



HORVATH  
ASSOCIATES

Civil Engineers  
Planners  
Landscape Architects

## **ADDENDUM #2 – The Carver Street Extension Project ST-257 July 13, 2015**

The city is pleased to receive bids for the construction of the Carver Street Extension. An array of questions are addressed in this addendum; please see below.

NOTE: a signed copy of this addendum is required as part of the construction bid, with authorized signature and date on the last page. Thank you for your efforts; we look forward to opening your bid on bid day.

Regards,

Brian Ruff, Project Manager  
Horvath Associates, P.A.

1. **I wanted to ask about the line item 94-Drilled Pier Foundation (2) CY. Should that be (2) EA or possibly (20) CY?**
  - a. Per John Davenport Engineering, Inc., the quantity should be (2) EACH. The NCDOT standard specifications have the contractor paid per CY of concrete poured (with reinforcing steel as incidental). The amount of concrete needed cannot be determined until the results of the soil tests (line 93) are evaluated. At that point, the metal pole supplier is responsible for submitting pole and foundations designs to NCDOT for a separate approval. The foundation design will determine the amount of concrete needed. At this point, however, a contractor submitting a bid must use their own estimate.
  - b. BIDDER TO CHANGE THE UNIT FOR ITEM #94 FROM "CY" TO "EACH"
2. **Do you have one CAD file with everything on it, existing and proposed grades, tree fence, silt fence, tree line, etc.**
  - a. See the file on the FTP site titled "Surveyed-Topo-0803-11."
3. **The plans show an existing Controller & Cabinet. That would be the case for the plans showing the mast arm poles but not the Temporary Phase 1 sheet. Also, the signal ahead sign is shown as existing on these plans as well. Is this correct?**
  - a. Per John Davenport Engineering, Inc., The signal plans (temporary and final) in the bid package are correct with respect to how the cabinet & controller are shown. There is a currently existing signal at this location using NCDOT's standard 2070 controller. The temporary signal plans propose to continue using the existing signal control equipment during the construction phases. At the end of the project, this signal will be incorporated into the City of Durham's signal system, so the final design shows the controller as new with a line item in the quantities for 'Controller Retrofit' to replace the existing NCDOT-type controller with one compatible with Durham's system.

- b. Also, the signal ahead sign is also part of the currently existing signal installation and is carried through as existing on both the temporary and final signal designs.
4. I know we are awaiting Addendum #2, is there any chance that the bid date may be pushed back in this addendum? We have had some things get backed up on our bid schedule and want to ensure we have sufficient time to get a bid in for this project.
- a. Please be advised the BID OPENING for Carver Street Extension is postponed to 100 PM August 6, 2015, in Conference Room 3B of City Hall Public Works Department.

5. I see a line item for Temporary Signal Installation. Please explain. I don't see it mentioned in the specs or plans. I assume the [signal] quantities will be revised. Let me know.

- a. A temporary signal installation is required for this project and is included in the bid as Line Item #78. The attached preliminary drawings for this temporary signal at Old Oxford and Hamlin have been prepared by John Davenport Engineering, Inc., and are currently submitted to the NCDOT for a temporary signal permit for this project; the plans are subject to change at this time. Finalized drawings for the temporary signal are intended to be completed upon NCDOT review and approval and provided to the contractor. It is intended for the temporary signal permit to be issued in time for the project.
- b. Per John Davenport Engineering, Inc., estimated quantities for the Temporary Signal are as follows, but will not be itemized on the bid form. The following is for your information, but is subject to change.

Signal Construction Estimate for:  
05-0721 T1 - Old Oxford Rd @ Hamlin Rd

Item #	Description	Quantity	Units
1	Relocate Existing Signal Head	6	Ea.
2	Signal Cable	575	LF
3	Wood Poles	5	Ea.
4	Guy Assembly	6	Ea.
5	Messenger Cable (3/8 inch)	520	LF
6	Unpaved Trenching (1 conduit, 2 inch)	305	LF
7	Directional Drill (1 conduit, 2 inch)	100	LF
8	Junction Box (Standard Size)	2	Ea.
9	Junction Box (oversized heavy duty)	2	Ea.
10	Inductive Loop Sawcut	65	LF
11	Lead-In Cable (14-2 pair)	400	LF
12	Loop Emulator Detection System	1	Ea.
13	1" Riser with Weatherhead	1	Ea.
14	2" Riser with Weatherhead	2	Ea.
15	Conduit Entrance into Existing Foundation	1	Ea.

- i.
  - c. Signal quantities for the bid will remain as-is except for Line Item #94; refer to point 1 of this addendum.
6. I'd like to clarify the sign erection. It does not note "contractor supplied" on the line items as they may be used to seeing on a DOT project. Please clarify if the City is providing the signs for installation and the subcontractor just installs the signs on the contractor supplied post? Or does the contractor need to carry cost of each type of sign & post?
- a. Contractor furnishes all labor and materials.
7. Addendum No. 2 Receipt is Acknowledged – This form to be submitted with BID.

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Date

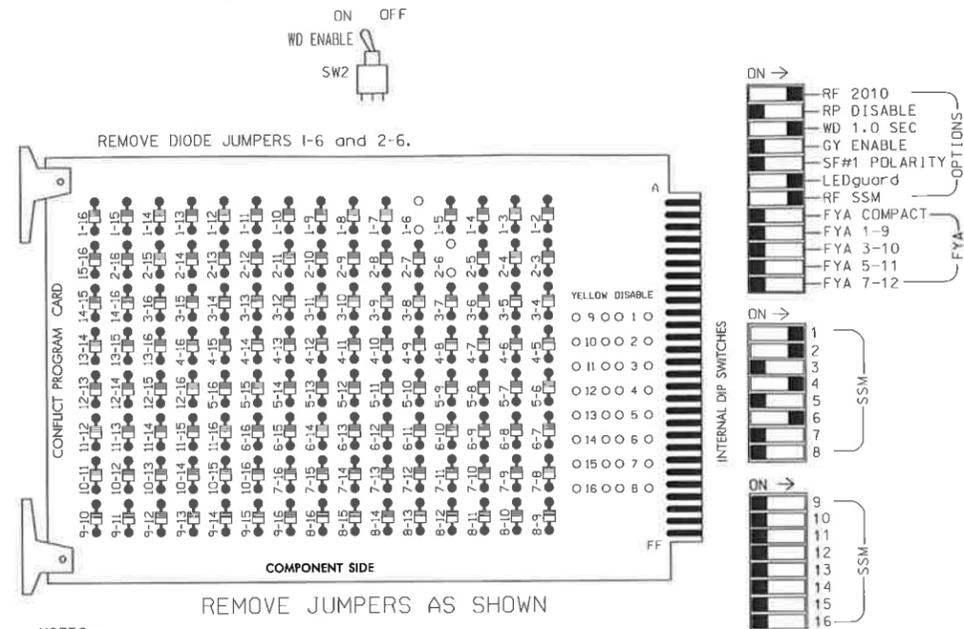
\_\_\_\_\_  
Print Name





### EDI MODEL 2010ECL-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.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.

### 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.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,5,7, 8,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.

### EQUIPMENT INFORMATION

CONTROLLER.....2070L  
 CABINET.....332  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S1,S2,S4,S6  
 PHASES USED.....1,2,4,6  
 OVERLAPS.....NONE

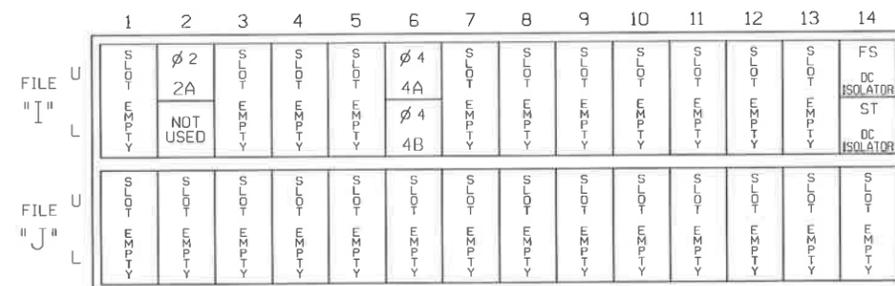
### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	61	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	NU	NU
RED	*	128			101			134				
YELLOW		129			102			135				
GREEN		130			103			136				
RED ARROW												
YELLOW ARROW	126											
GREEN ARROW	127											

NU = Not Used  
 \* Denotes install load resistor. See load resistor installation detail this sheet.

### INPUT FILE POSITION LAYOUT

(front view)



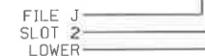
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

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	TB2-5,6	12U	39	1	2	2	Y	Y	-	-	-
4A	TB4-9,10	16U	41	3	4	4	Y	Y	-	-	5
4B	TB4-11,12	16L	45	7	14	4	Y	Y	-	-	10

INPUT FILE POSITION LEGEND: J2L

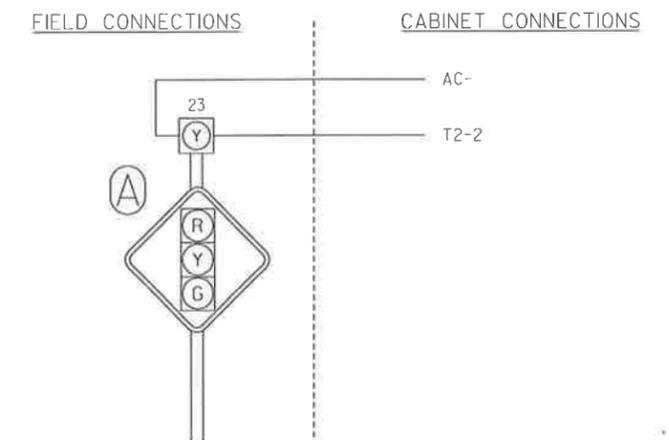


### SPECIAL DETECTOR NOTE

Install a loop emulation 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.

### FLASHER WIRING DETAIL

(wire flasher as shown below)



### LOAD RESISTOR INSTALLATION DETAIL

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



NOTE: The purpose of these resistors is to load the channel red monitor inputs in order for the Signal Sequence Monitor to use the full signal sequence monitoring capability on channels that do not use the red display in the field.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0721T1  
 DESIGNED: May 2015  
 SEALED:  
 REVISED:

Project #: 15-402

HOME OFFICE:  
 305 WEST FOURTH STREET, SUITE 2A  
 WINSTON-SALEM, NC 27101  
 336.744.1636 www.davenportworld.com  
 NCBELS FIRM LICENSE NO. C-2522

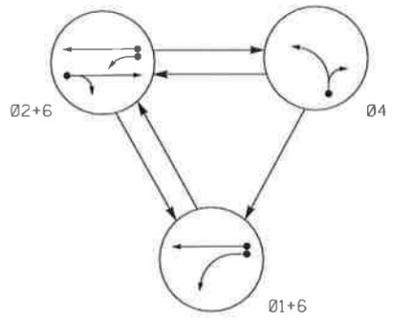
### Signal Upgrade - Temporary Phase 1

	ELECTRICAL AND PROGRAMMING DETAILS FOR:		SR 1004 (Old Oxford Road) at SR 1634 (Hamlin Road) / Carver Street		SEAL PRELIMINARY DO NOT USE FOR CONSTRUCTION
	Division 5	Durham County	Durham	Durham	
	PLAN DATE: May 2015	REVIEWED BY:	PREPARED BY: R. Hinchew	REVIEWED BY:	
	REVISIONS	INIT.	DATE	SIGNATURE	

SIG. INVENTORY NO. 05-0721T1

3 Phase  
Fully Actuated  
(Isolated)

PHASING DIAGRAM

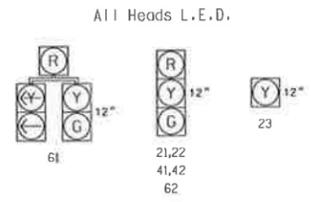


PHASING DIAGRAM DETECTION LEGEND  
 ● DETECTED MOVEMENT  
 ○ UNDETECTED MOVEMENT (OVERLAP)  
 ○ UNSIGNALIZED MOVEMENT  
 ○ PEDESTRIAN MOVEMENT

SIGNAL FACE	PHASE			
	Ø 1 + 6	Ø 2 + 6	Ø 4	Ø 1 + 6
21,22	R	G	R	Y
41,42	R	R	G	R
61	G	G	R	Y
62	G	G	R	Y

SIGNAL FACE	INTERVAL	
	1	2
23	ON	OFF

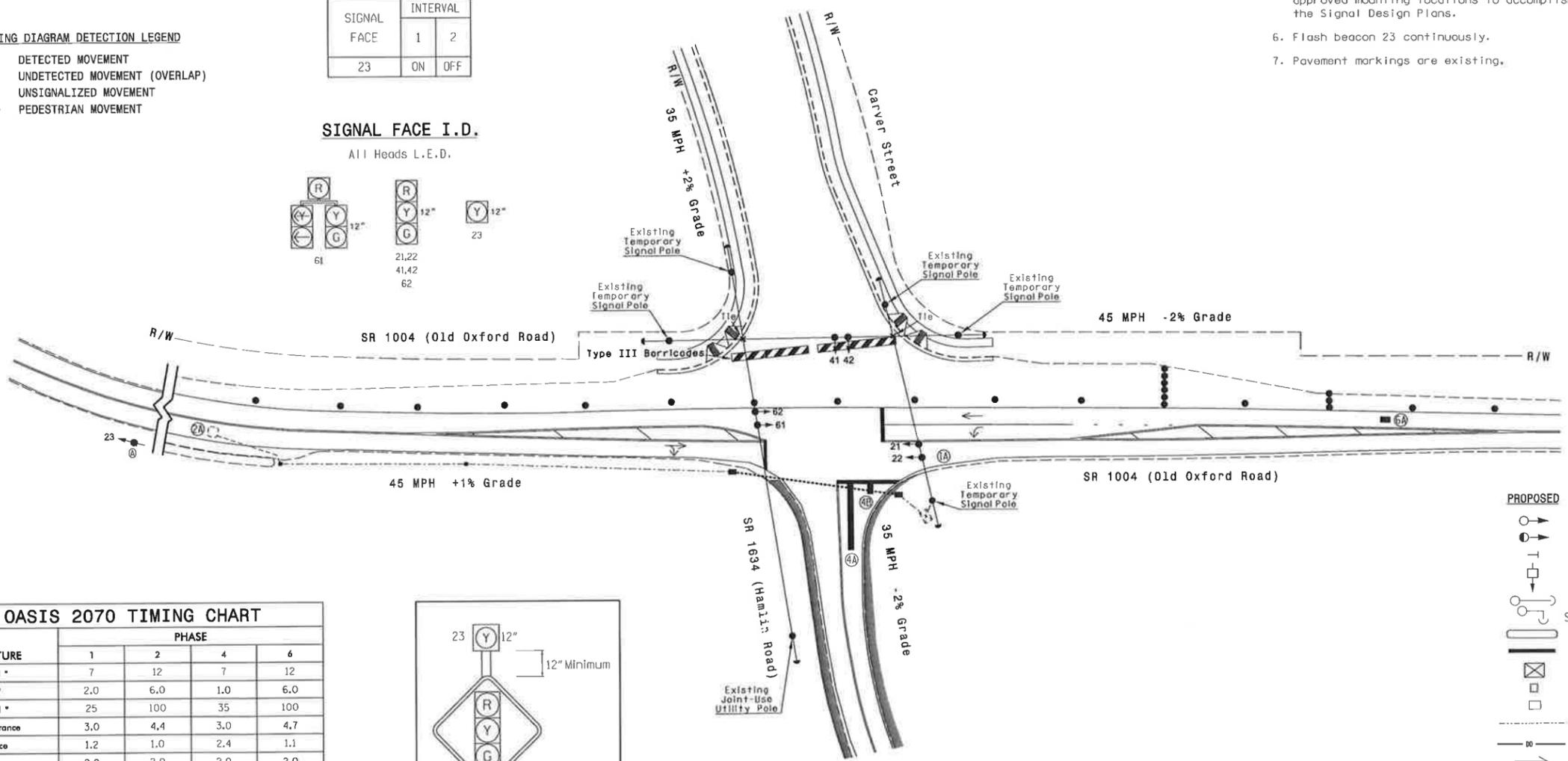
SIGNAL FACE I.D.



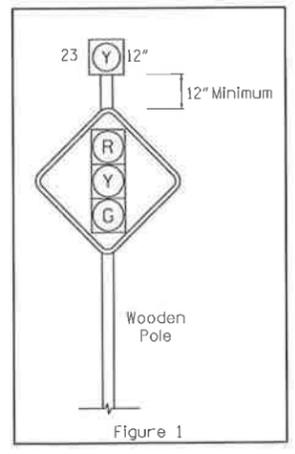
OASIS 2070L LOOP & DETECTOR INSTALLATION

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD	
					PHASE	CALLING EXTENSION	STRETCH TIME	DELAY TIME			
1A	6x40	0	*	*	1	Y	Y	-	15	-	*
					6	Y	Y	Y	-	3	-
2A	6x6	330	5	Y	2	Y	-	-	-	-	-
4A	6x40	0	*	*	4	Y	Y	-	-	-	*
4B	6x6	0	*	*	4	Y	Y	-	10	-	*
6A	6x6	300	*	*	6	Y	Y	-	-	-	*

\* Video Detection Zone



FEATURE	PHASE			
	1	2	4	6
Min Green 1 *	7	12	7	12
Extension 1 *	2.0	6.0	1.0	6.0
Max Green 1 *	25	100	35	100
Yellow Clearance	3.0	4.4	3.0	4.7
Red Clearance	1.2	1.0	2.4	1.1
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	2.0	-	2.0
Max Variable Initial *	-	38	-	34
Time Before Reduction *	-	20	-	20
Time To Reduce *	-	40	-	40
Minimum Gap	-	3.5	-	3.0
Recall Mode	-	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON



PROPOSED	EXISTING
○ Traffic Signal Head	○ Traffic Signal Head
○ Modified Signal Head	N/A
○ Sign	○ Sign
○ Pedestrian Signal Head With Push Button & Sign	○ Pedestrian Signal Head With Push Button & Sign
○ Signal Pole with Guy	○ Signal Pole with Guy
○ Signal Pole with Sidewalk Guy	○ Signal Pole with Sidewalk Guy
○ Inductive Loop Detector	○ Inductive Loop Detector
○ Video Detection Area	○ Video Detection Area
○ Controller & Cabinet	○ Controller & Cabinet
○ Junction Box	○ Junction Box
○ Oversize Junction Box	○ Oversize Junction Box
○ 2-in Underground Conduit	○ 2-in Underground Conduit
○ Directional Drill	○ Directional Drill
○ Directional Arrow	○ Directional Arrow
○ Construction Zone	○ Construction Zone
N/A Construction Zone Drums	○ Construction Zone Drums
N/A Signal Ahead Sign (W3-3) w/ Beacon [See Figure 1]	○ Signal Ahead Sign (W3-3) w/ Beacon [See Figure 1]

Signal Upgrade - Temporary Phase 2

750 N. Greenfield Pkwy, Garner, NC 27529

SR 1004 (Old Oxford Road)  
at  
SR 1634 (Hamlin Road) / Carver Street

Division 5 Durham County Durham

PLAN DATE: May 2015 REVIEWED BY: R. Hinshaw

PREPARED BY: R. Hinshaw REVIEWED BY:

REVISIONS: INIT. DATE

SCALE: 1" = 40'

SEAL

PRELIMINARY

DO NOT USE FOR CONSTRUCTION

SIG. INVENTORY NO. 05-072112

Project #: 15-402

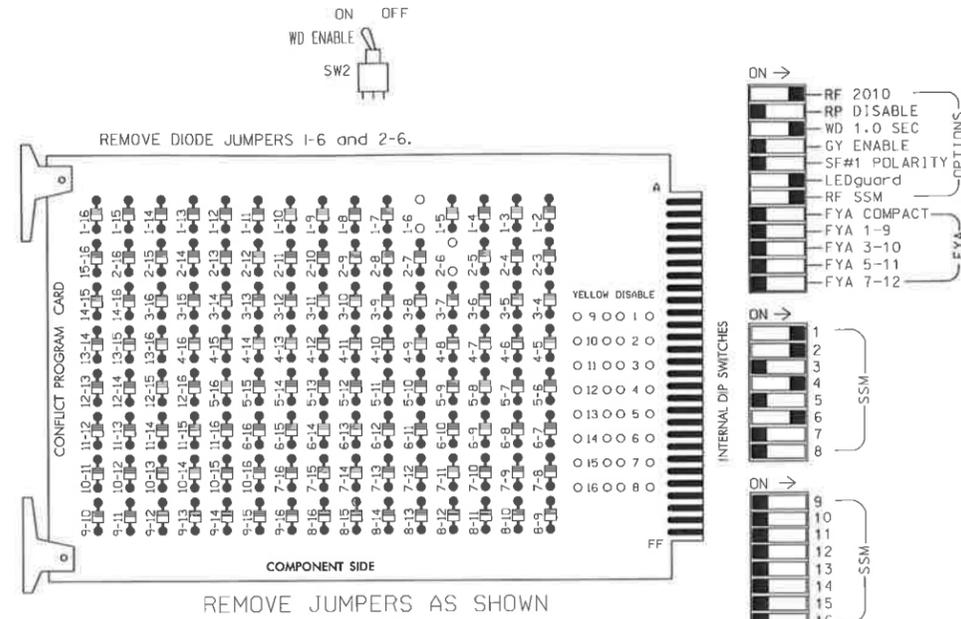
**DAVENPORT**

HOME OFFICE:  
305 WEST FOURTH STREET, SUITE 2A  
WINSTON-SALEM, NC 27101  
336.744.1838 www.davenportworld.com  
NCBELS FIRM LICENSE NO. C-2522

Preliminary Design 5-6-15

### EDI MODEL 2010ECL-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.
- Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = 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.
- Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 3,5,7,8,9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.

### EQUIPMENT INFORMATION

CONTROLLER.....2070L  
 CABINET.....332  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...12  
 LOAD SWITCHES USED.....S1,S2,S4,S6  
 PHASES USED.....1,2,4,6  
 OVERLAPS.....NONE

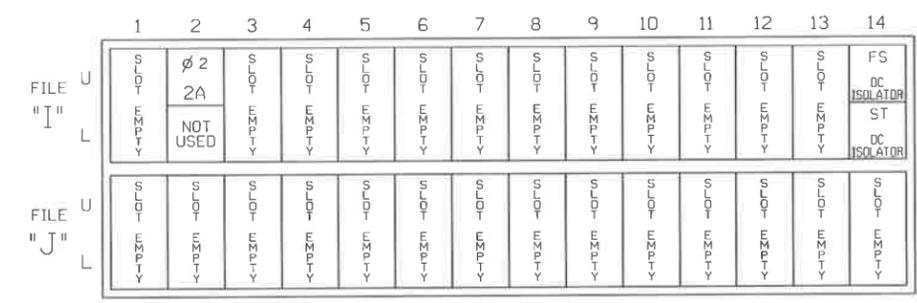
#### SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	61	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	NU	NU
RED	*	128			101			134				
YELLOW		129			102			135				
GREEN		130			103			136				
RED ARROW												
YELLOW ARROW	126											
GREEN ARROW	127											

NU = Not Used  
 \* Denotes install load resistor. See load resistor installation detail this sheet.

### INPUT FILE POSITION LAYOUT

(front view)



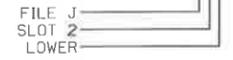
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE  
 ST = STOP TIME

### INPUT FILE CONNECTION & PROGRAMMING CHART

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	TB2-5,6	I2U	39	1	2	2	Y	Y	-	-	-

### INPUT FILE POSITION LEGEND: J2L

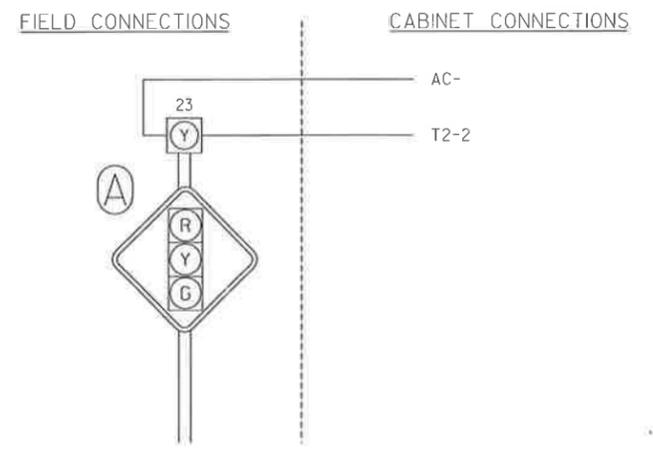


### SPECIAL DETECTOR NOTE

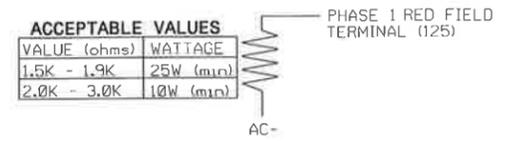
Install a loop emulation detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

### FLASHER WIRING DETAIL

(wire flasher as shown below)



### LOAD RESISTOR INSTALLATION DETAIL



NOTE: The purpose of these resistors is to load the channel red monitor inputs in order for the Signal Sequence Monitor to use the full signal sequence monitoring capability on channels that do not use the red display in the field.

Signal Upgrade - Temporary Phase 2

Project #: 15-402

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0721T2

DESIGNED: May 2015

SEALED:

REVISED:

DAVENPORT

HOME OFFICE: 305 WEST FOURTH STREET, SUITE 2A WINSTON-SALEM, NC 27101 336.744.1836 www.davenportworld.com NCBELS FIRM LICENSE NO. C-2622

SR 1004 (Old Oxford Road) at SR 1634 (Hamlin Road) / Carver Street

Division 5 Durham County Durham

PLAN DATE: May 2015 REVIEWED BY:

PREPARED BY: B. Hinshaw REVIEWED BY:

REVISIONS INIT. DATE

SEAL

PRELIMINARY

DO NOT USE FOR CONSTRUCTION

SIGNATURE DATE

SIG. INVENTORY NO. 05-0721T2