH

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Walk and phase 6 Walk.
- The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,S12
 PHASES USED.....1,2,2PED,3,3PED,4,4PED,5,6,6PED
 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	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	3 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	44	21,22	P21, P22	31	32,33	41, 42	43	44	P41, P42	51	61,62	63	P61, P62	NU	NU	NU	NU
RED		128		116	101	101				134								
YELLOW		129		117	102	102				135								
GREEN		130		118	103	103				136								
RED ARROW	125			116	101					131								
YELLOW ARROW	126	126		117	102					132								
GREEN ARROW	127	127		118	103	103				133								
Hand				113					104				119			110		
Walking				115					106				121			112		

NU = Not Used

ACCESSIBLE PEDESTRIAN SIGNAL (APS) INSTALLATION NOTES

- Install push buttons and APS equipment per manufacturer's instructions.
- Provide a dedicated cable to each push button per manufacturer's instructions.
- If APS equipment is mounted in cabinet, use filtered power (i.e., Controller Receptacle) to power APS equipment. Do not use Equipment Receptacle, which is a GFCI outlet.
- Never attempt to operate a standard contact closure push button with the APS system unless cabinet is re-wired for standard button operation or unless explicitly allowed by the manufacturer.
- Place manufacturer's instructions in cabinet with cabinet prints, signal plans, and electrical details.

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
	∅1	∅2	∅3	∅4	∅5	∅6	∅7	SYS. DET. S3	SYS. DET. S4	∅8	∅9	∅2 PED	∅6 PED	FS
	1A	2A	∅3	4A	5A	6A	7A	NOT USED	NOT USED	∅10	∅11	DC ISOLATOR	DC ISOLATOR	DC ISOLATOR
	1B	2B	∅3	4B	5B	6B	7B	NOT USED	NOT USED	∅12	∅13	∅4 PED	∅3 PED	ST
FILE "J"	∅5	∅6	∅6	∅3	∅3	∅3	SYS. DET. S26	SYS. DET. S27	∅14	∅15	∅16	∅17	∅18	∅19
	5A	6A	6C	3A	3C	3D	NOT USED	NOT USED	∅20	∅21	∅22	∅23	∅24	∅25
	NOT USED	∅6	NOT USED	3B	NOT USED	NOT USED	SYS. DET. S27	NOT USED	∅26	∅27	∅28	∅29	∅30	∅31

EX.: 1A, 2A, ETC. = LOOP NO.'S
 See GPS Preemption Installation Note Below

FS = FLASH SENSE
 ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

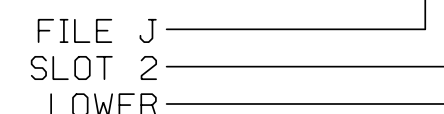
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND TIME	DELAY TIME	ADDED INITIAL	DETECTOR TYPE
1A	TB2-5,6	I2U	39	2	1	YES		3		S
1B	TB2-7,8	I2L	43	12	1	YES		15		S
2A	TB2-9,10	I3U	63	32	2	YES				S
2B	TB2-11,12	I3L	76	42	2	YES				S
3A	TB5-9,10	J6U	42	8	3	YES		3		S
3B	TB5-11,12	J6L	46	18	3	YES				S
3C	TB7-1,2	J7U	66	38	3	YES		15		S
4A	TB4-9,10	I6U	41	4	4	YES		3		S
4B	TB4-11,12	I6L	45	14	4	YES				S
4C	TB6-1,2	I7U	65	34	4	YES				S
5A	TB3-1,2	J1U	55	5	5	YES				S
6A	TB3-5,6	J2U	40	6	6	YES				S
6B	TB3-7,8	J2L	44	16	6	YES				S
6C	TB3-9,10	J3U	64	36	6	YES				S
* S3	TB6-5,6	I8U	49	24	SYS	NO				N
* S4	TB6-9,10	I9U	60	11	SYS	NO				N
* S5	TB6-11,12	I9L	62	13	SYS	NO				N
* S26	TB7-9,10	J9U	59	15	SYS	NO				N
* S27	TB7-11,12	J9L	61	17	SYS	NO				N
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P41,P42	TB8-5,6	I12L	69	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					
P31,P32	TB8-8,9	I13L	70	PED 8	3 PED					

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

* System detector only. Remove any assigned vehicle phase.

INPUT FILE POSITION LEGEND: J2L



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2098
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

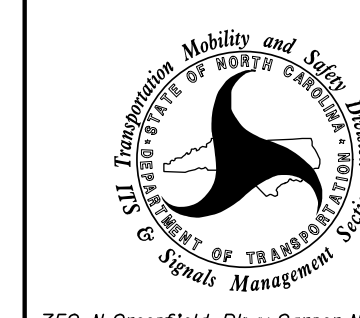
Final Design
 Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road)
 at
 SR 2033 (Arrowhead Boulevard)
 and SR 2034 (Cameron Lane)

Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2098

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

ECONOLITE ASC/3-2070 PED 3 PROGRAMMING ASSIGNMENT DETAIL

(program controller as shown)

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

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

← NOTICE PED DETECTOR 8
ASSIGNED TO PHASE 3

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

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

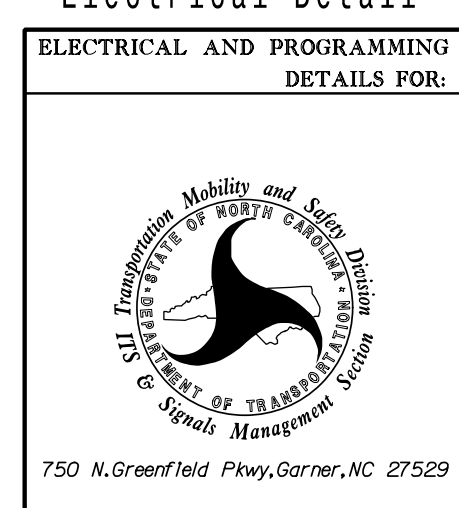
NOTICE PHASE 3 PED
ASSIGNED TO LD SWITCH 16 →

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 07-2098
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Final Design
Electrical Detail - Sheet 2 of 3

\$\$\$SYTIME\$\$\$\$\$
 \$\$\$DOCSIGN\$\$\$\$\$
 \$\$\$FORMNAME\$\$\$\$\$

ACCELERATE ENGINEERING, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road)	
		at	
		SR 2033 (Arrowhead Boulevard)	
		and SR 2034 (Cameron Lane)	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

DocuSigned by
Zhaolong Teng
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2098

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

```

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

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 13I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

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

```

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

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 13I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

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

```

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

ENABLE... YESIPMT OVRIDE..IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 13I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

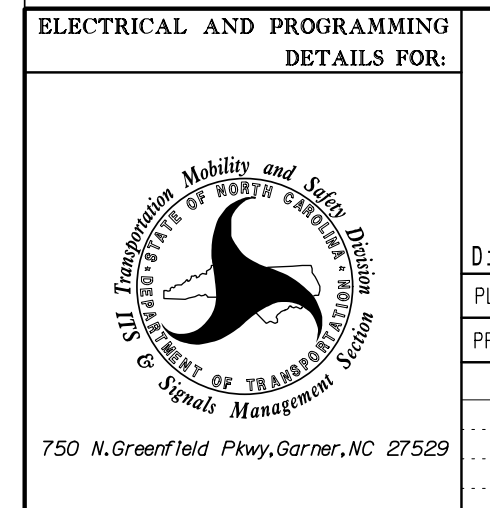
1. From Main Menu select 4. PREEMPTOR/TSP
2. From PREEMPT/TSP/SCP Submenu select 2. ENABLE PREEMPT FILTERING & TSP/SCP

```

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2098
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A


Final Design
Electrical Detail - Sheet 3 of 3



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road) at SR 2033 (Arrowhead Boulevard) and SR 2034 (Cameron Lane)	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng	Division 7	Alamance County Mebane
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:	REVISIONS	INIT. DATE

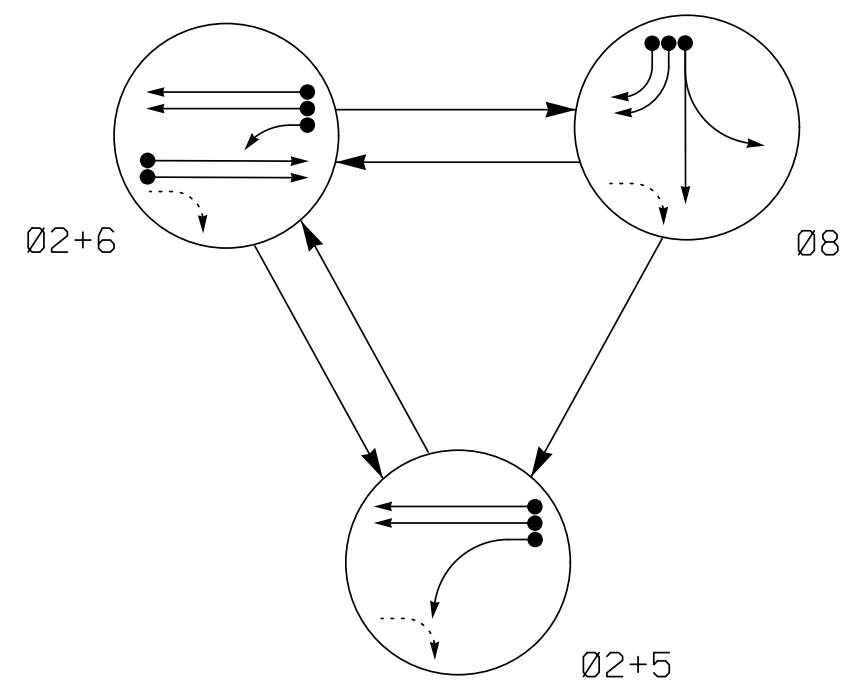
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by: <i>Zhaolong Teng</i> 12/17/2019	DATE
SIG. INVENTORY NO. 07-2098	


PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

*****CYTIME*****
 *****SHEET NO. 03*****
 *****DATE 12/17/2019*****
 *****DRAWING NO. 19-0000*****
 *****DRAWING NAME*****

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

EV PREEMPT PHASES
(Medium Priority)

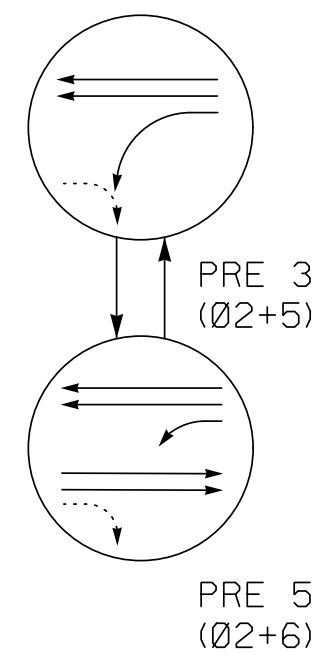
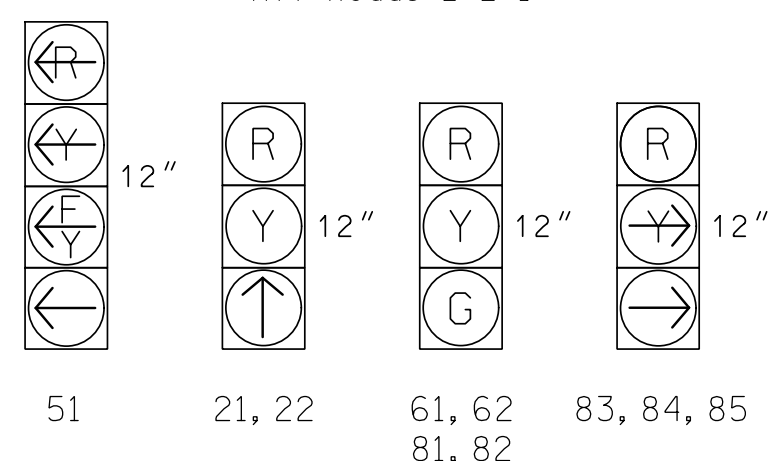


TABLE OF OPERATION

SIGNAL FACE	PHASE							
	02+5	02+6	08	PRE 3	PRE 5	08	08	08
21, 22	↑	↑	R	↑	↑	Y		
51	←	←	R	←	←	Y		
61, 62	R	G	R	R	G	Y		
81, 82	R	R	G	R	R			
83, 84, 85	R	R	←	R	R			

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 DETECTOR INSTALLATION CHART

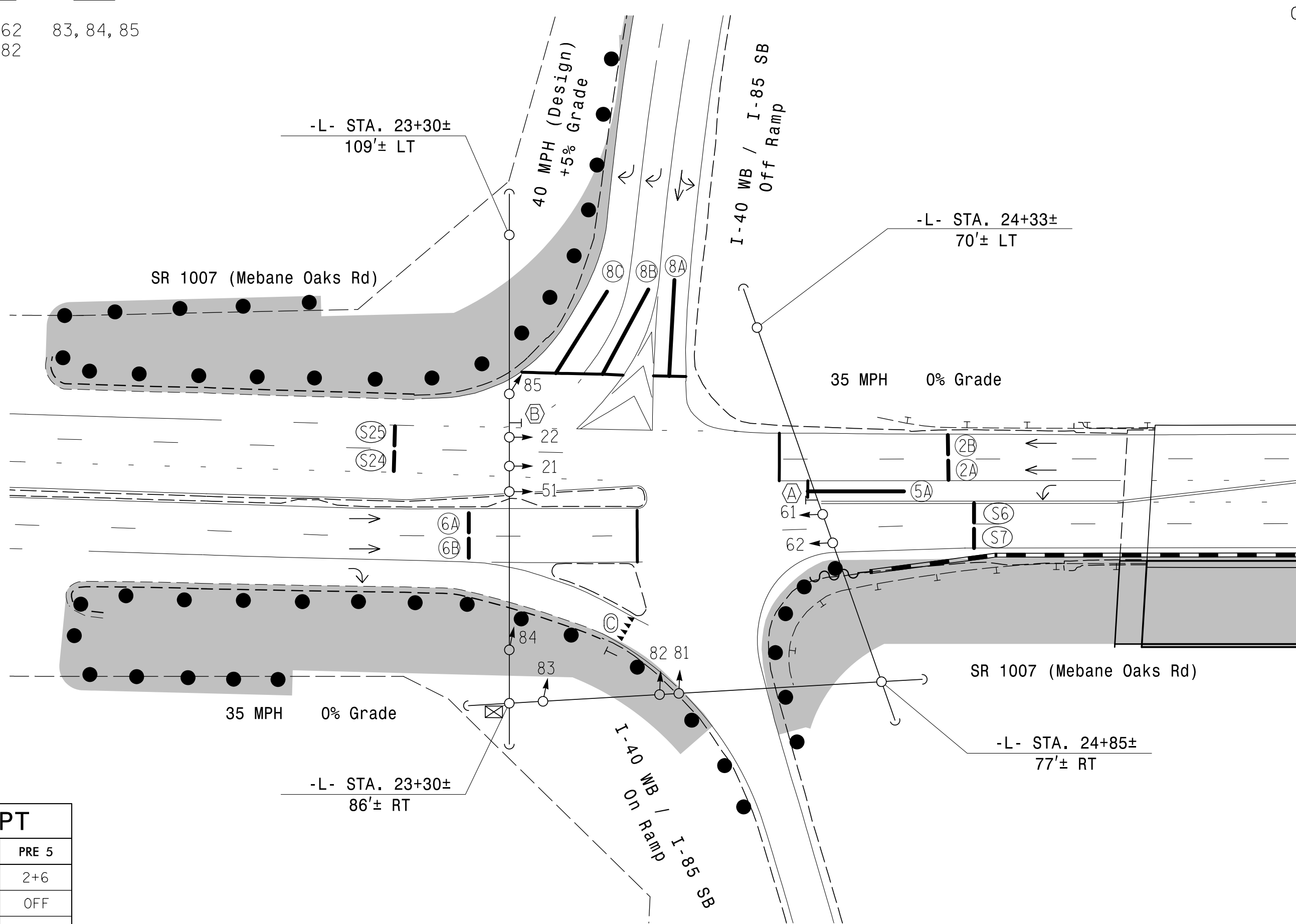
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING							
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
2A	6x6	70	*	*	2	Yes	-	-	-	S	-	*
2B	6x6	70	*	*	2	Yes	-	-	-	S	-	*
5A	6x40	0	*	*	5	Yes	-	15	-	S	-	*
6A	6x6	70	*	*	6	Yes	-	-	-	S	-	*
6B	6x6	70	*	*	6	Yes	-	-	-	S	-	*
8A	6x40	0	*	*	8	Yes	-	-	-	S	-	*
8B	6x40	0	*	*	8	Yes	-	15	-	S	-	*
8C	6x40	0	*	*	8	Yes	-	15	-	S	-	*
S6	6X6	+140	*	*	-	No	-	-	-	N	X	*
S7	6X6	+140	*	*	-	No	-	-	-	N	X	*
S24	6X6	+160	*	*	-	No	-	-	-	N	X	*
S25	6X6	+160	*	*	-	No	-	-	-	N	X	*

* Video Detection Zone

3 Phase
Fully Actuated w/ Emergency Vehicle Preemption
SR 1007 (Mebane Oaks Rd) CLS
Signal System: 10705

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Relocate the existing GPS Emergency Vehicle Preemption system.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data:
Controller Asset #: 2024.



LEGEND

- | PROPOSED | EXISTING |
|---|---|
| ○ → Traffic Signal Head | ● → Traffic Signal Head |
| — Sign | — Sign |
| ○ Signal Pole with Guy | ● Signal Pole with Guy |
| ○ Signal Pole with Sidewalk Guy | ● Signal Pole with Sidewalk Guy |
| ☒ Controller & Cabinet | ☒ Controller & Cabinet |
| □ Junction Box | ■ Junction Box |
| --- 2-in Underground Conduit | --- 2-in Underground Conduit |
| N/A Right of Way | --- Right of Way |
| → Directional Arrow | → Directional Arrow |
| ● Construction Zone Drums | ● Construction Zone Drums |
| ■ Construction Zone | ■ Construction Zone |
| ▨ Video Detection Area | ▨ Video Detection Area |
| N/A Curb Ramp | ▨ Curb Ramp |
| N/A Guardrail | ▨ Guardrail |
| (A) No U Turn / No Left Turn Sign (R3-18) | (A) No U Turn / No Left Turn Sign (R3-18) |
| (B) No Right Turn Sign (R3-1) | (B) No Right Turn Sign (R3-1) |
| (C) "YIELD" Sign (R1-2) | (C) "YIELD" Sign (R1-2) |

ASC/3 TIMING CHART

FEATURE	PHASE			
	2	5	6	8
Min Green *	10	7	10	7
Walk *	0	0	0	0
Ped Clear	0	0	0	0
Veh. Extension *	3.0	2.0	3.0	2.0
Max 1 *	60	25	60	35
Yellow	3.8	3.0	3.8	3.8
Red Clear	2.3	1.8	2.3	1.6
Red Revert	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	X	-	X	-
Recall Position	VEH. RECALL	-	VEH. RECALL	-
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

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

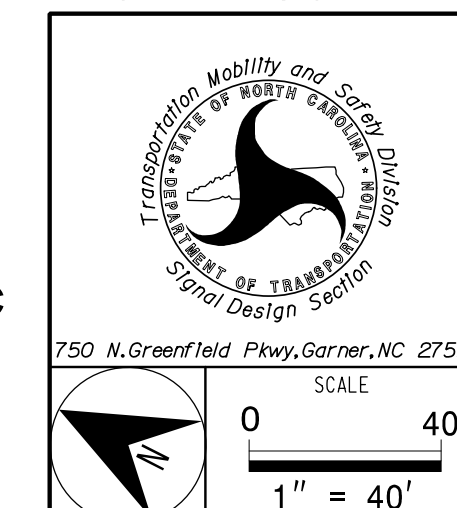
ASC/3 EV PREEMPT

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

* Time defaults to time used for phase during normal operation

(TMP Phase I)
Signal Upgrade - Temporary Design 1

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442



SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps	
Division 7 Alamance County Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

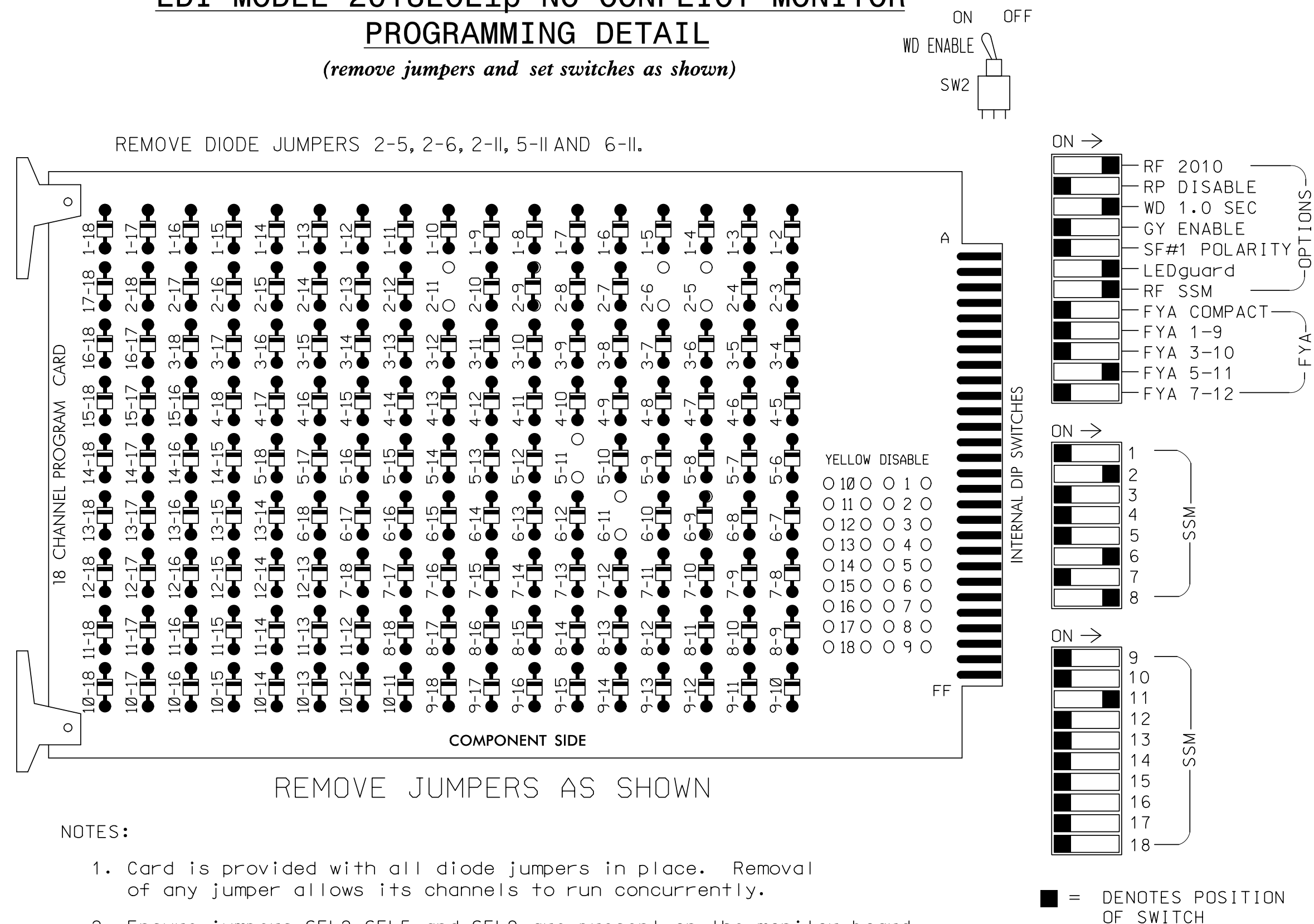
STATE OF NORTH CAROLINA
PROFESSIONAL ENGINEER
ZHAOLONG TENG
032179

12/17/2019
DATE

SIG. INVENTORY NO. 07-2024T1

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.

REMOVE JUMPERS 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 phase 6 Green.
- The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

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

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	51	61,62	NU	NU	81,82	83,84 85	NU	NU	NU	51	NU	NU
RED		128						134			107	107						
YELLOW		129					*	135			108							
GREEN								136			109							
RED ARROW																		A114
YELLOW ARROW											108							A115
FLASHING YELLOW ARROW																		A116
GREEN ARROW		130						133			109							

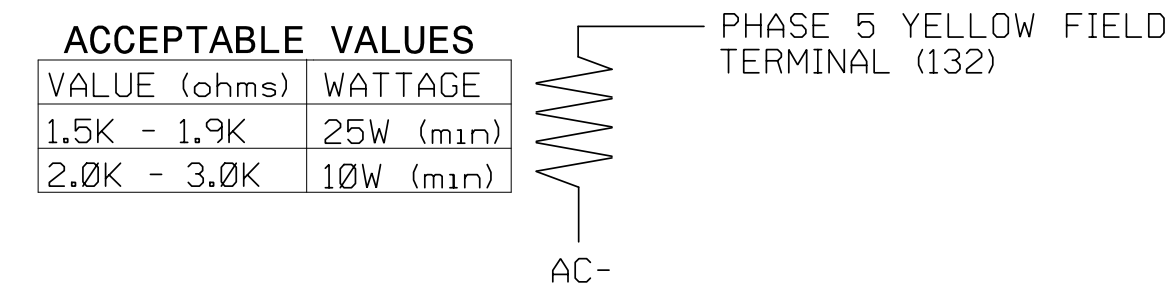
NU = Not Used

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

★ See pictorial of head wiring in detail this sheet.

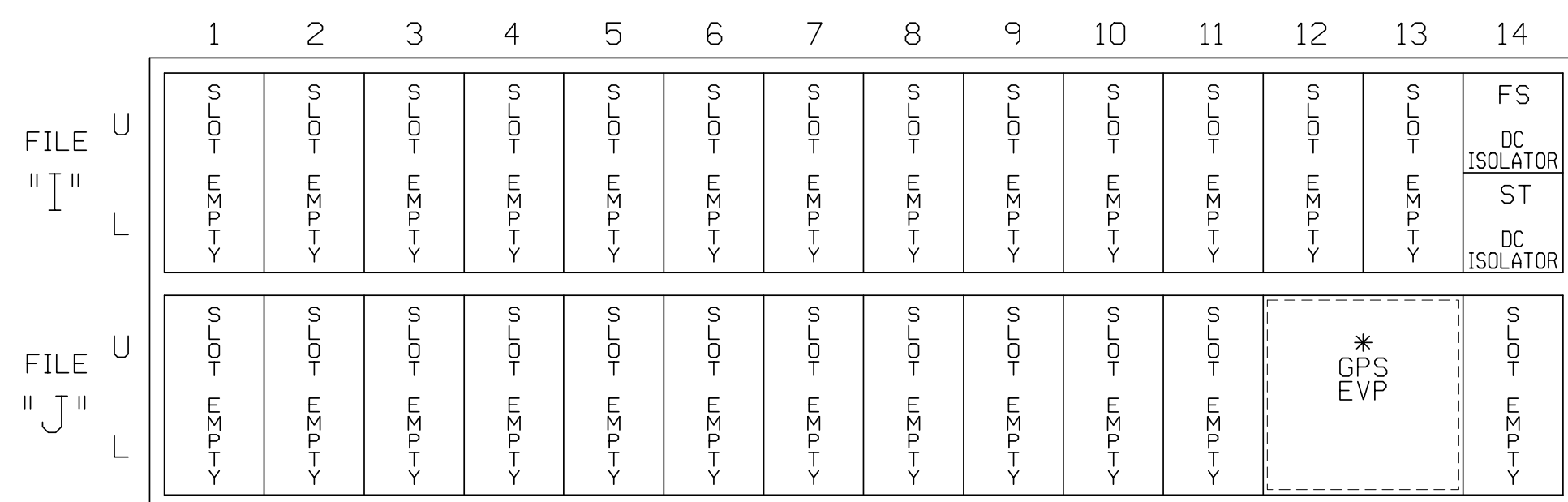
LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)



INPUT FILE POSITION LAYOUT

(front view)



SPECIAL DETECTOR NOTE

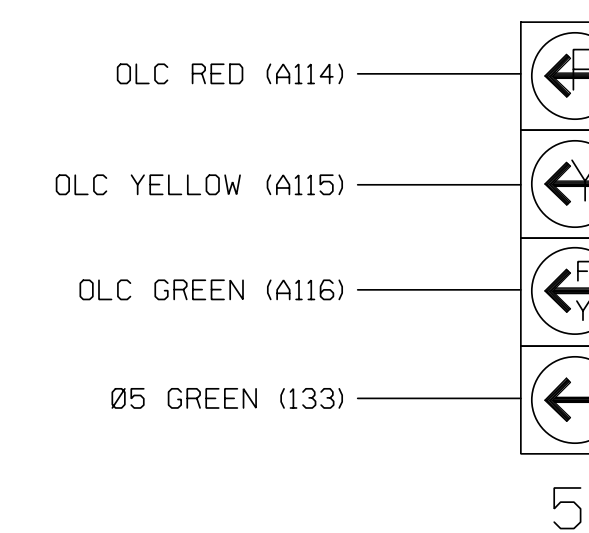
Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO 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.

FYA SIGNAL WIRING DETAIL

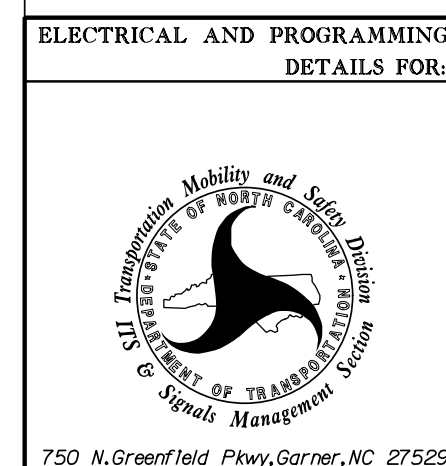
(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2024T1
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

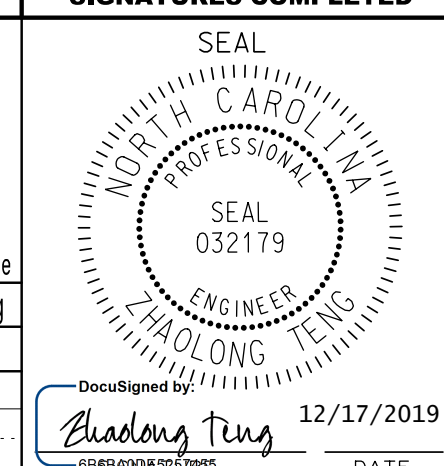
PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

Temporary Design 1
 Electrical Detail - Sheet 1 of 2



ELECTRICAL AND PROGRAMMING DETAILS FOR:	
SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps	
Division 7	Alamance County Mebane
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SIG. INVENTORY NO. 07-2024T1

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

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

```

PREEMPT PLAN [ 3]   ENABLE....YES
  VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
  OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLP . .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERRIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

```

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

```

ECONOLITE ASC/3-2070 OVERLAP PROGRAMMING DETAIL

(program controller as shown)

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

Toggle Twice

OVERLAP C

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

```

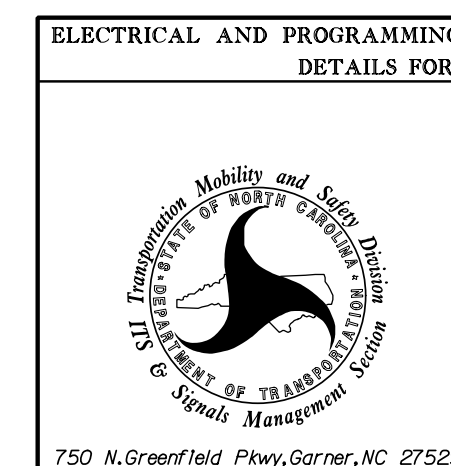
TMG VEH OVLP...[C] TYPE: ....[PPLT FYA]
PROTECTED LEFT TURN.... PHASE 5
OPPOSING THROUGH..... PHASE 6
FLASHING ARROW OUTPUT.....CH11 ISOLATE
DELAY START OF: FYA..0.0 CLEARANCE..0.0
ACTION PLAN SF BIT DISABLE..... 0

```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2024T1
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 1
Electrical Detail - Sheet 2 of 2



SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps

Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

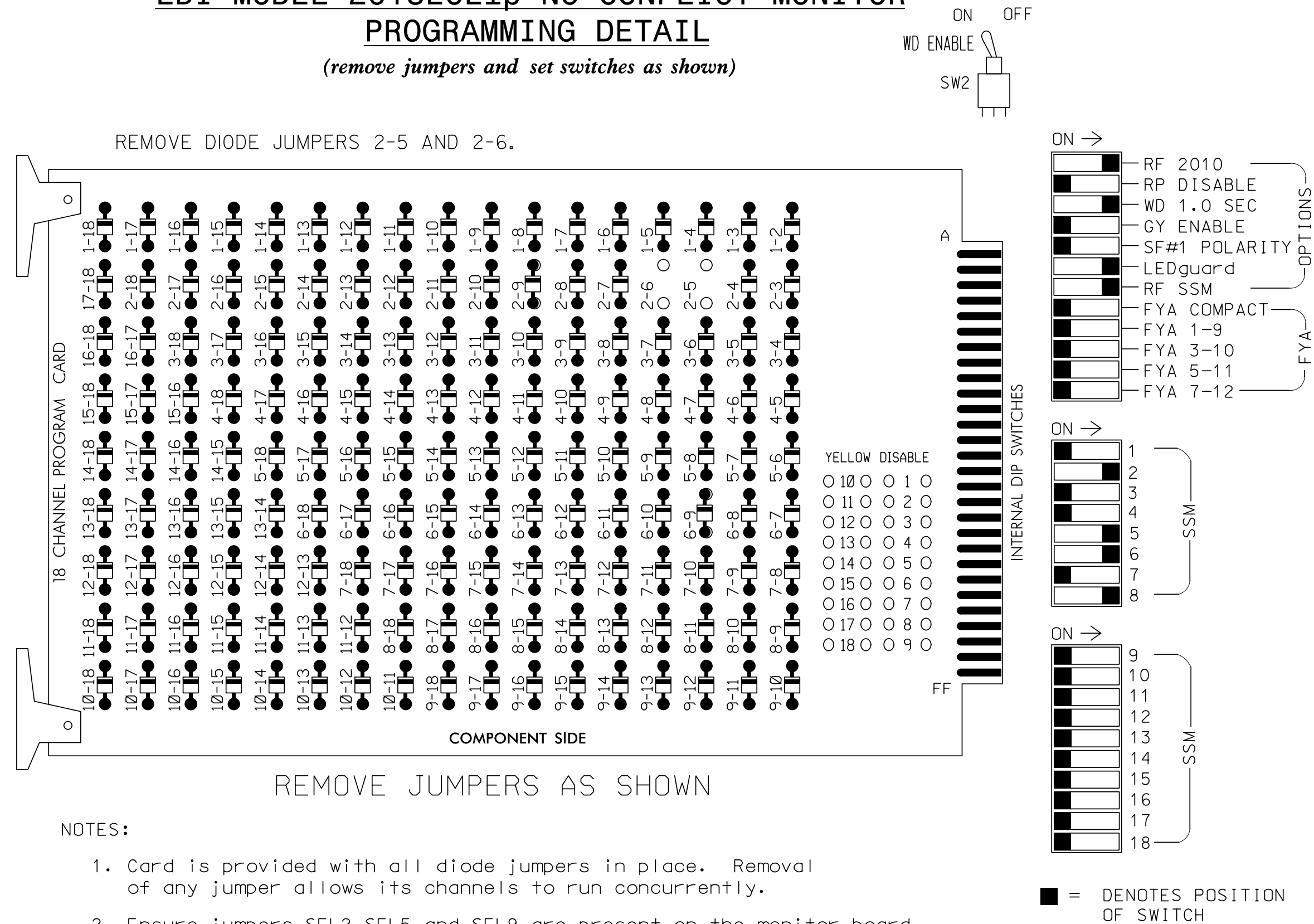
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG
 DocuSigned by Zhaolong Teng 12/17/2019
 SIG. INVENTORY NO. 07-2024T1

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES

Return controller to Factory Defaults before programming per this electrical detail.

- 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 phase 6 Green.
- The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S7,S8,S11
 PHASES USED.....2,5,6,8
 OVERLAP 'A'.....NOT USED
 OVERLAP 'B'.....NOT USED
 OVERLAP 'C'.....NOT USED
 OVERLAP 'D'.....NOT USED

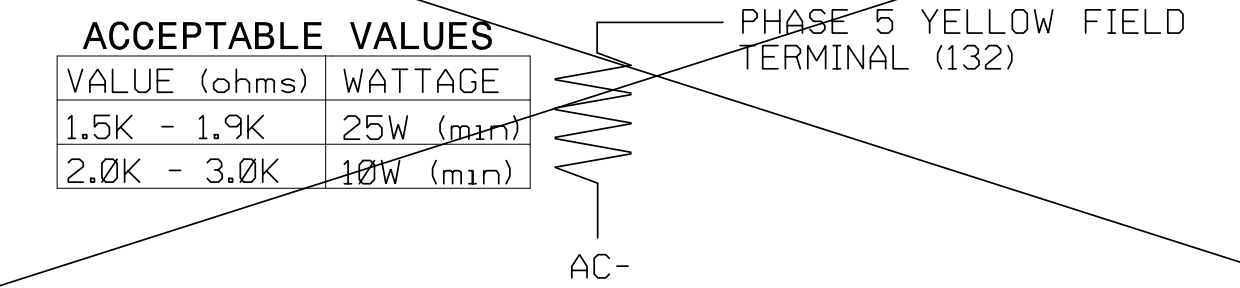
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	51,52	61,62	NU	NU	81,82	83,84 85	NU	NU	NU	NU	NU	NU
RED		128							134		107	107						
YELLOW		129							135		108							
GREEN											109							
RED ARROW								131										
YELLOW ARROW							132				108							
GREEN ARROW		130					133	136			109							

NU = Not Used

LOAD RESISTOR INSTALLATION DETAIL

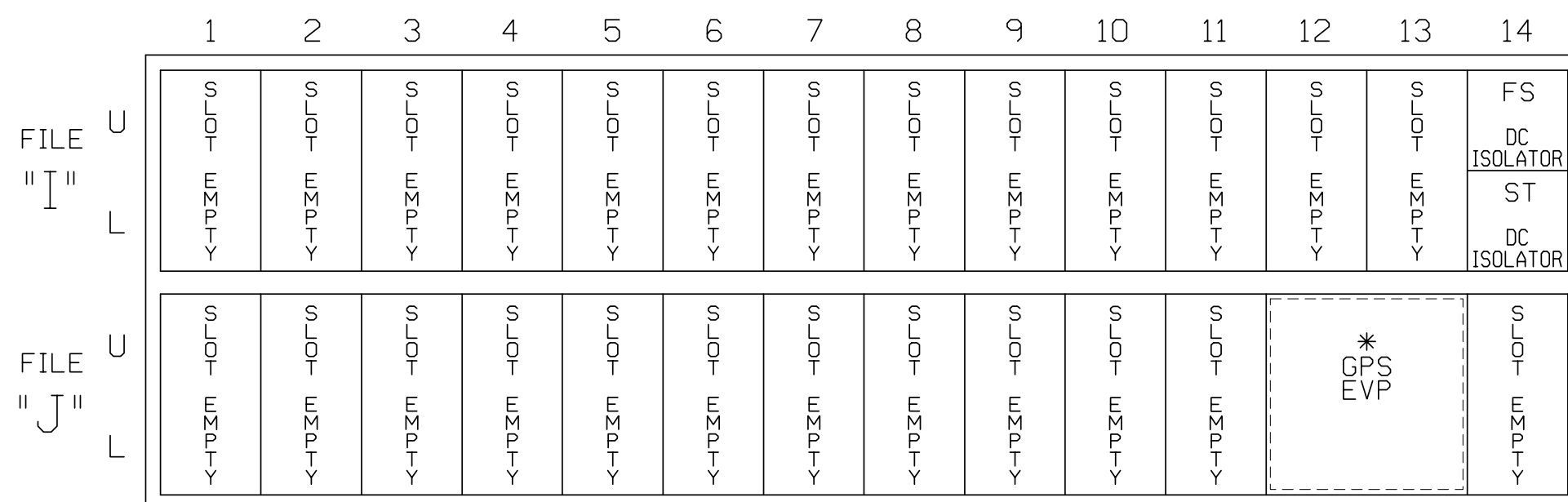
(install resistor as shown below)



REMOVE LOAD RESISTOR

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 See GPS Preemption Installation Note Below

FS = FLASH SENSE
 ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO 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: 07-2024T2
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 2
 Electrical Detail - Sheet 1 of 2

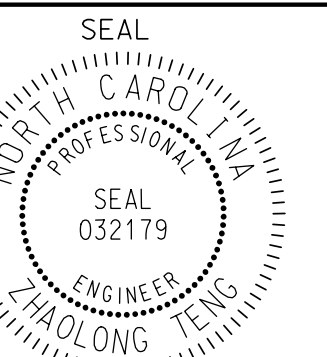
ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps

Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

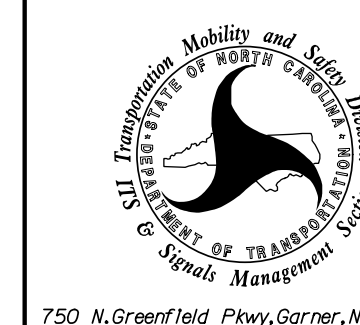
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by: Zhaolong Teng
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2024T2

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442



750 N. Greenfield Pkwy, Garner, NC 27529

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

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

```

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

```

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERRIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERRIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

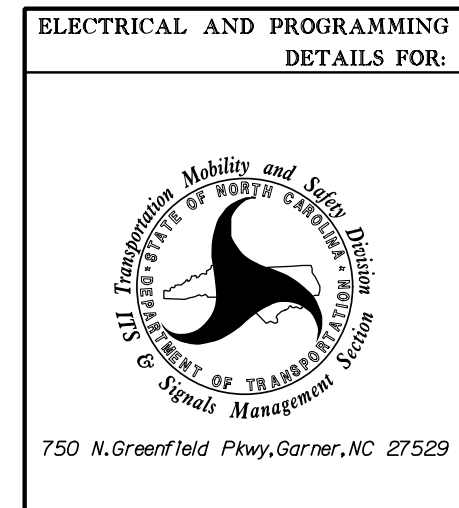
```

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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2024T2
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 2
Electrical Detail - Sheet 2 of 2



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG

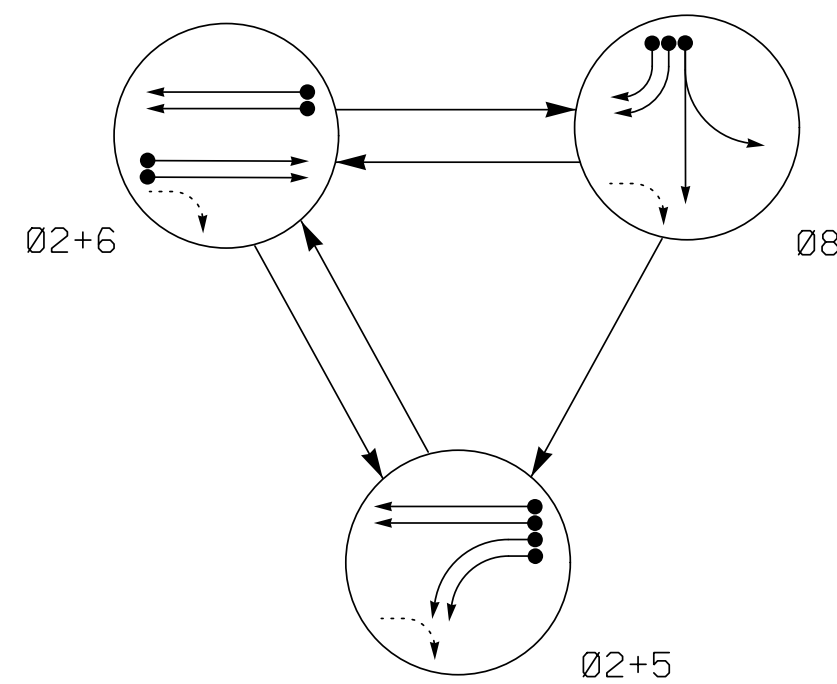
DocuSigned by:
 Zhaolong Teng
 12/17/2019
 DATE

SIG. INVENTORY NO. 07-2024T2

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

\$\$\$\$\$CYTIME\$\$\$\$\$
 \$\$\$DOCSIGN\$\$\$\$\$
 \$\$\$SUBFORMNAME\$\$\$\$\$

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

EV PREEMPT PHASES
(Medium Priority)

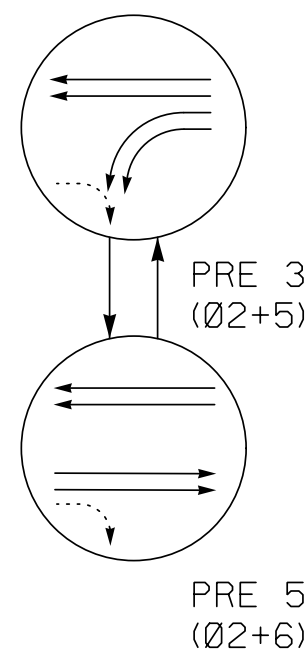
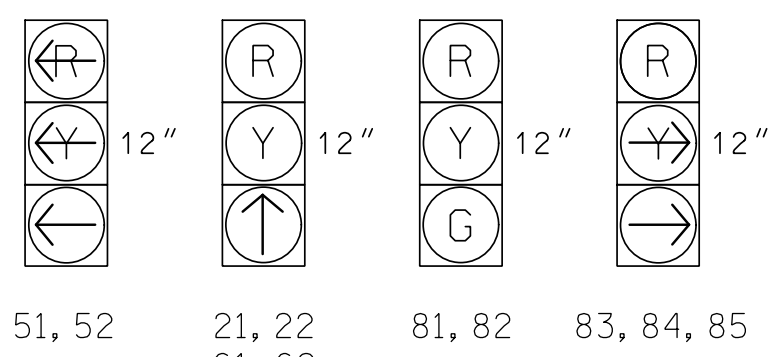


TABLE OF OPERATION

SIGNAL FACE	PHASE							
	02+5	02+6	08	PRE 3	PRE 5	08	08	Y
21, 22	↑	↑	R	↑	↑	Y		
51, 52	←	←	R	←	←	R		
61, 62	R	↑	R	R	↑	Y		
81, 82	R	R	G	R	R	R		
83, 84, 85	R	R	→	R	R	R		

SIGNAL FACE I.D.

All Heads L.E.D.



ASC/3 DETECTOR INSTALLATION CHART

ZONE	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
2A	6x6	70	*	*	2	Yes	-	-	-	S	-	*
2B	6x6	70	*	*	2	Yes	-	-	-	S	-	*
5A	6x40	0	*	*	5	Yes	-	-	-	S	-	*
5B	6x40	0	*	*	5	Yes	-	-	-	S	-	*
6A	6x6	70	*	*	6	Yes	-	-	-	S	-	*
6B	6x6	70	*	*	6	Yes	-	-	-	S	-	*
8A	6x40	0	*	*	8	Yes	-	-	-	S	-	*
8B	6x40	0	*	*	8	Yes	-	15	-	S	-	*
8C	6x40	0	*	*	8	Yes	-	15	-	S	-	*
S6	6X6	+150	*	*	-	No	-	-	-	N	X	*
S7	6X6	+150	*	*	-	No	-	-	-	N	X	*
S24	6X6	+160	*	*	-	No	-	-	-	N	X	*
S25	6X6	+160	*	*	-	No	-	-	-	N	X	*

* Video Detection Zone

3 Phase Fully Actuated w/ Emergency Vehicle Preemption SR 1007 (Mebane Oaks Rd) CLS Signal System: 10705

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Reposition existing signal heads numbered 21, 22, 51, 52, 85 and sign B.
5. Set all detector units to presence mode.
6. This intersection features a GPS Emergency Vehicle Preemption system.
7. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed loop system data: Controller Asset #: 2024.

ASC/3 TIMING CHART

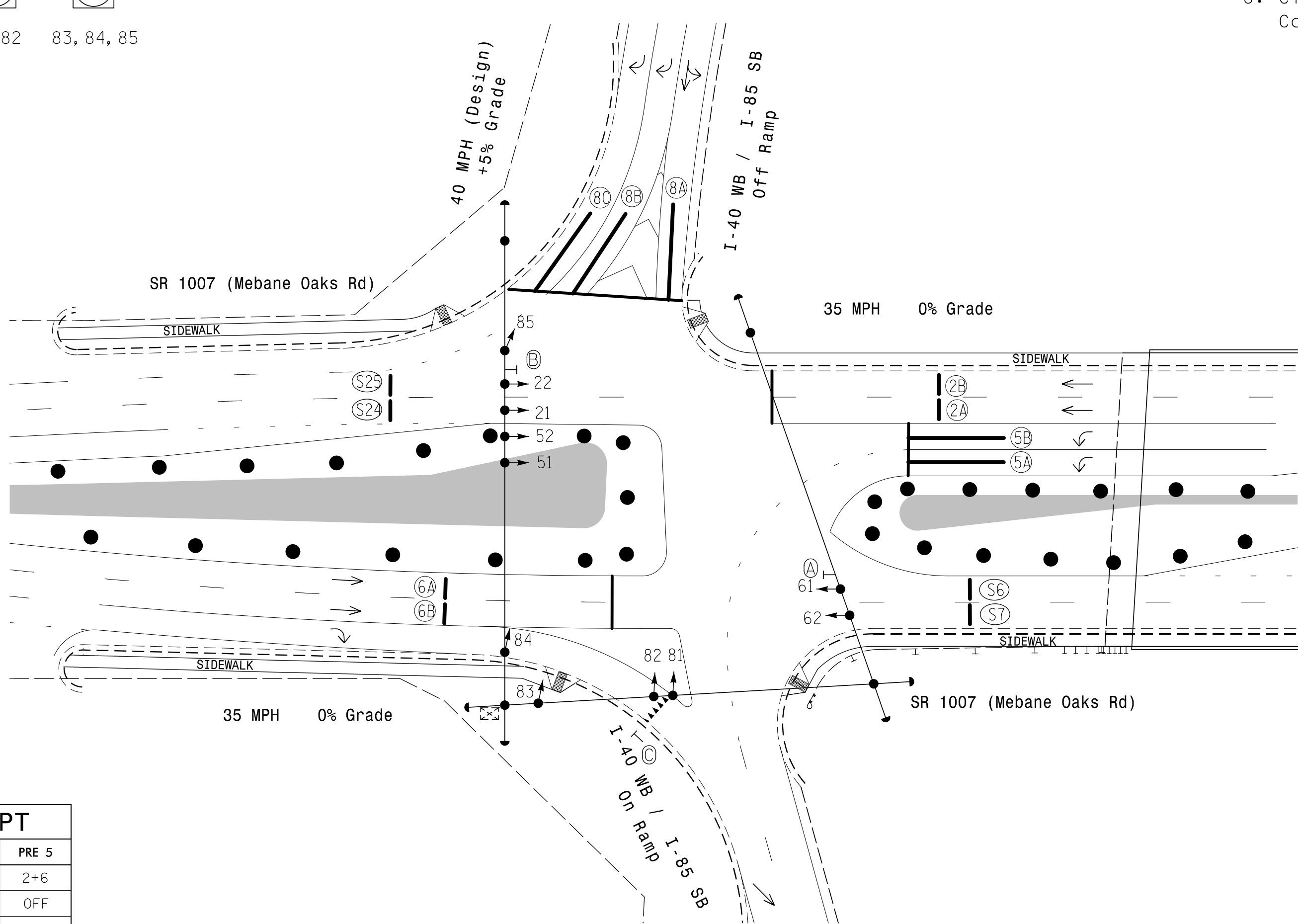
FEATURE	PHASE			
	2	5	6	8
Min Green *	10	7	10	7
Walk *	0	0	0	0
Ped Clear	0	0	0	0
Veh. Extension *	3.0	2.0	3.0	2.0
Max 1 *	60	25	60	35
Yellow	3.8	3.0	3.8	3.8
Red Clear	3.2	3.6	1.4	3.0
Red Revert	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	-	-	-	-
Max Initial *	-	-	1	1
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	X	-	X	-
Recall Position	VEH. RECALL	-	VEH. RECALL	-
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

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

ASC/3 EV PREEMPT

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

* Time defaults to time used for phase during normal operation

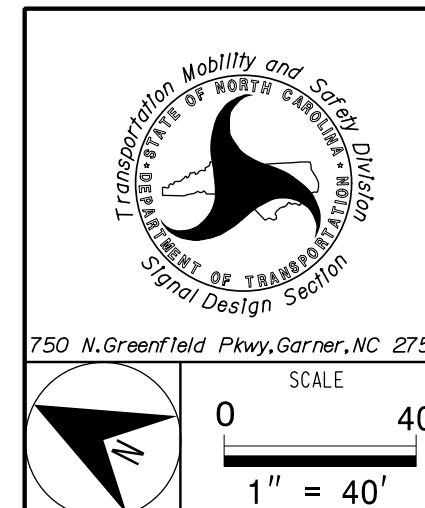


LEGEND

PROPOSED	EXISTING
○	●
+	+
○	○
○	○
□	□
□	□
- - -	- - -
N/A	N/A
→	→
●	●
■	■
- - -	- - -
N/A	N/A
N/A	N/A
(A)	(A)
(B)	(B)
(C)	(C)

(TMP Phase III) Signal Upgrade - Temporary Design 3

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442



SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps

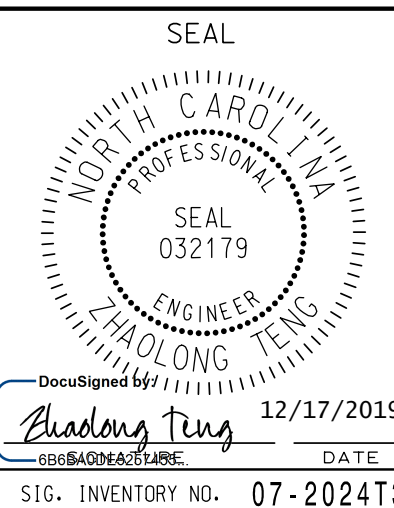
Division 7 Alamance County Mebane

PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng

PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

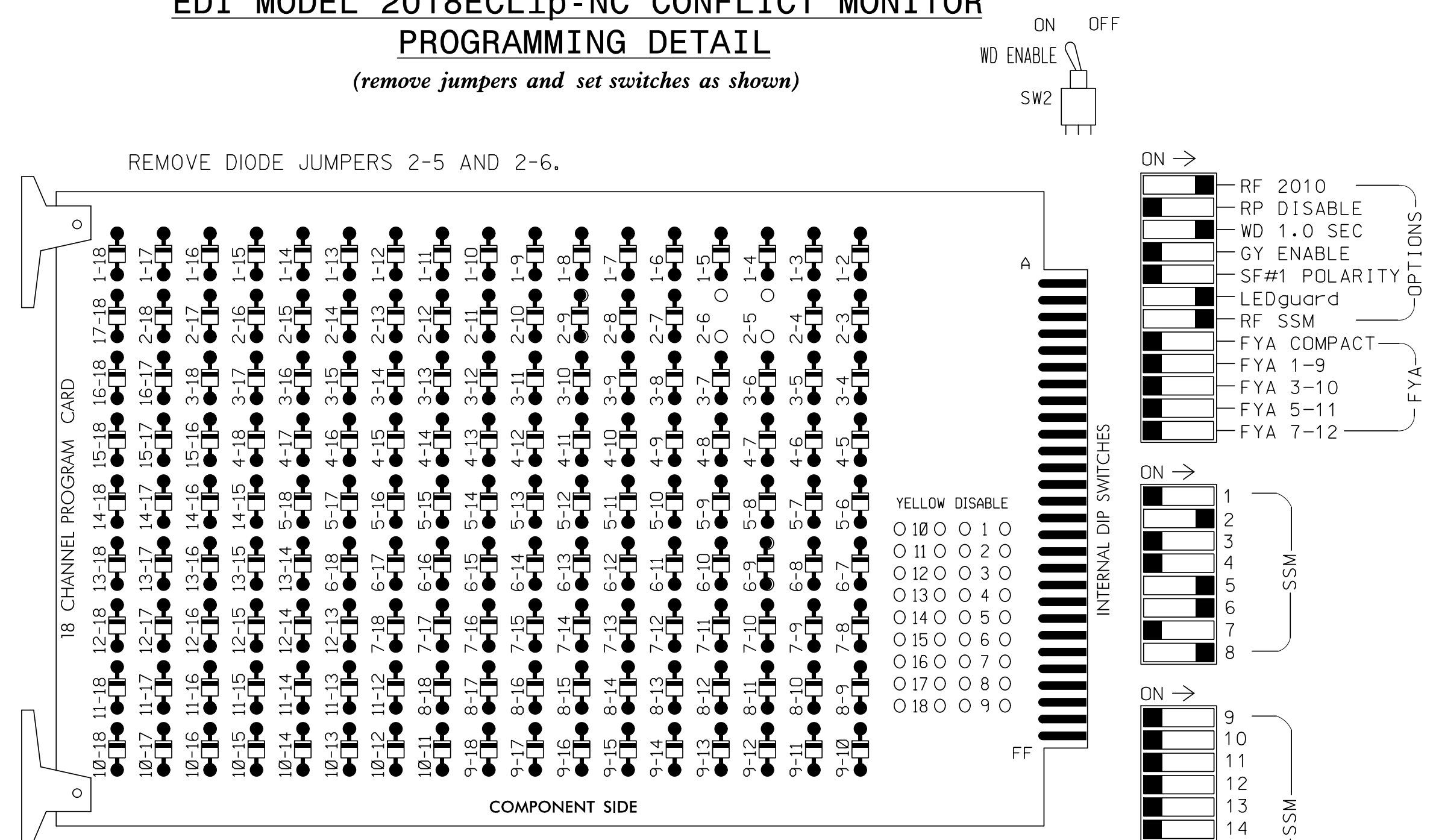
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



12/17/2019
DATE
SIG. INVENTORY NO. 07-2024T3

EDI MODEL 2018ECLIP-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program controller to start up in phase 2 Green and phase 6 Green.
3. The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S7,S8,S11
 PHASES USED.....2,5,6,8
 OVERLAP 'A'.....NOT USED
 OVERLAP 'B'.....NOT USED
 OVERLAP 'C'.....NOT USED
 OVERLAP 'D'.....NOT USED

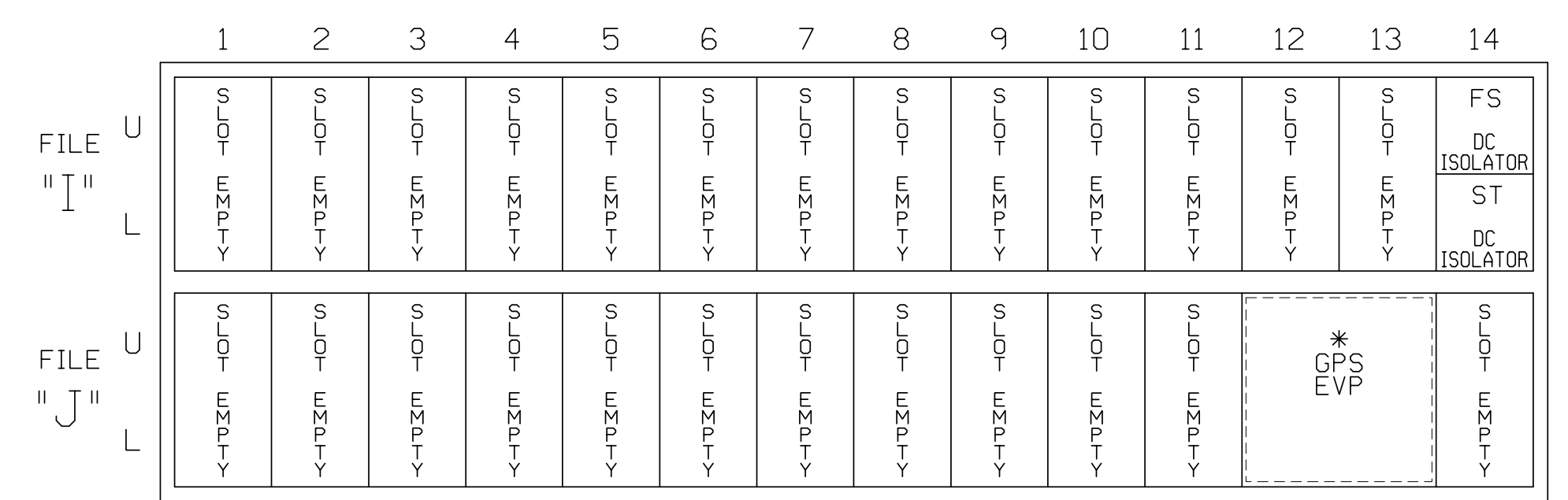
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	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	DLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	51,52	61,62	NU	NU	81,82	83,84 85	NU	NU	NU	NU	NU	NU
RED		128						134			107	107						
YELLOW		129						135			108							
GREEN											109							
RED ARROW							131											
YELLOW ARROW							132				108							
GREEN ARROW		130					133	136			109							

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 See GPS Preemption Installation Note Below
 FS = FLASH SENSE
 ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO DETECTOR NOTE

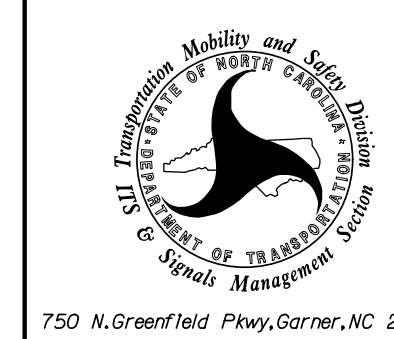
Install a video detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2024T3
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 3
 Electrical Detail - Sheet 1 of 2

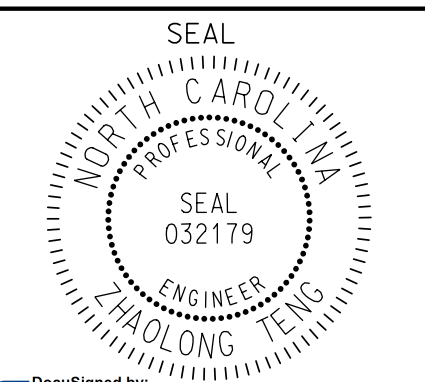
ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road)
 at
 I-40 WB / I-85 SB Ramps



Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by: Zhaolong Teng 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2024T3

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$SYTIME\$\$\$\$\$
 \$\$\$SYTIME\$\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

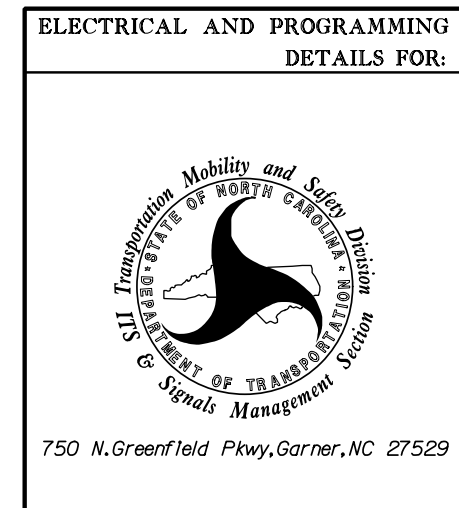
```

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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2024T3
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Temporary Design 3
Electrical Detail - Sheet 2 of 2



PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

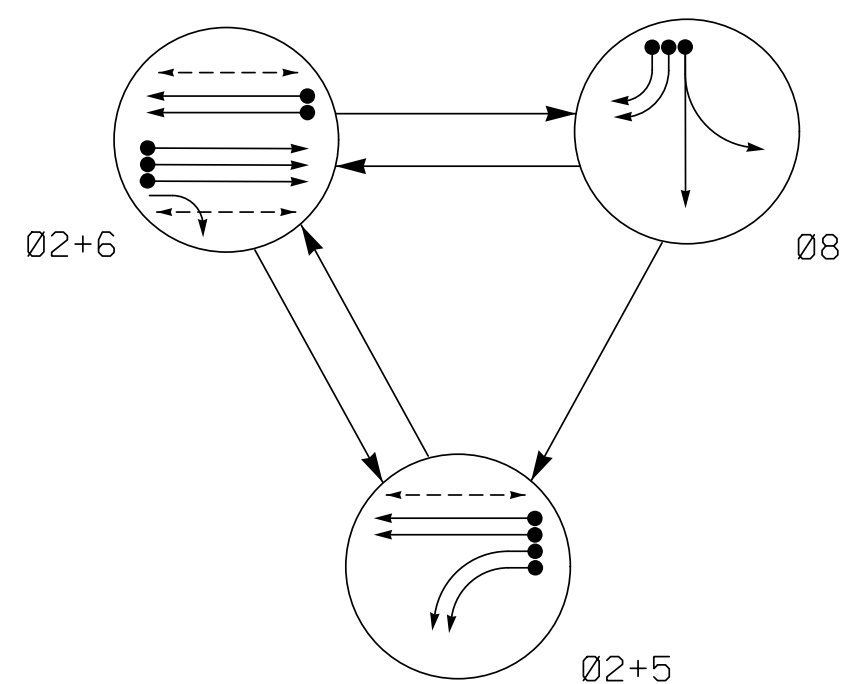
ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
ZHAOLONG TENG
PROFESSIONAL ENGINEER
STATE OF NORTH CAROLINA
LICENSE NO. 032179
DocuSigned by:
Zhaolong Teng
12/17/2019
DATE
SIG. INVENTORY NO. 07-2024T3

\$\$\$\$\$CYTIME\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$DOCSIGN\$\$\$\$\$\$\$\$\$\$
\$\$\$\$\$SERIALNAME\$\$\$\$\$

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

EV PREEMPT PHASES
(Medium Priority)

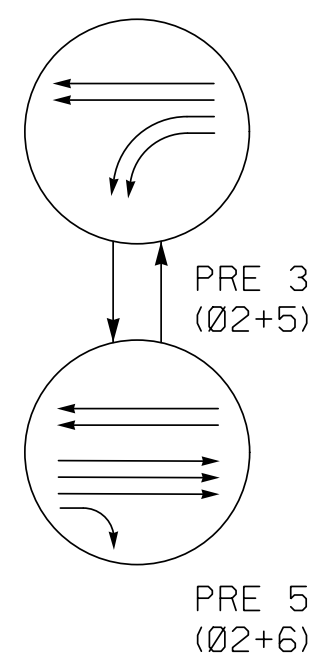


TABLE OF OPERATION

SIGNAL FACE	PHASE						
	02+5	02+6	08	PRE 3	PRE 5	FLASH	Y
21, 22	↑	↑	R	↑	↑	Y	
51, 52, 53	←	←	←	←	←	←	
61, 62, 63	R	↑	R	R	↑	Y	
64	R	↑	R	R	↑	Y	
65	R	G	R	R	G	Y	
81, 82	R	R	G	R	R	R	
83, 84, 85	R	R	←	R	R	R	
P21, P22	W	W	DW	DW	DW	DRK	
P61, P62	DW	W	DW	DW	DW	DRK	

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
2A	6x6	70	5	X	2	Yes	-	-	-	S	-	X
2B	6x6	70	5	X	2	Yes	-	-	-	S	-	X
5A	6x40	0	2-4-2	X	5	Yes	-	-	-	S	-	X
5B	6x40	0	2-4-2	X	5	Yes	-	-	-	S	-	X
6A	6x6	70	3	X	6	Yes	-	-	-	S	-	X
6B	6x6	70	3	X	6	Yes	-	-	-	S	-	X
6C	6x6	70	3	X	6	Yes	-	-	-	S	-	X
8A	6x40	0	2-4-2	X	8	Yes	-	-	-	S	-	X
8B	6x40	0	2-4-2	X	8	Yes	-	15	-	S	-	X
8C	6x40	0	2-4-2	X	8	Yes	-	15	-	S	-	X
S6	6X6	+160	4	X	-	No	-	-	-	N	X	X
S7	6X6	+160	4	X	-	No	-	-	-	N	X	X
S8	6X6	+160	4	X	-	No	-	-	-	N	X	X
S24	6X6	+150	4	X	-	No	-	-	-	N	X	X
S25	6X6	+150	4	X	-	No	-	-	-	N	X	X

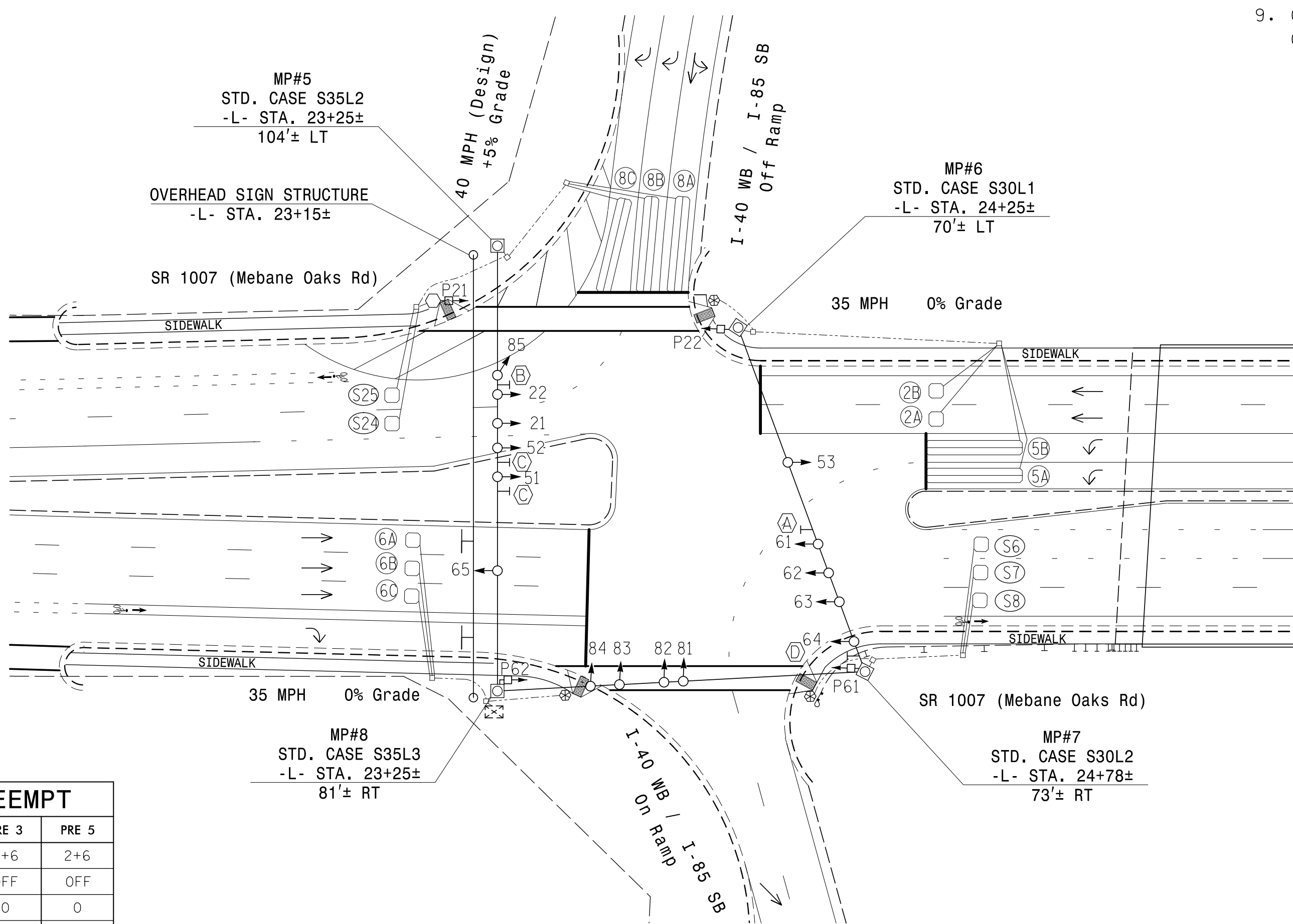
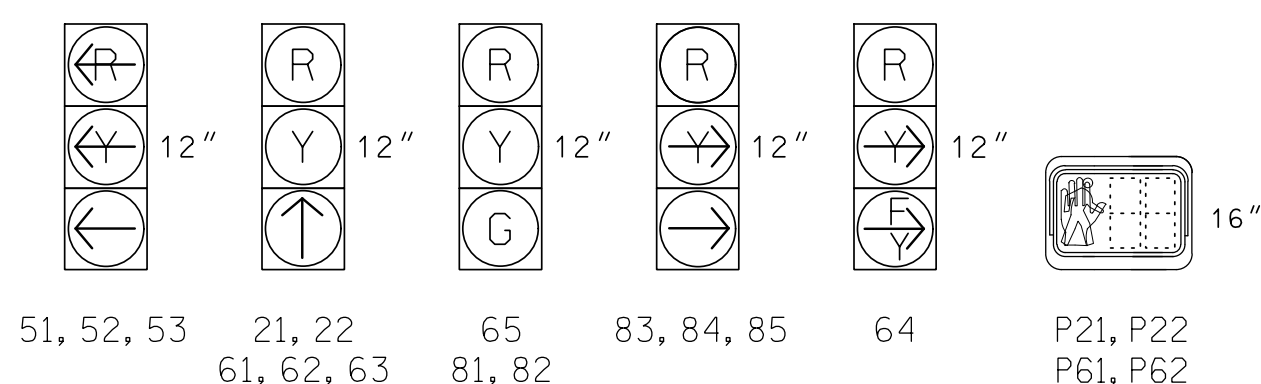
3 Phase Fully Actuated w/ Emergency Vehicle Preemption
SR 1007 (Mebane Oaks Rd) CLS
Signal System: 10705

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 5 may be lagged.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- This intersection features a GPS Emergency Vehicle Preemption system.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data: Controller Asset #: 2024.

SIGNAL FACE I.D.

All Heads L.E.D.



LEGEND

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

ASC/3 TIMING CHART

FEATURE	PHASE			
	2	5	6	8
Min Green *	10	7	10	7
Walk *	7	0	7	0
Ped Clear	27	0	21	0
Veh. Extension *	3.0	2.0	3.0	2.0
Max I *	60	25	60	35
Yellow	3.8	3.0	3.8	3.8
Red Clear	2.4	3.8	1.7	2.8
Red Revert	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-
Seconds /Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	X	-	X	-
Recall Position	VEH. RECALL	-	VEH. RECALL	-
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

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

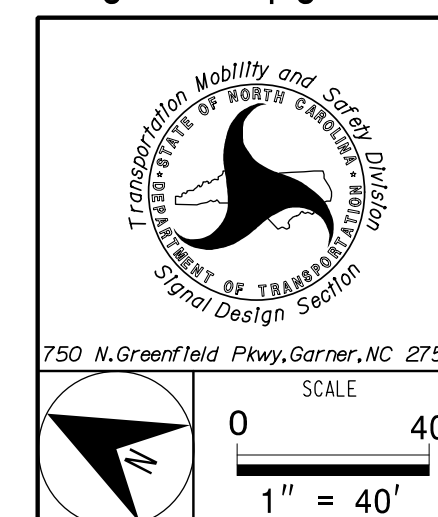
ASC/3 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Exit Phase(s)	2+6	2+6
Preempt Override	OFF	OFF
Delay Time	0	0
Ped Clear Through Yellow	Y	Y
Terminate Phases	N	N
Entrance Walk	1	1
Entrance Ped Clear	14	14
Entrance Min Green	1	1
Entrance Yellow Clear	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*
Min Dwell Time	7	7
Preempt Input Extension Time	2	2
Preempt Max Time	120	120
Exit Yellow Clear	25.5*	25.5*
Exit Red Clear	25.5*	25.5*

* Time defaults to time used for phase during normal operation

Signal Upgrade - Final Design

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442



SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps

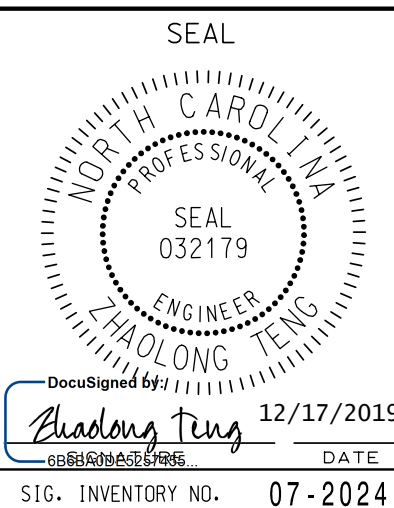
Division 7 Alamance County Mebane

PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng

PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

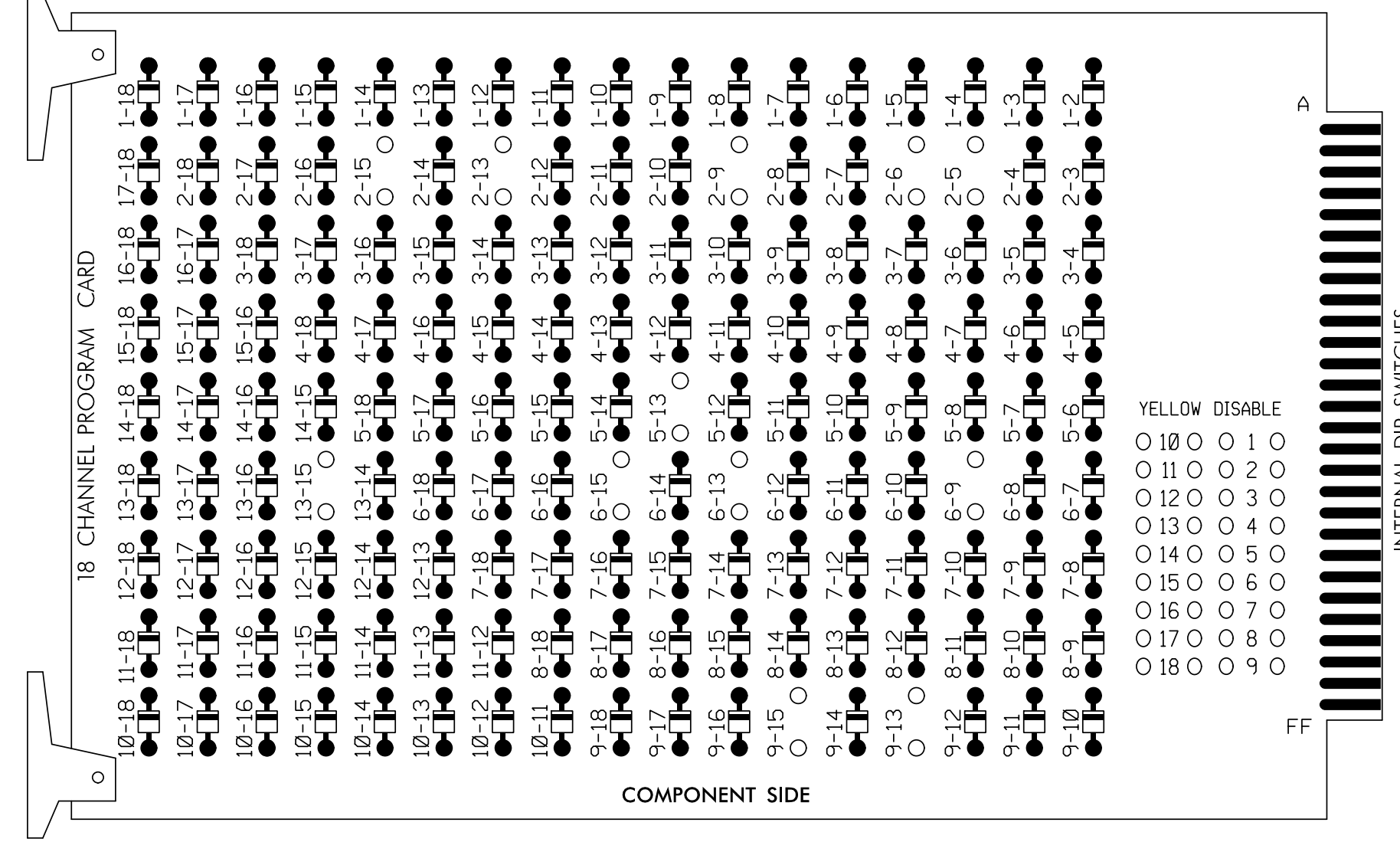


12/17/2019
DATE
SIG. INVENTORY NO. 07-2024

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

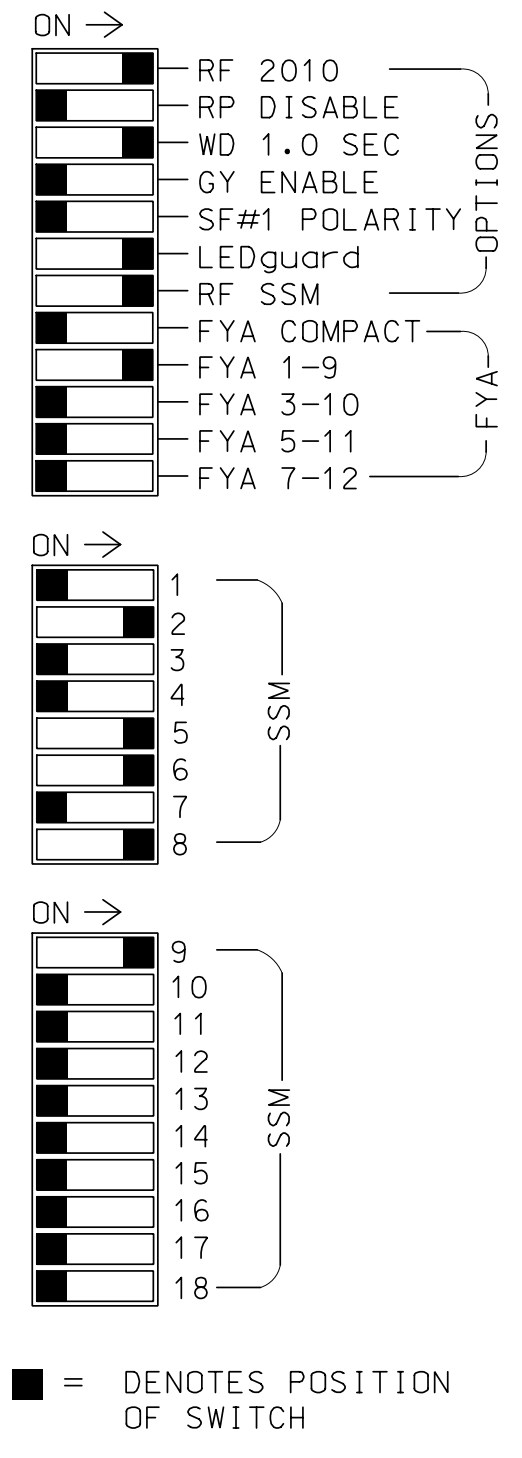
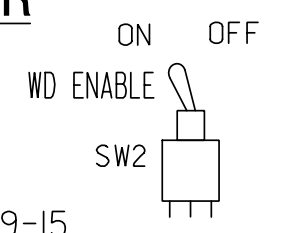
REMOVE DIODE JUMPERS 2-5, 2-6, 2-9, 2-13, 2-15, 5-13, 6-9, 6-13, 6-15, 9-13, 9-15 AND 13-15.



REMOVE JUMPERS AS SHOWN

NOTES:

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



NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Walk and phase 6 Walk.
- The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE ASC/3-2070
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S2,S3,S7,S8,S9,S11
 AUX S1
 PHASES USED.....2,2PED,5,6,6PED,8
 OVERLAP 'A'.....*
 OVERLAP 'B'.....NOT USED
 OVERLAP 'C'.....NOT USED
 OVERLAP 'D'.....NOT USED
 * See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

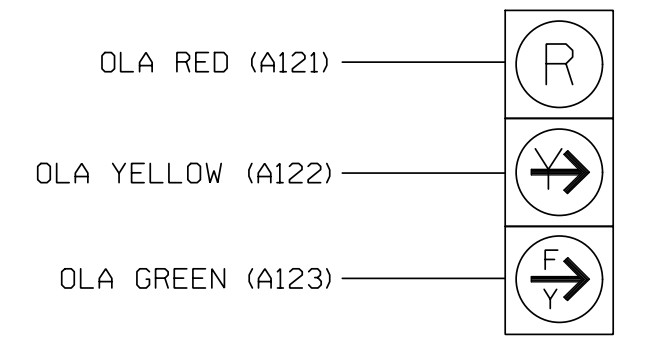
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	21,22	P21, P22	NU	NU	NU	51, 52 53	61,62 63	65	P61, P62	NU	81,82 83,84 85	64	NU	NU	NU	NU	NU
RED		128						134	134		107	107	A121					
YELLOW		129						135	135		108							
GREEN								136			109							
RED ARROW								131										
YELLOW ARROW								132			108		A122					
FLASHING YELLOW ARROW													A123					
GREEN ARROW		130						133	136		109							
Hand icon														119				
Walking person icon																		121

NU = Not Used

★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

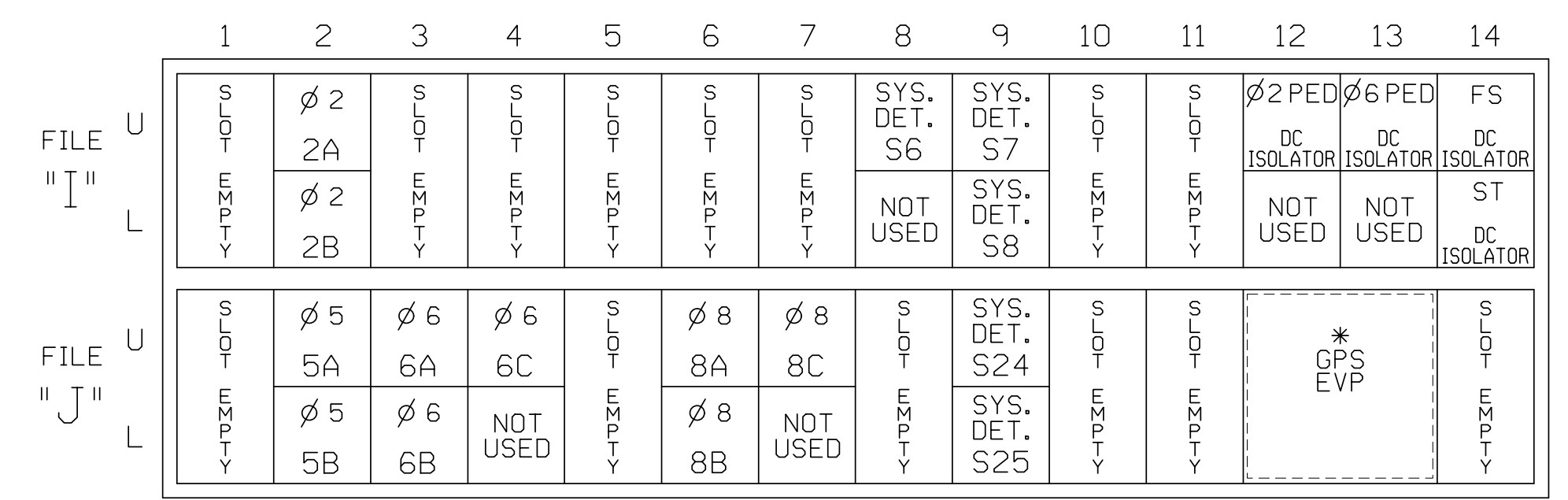
(wire signal heads as shown)



84

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 See GPS Preemption Installation Note Below
 FS = FLASH SENSE
 ST = STOP TIME

SPECIAL DETECTOR NOTE

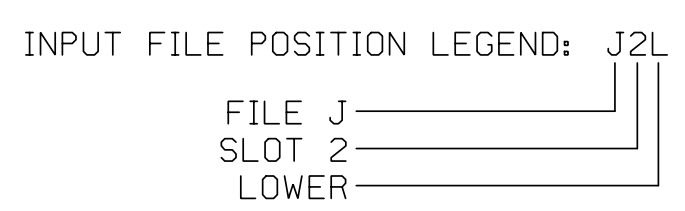
Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

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				S
2B	TB2-7,8	I2L	43	12	2	YES				S
5A	TB3-5,6	J2U	40	6	5	YES				S
5B	TB3-7,8	J2L	44	16	5	YES				S
6A	TB3-9,10	J3U	64	36	6	YES				S
6B	TB3-11,12	J3L	77	46	6	YES				S
6C	TB5-1,2	J4U	48	26	6	YES				S
8A	TB5-9,10	J6U	42	8	8	YES				S
8B	TB5-11,12	J6L	46	18	8	YES		15		S
8C	TB7-1,2	J7U	66	38	8	YES		15		S
* S6	TB6-5,6	I8U	49	24	SYS	NO				N
* S7	TB6-9,10	I9U	60	11	SYS	NO				N
* S8	TB6-11,12	I9L	62	13	SYS	NO				N
* S24	TB7-9,10	J9U	59	15	SYS	NO				N
* S25	TB7-11,12	J9L	61	17	SYS	NO				N
PED PUSH BUTTONS										
P21,P22	TB8-4,6	I12U	67	PED 2	2 PED					
P61,P62	TB8-7,9	I13U	68	PED 6	6 PED					

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

* System detector only. Remove any assigned vehicle phase.

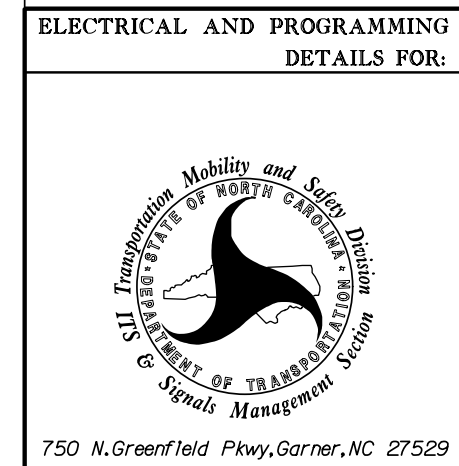


COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2024
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Final Design
 Electrical Detail - Sheet 1 of 2



SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps

Division 7	Alamance County	Mebane
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng	
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

STATE OF NORTH CAROLINA PROFESSIONAL ENGINEER ZHAOLONG TENG SEAL 032179

DocuSigned by: Zhaolong Teng 12/17/2019

SIG. INVENTORY NO. 07-2024

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

750 N. Greenfield Pkwy, Garner, NC 27529

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$\$\$\$SYTIME\$\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1125.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

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

```

PREEMPT PLAN [ 5]  ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1125.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

```

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

```

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 'OTHER/ECONOLITE'

```

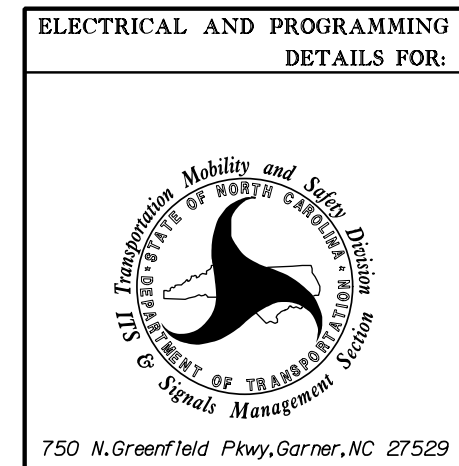
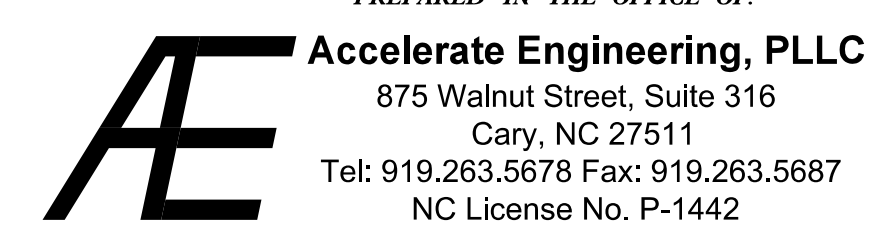
TMG VEH OVLP...[A] TYPE:OTHER/ECONOLITE
PHASES 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
INCLUDED . . . . . X . . . . .
PROTECT . . . . .
PED PRTC . . . . .
NOT OVLP . . . . .
FLSH GRN . . . . . 1 . . . . .
LAG X PH . . . . .
LAG 2 PH . . . . .
LAG GRN 0.0 YEL 0.0 RED 0.0 ADV GRN 0.0

```

END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2024
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Final Design
Electrical Detail - Sheet 2 of 2



SR 1007 (Mebane Oaks Road) at I-40 WB / I-85 SB Ramps

Division 7 Alamance County Mebane
PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 032179
ZHAOLONG TENG

DocuSigned by:
Zhaolong Teng
12/17/2019
DATE

SIG. INVENTORY NO. 07-2024

\$\$\$\$\$CYTIME\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$DOCSIGN\$\$\$\$\$\$\$\$\$\$
\$\$\$\$\$SERIALNAME\$\$\$\$\$

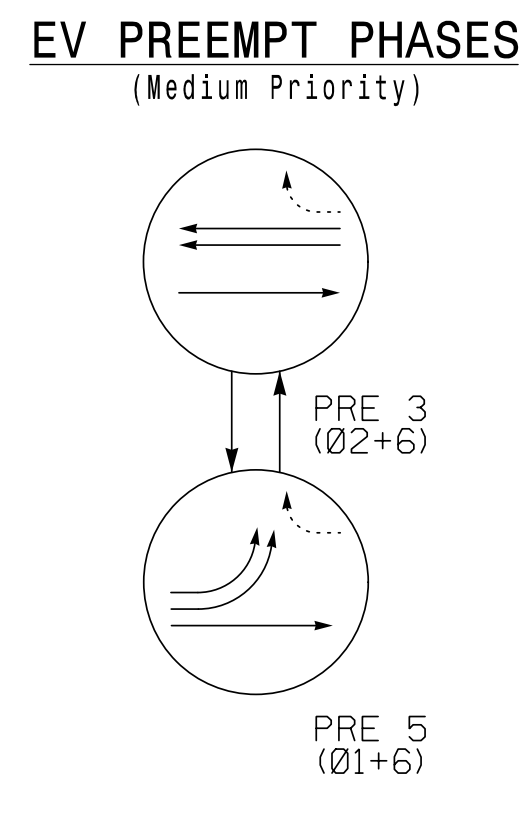
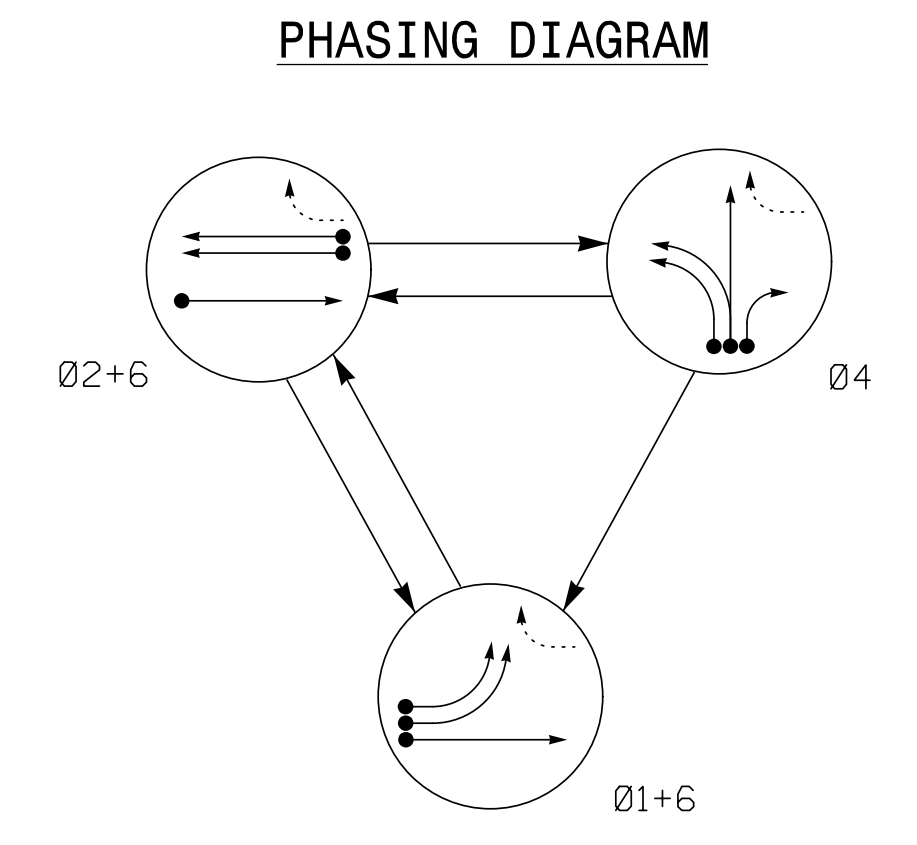
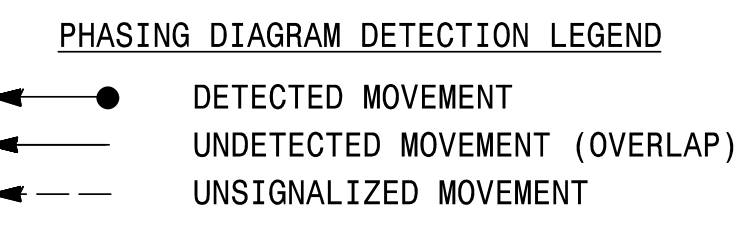


TABLE OF OPERATION

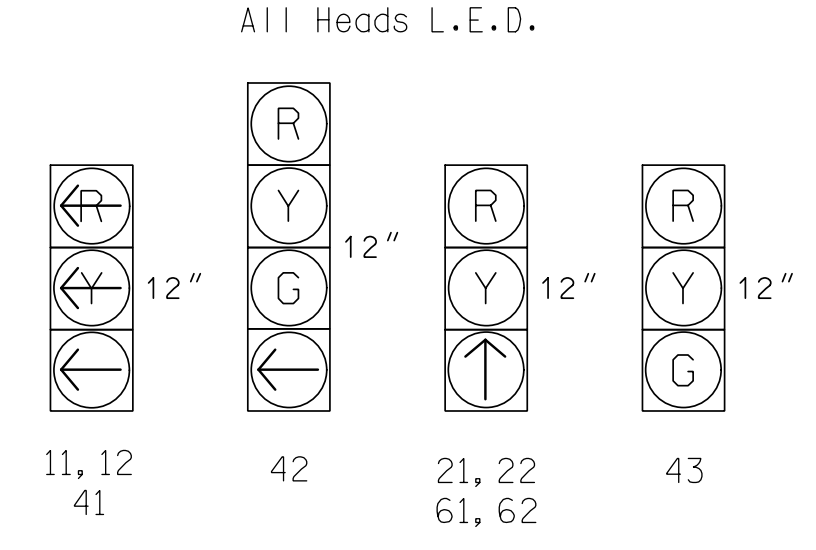
SIGNAL FACE	PHASE					
	Ø 1+6	Ø 2+6	Ø 4	PRE 3	Ø 1+6	Ø 2+6
11, 12	←	←	←	←	←	←
21, 22	R	↑	R	↑	R	Y
41	←	←	←	←	←	←
42	R	R	G	R	R	R
43	R	R	G	R	R	R
61, 62	↑	↑	R	↑	↑	Y

ASC/3 DETECTOR INSTALLATION CHART

ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING						SYSTEM LOOP	NEW CARD
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE		
1A	6x40	0	*	*	1	Yes	-	3	-	S	-	*
1B	6x40	0	*	*	1	Yes	-	-	-	S	-	*
2A	6x6	70	*	*	2	Yes	-	-	-	S	-	*
2B	6x6	70	*	*	2	Yes	-	-	-	S	-	*
4A	6x40	0	*	*	4	Yes	-	-	-	S	-	*
4B	6x40	0	*	*	4	Yes	-	-	-	S	-	*
4C	6x40	0	*	*	4	Yes	-	15	-	S	-	*
6A	6x6	70	*	*	6	Yes	-	-	-	S	-	*
S9	6x6	+145	*	*	-	No	-	-	-	N	X	*
S20	6x6	+115	*	*	-	No	-	-	-	N	X	*
S21	6x6	+115	*	*	-	No	-	-	-	N	X	*



SIGNAL FACE I.D.

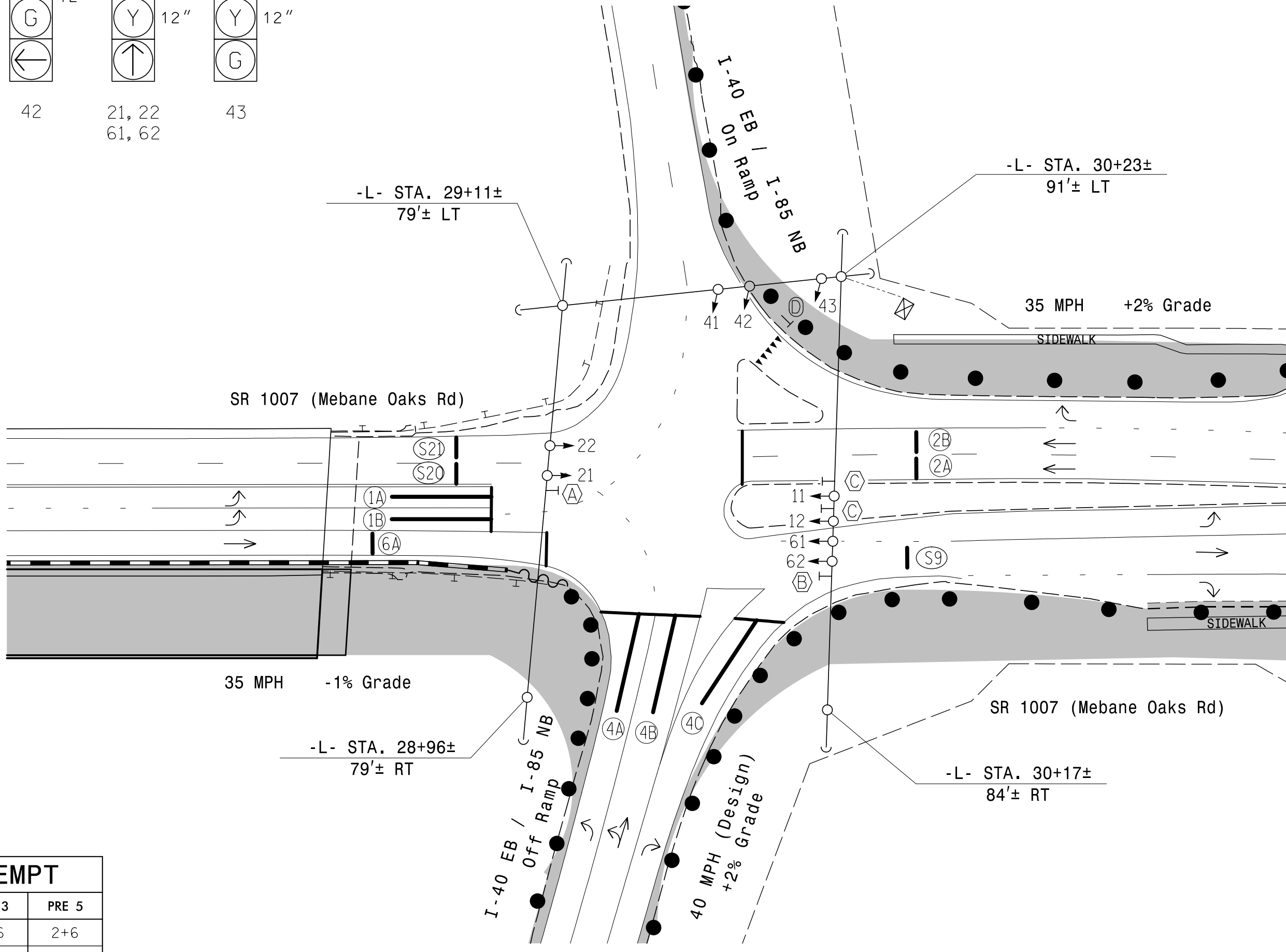


* Video Detection Zone

3 Phase Fully Actuated w/ Emergency Vehicle Preemption SR 1007 (Mebane Oaks Rd) CLS Signal System: 10705

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 may be lagged.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- The cabinet should be designed to include an Auxiliary Output File for future use.
- Relocate the existing GPS Emergency Vehicle Preemption system.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data:
Controller Asset #: 2025.



ASC/3 TIMING CHART

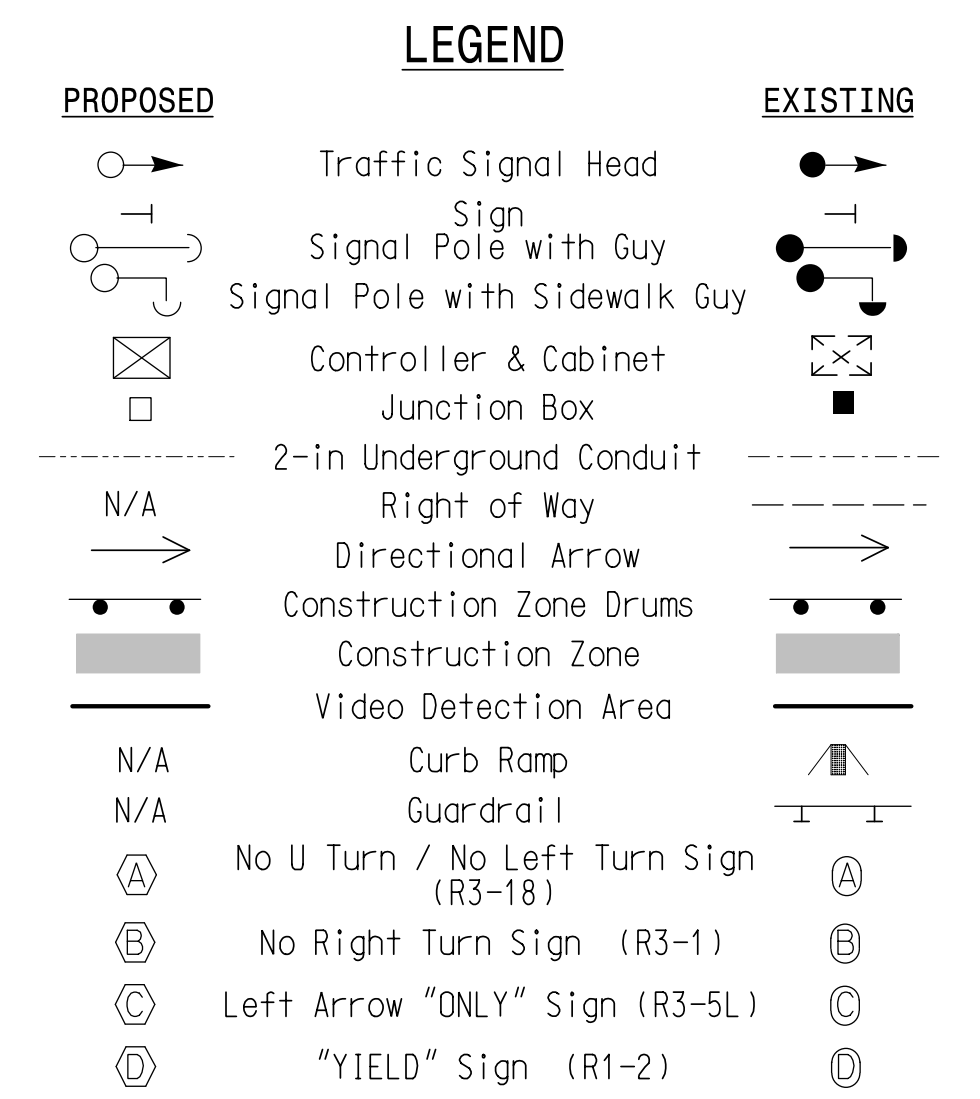
FEATURE	PHASE			
	1	2	4	6
Min Green *	7	10	7	10
Walk *	0	0	0	0
Ped Clear	0	0	0	0
Veh. Extension *	2.0	3.0	2.0	3.0
Max I *	35	60	35	60
Yellow	3.0	3.7	4.0	3.9
Red Clear	2.8	1.2	1.6	1.9
Red Revert	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	-	X	-	X
Recall Position	-	VEH. RECALL	-	VEH. RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

ASC/3 EV PREEMPT

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

* 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.

* Time defaults to time used for phase during normal operation



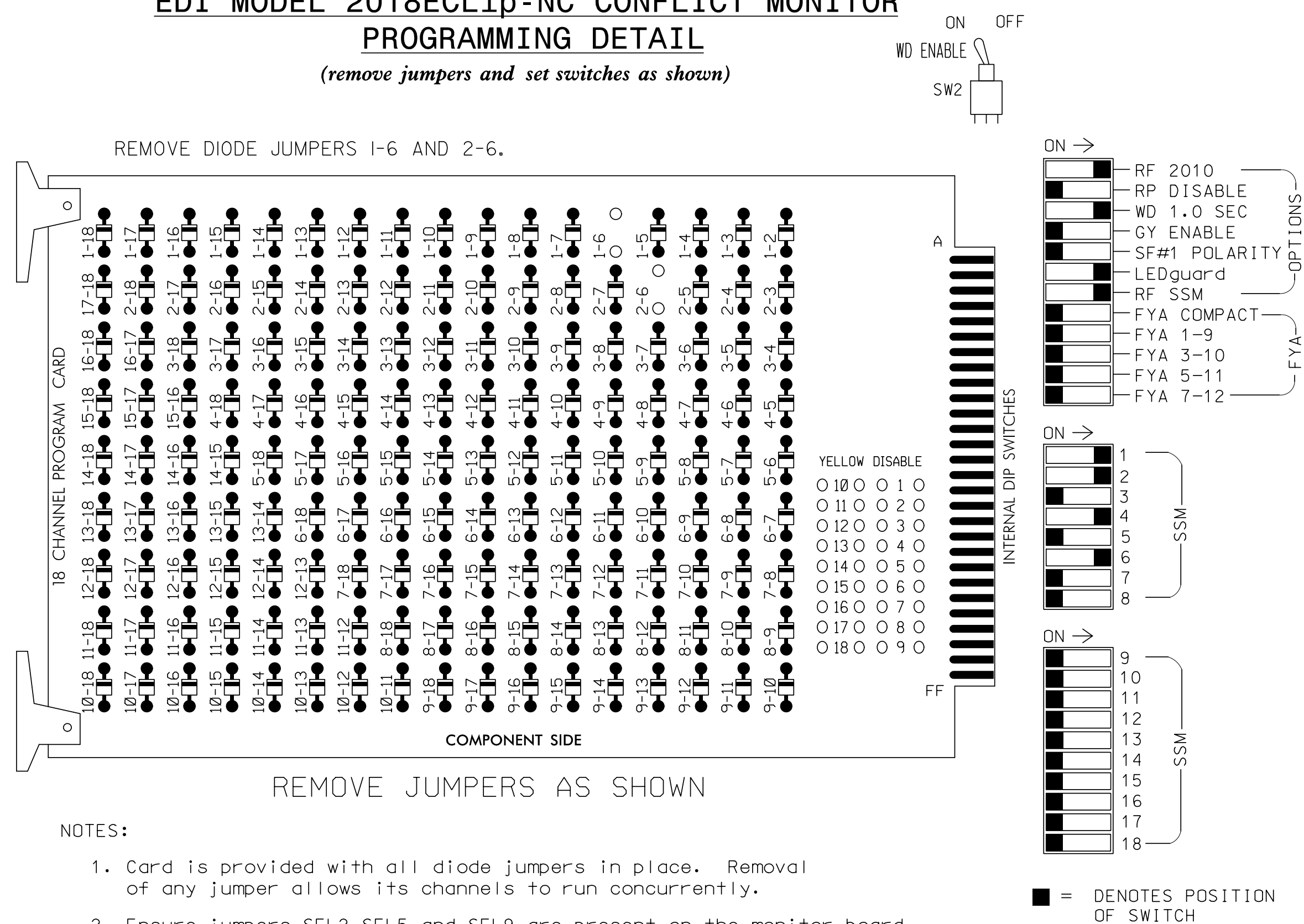
(TMP Phase I) Signal Upgrade - Temporary Design 1

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

 TRANSPORTATION MOBILITY AND SAFETY DIVISION STATE OF NORTH CAROLINA SIGNAL DESIGN SECTION	SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps Division 7 Alamance County Mebane PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng PREPARED BY: Z. "Gavin" Teng REVIEWED BY:	DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 032179 ZHAOLONG TENG DATE 12/17/2019 SIG. INVENTORY NO. 07-2025T1
	SCALE 0 40 1" = 40' REVISIONS INIT. DATE	

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 phase 6 Green.
- The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop 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.	11,12	21,22	NU	NU	41	42	43	NU	NU	61,62	NU	NU	NU	NU	NU	NU	NU	NU
RED		128			101	101				134								
YELLOW		129			102	102				135								
GREEN					103	103												
RED ARROW	125				101													
YELLOW ARROW	126				102													
GREEN ARROW	127	130			103	103				136								

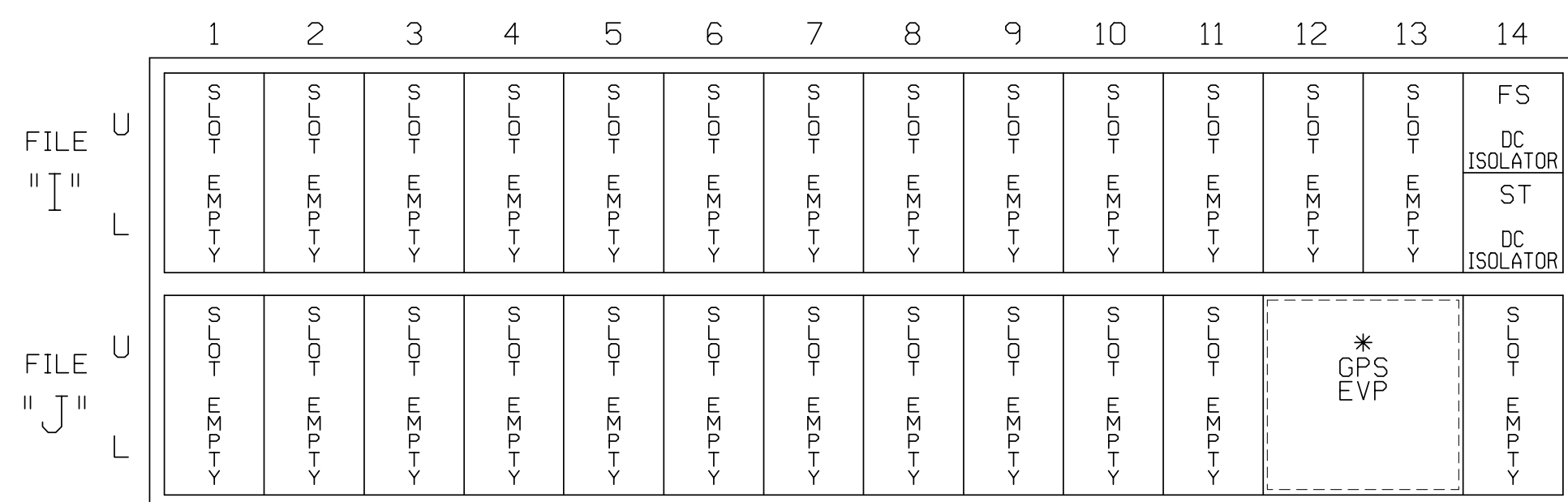
NU = Not Used

EQUIPMENT INFORMATION

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

INPUT FILE POSITION LAYOUT

(front view)



SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO 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: 07-2025T1
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 1
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps



Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG
 DocuSigned by:
 Zhaolong Teng 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2025T1

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$SYTIME\$\$\$\$\$
 \$\$\$SYTIME\$\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERRIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF

```

```

PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERRIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF

```

```

PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

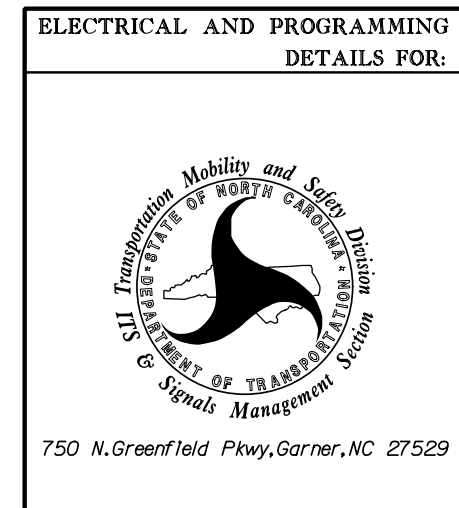
```

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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2025T1
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Temporary Design 1
Electrical Detail - Sheet 2 of 2



SR 1007 (Mebane Oaks Road)
at
I-40 EB / I-85 NB Ramps

Division 7	Alamance County	Mebane
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng	
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:	
REVISIONS	INIT.	DATE

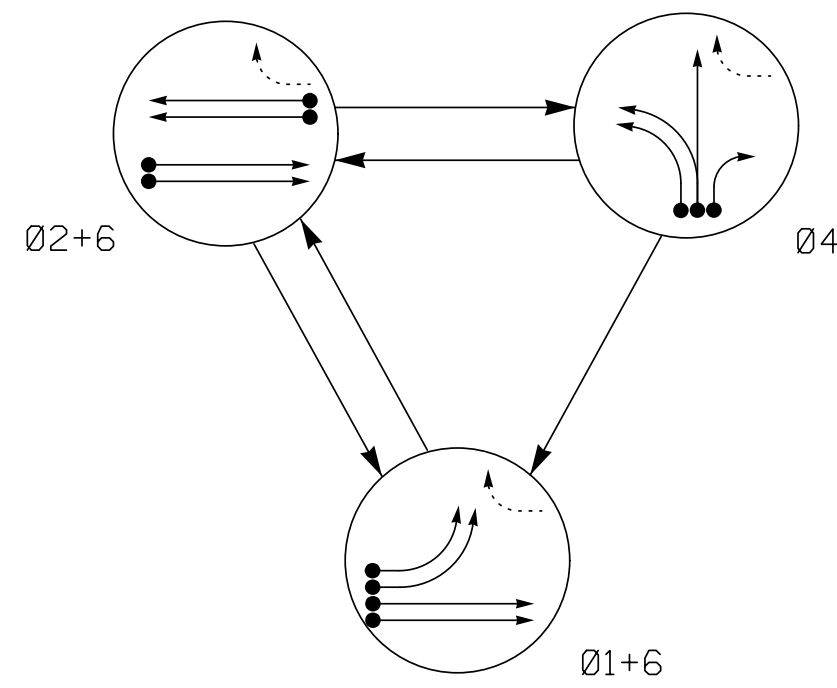
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
PROFESSIONAL ENGINEER
ZHAOLONG TENG
032179
12/17/2019
SIG. INVENTORY NO. 07-2025T1

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

\$\$\$\$\$CYTIME\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$DOCSIGN\$\$\$\$\$\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$NAME\$\$\$\$\$

PHASING DIAGRAM



EV PREEMPT PHASES (Medium Priority)

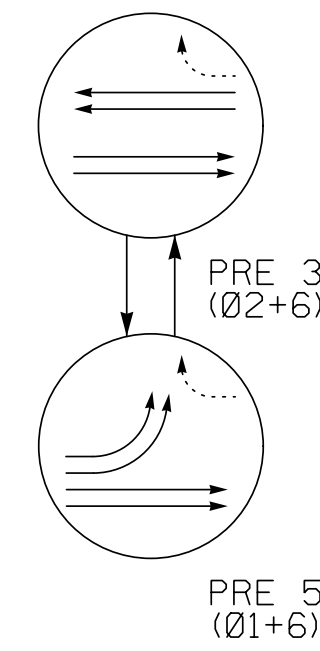


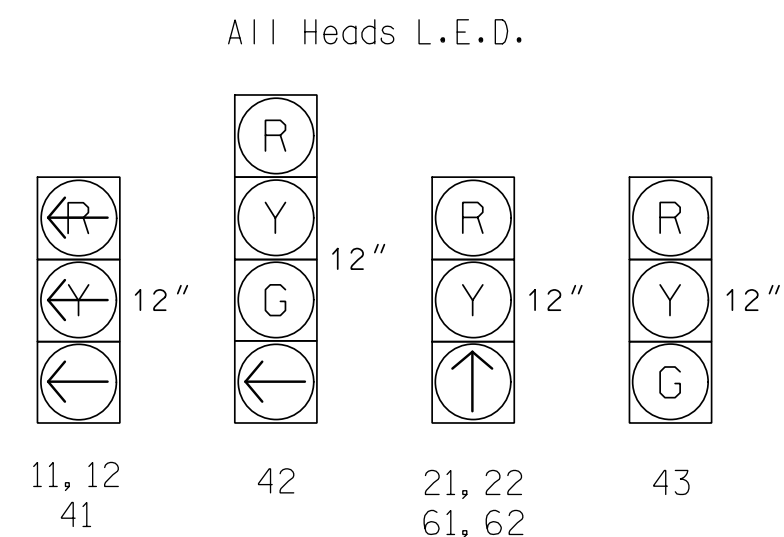
TABLE OF OPERATION

Table with columns: SIGNAL FACE, PHASE (01+6, 02+6, 04, PRE 3, 01+6, 02+6), and signal indicators (R, Y, G, L, U, R, Y).

ASC/3 DETECTOR INSTALLATION CHART

Table with columns: ZONE, SIZE (FT), DISTANCE FROM STOPBAR (FT), TURNS, NEW LOOP, PHASE, CALLING, EXTEND TIME, DELAY TIME, USE ADDED INITIAL, TYPE, SYSTEM LOOP, NEW CARD.

SIGNAL FACE I.D.



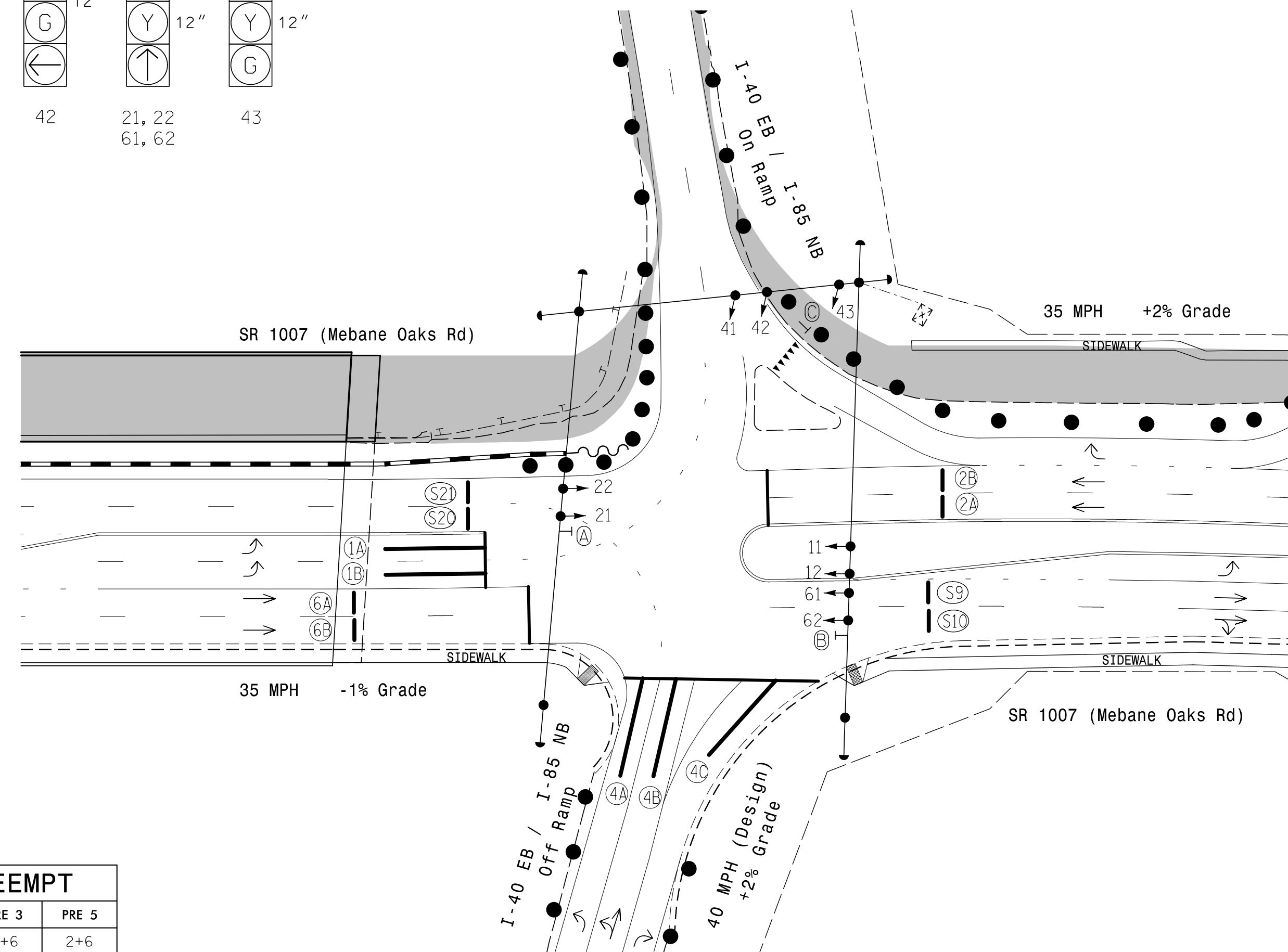
PHASING DIAGRAM DETECTION LEGEND

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

3 Phase Fully Actuated w/ Emergency Vehicle Preemption SR 1007 (Mebane Oaks Rd) CLS Signal System: 10705

NOTES

- 1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018...
2. Do not program signal for late night flashing operation...
3. Phase 1 may be lagged.
4. Reposition existing signal heads numbered 11, 12, 21, 22, 61, 62 and signs A and B.
5. Set all detector units to presence mode.
6. This intersection features a GPS Emergency Vehicle Preemption system.
7. Maximum times shown in timing chart are for free-run operation only.
8. Closed loop system data: Controller Asset #: 2025.



LEGEND

- PROPOSED: Traffic Signal Head, Signal Pole with Guy, Signal Pole with Sidewalk Guy, Controller & Cabinet, Junction Box, 2-in Underground Conduit, Right of Way, Directional Arrow, Construction Zone Drums, Construction Zone, Video Detection Area.
EXISTING: Traffic Signal Head, Sign, Signal Pole with Guy, Signal Pole with Sidewalk Guy, Controller & Cabinet, Junction Box, 2-in Underground Conduit, Right of Way, Directional Arrow, Construction Zone Drums, Construction Zone, Video Detection Area, Curb Ramp, Guardrail, No U Turn / No Left Turn Sign (R3-18), No Right Turn Sign (R3-1), "YIELD" Sign (R1-2).

ASC/3 TIMING CHART

Timing chart table with columns: FEATURE, PHASE (1, 2, 4, 6), and values for Min Green, Walk, Ped Clear, Veh. Extension, Max I, Yellow, Red Clear, Red Revert, Actuations B4 Add, Seconds / Actuation, Max Initial, Time Before Reduction, Time To Reduce, Minimum Gap, Locking Detector, Recall Position, Dual Entry, Simultaneous Gap.

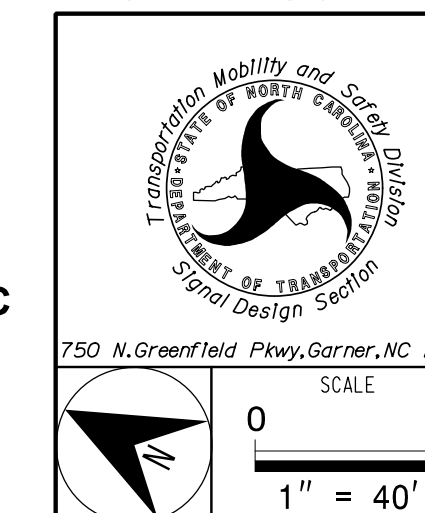
ASC/3 EV PREEMPT

Preempt table with columns: FUNCTION, PRE 3, PRE 5, and values for Exit Phase(s), Preempt Override, Delay Time, Ped Clear Through Yellow, Terminate Phases, Entrance Walk, Entrance Ped Clear, Entrance Min Green, Entrance Yellow Clear, Entrance Red Clear, Min Dwell Time, Preempt Input Extension Time, Preempt Max Time, Exit Yellow Clear, Exit Red Clear.

* 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.

* Time defaults to time used for phase during normal operation

(TMP Phase II) Signal Upgrade - Temporary Design 2



SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps, Division 7, Alamance County, Mebane. PLAN DATE: November 2019. REVIEWED BY: Z. "Gavin" Teng.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL, ZHAOLONG TENG, PROFESSIONAL ENGINEER, License No. 032179, State of North Carolina.

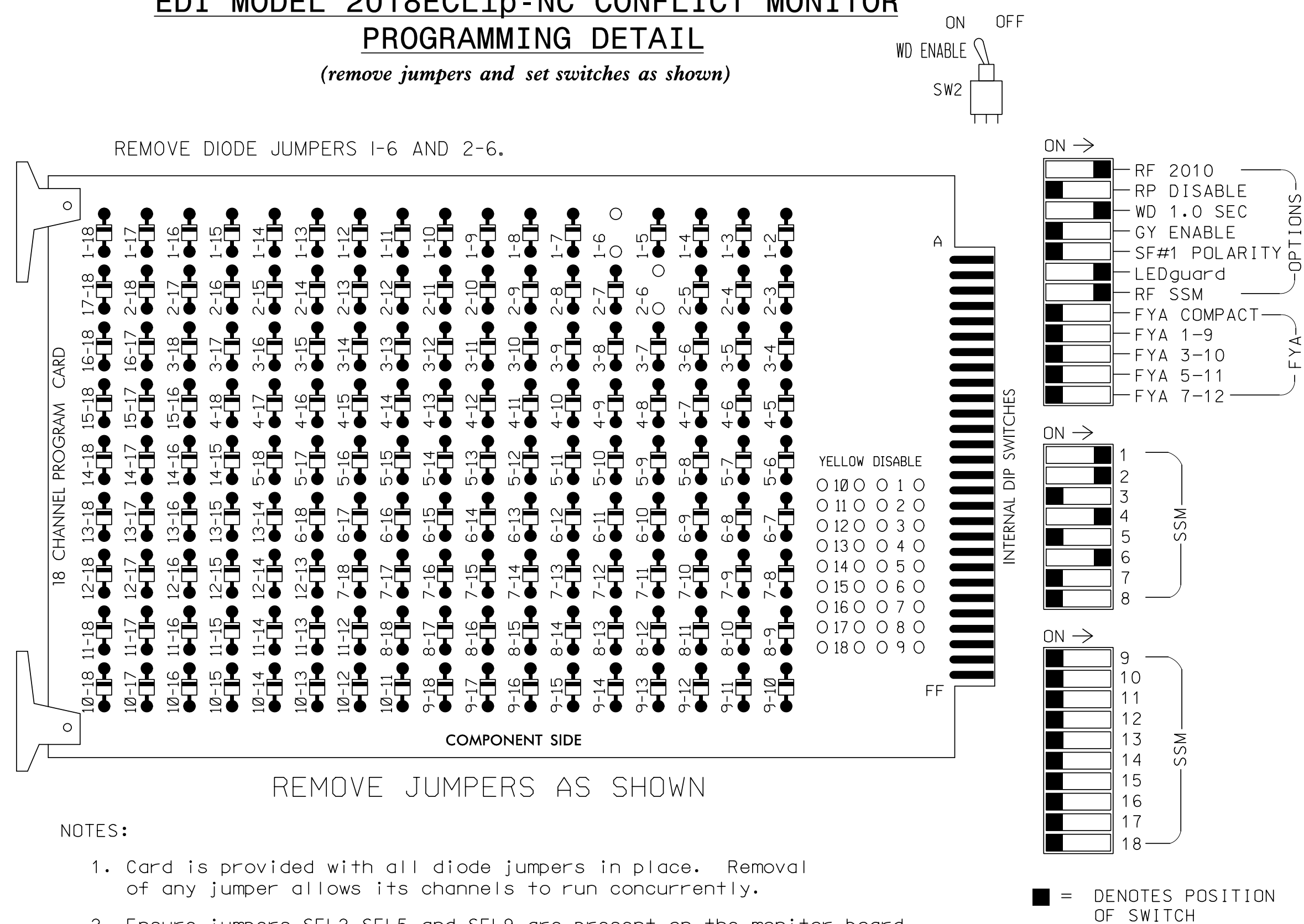
ACCELERATE ENGINEERING, PLLC, 875 WALNUT STREET, SUITE 316, CARY, NC 27511. TEL: 919.263.5678 FAX: 919.263.5687 NC LICENSE NO. P-1442

Revisions table with columns: REVISIONS, INIT., DATE.

DATE: 12/17/2019, SIG. INVENTORY NO. 07-2025T2

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program controller to start up in phase 2 Green and phase 6 Green.
- The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop 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.	11,12	21,22	NU	NU	41	42	43	NU	NU	61,62	NU	NU	NU	NU	NU	NU	NU	NU
RED		128			101	101				134								
YELLOW		129			102	102				135								
GREEN					103	103												
RED ARROW	125				101													
YELLOW ARROW	126				102													
GREEN ARROW	127	130			103	103				136								

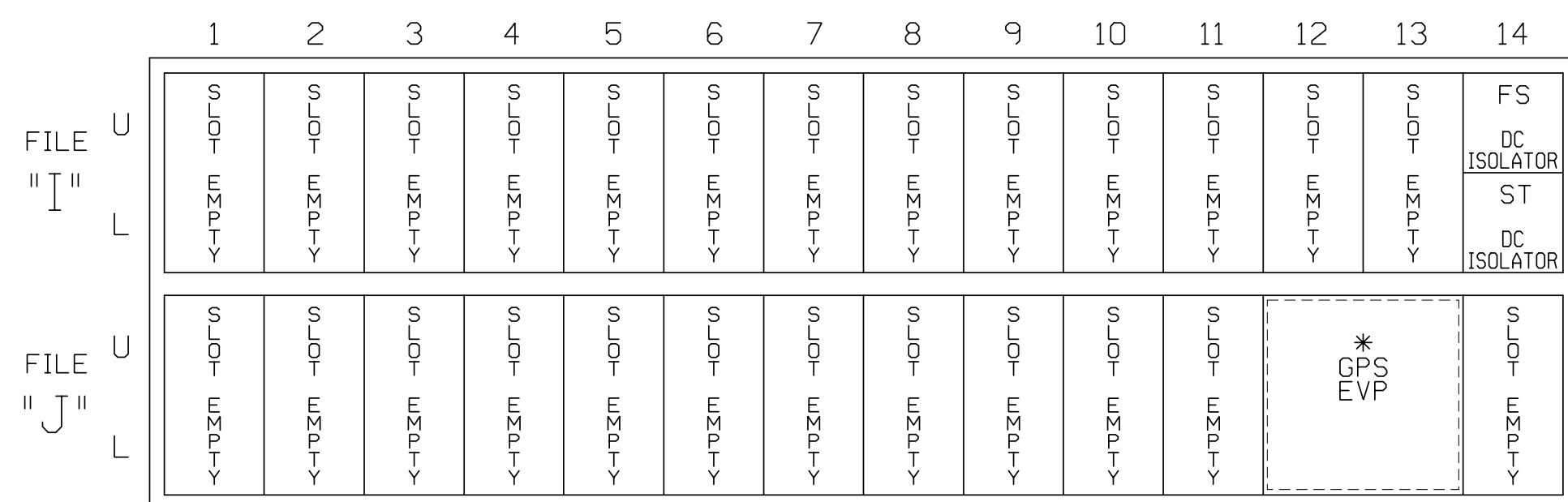
NU = Not Used

EQUIPMENT INFORMATION

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

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 See GPS Preemption Installation Note Below

FS = FLASH SENSE
 ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO 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: 07-2025T2
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 2
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps



Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG
 DocuSigned by:
 Zhaolong Teng
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2025T2

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5125.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF

```

```

PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5125.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5125.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF

```

```

PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

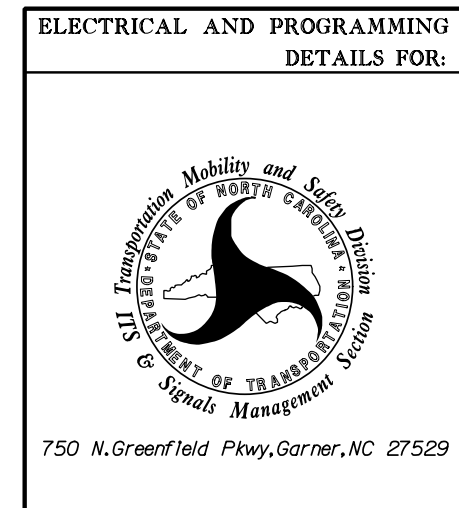
```

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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2025T2
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Temporary Design 2
Electrical Detail - Sheet 2 of 2



PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

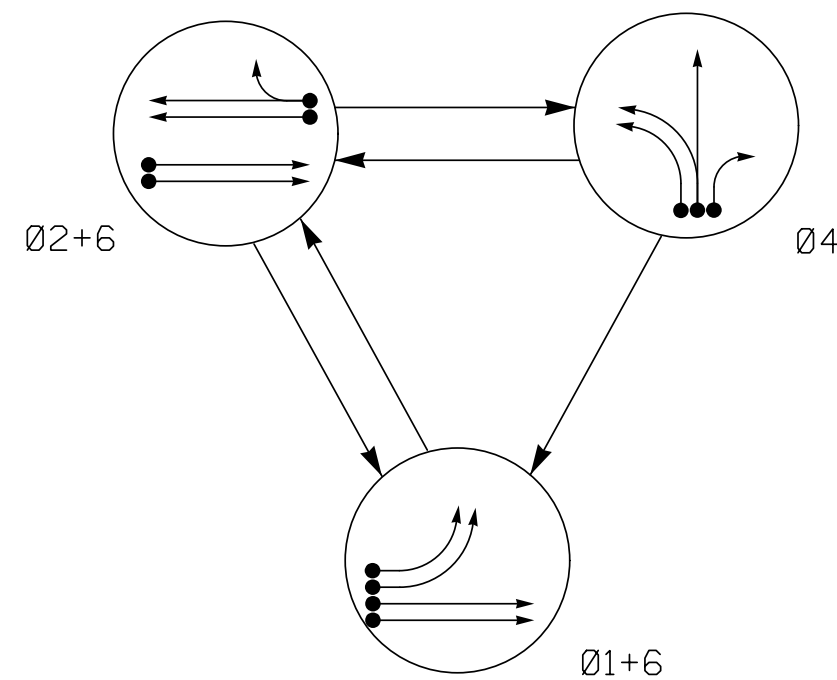
ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 032179
ZHAOLONG TENG
DocuSigned by:
Zhaolong Teng 12/17/2019
SIG. INVENTORY NO. 07-2025T2

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$DOCSIGN\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$NAME\$\$\$\$\$

PHASING DIAGRAM



EV PREEMPT PHASES (Medium Priority)

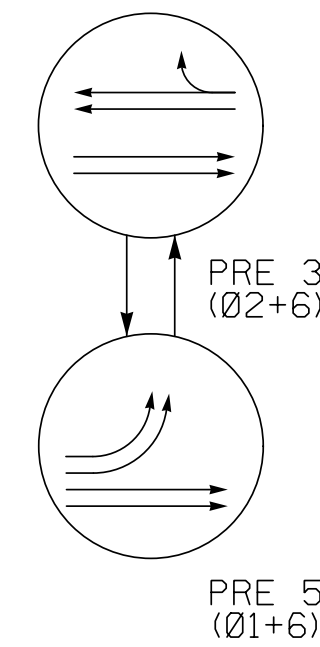


TABLE OF OPERATION table with columns for SIGNAL FACE and PHASE (01+6, 02+6, 04, PRE 3, PRE 5, 01+6).

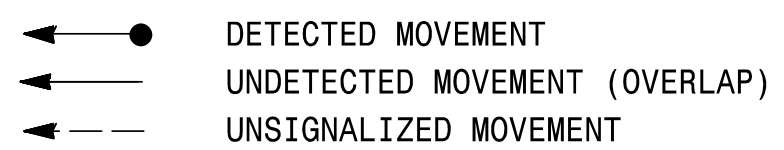
ASC/3 DETECTOR INSTALLATION CHART table with columns for DETECTOR (ZONE, SIZE, DISTANCE, TURNS) and PROGRAMMING (PHASE, CALLING, EXTEND TIME, DELAY TIME, USE ADDED INITIAL, TYPE, SYSTEM LOOP, NEW CARD).

3 Phase Fully Actuated w/ Emergency Vehicle Preemption SR 1007 (Mebane Oaks Rd) CLS Signal System: 10705

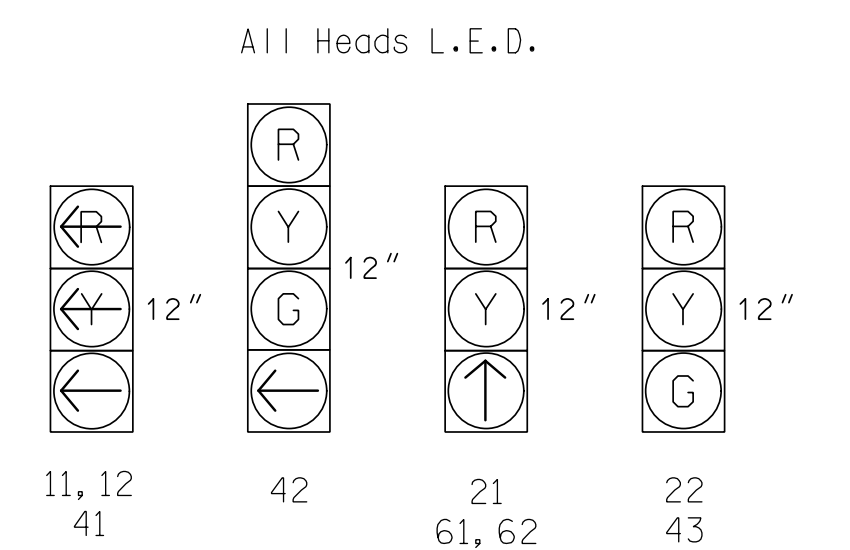
NOTES

- List of 8 notes detailing installation and operation requirements, including references to NCDOT drawings and specific detector programming.

PHASING DIAGRAM DETECTION LEGEND



SIGNAL FACE I.D.



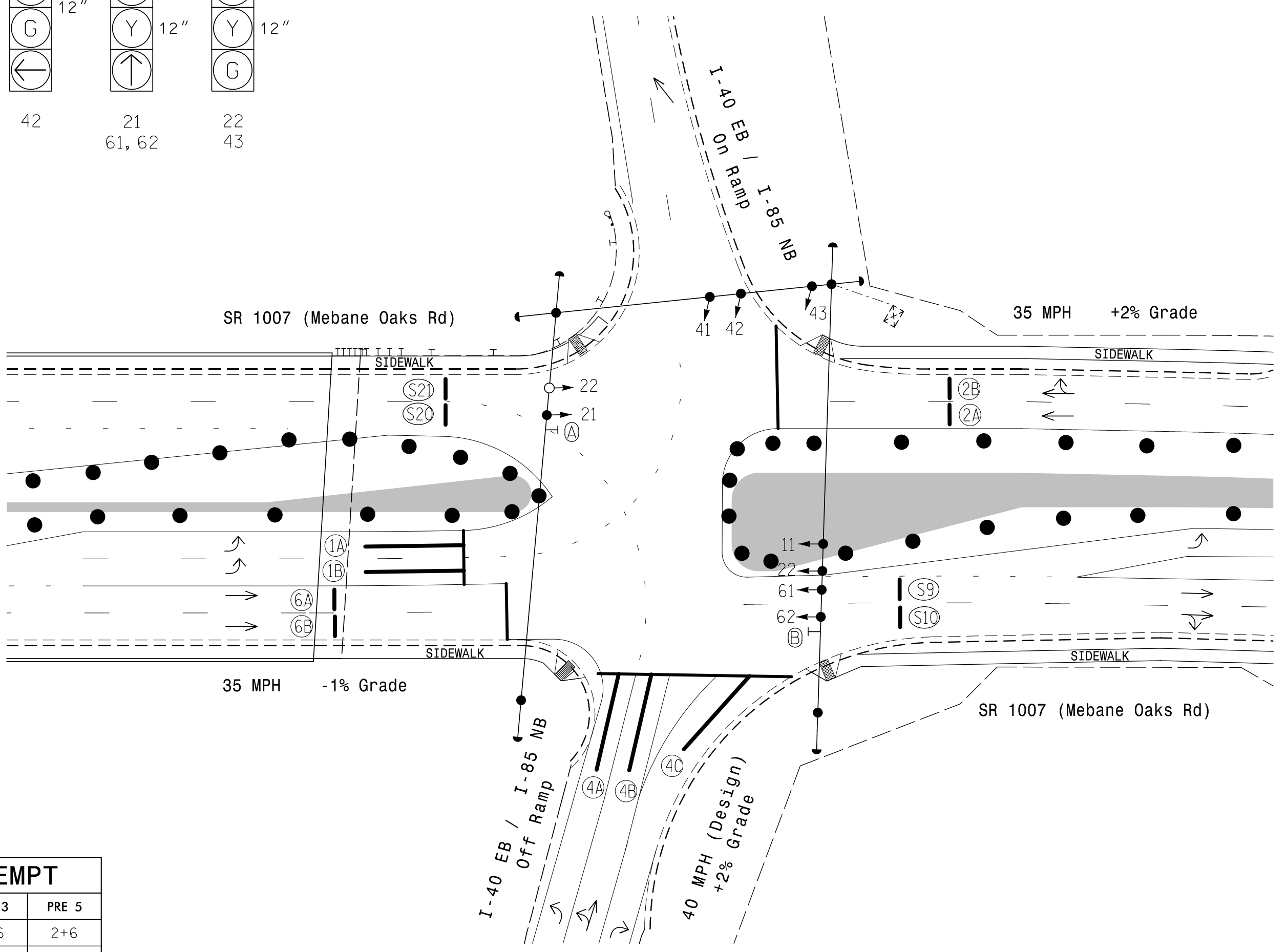
All Heads L.E.D.

* Video Detection Zone

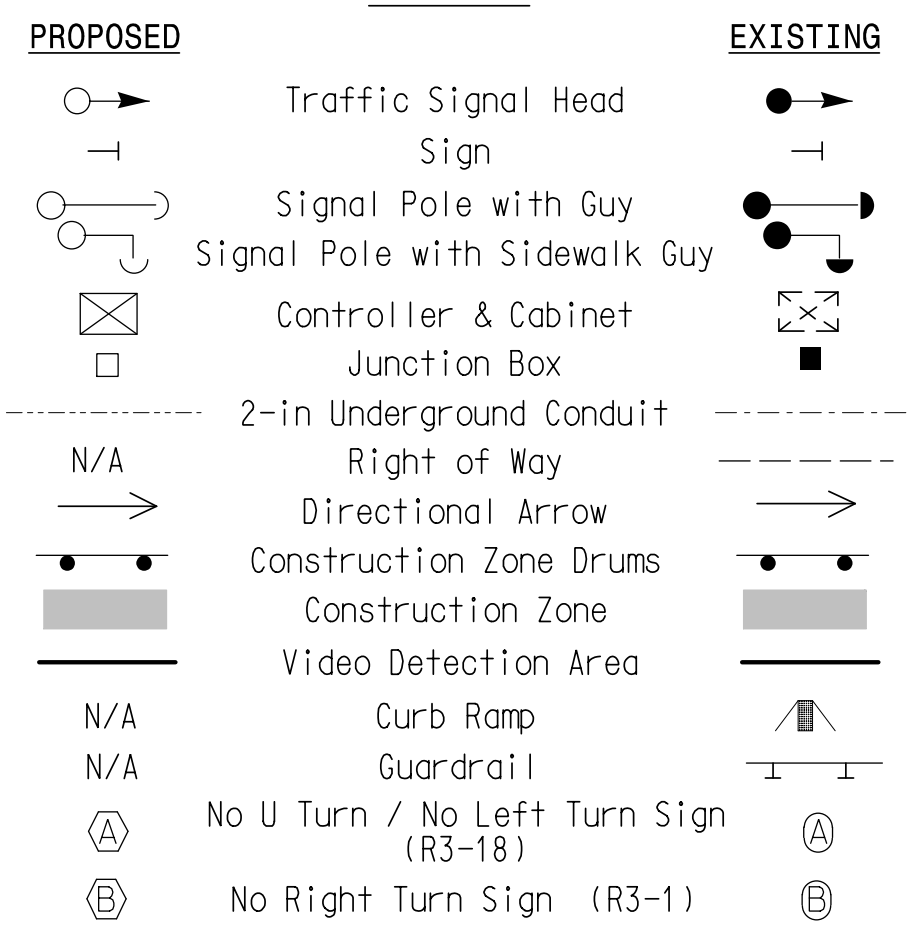
ASC/3 TIMING CHART table with columns for FEATURE and PHASE (1, 2, 4, 6) and various timing parameters like Min Green, Walk, Ped Clear, etc.

ASC/3 EV PREEMPT

Table detailing EV Preempt functions (Exit Phase(s), Preempt Override, Delay Time, etc.) and their settings for PRE 3 and PRE 5.



LEGEND

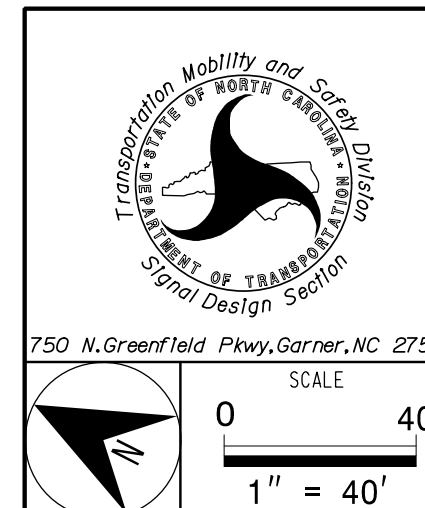


* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

* Time defaults to time used for phase during normal operation

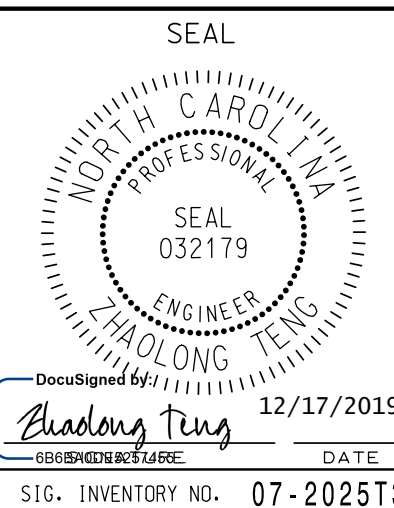
(TMP Phase III) Signal Upgrade - Temporary Design 3

Accelerate Engineering, PLLC logo and contact information: 875 Walnut Street, Suite 316 Cary, NC 27511. Tel: 919.263.5678 Fax: 919.263.5687 NC License No. P-1442



Project information table including SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps, Division 7 Alamance County Mebane, Plan Date: November 2019, and Reviewer: Z. 'Gavin' Teng.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

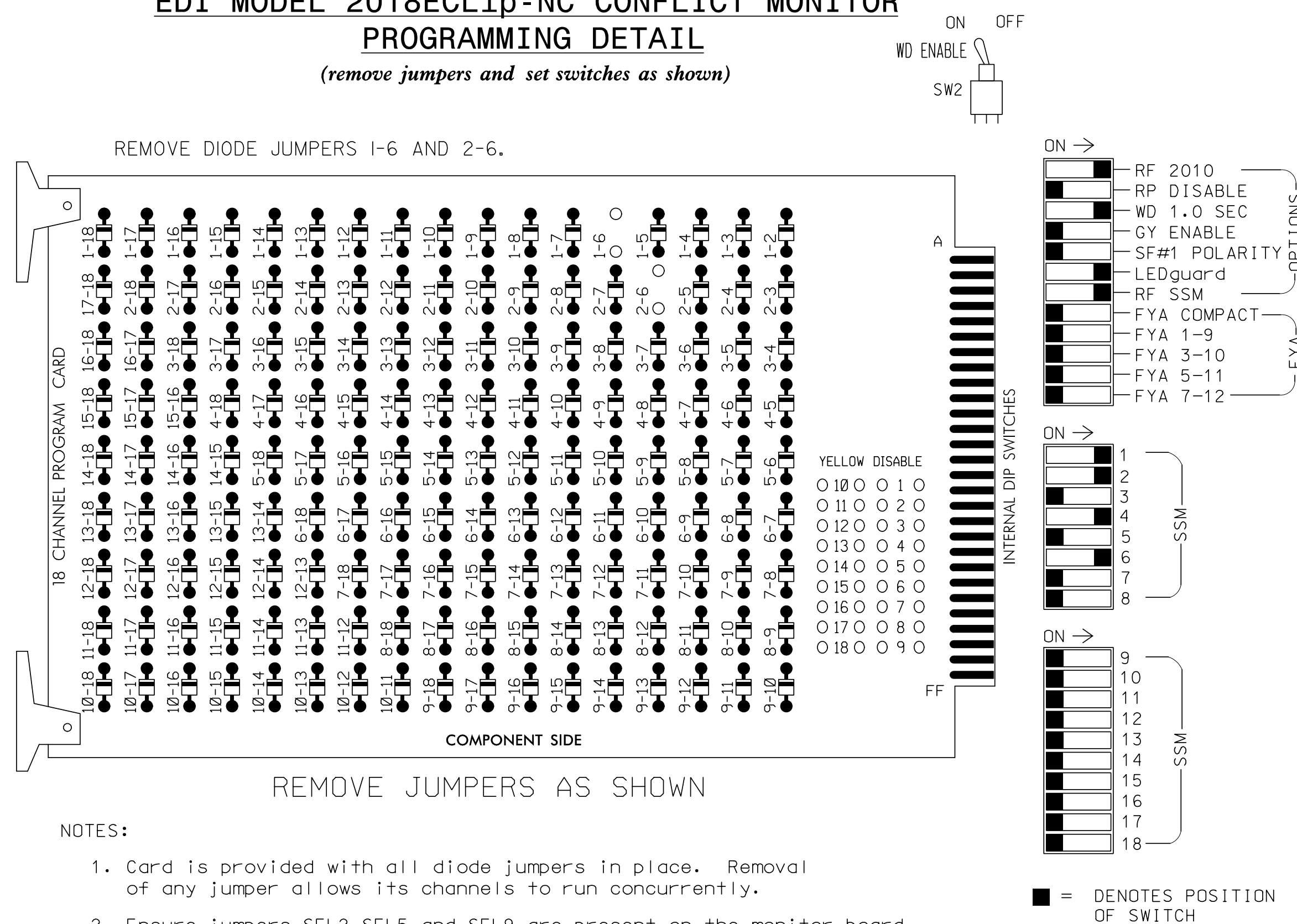


Revisions table with columns for REVISIONS, INIT., and DATE.

SIG. INVENTORY NO. 07-2025T3

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 phase 6 Green.
- The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop 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.	11,12	21	22	NU	NU	41	42	43	NU	NU	61,62	NU	NU	NU	NU	NU	NU	NU
RED		128	128			101	101				134							
YELLOW		129	129			102	102				135							
GREEN			130			103	103											
RED ARROW	125					101												
YELLOW ARROW	126					102												
GREEN ARROW	127	130				103	103				136							

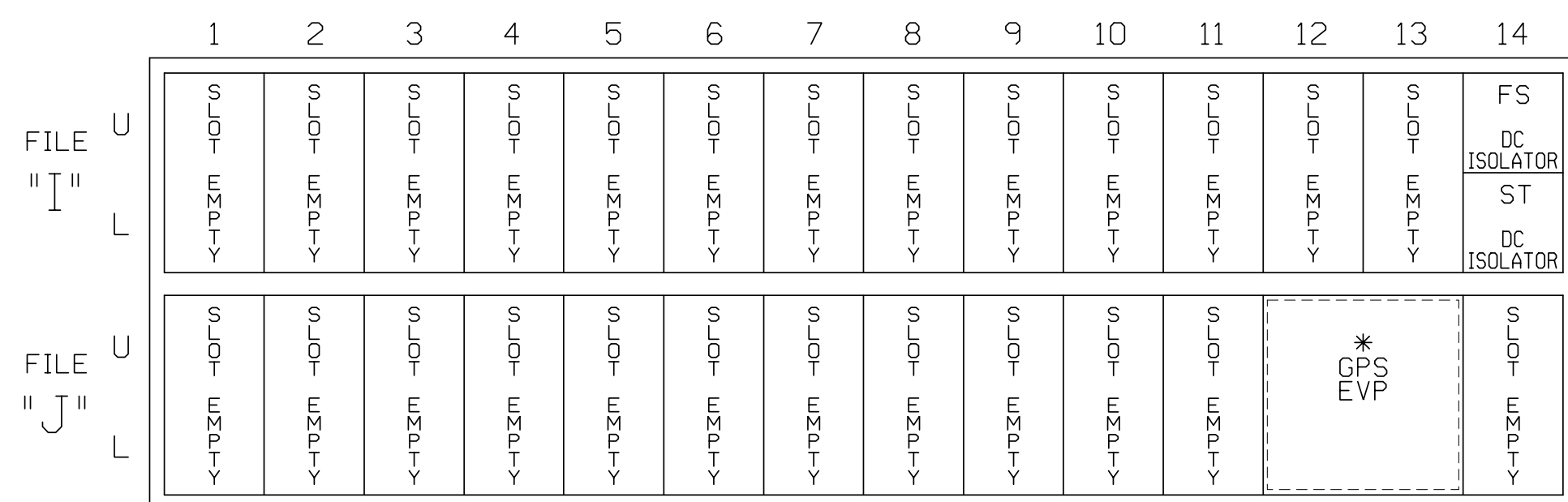
NU = Not Used

EQUIPMENT INFORMATION

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

INPUT FILE POSITION LAYOUT

(front view)



EX.: 1A, 2A, ETC. = LOOP NO.'S
 See GPS Preemption Installation Note Below

FS = FLASH SENSE
 ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

VIDEO DETECTOR NOTE

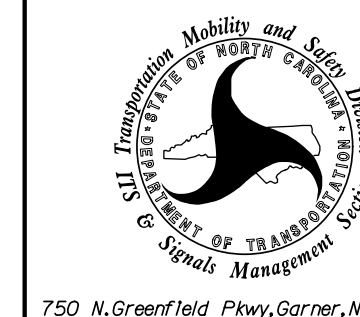
Install a video detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2025T3
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 3
 Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps



Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG
 DocuSigned by:
 Zhaolong Teng
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2025T3

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

750 N. Greenfield Pkwy, Garner, NC 27529

\$\$\$\$\$SYTIME\$\$\$\$\$
 \$\$\$SYTIME\$\$\$\$\$
 \$\$\$SYTIME\$\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL NOITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 255I 255I 1125.5125.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

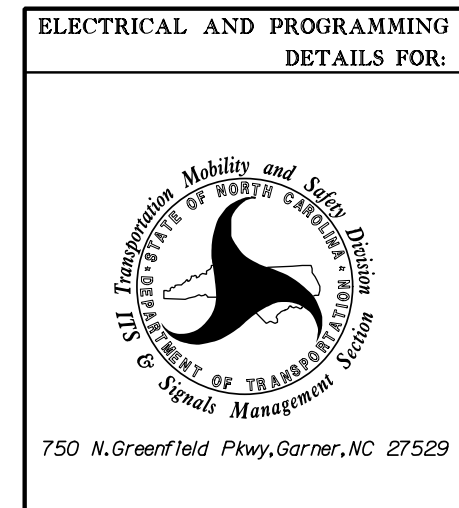
```

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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2025T3
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 3
Electrical Detail - Sheet 2 of 2



SR 1007 (Mebane Oaks Road)
 at
 I-40 EB / I-85 NB Ramps

Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

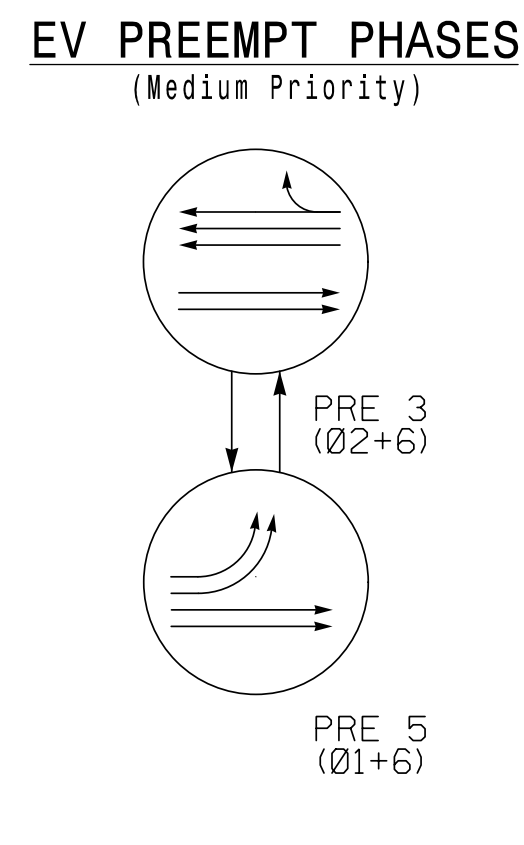
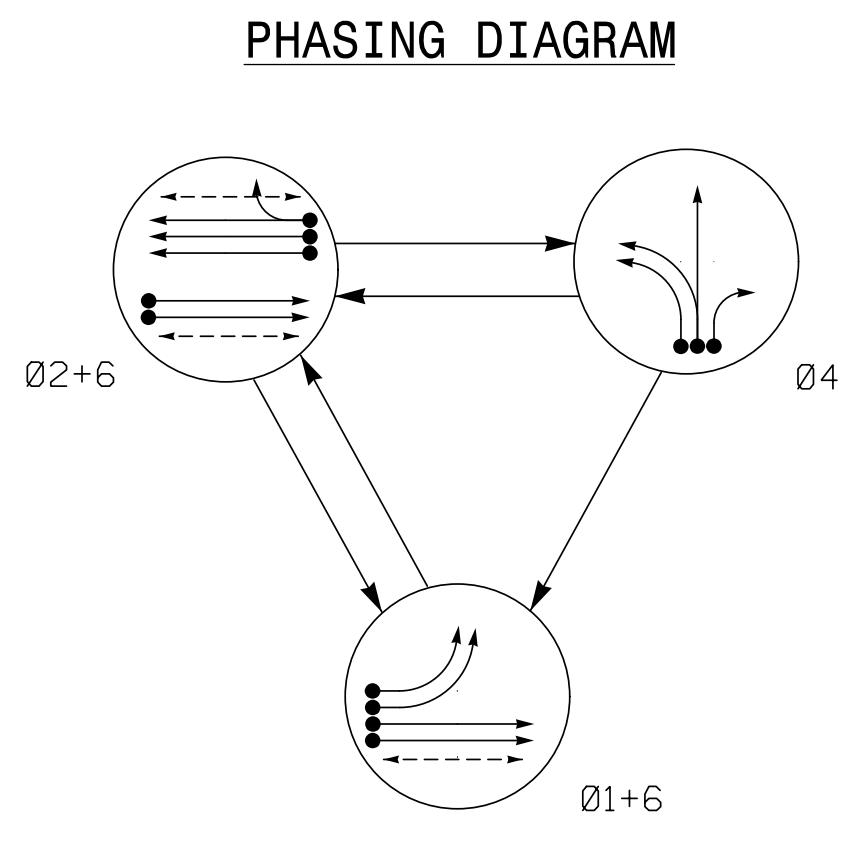
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG
 DocuSigned by:
 Zhaolong Teng 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-2025T3

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$DOCSIGN\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$NAME\$\$\$\$\$



SIGNAL FACE	PHASE					
	01+6	02+6	04	PRE 3	PRE 5	PRE 6
11, 12	←	←	←	←	←	←
21, 22	R	↑	R	↑	R	Y
23, 24	R	G	R	G	R	Y
61, 62	↑	↑	R	↑	↑	Y
41	←	←	←	←	←	←
42	R	R	G	R	R	R
43	R	R	G	R	R	R
P21, P22	DW	W	DW	DW	DW	DRK
P61, P62	W	W	DW	DW	DW	DRK

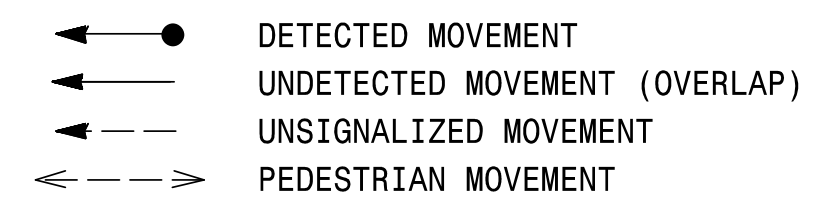
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	NEW CARD	
1A	6x40	0	2-4-2	X	1	Yes	-	-	-	S	-	X
1B	6x40	0	2-4-2	X	1	Yes	-	-	-	S	-	X
2A	6x6	70	3	X	2	Yes	-	-	-	S	-	X
2B	6x6	70	3	X	2	Yes	-	-	-	S	-	X
2C	6x6	70	3	X	2	Yes	-	-	-	S	-	X
4A	6x40	0	2-4-2	X	4	Yes	-	-	-	S	-	X
4B	6x40	0	2-4-2	X	4	Yes	-	-	-	S	-	X
4C	6x40	0	2-4-2	X	4	Yes	-	15	-	S	-	X
6A	6x6	70	5	X	6	Yes	-	-	-	S	-	X
6B	6x6	70	5	X	6	Yes	-	-	-	S	-	X
S9	6x6	+145	4	X	-	No	-	-	-	N	X	X
S10	6x6	+145	4	X	-	No	-	-	-	N	X	X
S20	6x6	+125	4	X	-	No	-	-	-	N	X	X
S21	6x6	+125	4	X	-	No	-	-	-	N	X	X
S22	6x6	+125	4	X	-	No	-	-	-	N	X	X
S23	6x6	+125	4	X	-	No	-	-	-	N	X	X

3 Phase Fully Actuated w/ Emergency Vehicle Preemption
SR 1007 (Mebane Oaks Rd) CLS
Signal System: 10705

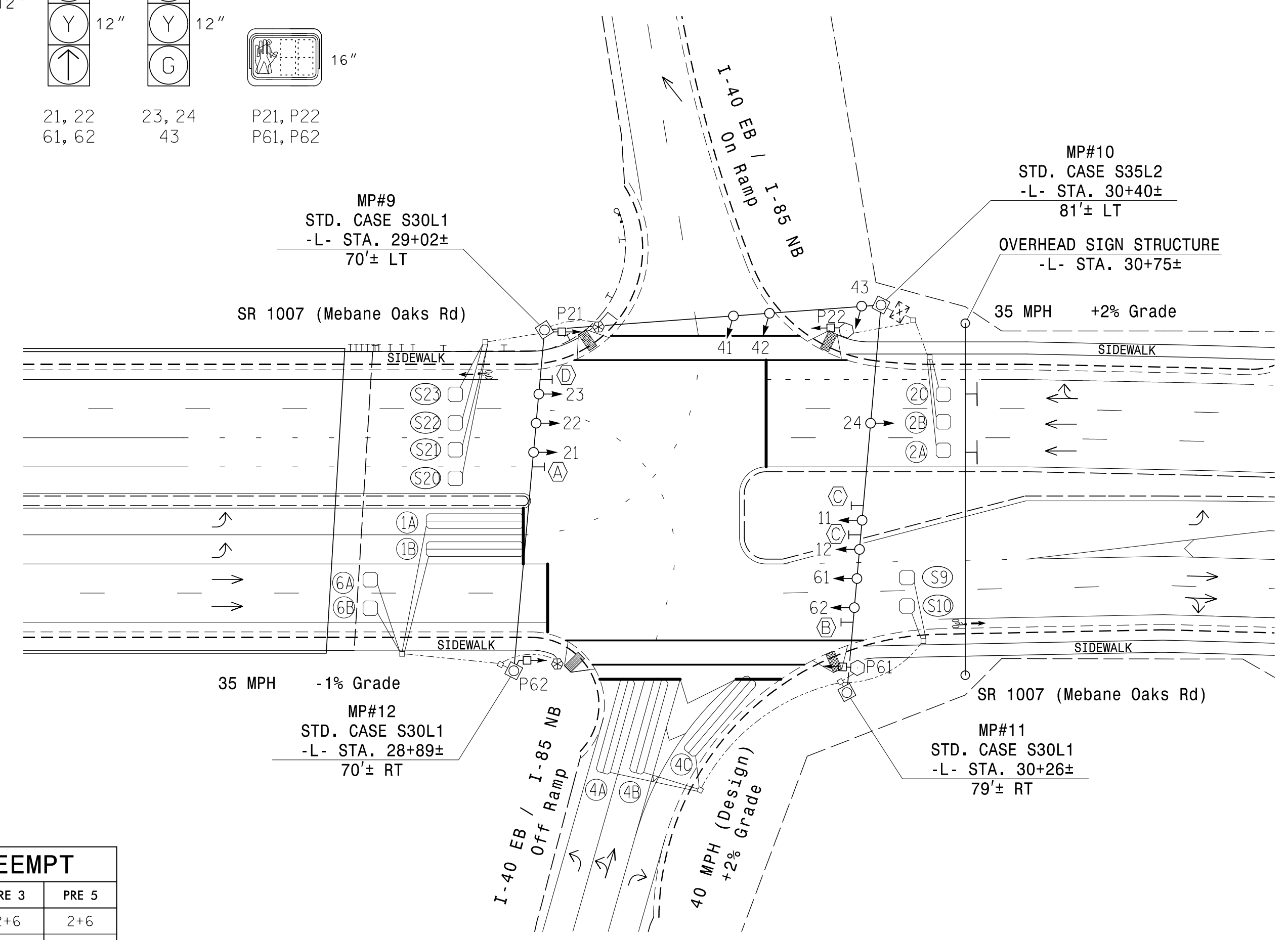
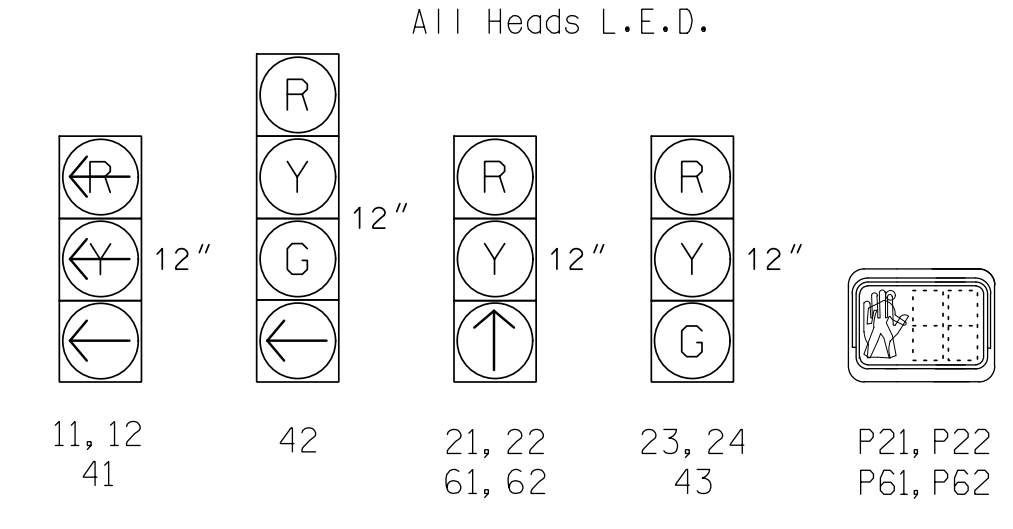
NOTES

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 may be lagged.
4. Set all detector units to presence mode.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
7. This intersection features a GPS Emergency Vehicle Preemption system.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Closed loop system data:
Controller Asset #: 2025.

PHASING DIAGRAM DETECTION LEGEND

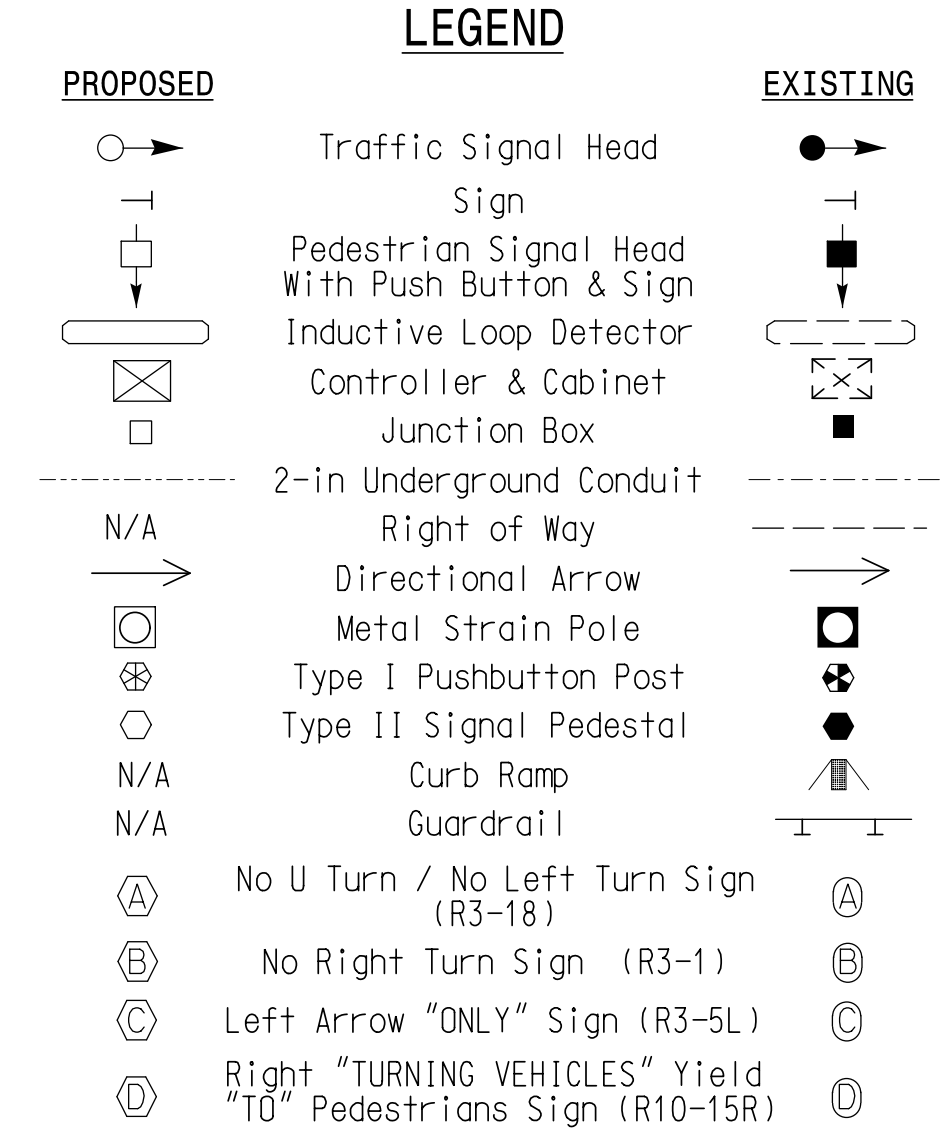


SIGNAL FACE I.D.



FEATURE	PHASE			
	1	2	4	6
Min Green *	7	10	7	10
Walk *	0	7	0	7
Ped Clear	0	24	0	27
Veh. Extension *	2.0	3.0	2.0	3.0
Max I *	35	60	35	60
Yellow	3.0	3.7	4.0	3.9
Red Clear	3.5	1.0	2.5	2.0
Red Revert	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-
Seconds / Actuation *	-	-	-	-
Max Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Locking Detector	-	X	-	X
Recall Position	-	VEH. RECALL	-	VEH. RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

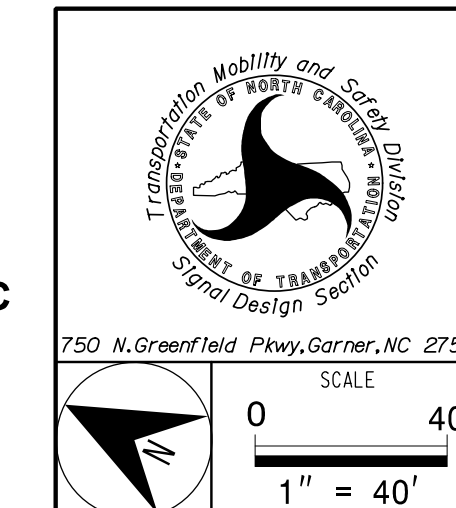
FUNCTION	PRE 3	PRE 5
Exit Phase(s)	2+6	2+6
Preempt Override	OFF	OFF
Delay Time	0	0
Ped Clear Through Yellow	Y	Y
Terminate Phases	N	N
Entrance Walk	1	1
Entrance Ped Clear	14	14
Entrance Min Green	1	1
Entrance Yellow Clear	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*
Min Dwell Time	7	7
Preempt Input Extension Time	2	2
Preempt Max Time	120	120
Exit Yellow Clear	25.5*	25.5*
Exit Red Clear	25.5*	25.5*



* 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.

* Time defaults to time used for phase during normal operation

Signal Upgrade - Final Design



SR 1007 (Mebane Oaks Road) at I-40 EB / I-85 NB Ramps	
Division 7	Alamance County Mebane
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

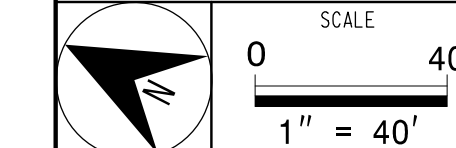
SEAL

ZHAOLONG TENG

12/17/2019

SIG. INVENTORY NO. 07-2025

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442



ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

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

```

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

```

```

ENABLE... YES IPMT OVRIDE.. IINTERLOCK. NO
DET LOCK... XIDELAY.. OIINHIBIT... 0
OVERIDE FL. .IDURATION OICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT....OIX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...OIRE-SERV.. OIFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

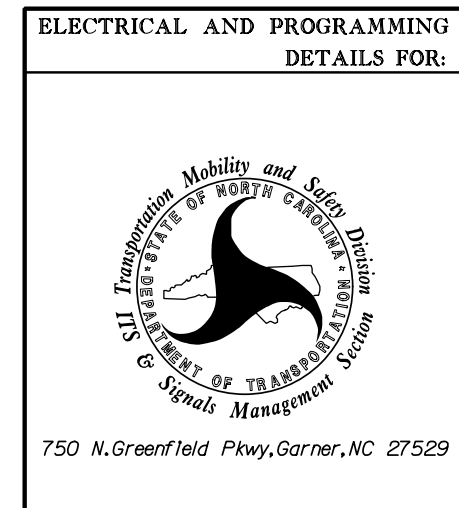
```

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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-2025
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Final Design
Electrical Detail - Sheet 2 of 2



SR 1007 (Mebane Oaks Road)
at
I-40 EB / I-85 NB Ramps

Division 7	Alamance County	Mebane
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng	
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:	
REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 032179
ZHAOLONG TENG

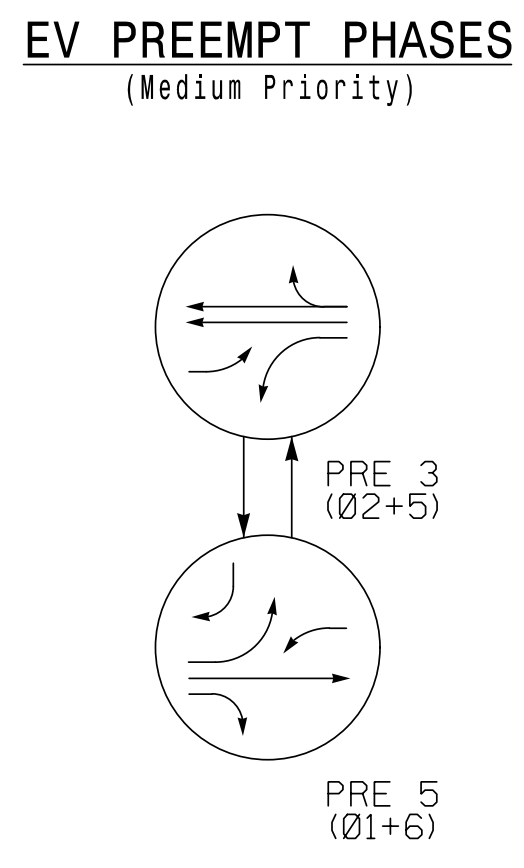
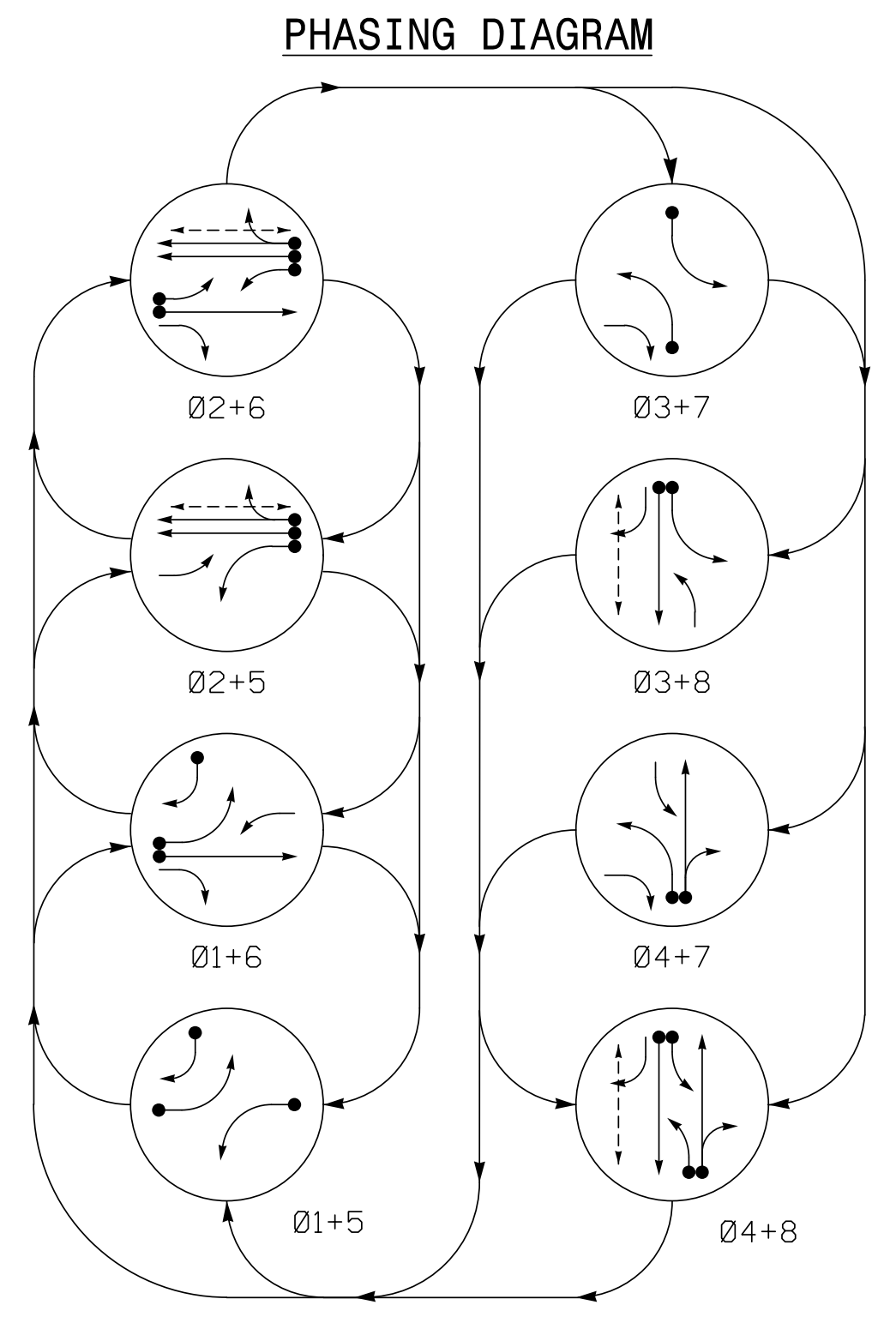
DocuSigned by: Zhaolong Teng
12/17/2019

SIG. INVENTORY NO. 07-2025

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

\$\$\$\$\$CYTIME\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$DOCSIGN\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$NAME\$\$\$\$\$

8 Phase
Fully Actuated w/ Emergency Vehicle Preemption
SR 1007 (Mebane Oaks Rd) CLS
Signal System: 10705

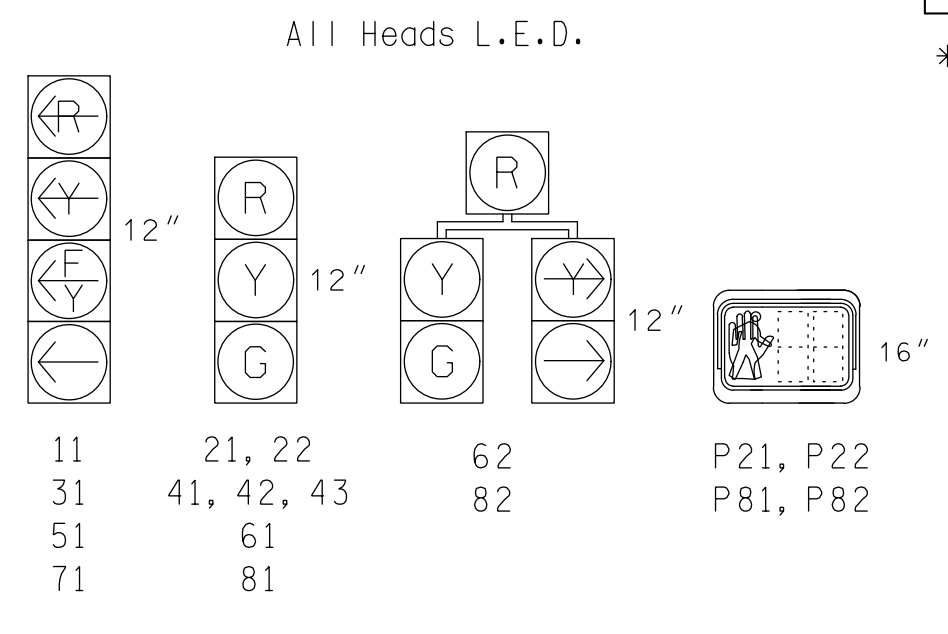


SIGNAL FACE	PHASE											
	01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8	PREF 3	PREF 5	FLASH	
11	←	←	←	←	←	←	←	←	←	←	←	
21, 22	R	R	G	G	R	R	R	R	G	R	Y	
31	R	R	R	R	←	←	←	←	←	←	←	
41, 42, 43	R	R	R	R	R	R	G	G	R	R	R	
51	←	←	←	←	←	←	←	←	←	←	←	
61	R	G	R	G	R	R	R	R	G	R	Y	
62	R	G	R	G	R	R	R	R	G	R	Y	
71	R	R	R	R	←	←	←	←	←	←	←	
81	R	R	R	R	R	R	G	R	R	R	R	
82	R	R	R	R	R	R	G	R	R	R	R	
P21, P22	DW	DW	W	W	DW	DW	DW	DW	DW	DRK	DRK	
P81, P82	DW	DW	DW	DW	DW	W	DW	W	DW	DW	DRK	

ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	SYSTEM LOOP	NEW CARD
1A	6X40	0	*	*	1	Yes	-	15	-	S	-	*
1B	6X40	0	*	*	6	Yes	-	-	-	S	-	*
2A	6X6	70	*	*	2	Yes	-	-	-	S	-	*
2B	6X6	70	*	*	2	Yes	-	-	-	S	-	*
3A	6X40	0	*	*	3	Yes	-	15	-	S	-	*
3A	6X40	0	*	*	8	Yes	-	3	-	S	-	*
4A	6X40	0	*	*	4	Yes	-	10	-	S	-	*
5A	6X40	0	*	*	5	Yes	-	15	-	S	-	*
5A	6X40	0	*	*	2	Yes	-	-	-	S	-	*
6A	6X6	70	*	*	6	Yes	-	-	-	S	-	*
7A	6X40	0	*	*	7	Yes	-	15	-	S	-	*
7A	6X40	0	*	*	4	Yes	-	3	-	S	-	*
8A	6X40	0	*	*	8	Yes	-	-	-	S	-	*
S17	6x6	+155	*	*	-	No	-	-	-	N	X	*
S18	6x6	+155	*	*	-	No	-	-	-	N	X	*

- NOTES**
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
 - Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
 - Phase 1 and/or phase 5 may be lagged.
 - Phase 3 and/or phase 7 may be lagged.
 - Set all detector units to presence mode.
 - Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
 - Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
 - Program pedestrian heads to countdown the flashing "Don't Walk" time only.
 - Pavement markings are existing.
 - Relocate the existing GPS Emergency Vehicle Preemption system..
 - Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
 - Closed loop system data:
Controller Asset #: 1349.

SIGNAL FACE I.D.



PHASING DIAGRAM DETECTION LEGEND

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

ASC/3 EV PREEMPT

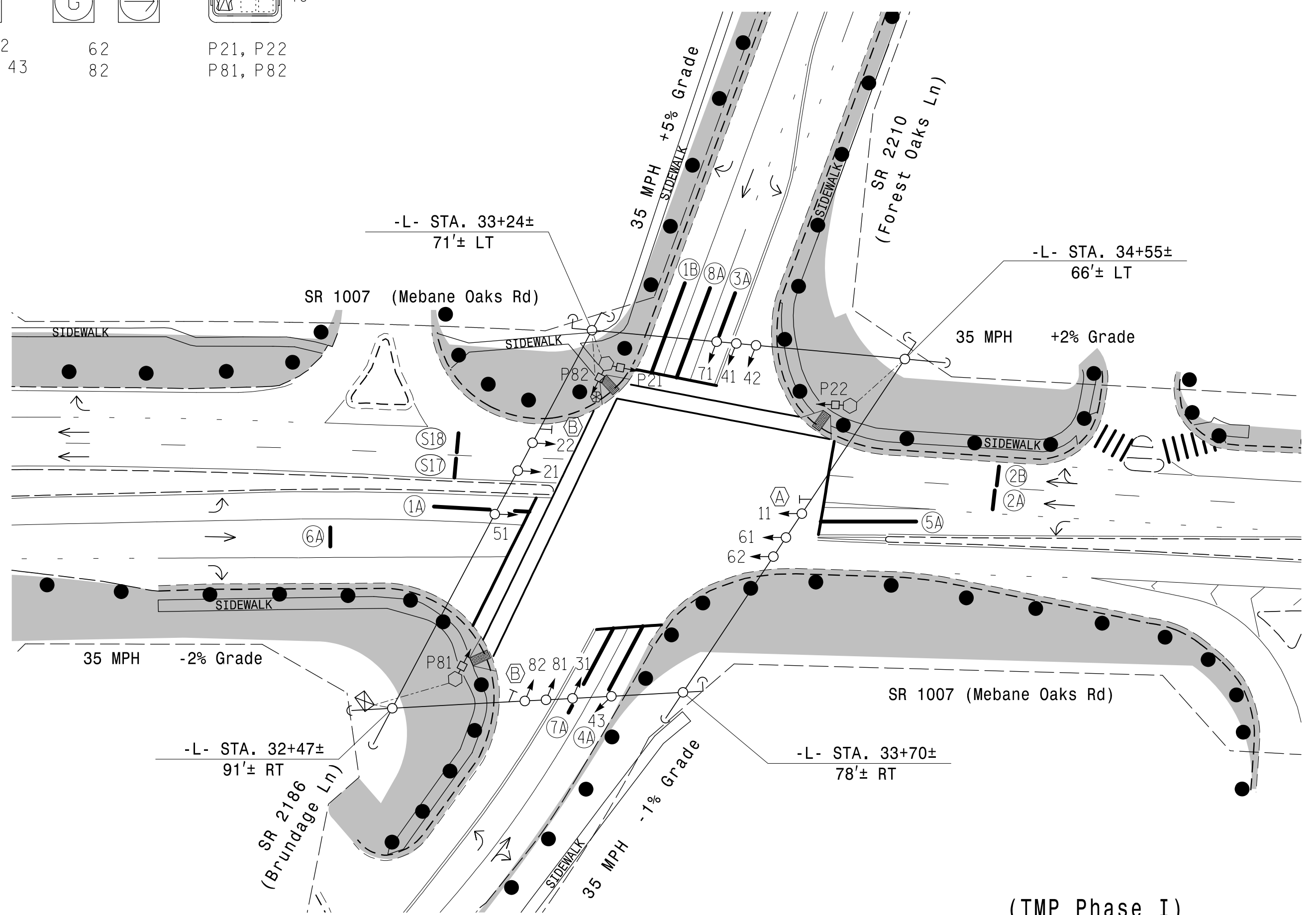
FUNCTION	PRE 3	PRE 5
Exit Phase(s)	2+6	2+6
Preempt Override	OFF	OFF
Delay Time	0	0
Ped Clear Through Yellow	Y	Y
Terminate Phases	N	N
Entrance Walk	1	1
Entrance Ped Clear	15	15
Entrance Min Green	1	1
Entrance Yellow Clear	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*
Min Dwell Time	7	7
Preempt Input Extension Time	2	2
Preempt Max Time	120	120
Exit Yellow Clear	25.5*	25.5*
Exit Red Clear	25.5*	25.5*

* Time defaults to time used for phase during normal operation

ASC/3 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	10	7	7	7	10	7	7
Walk *	0	7	0	0	0	0	0	4
Ped Clear	0	21	0	0	0	0	0	30
Veh. Extension *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	20	90	20	30	20	90	20	30
Yellow	3.0	4.0	3.0	3.9	3.0	4.0	3.0	3.9
Red Clear	3.1	2.5	2.3	1.9	3.2	2.5	2.3	1.9
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	X	-	-	-	X
Simultaneous Gap	X	X	X	X	X	X	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.



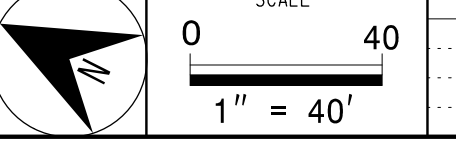
LEGEND

PROPOSED	EXISTING
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)
(Symbol)	(Symbol)

(TMP Phase I)
Signal Upgrade - Temporary Design 1

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

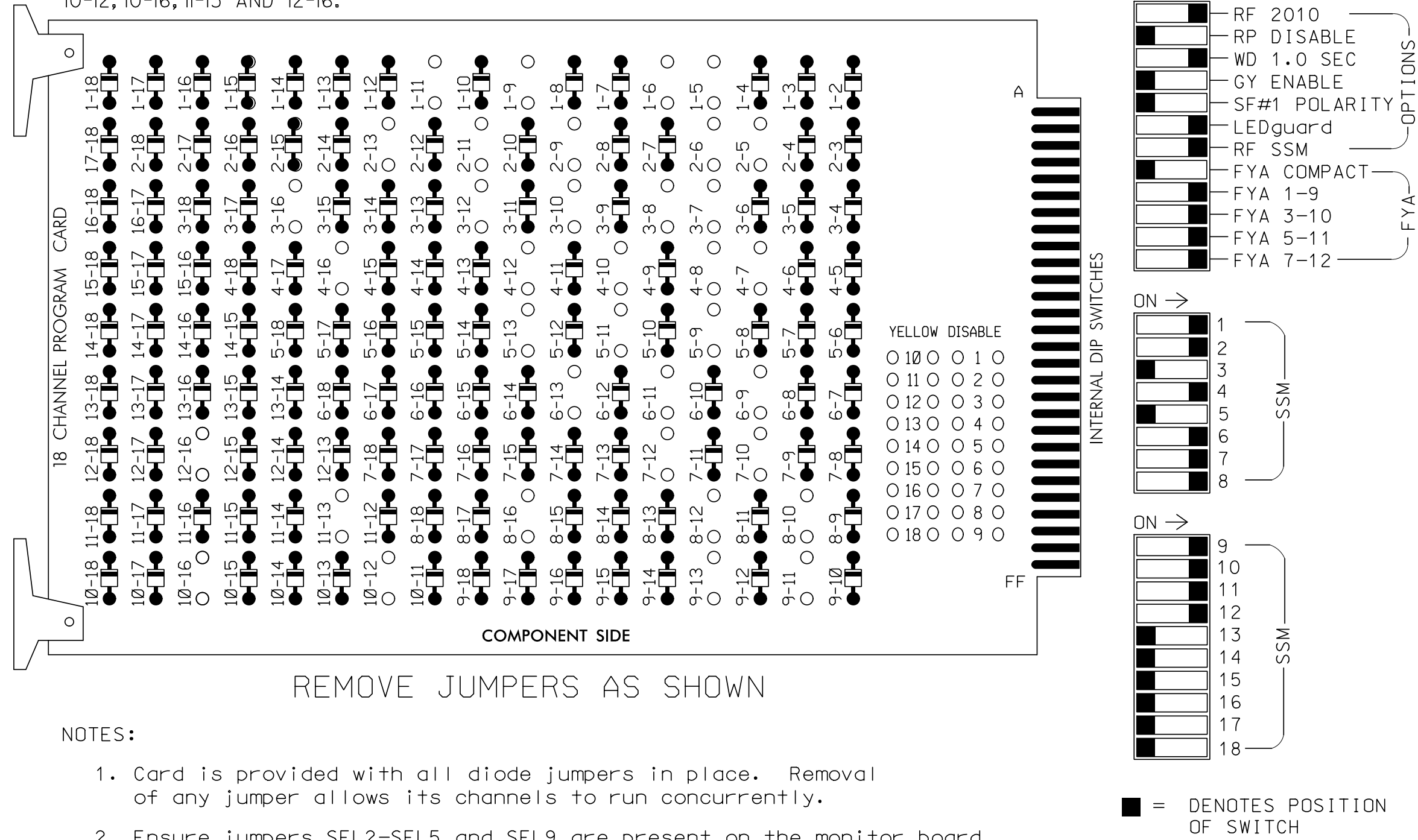
	<p>SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane)</p> <p>Division 7 Alamance County Mebane PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng PREPARED BY: Z. "Gavin" Teng REVIEWED BY:</p>	<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>SEAL ZHAOLONG TENG 03/21/19 12/17/2019 DATE SIG. INVENTORY NO. 07-1349T1</p>
--	---	--



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, 2-13, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 7-10, 7-12, 8-10, 8-12, 8-16, 9-11, 9-13, 10-12, 10-16, 11-13 AND 12-16.



NOTES:

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

NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Walk and phase 6 Green.
4. The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S7,S8,S10,S11,S12,AUX S1,AUX S2,AUX S4,AUX S5
PHASES USED.....1,2,2PED,3,4,5,6,7,8,8PED
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., Channel No., Phase, Signal Head No., and various signal types (RED, YELLOW, GREEN, RED ARROW, YELLOW ARROW, FLASHING YELLOW ARROW, GREEN ARROW) with corresponding terminal numbers and auxiliary switch assignments.

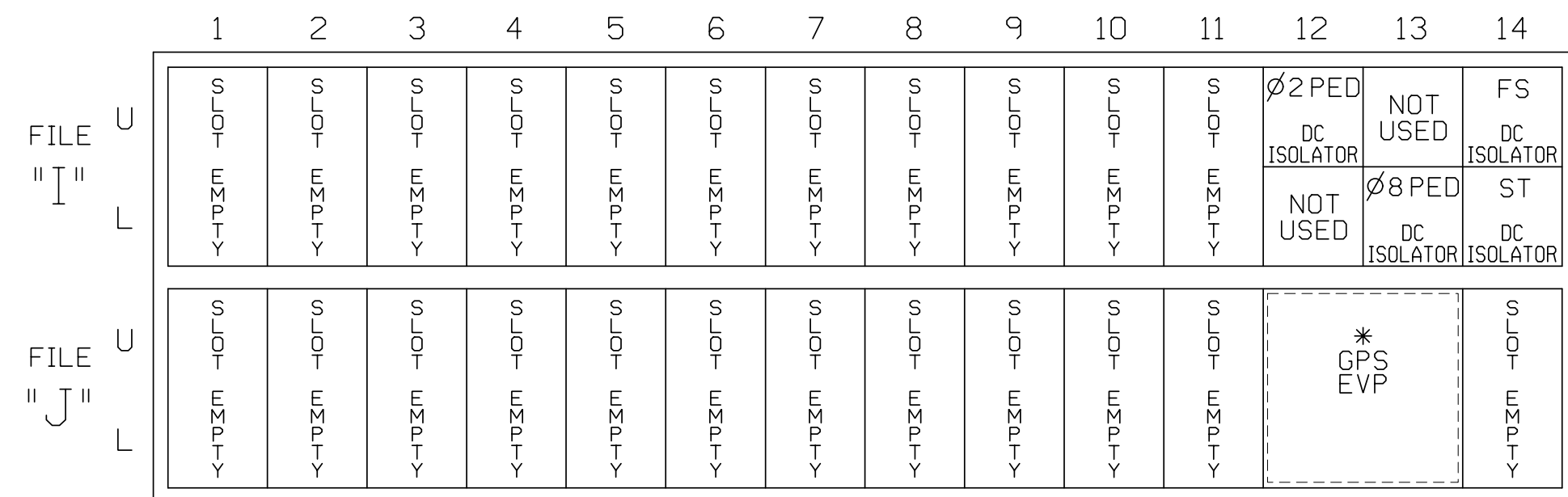
NU = Not Used

* 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
See GPS Preemption Installation Note Below

FS = FLASH SENSE
ST = STOP TIME

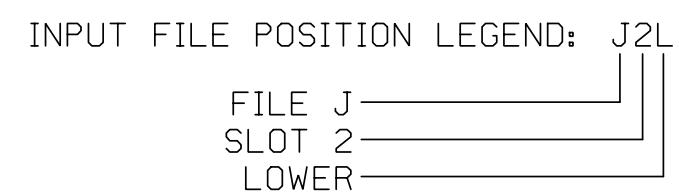
SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

INPUT FILE CONNECTION & PROGRAMMING CHART

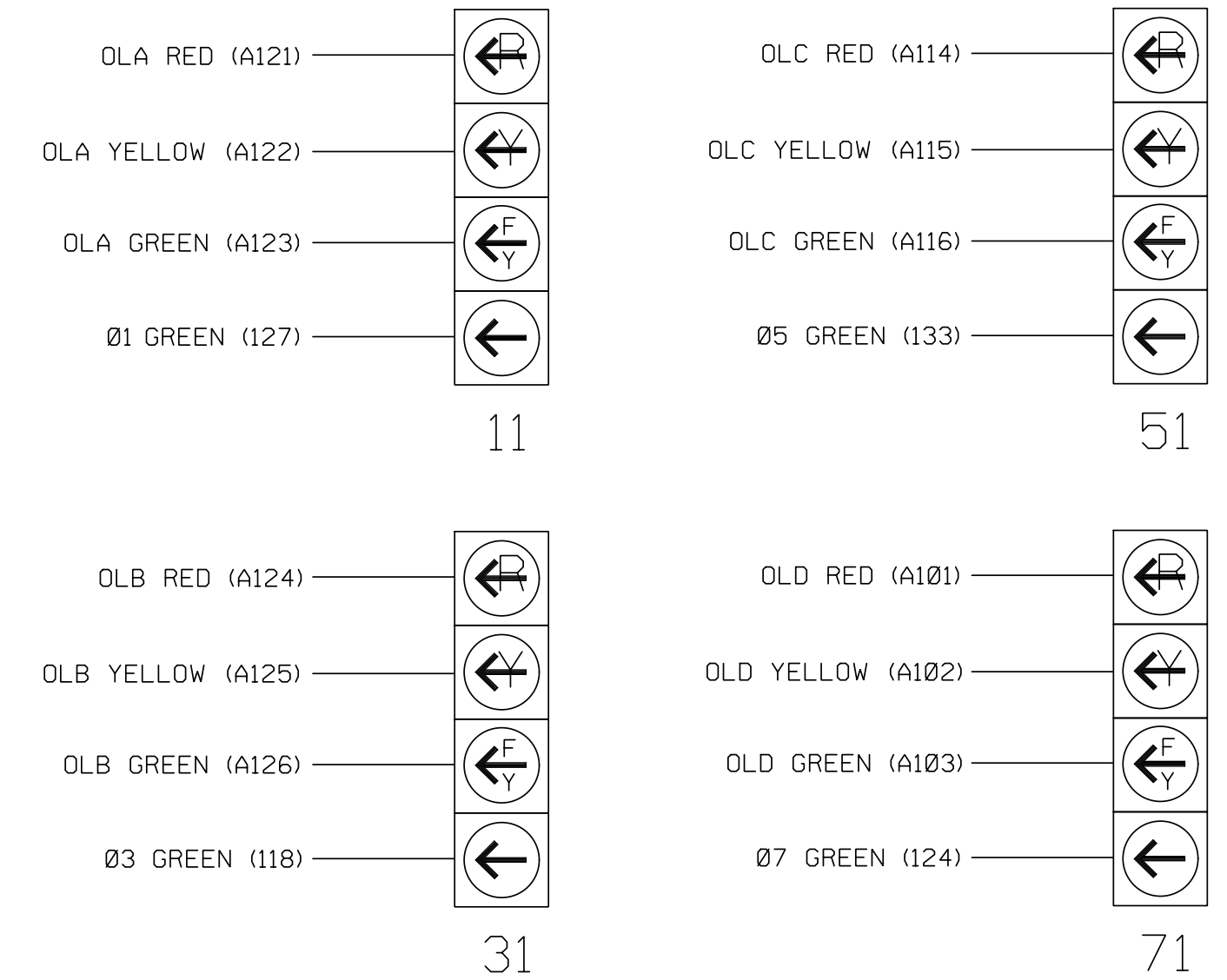
Table with columns: LOOP NO., LOOP TERMINAL, INPUT FILE POS., PIN NO., DETECTOR NO., NEMA PHASE, CALL, EXTEND TIME, DELAY TIME, ADDED INITIAL, DETECTOR TYPE. Includes rows for PED PUSH BUTTONS and P21,P22, P81,P82.

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



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



VIDEO 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.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

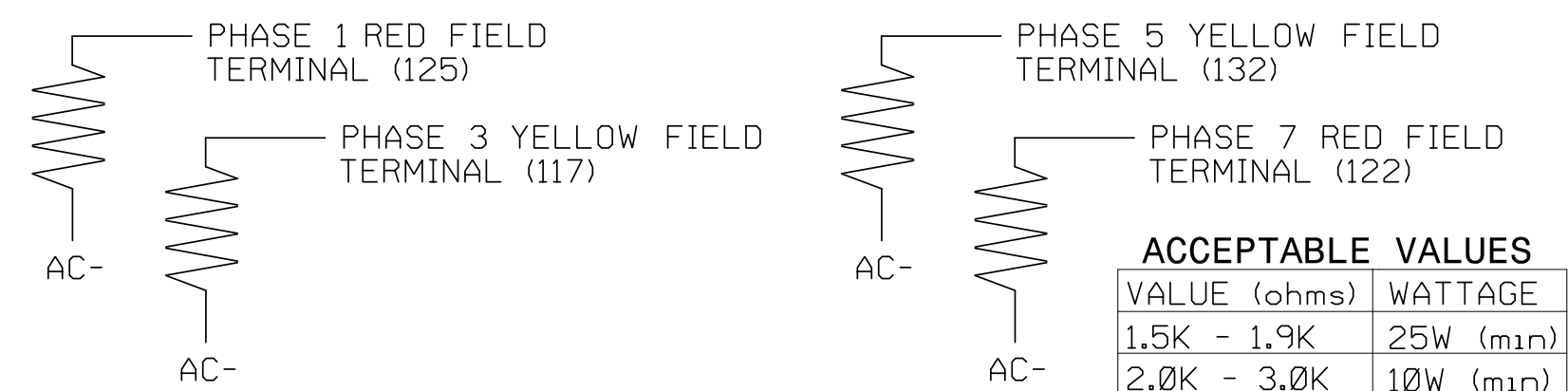


Table with columns: VALUE (ohms), WATTAGE. Values: 1.5K - 1.9K, 25W (min); 2.0K - 3.0K, 10W (min).

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349T1
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

Temporary Design 1
Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane)

Division 7 Alamance County Mebane
PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng REVIEWED BY:



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Professional Engineer Seal for Zhaolong Teng, State of North Carolina, License No. 032179. Includes a signature and date stamp.

Vertical text on the left edge of the page.

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

```

PREEMPT PLAN [ 3]  ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 15I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

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

```

PREEMPT PLAN [ 5]  ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 15I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

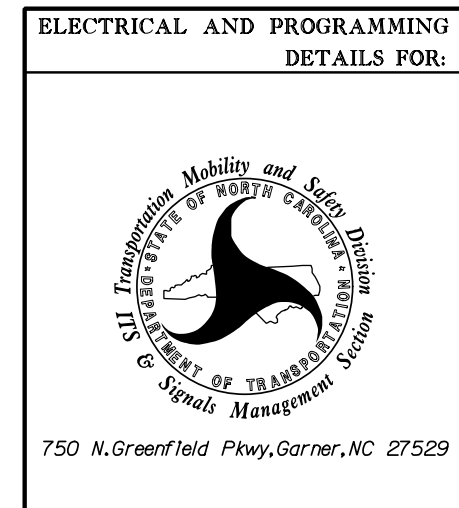
```

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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349T1
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Temporary Design 1
Electrical Detail - Sheet 3 of 3



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road)	
		at	
		SR 2186 (Brundage Lane) /	
		SR 2210 (Forest Oaks Lane)	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

DocuSigned by:
Zhaolong Teng
12/17/2019
DATE

SIG. INVENTORY NO. 07-1349T1

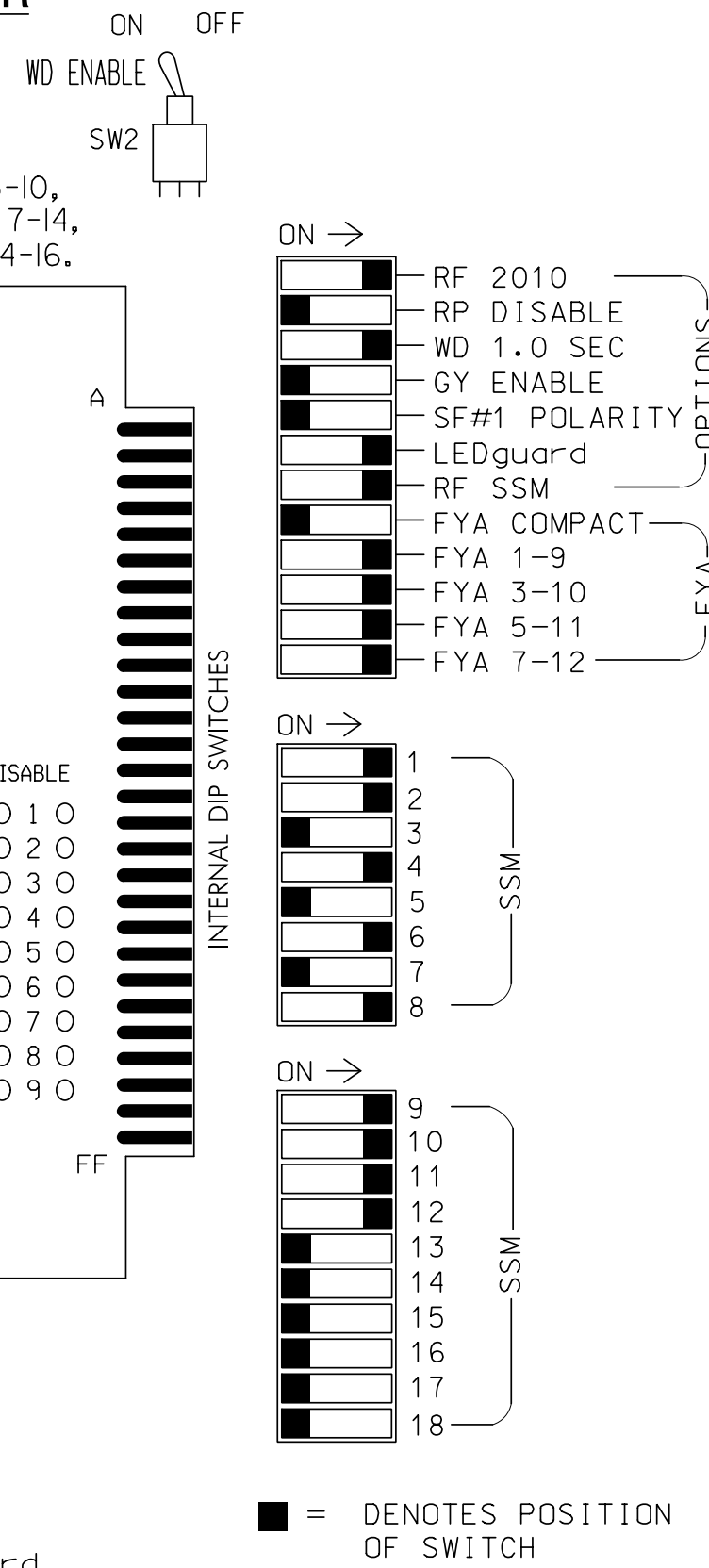
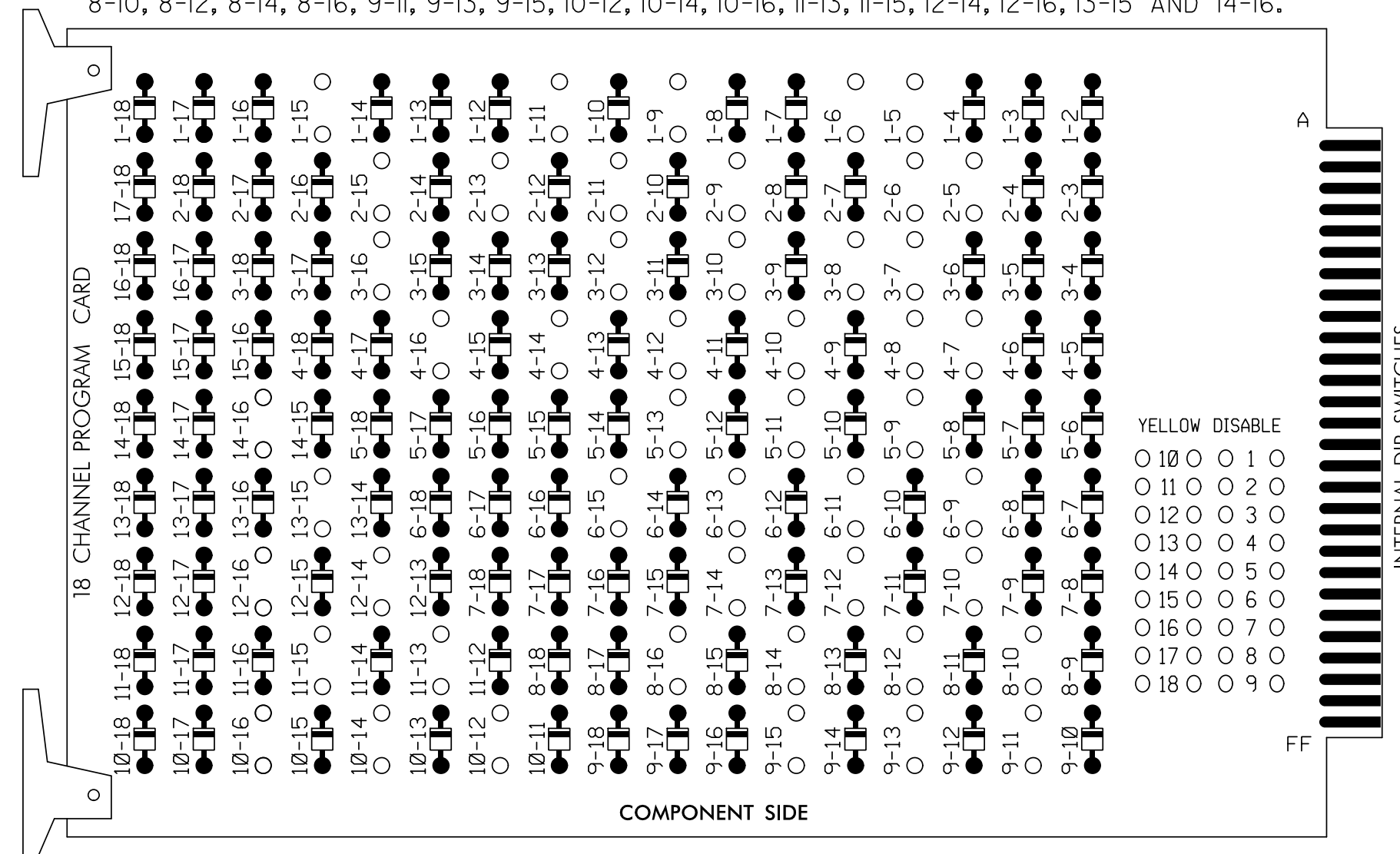
PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

\$\$\$\$\$CYTIME\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$DOCSIG\$\$\$\$\$
\$\$\$\$\$\$\$\$\$\$NAME\$\$\$\$\$

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 7-10, 7-12, 7-14, 8-10, 8-12, 8-14, 8-16, 9-11, 9-13, 9-15, 10-12, 10-14, 10-16, 11-13, 11-15, 12-14, 12-16, 13-15 AND 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

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

NOTES

- 1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Walk and phase 6 Walk.
4. The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,
S10,S11,S12,AUX S1,AUX S2,
AUX S4,AUX S5
PHASES USED.....1,2,2PED,3,4,4PED,5,6,6PED
7,8,8PED

OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*

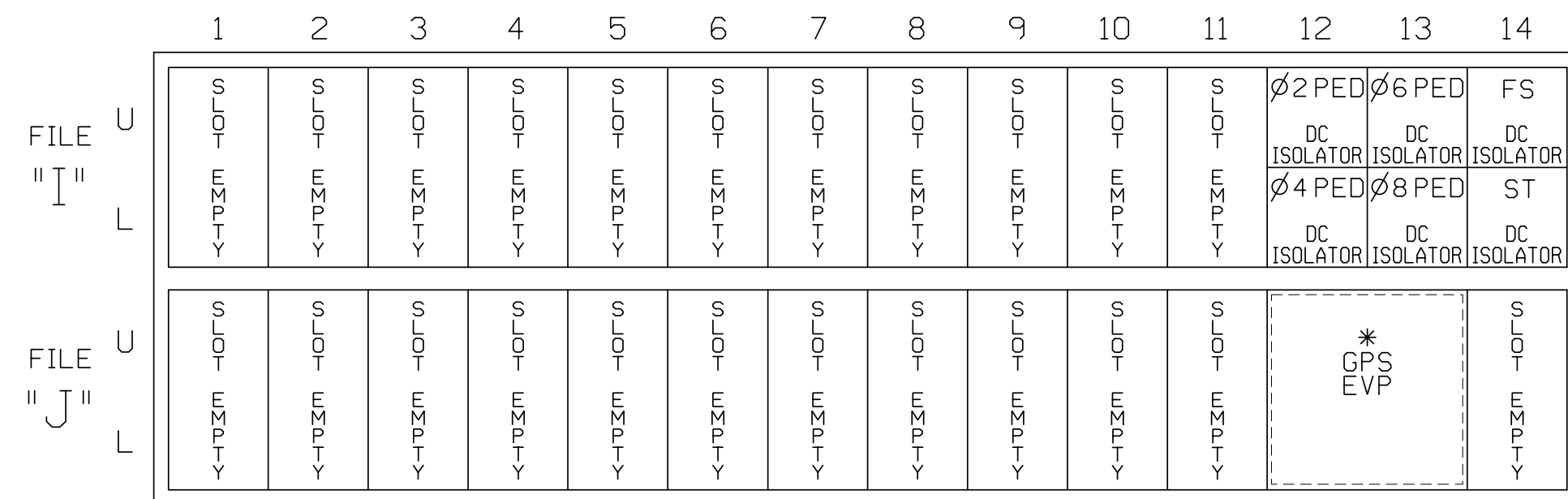
* See overlap programming detail on sheet 2

Table with columns: LOAD SWITCH NO., PHASE, SIGNAL HEAD NO., RED, YELLOW, GREEN, RED ARROW, YELLOW ARROW, FLASHING YELLOW ARROW, GREEN ARROW. Rows include S1-S12 and AUX S1-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

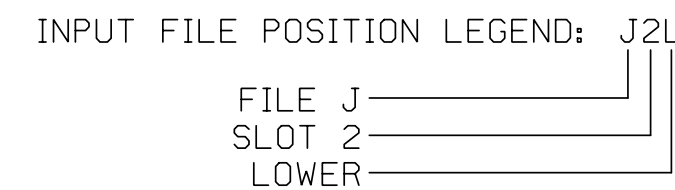
SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

INPUT FILE CONNECTION & PROGRAMMING CHART

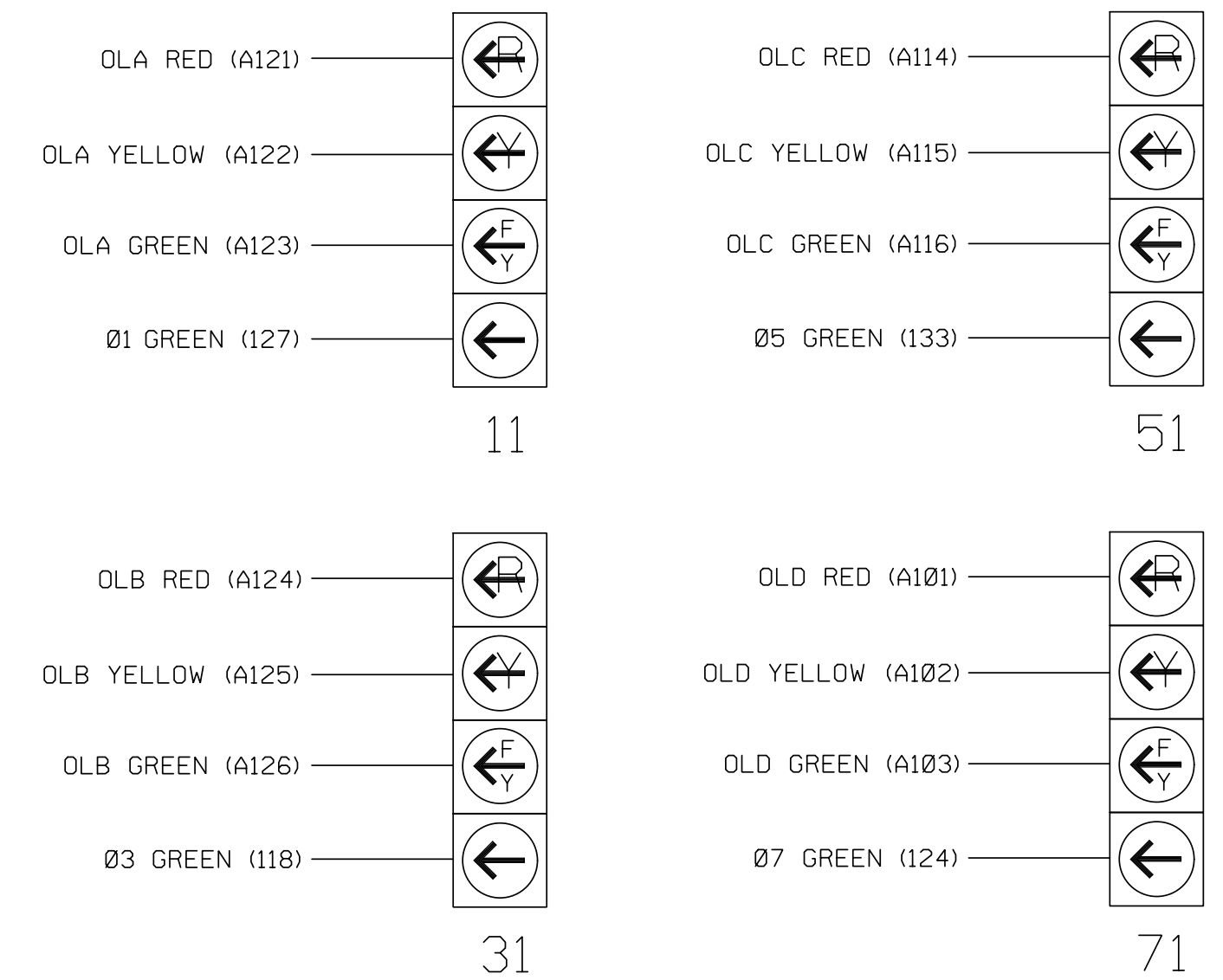
Table with columns: LOOP NO., LOOP TERMINAL, INPUT FILE POS., PIN NO., DETECTOR NO., NEMA PHASE, CALL, EXTEND TIME, DELAY TIME, ADDED INITIAL, DETECTOR TYPE. Includes rows for PED PUSH BUTTONS, P21,P22, P41,P42, P61,P62, P81,P82.

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



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



VIDEO 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.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

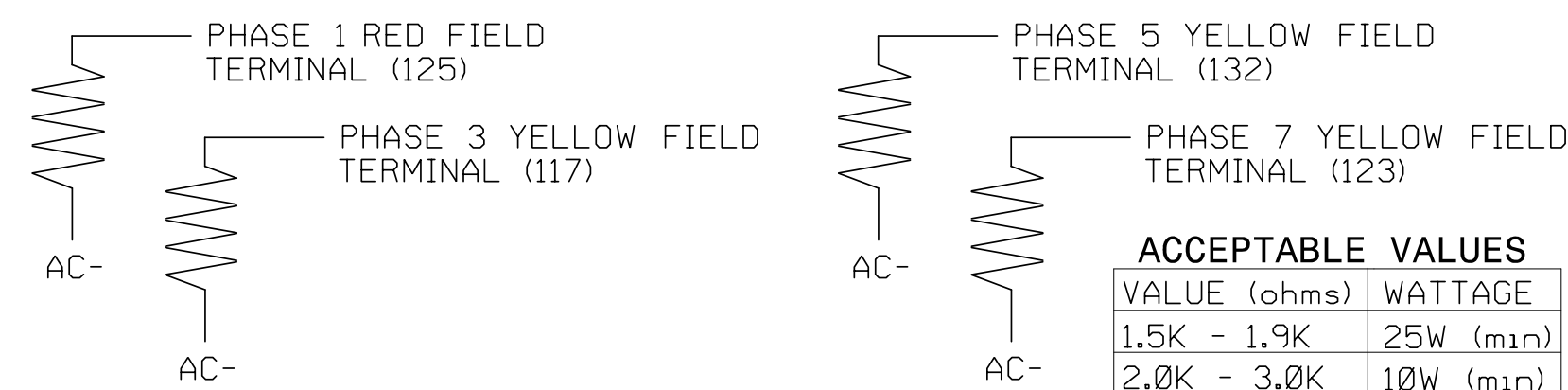


Table with columns: VALUE (ohms), WATTAGE. Values: 1.5K - 1.9K, 25W (min); 2.0K - 3.0K, 10W (min).

REVISE PHASE 7 LOAD RESISTOR

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349T2
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

Temporary Design 2
Electrical Detail - Sheet 1 of 3

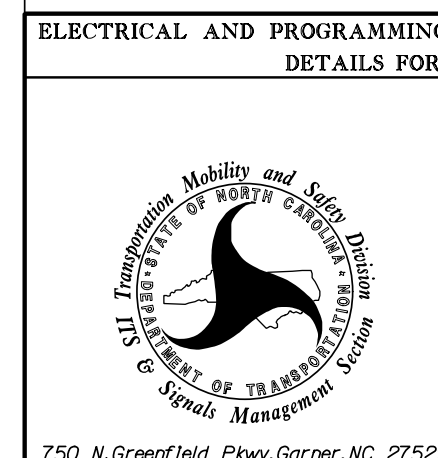


Table with columns: REVISIONS, INIT., DATE. Includes project name SR 1007 (Mebane Oaks Road) and designer Zhaolong Teng.

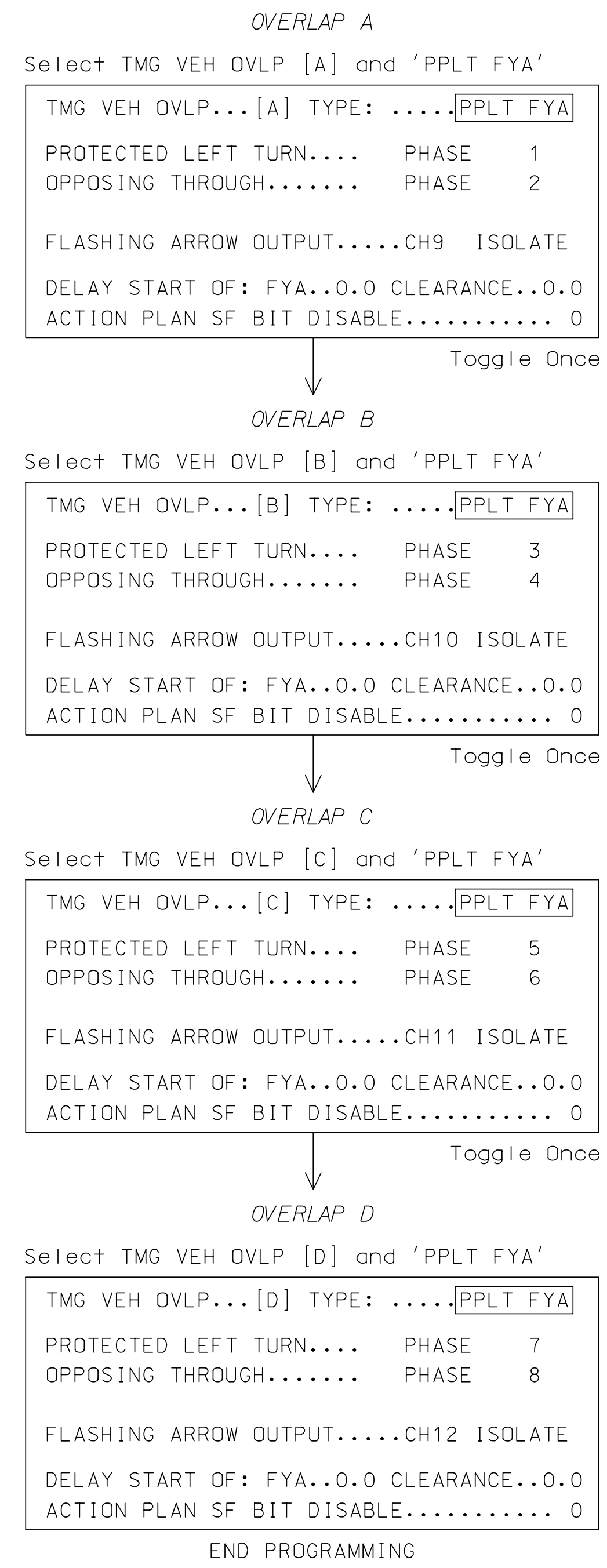
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signature block for Zhaolong Teng, dated 12/17/2019.

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



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: 07-1349T2
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 2
Electrical Detail - Sheet 2 of 3

<p style="font-size: 8px;">750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p style="text-align: center;">ELECTRICAL AND PROGRAMMING DETAILS FOR:</p> <p style="text-align: center; font-weight: bold;">SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane)</p> <p style="font-size: 8px;">Division 7 Alamance County Mebane</p> <p style="font-size: 8px;">PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng</p> <p style="font-size: 8px;">PREPARED BY: Z. "Gavin" Teng REVIEWED BY:</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table>	REVISIONS	INIT.	DATE										<p style="font-size: 8px;">DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p style="font-size: 8px;">DocuSigned by: <i>Zhaolong Teng</i> 12/17/2019</p> <p style="font-size: 8px;">SIG. INVENTORY NO. 07-1349T2</p>
REVISIONS	INIT.	DATE												

PREPARED IN THE OFFICE OF:
AE Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

\$\$\$\$SYTIME\$\$\$\$
 \$\$\$DOCSIGN\$\$\$\$
 \$\$\$SERIALNAME\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

```

PREEMPT PLAN [ 3]  ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

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

```

PREEMPT PLAN [ 5]  ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

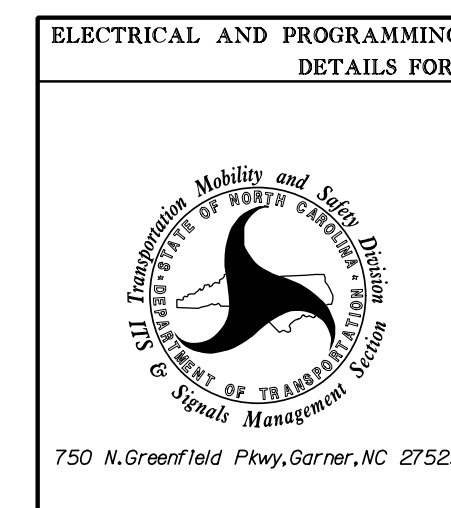
- From Main Menu select **4. PREEMPTOR/TSP**
- From PREEMPT/TSP/SCP Submenu select **2. ENABLE PREEMPT FILTERING & TSP/SCP**

```

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

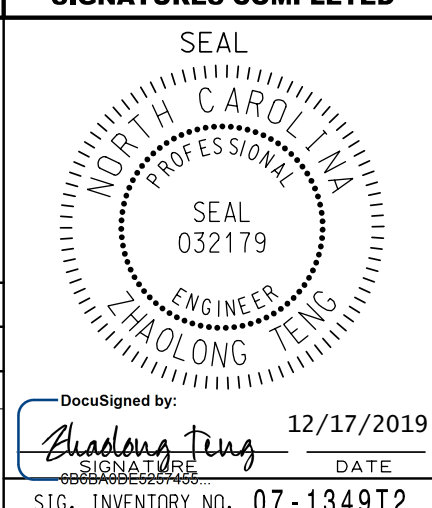
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349T2
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 2
 Electrical Detail - Sheet 3 of 3



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road)	
		at	
		SR 2186 (Brundage Lane) /	
		SR 2210 (Forest Oaks Lane)	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

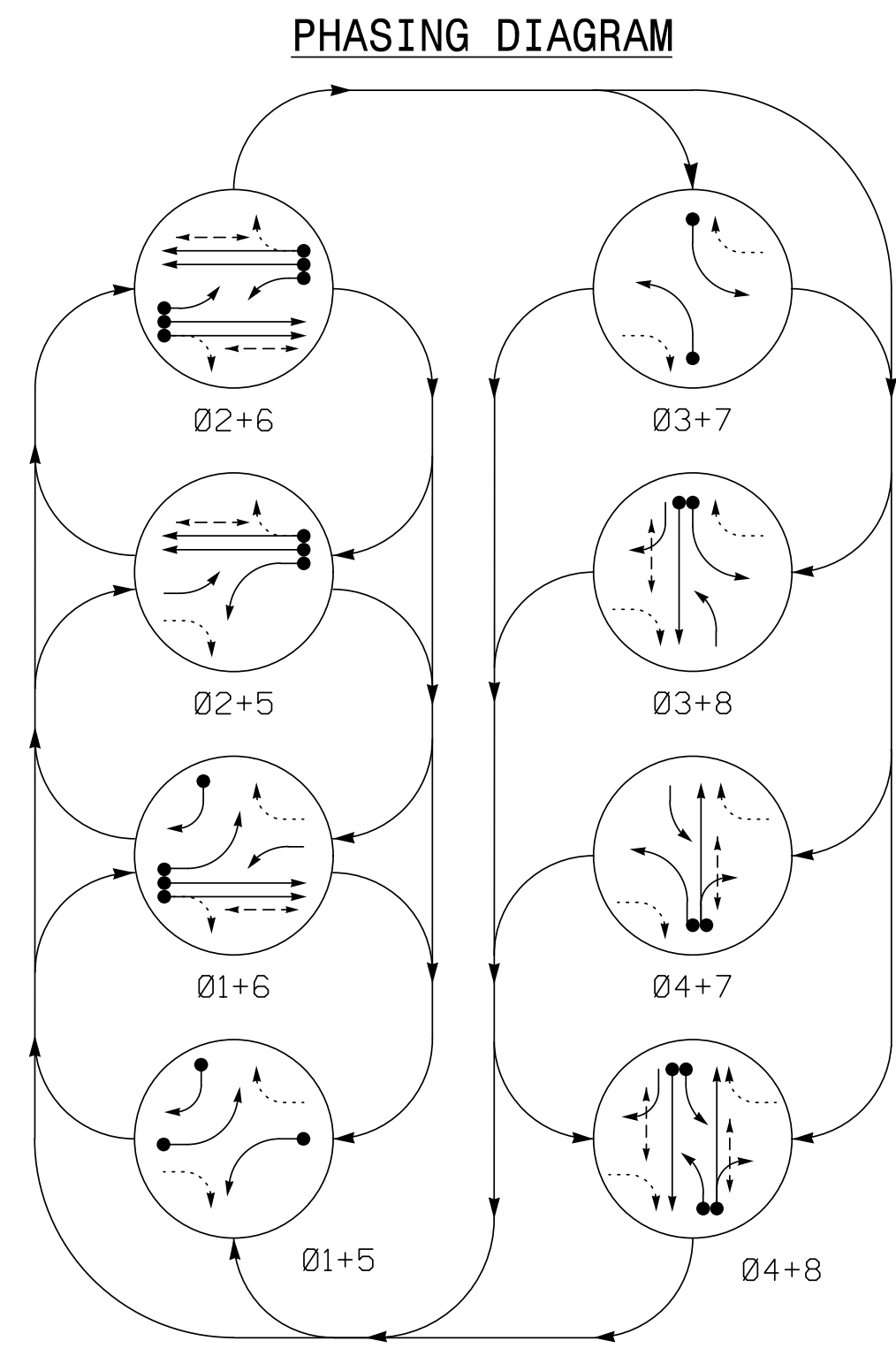
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



DocuSigned by: Zhaolong Teng
 12/17/2019
 SIG. INVENTORY NO. 07-1349T2

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

\$\$\$\$\$CYTIME\$\$\$\$\$
 \$\$\$DOCSIGN\$\$\$\$\$
 \$\$\$SERIALNAME\$\$\$



PHASING DIAGRAM DETECTION LEGEND

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

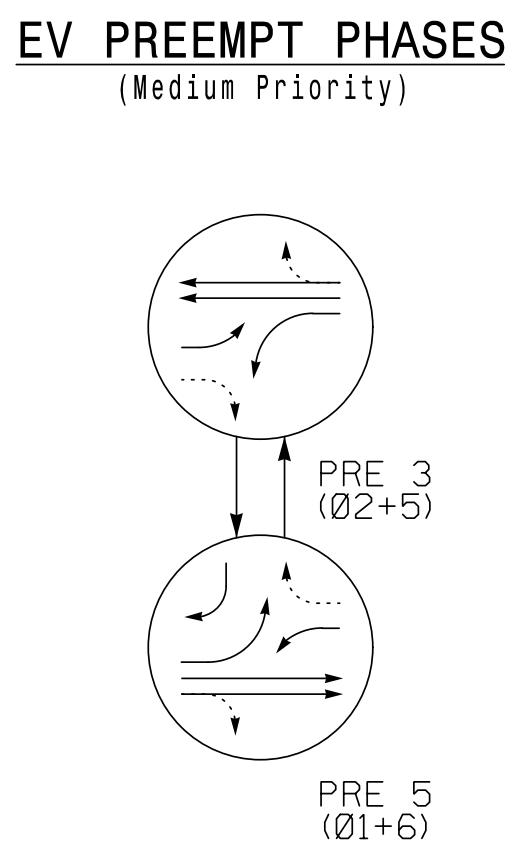
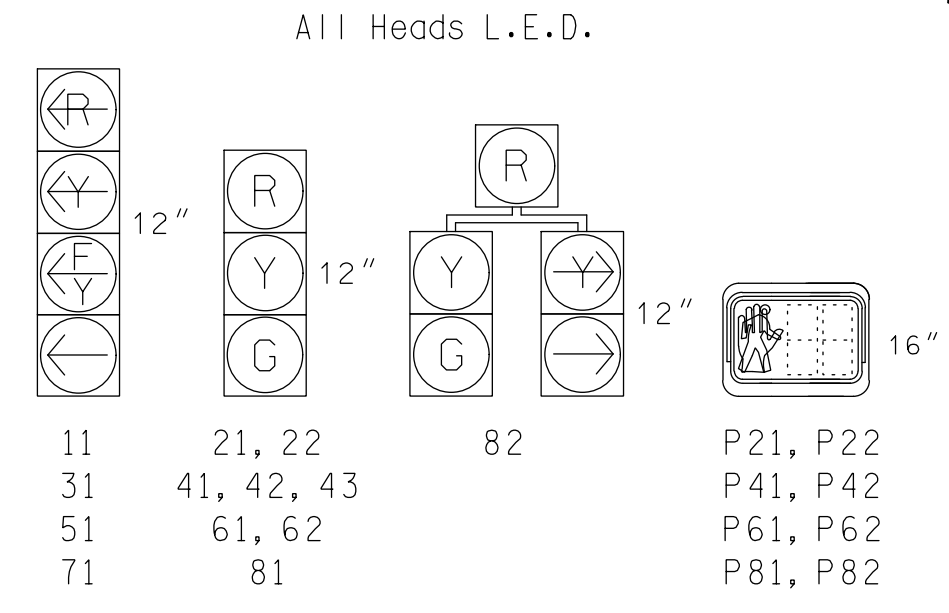


TABLE OF OPERATION table with columns for SIGNAL FACE, PHASE, and various signal states (R, G, Y, F, etc.).

SIGNAL FACE I.D.



ASC/3 DETECTOR INSTALLATION CHART table with columns for ZONE, SIZE, DISTANCE FROM STOPBAR, TURNS, NEW LOOP, PHASE, CALLING, EXTEND TIME, DELAY TIME, USE ADDED INITIAL, TYPE, SYSTEM LOOP, NEW CARD.

* Video Detection Zone

8 Phase Fully Actuated w/ Emergency Vehicle Preemption SR 1007 (Mebane Oaks Rd) CLS Signal System: 10705

NOTES

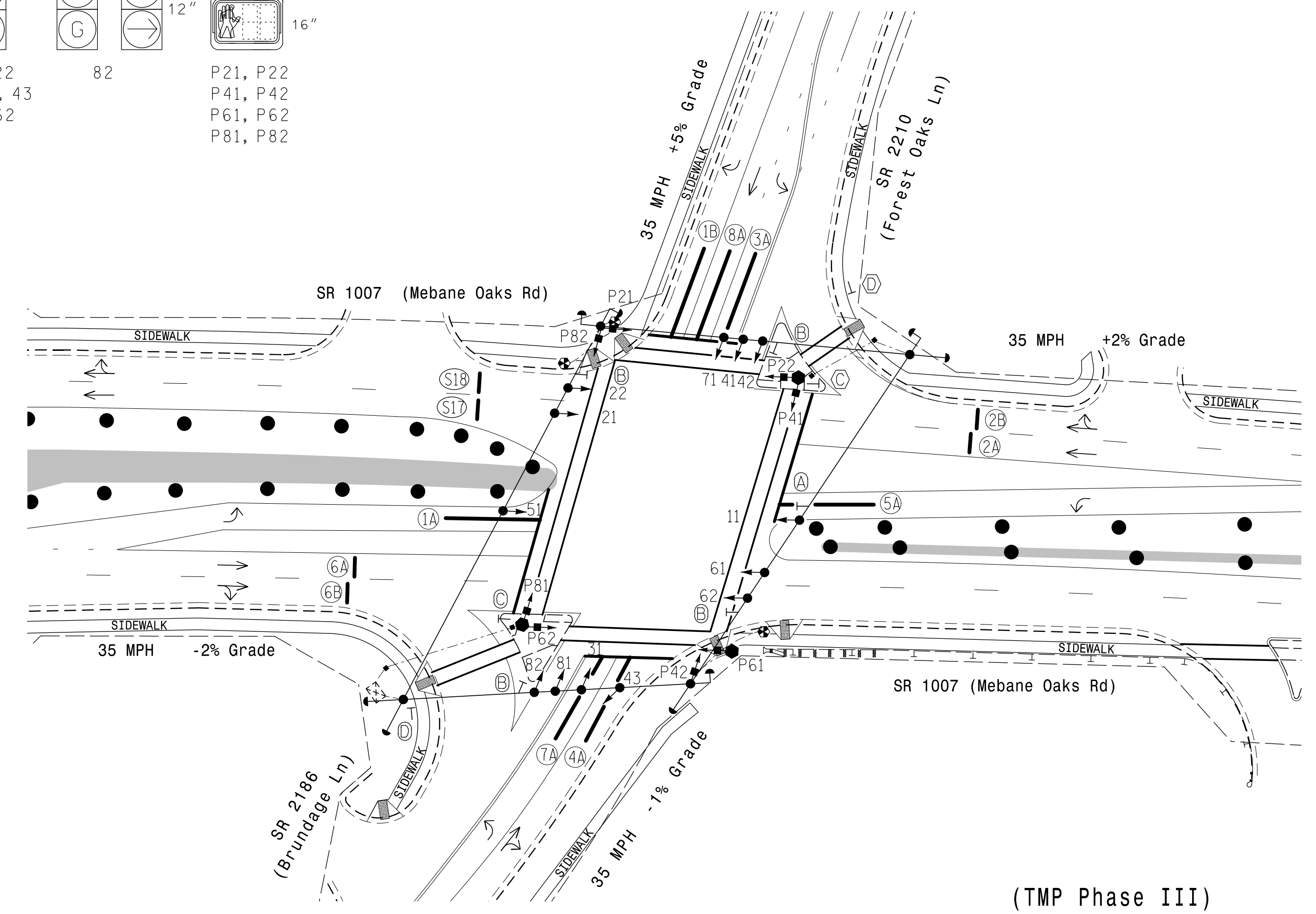
- 1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018...
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
...
11. Closed loop system data: Controller Asset #: 1349.

ASC/3 EV PREEMPT table with columns for FUNCTION, PRE 3, and PRE 5.

* Time defaults to time used for phase during normal operation

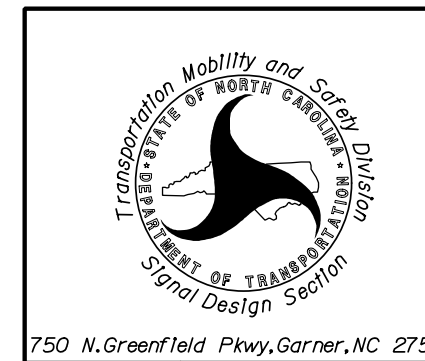
ASC/3 TIMING CHART table with columns for FEATURE, PHASE (1-8), and timing values.

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



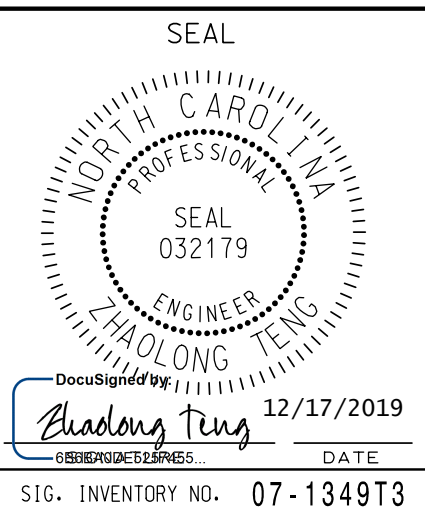
LEGEND table defining symbols for PROPOSED and EXISTING elements like Traffic Signal Head, Pedestrian Signal Head, etc.

(TMP Phase III) Signal Upgrade - Temporary Design 3

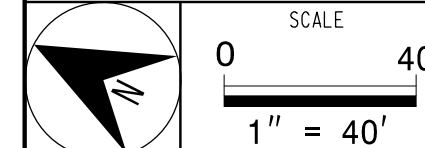


SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane) Division 7 Alamance County Mebane

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PREPARED IN THE OFFICE OF: Accelerate Engineering, PLLC 875 Walnut Street, Suite 316 Cary, NC 27511



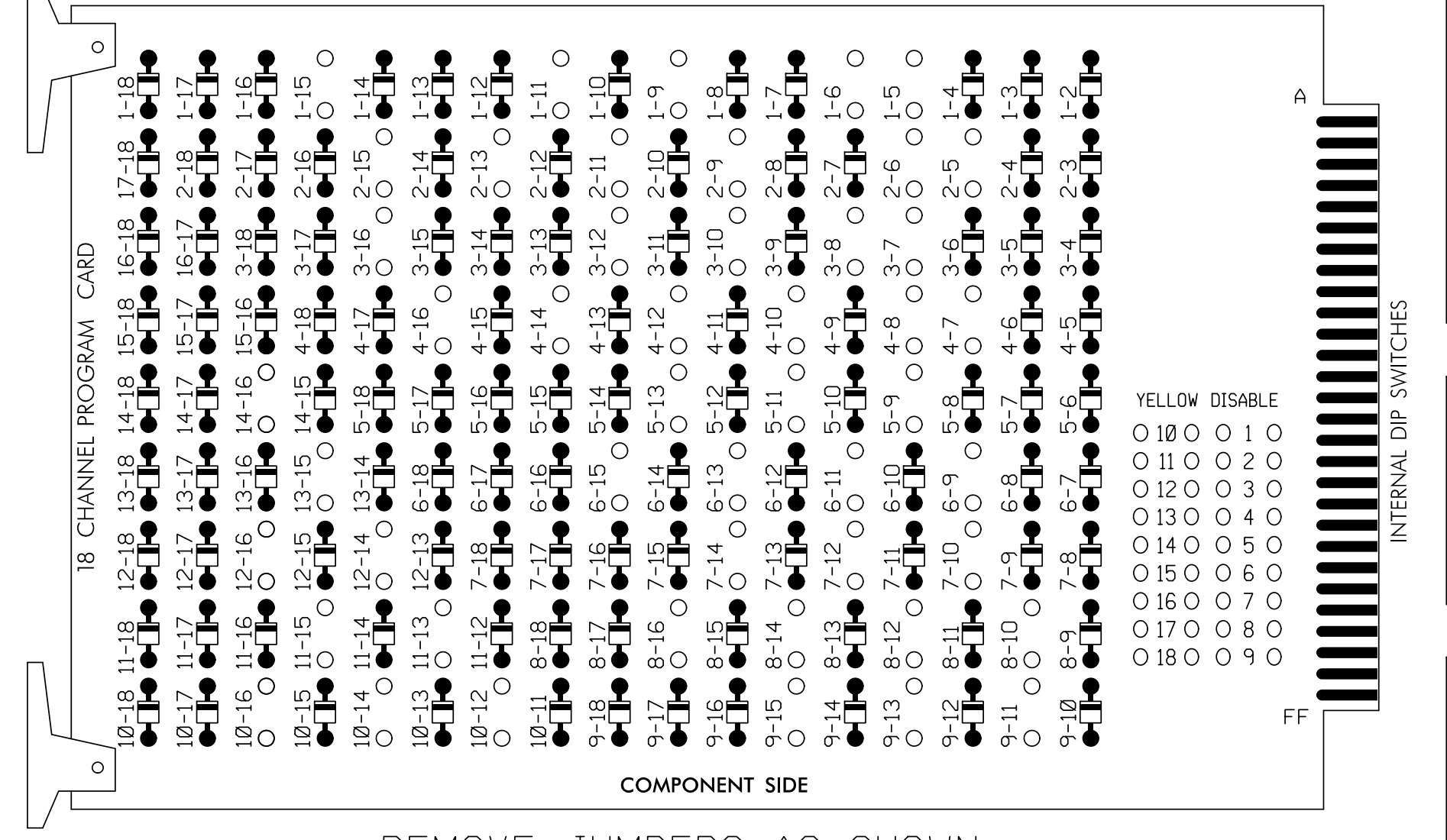
REVISIONS table with columns for NO., REVISIONS, INIT., and DATE.

DATE 12/17/2019 SIG. INVENTORY NO. 07-1349T3

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 7-10, 7-12, 7-14, 8-10, 8-12, 8-14, 8-16, 9-11, 9-13, 9-15, 10-12, 10-14, 10-16, 11-13, 11-15, 12-14, 12-16, 13-15 AND 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = 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.
2. Program phases 4 and 8 for Dual Entry.
3. Program controller to start up in phase 2 Walk and phase 6 Walk.
4. The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9,S10,S11,S12,AUX S1,AUX S2,AUX S4,AUX S5
PHASES USED.....1,2,2PED,3,4,4PED,5,6,6PED,7,8,8PED

OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*

* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

Table with columns for Load Switch No., S1-S12, AUX S1-S6, and Signal Head No. with corresponding values for Red, Yellow, Green, Red Arrow, Yellow Arrow, Flashing Yellow Arrow, Green Arrow, and Pedestrian symbols.

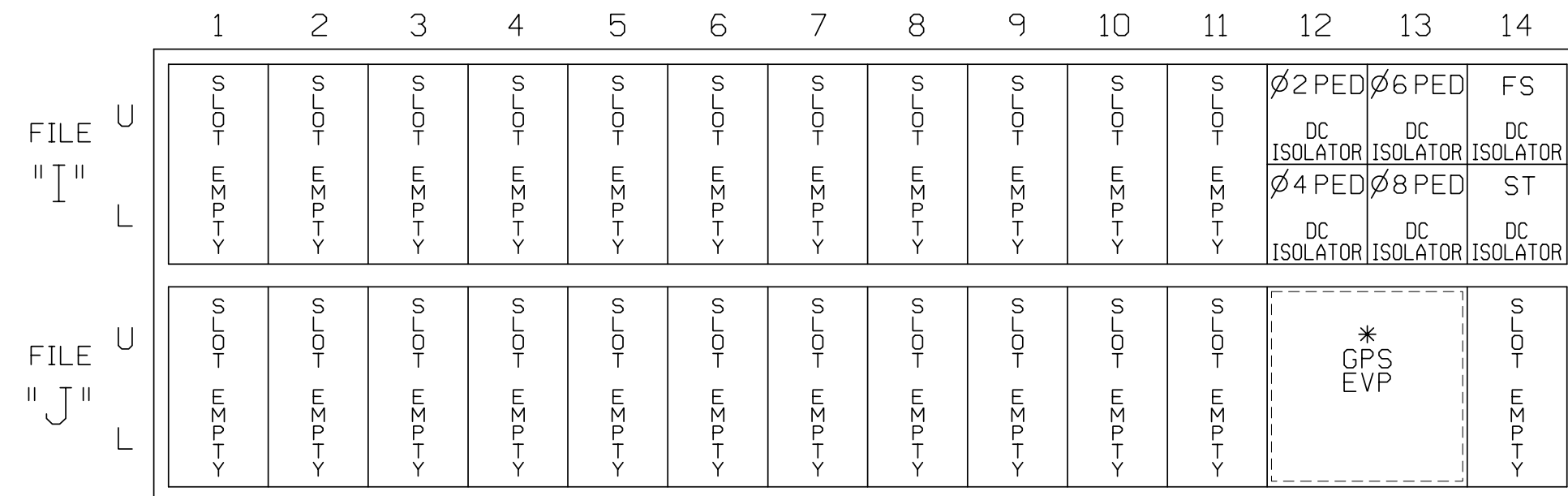
NU = Not Used

* 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
See GPS Preemption Installation Note Below

FS = FLASH SENSE
ST = STOP TIME

SPECIAL DETECTOR NOTE

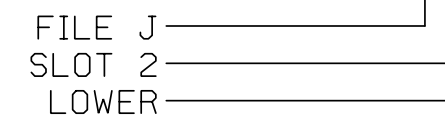
Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

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. Includes rows for PED PUSH BUTTONS, P21,P22, P41,P42, P61,P62, and P81,P82.

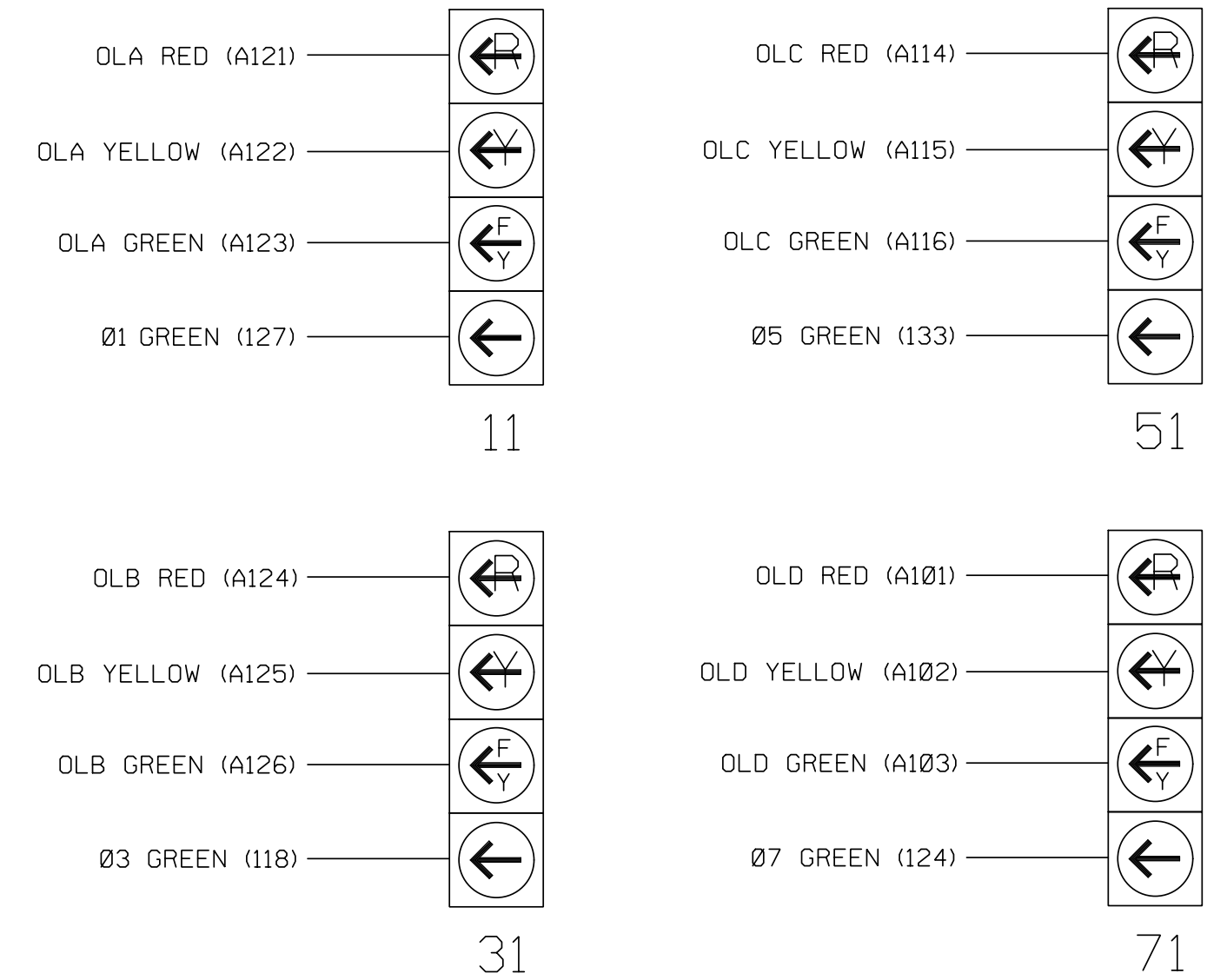
NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS 112 AND 113.

INPUT FILE POSITION LEGEND: J2L



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



VIDEO 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.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

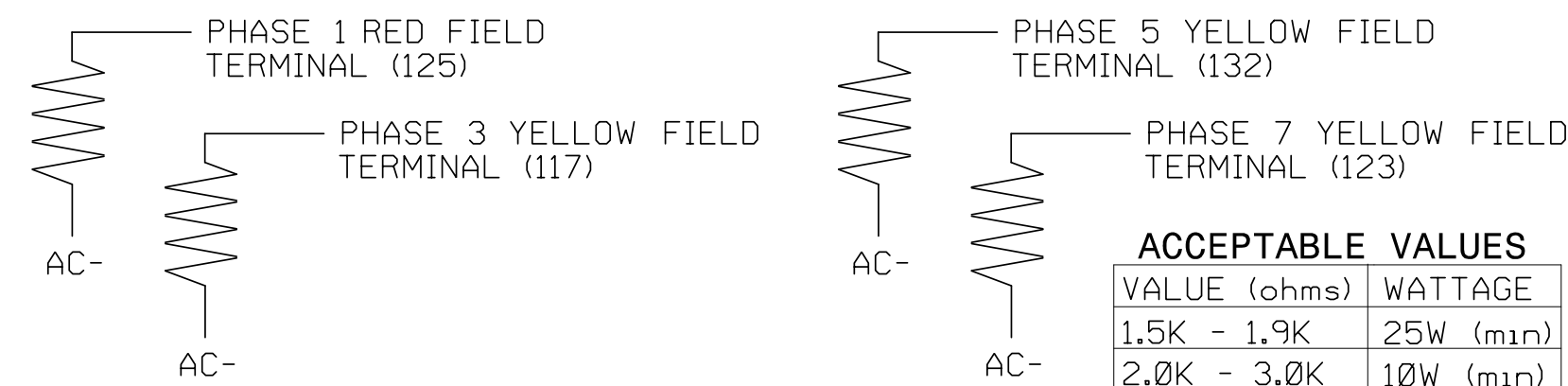


Table with columns: ACCEPTABLE VALUES, VALUE (ohms), WATTAGE. Values range from 1.5K to 3.0K and 25W to 10W.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349T3
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

Temporary Design 3
Electrical Detail - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane)

Division 7 Alamance County Mebane
PREPARED BY: Z. "Gavin" Teng REVIEWED BY: Z. "Gavin" Teng

Table with columns: REVISIONS, INIT., DATE. Includes a signature for Z. "Gavin" Teng.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

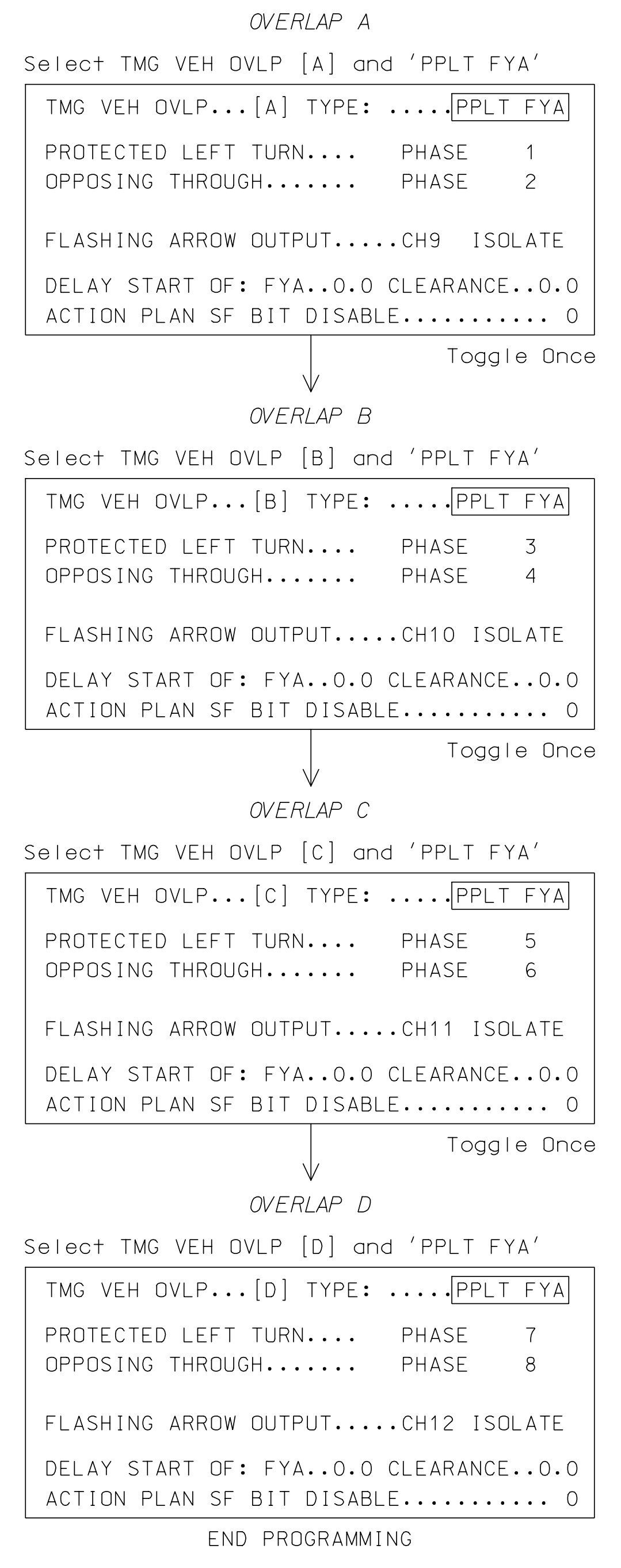
Professional Engineer seal for Zhaolong Teng, State of North Carolina, License No. 032179, dated 12/17/2019.

Vertical text on the far left edge of the page.

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



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: 07-1349T3
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

Temporary Design 3
 Electrical Detail - Sheet 2 of 3

PREPARED IN THE OFFICE OF:
AE Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane)	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-1349T3

\$\$\$\$SYTIME\$\$\$\$
 \$\$\$DOCSIGN\$\$\$\$
 \$\$\$SERIALNAME\$\$\$\$

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

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

```

PREEMPT PLAN [ 3]  ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF

```

```

PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

```

PREEMPT PLAN [ 5]  ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH X . . . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .

```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF

```

```

PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0

```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

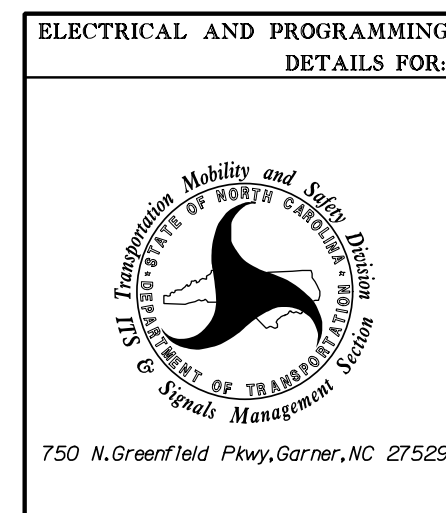
```

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

```

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349T3 DESIGNED: November 2019 SEALED: 12/17/2019 REVISED: N/A

Temporary Design 3 Electrical Detail - Sheet 3 of 3



ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road)	
		at	
		SR 2186 (Brundage Lane) /	
		SR 2210 (Forest Oaks Lane)	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL	DATE
	12/17/2019
SIGNATURE	DATE
<i>Zhaolong Teng</i>	12/17/2019
SIG. INVENTORY NO. 07-1349T3	

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$SYTIME\$\$\$\$\$

8 Phase
Fully Actuated w/ Emergency Vehicle Preemption
SR 1007 (Mebane Oaks Rd) CLS
Signal System: 10705

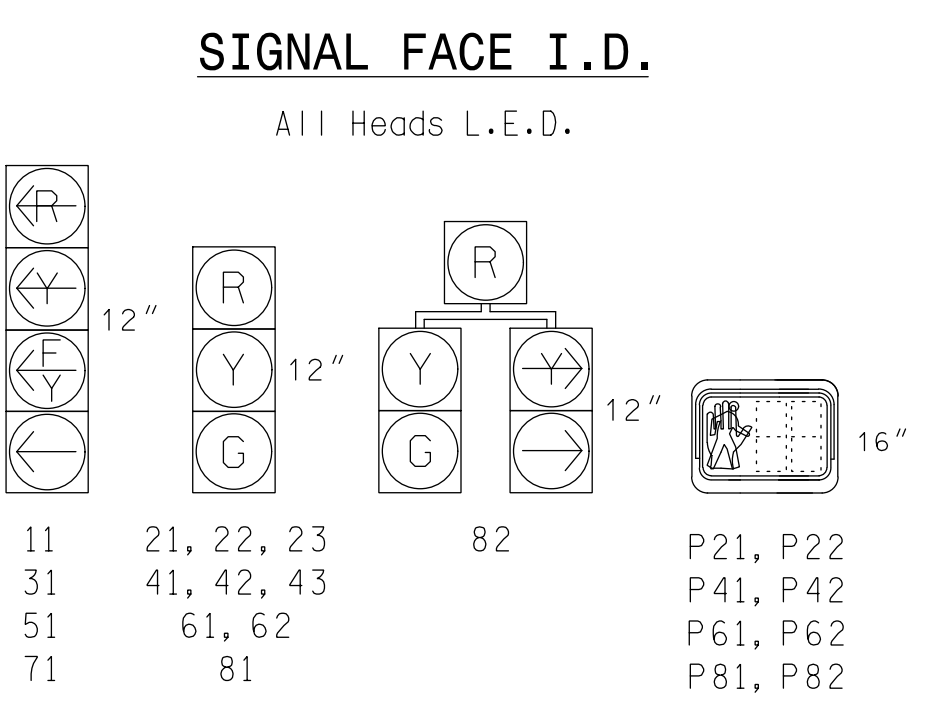
NOTES

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. Reposition existing pedestrian signal head numbered P41.
6. Set all detector units to presence mode.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. This intersection features a GPS Emergency Vehicle Preemption system.
10. The Division Traffic Engineer will determine the hours of use for each phasing plan.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
12. Closed loop system data:
Controller Asset #: 1349.

ASC/3 DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING								
					PHASE	CALLING	EXTEND TIME	DELAY TIME	USE ADDED INITIAL	TYPE	LOOP SYSTEM	NEW CARD	
1A	6X40	0	2-4-2	X	1	Yes	-	*15	-	S	-	X	
1B	6X40	0	2-4-2	X	#6	Yes	-	-	-	S	-	X	
2A	6X6	70	5	X	2	Yes	-	-	-	S	-	X	
2B	6X6	70	5	X	2	Yes	-	-	-	S	-	X	
3A	6X40	0	2-4-2	X	3	Yes	-	15	-	S	-	X	
4A	6X40	0	2-4-2	X	8	Yes	-	3	-	S	-	X	
5A	6X40	0	2-4-2	X	4	Yes	-	10	-	S	-	X	
6A	6X6	70	3	X	5	Yes	-	*15	-	S	-	X	
6B	6X6	70	3	X	#2	Yes	-	-	-	S	-	X	
7A	6X40	0	2-4-2	X	6	Yes	-	-	-	S	-	X	
8A	6X40	0	2-4-2	X	6	Yes	-	-	-	S	-	X	
S17	6x6	+145	4	X	7	Yes	-	15	-	N	X	X	
S18	6x6	+145	4	X	4	Yes	-	3	-	N	X	X	
S19	6x6	+145	4	X	-	No	-	-	-	N	X	X	

* Disable delay during Alternate Phasing Operation.
Disable Phase Call for Loop during Alternate Phasing Operation.



ASC/3 EV PREEMPT

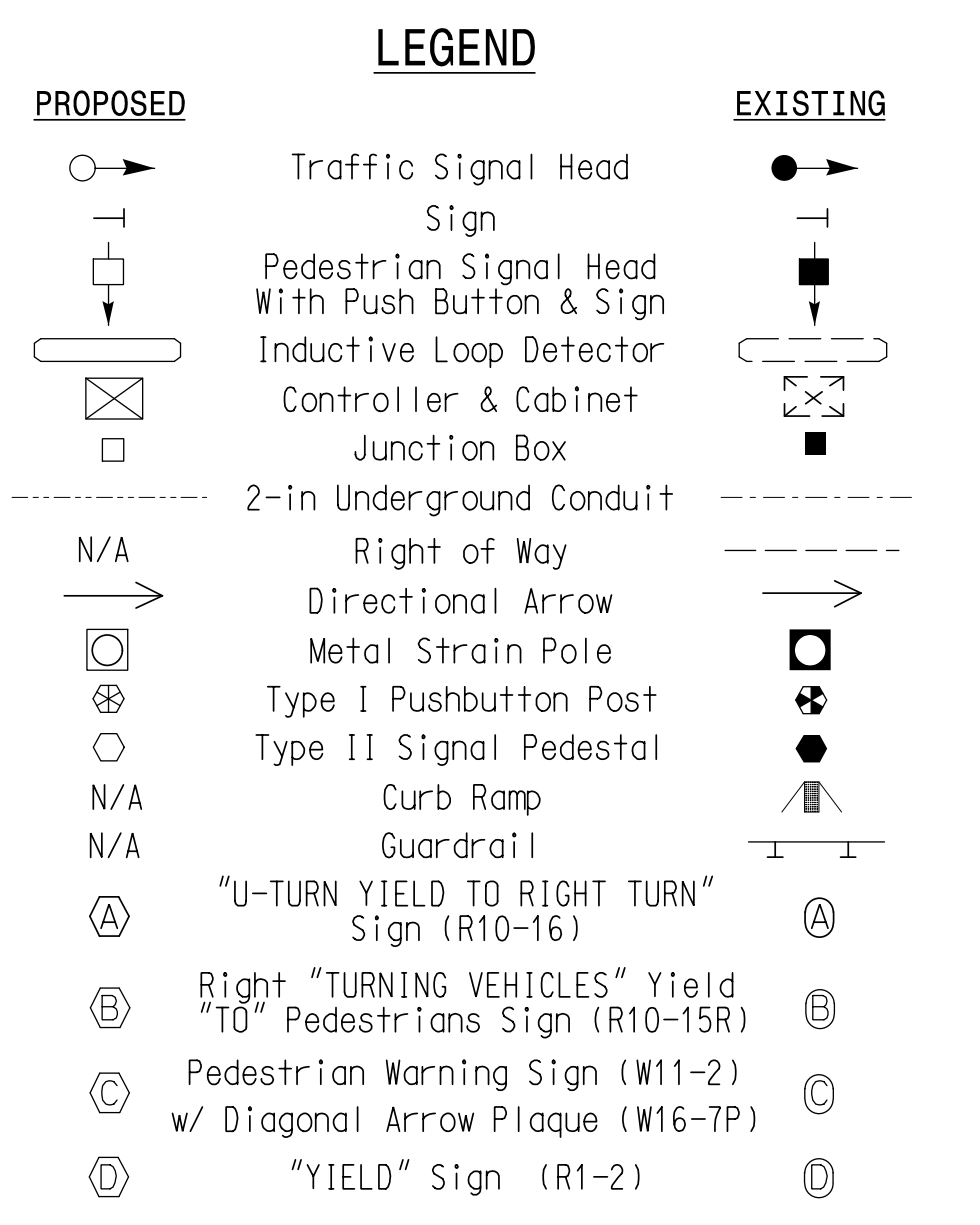
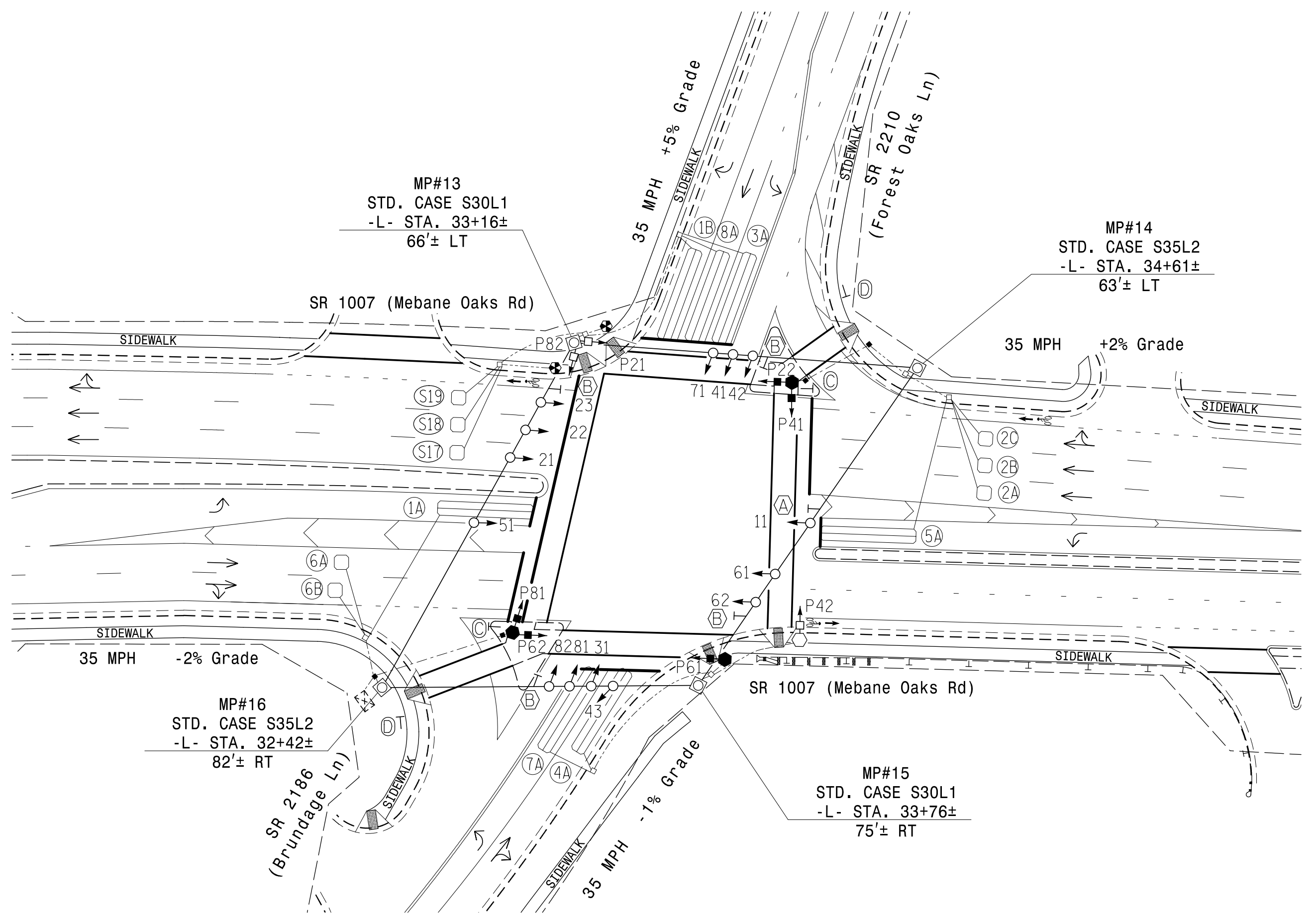
FUNCTION	PRE 3	PRE 5
Exit Phase(s)	2+6	2+6
Preempt Override	OFF	OFF
Delay Time	0	0
Ped Clear Through Yellow	Y	Y
Terminate Phases	N	N
Entrance Walk	1	1
Entrance Ped Clear	14	14
Entrance Min Green	1	1
Entrance Yellow Clear	25.5*	25.5*
Entrance Red Clear	25.5*	25.5*
Min Dwell Time	7	7
Preempt Input Extension Time	2	2
Preempt Max Time	120	120
Exit Yellow Clear	25.5*	25.5*
Exit Red Clear	25.5*	25.5*

* Time defaults to time used for phase during normal operation

ASC/3 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green *	7	10	7	7	7	10	7	7
Walk *	0	7	0	4	0	7	0	4
Ped Clear	0	14	0	25	0	15	0	28
Veh. Extension *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	20	90	20	30	20	90	20	30
Yellow	3.0	4.0	3.0	3.9	3.0	4.0	3.0	3.9
Red Clear	3.3	2.6	3.2	2.6	3.3	2.6	2.9	2.6
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Actuations B4 Add *	-	-	-	-	-	-	-	-
Seconds / Actuation *	-	-	-	-	-	-	-	-
Max Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Locking Detector	-	X	-	-	-	X	-	-
Recall Position	-	VEH. RECALL	-	-	-	VEH. RECALL	-	-
Dual Entry	-	-	-	X	-	-	-	X
Simultaneous Gap	X	X	X	X	X	X	X	X

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

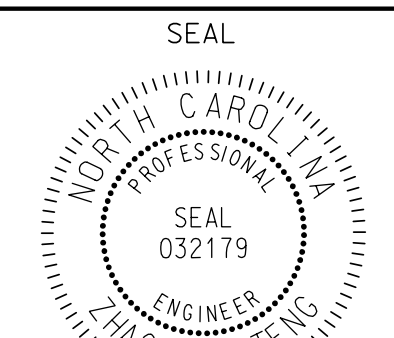


Signal Upgrade - Final Design (Sheet 1 of 2)

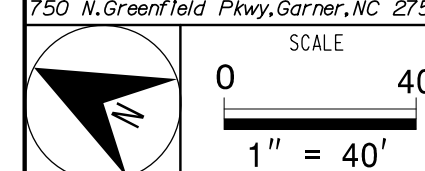
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane)
Division 7 Alamance County Mebane
PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng REVIEWED BY:



PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442



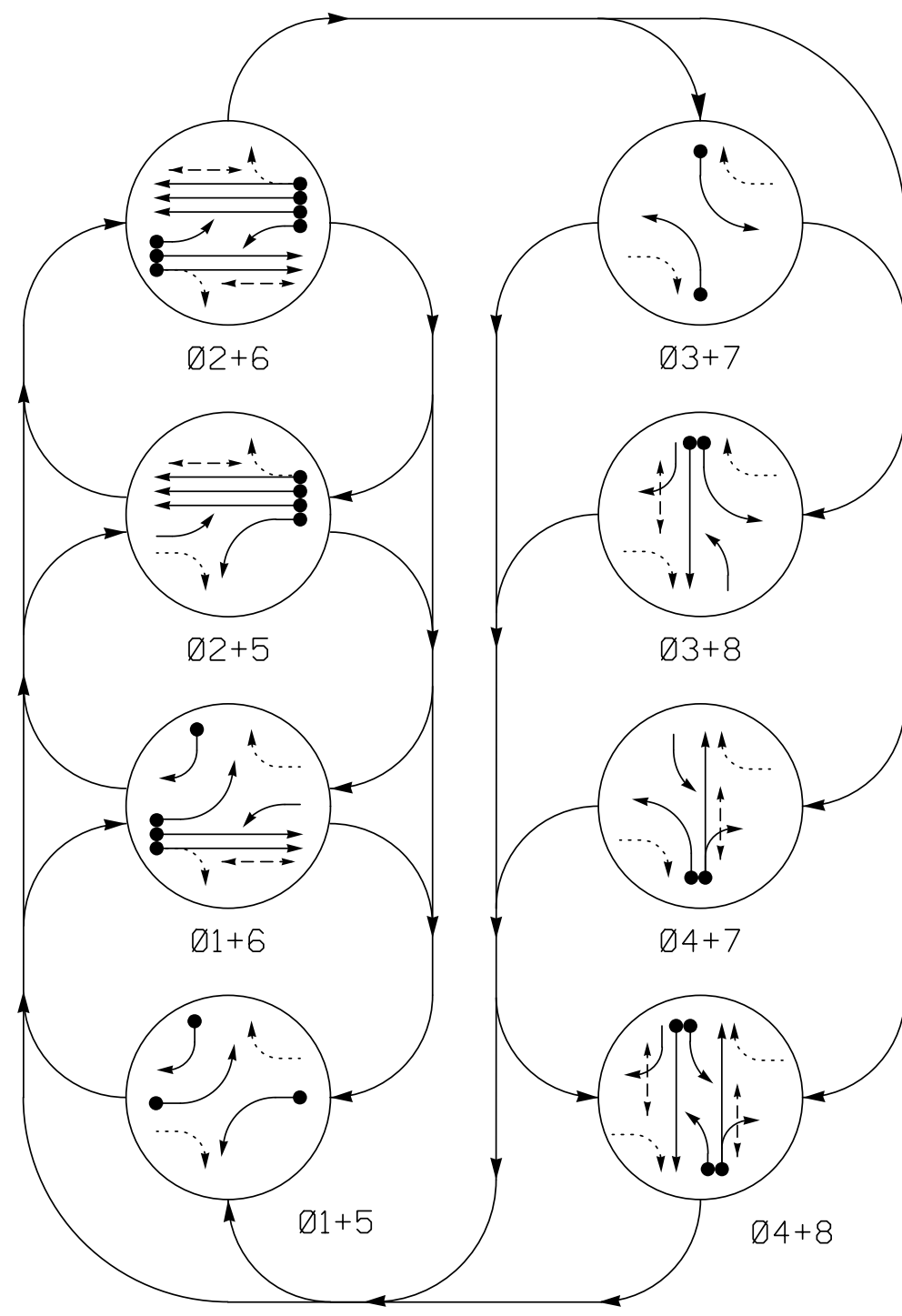
REVISIONS	INIT.	DATE

12/17/2019
DATE
SIG. INVENTORY NO. 07-1349

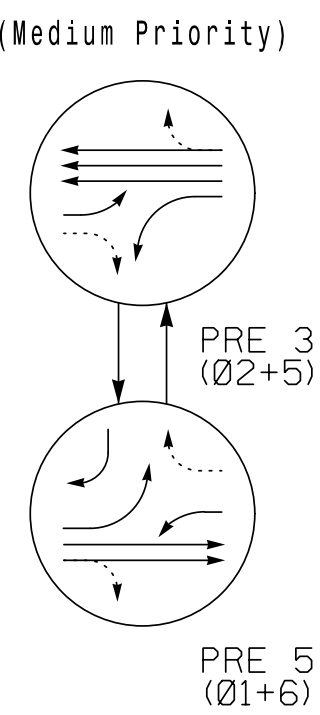
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DONGSON\$\$\$\$\$
\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$SYTIME\$\$\$\$\$

8 Phase
Fully Actuated w/ Emergency Vehicle Preemption
SR 1007 (Mebane Oaks Rd) CLS
Signal System: 10705

DEFAULT PHASING DIAGRAM



DEFAULT PHASING EV PREEMPT PHASES (Medium Priority)



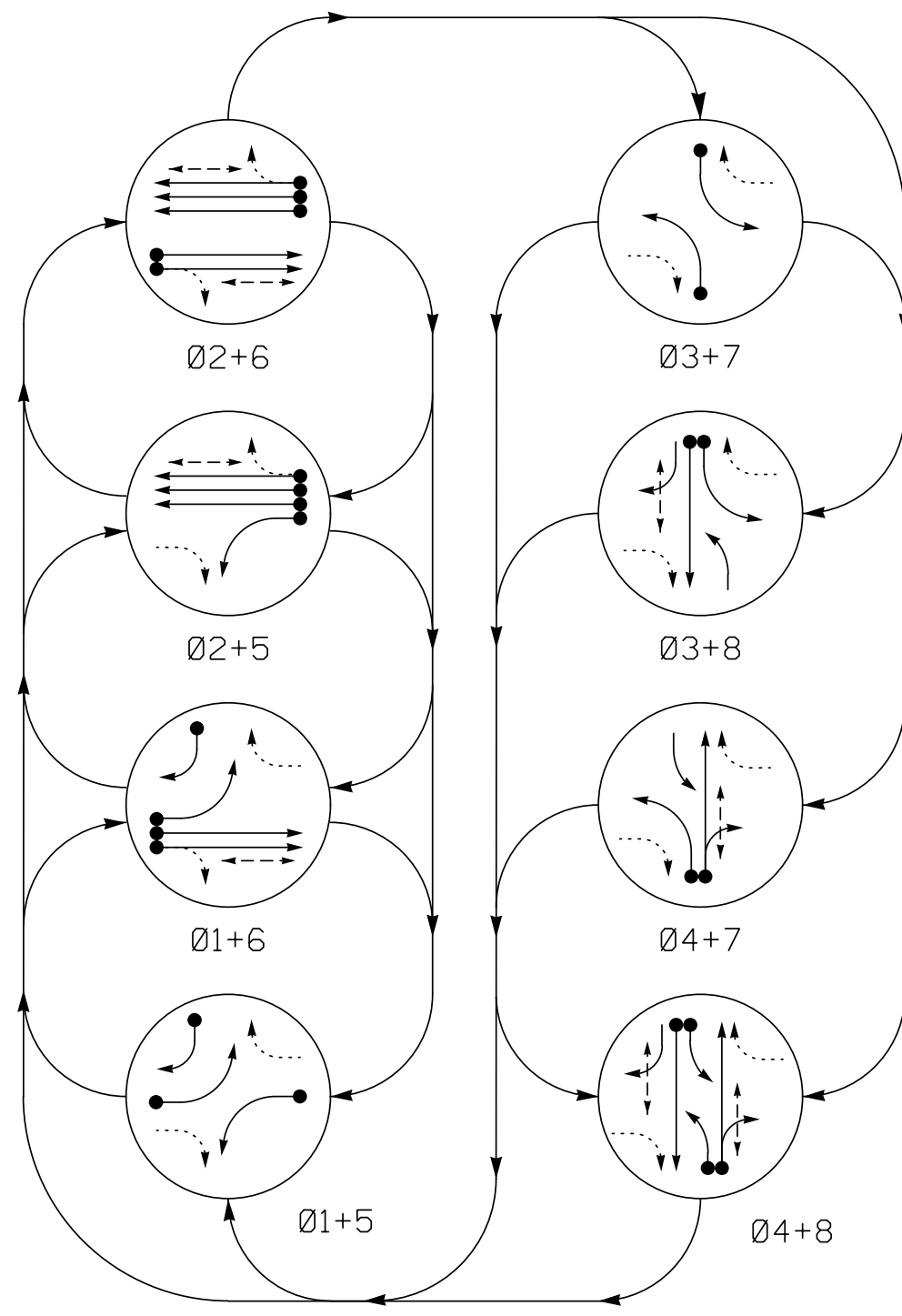
DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE										
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	Ø 3 + 7	Ø 3 + 8	Ø 4 + 7	Ø 4 + 8	PRE 3	PRE 5	FLASH
11	←	←	←	←	←	←	←	←	←	←	←
21, 22, 23	R	R	G	G	R	R	R	R	G	R	Y
31	←	←	←	←	←	←	←	←	←	←	←
41, 42, 43	R	R	R	R	R	R	G	G	R	R	R
51	←	←	←	←	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	R	R	R	R	G	Y
71	←	←	←	←	←	←	←	←	←	←	←
81	R	R	R	R	R	R	G	G	R	R	R
82	R	R	R	R	R	R	G	G	R	R	R
P21,P22	DW	DW	W	W	DW	DW	DW	DW	DW	DW	DRK
P41,P42	DW	DW	DW	DW	DW	DW	W	W	DW	DW	DRK
P61,P62	DW	W	DW	W	DW	DW	DW	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	DW	W	DW	W	DW	DW	DRK

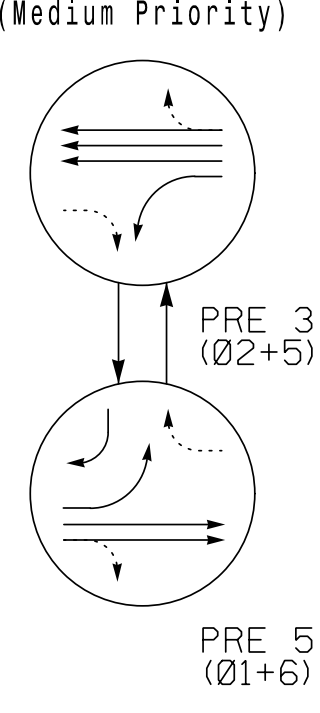
NOTES

- 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.
- Reposition existing pedestrian signal head numbered P41.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- This intersection features a GPS Emergency Vehicle Preemption system.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Closed loop system data:
Controller Asset #: 1349.

ALTERNATE PHASING DIAGRAM



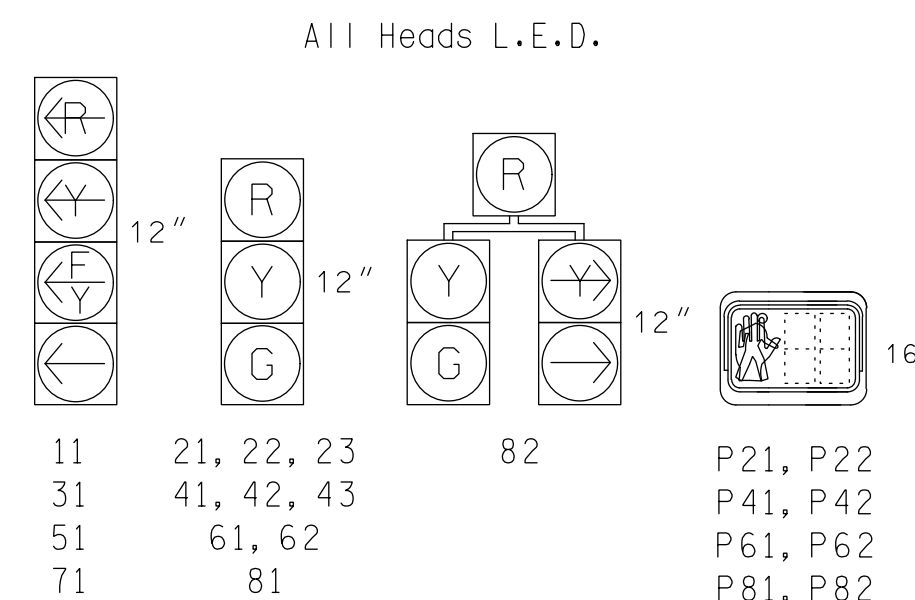
ALTERNATE PHASING EV PREEMPT PHASES (Medium Priority)



ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE										
	Ø 1 + 5	Ø 1 + 6	Ø 2 + 5	Ø 2 + 6	Ø 3 + 7	Ø 3 + 8	Ø 4 + 7	Ø 4 + 8	PRE 3	PRE 5	FLASH
11	←	←	←	←	←	←	←	←	←	←	←
21, 22, 23	R	R	G	G	R	R	R	R	G	R	Y
31	←	←	←	←	←	←	←	←	←	←	←
41, 42, 43	R	R	R	R	R	R	G	G	R	R	R
51	←	←	←	←	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	R	R	R	R	G	Y
71	←	←	←	←	←	←	←	←	←	←	←
81	R	R	R	R	R	R	G	G	R	R	R
82	R	R	R	R	R	R	G	G	R	R	R
P21,P22	DW	DW	W	W	DW	DW	DW	DW	DW	DW	DRK
P41,P42	DW	DW	DW	DW	DW	DW	W	W	DW	DW	DRK
P61,P62	DW	W	DW	W	DW	DW	DW	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

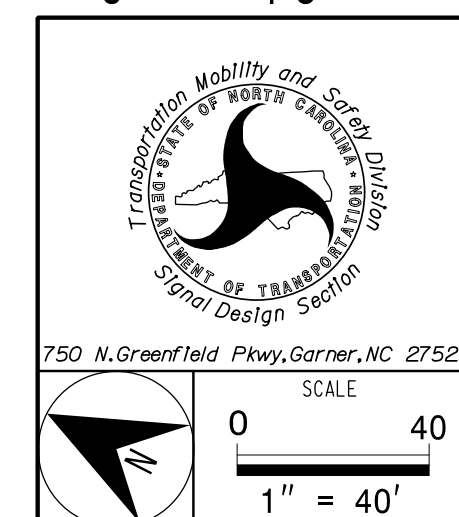


PHASING DIAGRAM DETECTION LEGEND

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

Signal Upgrade - Final Design (Sheet 2 of 2)

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442



SR 1007 (Mebane Oaks Road) at SR 2186 (Brundage Lane) / SR 2210 (Forest Oaks Lane)	
Division 7 Alamance County	Mebane
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:
REVISIONS	INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

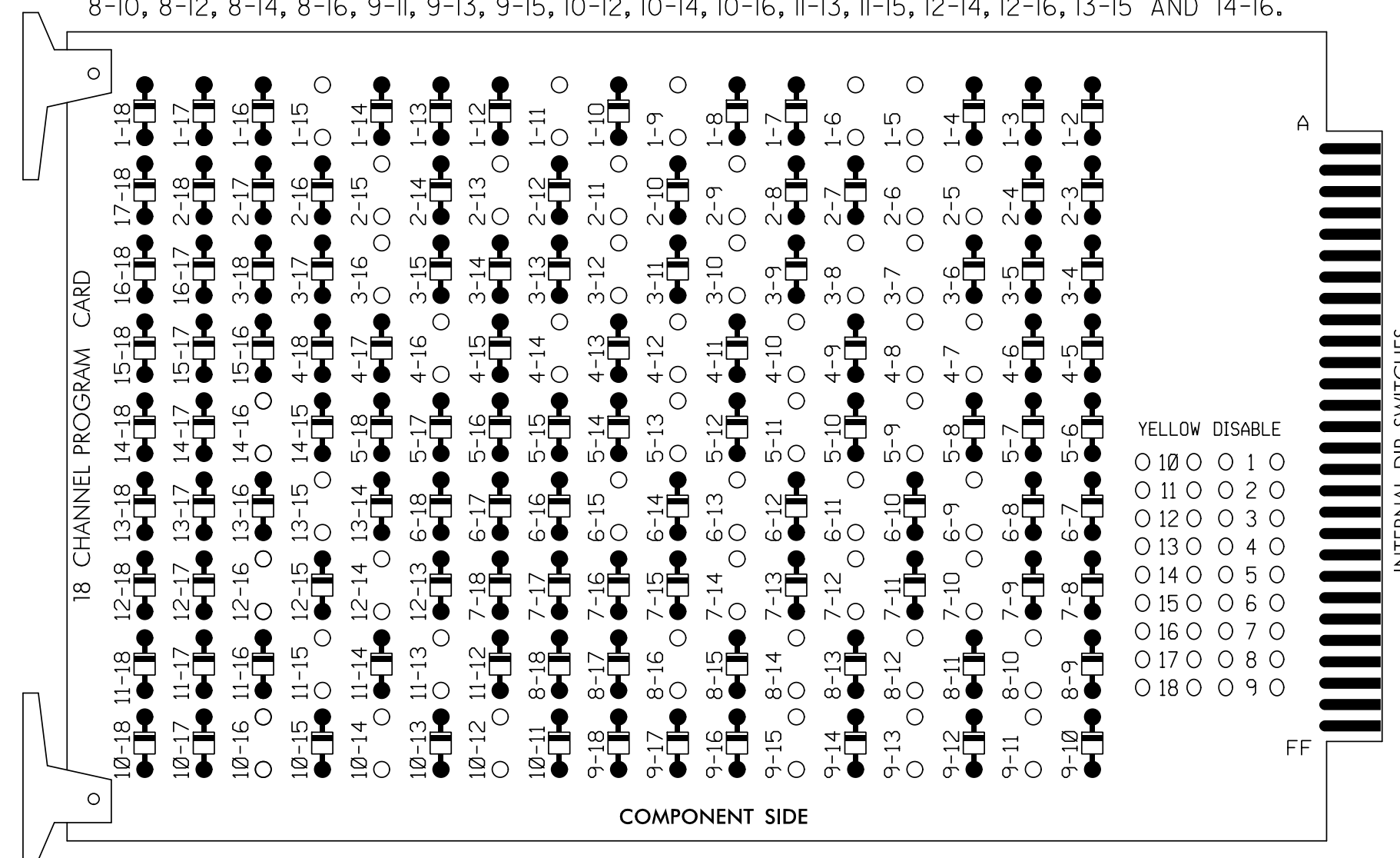
SEAL
ZHAOLONG TENG
ENGINEER
032179

DATE: 12/17/2019
SIG. INVENTORY NO. 07-1349

EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 7-10, 7-12, 7-14, 8-10, 8-12, 8-14, 8-16, 9-11, 9-13, 9-15, 10-12, 10-14, 10-16, 11-13, 11-15, 12-14, 12-16, 13-15 AND 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = 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 Walk and phase 6 Walk.
4. The cabinet and controller are part of the SR 1007 (Mebane Oaks Rd) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET.....332 W/ AUX
SOFTWARE.....ECONOLITE ASC/3-2070
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6,S7,S8,S9, S10,S11,S12,AUX S1,AUX S2, AUX S4,AUX S5
PHASES USED.....1,2,2PED,3,4,4PED,5,6,6PED 7,8,8PED

OVERLAP "A".....*
OVERLAP "B".....*
OVERLAP "C".....*
OVERLAP "D".....*
* See overlap programming detail on sheet 2

SIGNAL HEAD HOOK-UP CHART

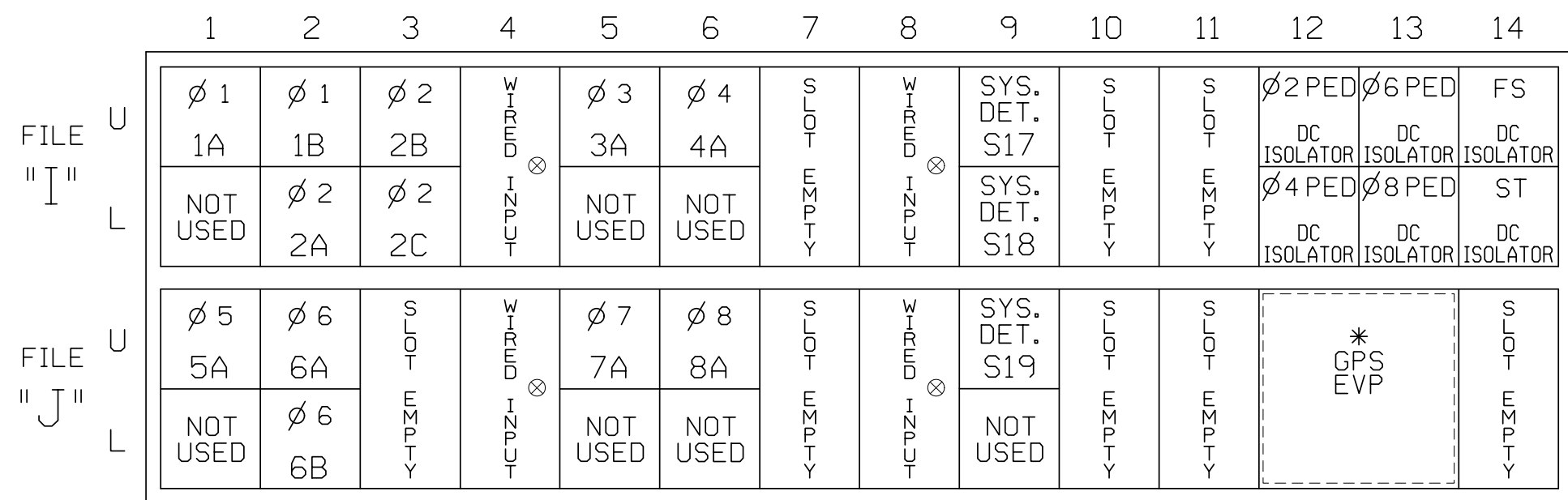
Table with columns for LOAD SWITCH NO., PHASE, SIGNAL HEAD NO., and various signal types (RED, YELLOW, GREEN, etc.) mapped to terminals S1-S12 and AUX S1-S6.

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
See GPS Preemption Installation Note Below
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. Includes a NOTE about installing DC isolators in input file slots 112 and 113.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

SPECIAL DETECTOR NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

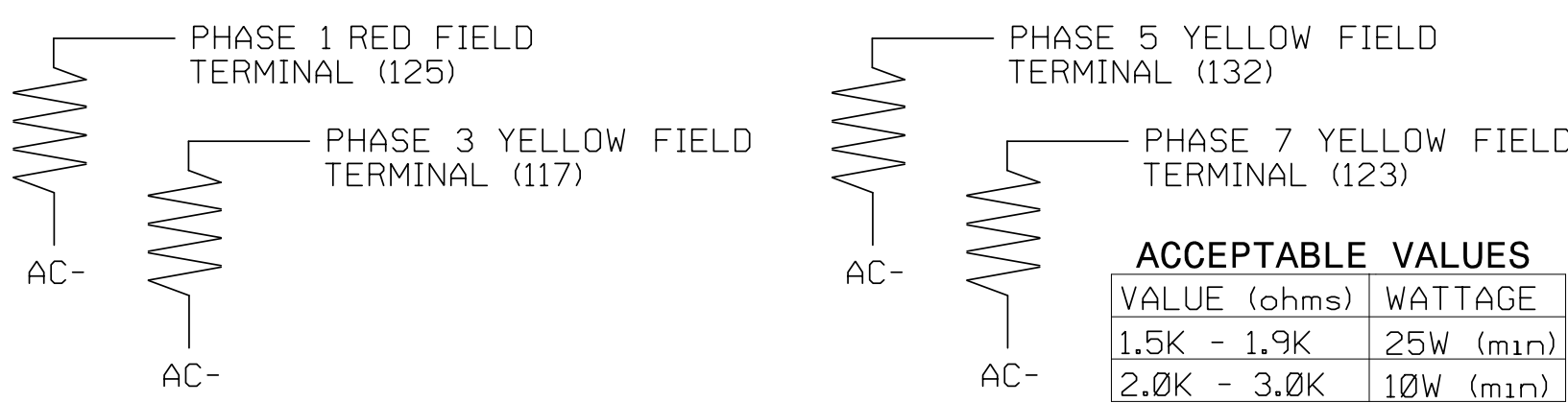
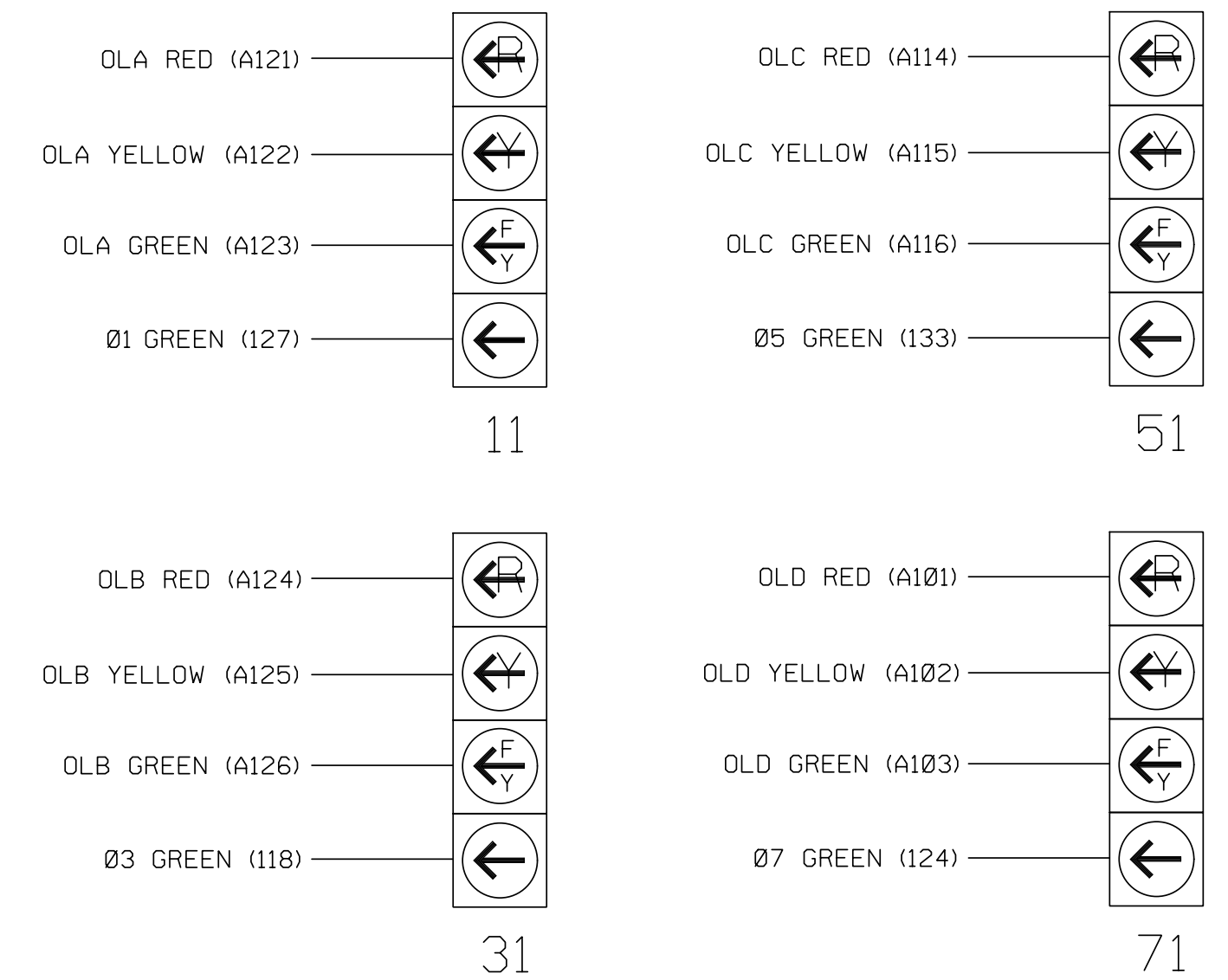


Table with columns: VALUE (ohms), WATTAGE. Values: 1.5K - 1.9K, 25W (min); 2.0K - 3.0K, 10W (min).

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

Final Design
Electrical Detail - Sheet 1 of 5

Project information including address (SR 1007 Mebane Oaks Road, SR 2186 Brundage Lane, SR 2210 Forest Oaks Lane), division (Alamance County), and designer (Accelerate Engineering, PLLC).

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Professional Engineer seal for Zhaolong Teng, State of North Carolina, License No. 032179.

ECONOLITE ASC/3-2070 EMERGENCY VEHICLE PREEMPT PROGRAMMING DETAIL

(program controller as shown)

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

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

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

```

PREEMPT PLAN [ 3]  ENABLE....YES
VEH/PED 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
OVERLAP A B C D E F G H I J K L M N O P
TRKCLR V . . . . .
TRKCLR O . . . . .
ENA TRL . . . . .
DWEL VEH . X . . X . . . . .
DWEL PED . . . . .
DWEL OLPF1 .F1 . . . . .
CYC VEH . . . . .
CYC PED . . . . .
CYC OLP . . . . .
EXIT PH . X . . . X . . . . .
EXIT CAL . . . . .
SP FUNC . . . . .
    
```

```

ENABLE... YESIPMT OVRIDE..INTERLOCK. NO
DET LOCK... XIDELAY.. 0IINHIBIT... 0
OVERIDE FL. .IDURATION 0ICLR-GRN... NO
TERM OLP. NOIPC>YEL YESITERM PH NO
PED DARK.. NOITC RESRV NOIDWELL FL OFF
LINK PMT...0IX FLCOLR REDIEXIT OPT. OFF
X TMG PLN...0IRE-SERV.. 0IFLT TYPE.HARD
FREE DUR PMTIR1 NOIR2 NOIR3 NOIR4 NO
--TIMING-----WALKIPED CLIMN GRI YELI RED
ENTRANCE TM. 1I 14I 1I25.5I25.5
-----MIN GRIEXT GRIMX GRI YELI RED
TRACK CLEAR 0I 0I 0I25.5I25.5
-----MIN DLIPMTEXTIMX TMI YELI RED
DWL/CYC-EXIT 7I 2.0I 120I25.5I25.5
PMT ACTIVE OUT..ON PMT ACT DWELL...NO
OTHER - PRI PMT.OFF NON-PRI PMT.....OFF
INH EXT TIME... 0.0 PED PR RETURN...OFF
PRIORITY RETURN.OFF QUEUE DELAY.... OFF
COND DELAY.....OFF
PHASES 1 2 3 4 5 6 7 8
PR RTN% 0 0 0 0 0 0 0 0
PHASES 9 10 11 12 13 14 15 16
PR RTN% 0 0 0 0 0 0 0 0
    
```

PROGRAM EXTEND TIME ON OPTICAL DETECTOR UNITS FOR 2.0 SEC.

ECONOLITE ASC/3-2070 PREEMPT FILTERING PROGRAMMING DETAIL

(program controller as shown)

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

```

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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349
DESIGNED: November 2019
SEALED: 12/17/2019
REVISED: N/A

Final Design
Electrical Detail - Sheet 3 of 5

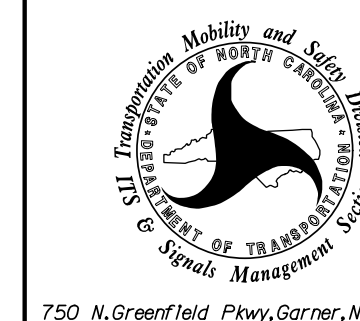
ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1007 (Mebane Oaks Road)
at
SR 2186 (Brundage Lane) /
SR 2210 (Forest Oaks Lane)

PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:

REVISIONS	INIT.	DATE

Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA
 PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG

DocuSigned by:
 Zhaolong Teng
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-1349

\$\$\$SYTIME\$\$\$\$
 \$\$\$DOCSIGN\$\$\$\$
 \$\$\$SERIALNAME\$\$\$

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

(program controller as shown)

IMPORTANT!

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

- 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 "0".

```

VEH DETECTOR [ 1]  VEH DET PLAN [ 2]
TYPE: S-STANDARD
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... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

← NOTICE VEH DET PLAN 2

← ENSURE DELAY IS SET TO '0'

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

ENSURE PHASE IS SET 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
  
```

← NOTICE VEH DET PLAN 2

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

```

VEH DETECTOR [ 5]  VEH DET PLAN [ 2]
TYPE: S-STANDARD
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... 0.0
USE ADDED INITIAL . CROSS SWITCH PH.. 0
LOCK IN..... NONE NTCIP VOL . OR OCC .
PMT QUEUE DELAY. NO
  
```

← NOTICE VEH DET PLAN 2

← ENSURE DELAY IS SET TO '0'

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

ENSURE PHASE IS SET 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
  
```

← NOTICE VEH DET PLAN 2

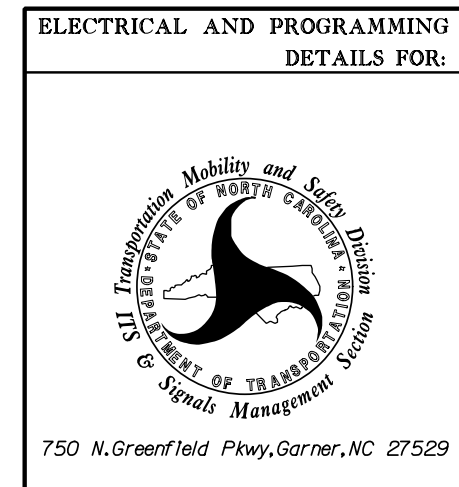
END PROGRAMMING

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 07-1349
 DESIGNED: November 2019
 SEALED: 12/17/2019
 REVISED: N/A

\$\$\$\$\$SYTIME\$\$\$\$\$
\$\$\$\$\$DATE\$\$\$\$\$
\$\$\$\$\$USERNAME\$\$\$\$\$

Final Design
Electrical Detail - Sheet 4 of 5

PREPARED IN THE OFFICE OF:
AE Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442



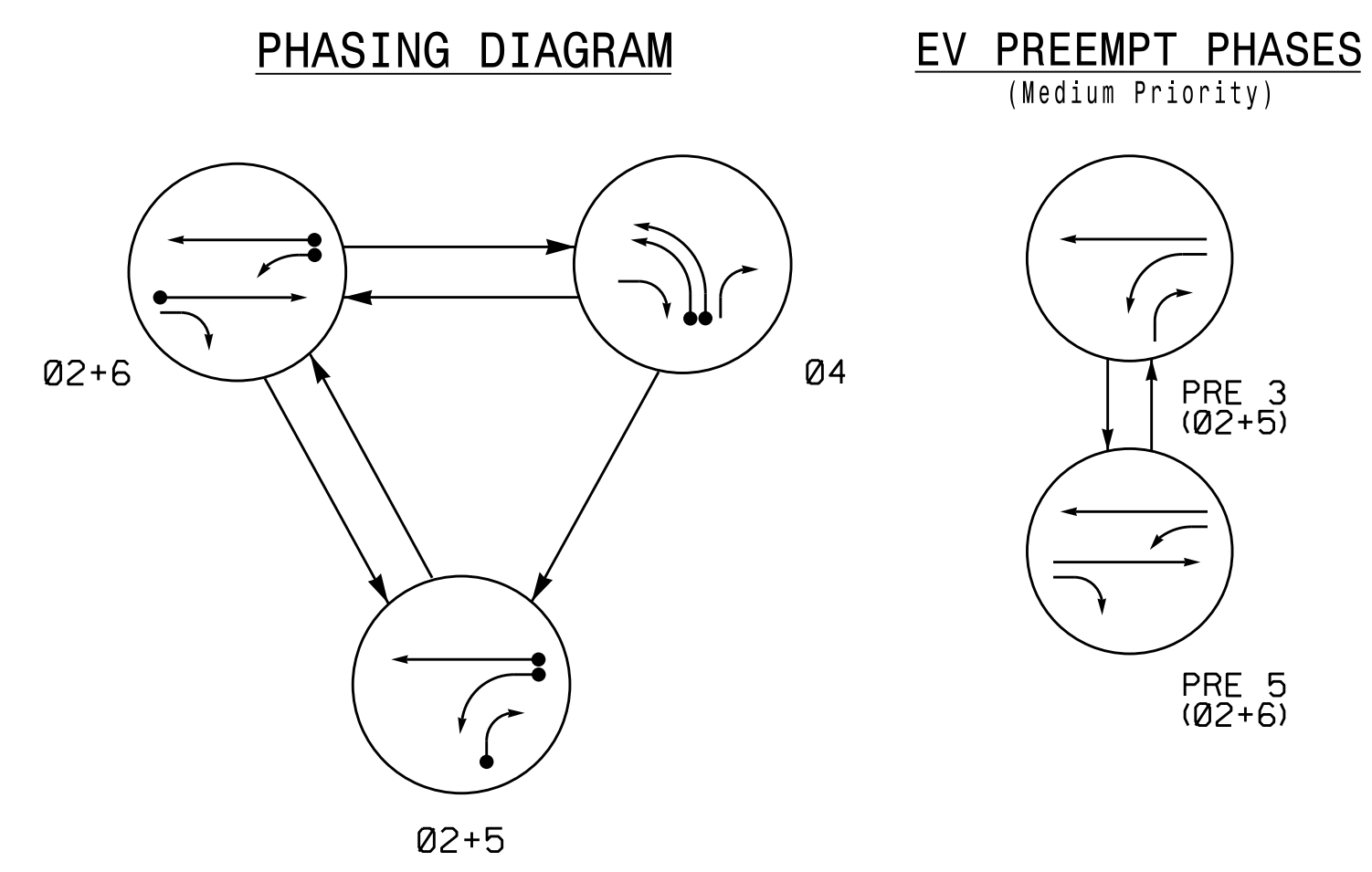
ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1007 (Mebane Oaks Road)	
		at	
		SR 2186 (Brundage Lane) /	
		SR 2210 (Forest Oaks Lane)	
Division 7	Alamance County	Mebane	
PLAN DATE: November 2019	REVIEWED BY: Z. "Gavin" Teng		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS	INIT.	DATE	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
 NORTH CAROLINA
 PROFESSIONAL ENGINEER
 SEAL 032179
 ZHAOLONG TENG

DocuSigned by:
 Zhaolong Teng
 12/17/2019
 DATE
 SIG. INVENTORY NO. 07-1349

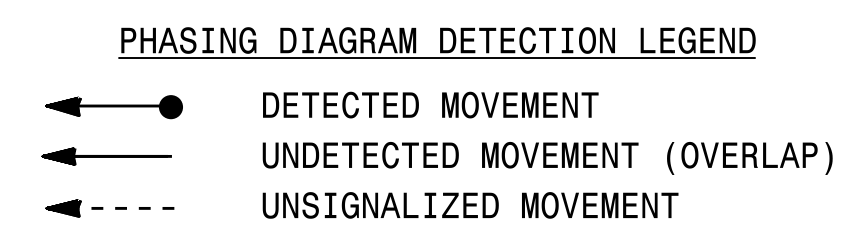
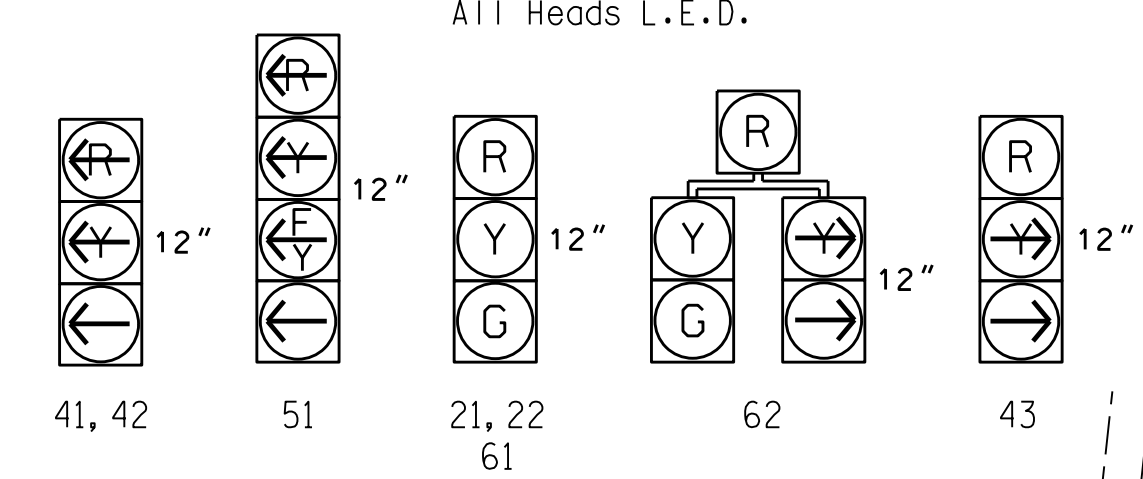
3 Phase Fully Actuated w/ Emergency Vehicle Preemption SR 1007 (Mebane Oaks Rd) CLS Signal System #: 10705



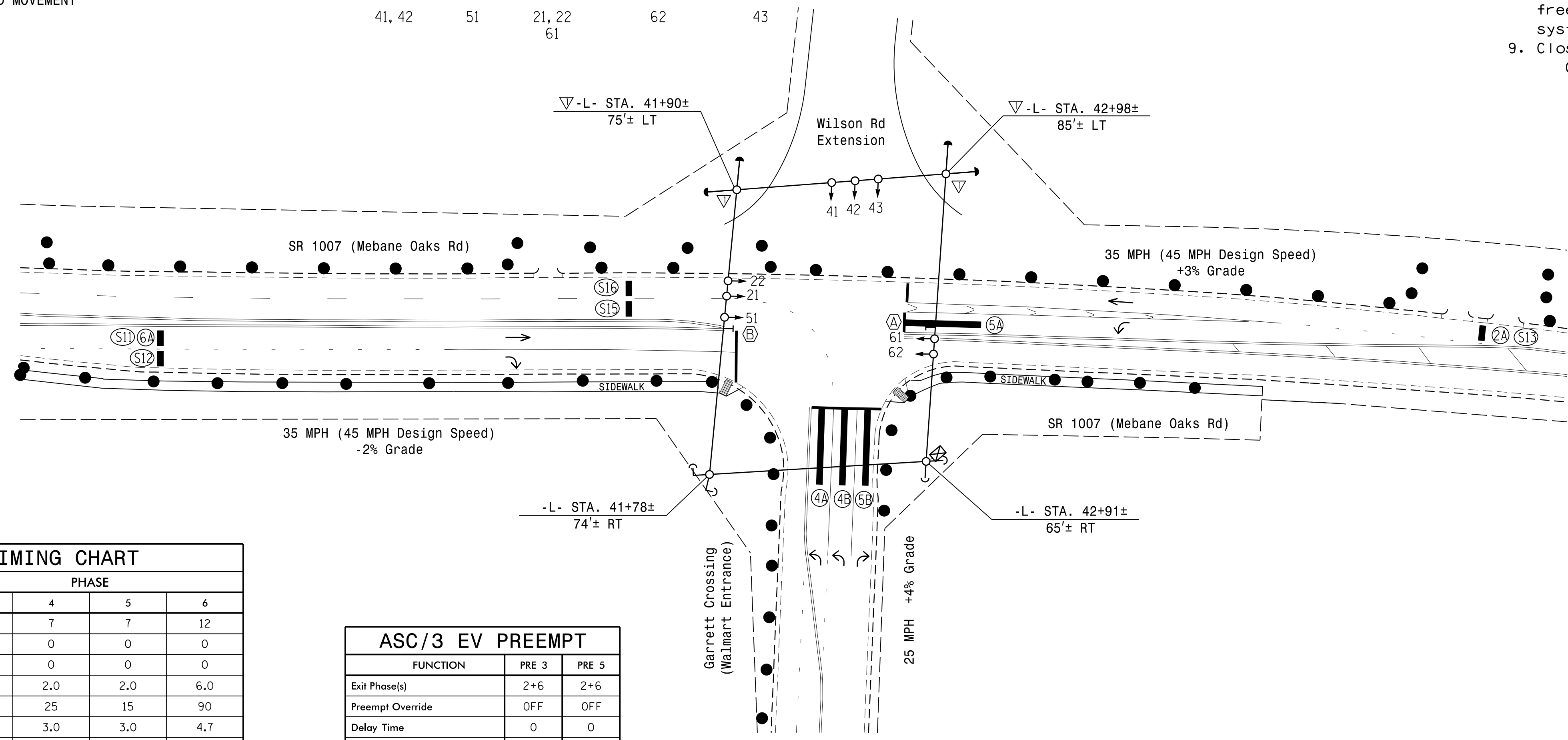
SIGNAL FACE	PHASE					
	02+5	02+6	04	PRE 3	PRE 5	FLASH
21, 22	G	G	R	G	G	Y
41, 42	R	R	L	R	R	R
43	L	R	L	R	R	R
51	L	R	R	L	R	Y
61	R	G	R	R	G	Y
62	R	G	R	R	G	Y

ZONE	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/S13	6X6	300	*	*	2	Yes	-	-	X	N	X	*
4A	6X40	0	*	*	4	Yes	-	3	-	S	-	*
4B	6X40	0	*	*	4	Yes	-	-	-	S	-	*
5A	6X40	0	*	*	5	Yes	-	15	-	S	-	*
5B	6X40	0	*	*	5	Yes	-	15	-	S	-	*
6A/S11	6X6	300	*	*	6	Yes	-	-	X	N	X	*
S12	6x6	300	*	*	-	No	-	-	-	N	X	*
S15	6x6	+145	*	*	-	No	-	-	-	N	X	*
S16	6x6	+145	*	*	-	No	-	-	-	N	X	*

SIGNAL FACE I.D.

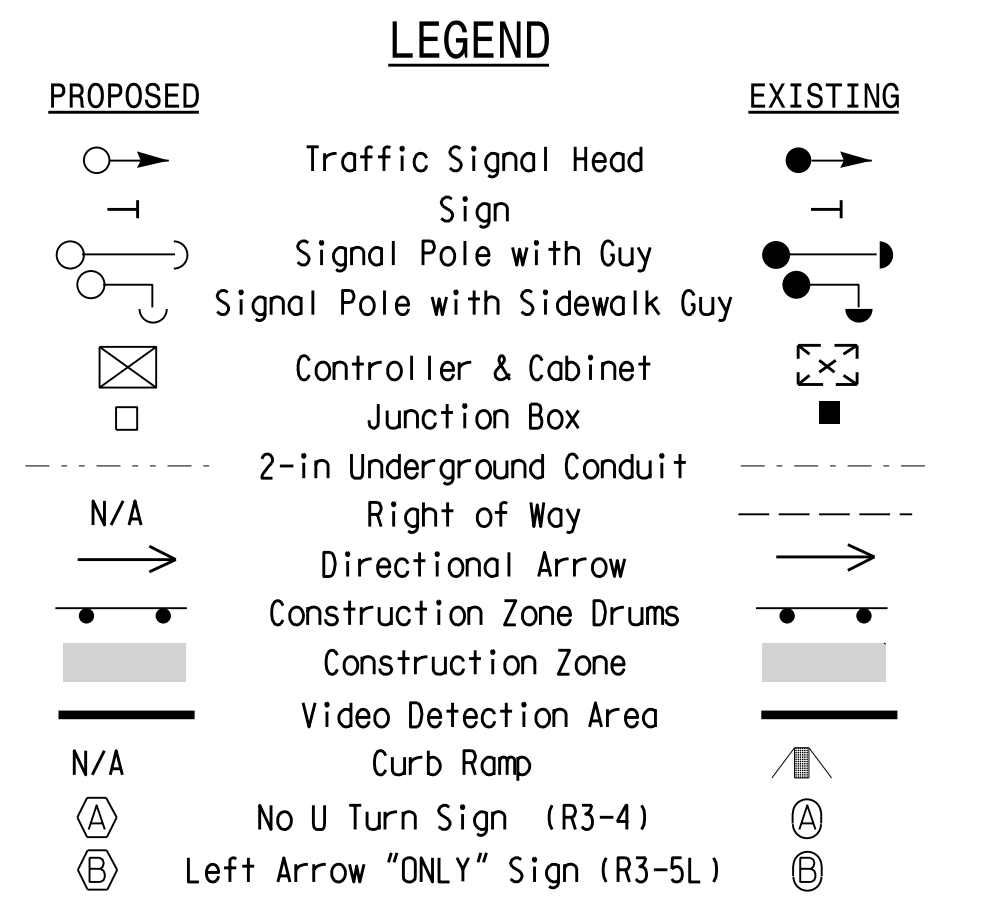


- NOTES
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
 - Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
 - Phase 5 may be lagged.
 - Set all detector units to presence mode.
 - Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
 - Pavement markings are existing.
 - Relocate the existing GPS Emergency Vehicle Preemption system.
 - Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
 - Closed loop system data: Controller Asset #: 2060.



FEATURE	PHASE			
	2	4	5	6
Min Green *	12	7	7	12
Walk *	0	0	0	0
Ped Clear	0	0	0	0
Veh. Extension *	6.0	2.0	2.0	6.0
Max 1 *	90	25	15	90
Yellow	4.7	3.0	3.0	4.7
Red Clear	1.2	2.4	2.1	1.2
Red Revert	2.0	2.0	2.0	2.0
Actuations B4 Add *	0	-	-	0
Seconds /Actuation *	2.5	-	-	2.5
Max Initial *	34	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.0	-	-	3.0
Locking Detector	X	-	-	X
Recall Position	VEH. RECALL	-	-	VEH. RECALL
Dual Entry	-	-	-	-
Simultaneous Gap	X	X	X	X

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



* 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.

* Time defaults to time used for phase during normal operation

Signal Upgrade - Temporary Design 1 (TMP Phase I)

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
 875 Walnut Street, Suite 316
 Cary, NC 27511
 Tel: 919.263.5678 Fax: 919.263.5687
 NC License No. P-1442

REVISION SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 026486
 ROBERT J. ZIEGLER
 6/10/2021
 DATE

TRANSPORTATION MOBILITY AND SAFETY DIVISION
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 Signal Design Section
 750 N. Greenfield Pkwy, Garner, NC 27529

SR 1007 (Mebane Oaks Rd) at Garrett Crossing (Walmart Entrance)
 Division 7 Alamance County Mebane
 PLAN DATE: November 2019 REVIEWED BY: Z. "Gavin" Teng
 PREPARED BY: Z. "Gavin" Teng REVIEWED BY:
 REVISIONS
 REVISED POLE LOCATIONS FOR WILSON RD EXT.
 INJd DATE 6/10/21

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 Not a certified document as to the Original Document but Only as to the Revisions - This document originally Issued and sealed by Zhaolong Teng, PE, #032179, on 12/17/2019. This document is only certified as to the revisions.
 DATE
 SIG. INVENTORY NO. 07-2060T1

I:\07-2060\2021_12\20 5:41:15 AM S:\Signal\Signal Design\Section\Central Region\01\741-5711\07-2060_rev072060T1_510_rev_20210610.dgn
 RZT:embo