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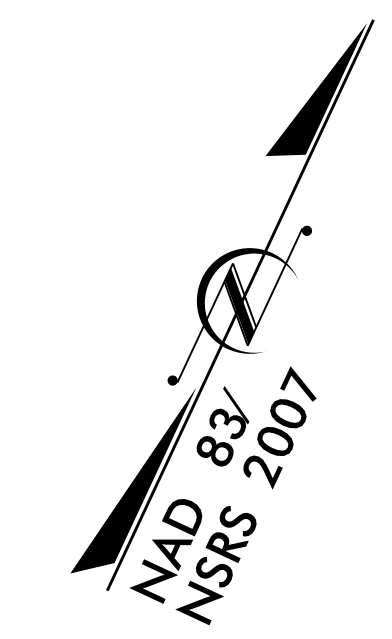
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

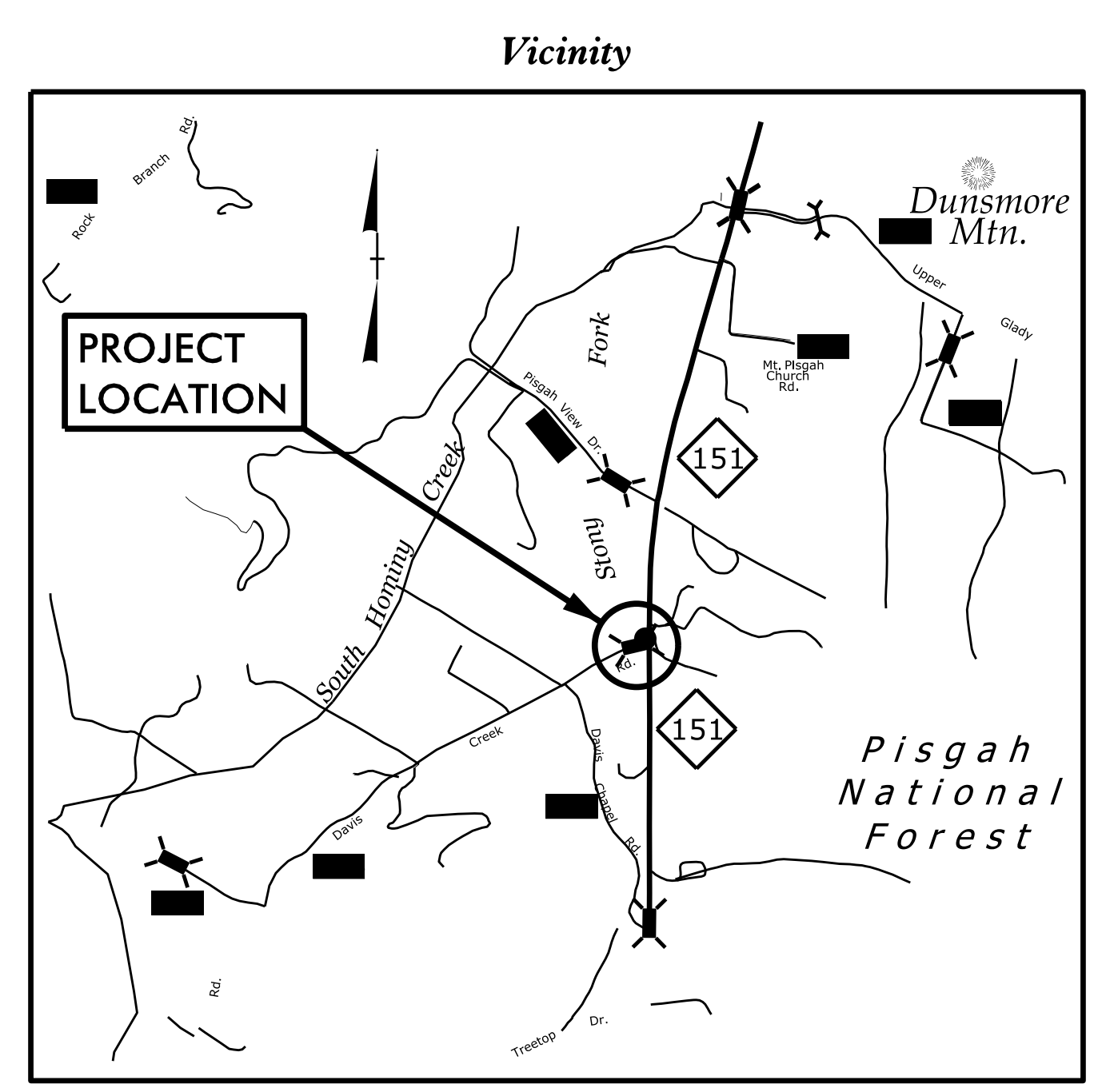
BUNCOMBE COUNTY

**LOCATION: BRIDGE NO. 416 OVER STONY FORK CREEK
ON SR 1103 (Davis Creek Road)**

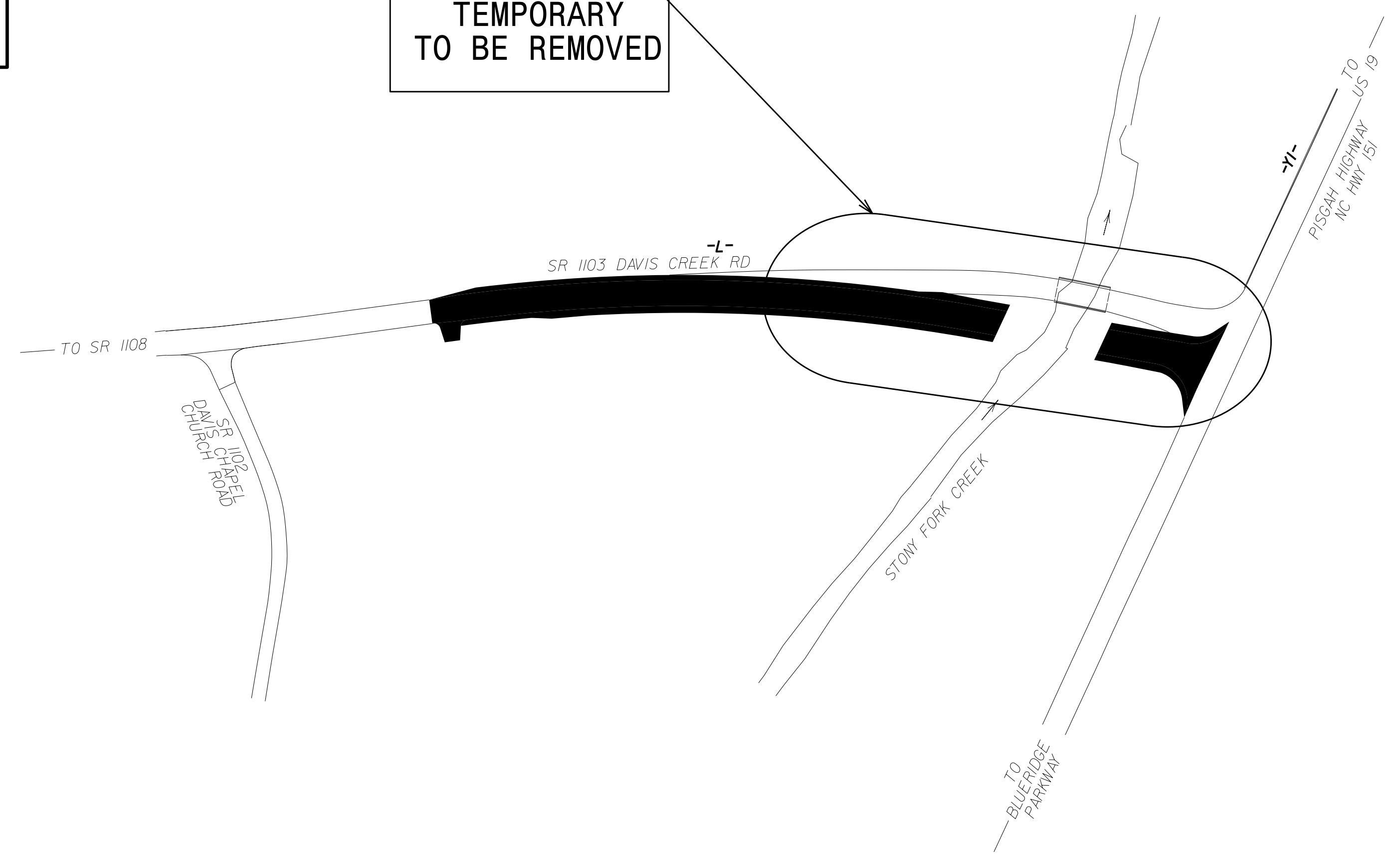
TYPE OF WORK: TRAFFIC SIGNAL INSTALLATION



Project: B-5396



13-1286
TEMPORARY
TO BE REMOVED



Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.

Index of Plans		
Sheet #	Reference #	Location/Description
Sig. 1.0	-----	Title Sheet
Sig. 2.0-2.2	13-1286 T1-T2	NC 151 (Pisgah Highway) at SR 1103 (Davis Creek Road)

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

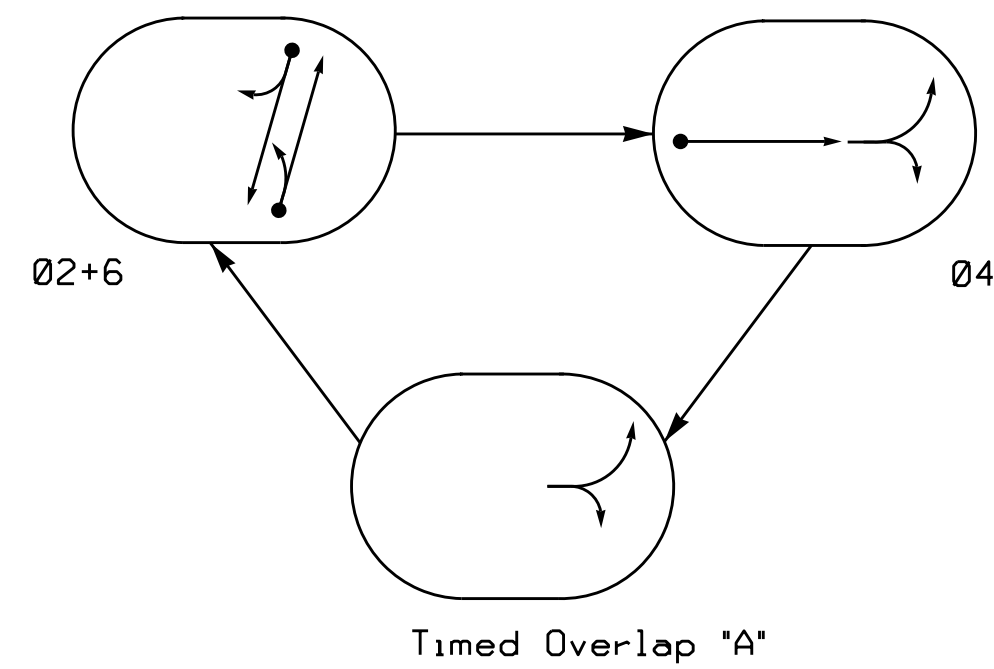
Zachary M. Little, PE - Signals Project Engineer
George C. Brown, PE - Signal Equipment Design Engineer

Prepared In the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY
DIVISION

750 N. Greenfield Parkway, Garner, NC 27529

14-DEC-2015 10:23
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PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

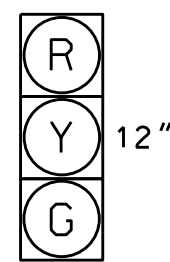
- → DETECTED MOVEMENT
- → UNDETECTED MOVEMENT (OVERLAP)
- → UNSIGNALIZED MOVEMENT
- - - - → PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE			
	2	4	6	TOL "A"
21, 22	G	R	R	R
41, 42	R	G	R	R
43, 44	R	G	G	R
61, 62	G	R	R	R

SIGNAL FACE I.D.

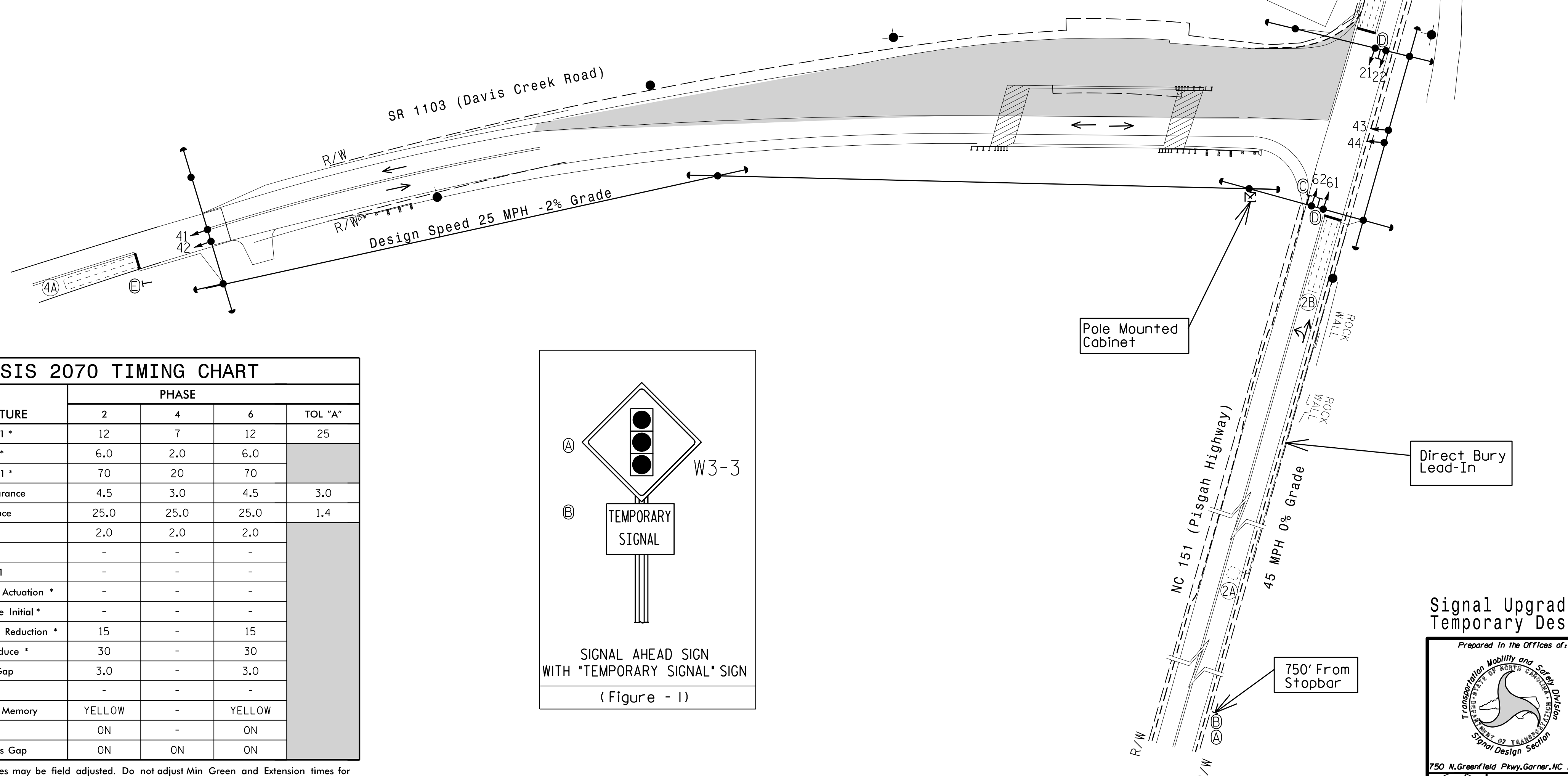
All Heads L.E.D.



21, 22
41, 42
43, 44
61, 62

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS				DETECTOR PROGRAMMING								
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	300	5	-	2	-	Y	-	-	-	-	-
2B	6X40	0	2-4-2	-	2	Y	Y	Y	2	5	-	-
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
6A	6X6	300	5	-	6	-	Y	-	-	-	-	-
6B	6X6	0	2-4-2	-	6	Y	Y	-	2	5	-	-



2 Phase Fully Actuated Isolated

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Reposition existing signal heads numbered 43 & 44.
- Set all detector units to presence mode.
- Program controller to start up in phase 2 red
- Program all phases for rest red.

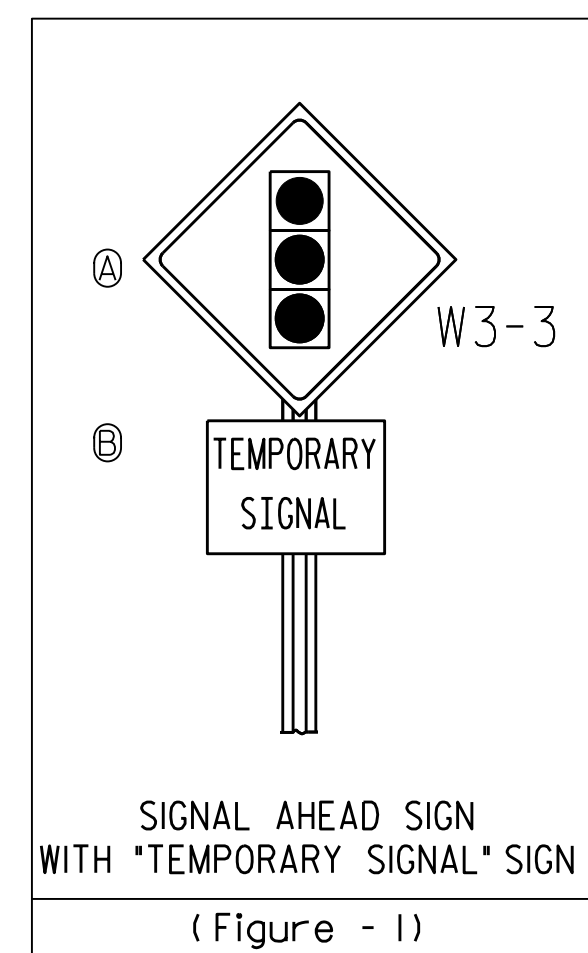
LEGEND

- | PROPOSED | EXISTING |
|-------------------------------------------------------|-------------------------------------------------------|
| ○ → Traffic Signal Head | ● → Traffic Signal Head |
| ○ → Modified Signal Head | N/A |
| ○ → Pedestrian Signal Head With Push Button & Sign | ○ → Pedestrian Signal Head With Push Button & Sign |
| ○ → Signal Pole with Guy | ○ → Signal Pole with Guy |
| ○ → Signal Pole with Sidewalk Guy | ○ → Signal Pole with Sidewalk Guy |
| □ → Inductive Loop Detector | □ → Inductive Loop Detector |
| □ → Controller & Cabinet | □ → Controller & Cabinet |
| □ → Junction Box | □ → Junction Box |
| - - - - → 2-in Underground Conduit | - - - - → 2-in Underground Conduit |
| N/A → Right of Way | - - - - → Right of Way |
| N/A → Directional Arrow | → → Directional Arrow |
| N/A → Guardrail | --- → Guardrail |
| █ → Construction Zone | █ → Construction Zone |
| (A) → Sign Ahead Warning Sign (W3-3) (See Figure - 1) | (A) → Sign Ahead Warning Sign (W3-3) (See Figure - 1) |
| (B) → "TEMPORARY SIGNAL" Plaque (See Figure - 1) | (B) → "TEMPORARY SIGNAL" Plaque (See Figure - 1) |
| (C) → "NO TURN ON RED" Sign (R10-11) | (C) → "NO TURN ON RED" Sign (R10-11) |
| (D) → "TEMPORARY SIGNAL" Sign | (D) → "TEMPORARY SIGNAL" Sign |
| (E) → "STOP HERE ON RED" Sign (R10-6) | (E) → "STOP HERE ON RED" Sign (R10-6) |

OASIS 2070 TIMING CHART

FEATURE	PHASE			
	2	4	6	TOL "A"
Min Green 1 *	12	7	12	25
Extension 1 *	6.0	2.0	6.0	
Max Green 1 *	70	20	70	
Yellow Clearance	4.5	3.0	4.5	3.0
Red Clearance	25.0	25.0	25.0	1.4
Red Revert	2.0	2.0	2.0	
Walk 1 *	-	-	-	
Don't Walk 1	-	-	-	
Seconds Per Actuation *	-	-	-	
Max Variable Initial *	-	-	-	
Time Before Reduction *	15	-	15	
Time To Reduce *	30	-	30	
Minimum Gap	3.0	-	3.0	
Recall Mode	-	-	-	
Vehicle Call Memory	YELLOW	-	YELLOW	
Dual Entry	ON	-	ON	
Simultaneous Gap	ON	ON	ON	

* 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 Temporary Design (TCP - Phases III)

Prepared in the Offices of:
TRANSPORTATION MOBILITY AND SAFETY SOLUTIONS
 A DIVISION OF NORTH CAROLINA TRANSPORTATION TRUST
 Signal Design Section
 750 N. Greenfield Pkwy, Garner, NC 27529

NC 151 (Pisgah Highway) at SR 1103 (Davis Creek Road)

Division 13 Buncombe County Candler
 PLAN DATE: November 2015 REVIEWED BY: Z. Little
 PREPARED BY: M. Mahbooba REVIEWED BY:

REVISIONS: INIT. DATE

SCALE: 1"=40'

DocuSigned by: *Z. Little* 11/23/2015
 0021EF0D4F5341F DATE

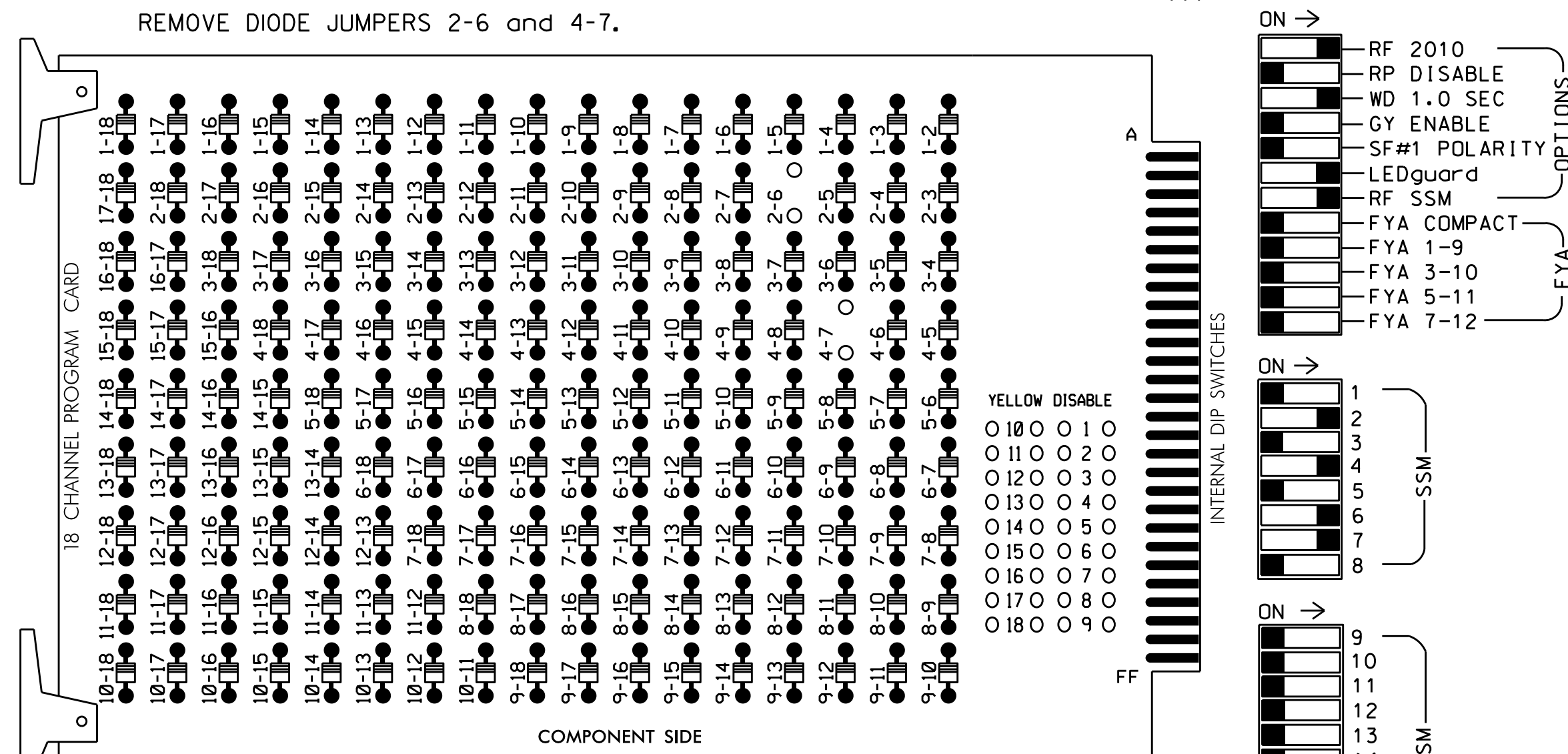
SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 030530
 M. LITTLE
 11/23/2015

SIG. INVENTORY NO. 13-1286 T2

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 11/23/2015 10:49:00 am
 mmahbooba

EDI MODEL 2018ECL-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. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

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 2 and 6 for Dual Entry.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2, 4 and 6 for Red Rest.
5. Program phase 2 for Startup Red Clear.
6. Program phase 2 as First Phases.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	OLA	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	NU	NU	61,62	NU	43,44	NU	NU
RED		128			101			134		122		
YELLOW		129			102			135		123		
GREEN		130			103			136		124		
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

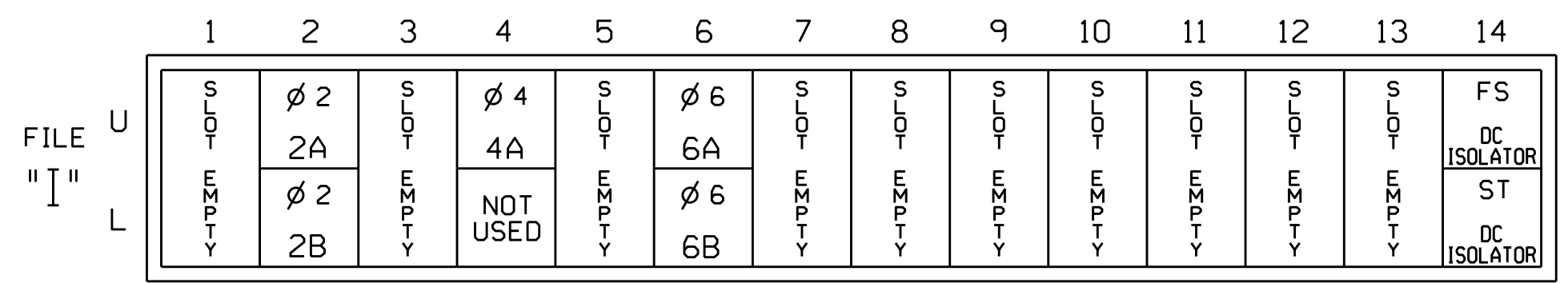
NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....336
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....POLE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S2,S5,S8,S10
 PHASES USED.....2,4,6
 OVERLAP A.....4

INPUT FILE POSITION LAYOUT

(front view)



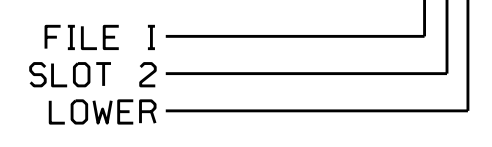
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB21-3,4	I2U	39	1	2	2		Y			
2B	TB23-3,4	I2L	43	5	12	2	Y	Y		2.0	5
4A	TB21-7,8	I4U	41	3	4	4	Y	Y			
6A	TB21-11,12	I6U	40	2	6	6		Y			
6B	TB23-11,12	I6L	44	6	16	6	Y	Y		2.0	5

INPUT FILE POSITION LEGEND: I2L



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

```

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          :12345678910111213141516
VEH OVL PARENTS: X
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR:  - RED  - YELLOW  - GREEN
FLASH COLORS:   - RED  - YELLOW  - GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0=255 SEC)...25
YELLOW CLEAR (0=PARENT,3-25.5 SEC)...3.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...1.4
OUTPUT AS PHASE # (0=NONE, 1-16)...7
    
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-1286T1&T2
 DESIGNED: November 2015
 SEALED: 11/23/2015
 REVISED: N/A

Electrical Detail- Temp 1 & 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details for: **NC 151 (Pisgah Highway) at SR 1103 (Davis Creek Road)**

Prepared in the Offices of: **TRANSPORTATION MOBILITY AND SAFETY CONSULTANTS, INC.**
 750 N. Greenfield Pkwy, Garner, NC 27529

Division 13 Buncombe County Candier

PLAN DATE: November 2015 REVIEWED BY:
 PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: **George C. Brown** 12/1/2015
 F12001ED08E8434 DATE

SIG. INVENTORY NO. 13-1286T1&T2

23-1004-2015-16-529
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 GCS:GCS:North Carolina State Plane
 11/23/2015 10:10:10 AM