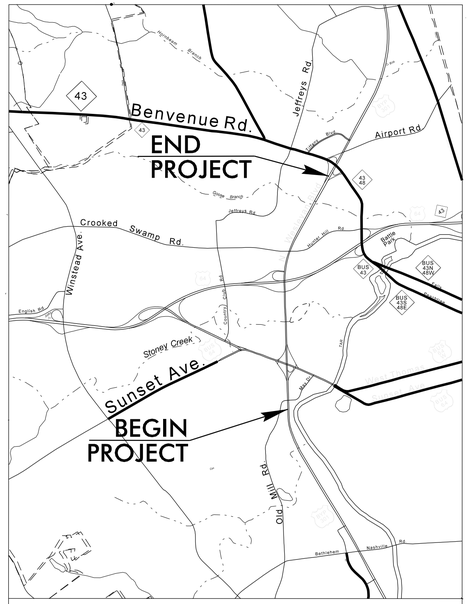
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CONTRACT: **TIP PROJECT: U-3330**



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH COUNTY

Project No.	Sheet No.
U-3330	Sig. 1.0

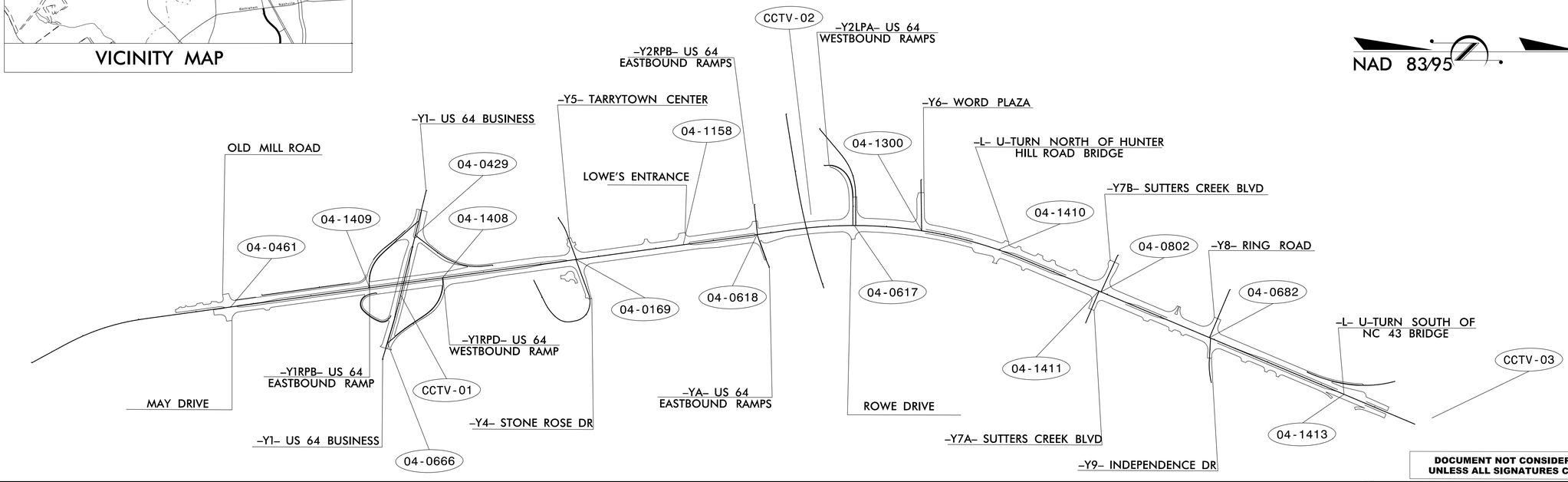
LOCATION: ROCKY MOUNT – US 301 BYPASS FROM SR 1836 (MAY DRIVE) TO NC 43–48 (BENVENUE ROAD) INTERCHANGE

TYPE OF WORK: TRAFFIC SIGNALS & ITS FIBER OPTIC CABLE ROUTING AND CCTV CAMERAS

NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

DocuSigned by: Melissa B. Toth D86DCF8E04D04AF... 1/30/2017

NAD 83/95



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Index of Plans

Sheet #	Reference #	Location/Description
Sig. 1.0	--------	Title Sheet
Sig. 2.0 – Sig. 2.4	04–0461 (TI, & Final)	US 301 Bypass (S. Wesleyan Blvd) at SR 1713 (Old Mill Road)/SR 1836 (May Drive)
Sig. 3.0 – Sig. 3.4	04–1409 (TI, & Final)	US 301 Bypass (S. Wesleyan Blvd) at US 64 Business (Sunset Ave) Eastbound Ramps
Sig. 4.0 – Sig. 4.3	04–0666 (TI, T2, Final)	US 64 Business (Sunset Ave) at Irving Street
Sig. 5.0 – Sig. 5.2	04–0429 (Final)	US 64 Business (Sunset Ave) at US 301 Southbound Ramps
Sig. 6.0 – Sig. 6.4	04–1408 (TI & Final)	US 301 Bypass (N. Wesleyan Blvd) at US 64 Business (Sunset Ave) Westbound Ramps
Sig. 7.0 – Sig. 7.17	04–0169 (TI, T2, T3, T4, T5 & Final)	US 301 Bypass (N. Wesleyan Blvd) at Tarrytown Center /Stone Rose Drive
Sig. 8.0 – Sig. 8.8	04–1158 (TI, T2, T3, & Final)	US 301 Bypass (N. Wesleyan Blvd) at Lowe's Entrance
Sig. 9.0 – Sig. 9.6	04–0618(TI, T2 & Final)	US 301 Bypass (N. Wesleyan Blvd) at US 64 Eastbound Ramps
Sig. 10.0 – Sig. 10.8	04–0617 (TI, T2 & Final)	US 301 Bypass (N. Wesleyan Blvd) at US 64 Westbound Ramps
Sig. 11.0 – Sig. 11.7	04–1300 (TI, T2 & Final)	US 301 Bypass (N. Wesleyan Blvd) at Word Plaza
Sig. 12.0 – Sig. 12.2	04–1410 (Final)	US 301 Bypass (N. Wesleyan Blvd) at U–turn North of Hunter Hill Road Bridge
Sig. 13.0 – Sig. 13.3	04–1411 (TI & Final)	US 301 Bypass (N. Wesleyan Blvd) at Sutter's Creek Blvd
Sig. 14.0 – Sig. 14.6	04–0802 (TI, T2, & Final)	US 301 Bypass (N. Wesleyan Blvd) at Sutter's Creek Plaza
Sig. 15.0 – Sig. 15.7	04–0682 (TI, T2 & Final)	US 301 Bypass (N. Wesleyan Blvd) at Ring Road/Independence Drive
Sig. 16.0 – Sig. 16.2	04–1413	US 301 Bypass (N. Wesleyan Blvd) at U–turn South of NC 43 (Benvenue Road) Bridge
Sig. M1 – Sig. M8	----------	Metal Pole Details
SCP–1		Signal Communications Plans – Cable Schematic
SCP–2 – SCP–3		Signal Communications Plans – Fiber Optic Ring Schematic Legend
SCP–4 – SCP–6		Signal Communications Plans – Special Details
SCP–7		Signal Communications Plans – Construction Notes and Legend
SCP–8 – SCP–54		Signal Communications Plans – Cable Routing Plans and Fiber Optic Splice Details

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

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Melissa B. Toth, P.E. – Project Manager
J. Todd Brooks, PE – Design Engineer
H. Alfred Badgett, PE – Design Engineer

ITS & SIGNALS UNIT

Contacts:

Jason Galloway, PE – Eastern Region Signals Engineer
Mohd A. Aslami, P.E. – Signal Management Design Engineer
I. Neil Avery – Signal Communications Project Engineer

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

Transportation Mobility and Safety Division · Signal Design Section · NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

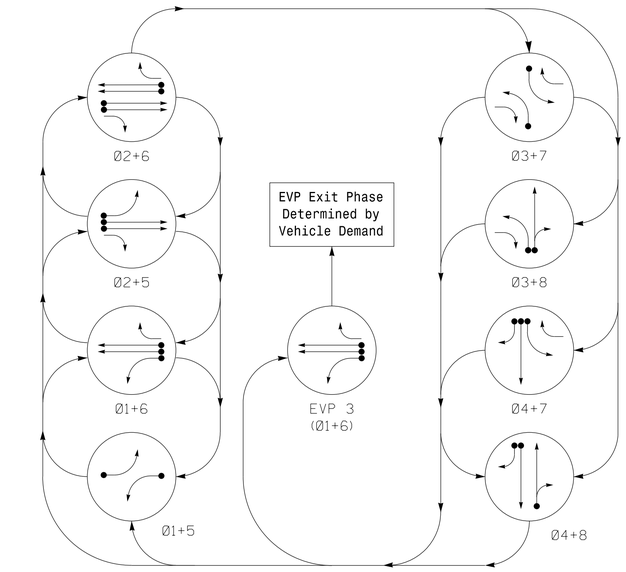
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 2.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

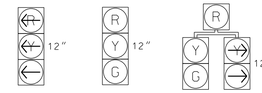
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	EVP 3	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
21	R	R	G	G	R	R	R	R	R	Y
22	R	R	G	G	R/→	R/→	R	R	R	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	←	←	~~R~~	~~R~~	~~R~~	~~R~~
41, 42	R	R	R	R	R	R	G	G	R	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61	R	G	R	G	R	R	R	R	G	Y
62	R	G	R	G	R/→	R	R/→	R	G	Y
71	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	←	~~R~~	~~R~~	~~R~~
81, 82	R	R	R	R	R	G	R	G	R	R

SIGNAL FACE I.D.

All Heads L.E.D.



11
31
51
71

21
41,42
61
81,82

22
62

OASIS 2070 DETECTION ZONE INSTALLATION

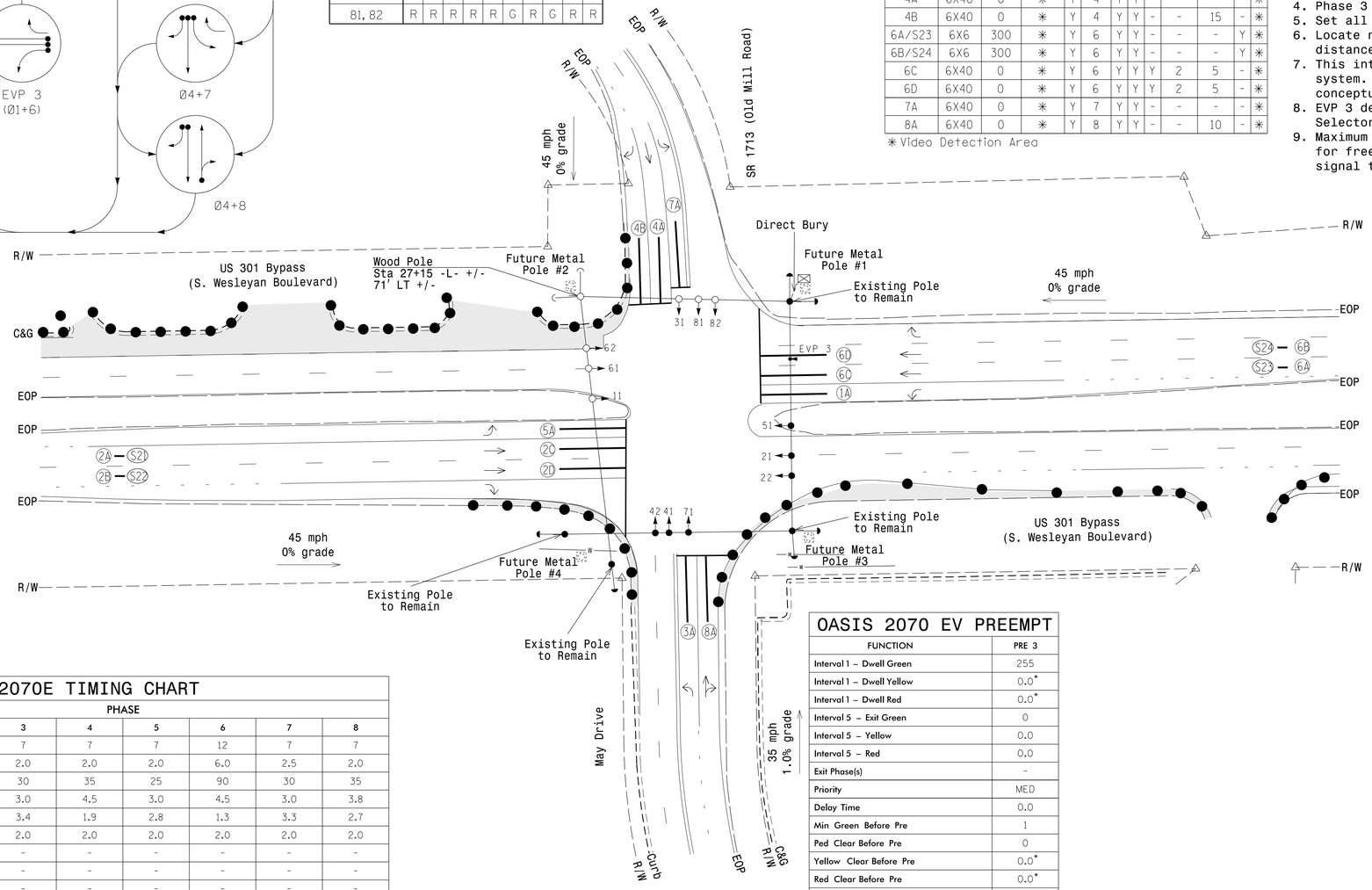
DETECTION ZONES: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING: PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	✳	Y	1	Y	Y	-	-	-	-	✳
2A/S21	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2B/S22	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2C	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
3A	6X40	0	✳	Y	2	Y	Y	-	-	-	-	✳
4A	6X40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4B	6X40	0	✳	Y	4	Y	Y	-	-	15	-	✳
6A/S23	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6B/S24	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6C	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
7A	6X40	0	✳	Y	7	Y	Y	-	-	-	-	✳
8A	6X40	0	✳	Y	8	Y	Y	-	-	10	-	✳

✳ Video Detection Area

8 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all loop emulators units to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. EVP 3 detector is existing. Reuse existing Phase Selector. See Project Special Provisions.
9. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.5	2.0
Max Green 1 *	25	90	30	35	25	90	30	35
Yellow Clearance	3.0	4.5	3.0	4.5	3.0	4.5	3.0	3.8
Red Clearance	2.9	1.0	3.4	1.9	2.8	1.3	3.3	2.7
Red Revert	2.0	2.0	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	-	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	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.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head	■↓
○→	Signal Pole with Guy	●→
○↓	Signal Pole with Sidewalk Guy	●↓
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	– – – –
→	Directional Arrow	→
⊂→	Emergency Vehicle Detector	⊂→
▨	Construction Zone	▨
● ◉	Construction Zone Drums	● ◉
▭	Video Detection Area	▭
N/A	UG Water Line	——W——
N/A	Drainage Pipe	====

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Signal Upgrade - Temporary Design (Area 1 TMP Phases I and II)

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (S. Wesleyan Blvd)
at
SR 1713 (Old Mill Road) /
SR 1836 (May Drive)

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DESIGNER SIGNATURE DATE

SIG. INVENTORY NO. 04-0461TI

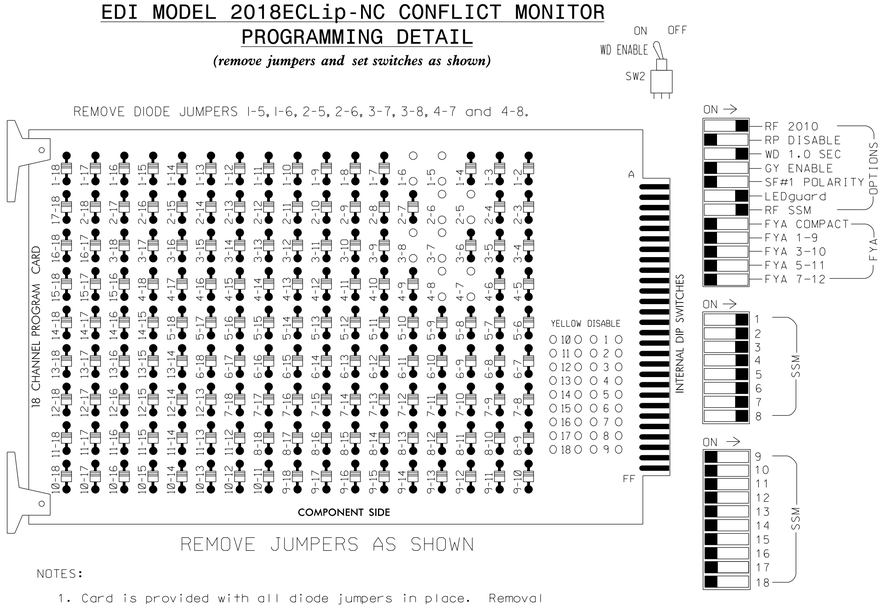
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE*
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10,S11
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED
*AUX. OUTPUT FILE FOR FUTURE USE.

SPECIAL DETECTOR NOTE

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

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 2.1

SIGNAL HEAD HOOK-UP CHART

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

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

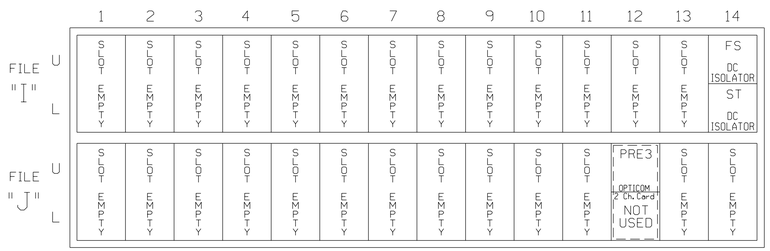
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    PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X    X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .....MED
DELAY TIMER (0-255 SEC) .....0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .....12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .....0
LATCH CALL? .....N
LINK TO NEXT PREEMPT? .....N
ENABLE BACKUP PROTECTION? .....N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .....N
PED CLEARANCE THROUGH YELLOW? .....N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .....N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? .....N
ALLOW PEDS IN DWELL INTERVAL? .....N
RE-TIME DWELL INTERVAL? .....N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



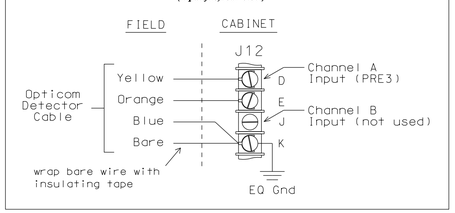
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0461
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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ELECTRICAL DETAIL - Temporary Design (Area 1 TMP Phases I & II)

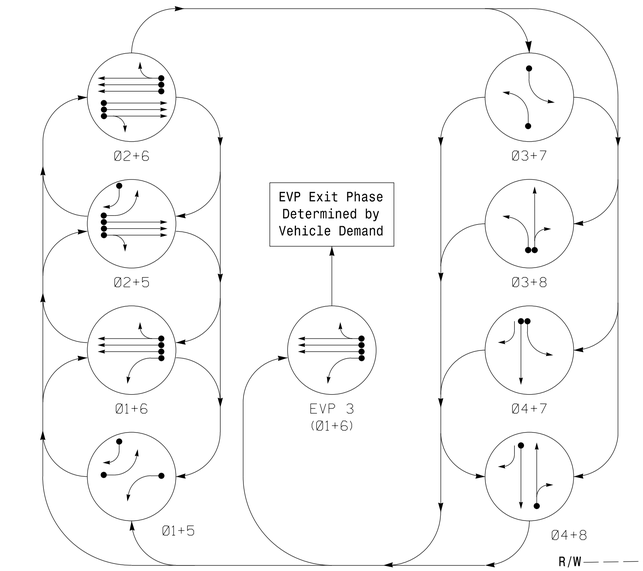
ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 301 Byp (S. Wesleyan Blvd) at SR 1713 (Old Mill Road) / SR 1836 (May Drive)		SEAL
Prepared for the Offices of: Transportation Mobility and Safety Division, NC Department of Transportation, Traffic Signals Management Section	Division 04	Nash County / Rocky Mount	NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH
750 N.Greenfield Pkwy,Garner,NC 27529	PLAN DATE: November 2016	REVIEWED BY: MB Toth	
	PREPARED BY: AM Encarnacion	REVIEWED BY:	
	REVISIONS	INIT. / DATE	Designed by: Melissa B. Toth SIGNATURE 1/30/2017 DATE
			SIG. INVENTORY NO. 04-0461T1

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 2.3

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

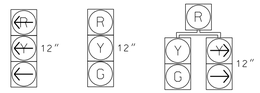
- DETECTED MOVEMENT
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TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	EVP3	FLASH
11	←R	←R	←R	←R	←R	←R	←R	←R	←R	←R
21, 22, 23	R	R	G	G	R	R	R	R	R	Y
31	←R	←R	←R	←R	←	←	←R	←R	←R	←R
41	R	R	R	R	R	R	G	G	R	R
42	R/→	R	R/→	R	R	R	G	G	R	R
51	←	←R	←	←R	←R	←R	←R	←R	←R	←R
61, 62, 63	R	G	R	G	R	R	R	R	G	Y
71	←R	←R	←R	←R	←	←R	←R	←R	←R	←R
81, 82	R	R	R	R	R	G	R	G	R	R

SIGNAL FACE I.D.

All Heads L.E.D.



11
31
51
71

21,22,23
41
61,62,63
81,82

42

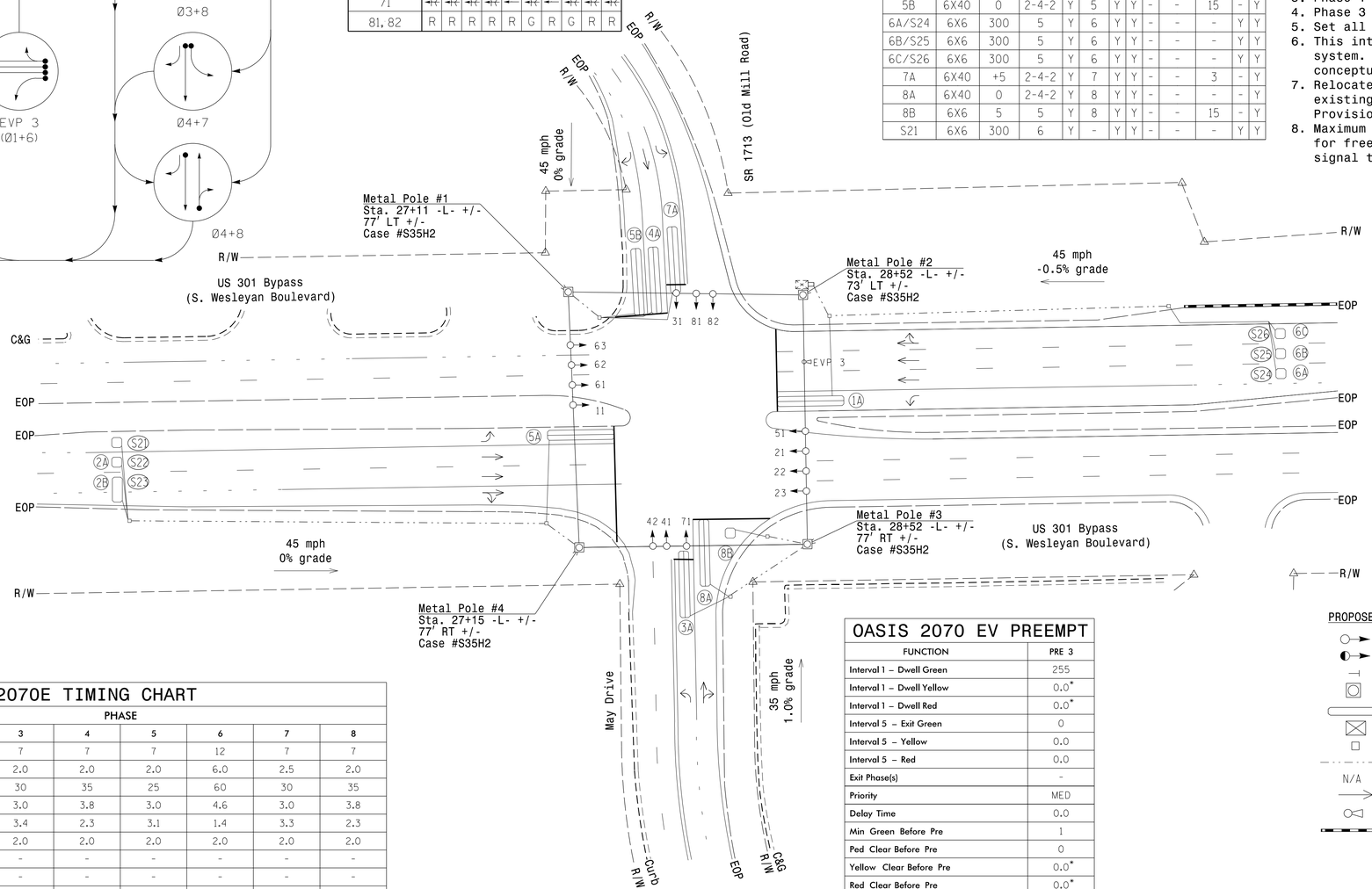
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	-	-	Y
2A/S22	6X6	300	6	Y	2	Y	Y	-	-	-	Y	Y
2B/S23	6X15	300	6	Y	2	Y	Y	-	-	-	Y	Y
3A	6X40	+5	2-4-2	Y	3	Y	Y	-	-	3	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	-	-	Y
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
6A/S24	6X6	300	5	Y	6	Y	Y	-	-	-	Y	Y
6B/S25	6X6	300	5	Y	6	Y	Y	-	-	-	Y	Y
6C/S26	6X6	300	5	Y	6	Y	Y	-	-	-	Y	Y
7A	6X40	+5	2-4-2	Y	7	Y	Y	-	-	3	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	-	Y
8B	6X6	5	5	Y	8	Y	Y	-	-	15	-	Y
S21	6X6	300	6	Y	-	Y	Y	-	-	-	Y	Y

8 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and / or phase 5 may be lagged.
4. Phase 3 and / or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Relocate existing EVP 3 detector on new span. Reuse existing Phase Selector. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.5	2.0
Max Green 1 *	25	60	30	35	25	60	30	35
Yellow Clearance	3.0	4.5	3.0	3.8	3.0	4.6	3.0	3.8
Red Clearance	3.3	1.0	3.4	2.3	3.1	1.4	3.3	2.3
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
◎	Metal Strain Pole	■
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	------
→	Directional Arrow	→
○◀	Emergency Vehicle Detector	●◀
▬▬	Noise Wall	N/A

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (S. Wesleyan Blvd)
at
SR 1713 (Old Mill Road) /
SR 1836 (May Drive)

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0461

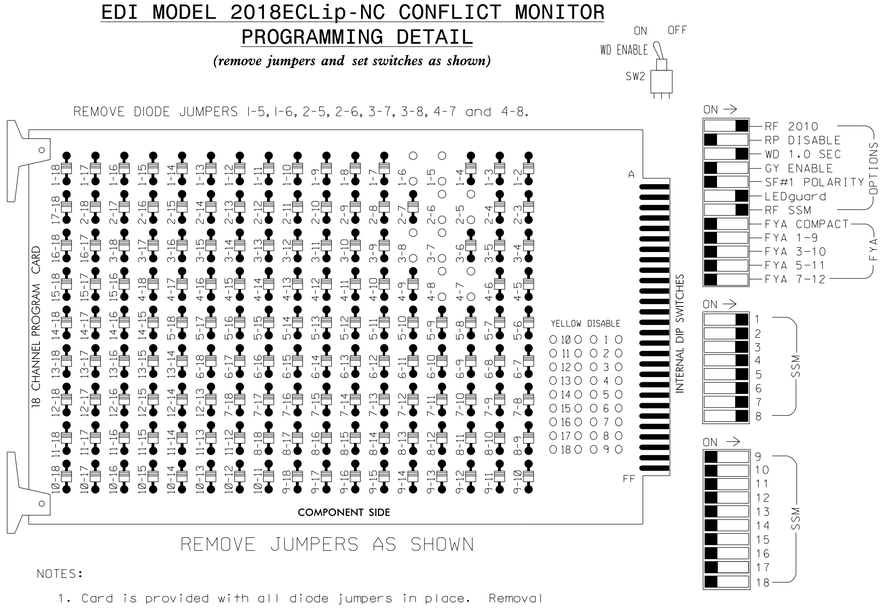
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ENC45386 AT LU5290321

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Variable Initial and Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10,S11
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 2.4

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7		S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5		6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5		6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22, 23	NU	31	41,42	NU	42	51	61,62, 63	NU	71	81,82	NU	NU	NU	NU	NU	NU	NU
RED		128			101				134			107							
YELLOW		129			102				135			108							
GREEN		130			103				136			109							
RED ARROW	125			116				131			122								
YELLOW ARROW	126			117			132	132			123								
GREEN ARROW	127			118			133	133			124								

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

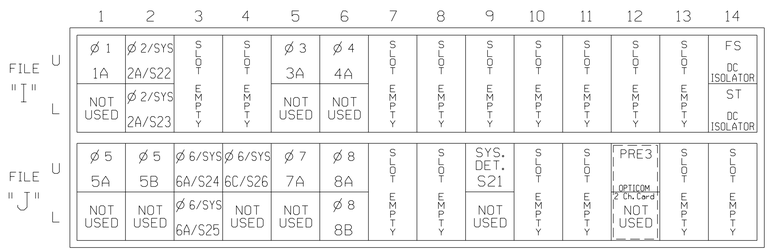
```
    PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X    X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
                 |
          OPTIONS
PRIORITY (Y/N TO SELECT) .....MED
DELAY TIMER (0-255 SEC) .....0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .....12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .....0
LATCH CALL? .....N
LINK TO NEXT PREEMPT? .....N
ENABLE BACKUP PROTECTION? .....N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .....N
PED CLEARANCE THROUGH YELLOW? .....N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .....N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? .....N
ALLOW PEDS IN DWELL INTERVAL? .....N
RE-TIME DWELL INTERVAL? .....N
OVERLAPS:          | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:     |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

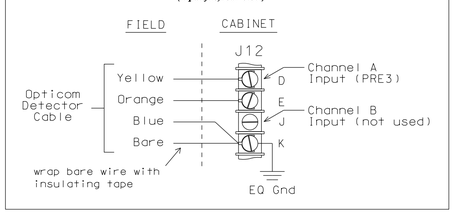
INPUT FILE CONNECTION & PROGRAMMING CHART

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
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A/S22	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S23	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			15
6A/S24	TB3-9,10	J3U	64	26	36	6/SYS	Y	Y			
6B/S25	TB3-11,12	J3L	77	39	46	6/SYS	Y	Y			
6C/S26	TB5-1,2	J4U	48	10	26	6/SYS	Y	Y			
7A	TB5-5,6	J5U	57	19	7	7	Y	Y			3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			15
✳ S21	TB7-9,10	J9U	59	21	15	SYS					

✳ SYSTEM DETECTOR ONLY. REMOVE THE VEHICLE PHASE ASSIGNED TO THIS DETECTOR IN THE DEFAULT PROGRAMMING.

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0461
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (S. Wesleyan Blvd)
at
SR 1713 (Old Mill Road) /
SR 1836 (May Drive)

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER
MELISSA B. TOTH

Designed by: Melissa B. Toth
SIGNATURE
1/30/2017
DATE

SIG. INVENTORY NO. 04-0461

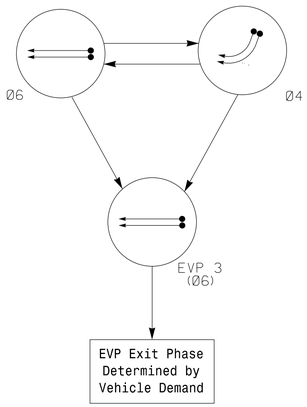
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 3.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

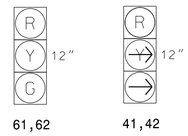
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø4	PHASE Ø6	PHASE EVP 3	PHASE FLASH
41, 42	→	R	R	R
61, 62	R	G	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

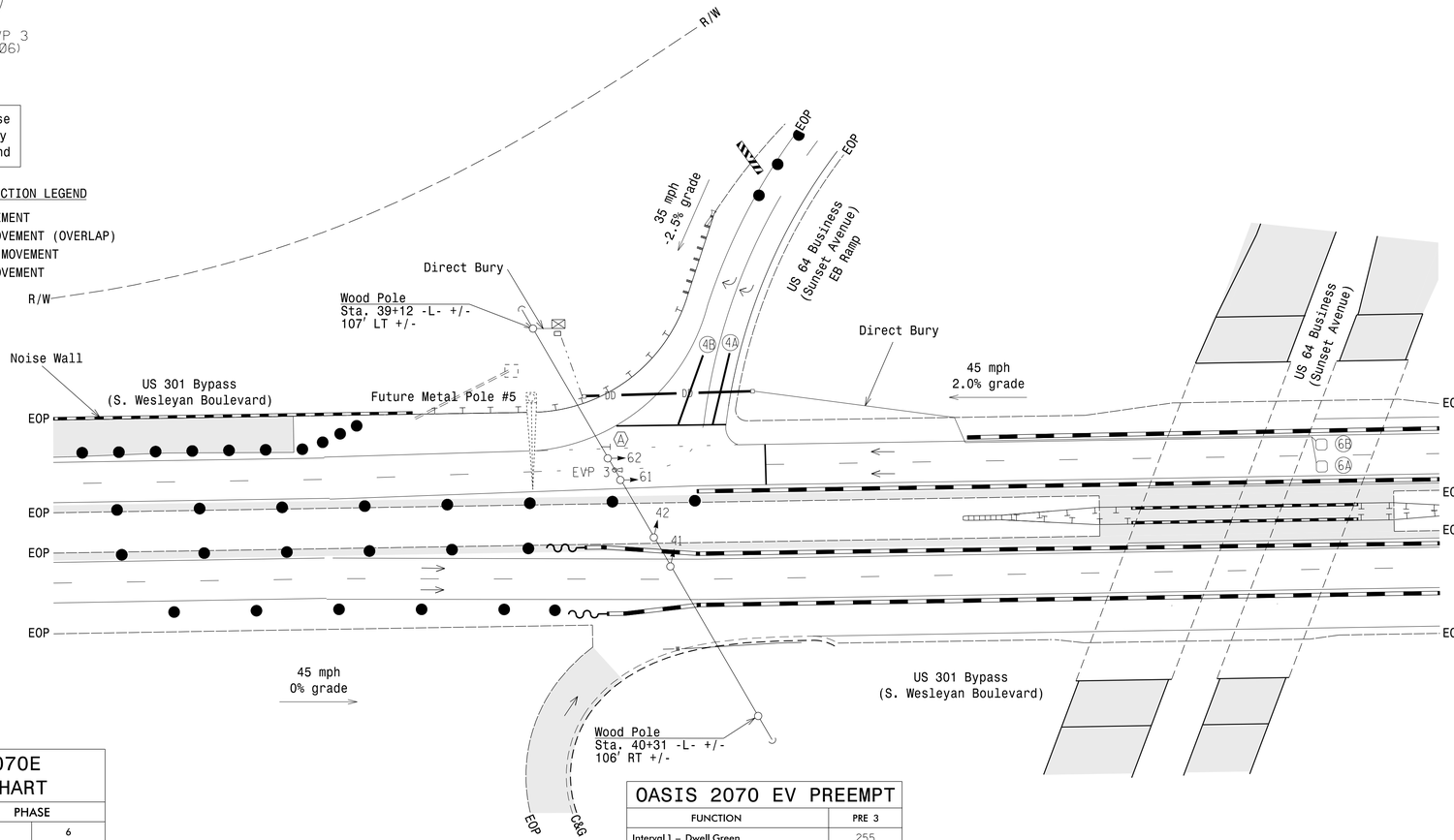
DETECTION ZONES					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
4A	6X40	0	✳	Y	4	Y	Y	-	-	15	-	✳
4B	6X40	0	✳	Y	4	Y	Y	-	-	15	-	✳
6A	6X6	300	5	Y	6	Y	Y	-	-	-	-	✳
6B	6X6	300	5	Y	6	Y	Y	-	-	-	-	✳

✳ Video Detection Area

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal Sytem

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all loop emulators and detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. Install new EVP 3 detector on new span and install new Phase Selector in signal cabinet. See Project Special Provisions.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	------
→	Directional Arrow	→
○	Emergency Vehicle Detector	●
N/A	Guardrail	I I
Ⓐ	No Right Turn Sign (R3-1)	Ⓐ
▨	Construction Zone	▨
● ●	Construction Zone Drums	● ●
▨	Construction Barricade	▨
∿∿	Crash Cushion	∿∿
▬	Portable Concrete Barrier	▬
▬	Video Detection Area	▬
N/A	UG Water Line	—■—
N/A	Drainage Pipe	====

OASIS 2070E TIMING CHART

FEATURE	PHASE 4	PHASE 6
Min Green 1 *	7	12
Extension 1 *	2.0	6.0
Max Green 1 *	30	60
Yellow Clearance	3.3	4.3
Red Clearance	1.7	1.3
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	34
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.0
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

*. Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design (TMP Area 1, Phases II & III)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (S. Wesleyan Blvd)
at
US 64 Bus (Sunset Ave) EB Ramp
Division 04 Nash County Rocky Mount

PLAN DATE:	November 2016	REVIEWED BY:	MB Toth
PREPARED BY:	AM Encarnacion	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

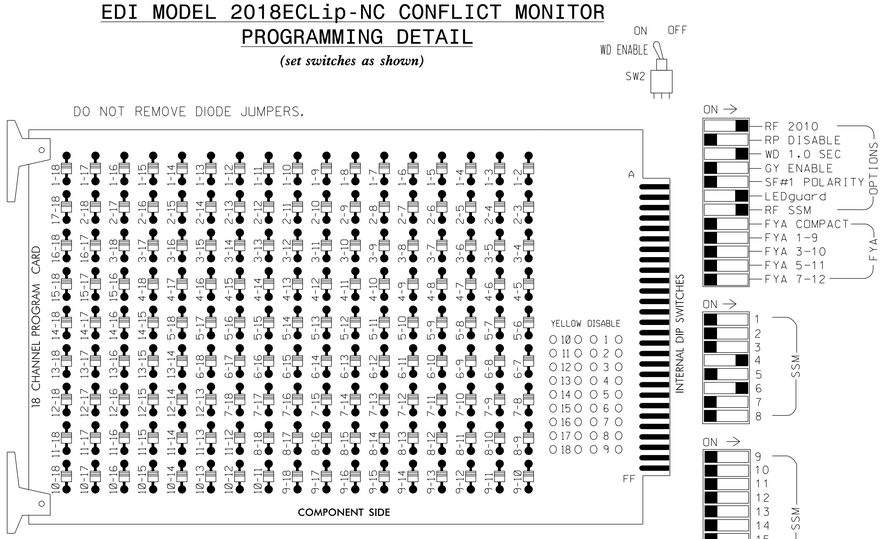
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Variable initial and Gap Reduction.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S5.S8.
PHASES USED.....4.6.
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 3.1

SIGNAL HEAD HOOK-UP CHART

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

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

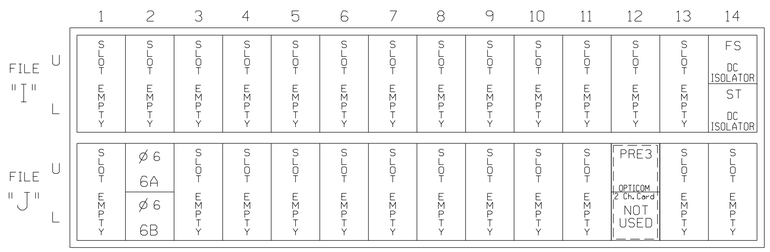
```
    PREEMPTION  #3   SETTINGS (NEXT:1-10)
 INTERVAL/TIMING  |   CLEAR/DWELL PHASES
   GRN YEL  RED   |  123456789101112131415 16
1 255  0.0  0.0   |       X
2   0  0.0  0.0   |
3   0  0.0  0.0   |
4   0  0.0  0.0   |
5   0  0.0  0.0   |
EXIT CALLS        |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

INPUT FILE CONNECTION & PROGRAMMING CHART

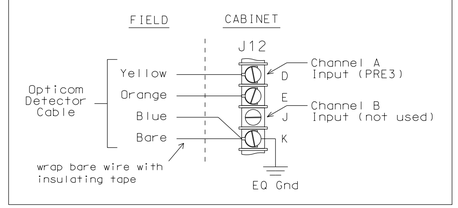
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			

SPECIAL DETECTOR NOTE

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

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1409T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - Temporary Design - (Area 1 TMP Phase II & III)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Mobility and Safety Division
Traffic Engineering Branch
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (S. Wesleyan Blvd) at US 64 Bus (Sunset Ave) EB Ramp

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth
SIGNATURE 1/30/2017 DATE

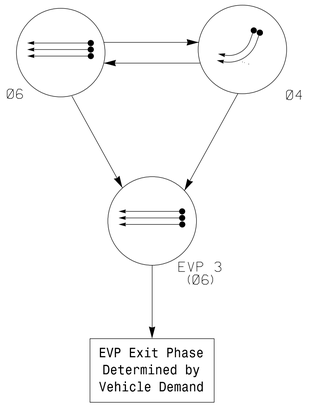
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 3.2

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION				
SIGNAL FACE	PHASE Ø4	PHASE Ø6	EVP 3	FLASH
41, 42	→	R	R	R
61, 62, 63	R	G	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



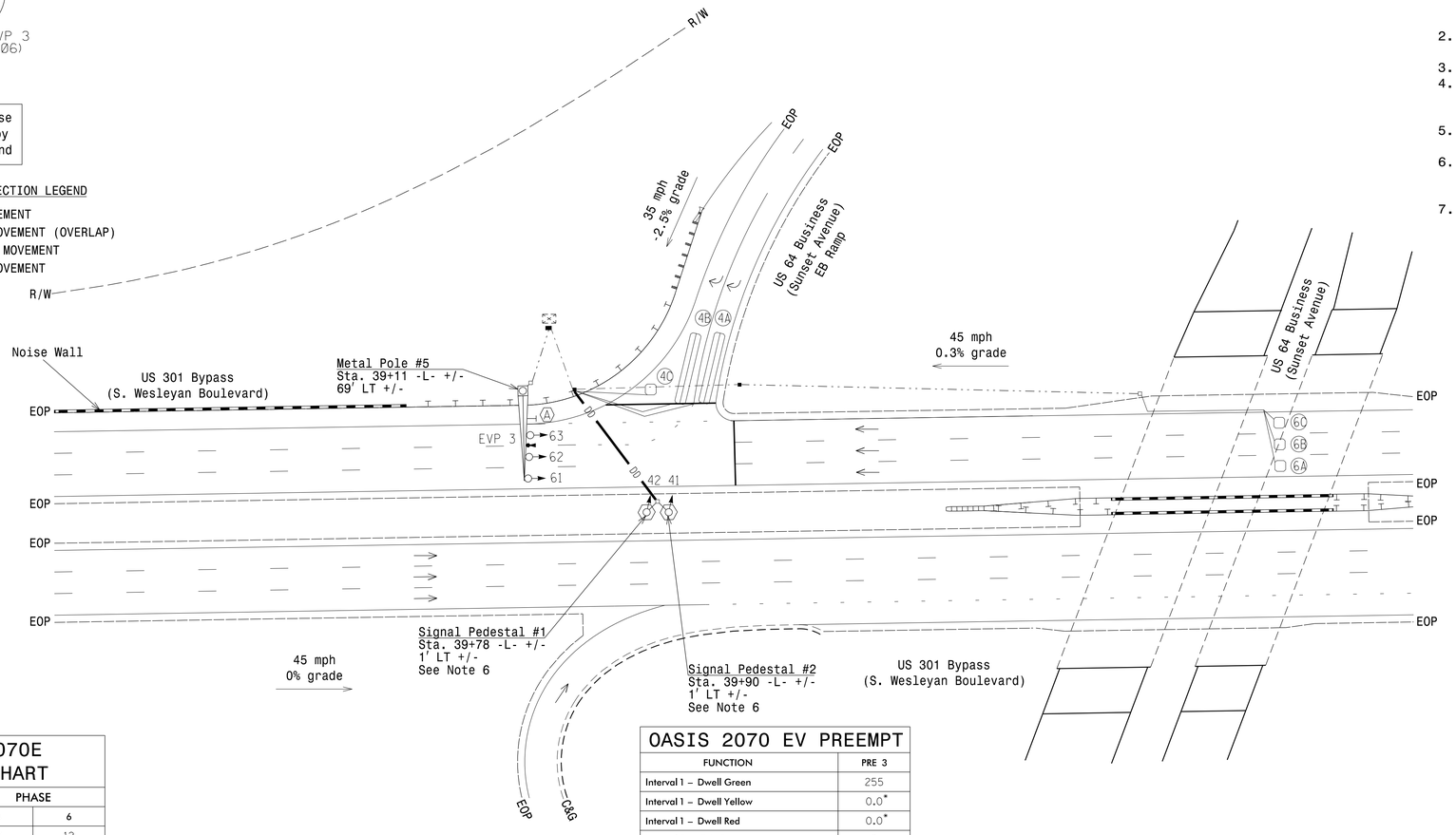
61,62,63 41,42

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
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	15	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	15	-	Y
4C	6X6	5	3	Y	4	Y	Y	-	-	15	-	Y
6A	6X6	300	5	Y	6	Y	Y	-	-	-	-	-
6B	6X6	300	5	Y	6	Y	Y	-	-	-	-	-
6C	6X6	300	5	Y	6	Y	Y	-	-	-	-	Y

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal Sytem

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
5. Relocate EVP 3 detector on new mast arm. Reuse existing Phase Selector. See Project Special Provisions.
6. Pedestal mounted signal heads shall be mounted a minimum of 8' above the high point of the roadway surface elevation.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
	Metal Pole with Mastarm	
⬡	Signal Pedestal	⬢
	Inductive Loop Detector	
⊠	Controller & Cabinet	⊠
□	Junction Box	■
	2-in Underground Conduit	
N/A	Right of Way	
→	Directional Arrow	→
○◁	Emergency Vehicle Detector	●◁
N/A	Guardrail	
N/A	Concrete Barrier	
Ⓐ	No Right Turn Sign (R3-1)	Ⓐ

OASIS 2070E TIMING CHART		
	PHASE	
FEATURE	4	6
Min Green 1 *	7	12
Extension 1 *	2.0	6.0
Max Green 1 *	30	60
Yellow Clearance	3.3	4.5
Red Clearance	1.8	1.3
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	34
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.0
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT	
FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (S. Wesleyan Blvd)
at
US 64 Bus (Sunset Ave) EB Ramp

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

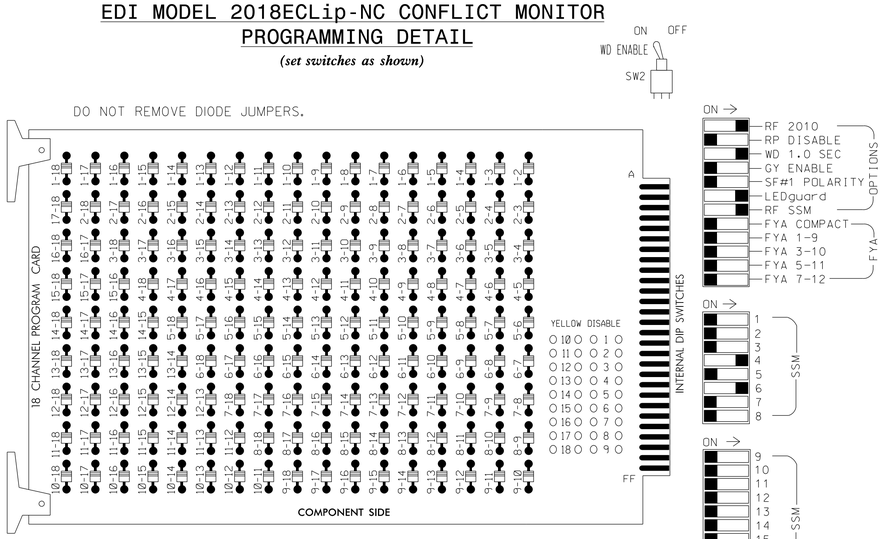
SIG. INVENTORY NO. 04-1409

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Variable Initial and Gap Reduction.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S5.S8.
PHASES USED.....4.6.
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 3.3

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	NU	NU	NU	41,42	NU	NU	61,62, 63	NU	NU	NU	NU
RED					101			134				
YELLOW								135				
GREEN								136				
RED ARROW												
YELLOW ARROW					102							
GREEN ARROW					103							

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

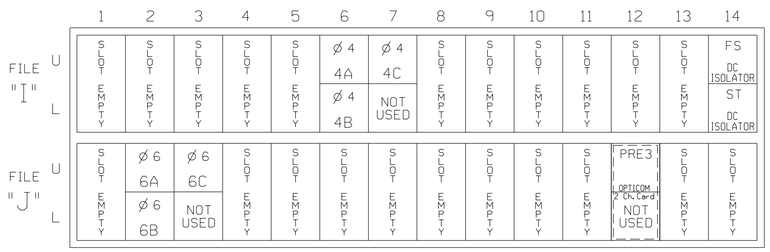
```
    PREEMPTION  #3  SETTINGS (NEXT:1-10)
 INTERVAL/TIMING  |  CLEAR/DWELL PHASES
   GRN YEL  RED   |  123456789101112131415 16
1  255  0.0  0.0  |      X
2    0  0.0  0.0  |
3    0  0.0  0.0  |
4    0  0.0  0.0  |
5    0  0.0  0.0  |
EXIT CALLS        |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                  | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW     |
OMIT OVERLAPS:             |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

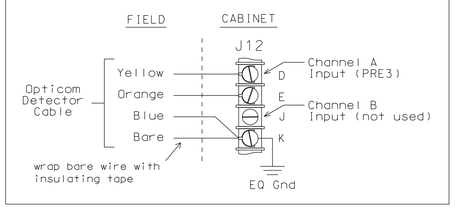
FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



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
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			15
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			15
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
6C	TB3-9,10	J3U	64	26	36	6	Y	Y			

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1409
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (S. Wesleyan Blvd) at US 64 Bus (Sunset Ave) EB Ramp

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER
MELISSA B. TOTH

Developed by: Melissa B. Toth SIGNATURE 1/30/2017 DATE

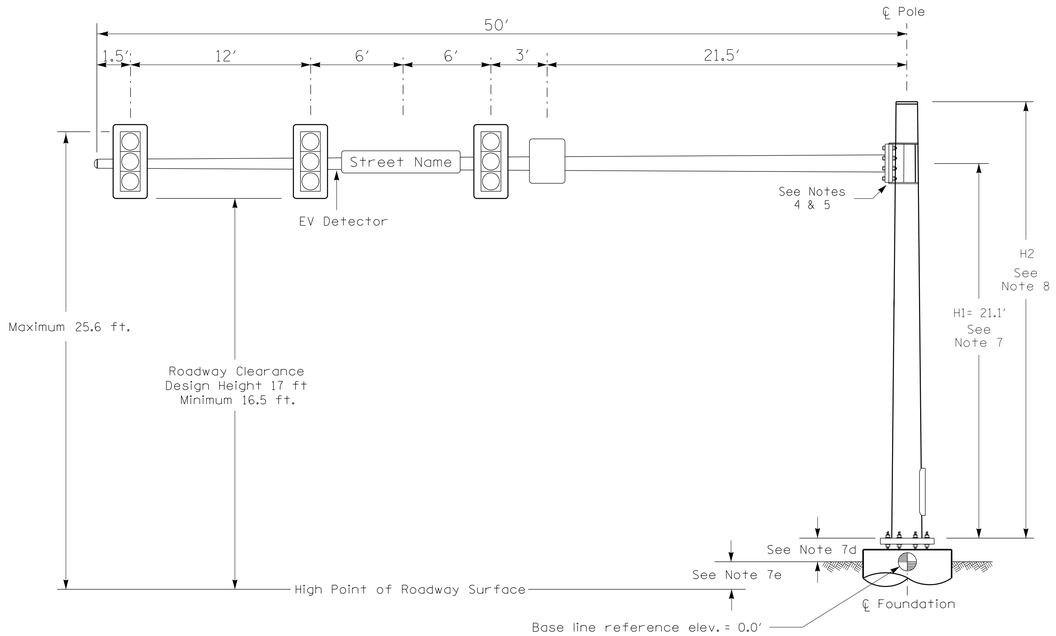
SIG. INVENTORY NO. 04-1409

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Design Loading for METAL POLE NO. 5, MAST ARM A



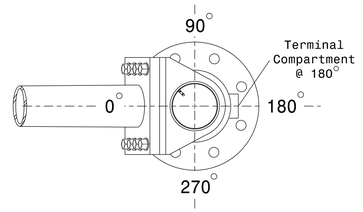
Elevation View @ 0°

SPECIAL NOTE

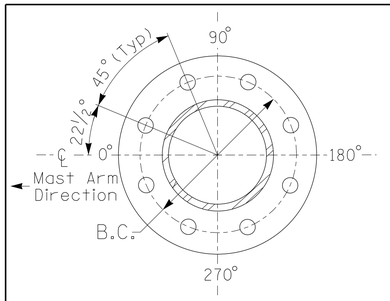
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 5	
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	+2.1 ft.	
Elevation difference at Edge of travelway or face of curb	+1.1 ft.	

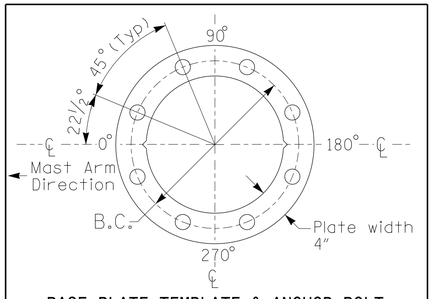


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

METAL POLE No. 5

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 3.4

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5" W X 52.5" L	60 LBS
1	SIGN RIGID MOUNTED	5.0 S.F.	24.0" W X 30.0" L	11 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0" W X 96.0" L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate arm connection points.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 773-2800.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NCDOT Wind Zone 3 (110 mph)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Metal Pole #5
US 301 Byp (S. Wesleyan Blvd)
at
US 64 Bus (Sunset Ave) EB Ramp

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Docusigned by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1409

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 4.0

PHASING DIAGRAM

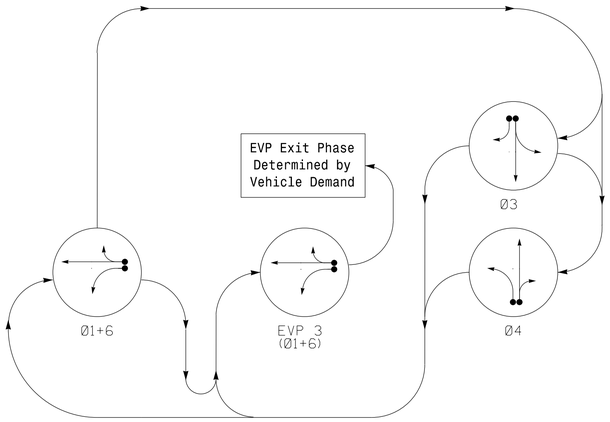
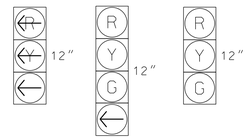


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø3	Ø4	EVP 3	FLASH
11	←	R	R	←	R
31	R	G ←	R	R	R
32	R	G	R	R	R
41	R	R	G ←	R	R
42	R	R	G	R	R
61,62	G	R	R	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



11
51(bagged)

31
41

21,22(bagged)
32
42
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
1A	6x40	0	2-4-2	-	1	Y	Y	-	-	-	-	-
3A	6x40	+5	2-4-2	-	3	Y	Y	-	-	3	-	-
3B	6x40	+5	2-4-2	-	3	Y	Y	-	-	15	-	-
4A	6x40	+5	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6x40	+5	2-4-2	-	4	Y	Y	-	-	10	-	-
6A,6B	6x6	70	3	-	6	Y	Y	-	-	-	-	-

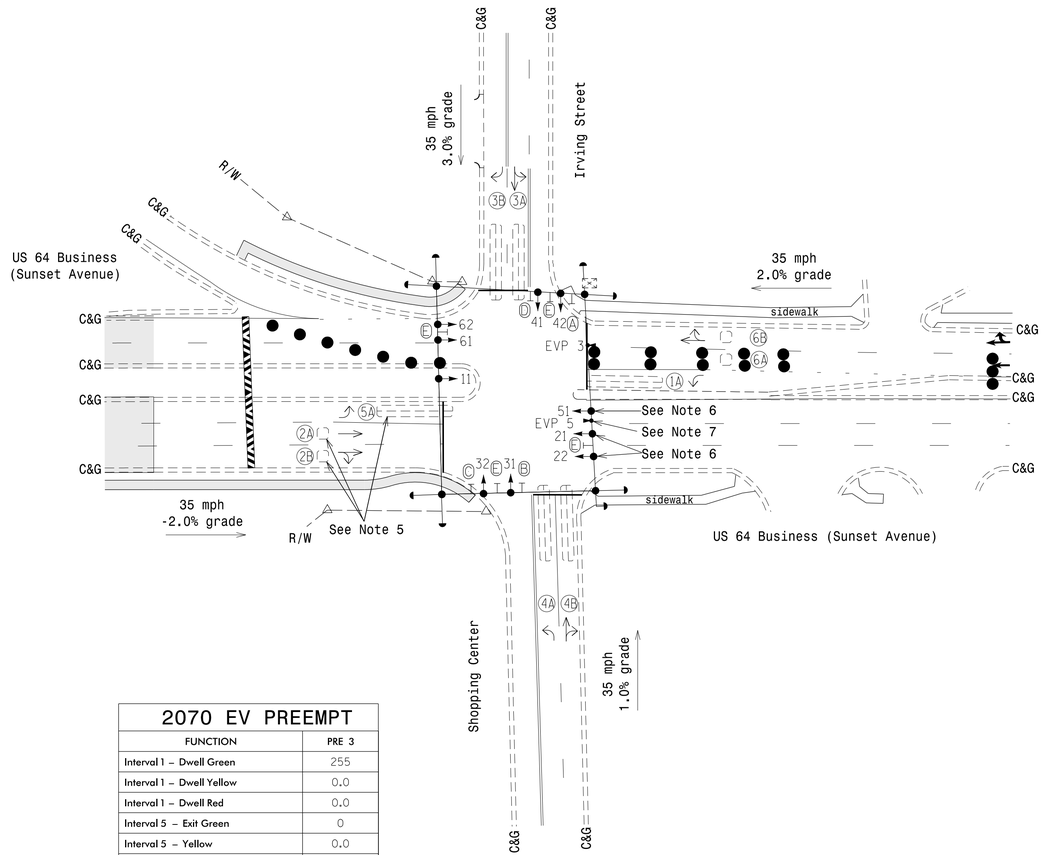
3 Phase W / EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. The order of phase 3 and phase 4 may be reversed.
4. Reposition existing signal heads numbered 61 and 62 as shown.
5. Abandon existing loops # 2A, 2B, and 5A.
6. Disable and bag heads 21, 22, and 51.
7. Disable EVP 5.
8. Set all detector units to presence mode.
9. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○→	Signal Pole with Guy	●→
○↓	Signal Pole with Sidewalk Guy	●↓
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
- - - - -	2-in Underground Conduit	- - - - -
N/A	Right of Way	———
→	Directional Arrow	→
⋈	Emergency Vehicle Detector	⋈
Ⓐ	Combined Through and Right Arrow Sign (R3-6R)	Ⓐ
Ⓑ	Combined Through and Left Arrow Sign (R3-6L)	Ⓑ
Ⓒ	Right Arrow "ONLY" Sign (R3-5R)	Ⓒ
Ⓓ	Left Arrow "ONLY" Sign (R3-5L)	Ⓓ
Ⓔ	Street Name Sign	Ⓔ
	Construction Zone	
●●	Construction Zone Drums	●●
WZ	Construction Barricade	WZ

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	3	4	6
Min Green 1 *	10	7	7	10
Extension 1 *	2.0	2.0	2.0	3.0
Max Green 1 *	45	25	25	45
Yellow Clearance	3.0	3.7	3.8	3.7
Red Clearance	2.4	1.9	2.0	1.1
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0
Interval 1 – Dwell Red	0.0
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0
Red Clear Before Pre	0.0
Dwell Min Time	10
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Temporary Design (Area 1 TMP Phases I and II)

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 64 Business (Sunset Avenue) at Irving Street

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DOCUSIGNATURE DATE

SIG. INVENTORY NO. 04-0666T1

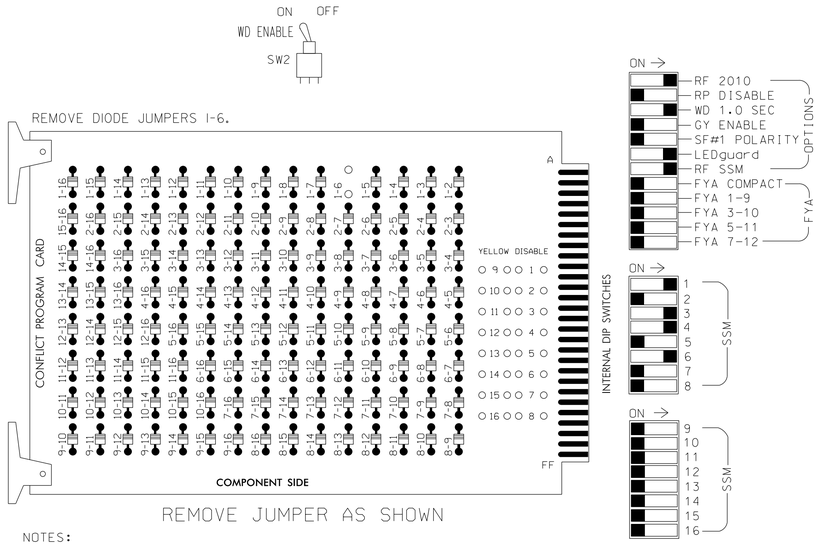
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 4.1

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumper and set switches as shown)



REMOVE JUMPER AS SHOWN

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Make sure jumpers SEL2-SEL5 are present on the monitor board.

■ = 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. 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 2,5,7,8, 9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET.....EXISTING 332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S3,S4,S6
PHASES USED.....1,3,4,6

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.	11	NU	NU	31	32	41	42	NU	NU	61,62	NU	NU	NU	NU
RED				116	116	101	101			134				
YELLOW				117	117	102	102			135				
GREEN				118	118	103	103			136				
RED ARROW	125													
YELLOW ARROW	126													
GREEN ARROW	127			118		103								

NU = Not Used

Temporarily disconnect heads 21, 22, and 51.

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

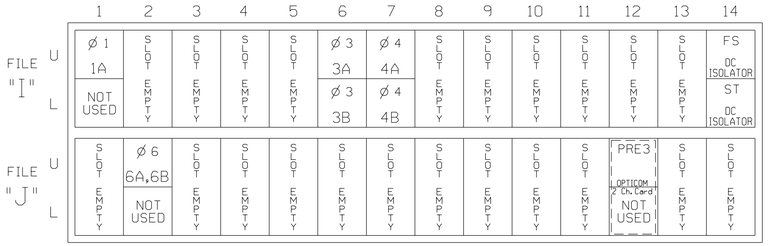
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   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   | 12345678910111213141516
1 255  0.0  0.0  | X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .....MED
DELAY TIMER (0-255 SEC) .....0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .....10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .....0
LATCH CALL? .....N
LINK TO NEXT PREEMPT? .....N
ENABLE BACKUP PROTECTION? .....N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .....N
PED CLEARANCE THROUGH YELLOW? .....N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .....N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? .....N
ALLOW PEDS IN DWELL INTERVAL? .....N
RE-TIME DWELL INTERVAL? .....N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

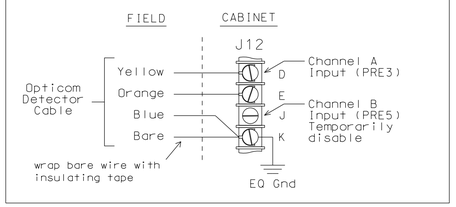
Temporarily disconnect loops 2A, 2B & 5A.

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



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
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			15
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			3
4B	TB6-3,4	I7L	78	40	44	4	Y	Y			10
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0666T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL DETAIL - Temporary Design 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
State of North Carolina Department of Transportation
Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 64 Business (Sunset Avenue) at Irving Street

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY: MB Toth
PREPARED BY AM Encarnacion	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth — SIGNATURE — 1/30/2017 DATE

SIG. INVENTORY NO. 04-0666T1

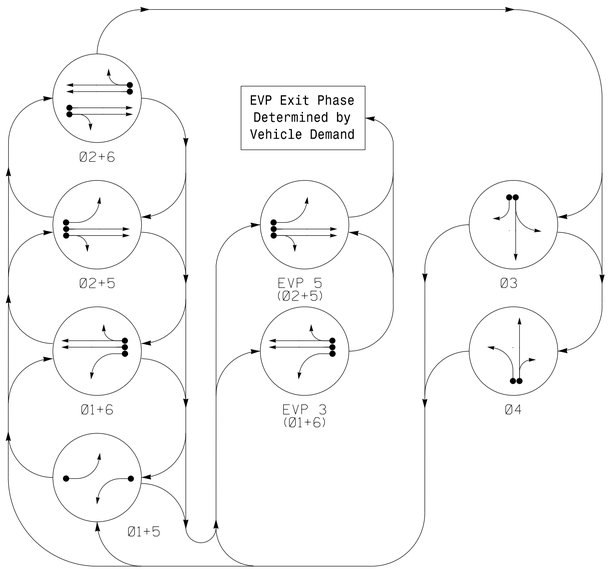
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 4.2

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

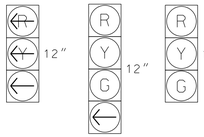
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 5	FLASH
11	←-	←-	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~	~~R~~
21, 22	R	R	G	G	R	R	R	G	Y
31	R	R	R	R	G	R	R	R	R
32	R	R	R	R	G	R	R	R	R
41	R	R	R	R	R	G	R	R	R
42	R	R	R	R	R	G	R	R	R
51	←-	~~R~~	←-	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~
61, 62	R	G	R	G	R	R	G	R	Y

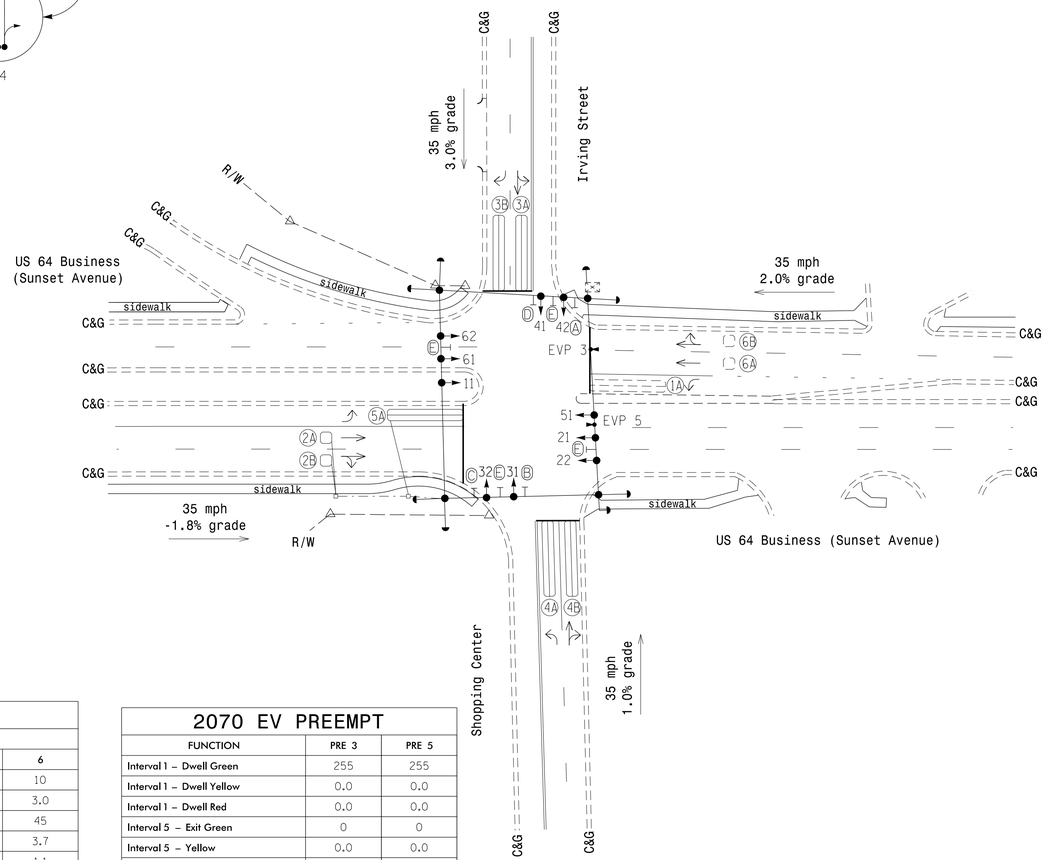
SIGNAL FACE I.D.

All Heads L.E.D.



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
1A	6x40	0	2-4-2	-	1	Y	Y	-	-	-	-	-
2A,2B	6x6	70	4	Y	2	Y	Y	-	-	-	-	-
3A	6x40	+5	2-4-2	Y	3	Y	Y	-	-	3	-	-
3B	6x40	+5	2-4-2	Y	3	Y	Y	-	-	15	-	-
4A	6x40	+5	2-4-2	Y	4	Y	Y	-	-	3	-	-
4B	6x40	+5	2-4-2	Y	4	Y	Y	-	-	10	-	-
5A	6x40	0	2-4-2	Y	5	Y	Y	-	-	-	-	-
6A,6B	6x6	70	3	-	6	Y	Y	-	-	-	-	-



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 61 and 62 as shown.
6. Set all detector units to presence mode.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○—	Signal Pole with Guy	●—
○—	Signal Pole with Sidewalk Guy	●—
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----------	2-in Underground Conduit	----------
N/A	Right of Way	----------
→	Directional Arrow	→
⊂	Emergency Vehicle Detector	⊂
Ⓐ	Combined Through and Right Arrow Sign (R3-6R)	Ⓐ
Ⓑ	Combined Through and Left Arrow Sign (R3-6L)	Ⓑ
Ⓒ	Right Arrow "ONLY" Sign (R3-5R)	Ⓒ
Ⓓ	Left Arrow "ONLY" Sign (R3-5L)	Ⓓ
Ⓔ	Street Name Sign	Ⓔ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	10	7	7	7	10
Extension 1 *	2.0	3.0	2.0	2.0	2.0	3.0
Max Green 1 *	10	45	25	25	10	45
Yellow Clearance	3.0	4.0	3.7	3.8	3.0	3.7
Red Clearance	2.4	1.2	2.0	2.3	2.4	1.1
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0	0.0
Interval 1 – Dwell Red	0.0	0.0
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0	0.0
Red Clear Before Pre	0.0	0.0
Dwell Min Time	10	10
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Final Design (Area 1 TMP Phase III & Final)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section, NC Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 64 Business (Sunset Avenue) at Irving Street

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth — SIGNATURE — 1/30/2017 DATE

SIG. INVENTORY NO. 04-0666

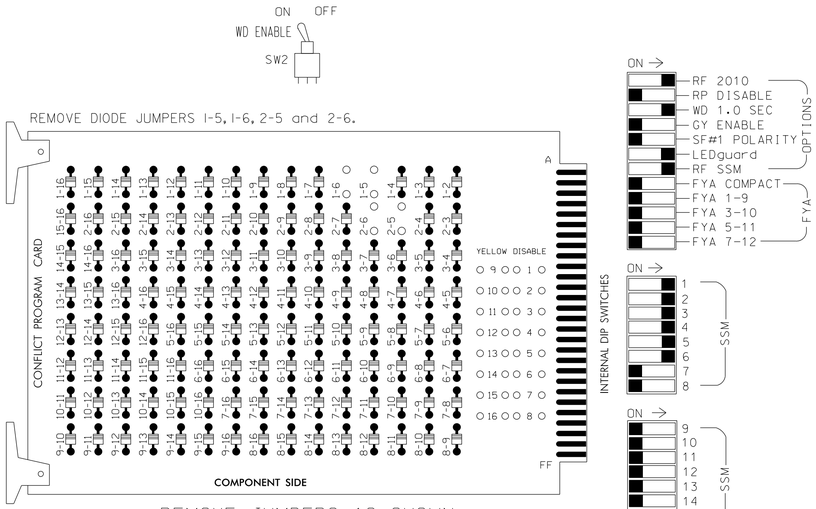
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 4.3

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

■ = 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. 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 7,8,9,10, 11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET.....EXISTING 332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S3,S4,S5,S6
PHASES USED.....1,2,3,4,5,6

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.	11	21,22	NU	31	32	41	42	NU	51	61,62	NU	NU	NU	NU
RED		128		116	116	101	101			134				
YELLOW		129		117	117	102	102			135				
GREEN		130		118	118	103	103			136				
RED ARROW	125								131					
YELLOW ARROW	126								132					
GREEN ARROW	127			118		103			133					

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
    PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:              | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW |
OMIT OVERLAPS:         |
```

PRESS 'NEXT' TWICE

```
    PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:              | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW |
OMIT OVERLAPS:         |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø1 1A	Ø2 2A,2B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø3 3A	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	NOT USED				Ø3 3B	Ø4 4B							ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø6 6A,6B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE3 OPTICOM 2 Ch.Card PRE5	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	NOT USED												

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

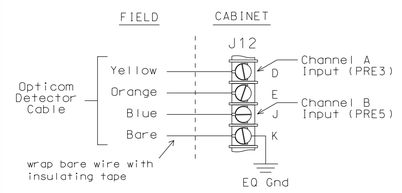
FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



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
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			3
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			15
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			3
4B	TB6-3,4	I7L	78	40	44	4	Y	Y			10
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0666
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - TMP Area 1, Phase III & Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

US 64 Business (Sunset Avenue) at Irving Street

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth SIGNATURE 1/30/2017 DATE

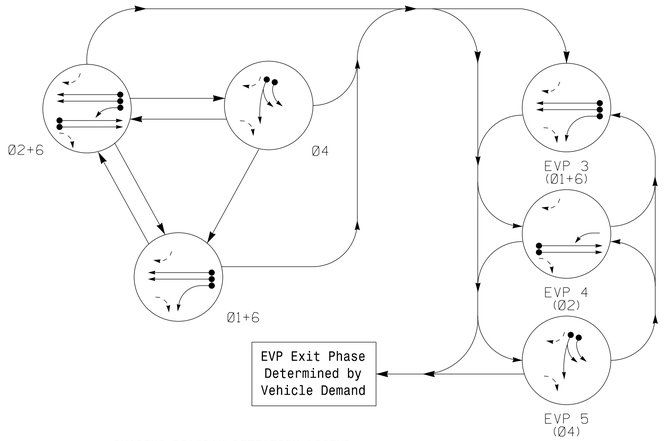
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 5.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø2+6	Ø4	EVP 3	EVP 4	EVP 5	FLASH
11	←	FY	R	←	FY	R	Y
21, 22	R	G	R	R	G	R	Y
41, 42	R	R	G	R	R	G	R
61, 62	G	G	R	G	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.

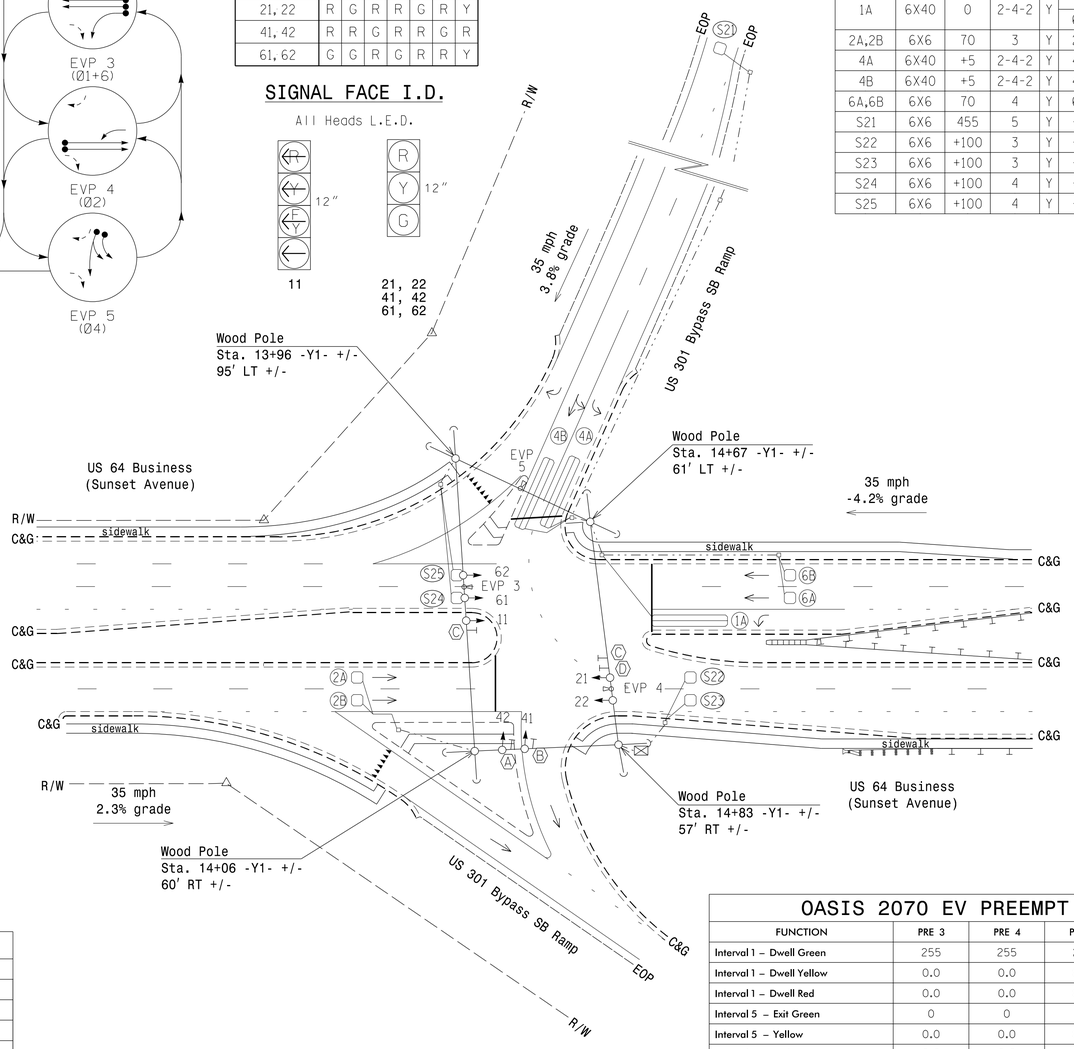
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
					6	Y	Y	-	-	-	-	Y
2A,2B	6X6	70	3	Y	2	Y	Y	-	-	-	-	Y
4A	6X40	+5	2-4-2	Y	4	Y	Y	-	-	-	-	Y
4B	6X40	+5	2-4-2	Y	4	Y	Y	-	-	-	-	Y
6A,6B	6X6	70	4	Y	6	Y	Y	-	-	-	-	Y
S21	6X6	455	5	Y	-	Y	Y	-	-	-	Y	Y
S22	6X6	+100	3	Y	-	Y	Y	-	-	-	Y	Y
S23	6X6	+100	3	Y	-	Y	Y	-	-	-	Y	Y
S24	6X6	+100	4	Y	-	Y	Y	-	-	-	Y	Y
S25	6X6	+100	4	Y	-	Y	Y	-	-	-	Y	Y

3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Install EVP 3, EVP 4 and EVP 5 detectors on new spans. Install Phase Selectors in signal cabinet. See Project Special Provisions.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●
○↓	Signal Pole with Sidewalk Guy	●↓
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----	2-in Underground Conduit	----
N/A	Right of Way	----
→	Directional Arrow	→
○	Emergency Vehicle Detector	●
N/A	Guardrail	⊥⊥
Ⓐ	Combined Through and Left Arrow Sign (R3-6L)	Ⓐ
Ⓑ	Left Arrow "ONLY" Sign (R3-5L)	Ⓑ
Ⓒ	No U-Turn Sign (R3-4)	Ⓒ
Ⓓ	Through Arrow "ONLY" Sign (R3-5A)	Ⓓ

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	4	6
Min Green 1 *	7	10	7	10
Extension 1 *	2.0	3.0	2.0	3.0
Max Green 1 *	15	45	25	45
Yellow Clearance	3.1	4.2	3.7	4.2
Red Clearance	3.1	2.0	2.5	2.0
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	-	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0	0.0	0.0
Interval 1 – Dwell Red	0.0	0.0	0.0
Interval 5 – Exit Green	0	0	0
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	-	-	-
Priority	MED	MED	MED
Delay Time	0.0	0.0	0.0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0	0	0
Yellow Clear Before Pre	0.0	0.0	0.0
Red Clear Before Pre	0.0	0.0	0.0
Dwell Min Time	10	10	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	-	-	-
Preempt Extend**	5	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Final Design

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 64 Business (Sunset Avenue) at US 301 Byp. Southbound Ramps
Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Drawn/Signed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

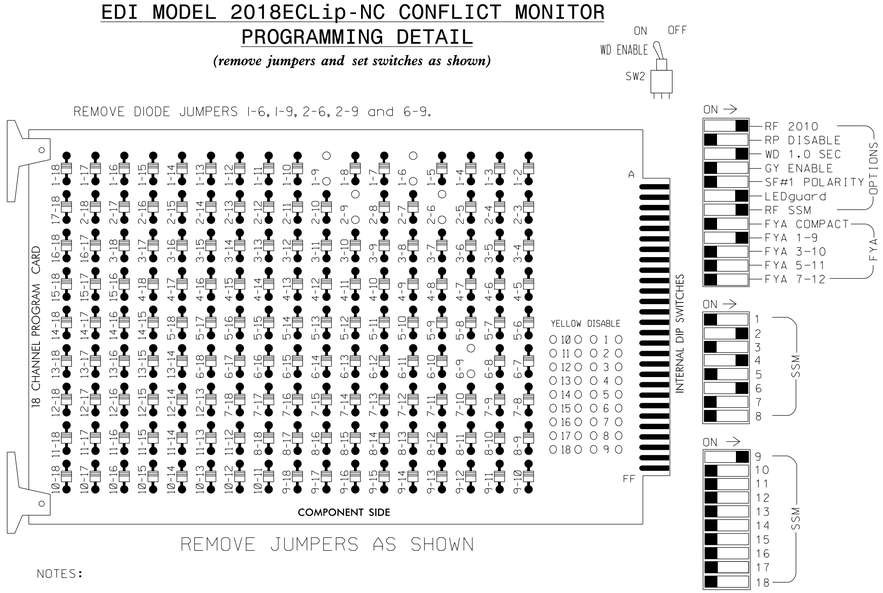
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlaps.
5. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

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

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 5.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22	NU	NU	41,42	NU	NU	61,62	NU	NU	NU	NU	11★	NU	NU	NU	NU	NU
RED		128			101			134										
YELLOW	✳	129			102			135										
GREEN		130			103			136										
RED ARROW													A121					
YELLOW ARROW													A122					
FLASHING YELLOW ARROW													A123					
GREEN ARROW	127																	

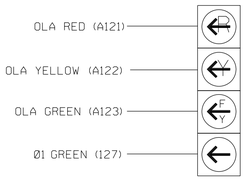
NU = Not Used

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

★ See pictorial of head wiring in detail below.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



11

NOTE

1. The sequence display for this signal requires special logic programming. See sheet 2 of 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" U	Ø1 1A	Ø2 2A,2B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø4 4A	SYS. DET. S21	SLOT EMPTY	SYS. DET. S22	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
FILE "I" L	NOT USED	NOT USED				Ø4 4B	NOT USED		SYS. DET. S23					ST DC ISOLATOR
FILE "J" U	SLOT EMPTY	Ø6 6A,6B	SLOT EMPTY	WAPE ⊗ INPUT	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SYS. DET. S24	SLOT EMPTY	SLOT EMPTY	PRE3	PRE4	SLOT EMPTY
FILE "J" L		NOT USED							SYS. DET. S25			OPTICOM4-CHANNEL PRE5	NOT USED	

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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

INPUT FILE CONNECTION & PROGRAMMING CHART

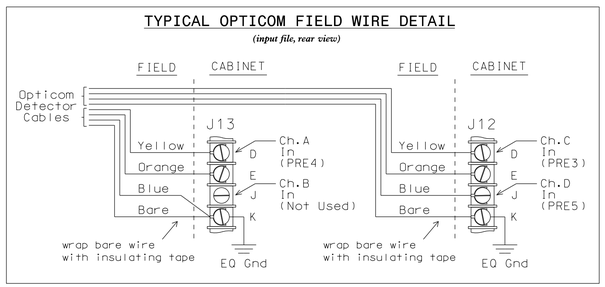
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y			
2A,2B	TB2-5,6	I2U	39	1	2	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
✳S21	TB6-1,2	I7U	65	27	34	SYS					
✳S22	TB6-9,10	I9U	60	22	11	SYS					
✳S23	TB6-11,12	I9L	62	24	13	SYS					
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
✳S24	TB7-9,10	J9U	59	21	15	SYS					
✳S25	TB7-11,12	J9L	61	23	17	SYS					

✳ SYSTEM DETECTOR ONLY. REMOVE THE VEHICLE PHASE ASSIGNED TO THIS DETECTOR IN THE DEFAULT PROGRAMMING.

[1]Add jumper from I1-W to J4-W, on rear of input file.

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0429
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Final Design (Electrical Detail Sheet 1 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
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Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0429

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 5.2

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2 AND 3.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
  LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON
AND RED CLEAR ON PHASE #1  IS ON

                 ↓
            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #50 ON
 SET OUTPUT  ASSIGNMENT #51 OFF
```

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

PRESS '+'

```
  LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE       #1  IS ON

                 ↓
            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #52 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

PRESS '+'

```
  LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE    #1  IS ON

                 ↓
            SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #51 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3, 4 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) ..........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) ........0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) ..........10
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) ........0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |   X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) ..........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) ........0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

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:              |123456789101112131415 16
VEH OVL PARENTS:     |XX
VEH OVL NOT VEH:     |
VEH OVL NOT PED:     |
VEH OVL GRN EXT:     |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN   ← NOTICE GREEN FLASH
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0429
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Final Design (Electrical Detail Sheet 2 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division · State of North Carolina · Department of Transportation · Traffic Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 64 Business (Sunset Avenue)
at
US 301 Byp. Southbound Ramps

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY:	MB Toth
PREPARED BY: AM Encarnacion	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DocuSigned SIGNATURE DATE

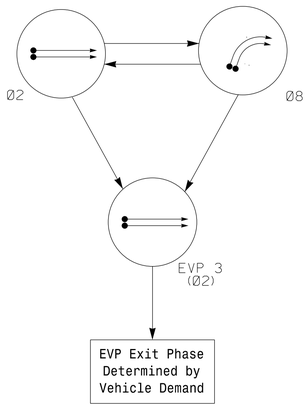
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 6.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

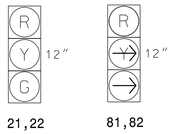
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2	PHASE Ø8	PHASE EVP 3	PHASE FLASH
21, 22	G	R	G	Y
81, 82	R	→	R	R

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

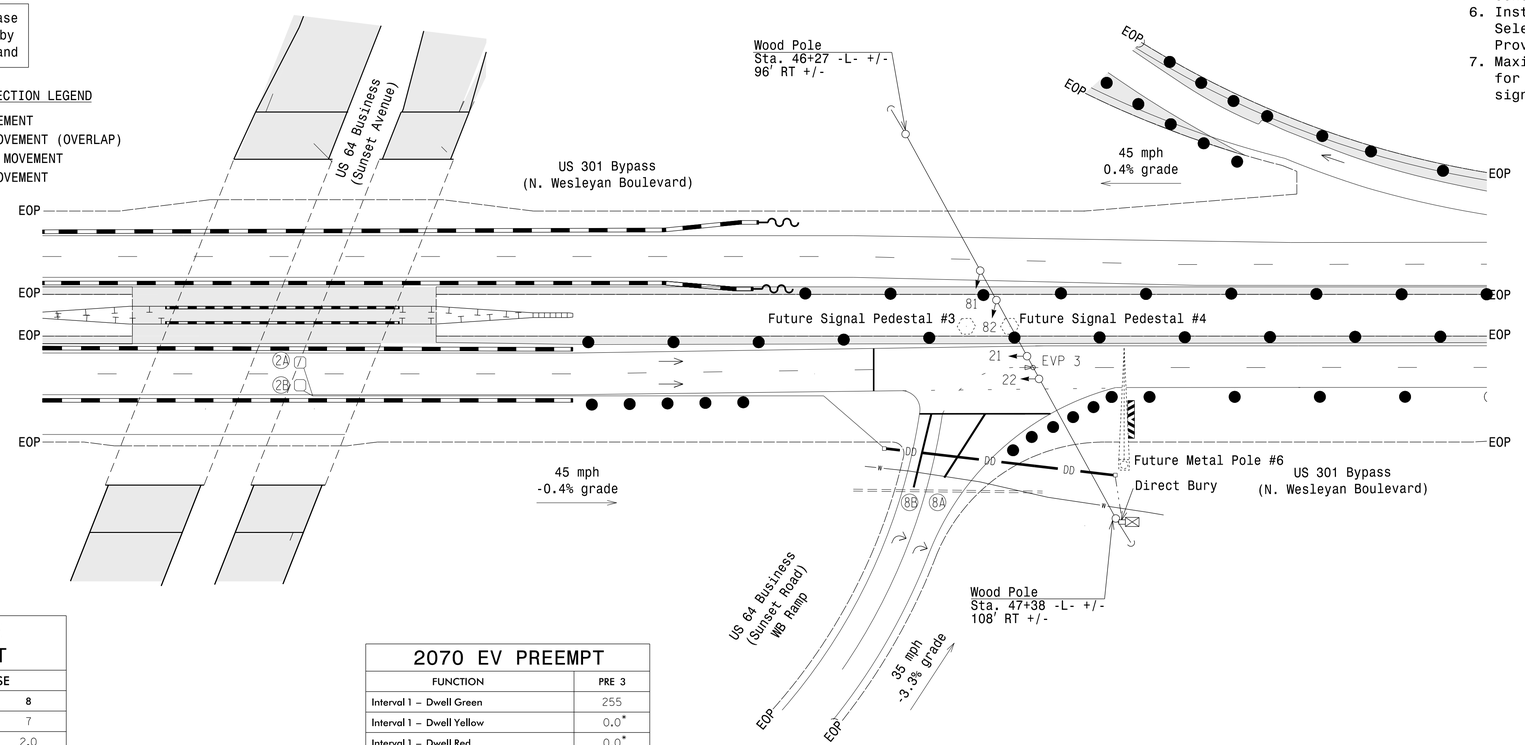
DETECTION ZONES					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	300	5	Y	2	Y	Y	-	-	-	-	✳
2B	6X6	300	5	Y	2	Y	Y	-	-	-	-	✳
8A	6X40	0	✳	Y	8	Y	Y	-	-	15	-	✳
8B	6X40	0	✳	Y	8	Y	Y	-	-	15	-	✳

✳ Video Detection

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all loop emulators to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. Install EVP 3 detector on new span. Install Phase Selector in signal cabinet. See Project Special Provisions.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	
□↓	Pedestrian Signal Head	■↓
○→	Signal Pole with Guy	●→
○→	Signal Pole with Sidewalk Guy	●→
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊡
□	Junction Box	■
·-·-·-	2-in Underground Conduit	·-·-·-
N/A	Right of Way	- - - -
→	Directional Arrow	→
N/A	Guardrail	⊤⊤⊤
○	Emergency Vehicle Detector	●
▭	Construction Zone	▭
▨	Construction Barricade	▨
≈	Crash Cushion	≈
▬	Portable Concrete Barrier	▬
———	Video Detection Area	———
N/A	UG Water Line	—W—
N/A	Drainage Pipe	- - - -

OASIS 2070E TIMING CHART

FEATURE	PHASE 2	PHASE 8
Min Green 1 *	12	7
Extension 1 *	6.0	2.0
Max Green 1 *	60	30
Yellow Clearance	4.6	3.4
Red Clearance	1.3	1.7
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	1.5	-
Max Variable Initial *	34	-
Time Before Reduction *	15	-
Time To Reduce *	30	-
Minimum Gap	3.0	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	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.

2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Signal (Area 1 TMP Phase II and III)

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd)
at
US 64 Bus (Sunset Ave) WB Ramp

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

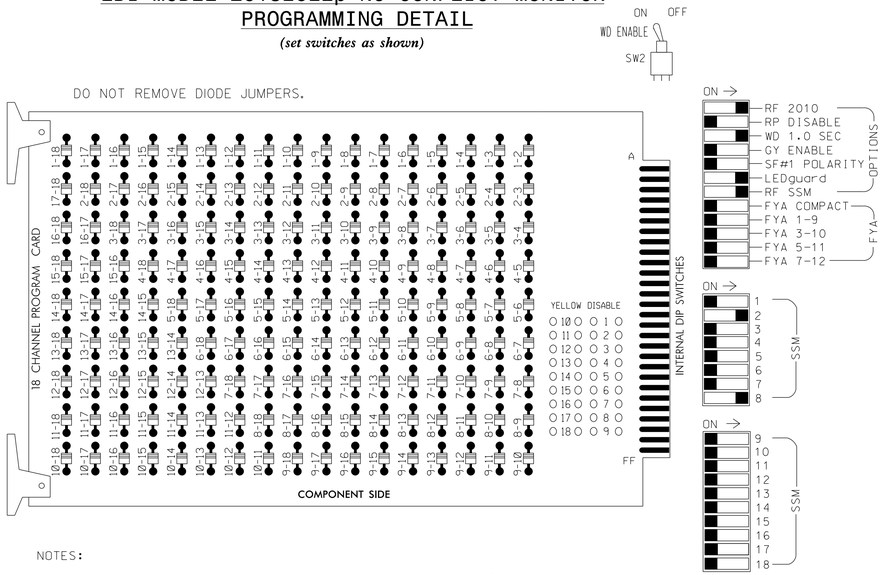
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 2 for Variable Initial and Gap Reduction.
4. Program phase 2 for Start Up In Green.
5. Program phase 2 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S11
PHASES USED.....2,8
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 6.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	NU	NU	NU	NU	NU	NU	81,82	NU
RED		128									107	
YELLOW		129										
GREEN		130										
RED ARROW												
YELLOW ARROW											108	
GREEN ARROW											109	

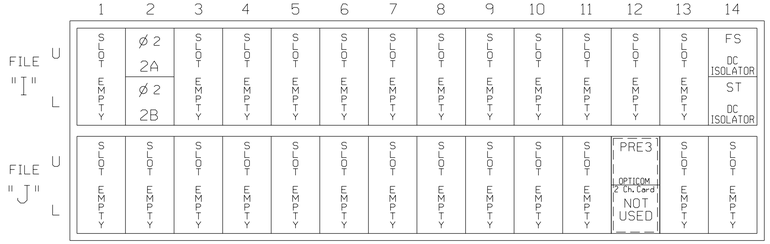
NU = Not Used

SPECIAL DETECTOR NOTE

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

INPUT FILE POSITION LAYOUT

(front view)



INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

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			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

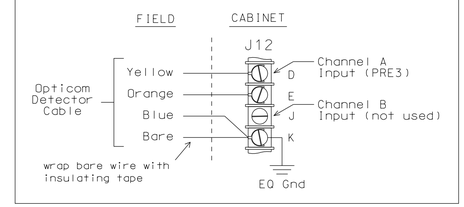
```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  :  CLEAR/DWELL PHASES
  GRN YEL  RED   :1234567891011121314151 6
1 255  0.0  0.0  : X
2   0  0.0  0.0  :
3   0  0.0  0.0  :
4   0  0.0  0.0  :
5   0  0.0  0.0  :
EXIT CALLS       :
          OPTIONS
PRIORITY (Y/N TO SELECT) .....MED
DELAY TIMER (0-255 SEC) .....0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .....12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .....0
LATCH CALL? .....N
LINK TO NEXT PREEMPT? .....N
ENABLE BACKUP PROTECTION? .....N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .....N
PED CLEARANCE THROUGH YELLOW? .....N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .....N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? .....N
ALLOW PEDS IN DWELL INTERVAL? .....N
RE-TIME DWELL INTERVAL? .....N
OVERLAPS:          : ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW :
OMIT OVERLAPS:     :
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-1408T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - Temporary Design (Area 1 TMP Phase II & III)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
State of North Carolina Department of Transportation
Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd)
at
US 64 Bus (Sunset Ave) WB Ramp

Division 04 | Nash County | Rocky Mount
PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1408T1

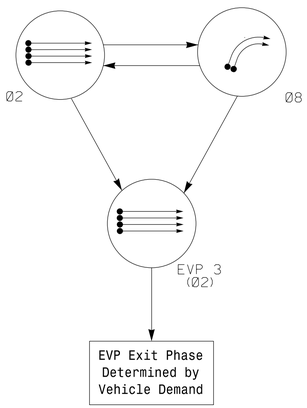
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 6.2

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

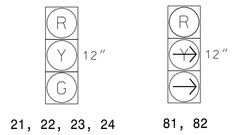
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2	PHASE Ø8	PHASE EVP 3	PHASE FLASH
21, 22, 23, 24	G	R	G	Y
81, 82	R	→	R	R

SIGNAL FACE I.D.

All Heads L.E.D.

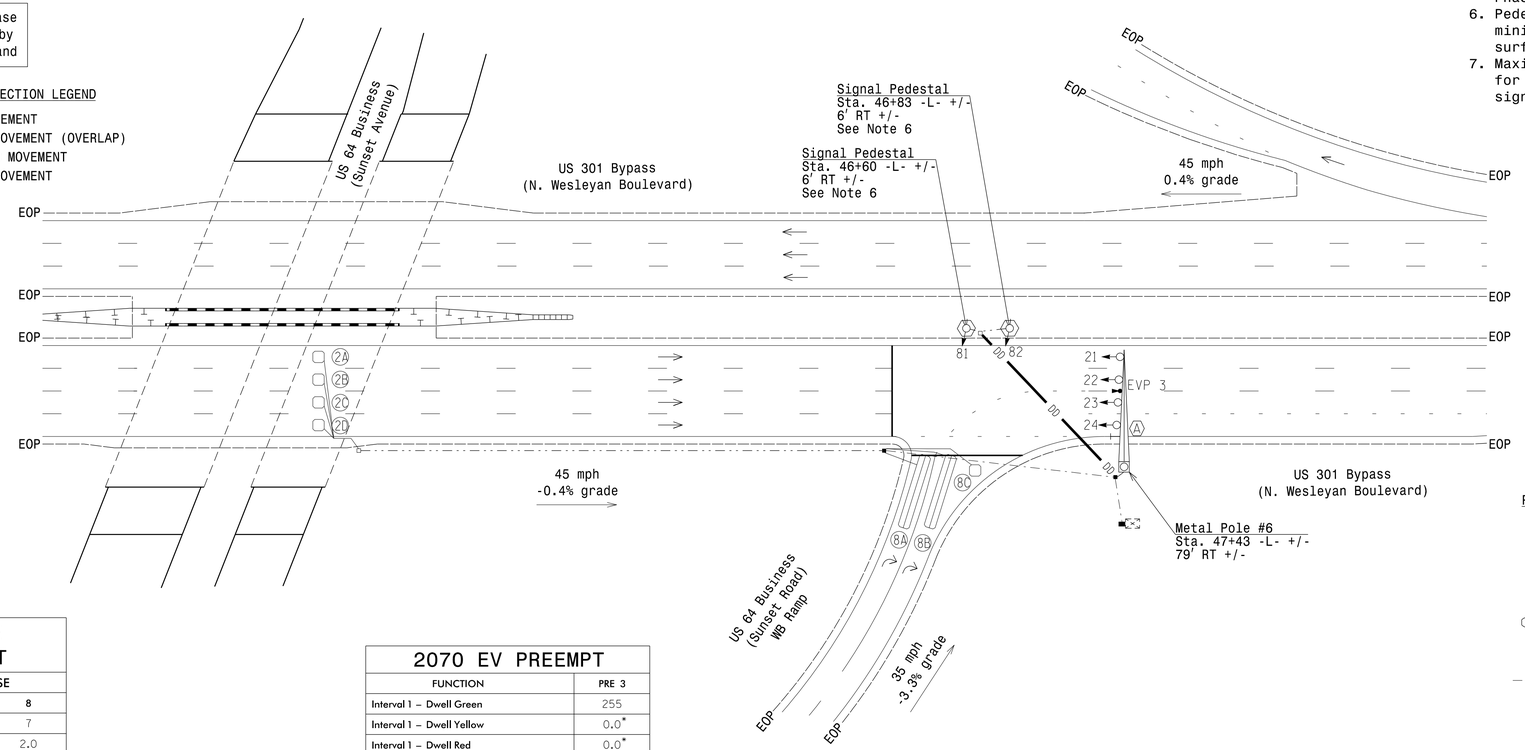


OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	300	5	Y	2	Y	Y	-	-	-	-	Y
2C	6X6	300	5	Y	2	Y	Y	-	-	-	-	Y
2D	6X6	300	5	Y	2	Y	Y	-	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	15	-	Y
8B	6X40	0	2-4-2	Y	8	Y	Y	-	-	15	-	Y
8C	6X6	5	3	Y	8	Y	Y	-	-	15	-	Y

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
5. Relocate EVP 3 detector to new mast arm. Reuse Phase Selector. See Project Special Provisions.
6. Pedestal mounted signal heads shall be mounted a minimum of 8' above the high point of the roadway surface elevation.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
○◁	Metal Pole with Mastarm	◻◁
⬡	Signal Pedestal	⬢
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	– – – –
→	Directional Arrow	→
N/A	Guardrail	⊥ ⊥
○⋈	Emergency Vehicle Detector	●⋈
Ⓐ	No Right Turn Sign (R3-1)	Ⓐ

OASIS 2070E TIMING CHART

FEATURE	PHASE 2	PHASE 8
Min Green 1 *	12	7
Extension 1 *	6.0	2.0
Max Green 1 *	60	30
Yellow Clearance	4.6	3.4
Red Clearance	1.1	1.4
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	1.5	-
Max Variable Initial *	34	-
Time Before Reduction *	15	-
Time To Reduce *	30	-
Minimum Gap	3.0	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	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.

2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd)
at
US 64 Bus (Sunset Ave) WB Ramp

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

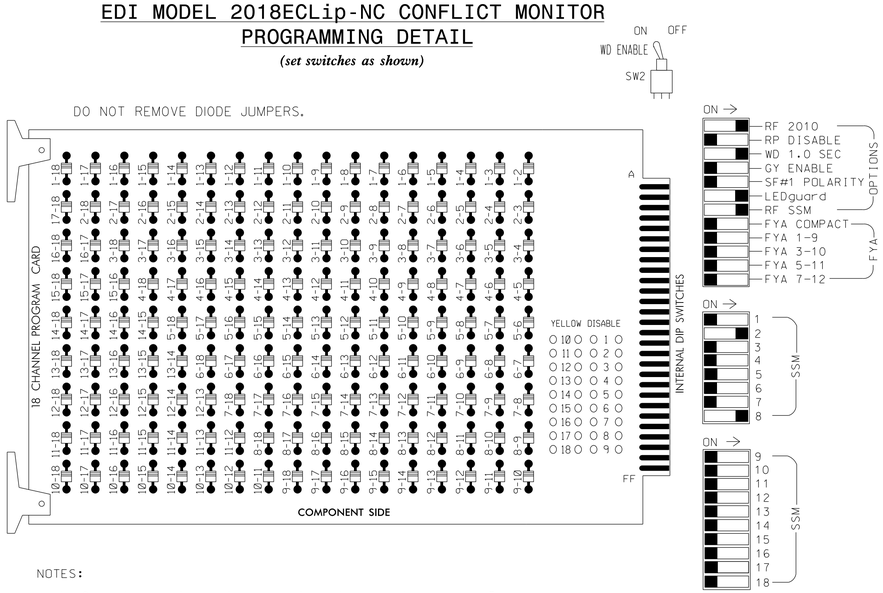
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 2 for Variable Initial and Gap Reduction.
4. Program phase 2 for Start Up In Green.
5. Program phase 2 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S11
PHASES USED.....2,8
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 6.3

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22, 23,24	NU	NU	NU	NU	NU	NU	NU	NU	81,82	NU
RED		128									107	
YELLOW		129										
GREEN		130										
RED ARROW												
YELLOW ARROW											108	
GREEN ARROW											109	

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

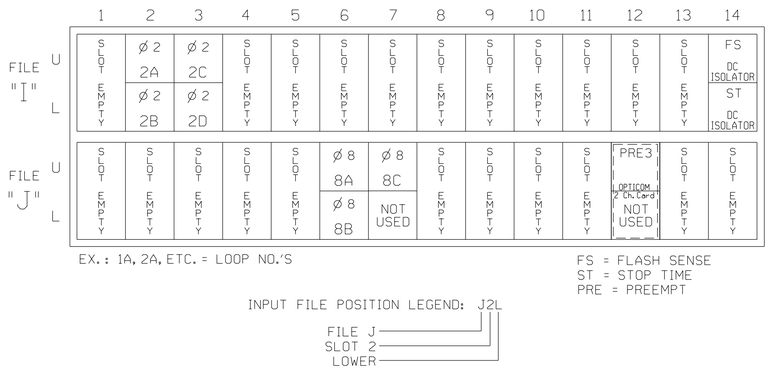
From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

```
    PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
                 OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
                 PROGRAMING COMPLETE
```

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



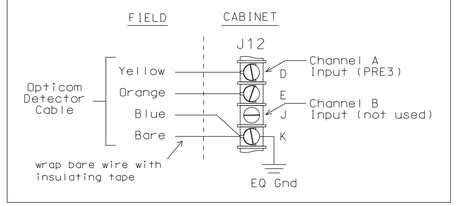
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



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			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
2C	TB2-9,10	I3U	63	25	32	2	Y	Y			
2D	TB2-11,12	I3L	76	38	42	2	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			15
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			15
8C	TB7-1,2	J7U	66	28	38	8	Y	Y			15

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1408
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd) at US 64 Bus (Sunset Ave) WB Ramp

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

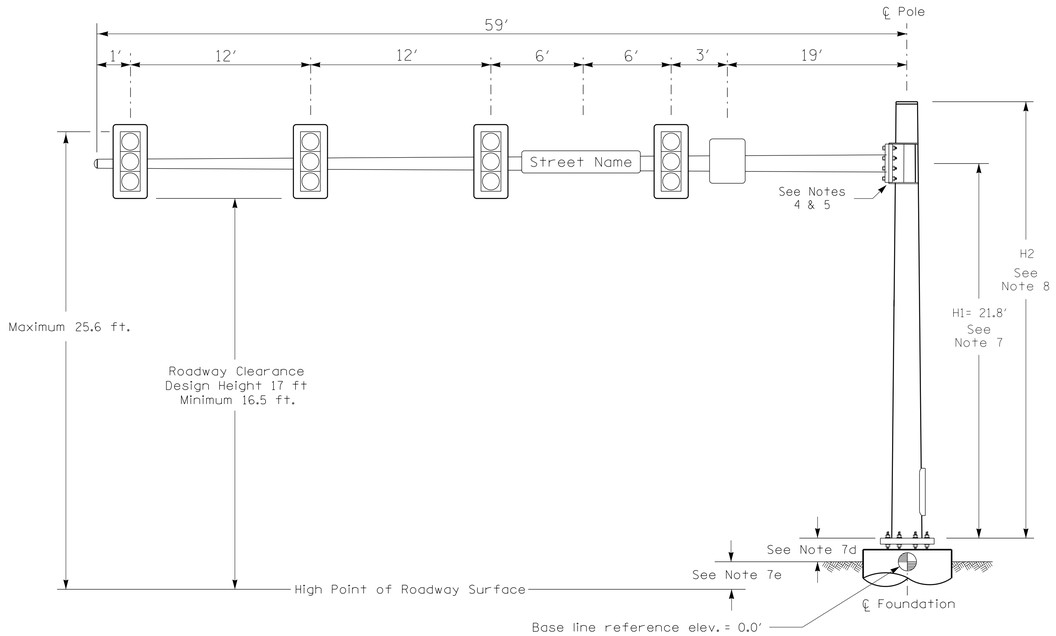
Designed by: Melissa B. Toth 1/30/2017
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Design Loading for METAL POLE NO. 6, MAST ARM A



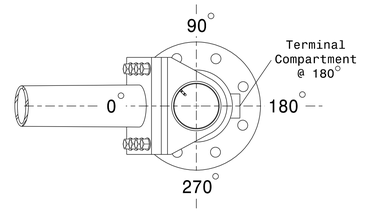
Elevation View @ 0°

SPECIAL NOTE

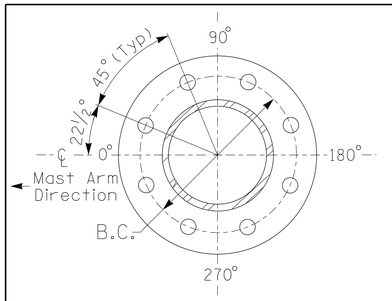
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 6	
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	+2.8 ft.	
Elevation difference at Edge of travelway or face of curb	+1.5 ft.	

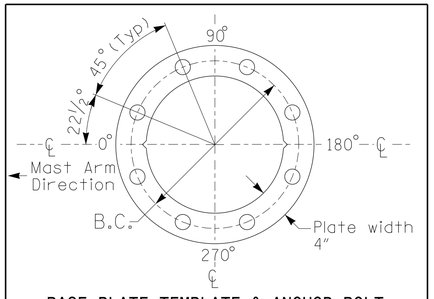


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

METAL POLE No. 6

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 6.4

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″ W X 52.5″ L	60 LBS
1	SIGN RIGID MOUNTED	5.0 S.F.	24.0″ W X 30.0″ L	11 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0″ W X 96.0″ L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate arm connection points.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 773-2800.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NCDOT Wind Zone 3 (110 mph)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Metal Pole #6
US 301 Byp (N. Wesleyan Blvd)
at
US 64 Bus (Sunset Ave) WB Ramp

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

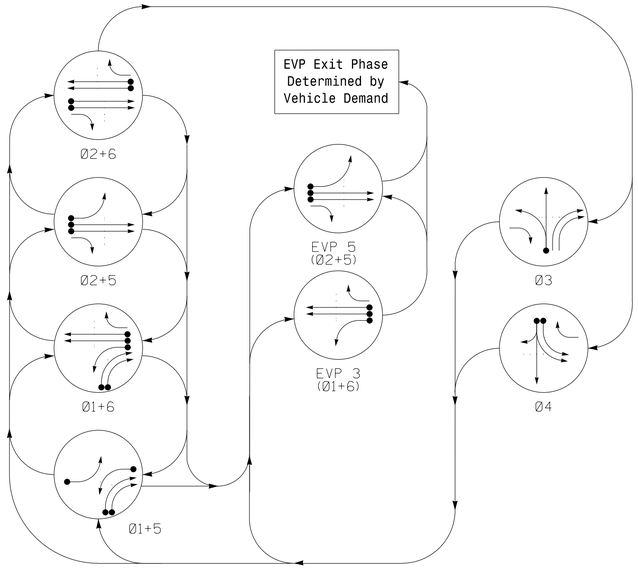
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

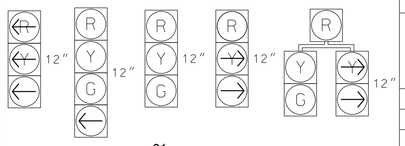
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 5	FLASH
11	←	←	R	R	R	R	←	R	R
21	R	R	G	G	R	R	R	G	Y
22	R	R	G	G	R/→	R	R	G	Y
31	R	R	R	R	G	R	R	R	R
32	R	R	R	R	G	R	R	R	R
33, 34	→	→	R	R	→	R	R	R	R
41	R	R	R	R	R	G	R	R	R
42	R	R	R	R	R	G	R	R	R
51	←	R	←	R	R	R	R	←	R
61	R	G	R	G	R	R	G	R	Y
62	R	G	R	G	R	R/→	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 DETECTION INSTALLATION CHART

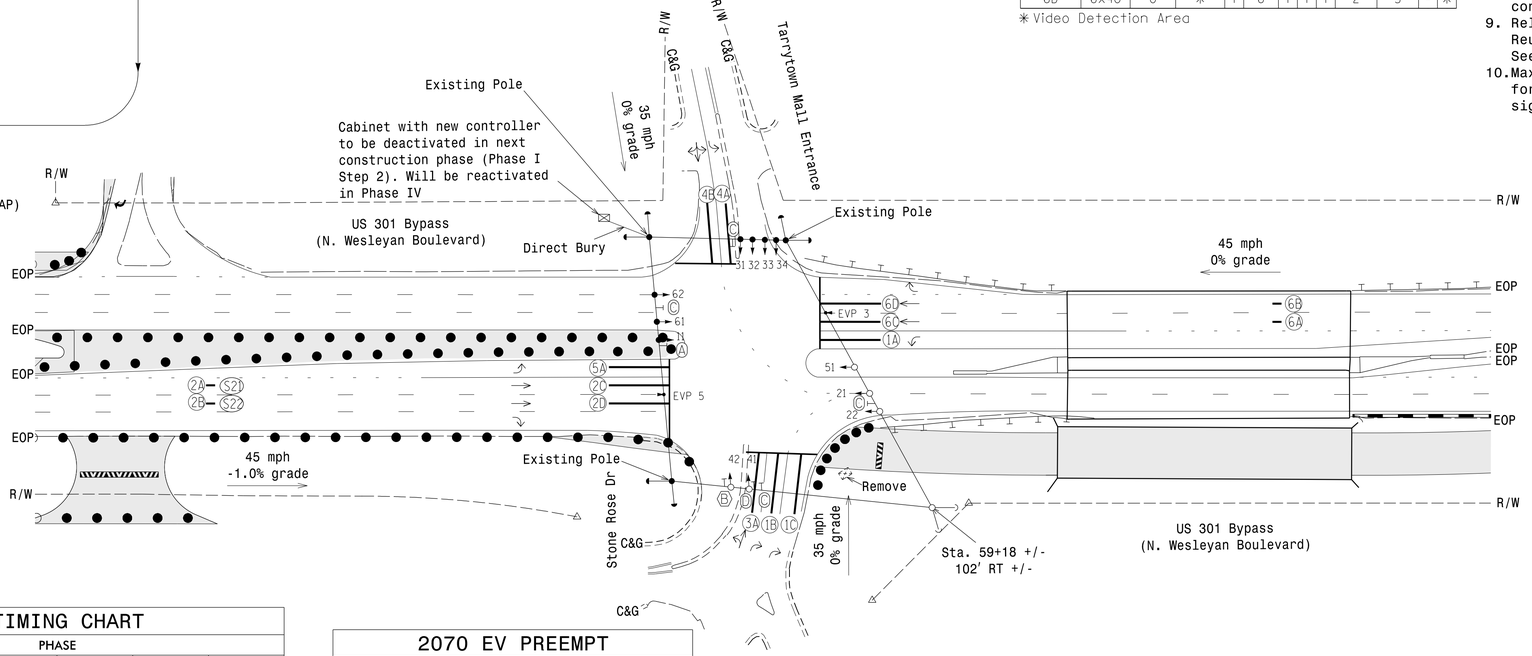
DETECTION ZONES					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x40	0	✳	Y	1	Y	Y	-	-	-	-	✳
1B	6x40	0	✳	Y	1	Y	Y	-	-	15	-	✳
1C	6x40	0	✳	Y	1	Y	Y	-	-	15	-	✳
2A/S21	6x6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2B/S22	6x6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2C	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6x40	0	✳	Y	4	Y	Y	Y	2	5	-	✳
3A	6x40	0	✳	Y	3	Y	Y	-	-	-	-	✳
4A	6x40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4B	6x6	0	✳	Y	4	Y	Y	-	-	5	-	✳
5A	6x40	0	✳	Y	5	Y	Y	-	-	-	-	✳
6A	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6B	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6C	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 loop emulators to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Recable signal heads from new cabinet location.
8. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
9. Relocate EVP 3 detector onto new span. Reuse EVP 5 detector. Reuse phase selectors. See Project Special Provisions.
10. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head	■
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·····	2-in Underground Conduit	·-·-·
N/A	Right of Way	— — —
→	Directional Arrow	→
⊂	Emergency Vehicle Detector	⊂
N/A	Guardrail	⊥
▭	Construction Zone	▭
▨	Construction Barricade	▨
∿	Crash Cushion	∿
▬	Portable Concrete Barrier	▬
—	Video Detection Area	—
Ⓐ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓐ
Ⓑ	Dual Turn and Through Arrows Sign (R3-19)	Ⓑ
Ⓒ	Street Sign	Ⓒ
Ⓓ	Left Arrow "ONLY" Sign (R3-5L)	Ⓓ

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OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	30	90	15	25	15	90
Yellow Clearance	3.0	4.6	3.8	3.8	3.0	4.5
Red Clearance	2.9	1.3	2.4	2.5	2.9	1.3
Red Revert	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	A	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Temporary Design 1 (Area 2 TMP Phase I Step 1

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section, 750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Stone Rose Drive/ Tarrytown Mall Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 1"=50'

REVISIONS	INIT.	DATE

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017

SIGNATURE DATE

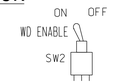
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ENC45386 AT LU280321

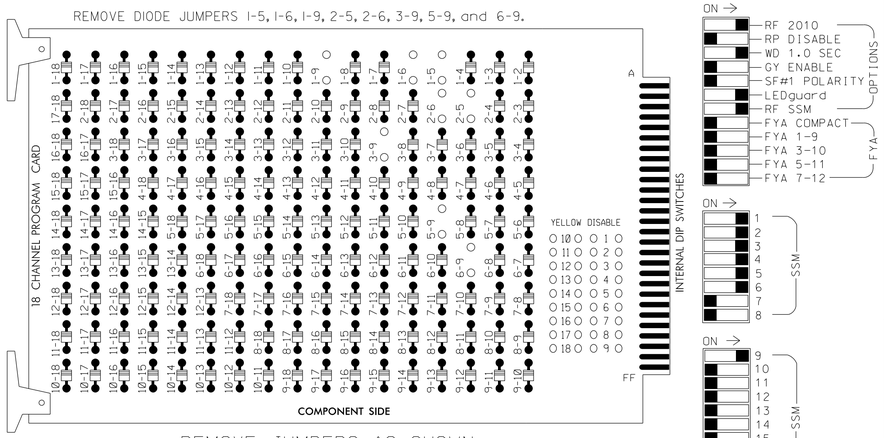
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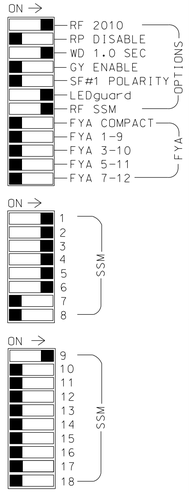
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 2-5, 2-6, 3-9, 5-9, and 6-9.





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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash and overlap 1 as Wag Overlaps.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,AUX S1
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....1+3
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4			S5			S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3			4			14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3			4			4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	22	31	32	41	42	62	NU	51	61,62	NU	NU	NU	NU	33,34	NU	NU	NU	NU	NU
RED		128			116	116	101	101				134					A121					
YELLOW		129			117	117	102	102				135										
GREEN		130			118	118	103	103				136										
RED ARROW	125										131											
YELLOW ARROW	126			117					102		132						A122					
GREEN ARROW	127			118	118		103		103		133						A123					

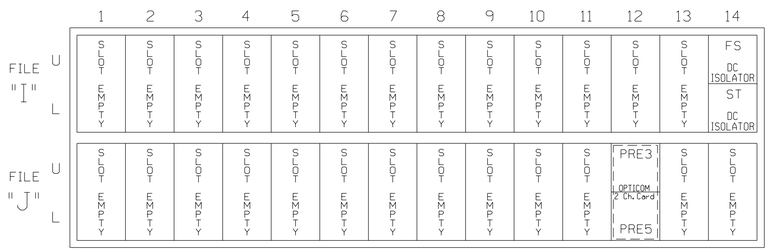
NU = Not Used

SPECIAL DETECTOR NOTE

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

INPUT FILE POSITION LAYOUT

(front view)



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

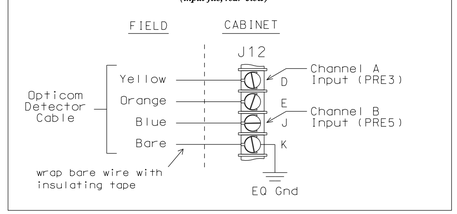
FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

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 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).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0169T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 1 (Electrical Sheet 1 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
Stone Rose Drive/
Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount
PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER
MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE
SIG. INVENTORY NO. 04-0169T1

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.2

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
                 OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           | X
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
                 OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0169T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 1 (Electrical Sheet 2 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
Stone Rose Drive/
Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: LM Moon

PREPARED BY: AM Encarnacion | REVIEWED BY: MB Toth

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
NC DEPARTMENT OF TRANSPORTATION
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Docusigned by: Melissa B. Toth 1/30/2017
CB0DFE89D0DA4F... DATE

SIG. INVENTORY NO. 04-0169T1

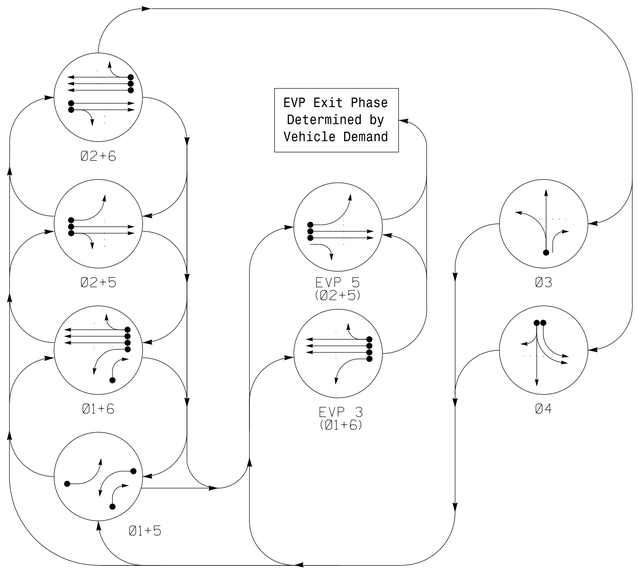
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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.3

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

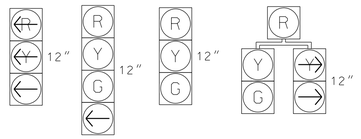
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 5	FLASH
11	←	←	R	R	R	R	←	R	R
21,22	R	R	G	G	R	R	R	G	Y
31	R	R	R	R	G	R	R	R	R
32	R/←	R/←	R	R	G	R	R	R	R
41	R	R	R	R	R	G	R	R	R
42	R	R	R	R	R	G	R	R	R
51	←	R	←	R	R	R	R	←	R
61,62,63	R	G	R	G	R	R	G	R	Y

SIGNAL FACE I.D.

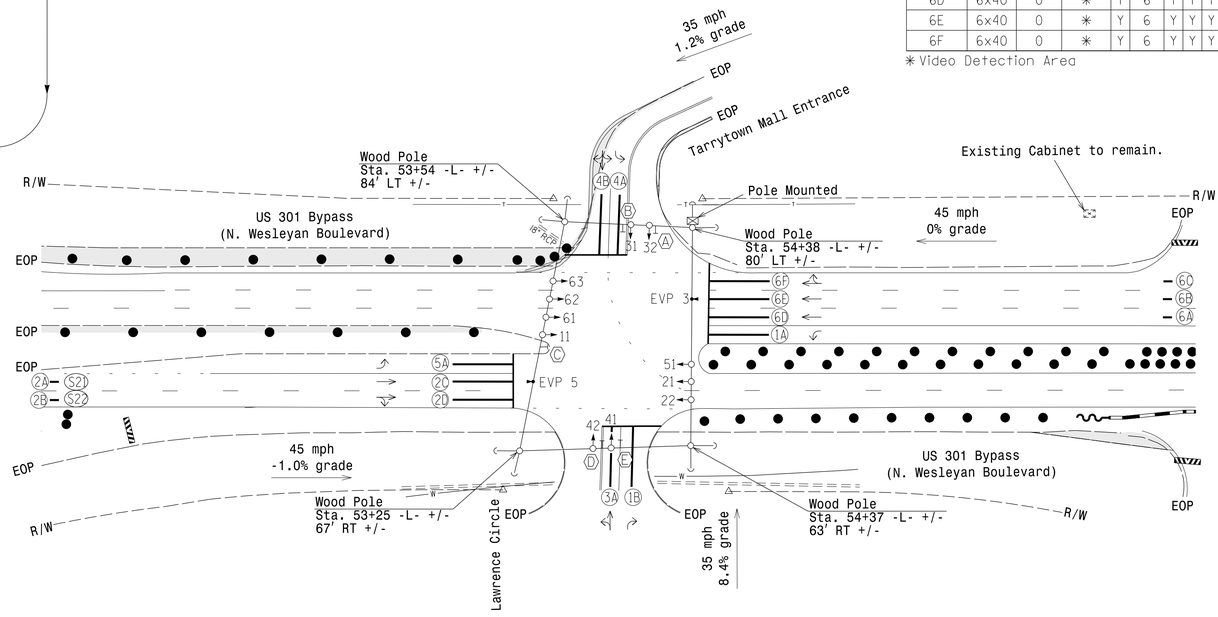
All Heads L.E.D.



OASIS 2070 DETECTION INSTALLATION CHART

DETECTION ZONES					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
1A	6x40	0	✳	Y	1	Y	Y	-	-	-	-	✳
1B	6x40	0	✳	Y	1	Y	Y	-	-	15	-	✳
2A/S21	6x6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2B/S22	6x6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2C	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
3A	6x40	0	✳	Y	3	Y	Y	-	-	-	-	✳
4A	6x40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4B	6X40	0	✳	Y	4	Y	Y	-	-	5	-	✳
5A	6x40	0	✳	Y	5	Y	Y	-	-	-	-	✳
6A	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6B	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6C	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6D	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6E	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6F	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area



6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 loop emulators to presence mode.
6. This intersection features an optical preemption system. Shown locations of optical preemption are conceptual only.
7. Relocate EVP 3 and EVP 5 detectors onto new spans. Relocate Phase Selectors. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head	■
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
-·-·-·-	2-in Underground Conduit	-·-·-·-
N/A	Right of Way	———
→	Directional Arrow	→
○	Emergency Vehicle Detector	●
N/A	Guardrail	———
▭	Construction Zone	▭
▨	Construction Barricade	▨
≈	Crash Cushion	≈
▬	Portable Concrete Barrier	▬
———	Video Detection Area	———
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ
Ⓑ	Combined Through and Left Arrow Sign (R3-6L)	Ⓑ
Ⓒ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓒ
Ⓓ	Dual Turn and Through Arrows Sign (R3-19)	Ⓓ
Ⓔ	Left Arrow "ONLY" Sign (R3-5L)	Ⓔ
N/A	UG Water Line	——W——
N/A	Drainage Pipe	====
N/A	UG Telephone Line	——T——

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	3.0	2.0	2.0	6.0
Max Green 1 *	30	90	15	25	15	90
Yellow Clearance	3.0	4.6	3.4	3.8	3.0	4.5
Red Clearance	3.1	1.5	2.2	2.5	3.4	1.4
Red Revert	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	A	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Area 2 TMP Phase I Step 2

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Lawrence Circle / Tarrytown Mall Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-016912

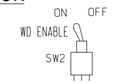
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

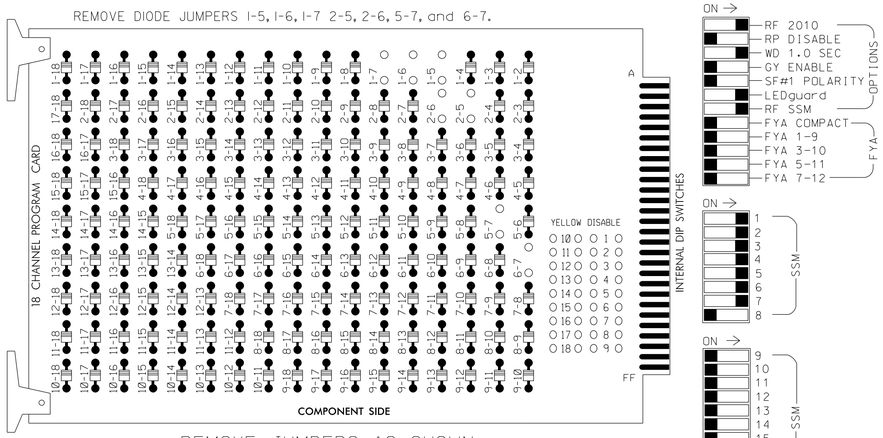
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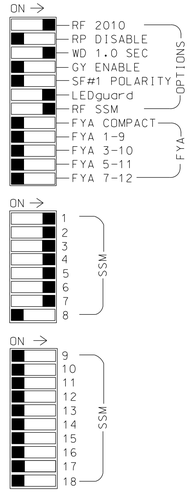
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)







REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....336
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....1
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.4

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	OVLA / 7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	31	32	41	42	NU	51	61,62, 63	NU	32	NU	NU
RED		128		116	116	101	101			134		*		
YELLOW		129		117	117	102	102			135				
GREEN		130		118	118	103	103			136				
RED ARROW	125								131					
YELLOW ARROW	126								132			123		
GREEN ARROW	127			118		103			133			124		

NU = Not Used

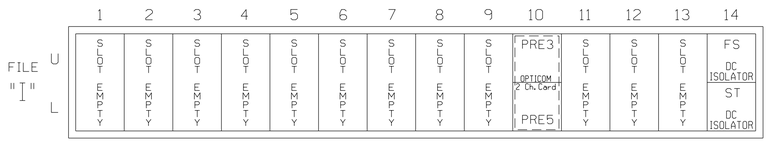
* Denotes install load resistor. See load resistor installation detail this sheet.

SPECIAL DETECTOR NOTE

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

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

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:          |1234567891011121314 1516
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).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....7
```

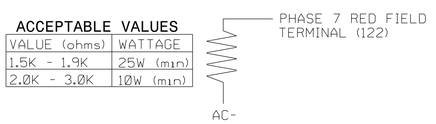
OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0169T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

LOAD RESISTOR INSTALLATION DETAIL

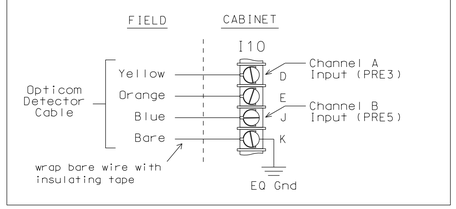
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Electrical Sheet 1 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd) at Lawrence Circle / Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy.,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0169T2

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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ENCASTER AT LUS3021

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.5

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           | X
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0169T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Electrical Sheet 2 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle /
Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: LM Moon

PREPARED BY: AM Encarnacion | REVIEWED BY: MB Toth

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signals Management Section

750 N.Greenfield Pkwy.Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
DocuSigned by: DATE

SIG. INVENTORY NO. 04-0169T2

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

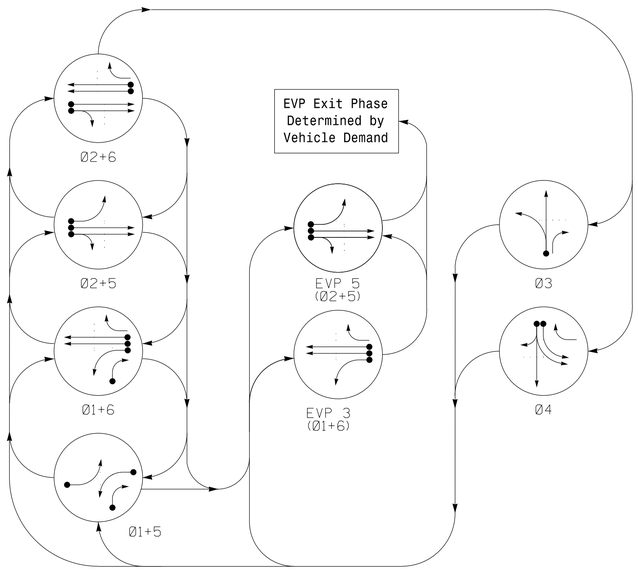
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.6

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

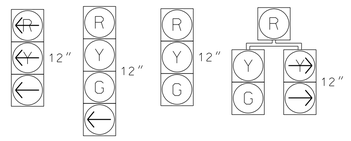
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 5	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~
21,22	R	R	G	G	R	R	R	G	Y
31	R	R	R	R	G ←	R	R	R	R
32	R → / R		R	G	R	R	R	R	R
41	R	R	R	R	R	G ←	R	R	R
42	R	R	R	R	R	G	R	R	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
61	R	G	R	G	R	R	G	R	Y
62	R	G	R	G	R	R → /	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



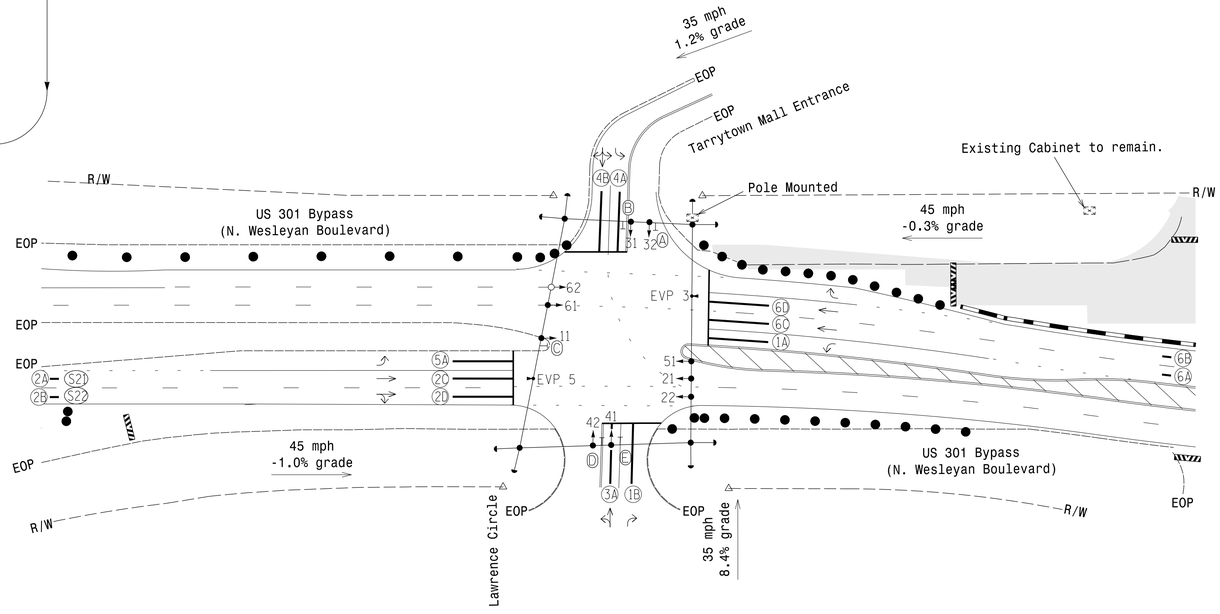
OASIS 2070 DETECTION INSTALLATION CHART

DETECTION ZONES					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
1A	6x40	0	✳	Y	1	Y	Y	-	-	-	-	✳
1B	6x40	0	✳	-	1	Y	Y	-	-	15	-	✳
2A/S21	6x6	300	✳	-	2	Y	Y	-	-	-	Y	✳
2B/S22	6x6	300	✳	-	2	Y	Y	-	-	-	Y	✳
2C	6x40	0	✳	-	2	Y	Y	Y	2	5	-	✳
2D	6x40	0	✳	-	2	Y	Y	Y	2	5	-	✳
3A	6x40	0	✳	-	3	Y	Y	-	-	-	-	✳
4A	6x40	0	✳	-	4	Y	Y	-	-	-	-	✳
4B	6X40	0	✳	-	4	Y	Y	-	-	5	-	✳
5A	6x40	0	✳	-	5	Y	Y	-	-	-	-	✳
6A	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6B	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6C	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 11 and 61 as shown.
6. Set all loop emulators to presence mode.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Reuse EVP 3 and EVP 5 detectors. Reuse Phase Selectors. See Project Special Provisions.
9. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
⊓	Pedestrian Signal Head	■
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
-·-·-	2-in Underground Conduit	-·-·-
N/A	Right of Way	
→	Directional Arrow	→
⊂	Emergency Vehicle Detector	●
N/A	Guardrail	⊥⊥
▭	Construction Zone	▭
≈	Construction Barricade	≈
≈	Crash Cushion	≈
▬	Portable Concrete Barrier	▬
	Video Detection Area	
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ
Ⓑ	Combined Through and Left Arrow Sign (R3-6L)	Ⓑ
Ⓒ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓒ
Ⓓ	Dual Turn and Through Arrows Sign (R3-19)	Ⓓ
Ⓔ	Left Arrow "ONLY" Sign (R3-5L)	Ⓔ

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	3.0	2.0	2.0	6.0
Max Green 1 *	30	90	15	25	15	90
Yellow Clearance	3.0	4.6	3.4	3.8	3.0	4.6
Red Clearance	3.2	1.5	2.2	2.5	3.4	1.4
Red Revert	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	A	-
Preempt Extend**	5	5

*. Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 3 (Area 2 TMP Phase II)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section, NC Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Lawrence Circle / Tarrytown Mall Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

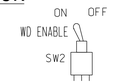
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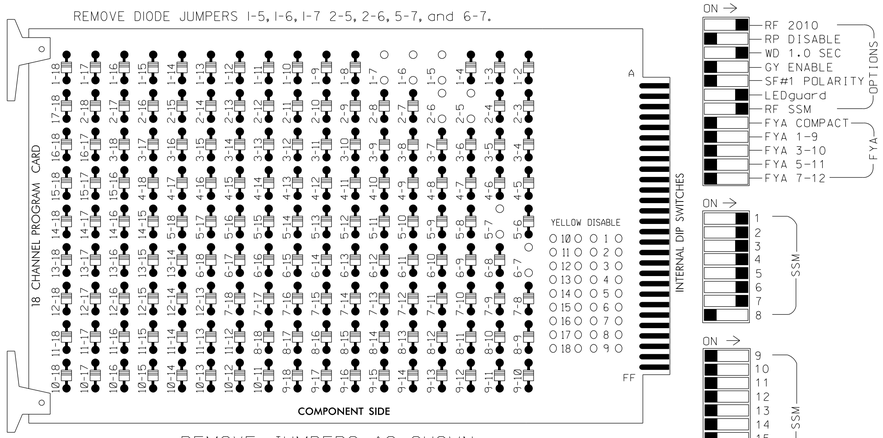
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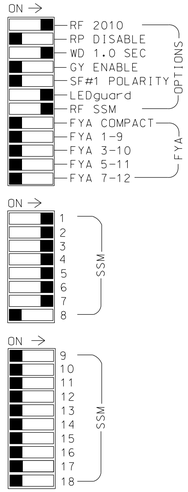
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)







REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....336
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....1
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.7

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	OVLA 7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	31	32	41	42	62	NU	51	61,62	NU	32	NU	NU
RED		128		116	116	101	101				134		*		
YELLOW		129		117	117	102	102				135				
GREEN		130		118	118	103	103				136				
RED ARROW	125									131					
YELLOW ARROW	126							102		132			123		
GREEN ARROW	127			118		103		103		133			124		

NU = Not Used

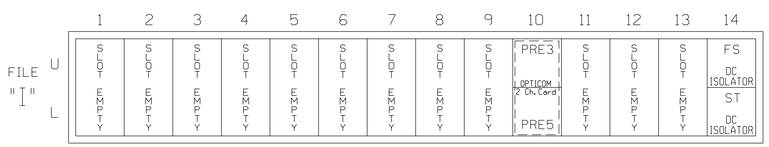
* Denotes install load resistor. See load resistor installation detail this sheet.

SPECIAL DETECTOR NOTE

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

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

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).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....7
```

OVERLAP PROGRAMMING COMPLETE

LOAD RESISTOR INSTALLATION DETAIL

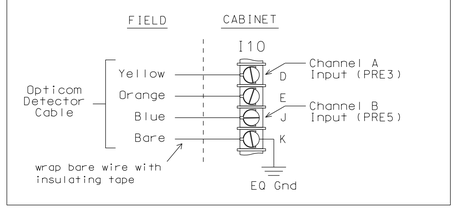
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0169T3
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 3 (Electrical Sheet 1 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle / Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth SIGNATURE 1/30/2017 DATE

SIG. INVENTORY NO. 04-0169T3

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

30-JAN-2017 17:28
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ENCA5386 AT LUS29021

DocuSign Envelope ID: 721A566A-3800-4661-ACDB-42E4833CD98E

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.8

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) ..........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) ........0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? ........N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           | X
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) ..........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) ........0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? ........N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0169T3
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 3 (Electrical Sheet 2 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle /
Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: LM Moon

PREPARED BY: AM Encarnacion | REVIEWED BY: MB Toth

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signals Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
DATE

SIG. INVENTORY NO. 04-0169T3

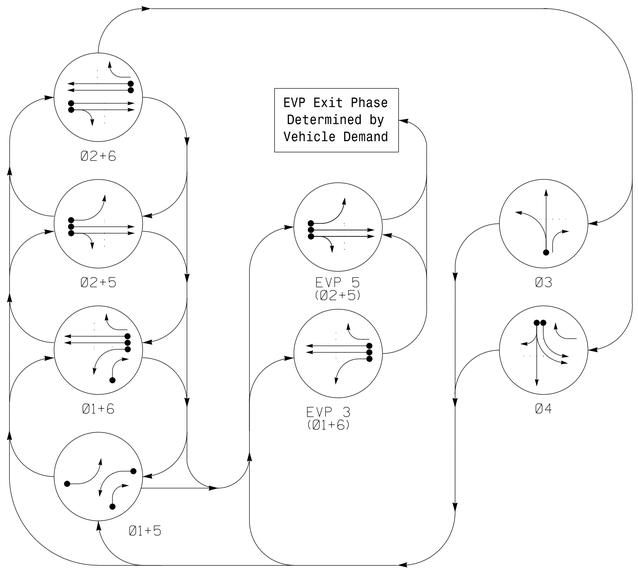
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.9

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

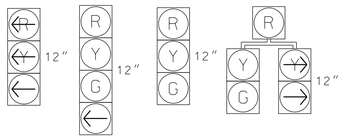
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 5	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~
21,22	R	R	G	G	R	R	R	G	Y
31	R	R	R	R	G ←	R	R	R	R
32	R/~~R~~ →	R/~~R~~ →	R	R	G	R	R	R	R
41	R	R	R	R	R	G ←	R	R	R
42	R	R	R	R	R	G	R	R	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
61	R	G	R	G	R	R	G	R	Y
62	R	G	R	G	R	R/~~R~~ →	G	R	Y

SIGNAL FACE I.D.

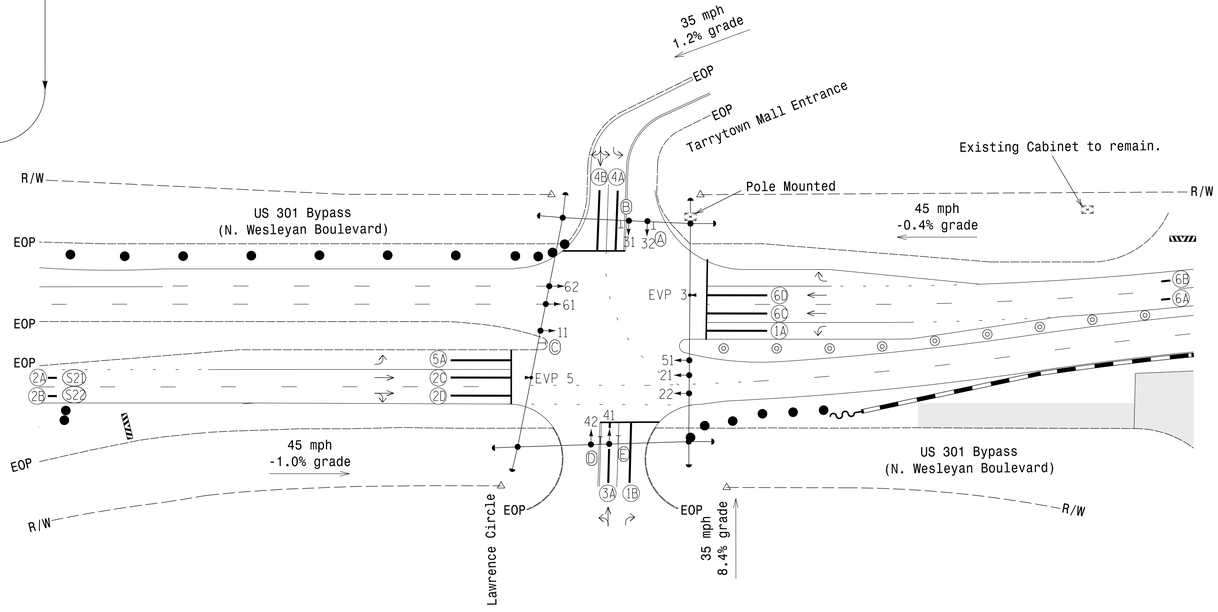
All Heads L.E.D.



OASIS 2070 DETECTION INSTALLATION CHART

DETECTION ZONES					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
1A	6x40	0	✳	Y	1	Y	Y	-	-	-	-	✳
1B	6x40	0	✳	-	1	Y	Y	-	-	15	-	✳
2A/S21	6x6	300	✳	-	2	Y	Y	-	-	-	Y	✳
2B/S22	6x6	300	✳	-	2	Y	Y	-	-	-	Y	✳
2C	6x40	0	✳	-	2	Y	Y	Y	2	5	-	✳
2D	6x40	0	✳	-	2	Y	Y	Y	2	5	-	✳
3A	6x40	0	✳	-	3	Y	Y	-	-	-	-	✳
4A	6x40	0	✳	-	4	Y	Y	-	-	-	-	✳
4B	6X40	0	✳	-	4	Y	Y	-	-	5	-	✳
5A	6x40	0	✳	-	5	Y	Y	-	-	-	-	✳
6A	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6B	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6C	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 head numbered 11, 21 and 22 as shown.
6. Set all loop emulators to presence mode.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Reuse EVP 3 and EVP 5 detectors. Reuse Phase Selectors. See Project Special Provisions.
9. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head	■↓
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	———
→	Directional Arrow	→
⊂	Emergency Vehicle Detector	⊂
N/A	Guardrail	⊥⊥
▭	Construction Zone	▭
▨	Construction Barricade	▨
∿∿	Crash Cushion	∿∿
▬	Portable Concrete Barrier	▬
▭	Video Detection Area	▭
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ
Ⓑ	Combined Through and Left Arrow Sign (R3-6L)	Ⓑ
Ⓒ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓒ
Ⓓ	Dual Turn and Through Arrows Sign (R3-19)	Ⓓ
Ⓔ	Left Arrow "ONLY" Sign (R3-5L)	Ⓔ

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	3.0	2.0	2.0	6.0
Max Green 1 *	30	90	15	25	15	90
Yellow Clearance	3.0	4.6	3.4	3.8	3.0	4.6
Red Clearance	3.2	1.5	2.2	2.5	3.4	1.4
Red Revert	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	A	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 4 (Area 2 TMP Phase III)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of: Transportation Mobility and Safety Division, NC Department of Transportation, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Lawrence Circle / Tarrytown Mall Entrance
Division 04 Nash County Rocky Mount
PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

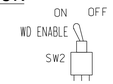
Designed by: Melissa B. Toth 1/30/2017
DESIGNATURE DATE
SIG. INVENTORY NO. 04-016914

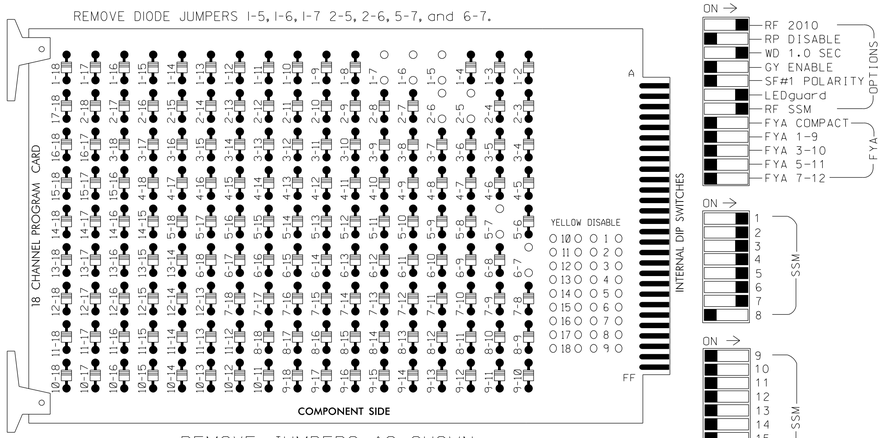
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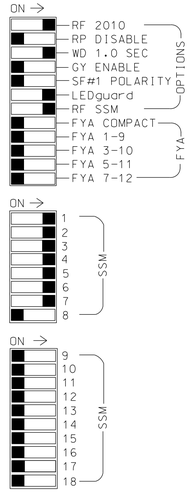
EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)





REMOVE JUMPERS AS SHOWN



■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....336
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....1
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.10

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	OVLA 7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	31	32	41	42	62	NU	51	61,62	NU	32	NU	NU
RED		128		116	116	101	101				134		*		
YELLOW		129		117	117	102	102				135				
GREEN		130		118	118	103	103				136				
RED ARROW	125									131					
YELLOW ARROW	126							102		132			123		
GREEN ARROW	127			118		103		103		133			124		

NU = Not Used

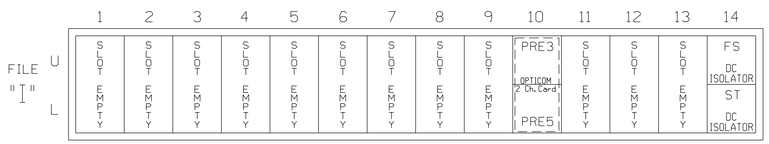
* Denotes install load resistor. See load resistor installation detail this sheet.

SPECIAL DETECTOR NOTE

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

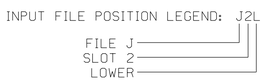
INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT



OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

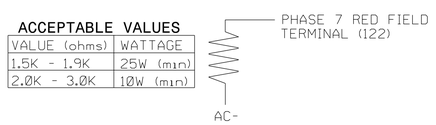
```
PAGE 1: VEHICLE OVERLAP 'A' SETTINGS
PHASE:          |123456789101111213141516
VEH OVL PARENTS:|X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....7
```

OVERLAP PROGRAMMING COMPLETE

LOAD RESISTOR INSTALLATION DETAIL

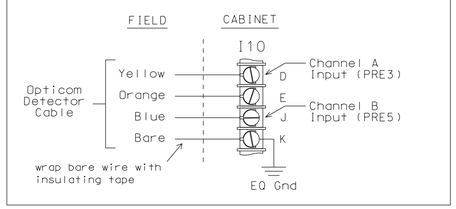
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0169T4
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 4 (Electrical Sheet 1 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle / Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
State of North Carolina Department of Transportation
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0169T4

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

30-JAN-2017 17:30
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ENCA5386 AT LUS29021

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.11

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           | X
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0169T4
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 4 (Electrical Sheet 2 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle /
Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: LM Moon

PREPARED BY: AM Encarnacion | REVIEWED BY: MB Toth

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signals Management Section

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326
750 N.Greenfield Pkwy.Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
DATE

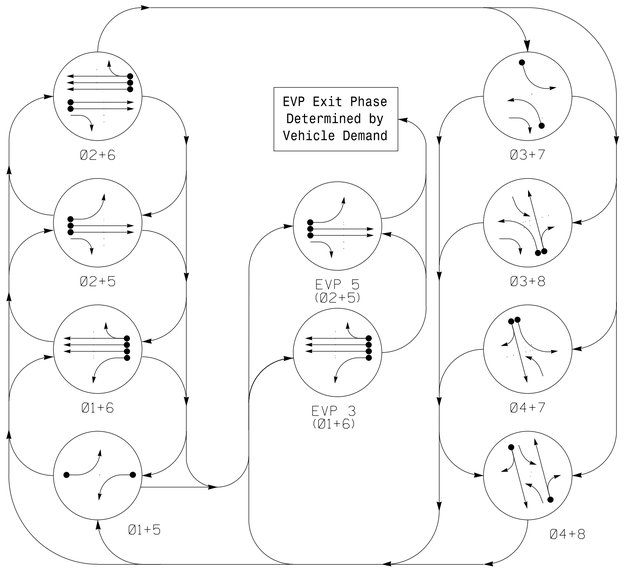
SIG. INVENTORY NO. 04-0169T4

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ATLAS386 ATLAS90321

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.12

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

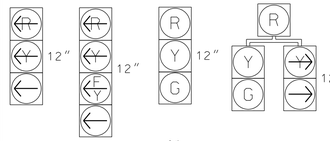
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	EVP 3	EVP 5	FLASH
11	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21	R	R	G	G	R	R	R	R	R	G	Y
22	R	R	G	G	R	R	R	R	R	G	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
41, 42	R	R	R	R	R	R	G	G	R	R	R
51	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61, 62, 63	R	G	R	G	R	R	R	R	G	R	Y
71	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
81, 82	R	R	R	R	R	R	G	R	G	R	R

SIGNAL FACE I.D.

All Heads L.E.D.



11
51

31
71

21
41,42
61,62,63
81,82

22

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

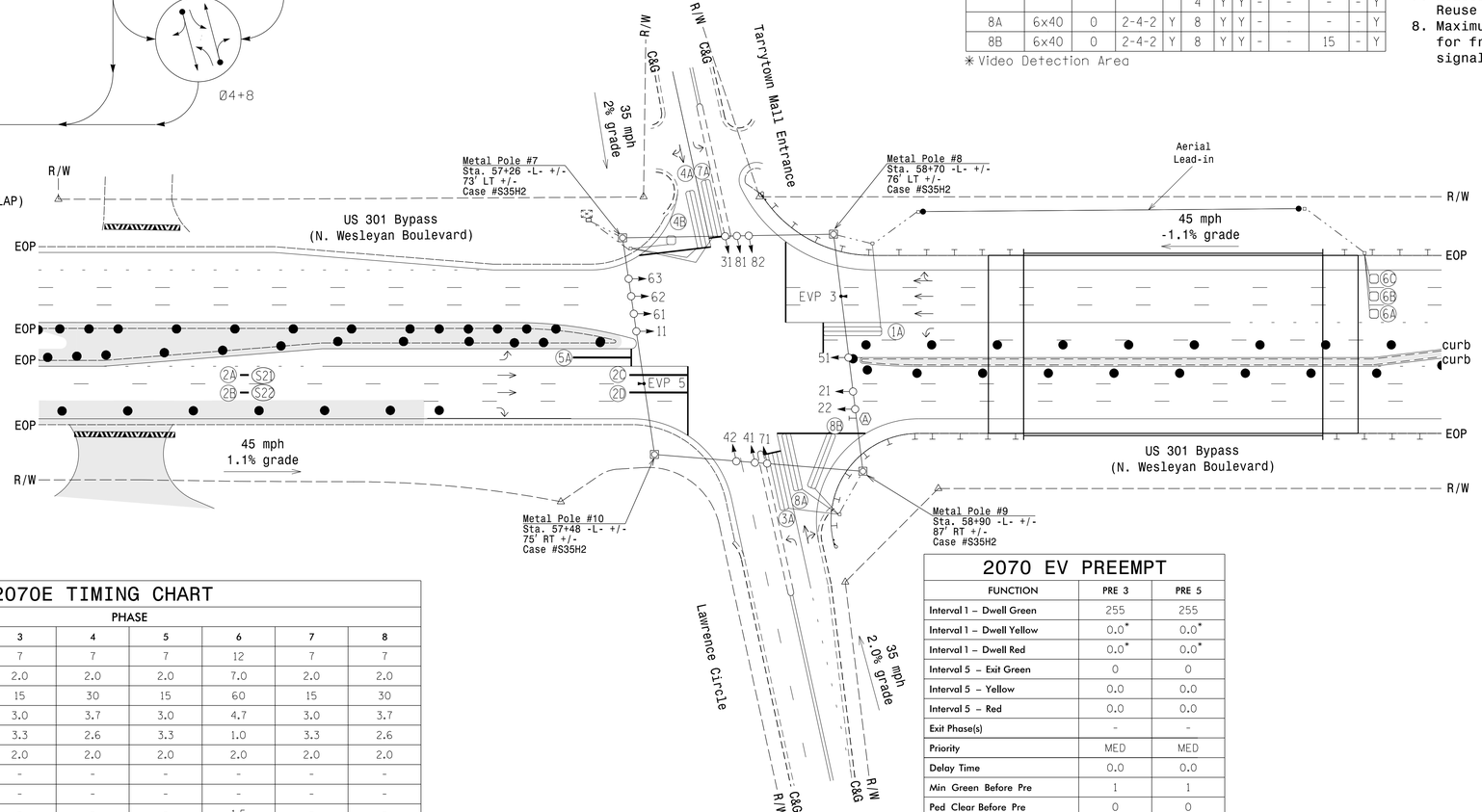
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x40	0	2-4-2	Y	1	Y	Y	-	-	-	-	Y
2A/S21	6x6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2B/S22	6x6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2C	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
3A	6x40	0	2-4-2	Y	3	Y	Y	-	-	15	-	Y
					8	Y	Y	-	-	-	-	Y
4A	6x40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
4B	6x6	5	3	Y	4	Y	Y	-	-	15	-	Y
5A	6x40	0	✳	Y	5	Y	Y	-	-	-	-	✳
6A	6x6	400	6	Y	6	Y	Y	-	1.9	-	-	Y
6B	6x6	400	6	Y	6	Y	Y	-	1.9	-	-	Y
6C	6x6	400	6	Y	6	Y	Y	-	1.9	-	-	Y
7A	6x40	0	2-4-2	Y	7	Y	Y	-	-	15	-	Y
					4	Y	Y	-	-	-	-	Y
8A	6x40	0	2-4-2	Y	8	Y	Y	-	-	-	-	Y
8B	6x40	0	2-4-2	Y	8	Y	Y	-	-	15	-	Y

✳ Video Detection Area

8 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all loop emulators and loop detectors to presence mode.
6. This intersection features an optical preemption sysetm. Shown locations of optical detectors are conceptual only.
7. Relocate EVP 3 and EVP 5 detectors onto new spans. Reuse phase selectors. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	7.0	2.0	2.0
Max Green 1 *	30	60	15	30	15	60	15	30
Yellow Clearance	3.0	4.4	3.0	3.7	3.0	4.7	3.0	3.7
Red Clearance	2.9	1.2	3.3	2.6	3.3	1.0	3.3	2.6
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	1.5	-	-
Max Variable Initial *	-	-	-	-	-	44	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	-	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Strain Pole	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Emergency Vehicle Detector	
N/A	Guardrail	
	Video Detection Area	
A	Right Arrow "ONLY" Sign (R3-5R)	A
	Construction Zone	
	Construction Barricade	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 5 (Area 2 TMP Phase IV)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
North Carolina Department of Transportation, Mobility and Safety Division, Traffic Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle /
Tarrytown Mall Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Documented by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

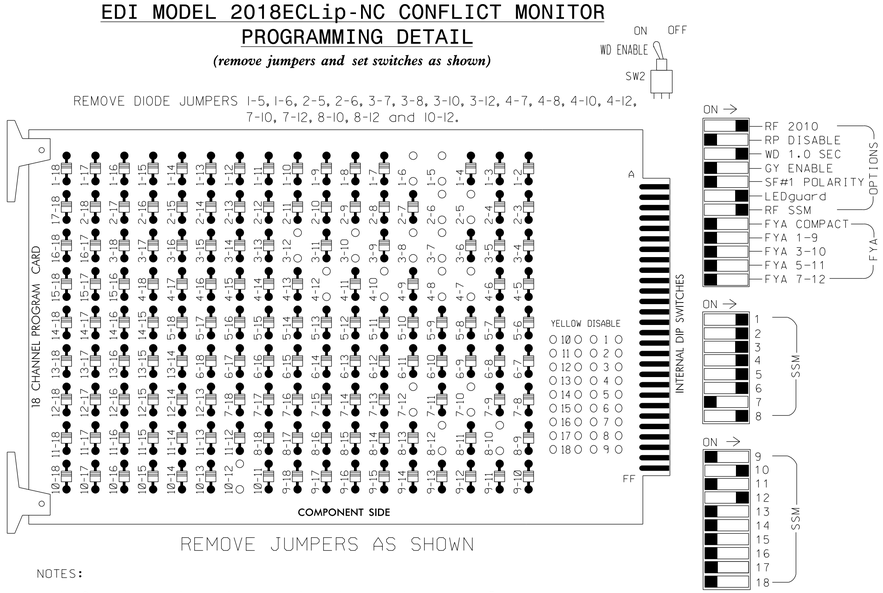
SIG. INVENTORY NO. 04-0169T5

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ENC45186 AT USER3021

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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 phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Gap Reduction. Program phase 6 for variable initial.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash and overlap 2 as Wag Overlaps.
7. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10,S11,AUX S2,AUX S5
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAP "A".....NOT USED
OVERLAP "B".....3+4
OVERLAP "C".....NOT USED
OVERLAP "D".....7+8

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.13

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3		4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	22	31★	41,42	NU	51	61,62, 63	NU	71★	81,82	NU	NU	31★	NU	NU	71★	NU
RED		128			✳	101			134			107							
YELLOW		129				102			135		✳	108							
GREEN		130				103			136			109							
RED ARROW	125							131							A124			A101	
YELLOW ARROW	126			117				132							A125			A102	
FLASHING YELLOW ARROW															A126			A103	
GREEN ARROW	127			118	118			133			124								

NU = Not Used

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

★ See pictorial of head wiring in detail below.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)

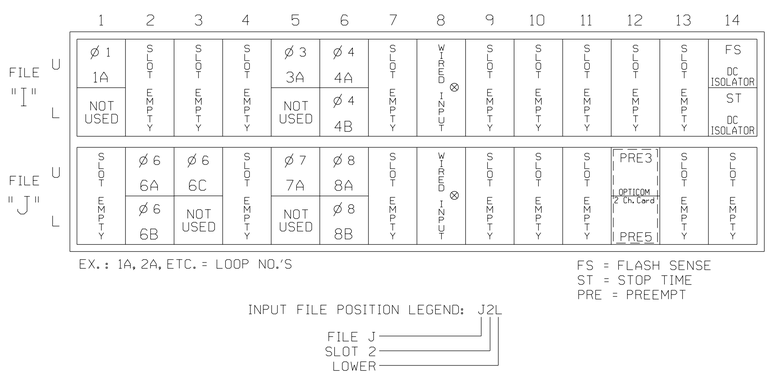


NOTE

1. The sequence display for these signals require special logic programming. See sheet 2 of 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

- FILE J
- SLOT 2
- LOWER

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
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
3A[1]	TB4-5,6	I5U	58	20	3	3	Y	Y			15
	-	J8U	50	12	28	8	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			15
6A	TB3-5,6	J2U	40	2	6	6	Y	Y		1.9	
6B	TB3-7,8	J2L	44	6	16	6	Y	Y		1.9	
6C	TB3-9,10	J3U	64	26	36	6	Y	Y		1.9	
7A[2]	TB5-5,6	J5U	57	19	7	7	Y	Y			15
	-	I8U	49	11	24	4	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			15

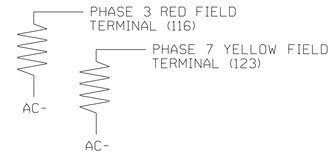
[1] Add jumper from I5-W to J8-W, on rear of input file.

[2] Add jumper from J5-W to I8-W, on rear of input file.

LOAD RESISTOR INSTALLATION DETAIL

ACCEPTABLE VALUES

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

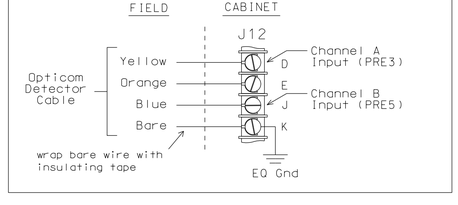


SPECIAL DETECTOR NOTE

Install a video detection system for vehicle detection for loops 2A/S21, 2B/S22, 2C, 2D and 5A. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0169T5
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 5 (Electrical Sheet 1 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy.,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Lawrence Circle / Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Docusigned by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0169T5

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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ENCA5186 AT USZ9032I

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.14

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1 THROUGH 6.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

```
  LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE       #3  IS ON
AND RED CLEAR ON PHASE #3  IS ON

          SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #47 ON
 SET OUTPUT  ASSIGNMENT #48 OFF
```

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

PRESS '+'

```
  LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE       #3  IS ON

          SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #49 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

PRESS '+'

```
  LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE    #3  IS ON

          SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #48 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

PRESS '+'

```
  LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE       #7  IS ON
AND RED CLEAR ON PHASE #7  IS ON

          SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #39 ON
 SET OUTPUT  ASSIGNMENT #40 OFF
```

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

PRESS '+'

```
  LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE       #7  IS ON

          SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #41 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).

PRESS '+'

```
  LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE    #7  IS ON

          SCROLL DOWN

 THEN:
 SET OUTPUT  ASSIGNMENT #40 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

PRESS '+'

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X    X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
 PHASE:           |12345678910111213141516
VEH OVL PARENTS:  |  XX
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN   <- NOTICE GREEN FLASH
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
 PHASE:           |12345678910111213141516
VEH OVL PARENTS:  |     XX
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN   <- NOTICE GREEN FLASH
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0169T5
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 5 (Electrical Sheet 2 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle /
Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY:	LW Moon	
PREPARED BY: AM Encarnacion	REVIEWED BY:	MB Toth	

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
CHECKED BY: DATE

SIG. INVENTORY NO. 04-0169T5

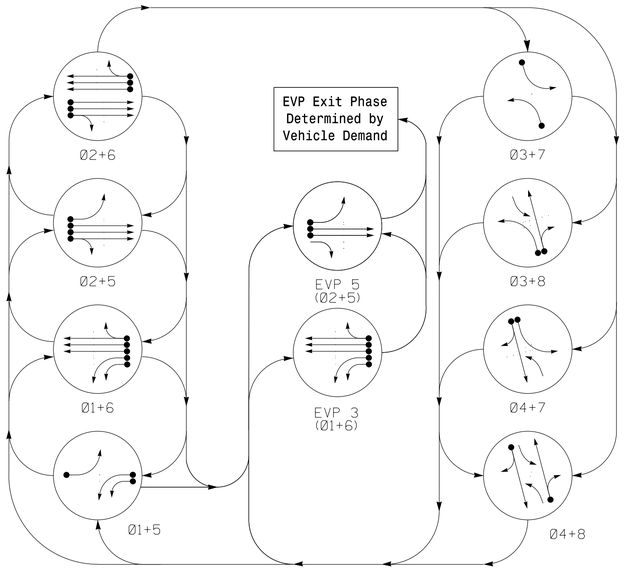
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.15

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

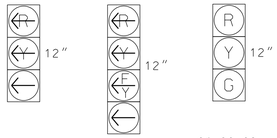
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE										
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	EVP 3	EVP 5	FLASH
11, 12	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~
21, 22, 23	R	R	G	G	R	R	R	R	R	G	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	←	←	F Y	F Y	~~R~~	~~R~~	~~R~~
41, 42	R	R	R	R	R	R	G	G	R	R	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
61, 62, 63	R	G	R	G	R	R	R	R	G	R	Y
71	~~R~~	~~R~~	~~R~~	~~R~~	←	←	F Y	←	F Y	~~R~~	~~R~~
81, 82	R	R	R	R	R	G	R	G	R	R	R

SIGNAL FACE I.D.

All Heads L.E.D.



11,12
51

31
71

21,22,23
41,42
61,62,63
81,82

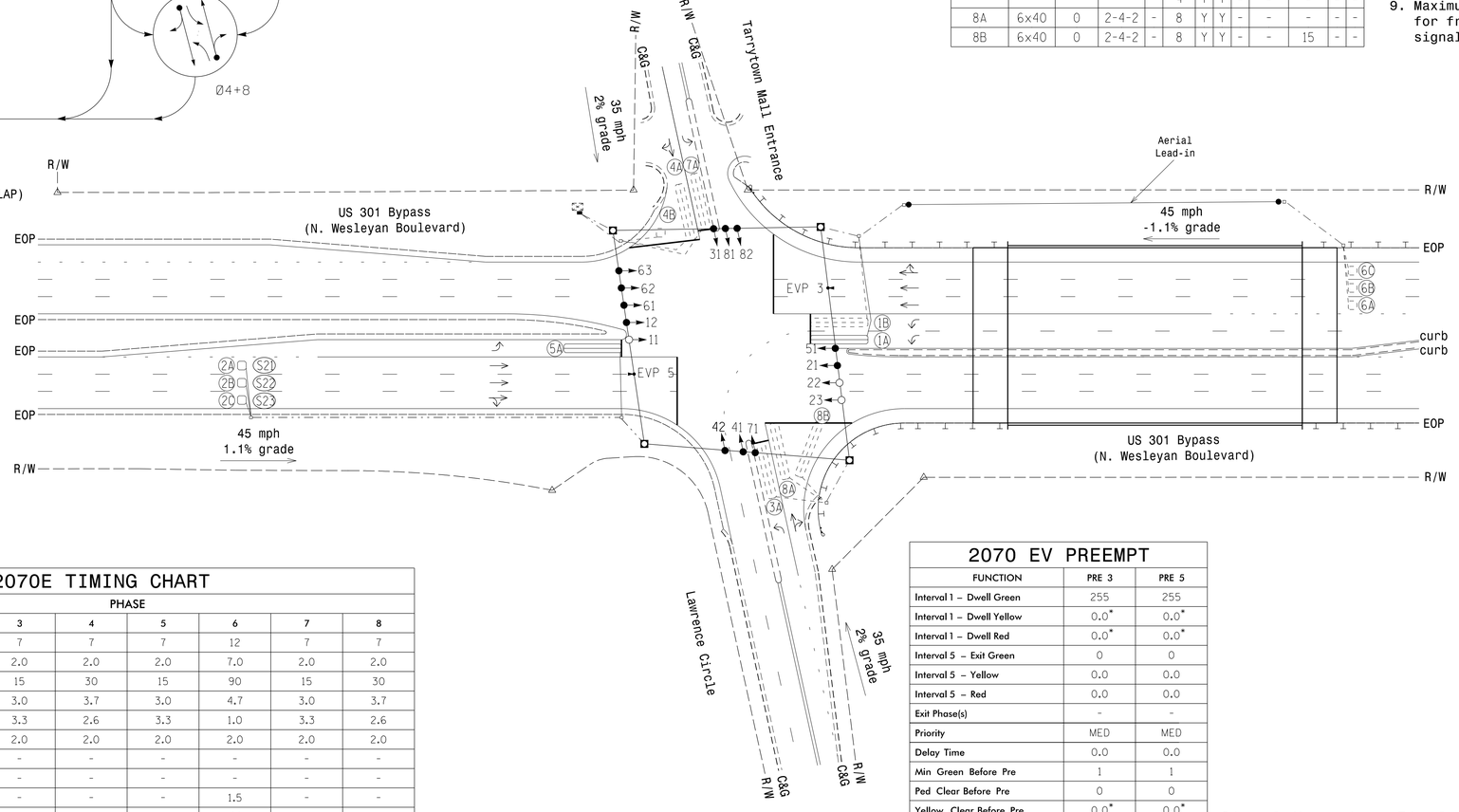
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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
1A	6x40	0	2-4-2	Y	1	Y	Y	-	-	-	-	Y
1B	6x40	0	2-4-2	-	1	Y	Y	-	-	-	-	-
2A/S21	6x6	300	5	Y	2	Y	Y	-	-	-	Y	Y
2B/S22	6x6	300	5	Y	2	Y	Y	-	-	-	Y	Y
2C/S23	6x6	300	5	Y	2	Y	Y	-	-	-	Y	Y
3A	6x40	0	2-4-2	-	3	Y	Y	-	-	15	-	-
					8	Y	Y	-	-	-	-	-
4A	6x40	0	2-4-2	-	4	Y	Y	-	-	-	-	-
4B	6x6	5	3	-	4	Y	Y	-	-	15	-	-
5A	6x40	0	2-4-2	Y	5	Y	Y	-	-	-	-	Y
6A	6x6	400	6	-	6	Y	Y	-	1.9	-	-	-
6B	6x6	400	6	-	6	Y	Y	-	1.9	-	-	-
6C	6x6	400	6	-	6	Y	Y	-	1.9	-	-	-
7A	6x40	0	2-4-2	-	7	Y	Y	-	-	15	-	-
					4	Y	Y	-	-	-	-	-
8A	6x40	0	2-4-2	-	8	Y	Y	-	-	-	-	-
8B	6x40	0	2-4-2	-	8	Y	Y	-	-	15	-	-

8 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 signal head numbered 21 as shown.
6. Set all detector units to presence mode.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Reuse EVP 3 and EVP 5 detectors. Reuse Phase Selectors. See Project Special Provisions.
9. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head With Push Button & Sign	■
▼		▼
◎	Metal Strain Pole	◘
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	- - - - -
→	Directional Arrow	→
○⊣	Emergency Vehicle Detector	●⊣
N/A	Guardrail	⊥⊥

OASIS 2070E TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	7.0	2.0	2.0
Max Green 1 *	30	90	15	30	15	90	15	30
Yellow Clearance	3.0	4.4	3.0	3.7	3.0	4.7	3.0	3.7
Red Clearance	3.2	1.2	3.3	2.6	3.3	1.0	3.3	2.6
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	34	-	-	-	44	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of: Transportation Mobility and Safety Division, North Carolina Department of Transportation, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Lawrence Circle / Tarrytown Mall Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DESIGNER SIGNATURE DATE

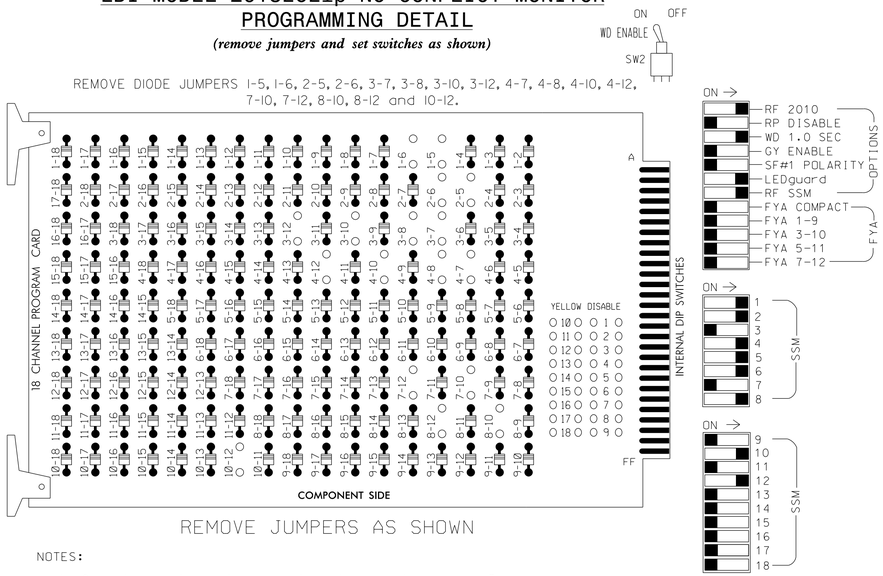
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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 phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash and overlap 2 as Wag Overlaps.
7. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10,S11,AUX S2,AUX S5
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAP "A".....NOT USED
OVERLAP "B".....3+4
OVERLAP "C".....NOT USED
OVERLAP "D".....7+8

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.16

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, 23	NU	31 ★	41,42	NU	51	61,62, 63	NU	71 ★	81,82	NU	NU	31 ★	NU	NU	71 ★	NU
RED		128			101			134			107							
YELLOW		129		✳	102			135		✳	108							
GREEN		130			103			136			109							
RED ARROW	125						131							A124			A101	
YELLOW ARROW	126						132							A125			A102	
FLASHING YELLOW ARROW														A126			A103	
GREEN ARROW	127			118			133			124								

NU = Not Used

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

★ See pictorial of head wiring in detail below.

4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

1. The sequence display for these signals require special logic programming. See sheet 2 of 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1	Ø 1	Ø 2/SYS	Ø 2/SYS	Ø 3	Ø 4	SLOT EMPTY	WDSF INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
		1A	1B	2A/S21	2C/S23	3A	4A								
	L	NOT USED	NOT USED	Ø 2/SYS 2B/S22	NOT USED	NOT USED	Ø 4 4B								ST DC ISOLATOR
FILE "J"	U	Ø 5	Ø 6	Ø 6	SLOT EMPTY	Ø 7	Ø 8	SLOT EMPTY	WDSF INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE3 OPTICOM 2 ch.Card PRE5	SLOT EMPTY	SLOT EMPTY
		5A	6A	6C		7A	8A								
	L	NOT USED	Ø 6 6B	NOT USED		NOT USED	Ø 8 8B								

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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

INPUT FILE CONNECTION & PROGRAMMING CHART

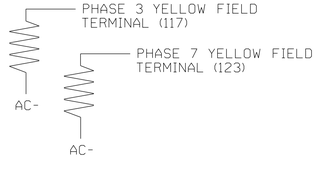
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			
2A/S21	TB2-9,10	I3U	63	25	32	2/SYS	Y	Y			
2B/S22	TB2-11,12	I3L	76	38	42	2/SYS	Y	Y			
2C/S23	TB4-1,2	I4U	47	9	22	2/SYS	Y	Y			
3A[1]	TB4-5,6	I5U	58	20	3	3	Y	Y			15
	-	J8U	50	12	28	8	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			15
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
6A	TB3-5,6	J2U	40	2	6	6	Y	Y		1.9	
6B	TB3-7,8	J2L	44	6	16	6	Y	Y		1.9	
6C	TB3-9,10	J3U	64	26	36	6	Y	Y		1.9	
7A[2]	TB5-5,6	J5U	57	19	7	7	Y	Y			15
	-	I8U	49	11	24	4	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			15

[1] Add jumper from I5-W to J8-W, on rear of input file.

[2] Add jumper from J5-W to I8-W, on rear of input file.

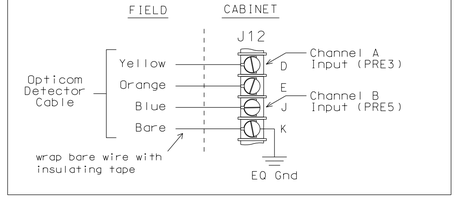
LOAD RESISTOR INSTALLATION DETAIL

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: Ø4-0169
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Final Design (Electrical Sheet 1 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy.,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle /
Tarrytown Mall Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Docusigned by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0169

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

30-JAN-2017 17:34
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ENCAD186 AT US23021

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 7.17

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL
TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1 THROUGH 6.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON
AND RED CLEAR ON PHASE #3 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #47 ON
SET OUTPUT ASSIGNMENT #48 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #3 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #49 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #3 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #48 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON
AND RED CLEAR ON PHASE #7 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #39 ON
SET OUTPUT ASSIGNMENT #40 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

LOGICAL I/O COMMAND #5 (+/-COMMAND#)
IF ACTIVE PHASE #7 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #41 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON PHASE #7 IS ON

SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #40 ON

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

OUTPUT REFERENCE SCHEDULE

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

PREEMPTION #3 SETTINGS (NEXT:1-10)

	INTERVAL/TIMING GRN	YEL	RED	CLEAR/DWELL PHASES 12345678910111213141516
1	255	0.0	0.0	X X
2	0	0.0	0.0	
3	0	0.0	0.0	
4	0	0.0	0.0	
5	0	0.0	0.0	

EXIT CALLS

OPTIONS

PRIORITY (Y/N TO SELECT)	MED
DELAY TIMER (O-255 SEC)	0
MIN GREEN BEFORE PRE (O= DEFAULT)	1
PED CLEAR BEFORE PRE (O= DEFAULT)	0
YELLOW CLEAR BEFORE PRE (O= DEFAULT)	0.0
RED CLEAR BEFORE PRE (O= DEFAULT)	0.0
DWELL MIN TIMER (O-255 SEC)	12
DWELL MAX TIMER (O=OFF,1-255MIN)	0
DWELL HOLD-OVER TIMER (O-255)	0
LATCH CALL?	N
LINK TO NEXT PREEMPT?	N
ENABLE BACKUP PROTECTION?	N
HOLD CLEAR 1 PHASES DURING DELAY?	N
FAST GREEN FLASH DWELL PHASES?	N
PED CLEARANCE THROUGH YELLOW?	N
INHIBIT OVERLAP GREEN EXTENSION?	N
SERVICE DURING SOFTWARE FLASH?	N
REST IN RED DURING DWELL INTERVAL?	N
FLASH DWELL INTERVAL?	N
ALLOW PEDS IN DWELL INTERVAL?	N
RE-TIME DWELL INTERVAL?	N
OVERLAPS:	ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW	
OMIT OVERLAPS:	

PRESS 'NEXT' TWICE

PREEMPTION #5 SETTINGS (NEXT:1-10)

	INTERVAL/TIMING GRN	YEL	RED	CLEAR/DWELL PHASES 12345678910111213141516
1	255	0.0	0.0	X X
2	0	0.0	0.0	
3	0	0.0	0.0	
4	0	0.0	0.0	
5	0	0.0	0.0	

EXIT CALLS

OPTIONS

PRIORITY (Y/N TO SELECT)	MED
DELAY TIMER (O-255 SEC)	0
MIN GREEN BEFORE PRE (O= DEFAULT)	1
PED CLEAR BEFORE PRE (O= DEFAULT)	0
YELLOW CLEAR BEFORE PRE (O= DEFAULT)	0.0
RED CLEAR BEFORE PRE (O= DEFAULT)	0.0
DWELL MIN TIMER (O-255 SEC)	12
DWELL MAX TIMER (O=OFF,1-255MIN)	0
DWELL HOLD-OVER TIMER (O-255)	0
LATCH CALL?	N
LINK TO NEXT PREEMPT?	N
ENABLE BACKUP PROTECTION?	N
HOLD CLEAR 1 PHASES DURING DELAY?	N
FAST GREEN FLASH DWELL PHASES?	N
PED CLEARANCE THROUGH YELLOW?	N
INHIBIT OVERLAP GREEN EXTENSION?	N
SERVICE DURING SOFTWARE FLASH?	N
REST IN RED DURING DWELL INTERVAL?	N
FLASH DWELL INTERVAL?	N
ALLOW PEDS IN DWELL INTERVAL?	N
RE-TIME DWELL INTERVAL?	N
OVERLAPS:	ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW	
OMIT OVERLAPS:	

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+'

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS

PHASE:	12345678910111213141516
VEH OVL PARENTS:	XX
VEH OVL NOT VEH:	
VEH OVL NOT PED:	
VEH OVL GRN EXT:	
STARTUP COLOR:	_ RED _ YELLOW _ GREEN
FLASH COLORS:	_ RED _ YELLOW X GREEN ← NOTICE GREEN FLASH

SELECT VEHICLE OVERLAP OPTIONS:	(Y/N)
FLASH YELLOW IN CONTROLLER FLASH?	N
GREEN EXTENSION (O-255 SEC)	0
YELLOW CLEAR (O=PARENT,3-25.5 SEC)	0.0
RED CLEAR (O=PARENT,0.1-25.5 SEC)	0.0
OUTPUT AS PHASE # (O=NONE, 1-16)	0

PRESS '+' TWICE

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS

PHASE:	12345678910111213141516
VEH OVL PARENTS:	XX
VEH OVL NOT VEH:	
VEH OVL NOT PED:	
VEH OVL GRN EXT:	
STARTUP COLOR:	_ RED _ YELLOW _ GREEN
FLASH COLORS:	_ RED _ YELLOW X GREEN ← NOTICE GREEN FLASH

SELECT VEHICLE OVERLAP OPTIONS:	(Y/N)
FLASH YELLOW IN CONTROLLER FLASH?	N
GREEN EXTENSION (O-255 SEC)	0
YELLOW CLEAR (O=PARENT,3-25.5 SEC)	0.0
RED CLEAR (O=PARENT,0.1-25.5 SEC)	0.0
OUTPUT AS PHASE # (O=NONE, 1-16)	0

OVERLAP PROGRAMMING COMPLETE

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0169
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Final Design (Electrical Sheet 2 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
Lawrence Circle /
Tarrytown Mall Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: LM Moon

PREPARED BY: AM Encarnacion REVIEWED BY: MB Toth

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Drawing by: Melissa B. Toth 1/30/2017
CHECKED BY: DATE

SIG. INVENTORY NO. 04-0169

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.0

PHASING DIAGRAM

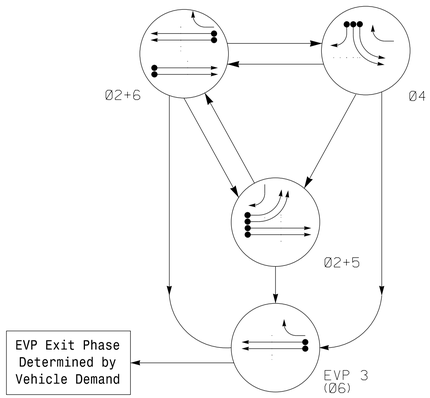


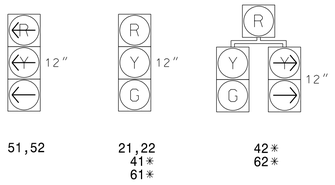
TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4	EVP 3	FLASH
21, 22	G	G	R	R	Y
41	R	R	G	R	R
42	R/G	R	G	R	R
51, 52	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61	R	G	R	G	Y
62	R	G	R/G	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.

* Back Plates



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	*	Y	2	Y	Y	-	-	-	-	*
2B	6x6	300	*	Y	2	Y	Y	-	-	-	-	*
2C	6x40	0	*	Y	2	Y	Y	Y	2	5	-	*
2D	6x40	0	*	Y	2	Y	Y	Y	2	5	-	*
4A	6x60	0	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6x60	0	2-4-2	-	4	Y	Y	-	-	-	-	-
4C	6x60	0	2-4-2	-	4	Y	Y	-	-	15	-	-
5A	6x40	0	*	Y	5	Y	Y	-	-	-	-	*
5B	6x40	0	*	Y	5	Y	Y	-	-	-	-	*
6A,6B	6x6	300	EXIST	-	6	Y	Y	-	-	-	-	-

* Video Detection Area

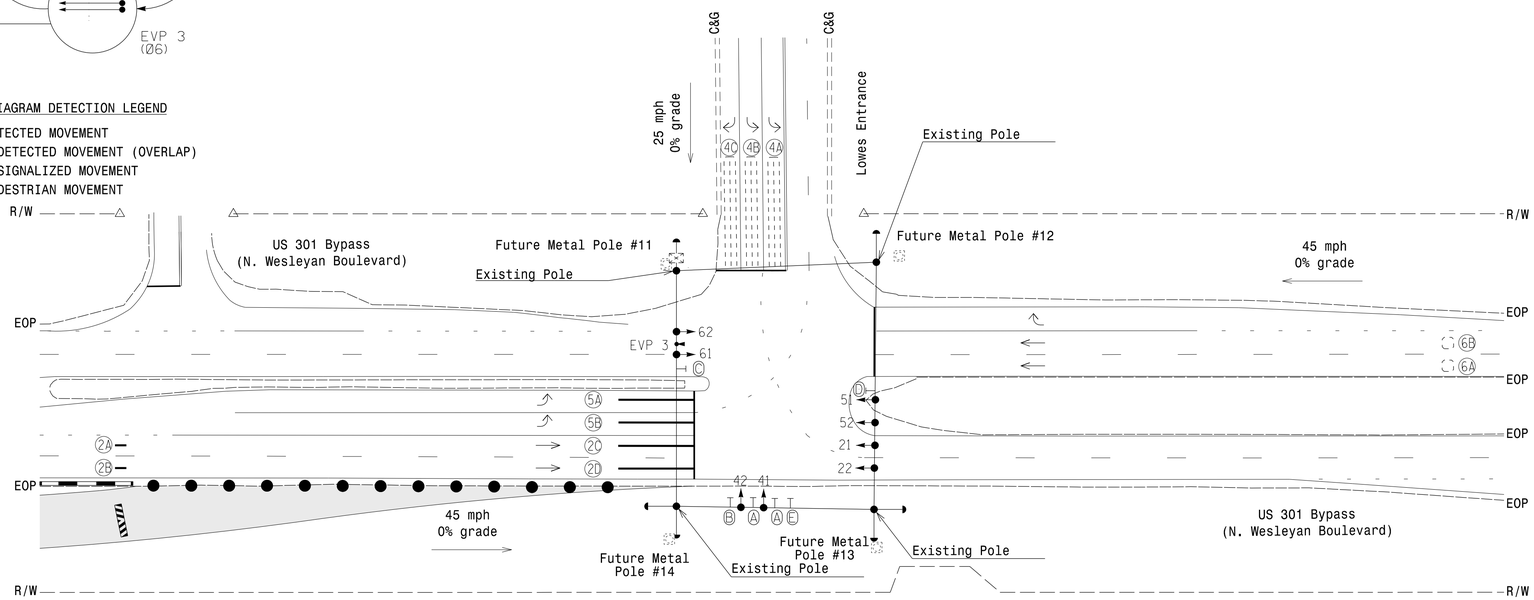
3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units and loop emulators to presence mode.
4. Phase 5 may be lagged.
5. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. EVP 3 detector is existing. Reuse Phase Selector. See Project Special Provisions.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Video Detection Area	
	Emergency Vehicle Detector	
N/A	Guardrail	
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Right Arrow "ONLY" Sign (R3-5R)	Ⓑ
Ⓒ	No U-Turn Sign (R3-4)	Ⓒ
Ⓓ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓓ
Ⓔ	Street Sign	Ⓔ
	Construction Zone	
	Construction Zone Drums	
	Construction Barricade	
	Crash Cushion	
	Portable Concrete Barrier	

OASIS 2070 TIMING CHART

FEATURE	PHASE 2	4	5	6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	25	20	90
Yellow Clearance	4.5	3.0	3.0	4.5
Red Clearance	1.2	3.4	3.2	1.3
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	1.5
Max Variable Initial *	-	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.0	-	-	3.0
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 1 (Area 2 TMP Phase I)

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd) at Lowe's Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-11587I

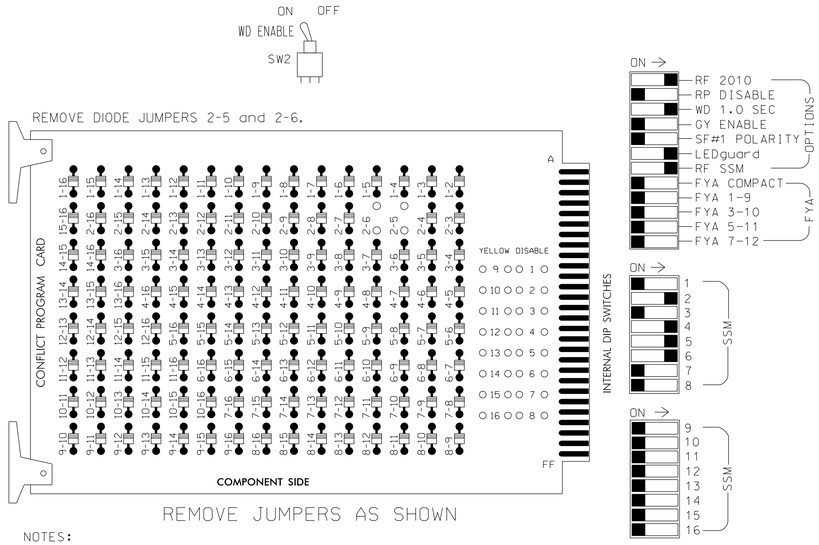
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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ENCAS386 AT LUS290321

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

■ = 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. 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 1,3,7,8, 9,10,11,12,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Gap Reduction and program phase 6 for Variable Initial.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash.
7. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
CABINET.....EXISTING 332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S4,S5,S6
PHASES USED.....2,4,5,6

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.1

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.	NU	21,22	NU	NU	41,42	62	NU	42	51,52	61,62	NU	NU	NU	NU
RED		128			101					134				
YELLOW		129			102					135				
GREEN		130			103					136				
RED ARROW									131					
YELLOW ARROW						102		132	132					
GREEN ARROW						103		133	133					

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

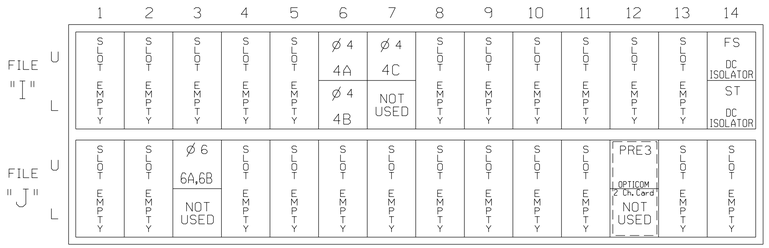
```
    PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE CONNECTION & PROGRAMMING CHART

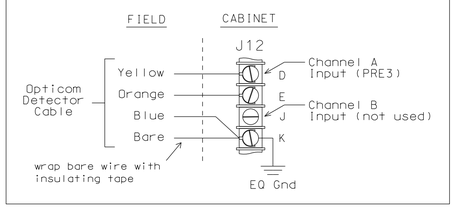
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			15
6A,6B	TB3-9,10	J3U	64	26	36	6	Y	Y			

SPECIAL DETECTOR NOTE

Install a video detection system for vehicle detection for loops 2A, 2B,2C,2D,5A AND 5B. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-1158T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - Temporary Design 1

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
NCDOT Transportation Mobility and Safety Division
Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Lowe's Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth — SIGNATURE — 1/30/2017 DATE

SIG. INVENTORY NO. 04-1158T1

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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ENCAS86 AT USER321

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.2

PHASING DIAGRAM

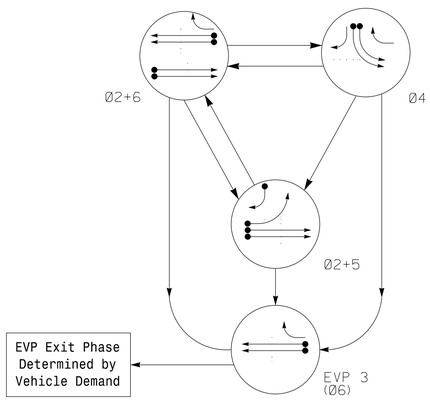
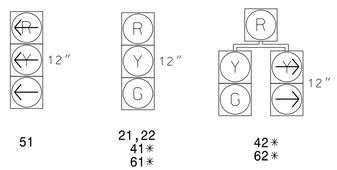


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4	EVP 3	FLASH
21, 22	G	G	R	R	Y
41	R	R	G	R	R
42	R/Y	R	G	R	R
51	←R	←R	←R	←R	←R
61	R	G	R	G	Y
62	R	G	R/Y	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.
* Back Plates



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	*	Y	2	Y	Y	-	-	-	-	*
2B	6x6	300	*	Y	2	Y	Y	-	-	-	-	*
2C	6x40	0	*	Y	2	Y	Y	Y	2	5	-	*
2D	6x40	0	*	Y	2	Y	Y	Y	2	5	-	*
4A	6x40	0	*	Y	4	Y	Y	-	-	3	-	*
4B	6x40	0	*	Y	4	Y	Y	-	-	-	-	*
5A	6x40	0	*	Y	5	Y	Y	-	-	-	-	*
5B	6x40	+10	*	Y	5	Y	Y	-	-	15	-	*
6A	6x6	300	*	Y	6	Y	Y	-	-	-	-	*
6B	6x6	300	*	Y	6	Y	Y	-	-	-	-	*
6C	6x40	0	*	Y	6	Y	Y	Y	2	5	-	*
6D	6x40	0	*	Y	6	Y	Y	Y	2	5	-	*

* Video Detection Area

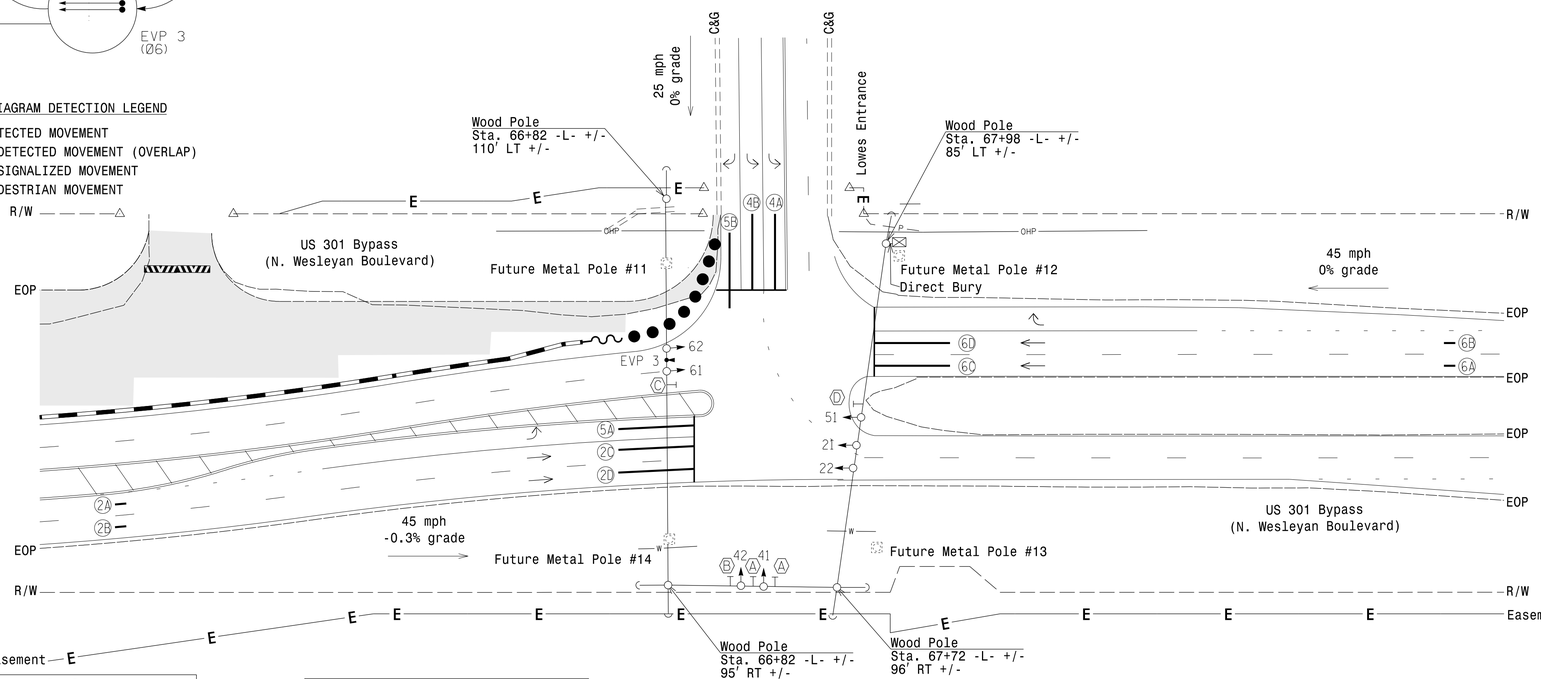
3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all loop emulators to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Phase 5 may be lagged.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Relocate EVP 3 detector on new span. Reuse Phase Selector. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Construction Easement	E
	Video Detection Area	
	Emergency Vehicle Detector	
N/A	Guardrail	
A	Left Arrow "ONLY" Sign (R3-5L)	A
B	Right Arrow "ONLY" Sign (R3-5R)	B
C	No U-Turn Sign (R3-4)	C
D	U-Turn "MUST YIELD" Sign (R3-27)	D
	Construction Zone	
	Construction Zone Drums	
	Construction Barricade	
	Crash Cushion	
	Portable Concrete Barrier	
N/A	UG Water Line	W
N/A	Drainage Pipe	
N/A	UG Power Line	P
N/A	Overhead Power Line	OHP

OASIS 2070E TIMING CHART

FEATURE	PHASE 2	4	5	6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	25	20	90
Yellow Clearance	4.6	3.0	3.0	4.5
Red Clearance	1.2	3.3	2.9	1.3
Red Revert	2.0	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	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

*, Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Area 2 TMP Phase II)

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd)
at
Lowe's Entrance

Division 04 Nash County Rocky Mount
PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Documented by: Melissa B. Toth 1/30/2017
CHECKED BY SIGNATURE DATE
SIG. INVENTORY NO. 04-1158T2

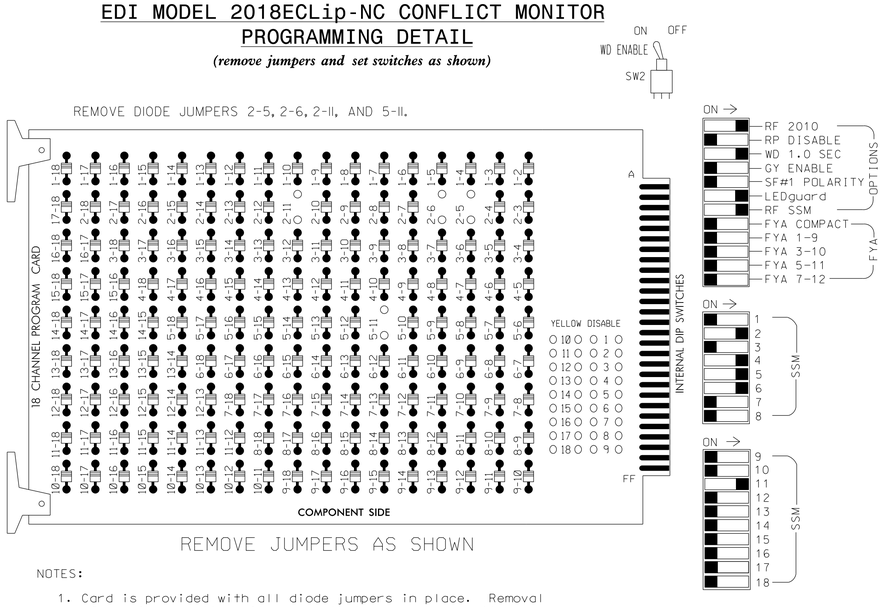
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S5,S7,S8, AUX S4
PHASES USED.....2,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....5
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.3

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	41,42	62	NU	51	61,62	NU	NU	NU	NU	NU	NU	NU	42	NU	NU
RED		128			101				134								*		
YELLOW		129			102				135										
GREEN		130			103				136										
RED ARROW								131											
YELLOW ARROW						102		132									A115		
GREEN ARROW						103		133									A116		

NU = Not Used

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

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

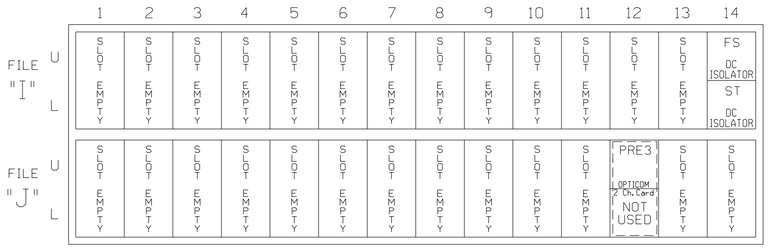
```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314151 6
1 255  0.0  0.0  |      X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:
```

PROGRAMMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

SPECIAL DETECTOR NOTE

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

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' TWICE

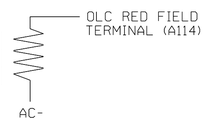
```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
  PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:  |    X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

LOAD RESISTOR INSTALLATION DETAIL

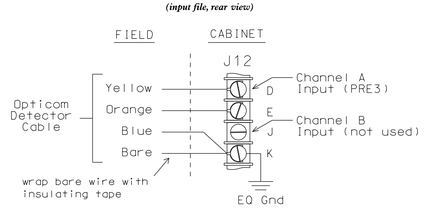
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1158T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - Temporary Design 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Traffic Engineering Branch, Signal Management Section, NC Department of Transportation, Mobility and Safety Division
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Lowe's Entrance

Division 04 | Nash County | Rocky Mount
PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1158T2

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.4

PHASING DIAGRAM

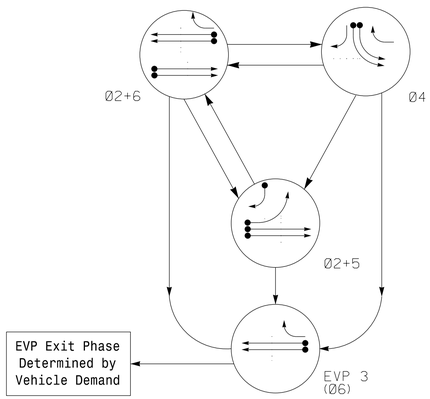
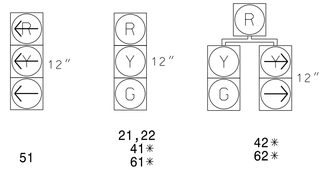


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4	EVP 3	FLASH
21, 22	G	G	R	R	Y
41	R	R	G	R	R
42	R/	R	G	R	R
51	←	←R	←R	←R	←R
61	R	G	R	G	Y
62	R	G	R/	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.
* Back Plates



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	*	Y	2	Y	Y	-	-	-	-	*
2B	6x6	300	*	Y	2	Y	Y	-	-	-	-	*
2C	6x40	0	*	Y	2	Y	Y	Y	2	5	-	*
2D	6x40	0	*	Y	2	Y	Y	Y	2	5	-	*
4A	6x40	0	*	Y	4	Y	Y	-	-	3	-	*
4B	6x40	0	*	Y	4	Y	Y	-	-	-	-	*
5A	6x40	0	*	Y	5	Y	Y	-	-	-	-	*
5B	6x40	+10	*	Y	5	Y	Y	-	-	15	-	*
6A	6x6	300	*	Y	6	Y	Y	-	-	-	-	*
6B	6x6	300	*	Y	6	Y	Y	-	-	-	-	*
6C	6x40	0	*	Y	6	Y	Y	Y	2	5	-	*
6D	6x40	0	*	Y	6	Y	Y	Y	2	5	-	*

* Video Detection Area

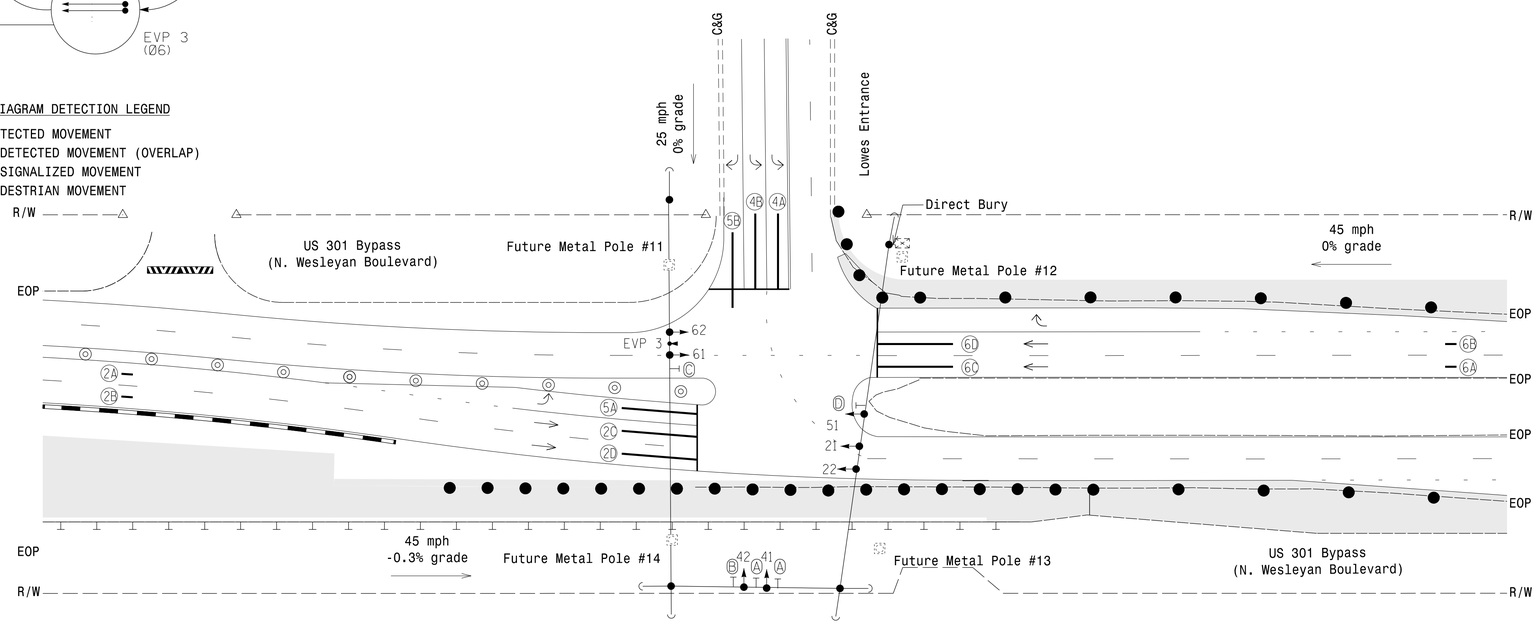
3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all loop emulators to presence mode.
4. Phase 5 may be lagged.
5. Reposition signal heads numbered 51,61, and 62 as shown.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Reuse EVP 3 detector. Reuse Phase Selector. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▯↓	Pedestrian Signal Head	■↓
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	— — — —
→	Directional Arrow	→
▬	Video Detection Area	▬
○◁	Emergency Vehicle Detector	●◁
N/A	Guardrail	⊥
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Right Arrow "ONLY" Sign (R3-5R)	Ⓑ
Ⓒ	No U-Turn Sign (R3-4)	Ⓒ
Ⓓ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓓ
▒	Construction Zone	▒
●●	Construction Zone Drums	●●
⧓	Construction Barricade	⧓
∿	Crash Cushion	∿
▬	Portable Concrete Barrier	▬
N/A	UG Water Line	—W—
N/A	Drainage Pipe	═══
N/A	UG Power Line	—P—

OASIS 2070E TIMING CHART

FEATURE	PHASE 2	4	5	6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	25	20	90
Yellow Clearance	4.6	3.0	3.0	4.5
Red Clearance	1.2	3.3	2.8	1.3
Red Revert	2.0	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	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

*, Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 3 (Area 2 TMP Phase III)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
DEPARTMENT OF TRANSPORTATION STATE OF NORTH CAROLINA
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SCALE 0 40 1"=40'

US 301 Byp. (N. Wesleyan Blvd) at Lowe's Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

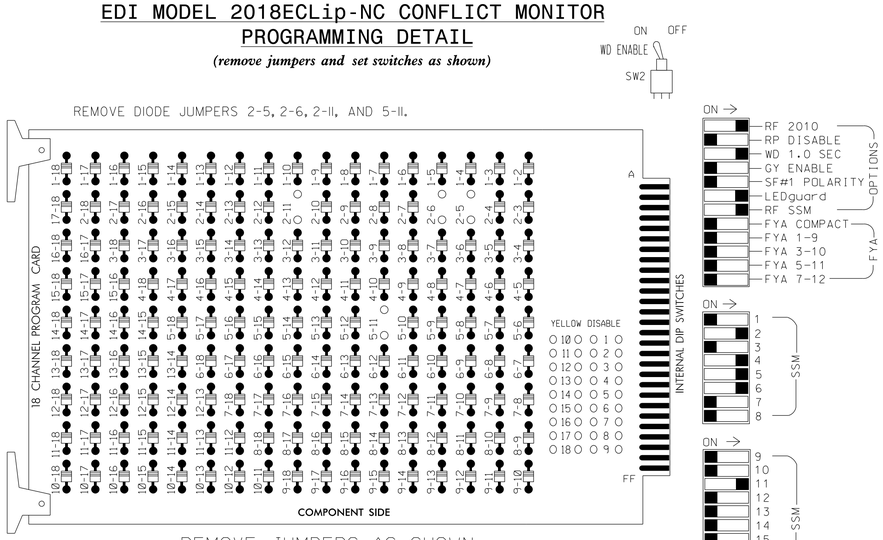
SIG. INVENTORY NO. 04-1158T3

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

```
CONTROLLER.............2070E
CABINET.................332
SOFTWARE...............ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S2,S5,S7,S8, AUX S4
PHASES USED.............2,4,5,6
OVERLAP "A".............NOT USED
OVERLAP "B".............NOT USED
OVERLAP "C".............5
OVERLAP "D".............NOT USED
```

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.5

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	41,42	62	NU	51	61,62	NU	NU	NU	NU	NU	NU	NU	42	NU	NU
RED		128			101				134								*		
YELLOW		129			102				135										
GREEN		130			103				136										
RED ARROW								131											
YELLOW ARROW						102		132									A115		
GREEN ARROW						103		133									A116		

NU = Not Used

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

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

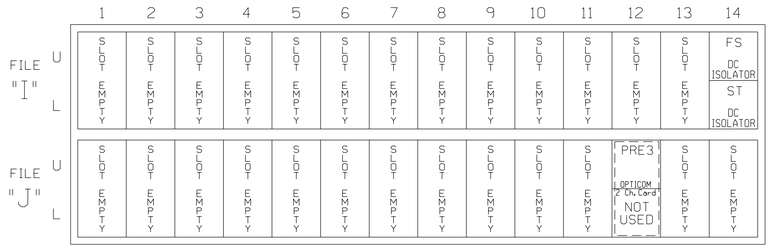
```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:          | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:
```

PROGRAMMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

SPECIAL DETECTOR NOTE

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

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:              |123456789101112131415 16
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).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

LOAD RESISTOR INSTALLATION DETAIL

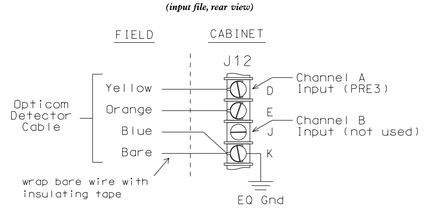
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1158T3
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - Temporary Design 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
NCDEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Lowe's Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1158T3

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.6

PHASING DIAGRAM

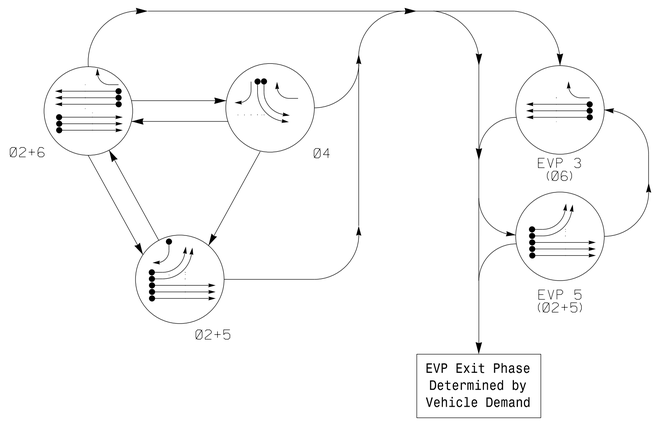
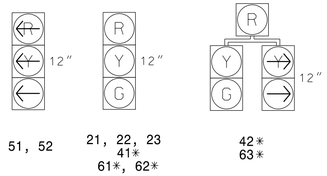


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4	EVP 3	EVP 5	FLASH
21, 22, 23	G	G	R	R	G	Y
41	R	R	G	R	R	R
42	R/←	R	G	R	R	R
51, 52	←	R	R	R	←	R
61, 62	R	G	R	G	R	Y
63	R	G	R/←	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.
* Back Plates



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	6	Y	2	Y	Y	-	-	-	-	Y
2B	6x6	300	6	Y	2	Y	Y	-	-	-	-	Y
2C	6x6	300	6	Y	2	Y	Y	-	-	-	-	Y
4A	6x40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4B	6x40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
5A	6x40	0	2-4-2	Y	5	Y	Y	-	-	-	-	Y
5B	6x40	0	2-4-2	Y	5	Y	Y	-	-	-	-	Y
5C	6x40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
6A	6x6	300	4	Y	6	Y	Y	-	-	-	-	Y
6B	6x6	300	4	Y	6	Y	Y	-	-	-	-	Y
6C	6x6	300	4	Y	6	Y	Y	-	-	-	-	Y

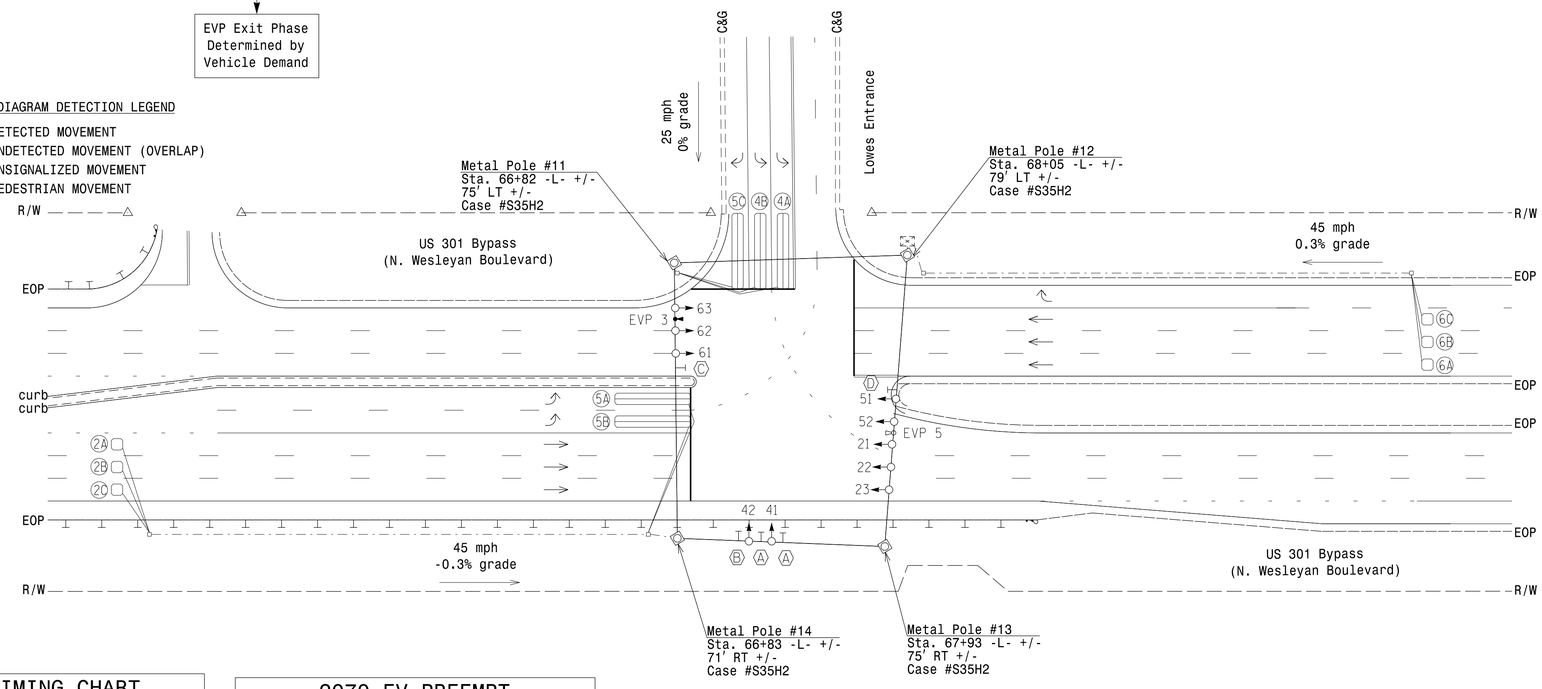
3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Phase 5 may be lagged.
5. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. Relocate EVP 3 detector on new span. Install new EVP 5 detector on new span. Reuse one Phase Selector and install one new Phase Selector. See Project Special Provisions.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■
⊙	Metal Strain Pole	◘
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	————
→	Directional Arrow	→
⋈	Emergency Vehicle Detector	●◀
N/A	Guardrail	⊥⊥
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Right Arrow "ONLY" Sign (R3-5R)	Ⓑ
Ⓒ	No U-Turn Sign (R3-4)	Ⓒ
Ⓓ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓓ

OASIS 2070E TIMING CHART

FEATURE	PHASE 2	4	5	6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	25	20	90
Yellow Clearance	4.6	3.0	3.0	4.5
Red Clearance	1.3	3.3	3.3	1.1
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	1.5	-	-	1.5
Max Variable Initial *	34	-	-	34
Time Before Reduction *	15	-	-	15
Time To Reduce *	30	-	-	30
Minimum Gap	3.0	-	-	3.0
Recall Mode	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	C
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

SCALE 0 40 1"=40'

US 301 Byp. (N. Wesleyan Blvd) at Lowe's Entrance

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

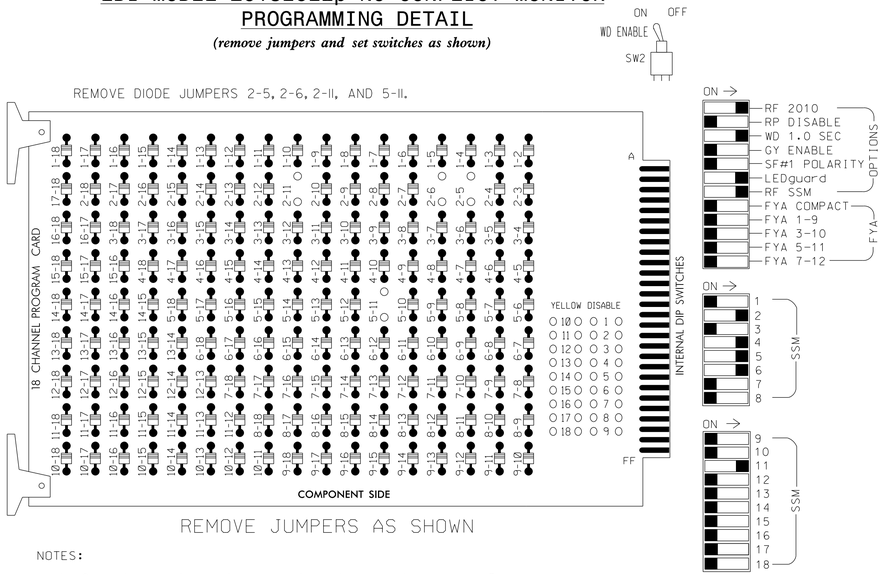
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Variable Initial and Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S5,S7,S8, AUX S4
PHASES USED.....2,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....5
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.7

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, 23	NU	NU	41,42	63	NU	51,52	61,62, 63	NU	NU	NU	NU	NU	NU	NU	42	NU	NU
RED		128			101				134								*		
YELLOW		129			102				135										
GREEN		130			103				136										
RED ARROW								131											
YELLOW ARROW						102		132									A115		
GREEN ARROW						103		133									A116		

NU = Not Used

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

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'C' 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).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	Ø2 2A	Ø2 2C	SLOT EMPTY	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		Ø2 2B	NOT USED			Ø4 4B								ST DC ISOLATOR
FILE "J"	U	Ø5 5A	Ø5 5B	Ø6 6A	Ø6 6C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE3 OPTICOM 2 Ch. Card PRE5	SLOT EMPTY	SLOT EMPTY
	L	NOT USED	Ø6 5C	Ø6 6B	NOT USED										

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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

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			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
2C	TB2-9,10	I3U	63	25	32	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			
5C	TB3-7,8	J2L	44	6	16	5	Y	Y			15
6A	TB3-9,10	J3U	64	26	36	6	Y	Y			
6B	TB3-11,12	J3L	77	39	46	6	Y	Y			
6C	TB5-1,2	J4U	48	10	26	6	Y	Y			

LOAD RESISTOR INSTALLATION DETAIL

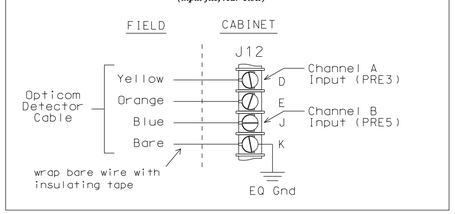
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 1 of 2 - Final Design

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: Ø4-1158
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd) at Lowe's Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1158

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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ENCAS86 AT USER0321

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 8.8

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |      X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |    X
```

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-1158
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 2 of 2 - Final Design

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd)
at
Lowe's Entrance

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY: MB Toth		
PREPARED BY: AM Encarnacion	REVIEWED BY:		
REVISIONS		INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DocuSigned by: C9B0DF8B3404AAF DATE

SIG. INVENTORY NO. 04-1158

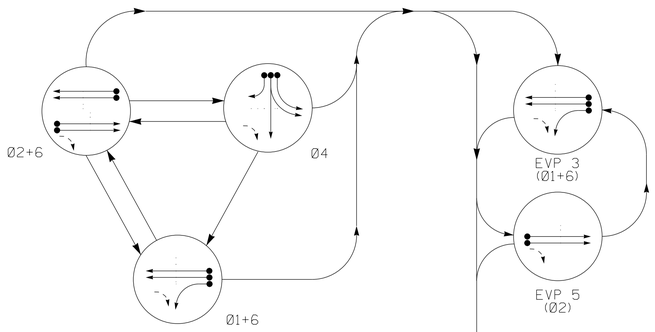
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 9.0

3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

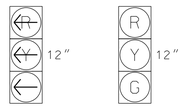
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø2+6	Ø4	EVP 3	EVP 5	FLASH
11	←	~~R~~	~~R~~	←	~~R~~	~~R~~
21, 22	R	G	R	R	G	Y
41, 42, 43	R	R	G	R	R	R
61, 62	G	G	R	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



11

21,22
41,42,43
61,62

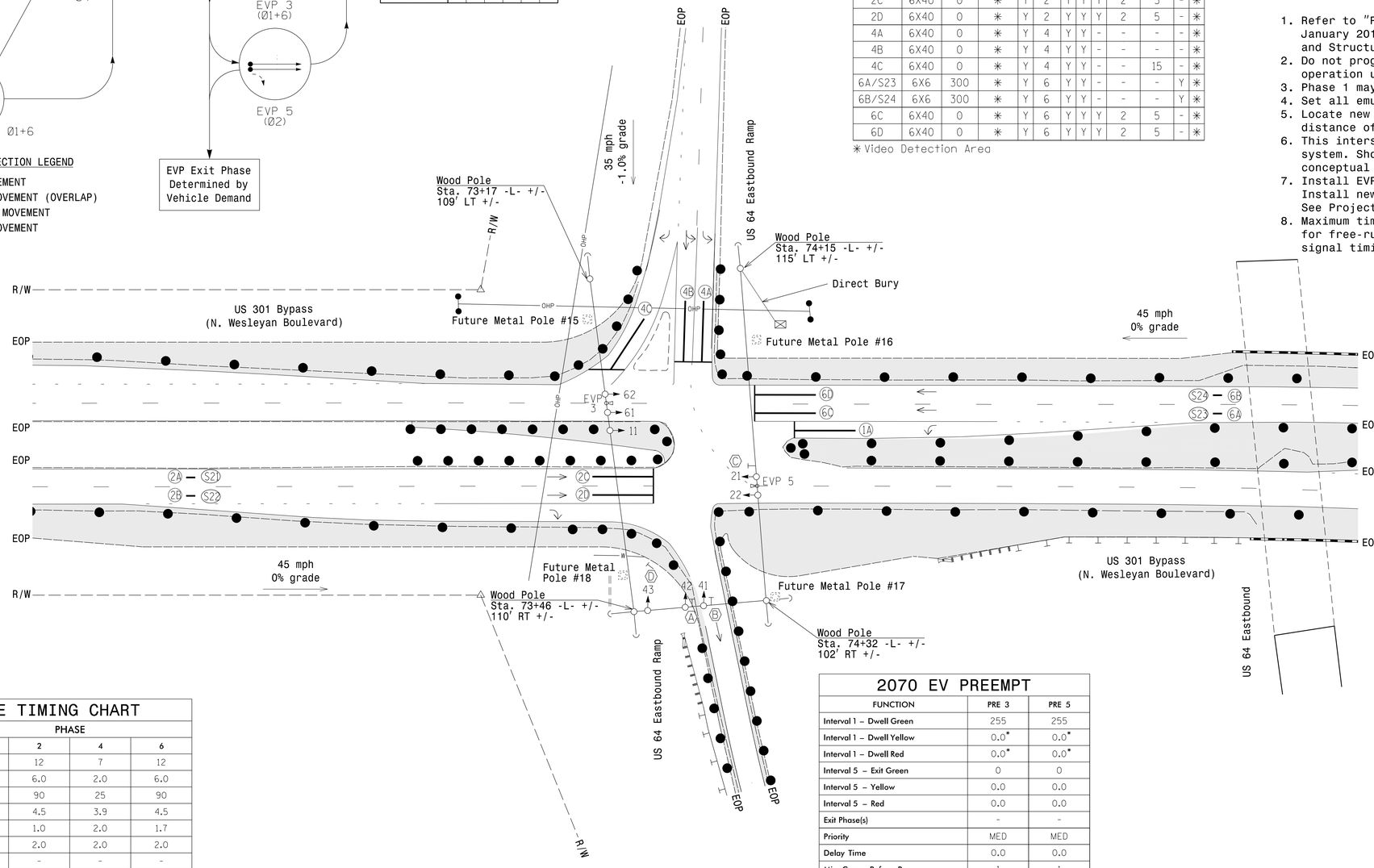
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

DETECTION ZONES					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
1A	6X40	0	✳	Y	1	Y	Y	-	-	-	-	✳
2A/S21	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2B/S22	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2C	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
4A	6X40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4B	6X40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4C	6X40	0	✳	Y	4	Y	Y	-	-	15	-	✳
6A/S23	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6B/S24	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6C	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 emulator loops to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Install EVP 3 and EVP 5 detectors on new spans. Install new Phase Selectors in signal cabinet. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	4	6
Min Green 1 *	7	12	7	12
Extension 1 *	2.0	6.0	2.0	6.0
Max Green 1 *	30	90	25	90
Yellow Clearance	3.0	4.5	3.9	4.5
Red Clearance	2.8	1.0	2.0	1.7
Red Revert	2.0	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	-	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head	■↓
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	— — —
→	Directional Arrow	→
N/A	Guardrail	⊥⊥
⋈	Emergency Vehicle Detector	⋈
Ⓐ	Combined Through and Left Arrow Sign (R3-6L)	Ⓐ
Ⓑ	Left Arrow "ONLY" Sign (R3-5L)	Ⓑ
Ⓒ	No Left Turn Sign (R3-2)	Ⓒ
Ⓓ	"YIELD" Sign (R1-2)	Ⓓ
	Construction Zone	
●●	Construction Zone Drums	●●
N/A	UG Water Line	—W—
N/A	Drainage Pipe	— — —
N/A	Overhead Power Line	—OHP—

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 1 (Area 3 TMP Phase I)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd)
at
US 64 Eastbound Ramps

Division 04 Nash County Rocky Mount
PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

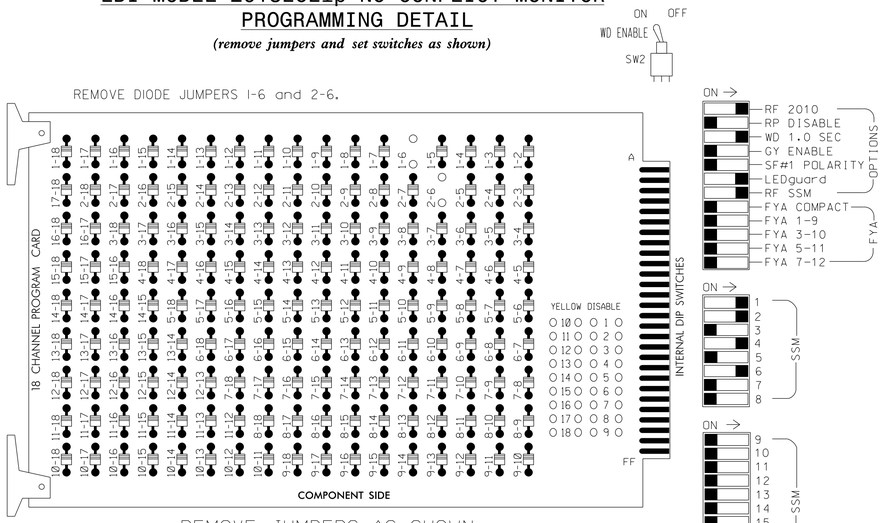
SIG. INVENTORY NO. 04-0618TI

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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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
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
*AUX. OUTPUT FILE FOR FUTURE USE.

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 9.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	NU	41,42, 43	NU	NU	61,62	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED		128			101			134										
YELLOW		129			102			135										
GREEN		130			103			136										
RED ARROW	125																	
YELLOW ARROW	126																	
GREEN ARROW	127																	

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
 GRN YEL  RED    | 1234567891011121314151 6
1 255  0.0  0.0  | X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:          | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
 GRN YEL  RED    | 1234567891011121314151 6
1 255  0.0  0.0  | X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:          | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:
```

PROGRAMING COMPLETE

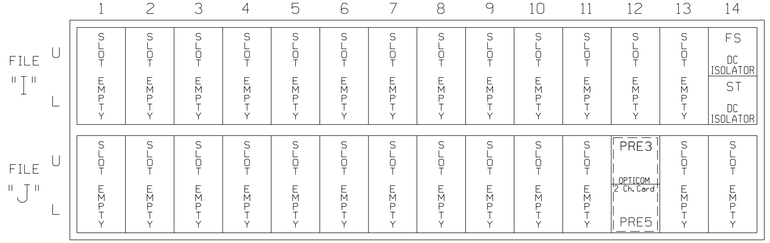
Program extend time an optical detector unit for 5.0 seconds.

SPECIAL DETECTOR NOTE

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

INPUT FILE POSITION LAYOUT

(front view)



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

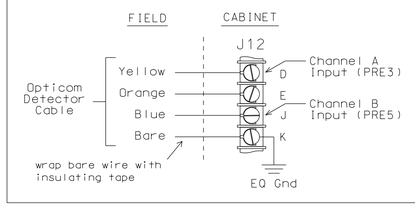
FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0618T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 1 Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd) at US 64 Eastbound Ramps

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DESIGNER SIGNATURE DATE

SIG. INVENTORY NO. 04-0618T1

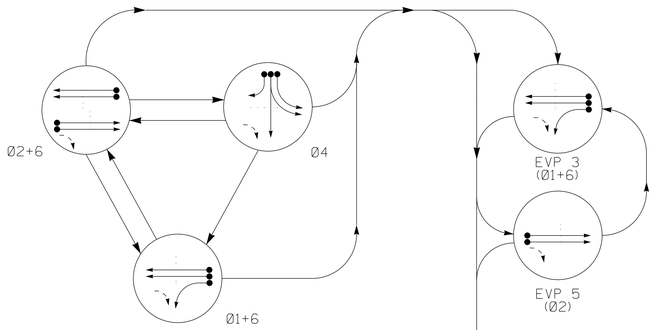
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 9.2

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

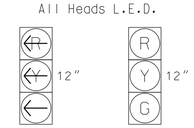
EVP Exit Phase Determined by Vehicle Demand

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø2+6	Ø4	EVP 3	EVP 5	FLASH
11	←	~~R~~	~~R~~	←	~~R~~	~~R~~
21, 22	R	G	R	R	G	Y
41, 42, 43	R	R	G	R	R	R
61, 62	G	G	R	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

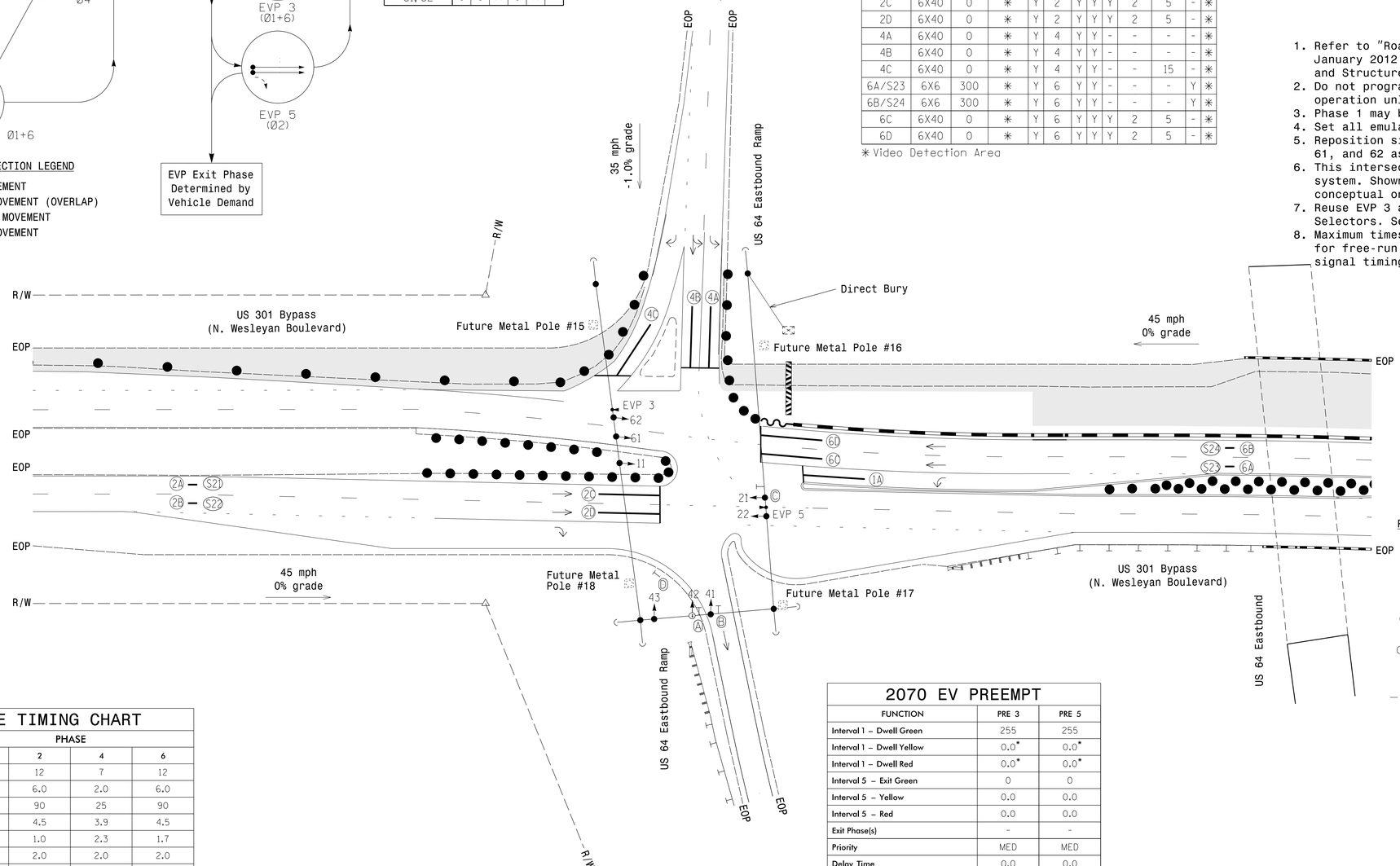
DETECTION ZONES					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	✳	Y	1	Y	Y	-	-	-	-	✳
2A/S21	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2B/S22	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2C	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
4A	6X40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4B	6X40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4C	6X40	0	✳	Y	4	Y	Y	-	-	15	-	✳
6A/S23	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6B/S24	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6C	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area

3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 emulator loops to presence mode.
5. Reposition signal heads numbered 11, 21, 22, 61, and 62 as shown.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Reuse EVP 3 and EVP 5 detectors. Reuse Phase Selectors. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
●→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head	■↓
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊡
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	— — —
→	Directional Arrow	→
N/A	Guardrail	⊥⊥⊥
⋈	Emergency Vehicle Detector	⋈
Ⓐ	Combined Through and Left Arrow Sign (R3-6L)	Ⓐ
Ⓑ	Left Arrow "ONLY" Sign (R3-5L)	Ⓑ
Ⓒ	No Left Turn Sign (R3-2)	Ⓒ
Ⓓ	"YIELD" Sign (R1-2)	Ⓓ
	Construction Zone	
●●	Construction Zone Drums	●●
▨	Construction Barricade	▨
∿∿	Crash Cushion	∿∿
▬	Portable Concrete Barrier	▬

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	4	6
Min Green 1 *	7	12	7	12
Extension 1 *	2.0	6.0	2.0	6.0
Max Green 1 *	30	90	25	90
Yellow Clearance	3.0	4.5	3.9	4.5
Red Clearance	2.3	1.0	2.3	1.7
Red Revert	2.0	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	-	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Area 3 TMP Phase II)

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd)
at
US 64 Eastbound Ramps

Division 04 Nash County Rocky Mount
PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

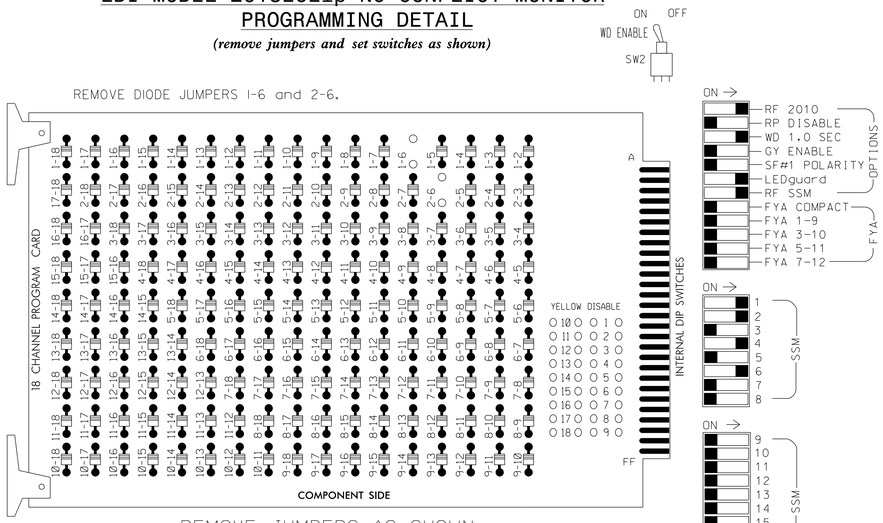
SIG. INVENTORY NO. 04-061812

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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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
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

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 9.3

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	NU	41,42, 43	NU	NU	61,62	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED		128			101			134										
YELLOW		129			102			135										
GREEN		130			103			136										
RED ARROW	125																	
YELLOW ARROW	126																	
GREEN ARROW	127																	

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
 GRN YEL  RED    | 1234567891011121314151 6
1 255  0.0  0.0  | X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:          | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
 GRN YEL  RED    | 1234567891011121314151 6
1 255  0.0  0.0  | X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:          | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:
```

PROGRAMING COMPLETE

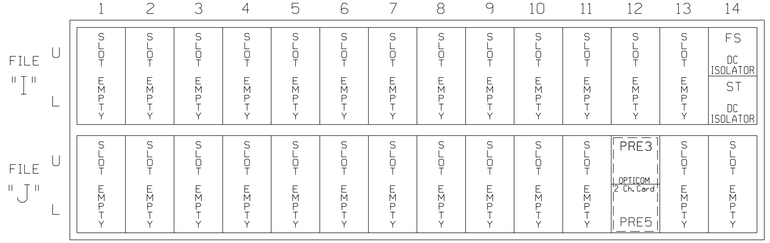
Program extend time an optical detector unit for 5.0 seconds.

SPECIAL DETECTOR NOTE

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

INPUT FILE POSITION LAYOUT

(front view)



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

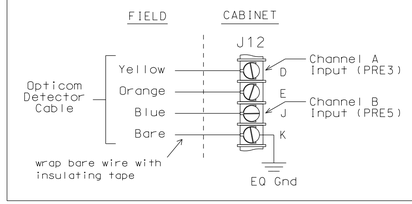
FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0618T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd) at US 64 Eastbound Ramps

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DOCUSIGNATURE DATE

SIG. INVENTORY NO. 04-0618T2

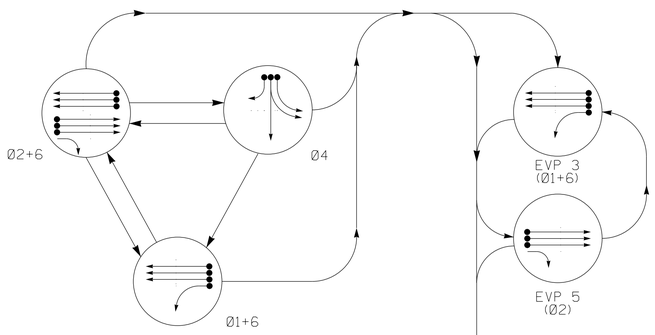
ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 9.4

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

EVP Exit Phase Determined by Vehicle Demand

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø2+6	Ø4	EVP 3	EVP 5	FLASH
11	←	←R	←R	←	←R	←R
21, 22, 23	R	G	R	R	G	Y
41, 42, 43	R	R	G	R	R	R
61, 62, 63	G	G	R	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.

11

21,22,23
41,42,43
61,62,63

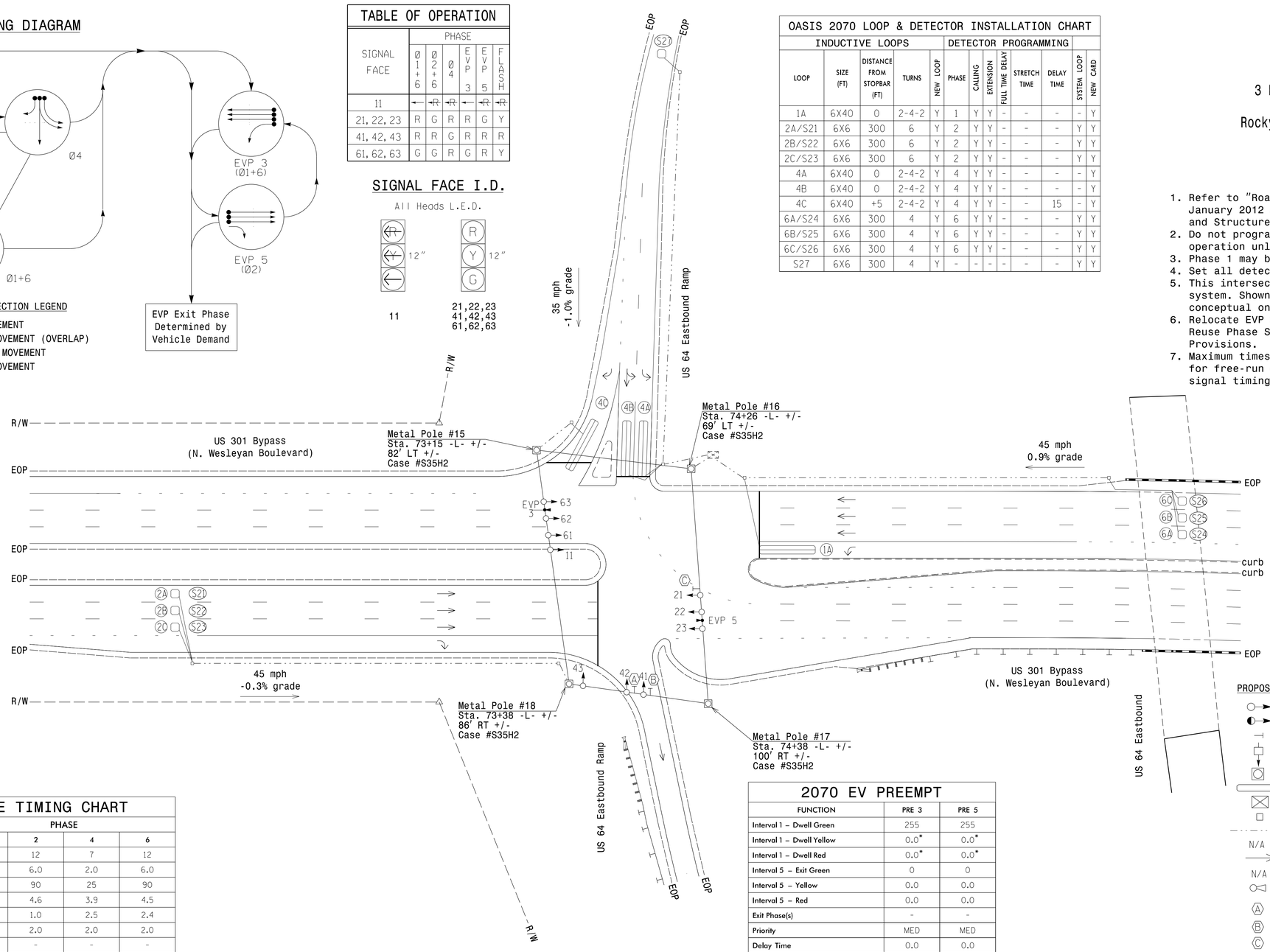
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	-	-	Y
2A/S21	6X6	300	6	Y	2	Y	Y	-	-	-	Y	Y
2B/S22	6X6	300	6	Y	2	Y	Y	-	-	-	Y	Y
2C/S23	6X6	300	6	Y	2	Y	Y	-	-	-	Y	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
4C	6X40	+5	2-4-2	Y	4	Y	Y	-	-	15	-	Y
6A/S24	6X6	300	4	Y	6	Y	Y	-	-	-	Y	Y
6B/S25	6X6	300	4	Y	6	Y	Y	-	-	-	Y	Y
6C/S26	6X6	300	4	Y	6	Y	Y	-	-	-	Y	Y
S27	6X6	300	4	Y	-	-	-	-	-	-	Y	Y

3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. Relocate EVP 3 and EVP 5 detectors onto new spans. Reuse Phase Selectors. See Project Special Provisions.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head With Push Button & Sign	■
○	Metal Strain Pole	◘
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	— — — —
→	Directional Arrow	→
N/A	Guardrail	⊥⊥
⊂	Emergency Vehicle Detector	⊂●
Ⓐ	Combined Through and Left Arrow Sign (R3-6L)	Ⓐ
Ⓑ	Left Arrow "ONLY" Sign (R3-5L)	Ⓑ
Ⓒ	No Left Turn Sign (R3-2)	Ⓒ

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	4	6
Min Green 1 *	7	12	7	12
Extension 1 *	2.0	6.0	2.0	6.0
Max Green 1 *	30	90	25	90
Yellow Clearance	3.0	4.6	3.9	4.5
Red Clearance	3.3	1.0	2.5	2.4
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	1.5	-	1.5
Max Variable Initial *	-	34	-	34
Time Before Reduction *	-	15	-	15
Time To Reduce *	-	30	-	30
Minimum Gap	-	3.0	-	3.0
Recall Mode	-	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
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US 301 Byp. (N. Wesleyan Blvd)
at
US 64 Eastbound Ramps

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
DESIGNER SIGNATURE DATE

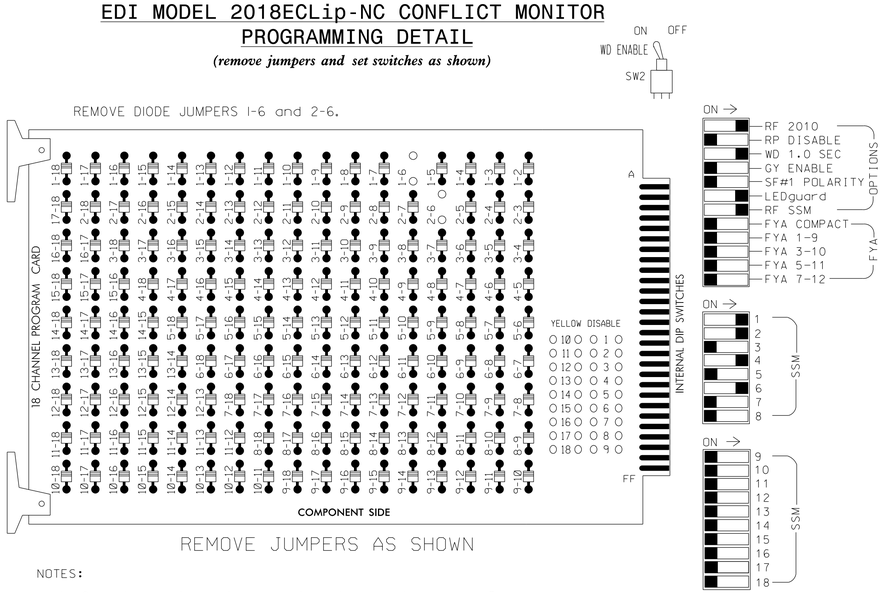
SIG. INVENTORY NO. 04-0618

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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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Variable Initial and Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332 /W/ AUX
SOFTWARE.....ECONOLITE OASIS
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

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 9.5

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22, 23	NU	NU	41,42, 43	NU	NU	61,62, 63	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED		128			101			134										
YELLOW		129			102			135										
GREEN		130			103			136										
RED ARROW	125																	
YELLOW ARROW	126																	
GREEN ARROW	127																	

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" U	Ø 1 1A	Ø 2/SYS 2A/S21	Ø 2/SYS 2C/S23	SLOT EMPTY	SLOT EMPTY	Ø 4 4A	Ø 4 4C	SLOT EMPTY	SYS. DET. S27	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
FILE "I" L	NOT USED	Ø 2/SYS 2B/S22	NOT USED			Ø 4 4B	NOT USED		NOT USED					ST DC ISOLATOR
FILE "J" U	SLOT EMPTY	Ø 6/SYS 6A/S24	Ø 6/SYS 6C/S26	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE3 OPTICOM 2 Ch. Card PRE5	SLOT EMPTY	SLOT EMPTY
FILE "J" L		Ø 6/SYS 6B/S25	NOT USED											

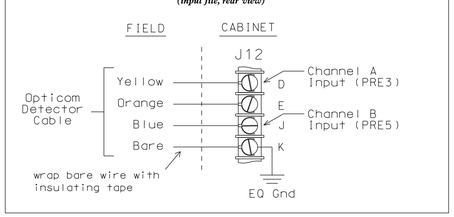
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



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
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A/S21	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S22	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
2C/S23	TB2-9,10	I3U	63	25	32	2/SYS	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			15
✳S27	TB6-9,10	I9U	60	22	11	SYS					
6A/S24	TB3-5,6	J2U	40	2	6	6/SYS	Y	Y			
6B/S25	TB3-7,8	J2L	44	6	16	6/SYS	Y	Y			
6C/S26	TB3-9,10	J3U	64	26	36	6/SYS	Y	Y			

✳ SYSTEM DETECTOR ONLY. REMOVE THE VEHICLE PHASE ASSIGNED TO THIS DETECTOR IN THE DEFAULT PROGRAMMING.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0618
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Final Design (Electrical Detail Sheet 1 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd)
at
US 64 Eastbound Ramps

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0618

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 9.6

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
                 OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
                 OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0618
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

Signal Upgrade - Final Design (Electrical Detail Sheet 2 of 2)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp. (N. Wesleyan Blvd)
at
US 64 Eastbound Ramps

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0618

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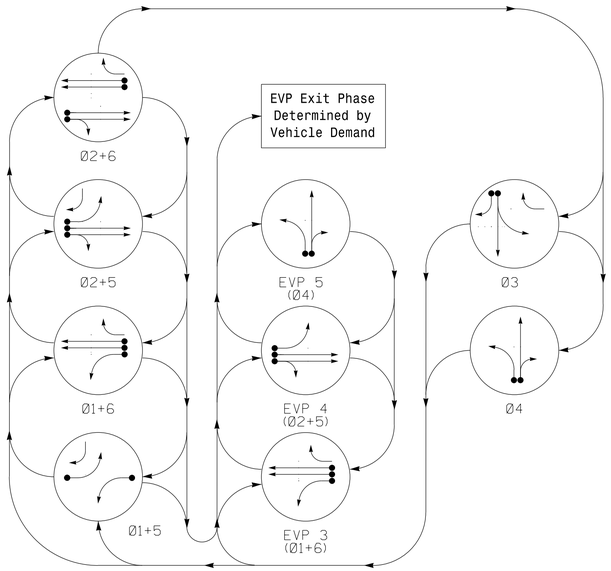
PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.0

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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/or phase 4 may be reversed.
5. Set all loop emulators to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Relocate existing EVP 3, EVP 4 and EVP 5 detectors onto new spans. Relocate existing Phase Selectors into signal cabinet. See Project Special Provisions.
9. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.

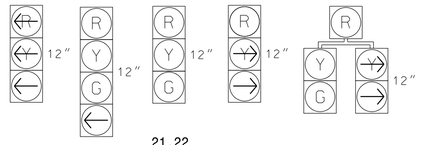


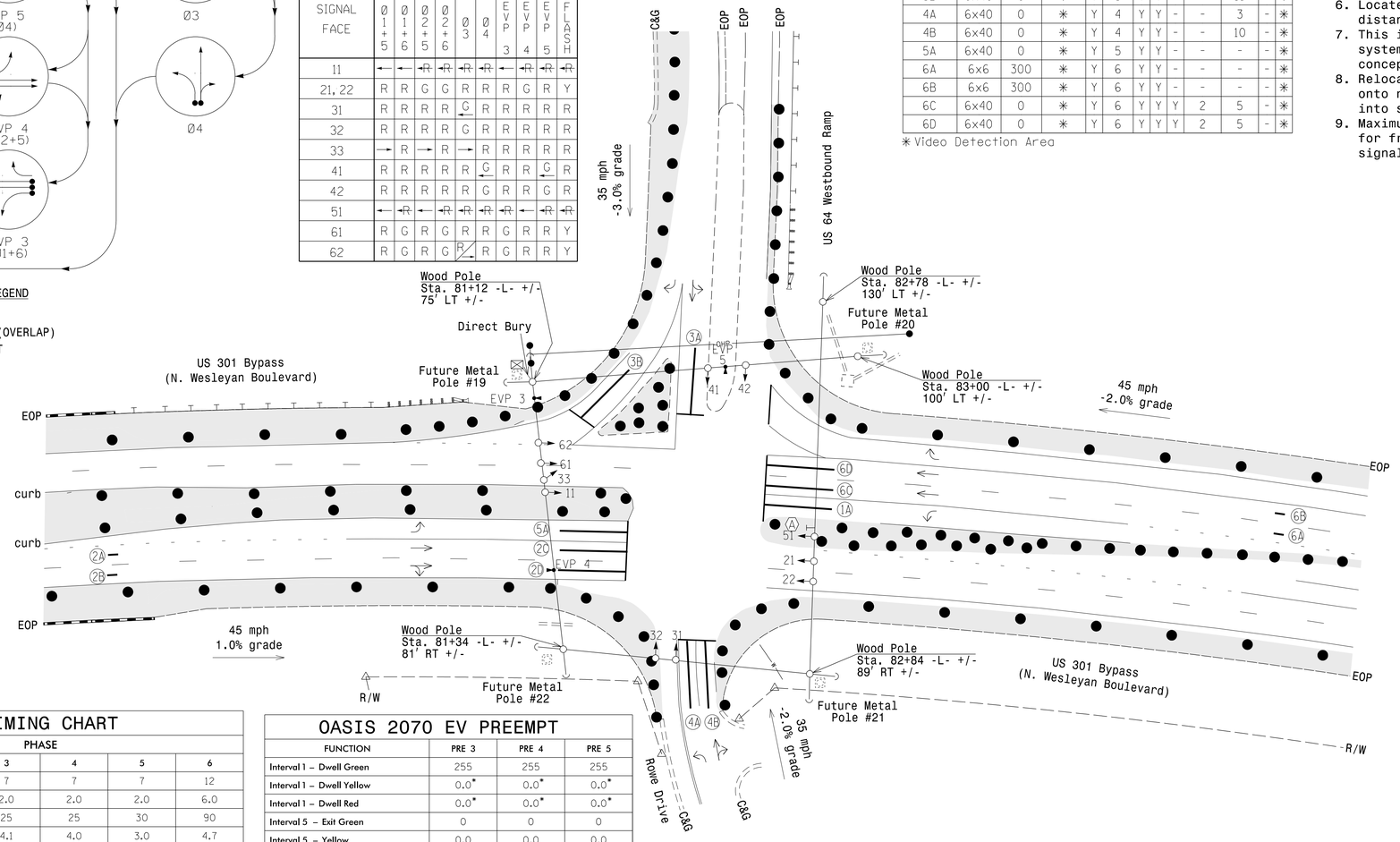
TABLE OF OPERATION

SIGNAL FACE	PHASE									
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 4	EVP 5	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~	~~R~~
21, 22	R	R	G	G	R	R	R	G	R	Y
31	R	R	R	R	G	R	R	R	R	R
32	R	R	R	R	G	R	R	R	R	R
33	→	R	→	R	→	R	R	R	R	R
41	R	R	R	R	R	G	R	R	G	R
42	R	R	R	R	R	G	R	R	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
61	R	G	R	G	R	R	G	R	R	Y
62	R	G	R	G	R	R	G	R	R	Y

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

DETECTION ZONES					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
1A	6x40	0	✳	Y	1	Y	Y	-	-	-	-	✳
2A	6x6	300	✳	Y	2	Y	Y	-	-	-	-	✳
2B	6x6	300	✳	Y	2	Y	Y	-	-	-	-	✳
2C	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
3A	6x40	0	✳	Y	3	Y	Y	-	-	-	-	✳
3B	6x40	0	✳	Y	3	Y	Y	-	-	15	-	✳
4A	6x40	0	✳	Y	4	Y	Y	-	-	3	-	✳
4B	6x40	0	✳	Y	4	Y	Y	-	-	10	-	✳
5A	6x40	0	✳	Y	5	Y	Y	-	-	-	-	✳
6A	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6B	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6C	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head	■
○↓	Signal Pole with Guy	●↓
○↓	Signal Pole with Sidewalk Guy	●↓
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
-·-·-	2-in Underground Conduit	-·-·-
N/A	Right of Way	———
→	Directional Arrow	→
⊂	Emergency Vehicle Detector	▬
N/A	Guardrail	⊥⊥
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ
	Construction Zone	
●●	Construction Zone Drums	●●
N/A	UG Water Line	W
N/A	Drainage Pipe	———
N/A	Overhead Power Line	OHP

OASIS 2070E TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	15	90	25	25	30	90
Yellow Clearance	3.0	4.4	4.1	4.0	3.0	4.7
Red Clearance	2.6	1.0	2.0	3.1	3.6	1.9
Red Revert	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	0	0	0
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	-	-	-
Priority	MED	MED	MED
Delay Time	0.0	0.0	0.0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0	0	0
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	12	12	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	-	C	-
Preempt Extend**	5	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 1 (Area 3 TMP Phase I)

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd) at US 64 Byp Westbound Ramp/ Rowe Drive

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-06171

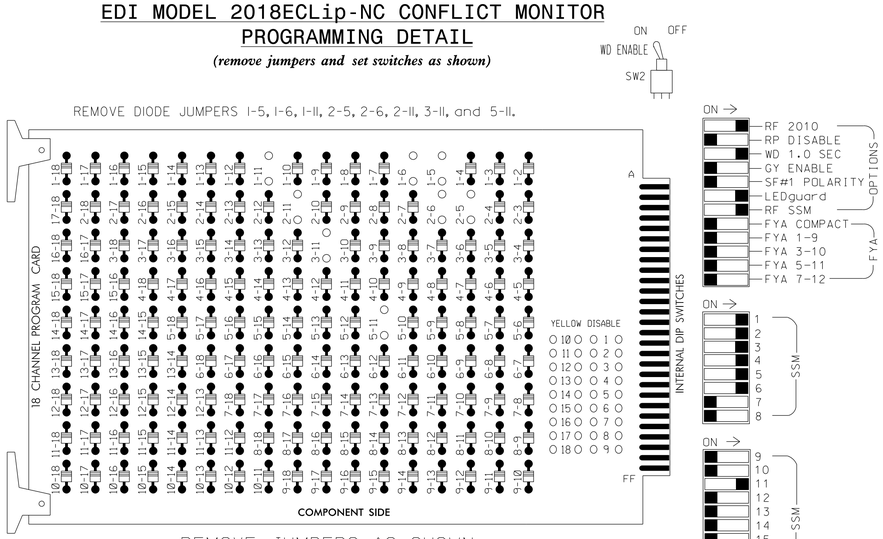
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash and overlap 3 as Wag Overlap.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,AUX S4
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....3+5
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4			S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3			4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3			4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	31	32	62	41	42	NU	51	61,62	NU	NU	NU	NU	NU	NU	NU	33	NU	NU
RED		128		116	116		101	101			134								A114		
YELLOW		129		117	117		102	102			135										
GREEN		130		118	118		103	103			136										
RED ARROW	125									131											
YELLOW ARROW	126					117				132									A115		
GREEN ARROW	127			118		118	103			133									A116		

NU = Not Used

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

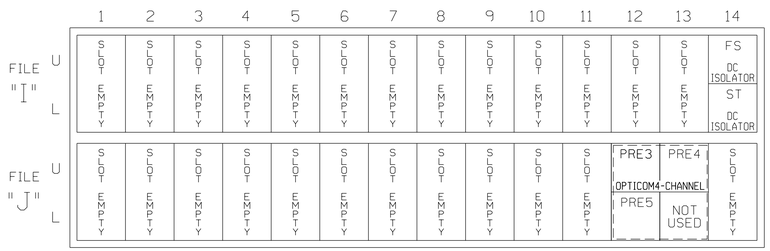
PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:          |123456789101112131415 16
VEH OVL PARENTS:|  X 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).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

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

FLASHER CIRCUIT MODIFICATION DETAIL

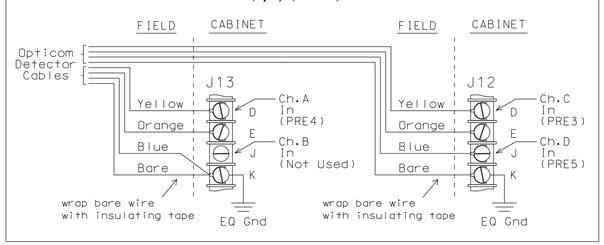
IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

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

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

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 1 OF 2 - Temporary Design 1 (Area 3 TMP Phase I)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd) at US 64 Byp Westbound Ramp/ Rowe Drive

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER
MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0617T1

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0617T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.2

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3, 4 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |  X
```

PRESS 'NEXT'

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |   X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time on optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0617T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 2 OF 2 - Temporary Design 1 (Area 3 TMP Phase I)

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 301 Byp (N. Wesleyan Blvd) at US 64 Byp Westbound Ramp/ Rowe Drive	SEAL
Prepared for the Offices of: NCDOT Transportation Mobility and Safety Division, Signal Management Section	Division 04 Nash County Rocky Mount	NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH
750 N.Greenfield Pkwy.Garner,NC 27529	PLAN DATE: November 2016 REVIEWED BY: MB Toth	Designed by: Melissa B. Toth 1/30/2017
	PREPARED BY: AM Encarnacion REVIEWED BY:	DATE
	REVISIONS INIT. DATE	SIG. INVENTORY NO. 04-0617T1

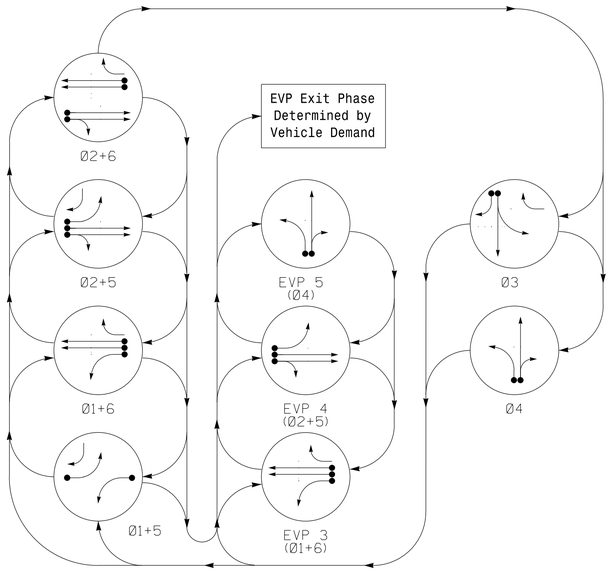
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.3

PHASING DIAGRAM

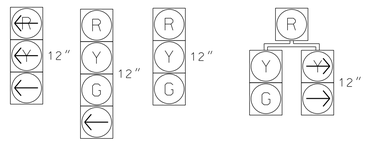


PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.



11
51

31
41

21,22
42
61,62

32
63

TABLE OF OPERATION

SIGNAL FACE	PHASE									
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 4	EVP 5	FLASH
11	←	←	←R	←R	←R	←R	←	←R	←R	←R
21, 22	R	R	G	G	R	R	R	G	R	Y
31	R	R	R	R	←G	R	R	R	R	R
32	R/→	R	R/→	R	G	R	R	R	R	R
41	R	R	R	R	R	←G	R	R	←G	R
42	R	R	R	R	R	G	R	R	G	R
51	←	←R	←	←R	←R	←R	←R	←	←R	←R
61, 62	R	G	R	G	R	R	G	R	R	Y
63	R	G	R	G	R/→	R	G	R	R	Y

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

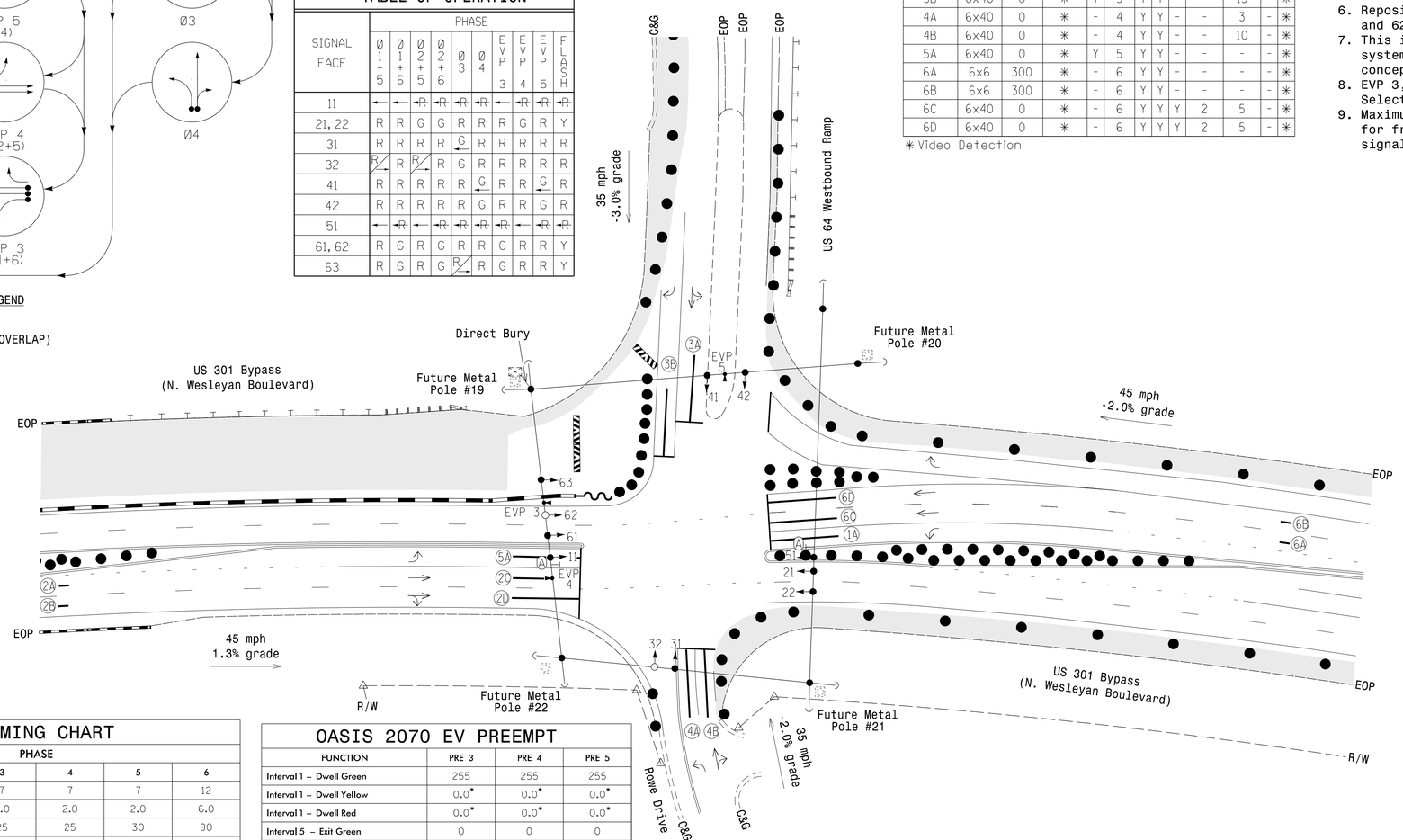
DETECTION ZONES					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x40	0	✳	Y	1	Y	Y	-	-	-	-	✳
2A	6x6	300	✳	-	2	Y	Y	-	-	-	-	✳
2B	6x6	300	✳	-	2	Y	Y	-	-	-	-	✳
2C	6x40	0	✳	-	2	Y	Y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

✳Video Detection

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 loop emulators to presence mode.
6. Reposition signal heads numbered 11, 21, 22, 51, 61 and 62.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. EVP 3, EVP 4 and EVP 5 are existing. Reuse Phase Selectors. See Project Special Provisions.
9. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
☐	Pedestrian Signal Head	■
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	———
→	Directional Arrow	→
○	Emergency Vehicle Detector	●
N/A	Guardrail	═══
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ
	Construction Zone	
●●	Construction Zone Drums	●●
▲▲	Construction Barricade	▲▲
∿	Crash Cushion	∿
▬	Portable Concrete Barrier	▬

OASIS 2070E TIMING CHART

FEATURE	PHASE					
	1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	15	90	25	25	30	90
Yellow Clearance	3.0	4.4	4.1	4.0	3.0	4.7
Red Clearance	2.4	1.3	2.2	3.0	4.0	1.1
Red Revert	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	0	0	0
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	-	-	-
Priority	MED	MED	MED
Delay Time	0.0	0.0	0.0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0	0	0
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	12	12	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	-	C	-
Preempt Extend**	5	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Area 3 TMP Phase II)

Prepared for the Offices of:
Traffic Engineering Branch, Traffic Signal Design Section
750 N.Greenfield Pkwy.,Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd) at US 64 Byp Westbound Ramp/ Rowe Drive

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0617T2

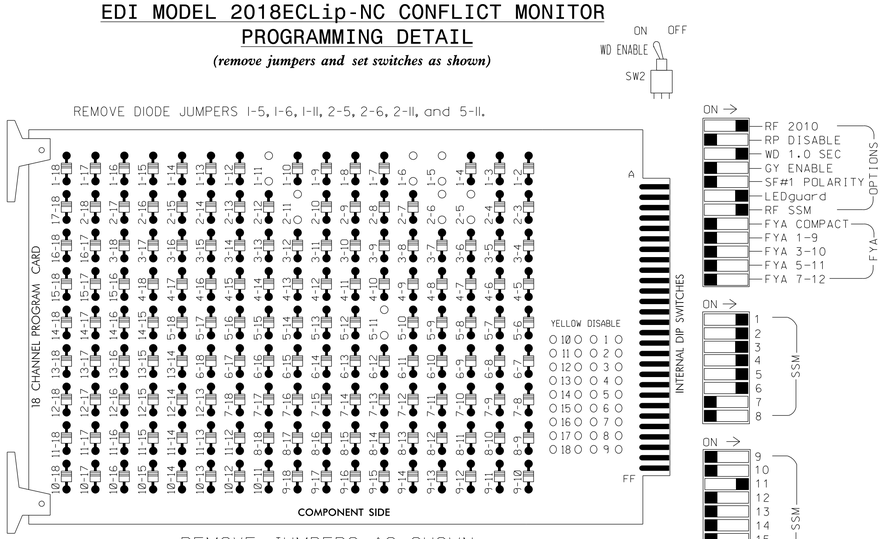
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,AUX S4
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....5
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.4

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4			S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3			4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3			4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	31	32	63	41	42	NU	51	61,62, 63	NU	NU	NU	NU	NU	NU	NU	32	NU	NU
RED		128		116	116		101	101			134								✳		
YELLOW		129		117	117		102	102			135										
GREEN		130		118	118		103	103			136										
RED ARROW	125									131											
YELLOW ARROW	126					117				132									A115		
GREEN ARROW	127			118		118	103			133									A116		

NU = Not Used

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

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

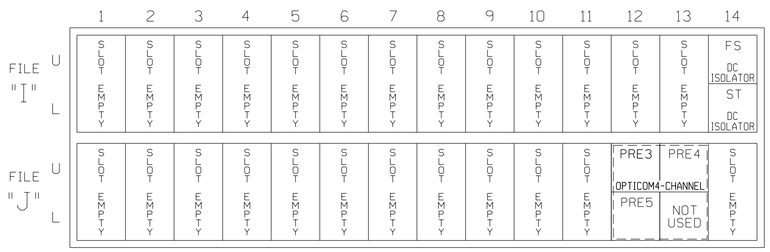
PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' 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).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

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

LOAD RESISTOR INSTALLATION DETAIL

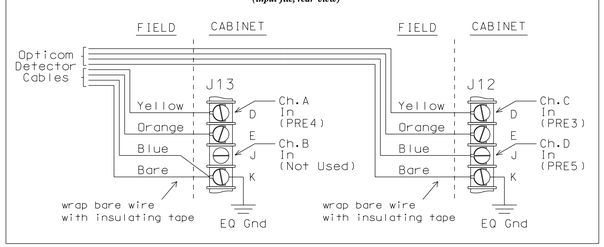
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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ELECTRICAL DETAIL SHEET 1 OF 2 - Temporary Design 2 (Area 3 TMP Phase II)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd) at US 64 Byp Westbound Ramp/ Rowe Drive

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Traffic Engineering Branch
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER
MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0617T2

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0617T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.5

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3, 4 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ............................N
LINK TO NEXT PREEMPT? ..................N
ENABLE BACKUP PROTECTION? ..............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ..................N
ALLOW PEDS IN DWELL INTERVAL? ........N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ............................N
LINK TO NEXT PREEMPT? ..................N
ENABLE BACKUP PROTECTION? ..............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ..................N
ALLOW PEDS IN DWELL INTERVAL? ........N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |  X
```

PRESS 'NEXT'

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |   X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ............................N
LINK TO NEXT PREEMPT? ..................N
ENABLE BACKUP PROTECTION? ..............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ..................N
ALLOW PEDS IN DWELL INTERVAL? ........N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time on optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0617T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 2 OF 2 - Temporary Design 2 (Area 3 TMP Phase II)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd) at US 64 Byp Westbound Ramp/ Rowe Drive

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy.Garner,NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
CHECKED BY: DATE

SIG. INVENTORY NO. 04-0617T2

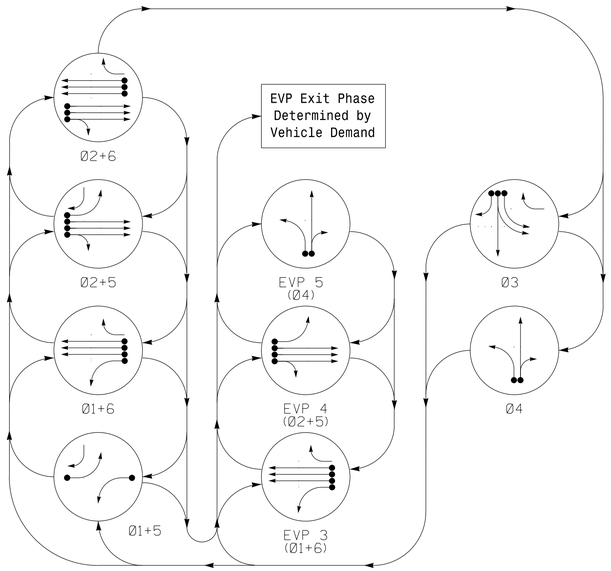
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(919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.6

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

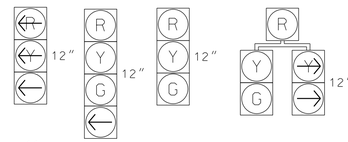
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 4	EVP 5	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~	~~R~~
21, 22, 23	R	R	G	G	R	R	R	G	R	Y
31	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
32	R	R	R	R	G	R	R	R	R	R
33	R/→	R	R/→	R	G	R	R	R	R	R
41	R	R	R	R	R	G	R	R	G	R
42	R	R	R	R	R	G	R	R	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~
61, 62	R	G	R	G	R	R	R	G	R	Y
63	R	G	R	G	R/←	R	G	R	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



11
31
51

32
41

21,22,23
42
61,62

33
63

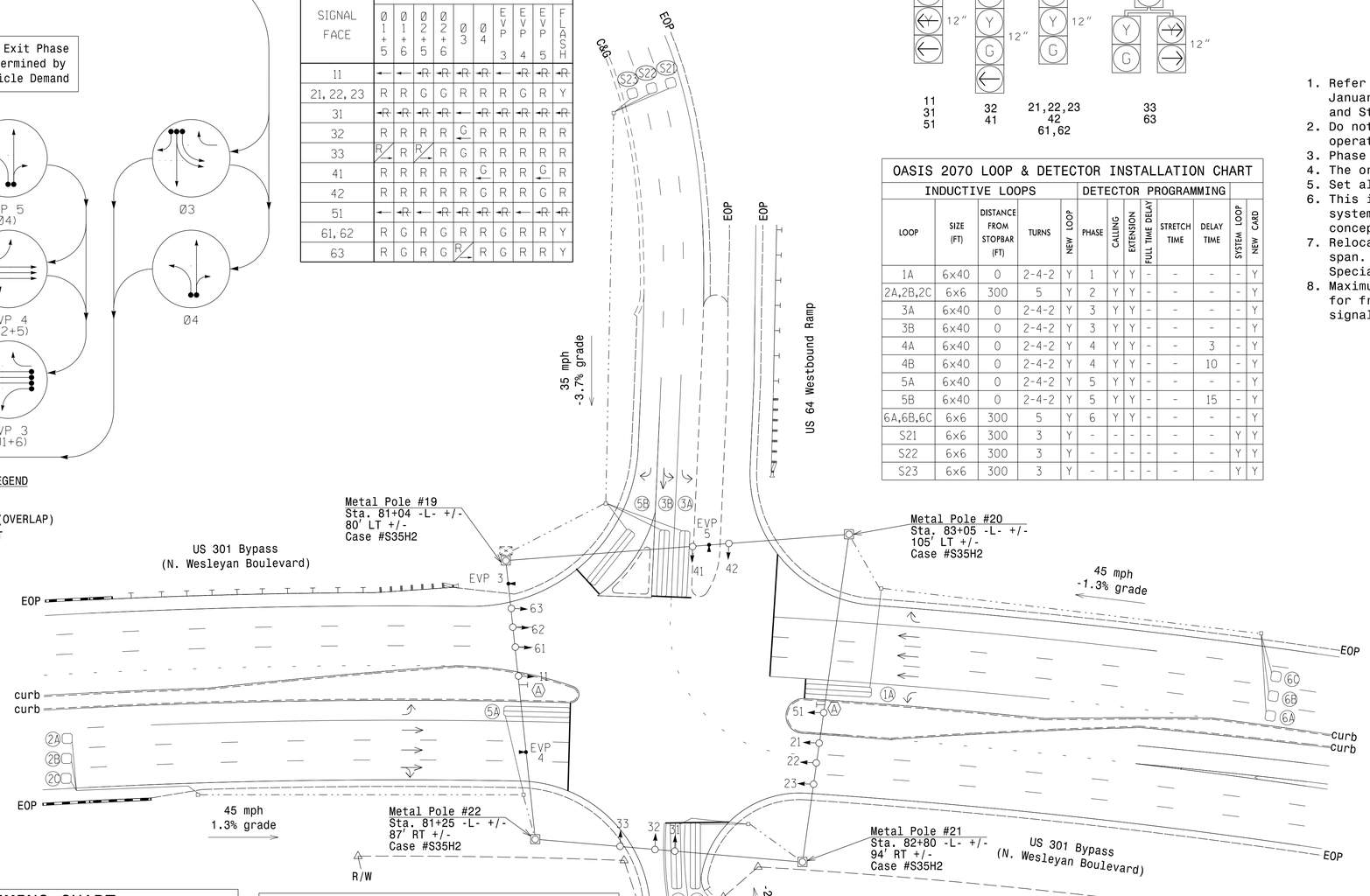
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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
1A	6x40	0	2-4-2	Y	1	Y	Y	-	-	-	-	Y
2A,2B,2C	6x6	300	5	Y	2	Y	Y	-	-	-	-	Y
3A	6x40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
3B	6x40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
4A	6x40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4B	6x40	0	2-4-2	Y	4	Y	Y	-	-	10	-	Y
5A	6x40	0	2-4-2	Y	5	Y	Y	-	-	-	-	Y
5B	6x40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
6A,6B,6C	6x6	300	5	Y	6	Y	Y	-	-	-	-	Y
S21	6x6	300	3	Y	-	-	-	-	-	-	Y	Y
S22	6x6	300	3	Y	-	-	-	-	-	-	Y	Y
S23	6x6	300	3	Y	-	-	-	-	-	-	Y	Y

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Relocate EVP 3, EVP 4 and EVP 5 detectors to new span. Reuse existing Phase Selectors. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head With Push Button & Sign	■
▽	Metal Strain Pole	▼
⬭	Inductive Loop Detector	⬭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	———
→	Directional Arrow	→
⊂◁	Emergency Vehicle Detector	●◁
N/A	Guardrail	⊥⊥
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	15	90	25	25	30	90
Yellow Clearance	3.0	4.4	4.1	4.0	3.0	4.7
Red Clearance	3.4	1.4	2.4	2.7	3.6	1.2
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	0	0	0
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	-	-	-
Priority	MED	MED	MED
Delay Time	0.0	0.0	0.0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0	0	0
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	12	12	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	-	C	-
Preempt Extend**	5	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Final Design

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
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US 301 Byp. (N. Wesleyan Blvd) at US 64 Byp Westbound Ramp/ Rowe Drive

Division 04 Nash County Rocky Mount
PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
CHECKED SIGNATURE DATE

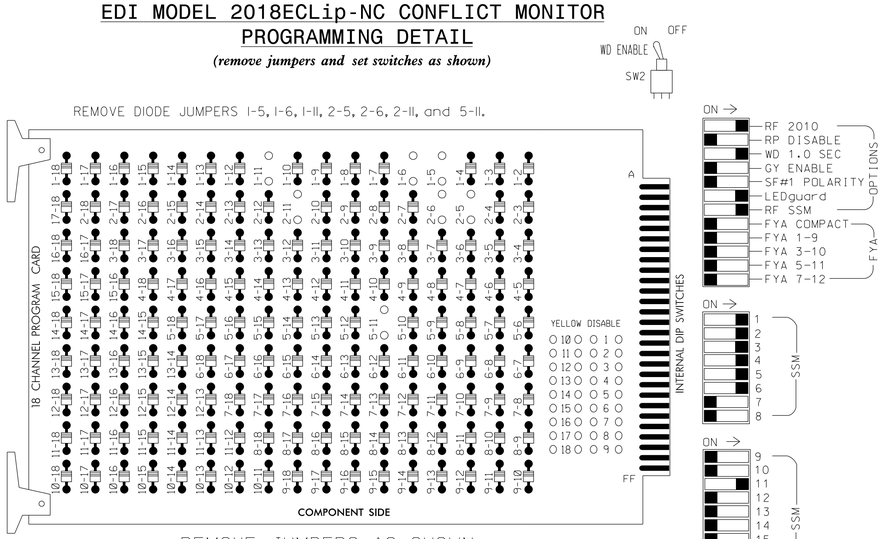
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Variable Initial and Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,AUX S4
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....5
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.7

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4				S5		S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3				4		14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3				4		4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22, 23	NU	31	32	33	63	41	42	NU	51	61,62, 63	NU	NU	NU	NU	NU	NU	NU	33	NU	NU
RED		128			116	116		101	101			134								✳		
YELLOW		129			117	117		102	102			135										
GREEN		130			118	118		103	103			136										
RED ARROW	125			116							131											
YELLOW ARROW	126			117			117				132									A115		
GREEN ARROW	127			118	118		118	103			133									A116		

NU = Not Used

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

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' 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).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 2 2A,2B, 2C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 3 3A	Ø 4 4A	SLOT EMPTY	SYS. DET. S21	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	NOT USED				Ø 3 3B	Ø 4 4B		SYS. DET. S22					ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 5 5B	Ø 6 6A,6B, 6C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SYS. DET. S23	SLOT EMPTY	SLOT EMPTY	PRE3 OPTICOM4-CHANNEL PRE5	PRE4	SLOT EMPTY
	L	NOT USED	NOT USED	NOT USED						NOT USED				NOT USED	

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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A,2B,2C	TB2-5,6	I2U	39	1	2	2	Y	Y			
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			
4A	TB6-1,2	I7U	65	27	34	4	Y	Y			3
4B	TB6-3,4	I7L	78	40	44	4	Y	Y			10
✳S21	TB6-9,10	I9U	60	22	11	SYS					
✳S22	TB6-11,12	I9L	62	24	13	SYS					
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			15
6A,6B,6C	TB3-9,10	J3U	64	26	36	6	Y	Y			
✳S23	TB7-9,10	J9U	59	21	15	SYS					

✳ System detector only. Remove the vehicle phase assigned to this detector in the default programming.

LOAD RESISTOR INSTALLATION DETAIL

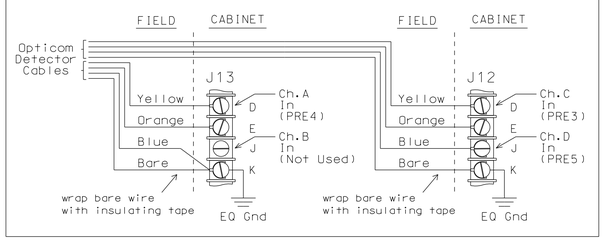
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 1 OF 2 - Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd) at US 64 Byp Westbound Ramp/ Rowe Drive

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Traffic Engineering Branch
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER
MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0617

30-JAN-2017 17:50
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ENCA5386 AT LUS29021

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 10.8

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3, 4 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |  X
```

PRESS 'NEXT'

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |   X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time on optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0617
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 2 OF 2 - Final Design

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
US 64 Byp Westbound Ramp/
Rowe Drive

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Drawn/Designed by: Melissa B. Toth 1/30/2017
CHECKED/SEALED DATE

SIG. INVENTORY NO. 04-0617

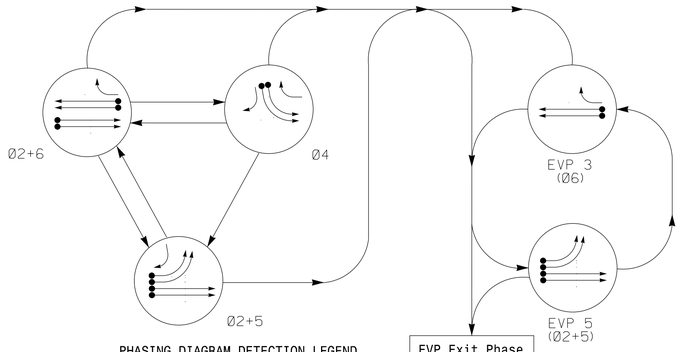
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

30-JAN-2017 17:50
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 11.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

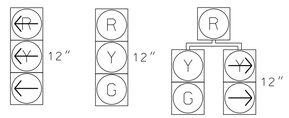
EVP Exit Phase Determined by Vehicle Demand

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+5	Ø2+6	Ø4	EVP 3	EVP 5	FLASH
21, 22	G	G	R	R	G	Y
41	R	R	G	R	R	R
42	R→	R	G	R	R	R
51, 52	←	←R	←R	←R	←	←R
61	R	G	R	G	R	Y
62	R	G	R→	G	R	Y

SIGNAL FACE I.D.

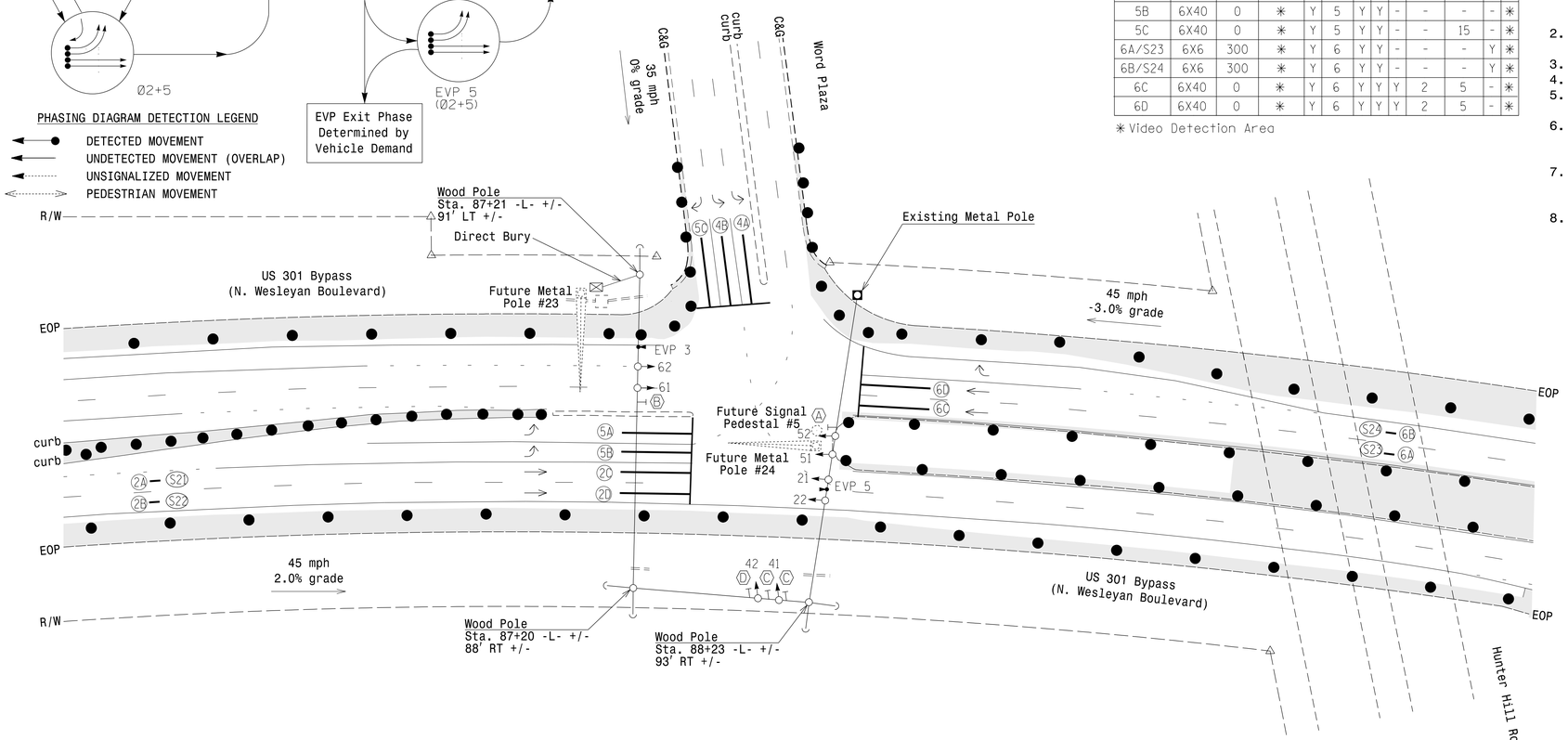
All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

DETECTION ZONES					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/S21	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2B/S22	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2C	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
4A	6X40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4B	6X40	0	✳	Y	4	Y	Y	-	-	-	-	✳
5A	6X40	0	✳	Y	5	Y	Y	-	-	-	-	✳
5B	6X40	0	✳	Y	5	Y	Y	-	-	-	-	✳
5C	6X40	0	✳	Y	5	Y	Y	-	-	15	-	✳
6A/S23	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6B/S24	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6C	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 5 may be lagged.
4. Set all loop emulators to presence mode.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Relocate EVP 3 and EVP 5 detectors to new spans. Reuse existing Phase Selectors. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

3 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
○	Signal Pole with Guy	●◗
○	Signal Pole with Sidewalk Guy	●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
-·-·-	2-in Underground Conduit	-·-·-
N/A	Right of Way	------
→	Directional Arrow	→
Ⓐ	U-Turn "MUST YIELD" Sign (R3-27)	Ⓐ
Ⓑ	No U-Turn Sign (R3-4)	Ⓑ
Ⓒ	Left Arrow "ONLY" Sign (R3-5L)	Ⓒ
Ⓓ	Right Arrow "ONLY" Sign (R3-5R)	Ⓓ
○◁	Emergency Vehicle Detector	●▬
	Construction Zone	
●●	Construction Zone Drums	●●
▭	Video Detection Area	
N/A	UG Water Line	——W——
N/A	Drainage Pipe	═══

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

OASIS 2070E TIMING CHART

FEATURE	PHASE 2	4	5	6
Min Green 1 *	12	7	7	12
Extension 1 *	6.0	2.0	2.0	6.0
Max Green 1 *	90	25	25	90
Yellow Clearance	4.3	3.0	3.0	4.8
Red Clearance	1.4	3.7	3.1	1.4
Red Revert	2.0	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	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-
Dual Entry	-	-	-	-
Simultaneous Gap	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0	0.0
Interval 1 – Dwell Red	0.0	0.0
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0	0.0
Red Clear Before Pre	0.0	0.0
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	C
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

Signal Upgrade - Temporary Design 1 (Area 3 TMP Phases I & II)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd)
at
Word Plaza

Division 04 Nash County Rocky Mount
PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

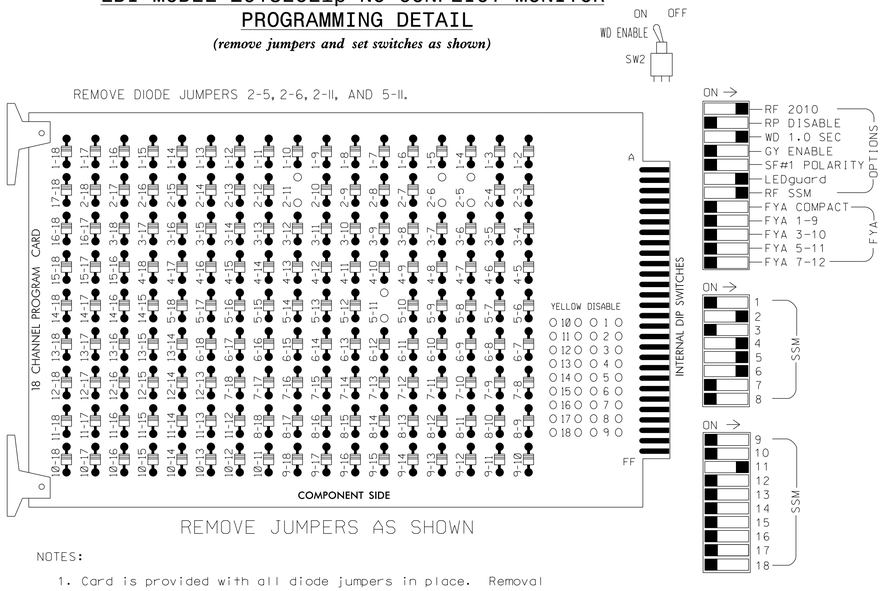
Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE
SIG. INVENTORY NO. 04-13001I

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ENC45386 AT LUS29321

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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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S5,S7,S8, AUX S4
PHASES USED.....2,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....5
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 11.1

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	41,42	62	NU	51,52	61,62	NU	NU	NU	NU	NU	NU	NU	42	NU	NU
RED		128			101				134								*		
YELLOW		129			102				135										
GREEN		130			103				136										
RED ARROW								131											
YELLOW ARROW						102		132									A115		
GREEN ARROW						103		133									A116		

NU = Not Used

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

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' TWICE

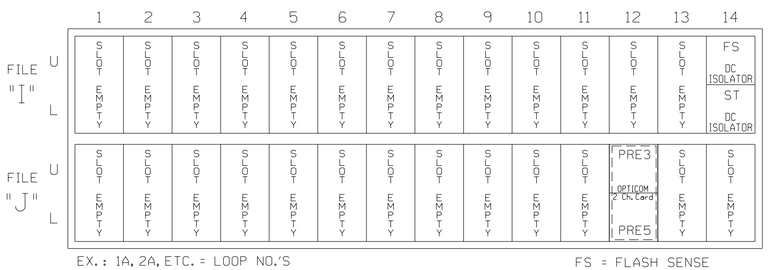
```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:          ¦12345678910111213141516
VEH OVL PARENTS: ¦    X
VEH OVL NOT VEH: ¦
VEH OVL NOT PED: ¦
VEH OVL GRN EXT: ¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-1300T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

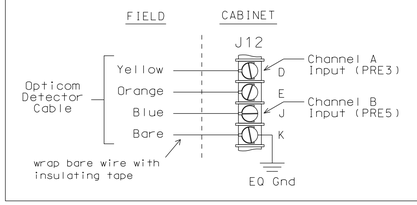
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

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

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 1 OF 2 - Temporary Design 1 (Area 3 TMP Phases I & II)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Word Plaza

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017

SIGNATURE DATE

SIG. INVENTORY NO. 04-1300T1

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 11.2

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |     X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |    X
```

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-1300T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 2 OF 2 - Temporary Design 1 (Area 3 TMP Phases I & II)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326
750 N.Greenfield Pkwy.Garner,NC 27529

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section

US 301 Byp (N. Wesleyan Blvd)
at
Word Plaza

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY: MB Toth		
PREPARED BY: AM Encarnacion	REVIEWED BY:		

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth — 1/30/2017
DATE

SIG. INVENTORY NO. 04-1300T1

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ENC45386 AT LUO280321

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 11.3

PHASING DIAGRAM

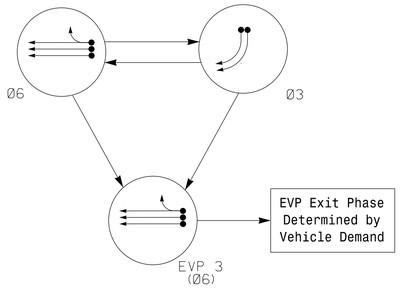
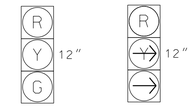


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø3	PHASE Ø6	PHASE EVP 3	PHASE FLASH
31, 32	→	R	R	R
61, 62, 63	R	G	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



61,62,63 31,32

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

DETECTION ZONES					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
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	15	-	Y
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	15	-	Y
6A/S21	6X6	300	5	Y	6	Y	Y	-	-	-	Y	Y
6B/S22	6X6	300	5	Y	6	Y	Y	-	-	-	Y	Y
6C/S23	6X6	300	5	Y	6	Y	Y	-	-	-	Y	Y

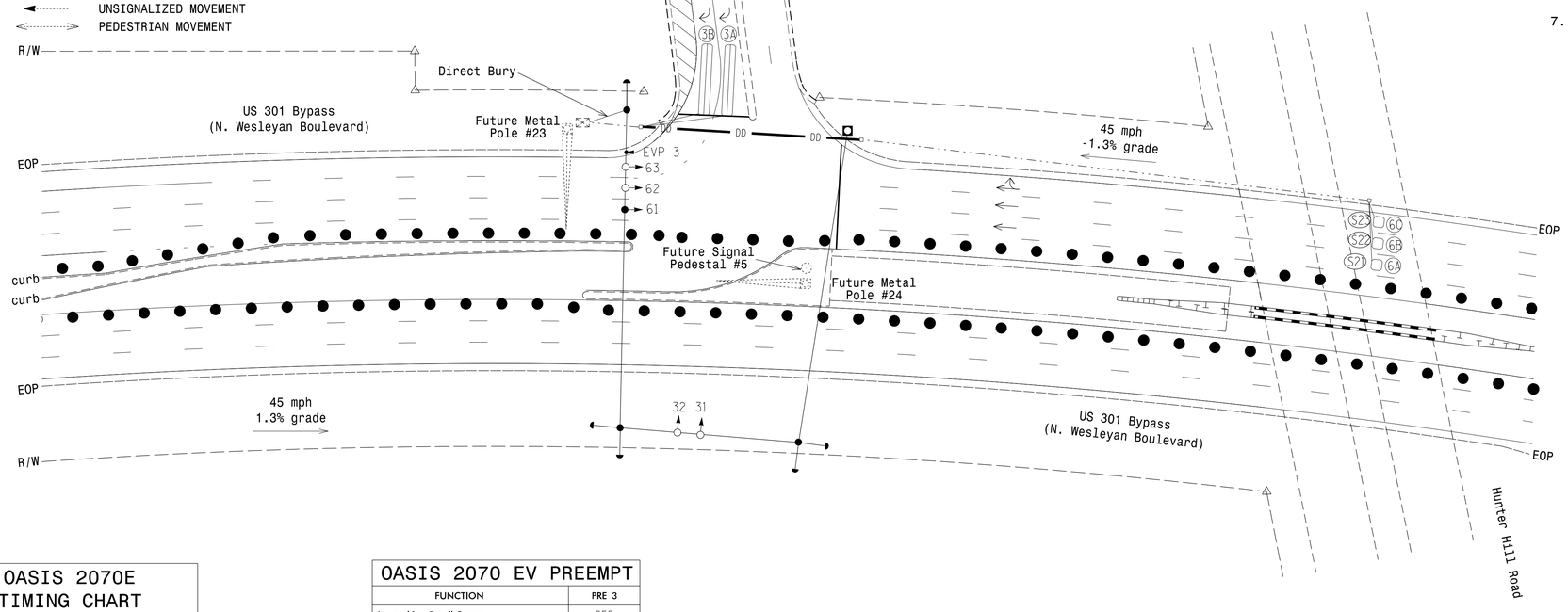
2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Reposition signal head numbered 61 as shown.
5. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. Reuse EVP 3 detector and remove EVP 5 detector. Reuse phase selector for EVP 3 and remove phase selector for EVP 5. See Project Special Provisions.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▯↓	Pedestrian Signal Head With Push Button & Sign	■↓
○→	Signal Pole with Guy	●→
○↴	Signal Pole with Sidewalk Guy	●↓
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	———
→	Directional Arrow	→
○⋈	Emergency Vehicle Detector	●⋈
●●	Construction Zone Drums	●●
▬	Video Detection Area	▬

OASIS 2070E TIMING CHART

FEATURE	PHASE 3	PHASE 6
Min Green 1 *	7	12
Extension 1 *	2.0	6.0
Max Green 1 *	30	60
Yellow Clearance	3.2	4.7
Red Clearance	1.4	1.4
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	34
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.0
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Area 3 TMP Phase III)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd)
at
Word Plaza

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by Melissa B. Toth 1/30/2017
DOCUMENT SIGNATURE DATE

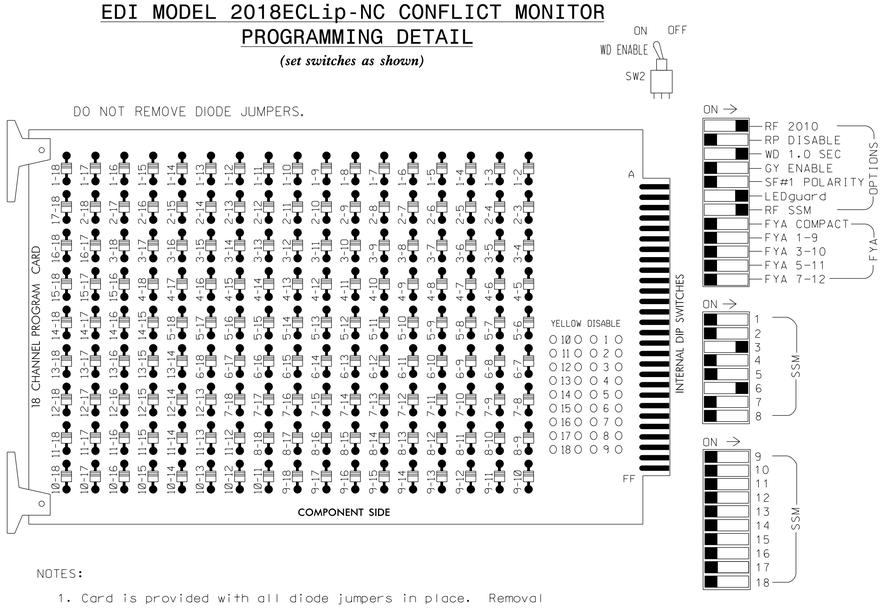
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ENC45386 AT US290321

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Variable Initial and Gap Reduction.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S4,S8
PHASES USED.....3,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 11.4

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	NU	NU	31,32	NU	NU	NU	61,62 63	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED				116				134										
YELLOW								135										
GREEN								136										
RED ARROW																		
YELLOW ARROW				117														
GREEN ARROW				118														

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

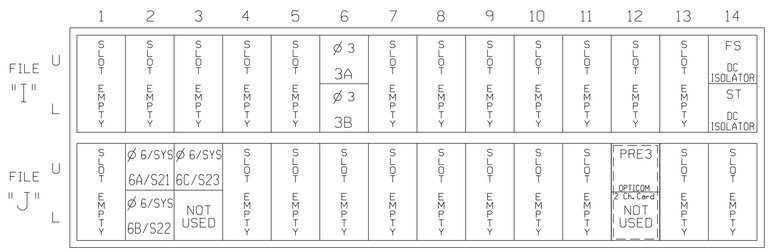
```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314 1516
1 255  0.0  0.0  |      X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .....MED
DELAY TIMER (0-255 SEC) .....0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .....12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .....0
LATCH CALL? .....N
LINK TO NEXT PREEMPT? .....N
ENABLE BACKUP PROTECTION? .....N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .....N
PED CLEARANCE THROUGH YELLOW? .....N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .....N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? .....N
ALLOW PEDS IN DWELL INTERVAL? .....N
RE-TIME DWELL INTERVAL? .....N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

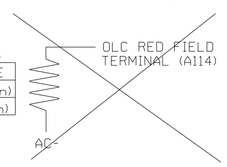
INPUT FILE CONNECTION & PROGRAMMING CHART

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
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			15
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			15
6A/S21	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B/S22	TB3-7,8	J2L	44	6	16	6	Y	Y			
6C/S23	TB3-9,10	J3U	64	26	36	6	Y	Y			

LOAD RESISTOR INSTALLATION DETAIL

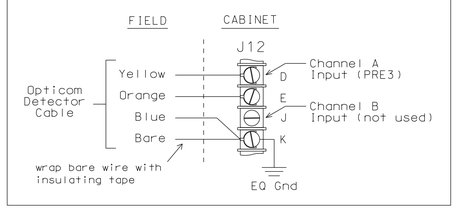
(install resistors as shown below)

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



TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1300T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - Temporary Design 2 (Area 3 TMP Phase III)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Word Plaza

Division 04 | Nash County | Rocky Mount
PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH
Docusigned by: Melissa B. Toth SIGNATURE 1/30/2017 DATE
SIG. INVENTORY NO. 04-1300T2

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 11.5

PHASING DIAGRAM

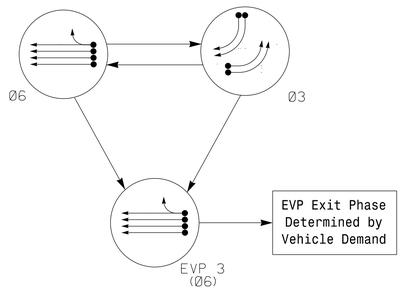
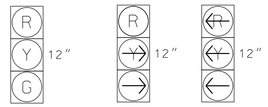


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø3	Ø6	EVP 3	FLASH
31, 32	→	R	R	R
33, 34	←	~~R~~	~~R~~	~~R~~
61, 62, 63, 64	R	G	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



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
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
3C	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	-
3D	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	-
6A/S21	6X6	300	5	Y	6	Y	Y	-	-	-	Y	-
6B/S22	6X6	300	5	-	6	Y	Y	-	-	-	Y	-
6C/S23	6X6	300	5	-	6	Y	Y	-	-	-	Y	-
6D/S24	6X6	300	5	-	6	Y	Y	-	-	-	Y	-

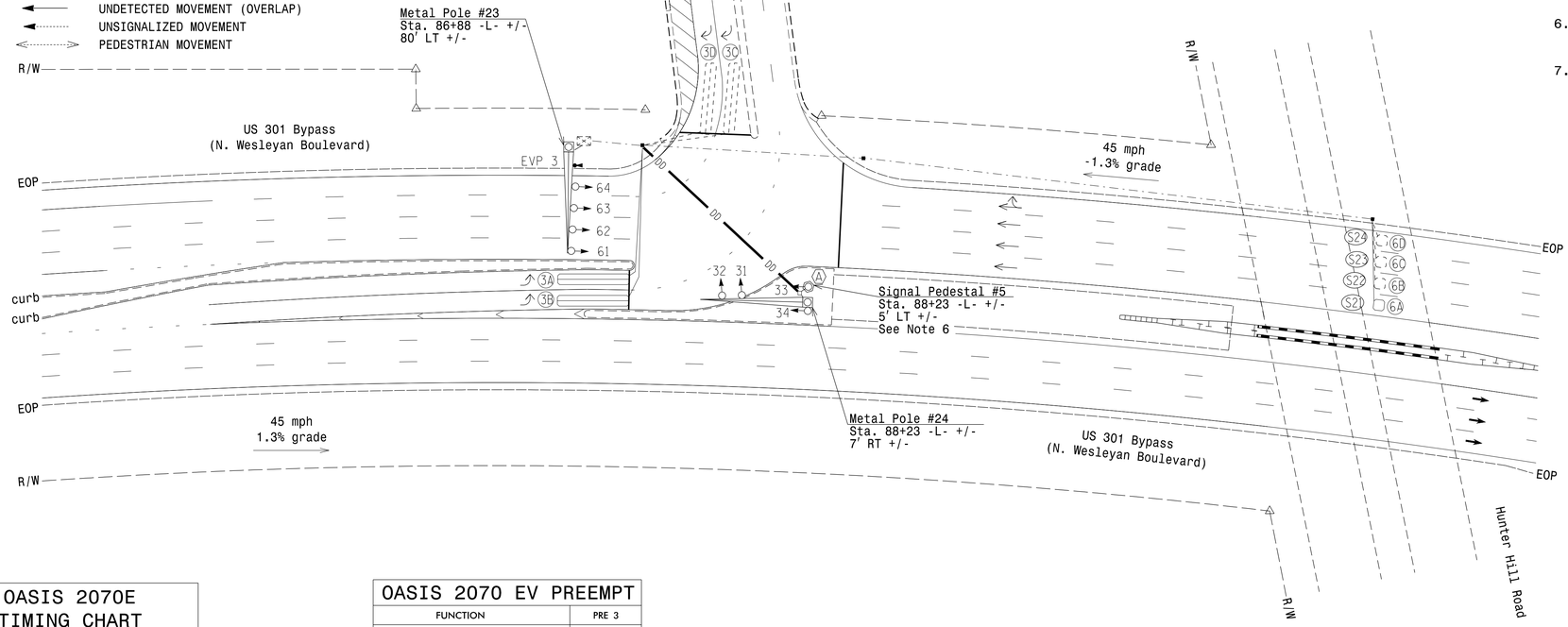
2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
5. Relocate EVP 3 detector to new mast arm. Reuse existing phase selector. See Project Special Provisions.
6. Pedestal mounted signal heads shall be mounted a minimum of 8' above the high point of the roadway surface elevation.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supercede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▭◁	Metal Pole with Mastarm	▭◁
⬡	Signal Pedestal	⬢
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
- - - - -	2-in Underground Conduit	- - - - -
N/A	Right of Way	———
→	Directional Arrow	→
○◁	Emergency Vehicle Detector	●◁
Ⓐ	No U-Turn Sign (R3-4)	Ⓐ

OASIS 2070E TIMING CHART

FEATURE	PHASE 3	6
Min Green 1 *	7	12
Extension 1 *	2.0	6.0
Max Green 1 *	30	60
Yellow Clearance	3.0	4.7
Red Clearance	3.5	1.4
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	34
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.0
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	ON
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd) at Word Plaza

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1300

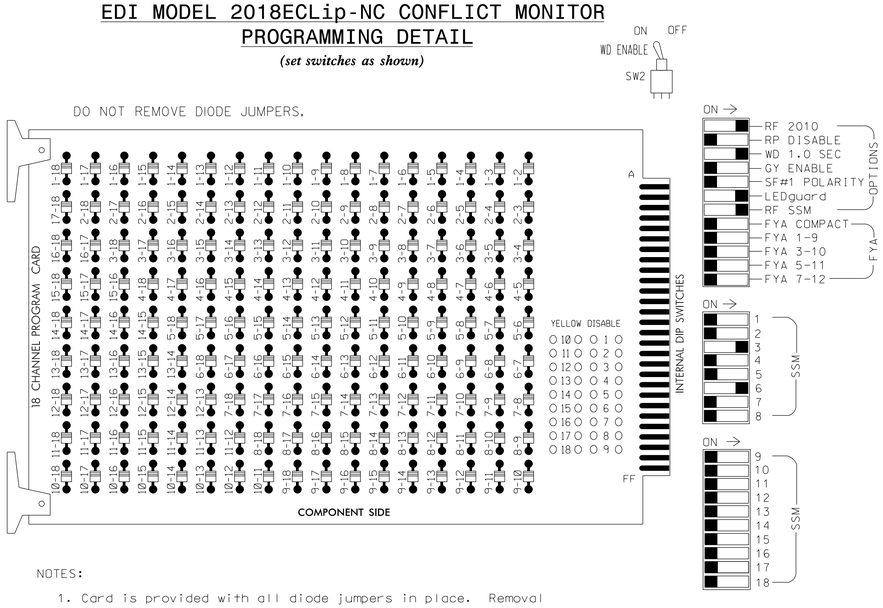
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Variable Initial and Gap Reduction.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S4,S8
PHASES USED.....3,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 11.6

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	NU	NU	31,32	33,34	NU	NU	NU	61,62 63,64	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED				116					134										
YELLOW									135										
GREEN									136										
RED ARROW					116														
YELLOW ARROW				117	117														
GREEN ARROW				118	118														

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

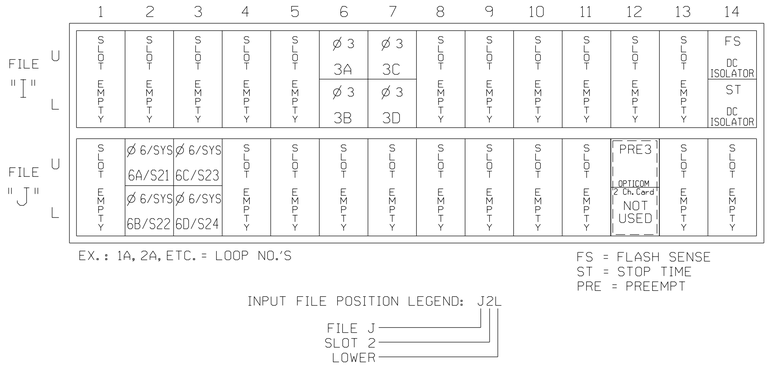
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   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |      X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

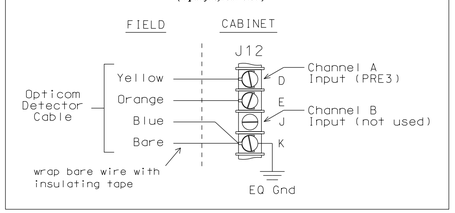
FILE J
SLOT 2
LOWER

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
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			
3C	TB6-1,2	I7U	65	27	34	3	Y	Y			15
3D	TB6-3,4	I7L	78	40	44	3	Y	Y			15
6A/S21	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B/S22	TB3-7,8	J2L	44	6	16	6	Y	Y			
6C/S23	TB3-9,10	J3U	64	26	36	6	Y	Y			
6D/S24	TB3-11,12	J3L	77	39	46	6	Y	Y			

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1300
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Word Plaza

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth
Electronic SIGNATURE
1/30/2017 DATE

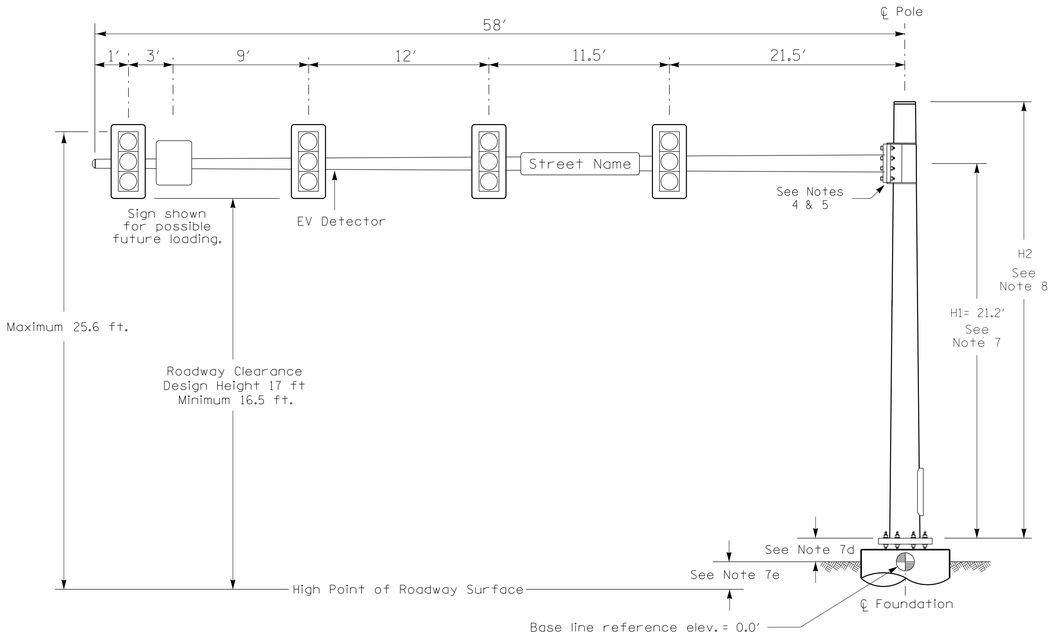
SIG. INVENTORY NO. 04-1300

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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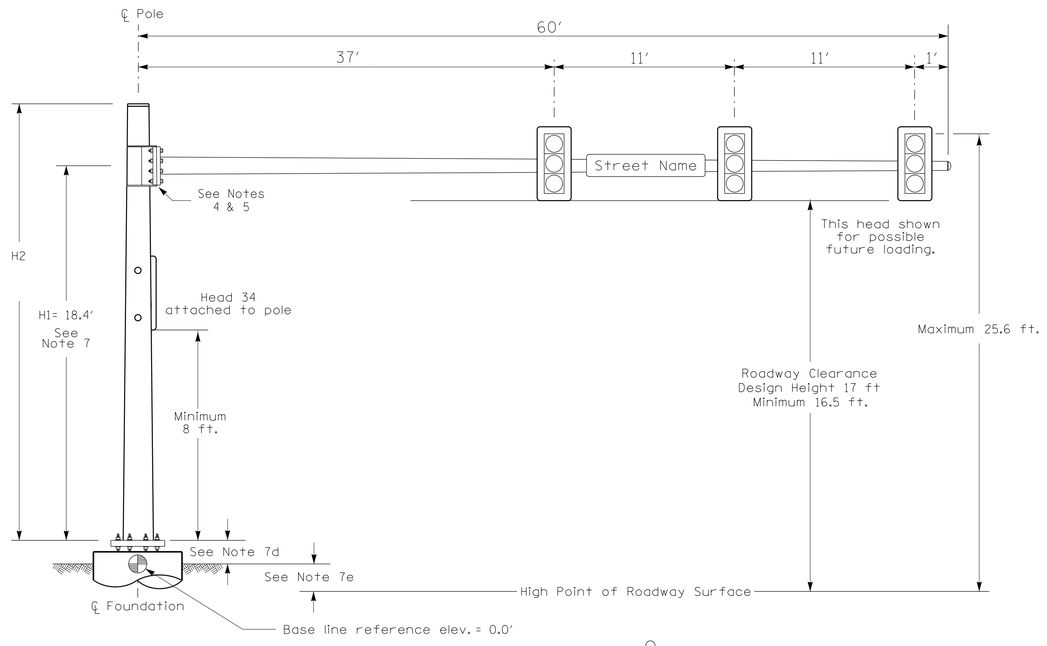
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Design Loading for METAL POLE NO. 23, MAST ARM A



Elevation View @ 0°

Design Loading for METAL POLE NO. 24, MAST ARM A



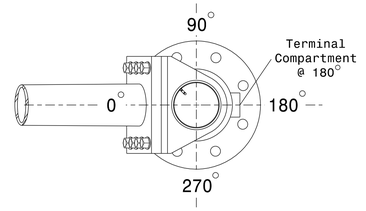
Elevation View @ 180°

SPECIAL NOTE

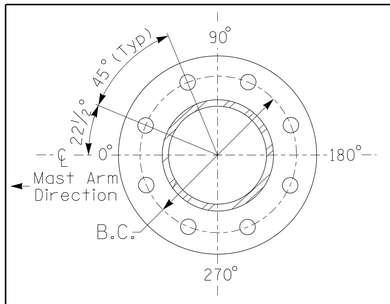
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 23	Pole 24
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+2.2 ft.	-0.64 ft.
Elevation difference at Edge of travelway or face of curb	+2.0 ft.	-0.3 ft.

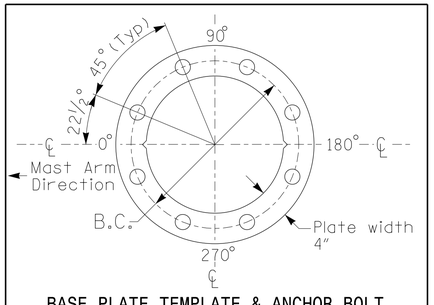


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

METAL POLE Nos. 23 & 24

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 11.7

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″W X 52.5″L	60 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0″W X 96.0″L	36 LBS
1	SIGN RIGID MOUNTED	5.0 S.F.	24.0″W X 30.0″L	11 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate arm connection points.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 773-2800.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

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NCDOT Wind Zone 3 (110 mph)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Metal Poles #23 & 24
US 301 Byp (N. Wesleyan Blvd)
at
Word Plaza

Division 04 Nash County Rocky Mount

PLAN DATE:	November 2016	REVIEWED BY:	MB Toth
PREPARED BY:	AM Encarnacion	REVIEWED BY:	

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

Developed by: Melissa B. Toth — 1/30/2017
SIGNATURE DATE

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

SIG. INVENTORY NO. 04-1300

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 12.0

PHASING DIAGRAM

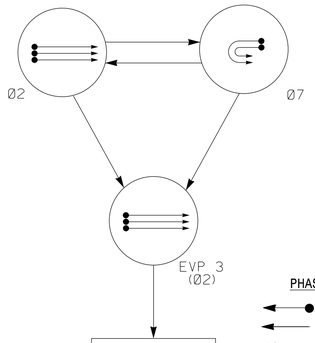


TABLE OF OPERATION				
SIGNAL FACE	PHASE Ø 2	PHASE Ø 7	EVP 3	FLASH
21, 22, 23	G	R	G	Y
71, 72	(R)	(G)	(R)	(R)

SIGNAL FACE I.D.

All Heads L.E.D.



71, 72 21, 22, 23

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	Y	2	Y	Y	-	-	-	-	Y
2B	6x40	300	5	Y	2	Y	Y	-	-	-	-	Y
2C	6x40	300	5	Y	2	Y	Y	-	-	-	-	Y
7A	6x40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
7B	6x40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y

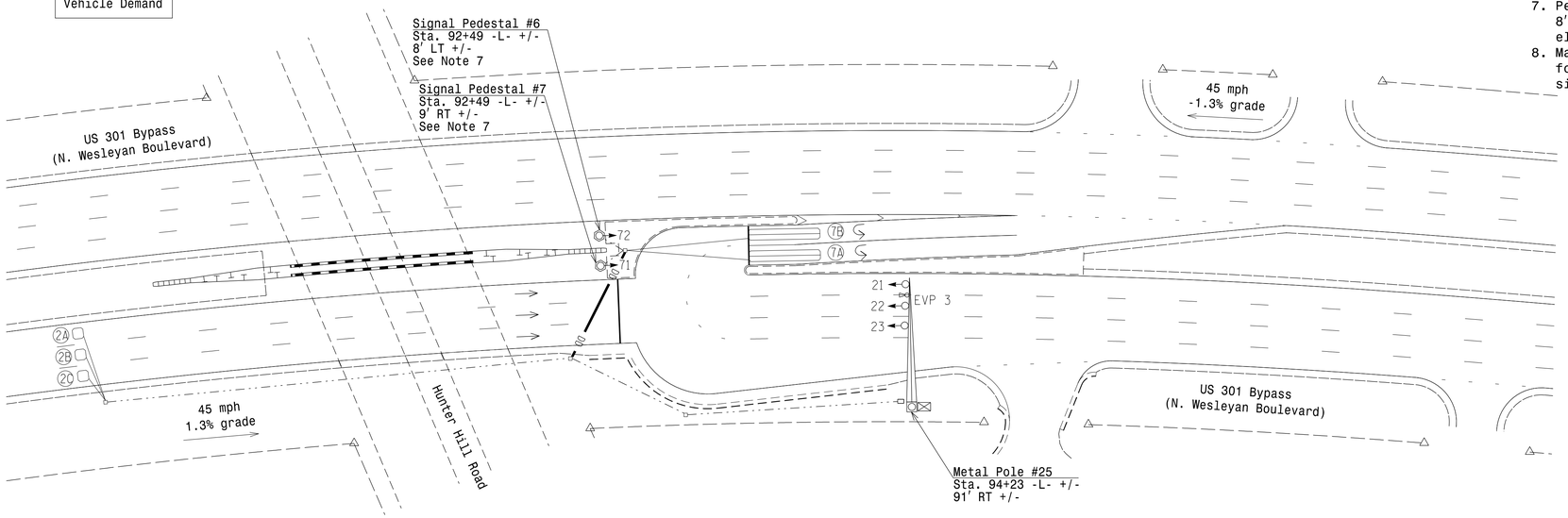
2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. Install new EVP 3 detector on new mast arm. Install New Phase Selector in signal cabinet. See Project Special Provisions.
7. Pedestal signal heads shall be mounted a minimum of 8' above the high point of the roadway surface elevation.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Pole with Mastarm	
	Signal Pedestal	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
N/A	Concrete Barrier	
	Emergency Vehicle Detector	

OASIS 2070E TIMING CHART		
	PHASE	
FEATURE	2	7
Min Green 1 *	12	7
Extension 1 *	6.0	2.0
Max Green 1 *	60	30
Yellow Clearance	4.4	3.0
Red Clearance	1.2	3.7
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	1.5	-
Max Variable Initial *	34	-
Time Before Reduction *	15	-
Time To Reduce *	30	-
Minimum Gap	3.0	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT	
FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Final Design

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Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd)
at
SB U-turn North of
Hunter Hill Road

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1410

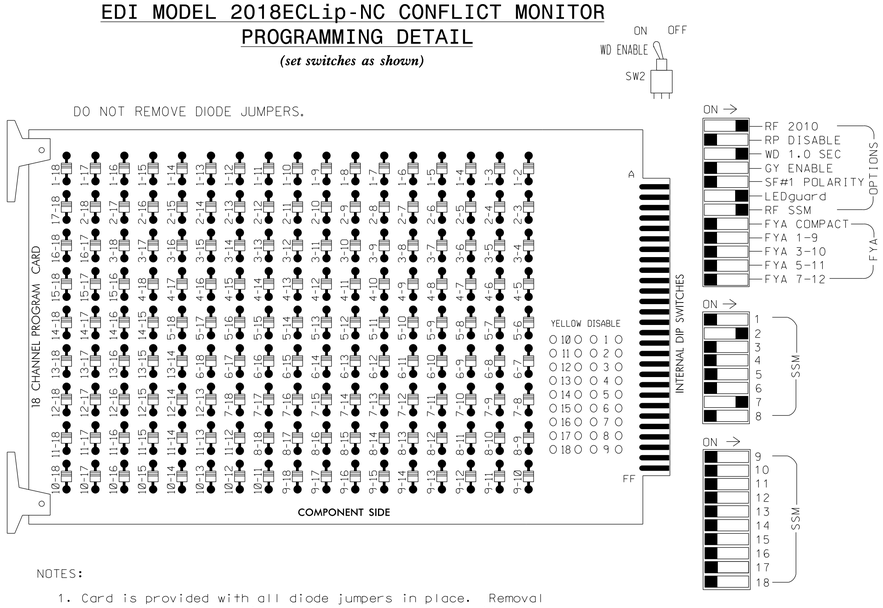
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 2 for Variable Initial and Gap Reduction.
4. Program phase 2 for Start Up In Green.
5. Program phase 2 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S10
PHASES USED.....2,7
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 12.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22, 23	NU	NU	NU	NU	NU	NU	NU	71,72	NU	NU
RED		128										
YELLOW		129										
GREEN		130										
RED ARROW										122		
YELLOW ARROW										123		
GREEN ARROW										124		

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

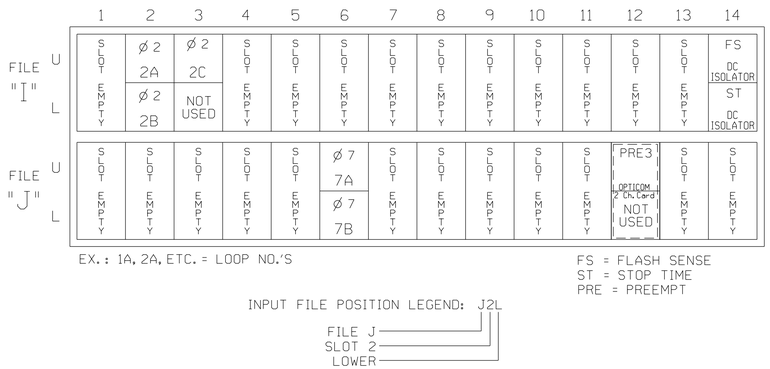
```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |

          PROGRAMING COMPLETE
```

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



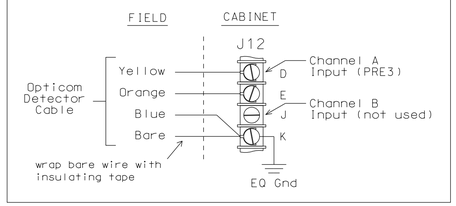
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



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			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
2C	TB2-9,10	I3U	63	25	32	2	Y	Y			
7A	TB5-9,10	J6U	42	4	8	7	Y	Y			
7B	TB5-11,12	J6L	46	8	18	7	Y	Y			

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1410
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd)
at
SB U-Turn North of
Hunter Hill Road

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

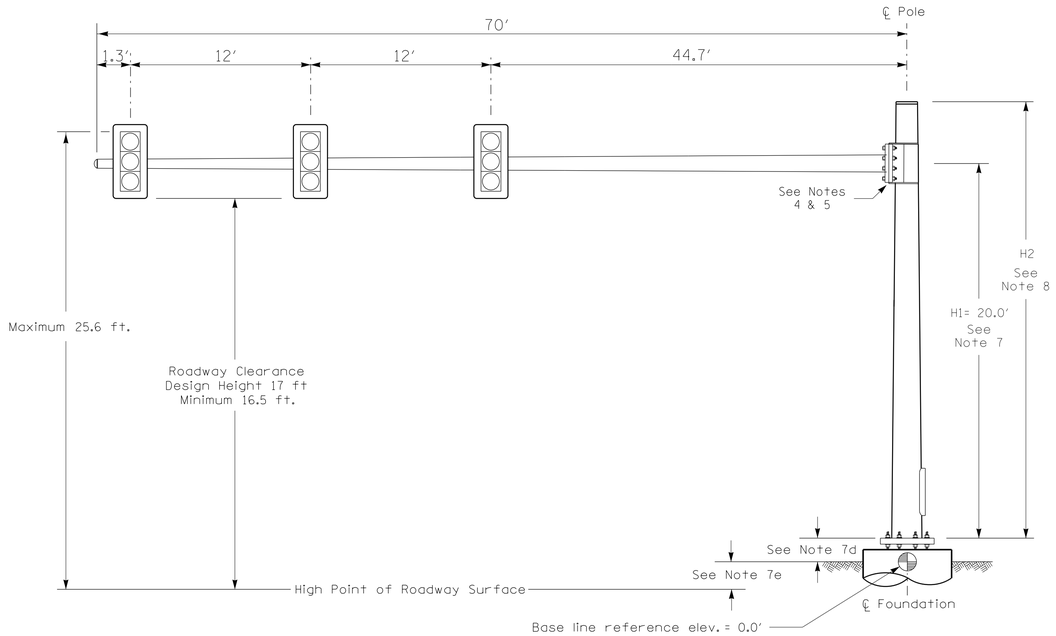
Docusigned by: Melissa B. Toth 1/30/2017
SIGNATURE DATE
SIG. INVENTORY NO. 04-1410

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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Design Loading for METAL POLE NO. 25, MAST ARM A

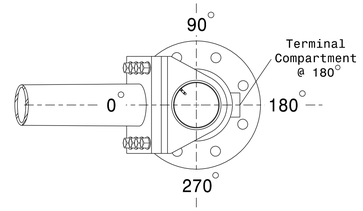


SPECIAL NOTE

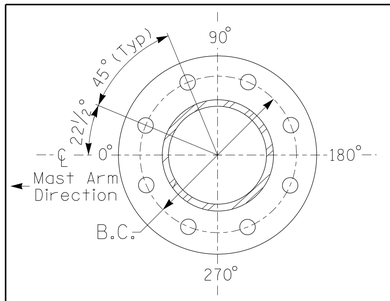
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:		
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	+1.0 ft.	
Elevation difference at Edge of travelway or face of curb	-0.8 ft.	

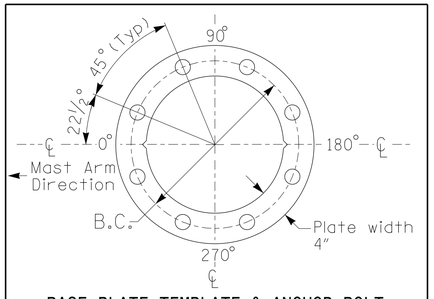


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

METAL POLE No. 25

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 12.2

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″W X 52.5″L	60 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate arm connection points.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 773-2800.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NCDOT Wind Zone 3 (110 mph)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Metal Pole #25
US 301 Byp (N. Wesleyan Blvd) at SB U-turn North of Hunter Hill Road

Division 04 Nash County Rocky Mount

PLAN DATE:	November 2016	REVIEWED BY:	MB Toth
PREPARED BY:	AM Encarnacion	REVIEWED BY:	

SCALE: 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

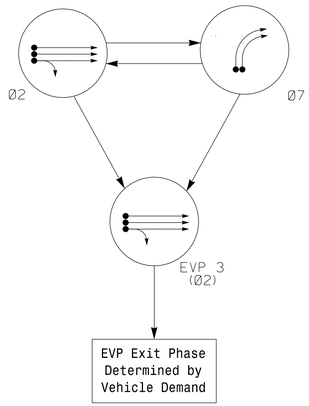
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 13.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

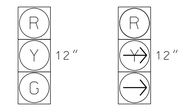
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2	PHASE Ø7	PHASE EVP 3	PHASE FLASH
21, 22, 23	G	R	G	Y
71, 72	R	→	R	R

SIGNAL FACE I.D.

All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

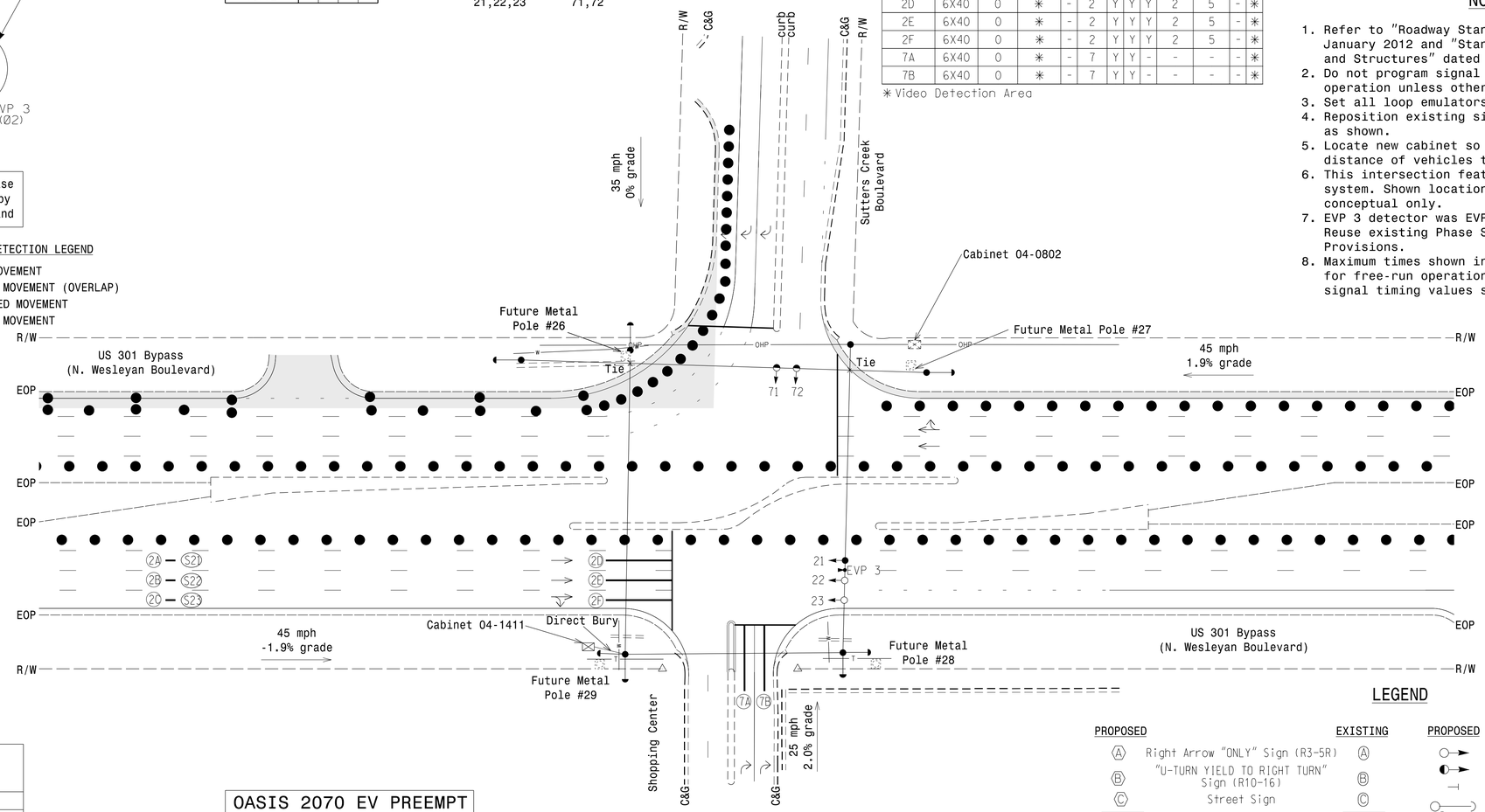
DETECTION ZONES					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A/S21	6X6	300	✳	-	2	Y	Y	-	-	-	Y	✳
2B/S22	6X6	300	✳	-	2	Y	Y	-	-	-	Y	✳
2C/S23	6X6	300	✳	-	2	Y	Y	-	-	-	Y	✳
2D	6X40	0	✳	-	2	Y	Y	Y	2	5	-	✳
2E	6X40	0	✳	-	2	Y	Y	Y	2	5	-	✳
2F	6X40	0	✳	-	2	Y	Y	Y	2	5	-	✳
7A	6X40	0	✳	-	7	Y	Y	-	-	-	-	✳
7B	6X40	0	✳	-	7	Y	Y	-	-	-	-	✳

✳ Video Detection Area

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all loop emulators to presence mode.
4. Reposition existing signal head numbered 21 as shown.
5. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. EVP 3 detector was EVP 5 in 04-0802 Temporary 1 Design. Reuse existing Phase Selector. See Project Special Provisions.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ
Ⓑ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓑ
Ⓒ	Street Sign	Ⓒ
	Construction Zone	
● ●	Construction Zone Drums	● ●
N/A	UG Water Line	W
N/A	Drainage Pipe	
N/A	UG Telephone Line	T
N/A	Overhead Power Line	OHP

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
○ ○	Signal Pole with Guy	● ●
○ ○	Signal Pole with Sidewalk Guy	● ●
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	
→	Directional Arrow	→
○	Emergency Vehicle Detector	●

OASIS 2070E TIMING CHART

FEATURE	PHASE 2	PHASE 7
Min Green 1 *	12	7
Extension 1 *	6.0	2.0
Max Green 1 *	90	30
Yellow Clearance	4.7	3.1
Red Clearance	1.0	1.3
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	-
Max Variable Initial *	-	-
Time Before Reduction *	15	-
Time To Reduce *	30	-
Minimum Gap	3.0	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	-	-
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 1 (Area 3 TMP Phase III)

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.,Garner,NC 27529

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

NB US 301 Byp
(N. Wesleyan Blvd)
at
Sutters Creek Blvd

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

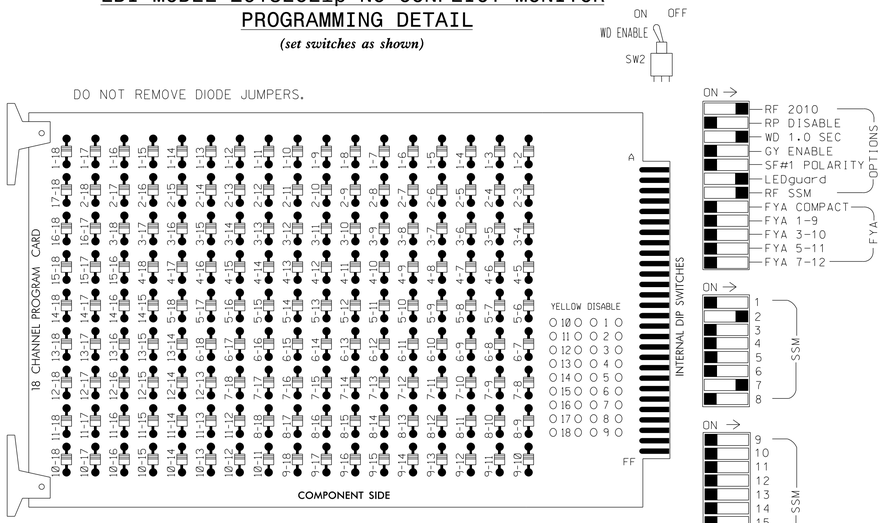
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 2 for Gap Reduction.
4. Program phase 2 for Start Up In Green.
5. Program phase 2 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 13.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22, 23	NU	NU	NU	NU	NU	NU	NU	71,72	NU	NU
RED		128								122		
YELLOW		129										
GREEN		130										
RED ARROW										122		
YELLOW ARROW										123		
GREEN ARROW										124		

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S10
PHASES USED.....2,7
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .......N
PED CLEARANCE THROUGH YELLOW? ........N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:

          PROGRAMING COMPLETE
```

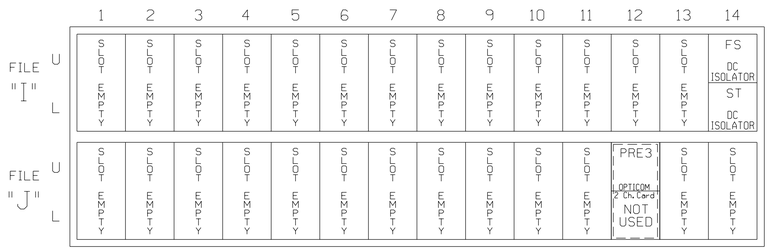
Program extend time an optical detector unit for 5.0 seconds.

SPECIAL DETECTOR NOTE

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

INPUT FILE POSITION LAYOUT

(front view)



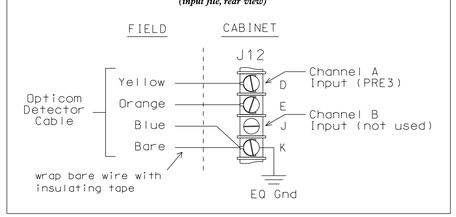
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1411T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - Temporary Design 1 (Area 3 TMP Phase III)

ELECTRICAL AND PROGRAMMING DETAILS FOR:	NB US 301 Byp (N. Wesleyan Blvd) at Sutters Creek Blvd	SEAL
Prepared for the Offices of: Transportation Mobility and Safety Division, Department of Transportation, State of North Carolina, Signals Management Section	Division 04 Nash County Rocky Mount	NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH
750 N.Greenfield Pkwy.,Garner,NC 27529	PLAN DATE: November 2016 REVIEWED BY: MB Toth	Docusigned by: Melissa B. Toth 1/30/2017
	PREPARED BY: AM Encarnacion REVIEWED BY:	SIGNATURE DATE
	REVISIONS INIT. DATE	SIG. INVENTORY NO. 04-1411T1

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

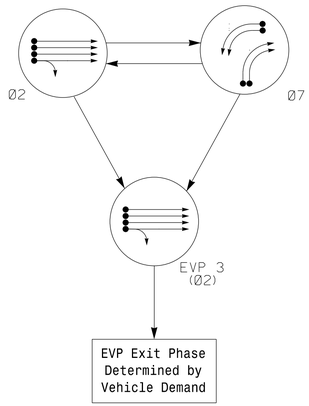
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 13.2

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

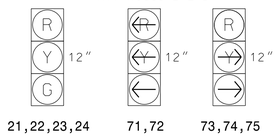
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2	PHASE Ø7	PHASE EVP 3	PHASE FLASH
21, 22, 23, 24	G	R	G	Y
71, 72	~~R~~	←	~~R~~	~~R~~
73, 74, 75	R	→	R	R

SIGNAL FACE I.D.

All Heads L.E.D.

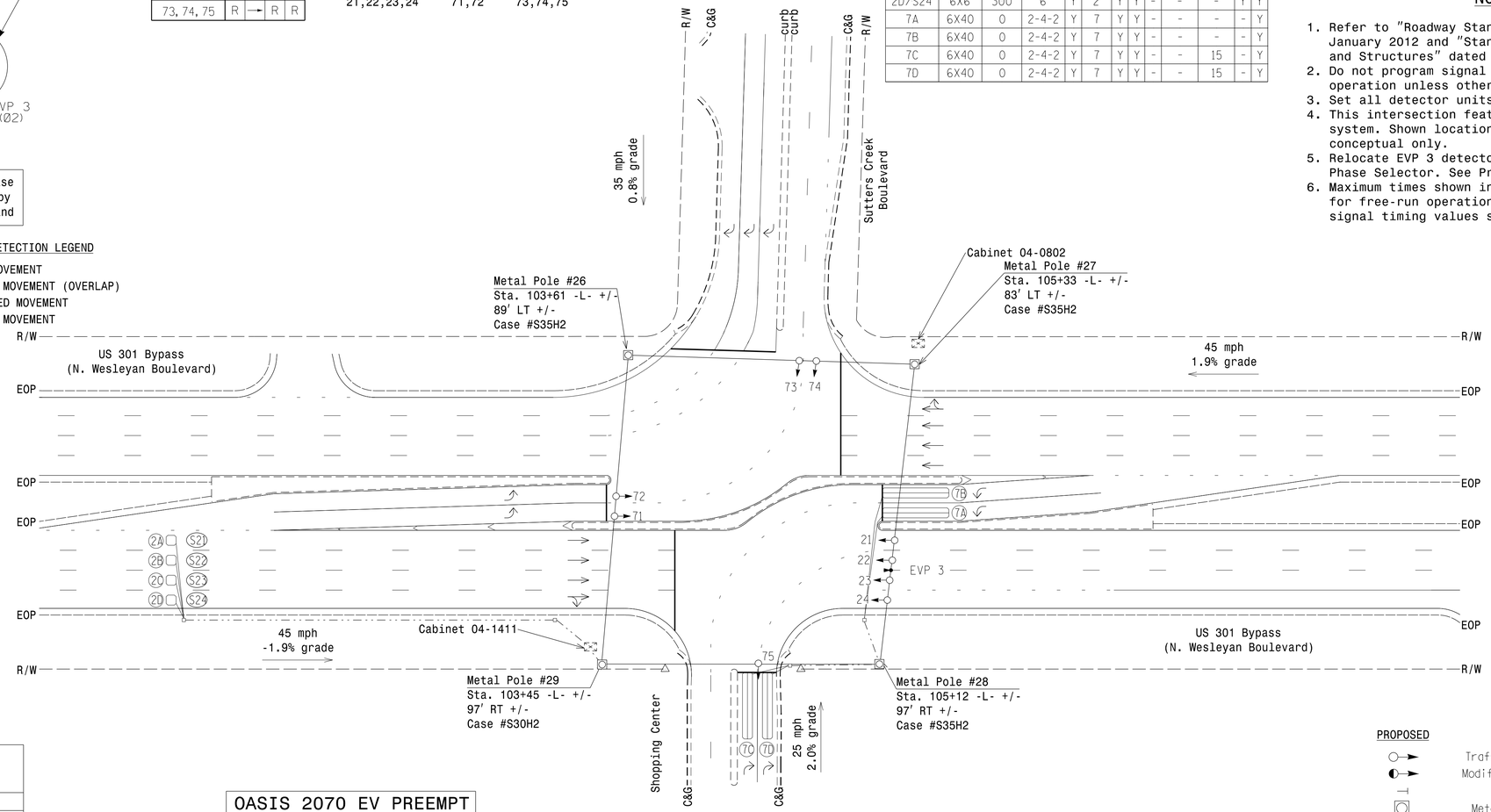


OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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/S21	6X6	300	6	Y	2	Y	Y	-	-	-	Y	Y
2B/S22	6X6	300	6	Y	2	Y	Y	-	-	-	Y	Y
2C/S23	6X6	300	6	Y	2	Y	Y	-	-	-	Y	Y
2D/S24	6X6	300	6	Y	2	Y	Y	-	-	-	Y	Y
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
7B	6X40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
7C	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	Y
7D	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	Y

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
5. Relocate EVP 3 detector onto new span. Reuse existing Phase Selector. See Project Special Provisions.
6. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supercede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
◎	Metal Strain Pole	◘
▭	Inductive Loop Detector	⊂---⊃
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	------
→	Directional Arrow	→
○◅	Emergency Vehicle Detector	●◅

OASIS 2070E TIMING CHART

FEATURE	PHASE 2	PHASE 7
Min Green 1 *	12	7
Extension 1 *	6.0	2.0
Max Green 1 *	90	30
Yellow Clearance	4.7	3.0
Red Clearance	1.0	3.8
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	1.5	-
Max Variable Initial *	34	-
Time Before Reduction *	15	-
Time To Reduce *	30	-
Minimum Gap	3.0	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

NB US 301 Byp
(N. Wesleyan Blvd)
at
Sutters Creek Blvd

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DESIGNATURE DATE

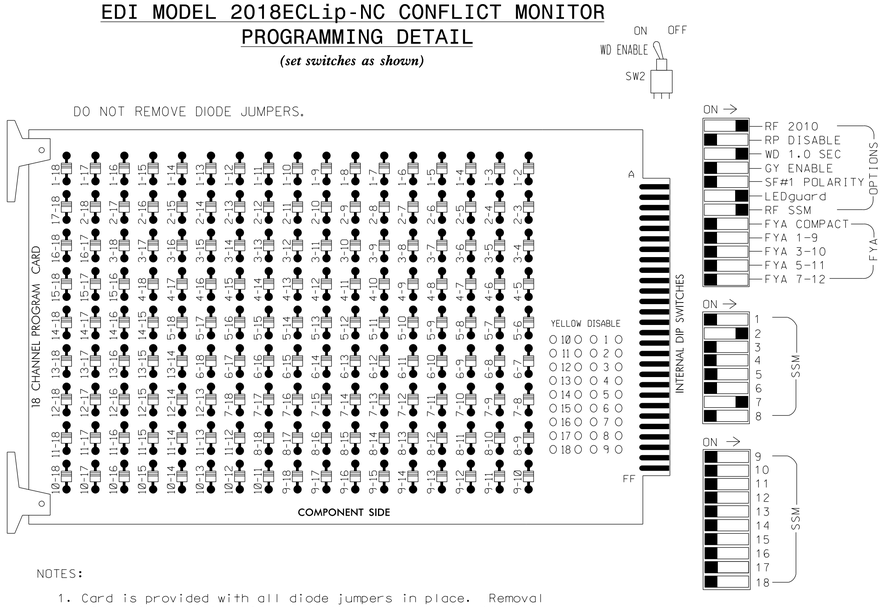
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ENC45386 AT LUS290321

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(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.

■ = 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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 for Variable Initial and Gap Reduction.
4. Program phase 2 for Start Up In Green.
5. Program phase 2 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S2,S10
PHASES USED.....2,7
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 13.3

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10		S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7		8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7		8	8 PED
SIGNAL HEAD NO.	NU	21,22, 23,24	NU	NU	NU	NU	NU	NU	NU	71,72	73,74, 75	NU	NU
RED		128									122		
YELLOW		129											
GREEN		130											
RED ARROW										122			
YELLOW ARROW										123	123		
GREEN ARROW										124	124		

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

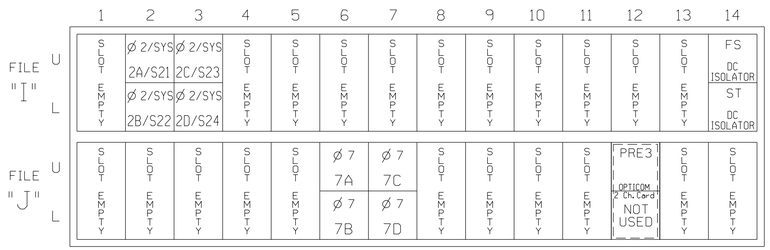
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   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314 1516
1 255  0.0  0.0  | X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
                 OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |

                 PROGRAMING COMPLETE
```

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

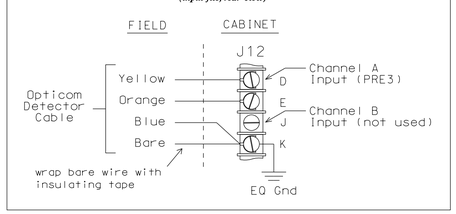
FILE J
SLOT 2
LOWER

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/S21	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S22	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
2C/S23	TB2-9,10	I3U	63	25	32	2/SYS	Y	Y			
2D/S24	TB2-11,12	I3L	76	38	42	2/SYS	Y	Y			
7A	TB5-9,10	J6U	42	4	8	7	Y	Y			
7B	TB5-11,12	J6L	46	8	18	7	Y	Y			
7C	TB7-1,2	J7U	66	28	38	7	Y	Y			15
7D	TB7-3,4	J7L	79	41	48	7	Y	Y			15

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1411
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NB US 301 Byp
(N. Wesleyan Blvd)
at
Sutters Creek Blvd

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signals Management Section
750 N.Greenfield Pkwy.,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Drawn/Signed by: Melissa B. Toth 1/30/2017
Checked SIGNATURE DATE
SIG. INVENTORY NO. 04-1411

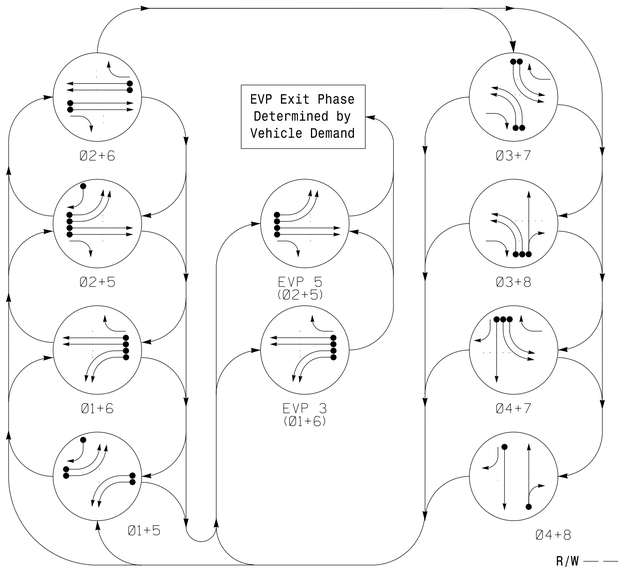
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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ENCA5386 AT LU5290321

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 14.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

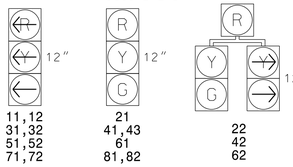
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8	EVP 3	EVP 5	FLASH
11, 12	←	←	R	R	R	R	R	R	←	R	R
21	R	R	G	G	R	R	R	R	G	Y	
22	R	R	G	G	R/→	R/→	R	R	G	Y	
31, 32	R	R	R	R	←	←	R	R	R	R	R
41, 43	R	R	R	R	R	R	G	G	R	R	R
42	R/→	R	R/→	R	R	R	G	G	R	R	R
51, 52	←	←	←	R	R	R	R	R	←	R	
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, 72	R	R	R	R	←	←	R	R	R	R	R
81, 82	R	R	R	R	R	G	R	G	R	R	R

SIGNAL FACE I.D.

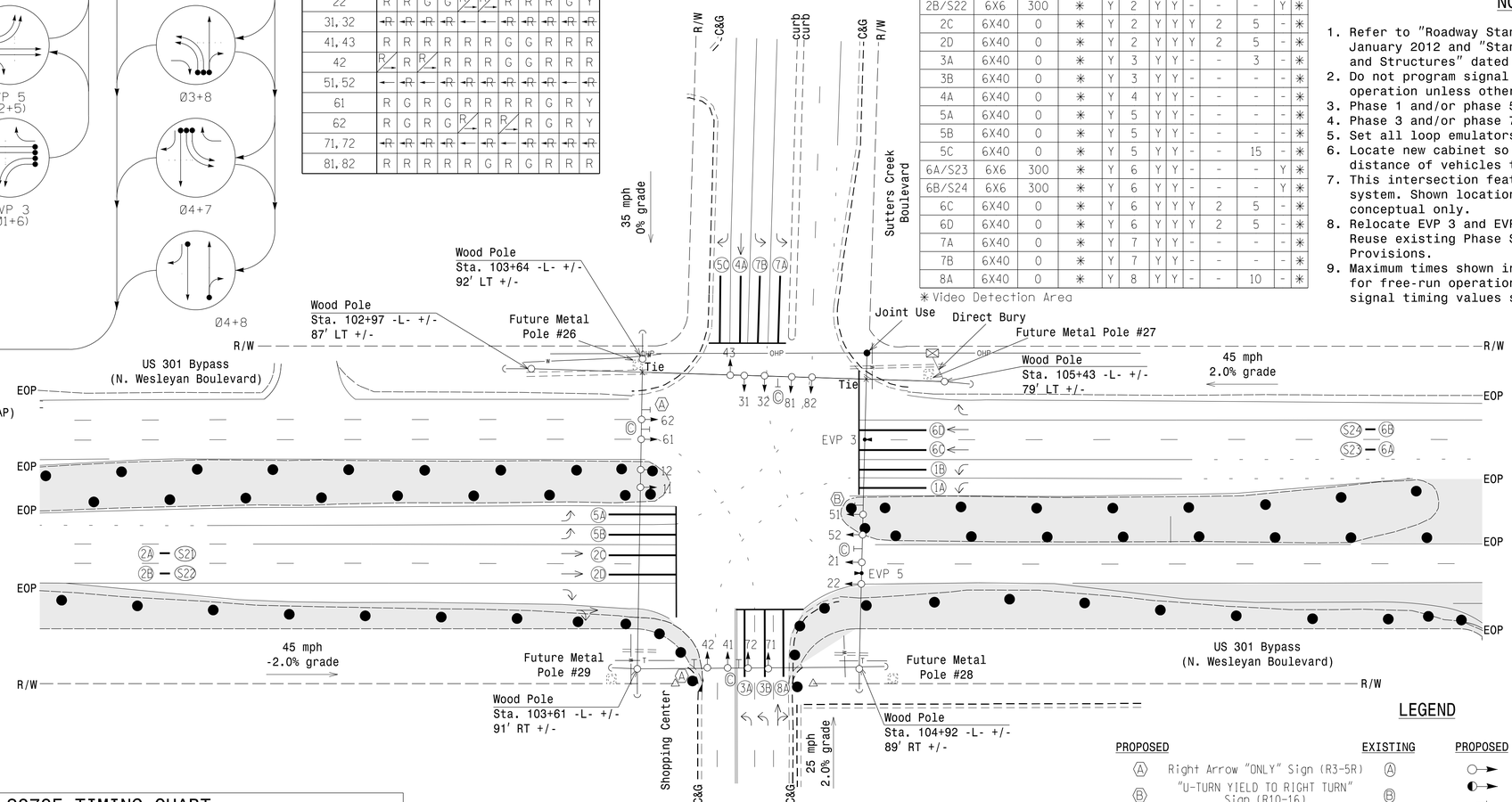
All Heads L.E.D.



OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

DETECTION ZONES					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
1A	6X40	0	✳	Y	1	Y	Y	-	-	-	-	✳
1B	6X40	0	✳	Y	1	Y	Y	-	-	-	-	✳
2A/S21	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2B/S22	6X6	300	✳	Y	2	Y	Y	-	-	-	Y	✳
2C	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6X40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
3A	6X40	0	✳	Y	3	Y	Y	-	-	3	-	✳
3B	6X40	0	✳	Y	3	Y	Y	-	-	-	-	✳
4A	6X40	0	✳	Y	4	Y	Y	-	-	-	-	✳
5A	6X40	0	✳	Y	5	Y	Y	-	-	-	-	✳
5B	6X40	0	✳	Y	5	Y	Y	-	-	-	-	✳
5C	6X40	0	✳	Y	5	Y	Y	-	-	15	-	✳
6A/S23	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6B/S24	6X6	300	✳	Y	6	Y	Y	-	-	-	Y	✳
6C	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6X40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
7A	6X40	0	✳	Y	7	Y	Y	-	-	-	-	✳
7B	6X40	0	✳	Y	7	Y	Y	-	-	-	-	✳
8A	6X40	0	✳	Y	8	Y	Y	-	-	10	-	✳

✳ Video Detection Area



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all loop emulators to presence mode.
6. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Relocate EVP 3 and EVP 5 detectors onto new span. Reuse existing Phase Selectors. See Project Special Provisions.
9. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.

8 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

LEGEND

PROPOSED		EXISTING
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ
Ⓑ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓑ
Ⓒ	Street Sign	Ⓒ
	Construction Zone	
	Construction Zone Drums	
N/A	UG Water Line	W
N/A	Drainage Pipe	
N/A	UG Telephone Line	T
N/A	Overhead Power Line	OHP

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Emergency Vehicle Detector	

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max Green 1 *	20	60	20	20	20	60	20	20
Yellow Clearance	3.0	4.7	3.0	3.8	3.0	4.3	3.0	3.1
Red Clearance	3.6	1.2	3.4	3.1	3.6	1.4	3.9	3.3
Red Revert	2.0	2.0	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	-	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	C
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 1 (Area 3 TMP Phase I & II)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division, Signal Design Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Sutters Creek Blvd

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Documents prepared by: Melissa B. Toth 1/30/2017
CHECKED SIGNATURE DATE

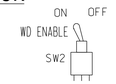
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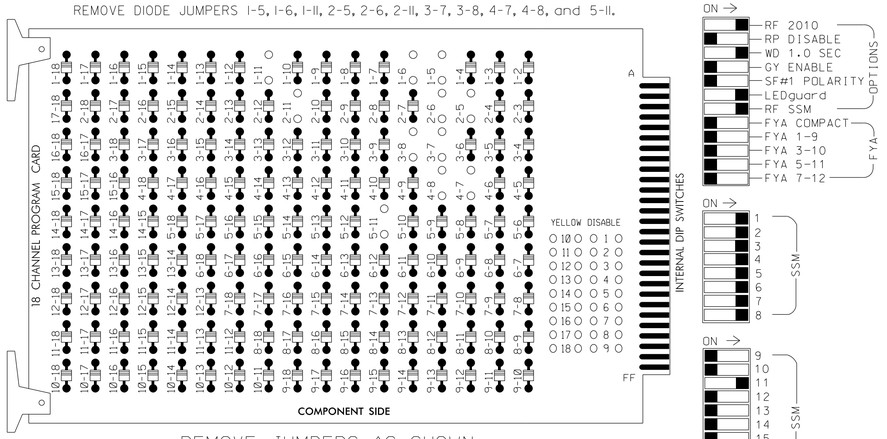
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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS I-5, I-6, I-11, 2-5, 2-6, 2-11, 3-7, 3-8, 4-7, 4-8, and 5-11.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10,S11,AUX S4
PHASES USED.....1,2,3,4,5,6,7,8
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....5
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 14.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5	S6	S7	S8	S9	S10		S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4	14	5	6	15	7		8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3		4	4 PED	5	6	6 PED	7		8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	22	31	41,42, 43	NU	51,52	61,62	NU	62	71,72	81,82	NU	NU	NU	NU	42	NU	NU
RED		128				101			134				107					*		
YELLOW		129				102			135				108							
GREEN		130				103			136				109							
RED ARROW	125				116			131				122								
YELLOW ARROW	126			117	117			132			123	123						A115		
GREEN ARROW	127			118	118			133			124	124						A116		

NU = Not Used

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

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' TWICE

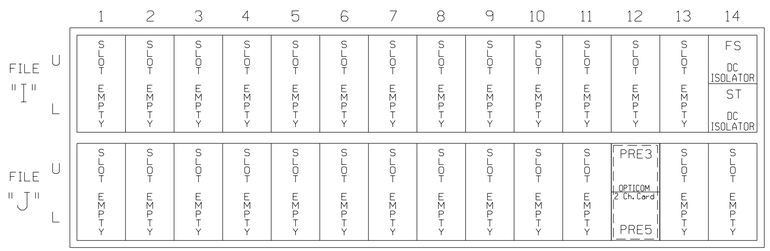
```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS:|     X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:  (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0802T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

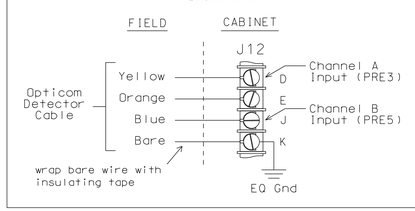
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

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

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 1 OF 2 - Temporary Design 1 (Area 3 TMP Phase I & II)

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at Sutters Creek Blvd

Division 04	Nash County		Rocky Mount
PLAN DATE: November 2016		REVIEWED BY:	MB Toth
PREPARED BY: AM Encarnacion		REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER
MELISSA B. TOTH

Digitally signed by Melissa B. Toth
SIGNATURE
1/30/2017
DATE

SIG. INVENTORY NO. 04-0802T1

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

30-JAN-2017 18:03
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ENCAS386 AT LUS39021

DocuSign Envelope ID: 5D7E52A4-3027-4020-9327-416BC4FAE2C9

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 14.2

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X    X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |    X
```

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0802T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 2 OF 2 - Temporary Design 1 (Area 3 TMP Phase I & II)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326
750 N.Greenfield Pkwy.Garner,NC 27529

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section

US 301 Byp (N. Wesleyan Blvd)
at
Sutters Creek Blvd

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY:	MB Toth	
PREPARED BY: AM Encarnacion	REVIEWED BY:		

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Digitally signed by: Melissa B. Toth 1/30/2017
DocuSigned by: DATE

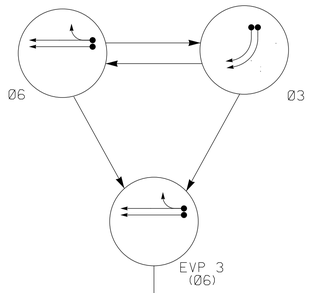
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 14.3

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

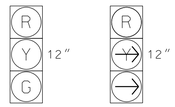
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø3	PHASE Ø6	PHASE EVP 3	PHASE FLASH
31,32	→	R	R	R
61,62	R	G	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



61,62 31,32

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

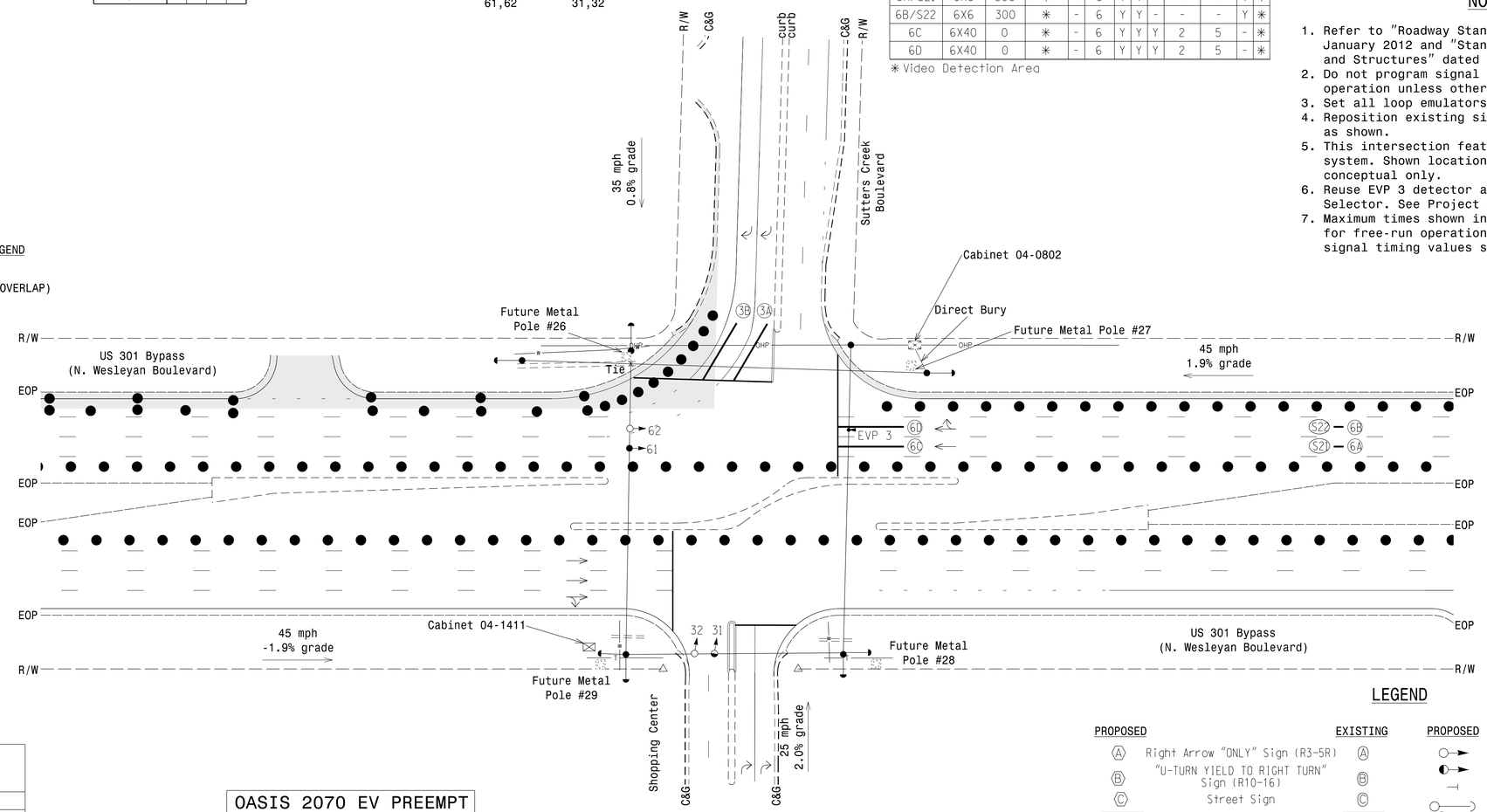
DETECTION ZONES					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
3A	6X40	0	✳	-	3	Y	Y	-	-	-	-	✳
3B	6X40	0	✳	-	3	Y	Y	-	-	-	-	✳
6A/S21	6X6	300	✳	-	6	Y	Y	-	-	-	Y	✳
6B/S22	6X6	300	✳	-	6	Y	Y	-	-	-	Y	✳
6C	6X40	0	✳	-	6	Y	Y	Y	2	5	-	✳
6D	6X40	0	✳	-	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all loop emulators to presence mode.
4. Reposition existing signal head numbered 61 as shown.
5. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. Reuse EVP 3 detector and reuse existing Phase Selector. See Project Special Provisions.
7. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING	PROPOSED		EXISTING
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ		Traffic Signal Head	
Ⓑ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓑ		Modified Signal Head	N/A
Ⓒ	Street Sign	Ⓒ		Sign	
	Construction Zone			Signal Pole with Guy	
	Construction Zone Drums			Signal Pole with Sidewalk Guy	
N/A	UG Water Line	W		Inductive Loop Detector	
N/A	Drainage Pipe			Controller & Cabinet	
N/A	UG Telephone Line	T		Junction Box	
N/A	Overhead Power Line	OHP		2-in Underground Conduit	
			N/A	Right of Way	
				Directional Arrow	
				Emergency Vehicle Detector	

OASIS 2070E TIMING CHART

FEATURE	PHASE 3	PHASE 6
Min Green 1 *	7	12
Extension 1 *	2.0	6.0
Max Green 1 *	30	60
Yellow Clearance	3.2	4.4
Red Clearance	1.3	1.0
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	-
Max Variable Initial *	-	-
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.0
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	-
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Area 3 TMP Phase III)

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SB US 301 Byp
(N. Wesleyan Blvd)
at
Sutters Creek Blvd

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0802T2

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

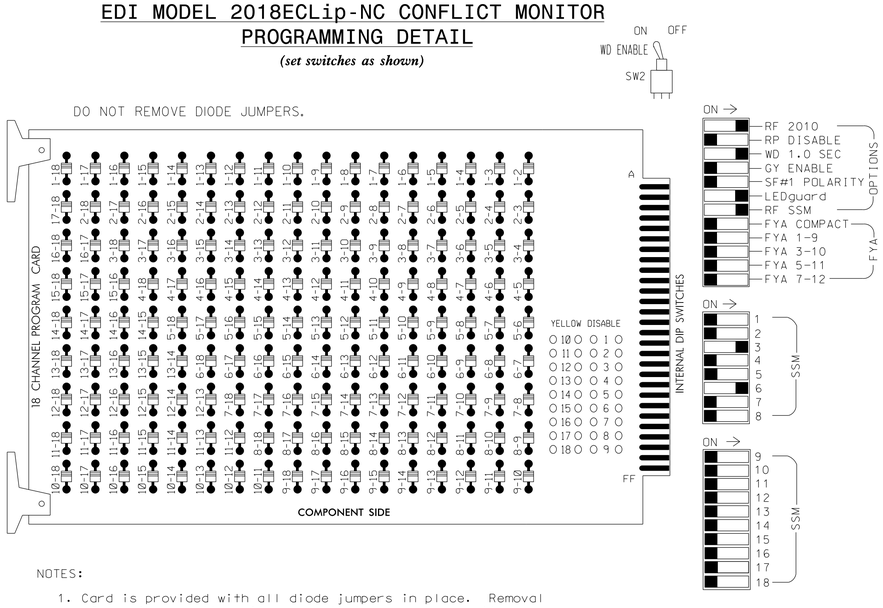
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ENCARNACION AT USER

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(set switches as shown)



■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Gap Reduction.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 14.4

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	NU	NU	31,32	NU	NU	NU	61,62	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED				116				134										
YELLOW								135										
GREEN								136										
RED ARROW																		
YELLOW ARROW				117														
GREEN ARROW				118														

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S4,S8
PHASES USED.....3,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

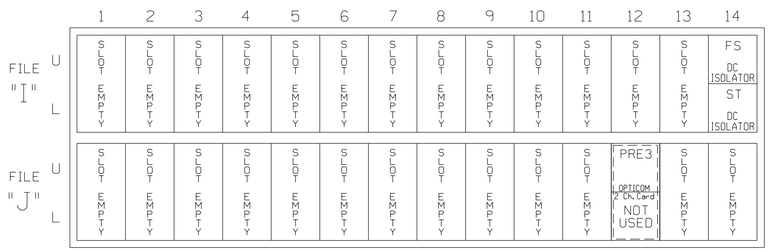
```
   PREEMPTION  #3   SETTINGS (NEXT:1-10)
INTERVAL/TIMING   |  CLEAR/DWELL PHASES
  GRN YEL  RED    |1234567891011121314151 6
1 255  0.0  0.0   |     X
2   0  0.0  0.0   |
3   0  0.0  0.0   |
4   0  0.0  0.0   |
5   0  0.0  0.0   |
EXIT CALLS        |
          OPTIONS
PRIORITY (Y/N TO SELECT) .....MED
DELAY TIMER (0-255 SEC) .....0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .....12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .....0
LATCH CALL? .....N
LINK TO NEXT PREEMPT? .....N
ENABLE BACKUP PROTECTION? .....N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .....N
PED CLEARANCE THROUGH YELLOW? .....N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .....N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? .....N
ALLOW PEDS IN DWELL INTERVAL? .....N
RE-TIME DWELL INTERVAL? .....N
OVERLAPS:                 | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW    |
OMIT OVERLAPS:            |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

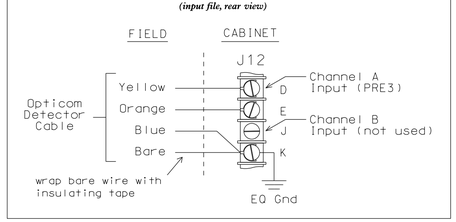
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

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

TYPICAL OPTICOM FIELD WIRE DETAIL

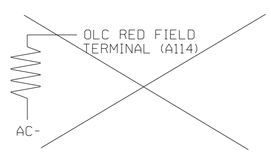
(input file, rear view)



LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0802T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL - Temporary Design 2 (Area 3 TMP Phase III)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SB US 301 Byp
(N. Wesleyan Blvd)
at
Sutters Creek Blvd

Division 04 | Nash County | Rocky Mount
PLAN DATE: November 2016 | REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

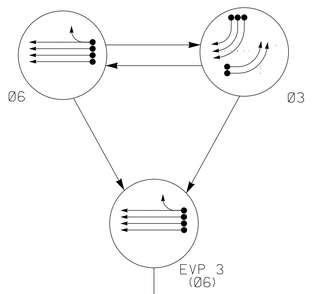
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH
Designed by: Melissa B. Toth SIGNATURE 1/30/2017 DATE
SIG. INVENTORY NO. 04-0802T2

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 14.5

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø3	PHASE Ø6	PHASE EVP 3	PHASE FLASH
31, 32	←	~~R~~	~~R~~	~~R~~
33, 34, 35, 36	→	R	R	R
61, 62, 63, 64	R	G	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.

61,62,63,64 33,34,35,36 31,32

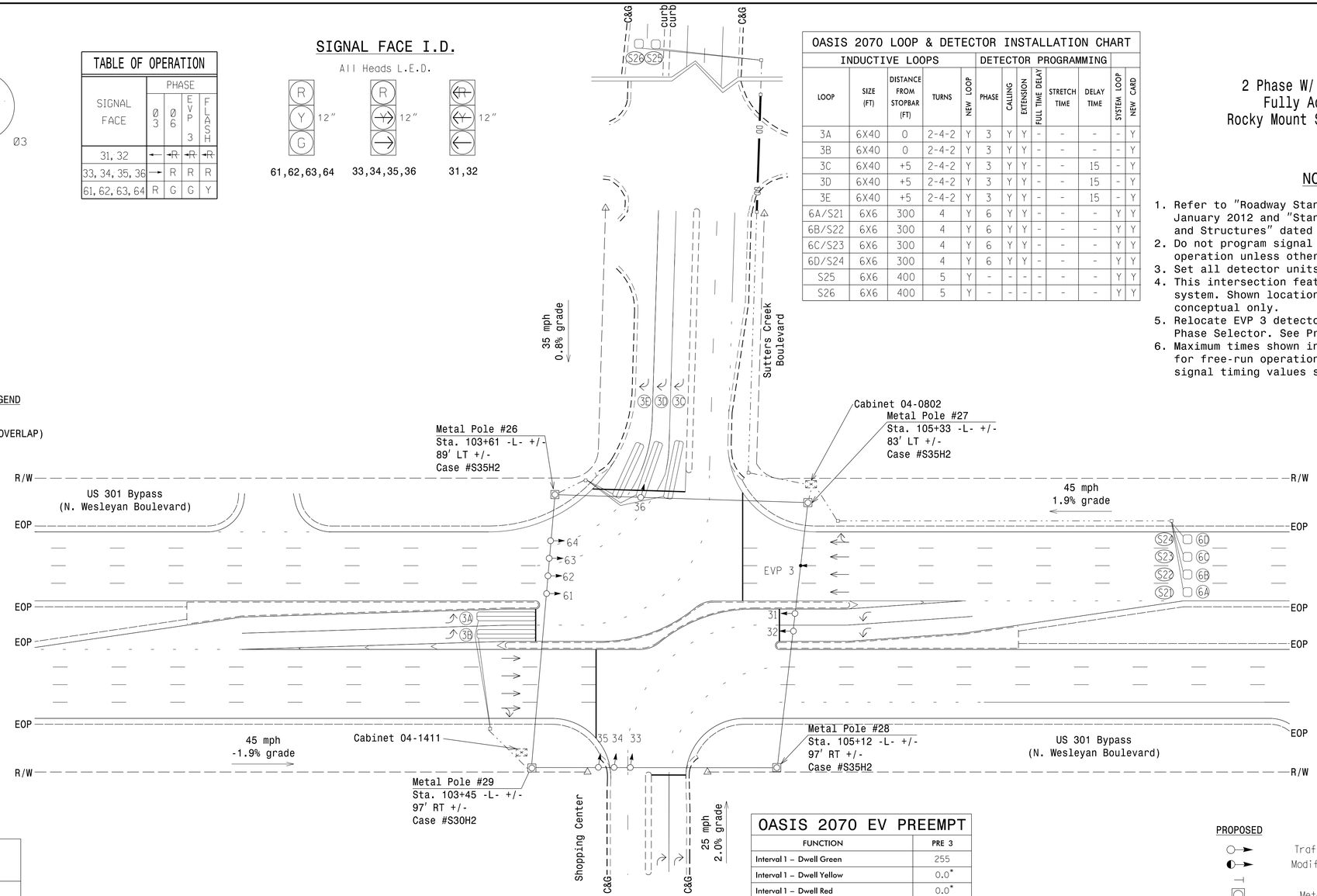
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
3C	6X40	+5	2-4-2	Y	3	Y	Y	-	-	15	-	Y
3D	6X40	+5	2-4-2	Y	3	Y	Y	-	-	15	-	Y
3E	6X40	+5	2-4-2	Y	3	Y	Y	-	-	15	-	Y
6A/S21	6X6	300	4	Y	6	Y	Y	-	-	-	Y	Y
6B/S22	6X6	300	4	Y	6	Y	Y	-	-	-	Y	Y
6C/S23	6X6	300	4	Y	6	Y	Y	-	-	-	Y	Y
6D/S24	6X6	300	4	Y	6	Y	Y	-	-	-	Y	Y
S25	6X6	400	5	Y	-	-	-	-	-	-	Y	Y
S26	6X6	400	5	Y	-	-	-	-	-	-	Y	Y

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
5. Relocate EVP 3 detector onto new span. Reuse existing Phase Selector. See Project Special Provisions.
6. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supercede these values.



OASIS 2070E TIMING CHART

FEATURE	PHASE 3	PHASE 6
Min Green 1 *	7	12
Extension 1 *	2.0	6.0
Max Green 1 *	30	60
Yellow Clearance	3.0	4.4
Red Clearance	4.1	1.6
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	34
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.0
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
◎	Metal Strain Pole	◘
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	- - - - -
→	Directional Arrow	→
○◀	Emergency Vehicle Detector	●◀

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SB US 301 Byp
(N. Wesleyan Blvd)
at
Sutters Creek Blvd

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DESIGNER SIGNATURE DATE

SIG. INVENTORY NO. 04-0802

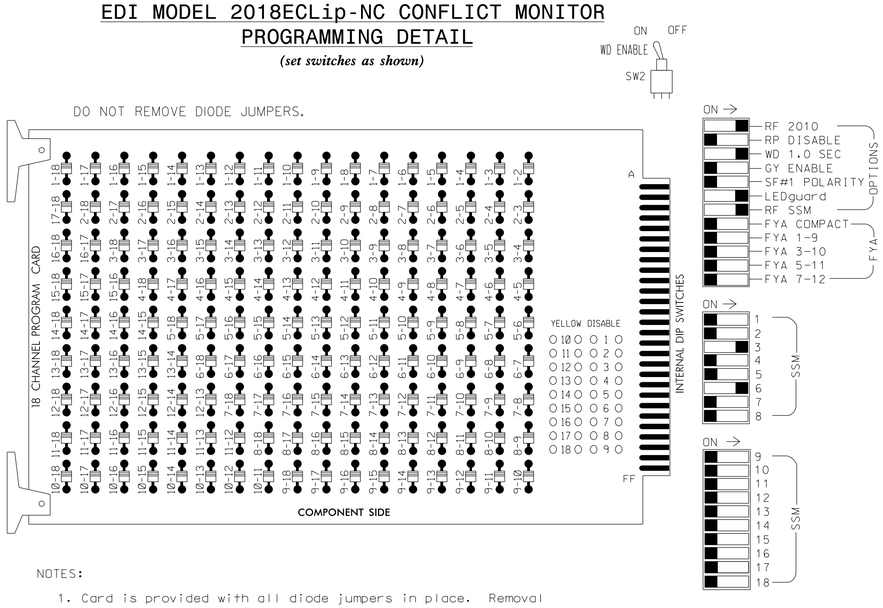
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(set switches as shown)



■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Variable Initial and Gap Reduction.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S4,S8
PHASES USED.....3,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 14.6

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	NU	NU	31,32	33,34, 35,36	NU	NU	NU	61,62, 63,64	NU	NU	NU	NU	NU	NU	NU	NU	NU	NU
RED					116				134										
YELLOW									135										
GREEN									136										
RED ARROW				116															
YELLOW ARROW				117	117														
GREEN ARROW				118	118														

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

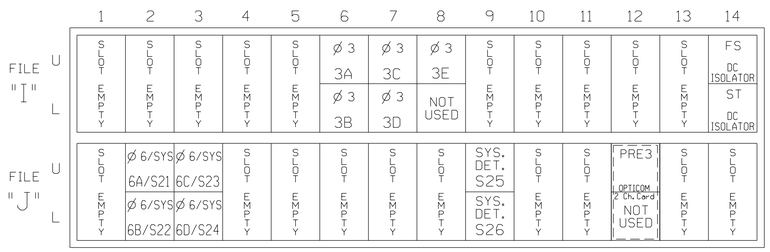
```
    PREEMPTION  #3   SETTINGS (NEXT:1-10)
 INTERVAL/TIMING   |  CLEAR/DWELL PHASES
   GRN YEL  RED    | 123456789101112131415 16
 1 255  0.0  0.0   |       X
 2   0  0.0  0.0   |
 3   0  0.0  0.0   |
 4   0  0.0  0.0   |
 5   0  0.0  0.0   |
-------------------+-------------------------
 EXIT CALLS        |
          OPTIONS
 PRIORITY (Y/N TO SELECT) ..........MED
 DELAY TIMER (0-255 SEC) ...........0
 MIN GREEN BEFORE PRE (0= DEFAULT)....1
 PED CLEAR BEFORE PRE (0= DEFAULT)....0
 YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
 RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
 DWELL MIN TIMER (0-255 SEC) .....12
 DWELL MAX TIMER (0=OFF,1-255MIN) ....0
 DWELL HOLD-OVER TIMER (0-255) .....0
 LATCH CALL? .....N
 LINK TO NEXT PREEMPT? .....N
 ENABLE BACKUP PROTECTION? .....N
 HOLD CLEAR 1 PHASES DURING DELAY? ...N
 FAST GREEN FLASH DWELL PHASES? .....N
 PED CLEARANCE THROUGH YELLOW? .....N
 INHIBIT OVERLAP GREEN EXTENSION? ....N
 SERVICE DURING SOFTWARE FLASH? .....N
 REST IN RED DURING DWELL INTERVAL? ..N
 FLASH DWELL INTERVAL? .....N
 ALLOW PEDS IN DWELL INTERVAL? .....N
 RE-TIME DWELL INTERVAL? .....N
 OVERLAPS:                  | ABCDEFGHIJKLMNOP
 DWELL INT FLASH YELLOW     |
 OMIT OVERLAPS:             |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

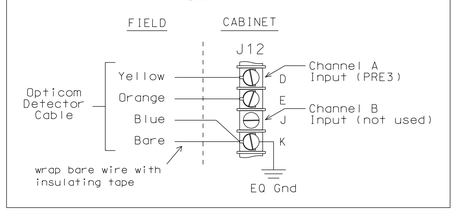
INPUT FILE CONNECTION & PROGRAMMING CHART

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
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			
3C	TB6-1,2	I7U	65	27	34	3	Y	Y			15
3D	TB6-3,4	I7L	78	40	44	3	Y	Y			15
3E	TB6-5,6	I8U	49	11	24	3	Y	Y			15
6A/S21	TB3-5,6	J2U	40	2	6	6/SYS	Y	Y			
6B/S22	TB3-7,8	J2L	44	6	16	6/SYS	Y	Y			
6C/S23	TB3-9,10	J3U	64	26	36	6/SYS	Y	Y			
6D/S24	TB3-11,12	J3L	77	39	46	6/SYS	Y	Y			
✳S25	TB7-9,10	J9U	59	21	15	SYS					
✳S26	TB7-11,12	J9L	61	23	17	SYS					

✳ System detector only. Remove the vehicle phase assigned to this detector in the default programming.

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0802
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SB US 301 Byp
(N. Wesleyan Blvd)
at
Sutters Creek Blvd

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER
MELISSA B. TOTH

Digitally signed by: Melissa B. Toth
SIGNATURE 1/30/2017 DATE

SIG. INVENTORY NO. 04-0802

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ENCA5386 AT LUS29021

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 15.0

PHASING DIAGRAM

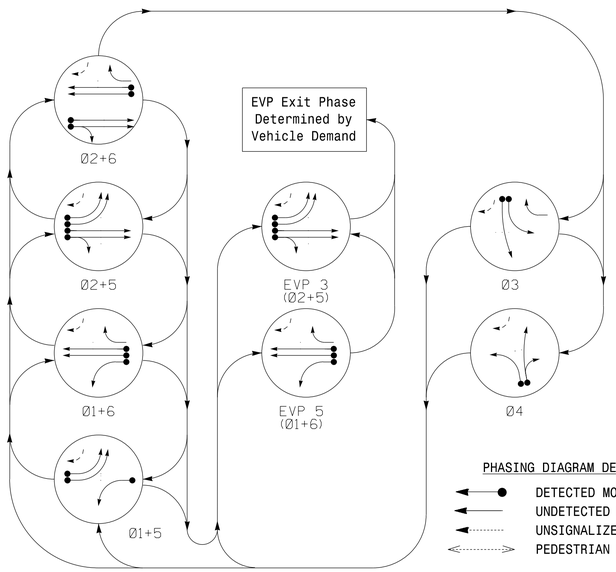
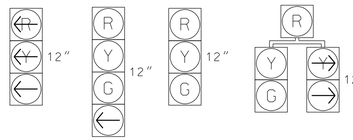


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 5	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
21, 22	R	R	G	G	R	R	G	R	Y
31	R	R	R	R	G ←	R	R	R	R
32, 33	R	R	R	R	G	R	R	R	R
41	R	R	R	R	R	G ←	R	R	R
42, 43	R	R	R	R	R	G	R	R	R
51, 52	←	~~R~~	←	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~
61	R	G	R	G	R	R	R	G	Y
62	R	G	R	G	R →	R	R	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



11
51,52

31
41

21,22
32,33
42,43
61

62

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

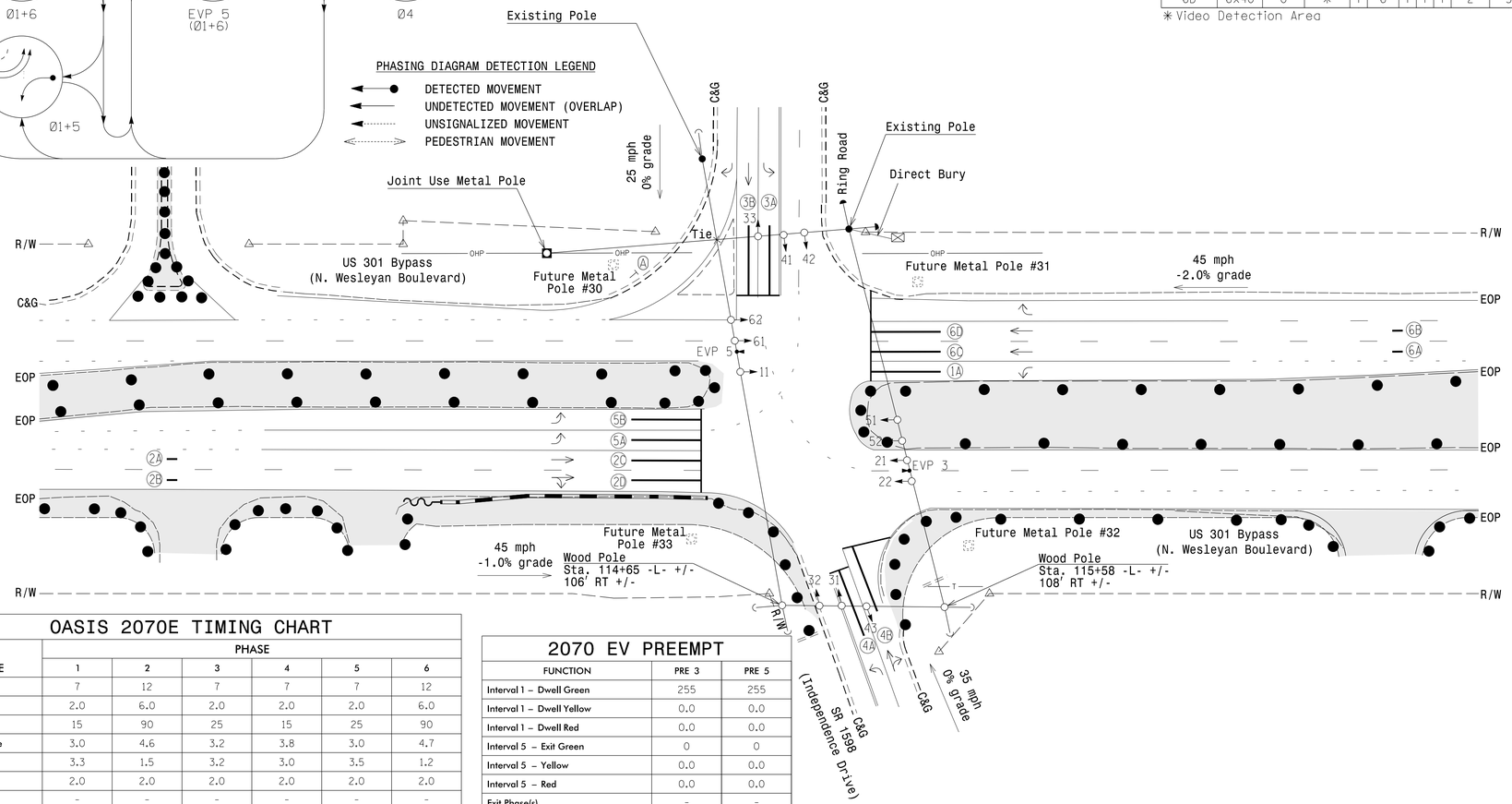
DETECTION ZONES					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6x40	0	✳	Y	1	Y	Y	-	-	-	-	✳
2A	6x6	300	✳	Y	2	Y	Y	-	-	-	-	✳
2B	6x6	300	✳	Y	2	Y	Y	-	-	-	-	✳
2C	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
2D	6x40	0	✳	Y	2	Y	Y	Y	2	5	-	✳
3A	6x40	0	✳	Y	3	Y	Y	-	-	3	-	✳
3B	6x40	0	✳	Y	3	Y	Y	-	-	-	-	✳
4A	6x40	0	✳	Y	4	Y	Y	-	-	3	-	✳
4B	6x40	0	✳	Y	4	Y	Y	-	-	10	-	✳
5A	6x40	0	✳	Y	5	Y	Y	-	-	-	-	✳
5B	6x40	0	✳	Y	5	Y	Y	-	-	-	-	✳
6A	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6B	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6C	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6D	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

✳ Video Detection Area

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 loop emulators to presence mode.
6. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Relocate EVP 3 and EVP 5 detectors on new spans. Reuse Phase Selector in new signal cabinet. See Project Special Provisions.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head	■
○	Signal Pole with Guy	●—
○	Signal Pole with Sidewalk Guy	●—
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
- - - -	2-in Underground Conduit	- - - -
N/A	Right of Way	———
→	Directional Arrow	→
◎	Metal Strain Pole	◘
N/A	Guardrail	⊥⊥
○	Emergency Vehicle Detector	●—
∿	Crash Cushion	∿
▰	Portable Concrete Barrier	▰
▨	Construction Zone	▨
●●	Construction Zone Drums	●●
N/A	UG Water Line	—W—
N/A	Drainage Pipe	====
N/A	UG Telephone Line	—T—
N/A	Overhead Power Line	—OHP—
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	15	90	25	15	25	90
Yellow Clearance	3.0	4.6	3.2	3.8	3.0	4.7
Red Clearance	3.3	1.5	3.2	3.0	3.5	1.2
Red Revert	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0	0.0
Interval 1 – Dwell Red	0.0	0.0
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0	0.0
Red Clear Before Pre	0.0	0.0
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Temporary Design 1 (Area 3 TMP Phase I)

Prepared for the Offices of: Transportation Mobility and Safety Division, NC Department of Transportation, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at SR 1598 (Independence Drive) / Ring Road

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL: North Carolina Professional Seal 025892 Engineer Melissa B. Toth

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

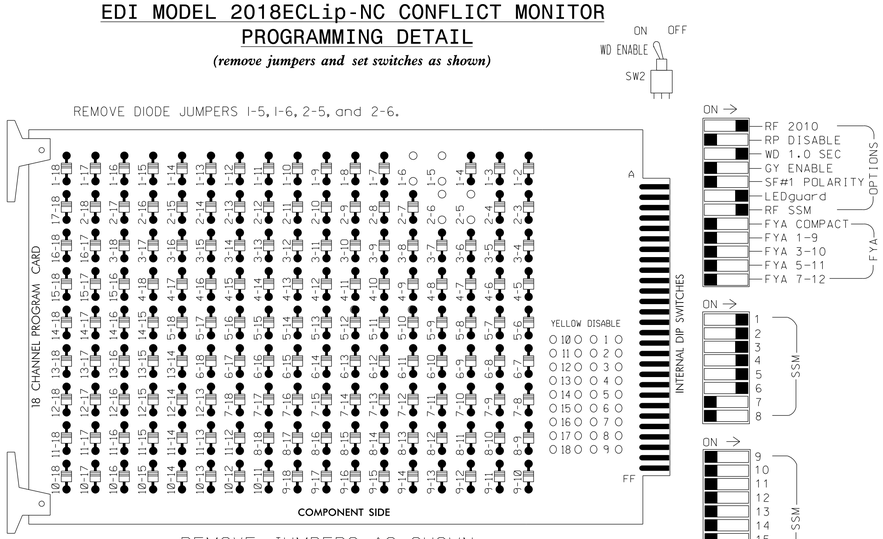
SIG. INVENTORY NO. 04-0682TI

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ENCAD36 AT US23021

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 15.1

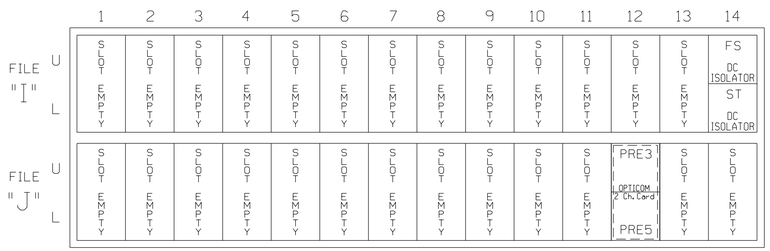
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4			S5		S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3			4		14	5	6	15	7	8	16
PHASE	1	2	2 PED	3			4		4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	31	32,33	62	41	42,43	NU	51,52	61,62	NU	NU	NU	NU
RED		128		116	116		101	101			134				
YELLOW		129		117	117		102	102			135				
GREEN		130		118	118		103	103			136				
RED ARROW	125									131					
YELLOW ARROW	126					117				132					
GREEN ARROW	127			118		118	103			133					

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

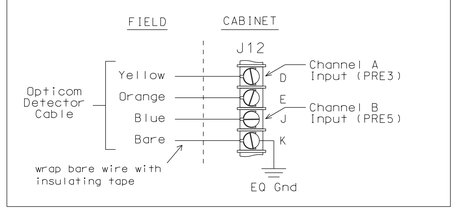
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

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

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0682T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 1 OF 2 - Temporary Design 1 (Area 3 TMP Phase I)

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 301 Byp (N. Wesleyan Blvd) at SR 1598 (Independence Dr) / Ring Road	SEAL
Prepared for the Offices of: NC Department of Transportation, Mobility and Safety Division, Traffic Signals Section	Division 04 Nash County Rocky Mount	NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH
750 N.Greenfield Pkwy.Garner,NC 27529	PLAN DATE: November 2016 REVIEWED BY: MB Toth	Designed by: Melissa B. Toth 1/30/2017
	PREPARED BY: AM Encarnacion REVIEWED BY:	SIGNATURE DATE
	REVISIONS INIT. DATE	SIG. INVENTORY NO. 04-0682T1

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

30-JAN-2017 18:09
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ENCA5386 AT LUS29021

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 15.2

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X    X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0682T1
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 2 OF 2 - Temporary Design 1 (Area 3 TMP Phase I)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326
750 N.Greenfield Pkwy.Garner,NC 27529

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section

US 301 Byp (N. Wesleyan Blvd)
at
SR 1598 (Independence Dr)
/ Ring Road

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY: MB Toth		
PREPARED BY: AM Encarnacion	REVIEWED BY:		

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DIRECTORY\FILENAME.DGN DATE

SIG. INVENTORY NO. 04-0682T1

30-JAN-2017 18:10
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ENC45386 AT LUZ20321

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 15.3

6 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

PHASING DIAGRAM

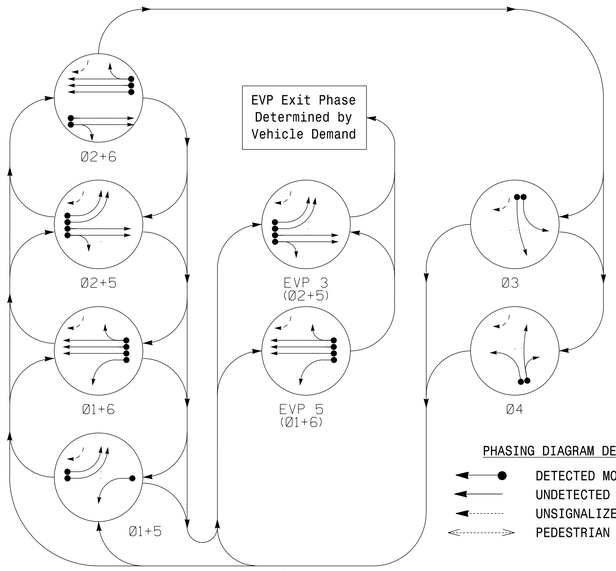
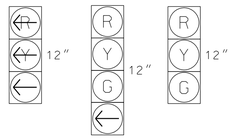


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 5	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~
21, 22	R	R	G	G	R	R	G	R	Y
31	R	R	R	R	G ←	R	R	R	R
32, 33	R	R	R	R	G	R	R	R	R
41	R	R	R	R	R	G ←	R	R	R
42, 43	R	R	R	R	R	G	R	R	R
51, 52	←	~~R~~	←	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~
61, 62, 63	R	G	R	G	R	R	R	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



11
51,52

31
41

21,22
32,33
42,43
61,62,63

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

DETECTION ZONES					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
1A	6x40	0	✳	Y	1	Y	Y	-	-	-	-	✳
2A	6x6	300	✳	-	2	Y	Y	-	-	-	-	✳
2B	6x6	300	✳	-	2	Y	Y	-	-	-	-	✳
2C	6x40	0	✳	-	2	Y	Y	Y	2	5	-	✳
2D	6x40	0	✳	-	2	Y	Y	Y	2	5	-	✳
3A	6x40	0	✳	-	3	Y	Y	-	-	3	-	✳
3B	6x40	0	✳	-	3	Y	Y	-	-	-	-	✳
4A	6x40	0	✳	Y	4	Y	Y	-	-	3	-	✳
4B	6x40	0	✳	Y	4	Y	Y	-	-	-	-	✳
4C	6x40	0	✳	Y	4	Y	Y	-	-	15	-	✳
5A	6x40	0	✳	-	5	Y	Y	-	-	-	-	✳
5B	6x40	0	✳	-	5	Y	Y	-	-	-	-	✳
6A	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6B	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6C	6x6	300	✳	Y	6	Y	Y	-	-	-	-	✳
6D	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6E	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳
6F	6x40	0	✳	Y	6	Y	Y	Y	2	5	-	✳

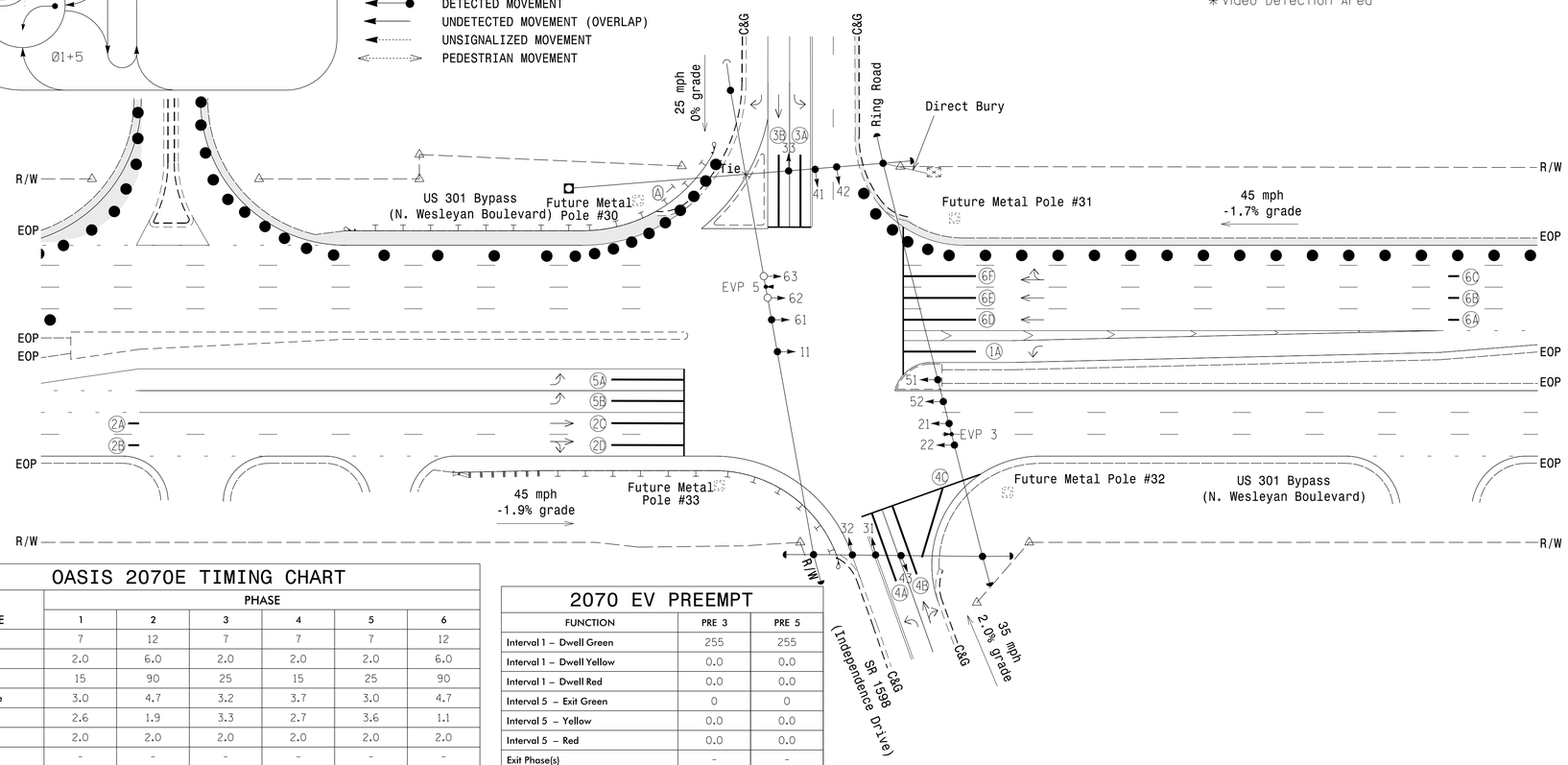
✳ Video Detection Area

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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 loop emulators to presence mode.
6. Reposition existing signal heads numbered 11,21,22,51,52, and 61 as shown.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. Reuse EVP 3 and EVP 5 detectors. Reuse Phase Selector in signal cabinet. See Project Special Provisions.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

PHASING DIAGRAM DETECTION LEGEND

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



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
◎	Metal Strain Pole	◎
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----------	2-in Underground Conduit	----------
N/A	Right of Way	----------
→	Directional Arrow	→
N/A	Guardrail	I I
⊂	Emergency Vehicle Detector	⊂●
	Construction Zone	
●●	Construction Zone Drums	●●
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	15	90	25	15	25	90
Yellow Clearance	3.0	4.7	3.2	3.7	3.0	4.7
Red Clearance	2.6	1.9	3.3	2.7	3.6	1.1
Red Revert	2.0	2.0	2.0	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	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	-	-	-	-	-
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0	0.0
Interval 1 – Dwell Red	0.0	0.0
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0	0.0
Red Clear Before Pre	0.0	0.0
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Signal Upgrade - Temporary Design 2 (Area 3 TMP Phase III)

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N.Greenfield Pkwy.Garner,NC 27529

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

US 301 Byp (N. Wesleyan Blvd)
at
SR 1598 (Independence Drive) / Ring Road

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

DocuSigned by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

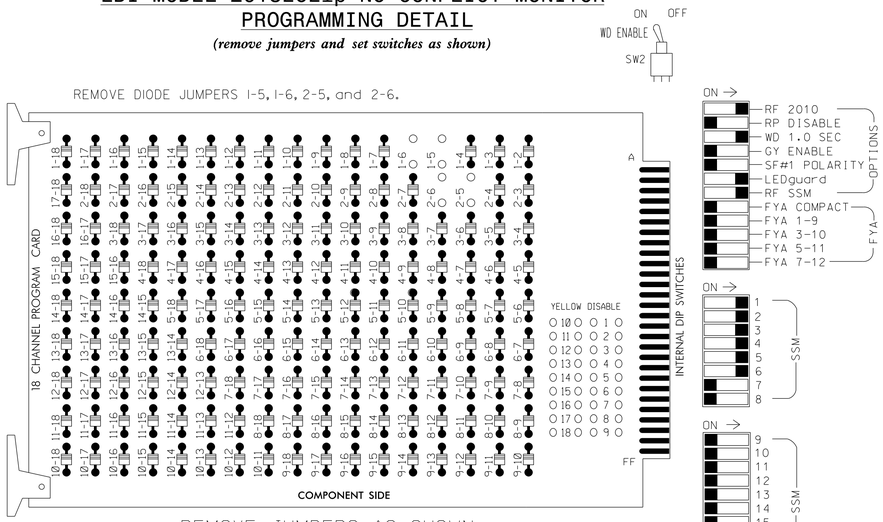
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ENC45386 AT LUS29021

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 15.4

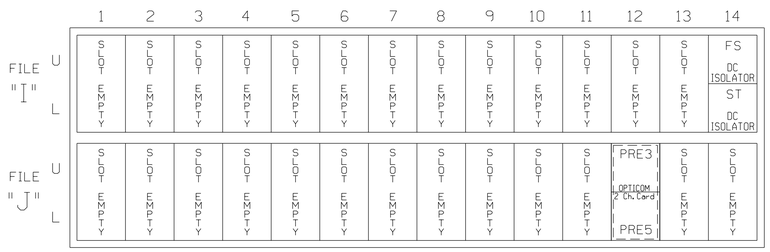
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7	8	16
PHASE	1	2	2 PED	3		4		4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	31	32,33	41	42,43	NU	51,52	61,62, 63	NU	NU	NU	NU
RED		128		116	116	101	101			134				
YELLOW		129		117	117	102	102			135				
GREEN		130		118	118	103	103			136				
RED ARROW	125								131					
YELLOW ARROW	126								132					
GREEN ARROW	127			118		103			133					

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L

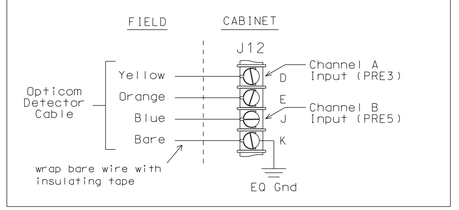
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

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

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0682T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 1 OF 2 - Temporary Design 2 (Area 3 TMP Phase III)

ELECTRICAL AND PROGRAMMING DETAILS FOR:	US 301 Byp (N. Wesleyan Blvd) at SR 1598 (Independence Dr) / Ring Road	SEAL
Prepared for the Offices of: NCDOT Traffic Engineering Branch, Signal Management Section, 750 N.Greenfield Pkwy, Garner, NC 27529	Division 04 Nash County Rocky Mount PLAN DATE: November 2016 REVIEWED BY: MB Toth PREPARED BY: AM Encarnacion REVIEWED BY:	NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH
	REVISIONS / INIT. / DATE	Designed by: Melissa B. Toth 1/30/2017 SIGNATURE DATE
		SIG. INVENTORY NO. 04-0682T2

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

30-JAN-2017 18:11
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ENCA5386 AT LUS29021

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 15.5

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  | X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |X    X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 04-0682T2
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL DETAIL SHEET 2 OF 2 - Temporary Design 2 (Area 3 TMP Phase III)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd)
at
SR 1598 (Independence Dr)
/ Ring Road

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016	REVIEWED BY: MB Toth		
PREPARED BY: AM Encarnacion	REVIEWED BY:		

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
DEVELOPER/DESIGNER DATE

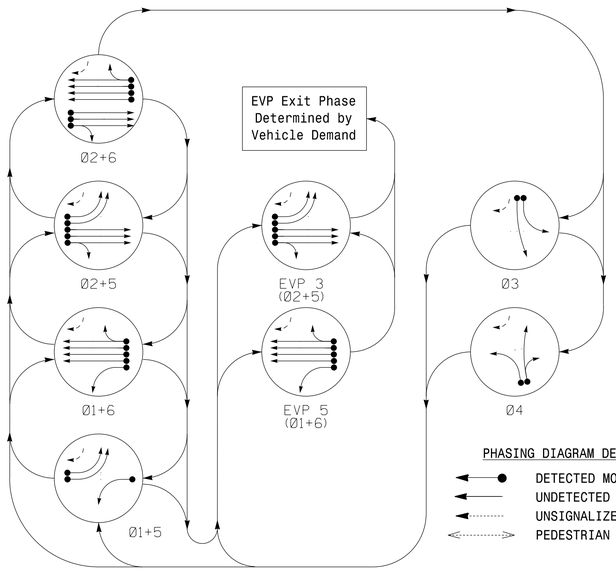
SIG. INVENTORY NO. 04-0682T2

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ENC45386 AT LU280321

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 15.6

PHASING DIAGRAM

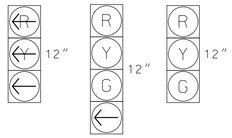


PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.



11
51,52

31
41

21,22,23
32
42
61,62,63,64

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	EVP 3	EVP 5	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	←	←	~~R~~
21, 22, 23	R	R	G	G	R	R	G	R	Y
31	R	R	R	R	G	R	R	R	R
32	R	R	R	R	G	R	R	R	R
41	R	R	R	R	R	G	R	R	R
42	R	R	R	R	R	G	R	R	R
51, 52	←	~~R~~	←	~~R~~	~~R~~	~~R~~	←	~~R~~	~~R~~
61, 62, 63, 64	R	G	R	G	R	R	R	G	Y

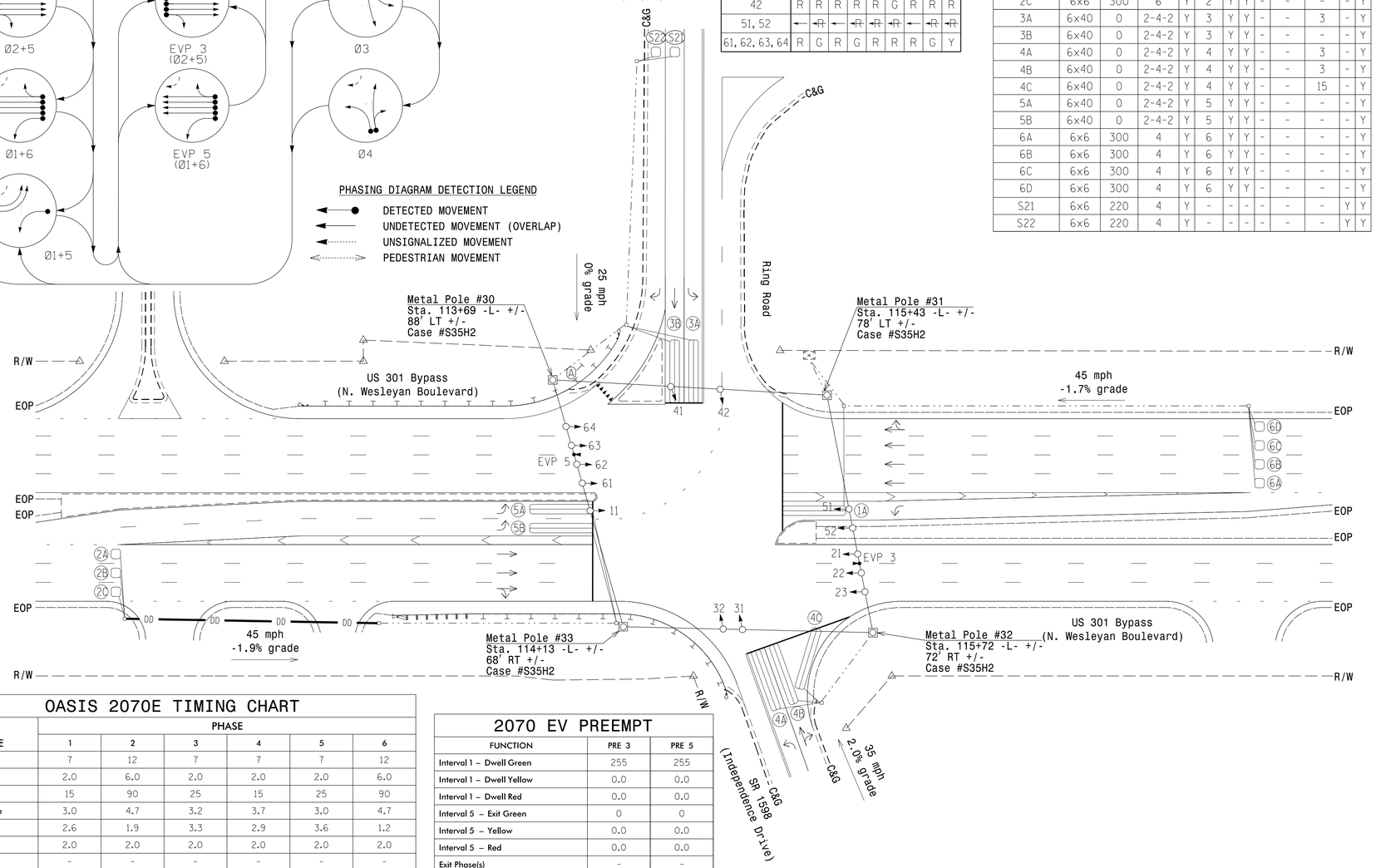
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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
1A	6x40	0	2-4-2	Y	1	Y	Y	-	-	-	-	Y
2A	6x6	300	6	Y	2	Y	Y	-	-	-	-	Y
2B	6x6	300	6	Y	2	Y	Y	-	-	-	-	Y
2C	6x6	300	6	Y	2	Y	Y	-	-	-	-	Y
3A	6x40	0	2-4-2	Y	3	Y	Y	-	-	3	-	Y
3B	6x40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
4A	6x40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4B	6x40	0	2-4-2	Y	4	Y	Y	-	-	3	-	Y
4C	6x40	0	2-4-2	Y	4	Y	Y	-	-	15	-	Y
5A	6x40	0	2-4-2	Y	5	Y	Y	-	-	-	-	Y
5B	6x40	0	2-4-2	Y	5	Y	Y	-	-	-	-	Y
6A	6x6	300	4	Y	6	Y	Y	-	-	-	-	Y
6B	6x6	300	4	Y	6	Y	Y	-	-	-	-	Y
6C	6x6	300	4	Y	6	Y	Y	-	-	-	-	Y
6D	6x6	300	4	Y	6	Y	Y	-	-	-	-	Y
S21	6x6	220	4	Y	-	-	-	-	-	-	Y	Y
S22	6x6	220	4	Y	-	-	-	-	-	-	Y	Y

6 Phase W/ EV Preempt Fully Actuated Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
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. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
7. Relocate existing EVP 3 and EVP 5 detectors on new spans. Reuse existing Phase Selector. See Project Special Provisions.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
⊙	Metal Strain Pole	■
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
- - - -	2-in Underground Conduit	- - - -
N/A	Right of Way	———
→	Directional Arrow	→
N/A	Guardrail	⊥⊥
○◁	Emergency Vehicle Detector	●◁
Ⓐ	"YIELD" Sign (R1-2)	Ⓐ

OASIS 2070E TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	15	90	25	15	25	90
Yellow Clearance	3.0	4.7	3.2	3.7	3.0	4.7
Red Clearance	2.6	1.9	3.3	2.9	3.6	1.2
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	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.

2070 EV PREEMPT

FUNCTION	PRE 3	PRE 5
Interval 1 – Dwell Green	255	255
Interval 1 – Dwell Yellow	0.0	0.0
Interval 1 – Dwell Red	0.0	0.0
Interval 5 – Exit Green	0	0
Interval 5 – Yellow	0.0	0.0
Interval 5 – Red	0.0	0.0
Exit Phase(s)	-	-
Priority	MED	MED
Delay Time	0.0	0.0
Min Green Before Pre	1	1
Ped Clear Before Pre	0	0
Yellow Clear Before Pre	0.0	0.0
Red Clear Before Pre	0.0	0.0
Dwell Min Time	12	12
Enable Backup Protection	N	N
Ped Clear Through Yellow	N	N
Omit Overlaps	-	-
Preempt Extend**	5	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at SR 1598 (Independence Drive) / Ring Road

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

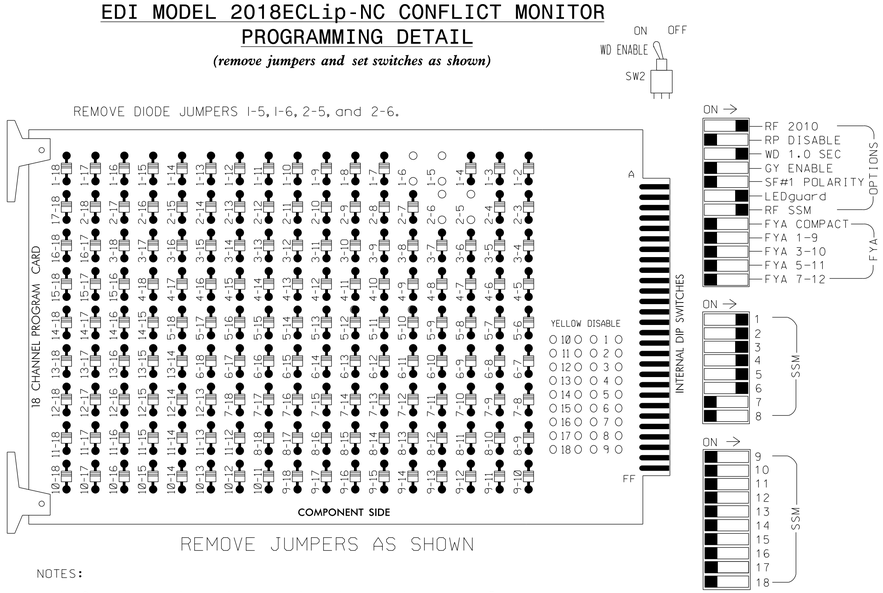
SIG. INVENTORY NO. 04-0682

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ENC45386 AT LU2803J21

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Variable Initial and Gap Reduction.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 15.7

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5		S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3		4		14	5	6	15	7	8	16
PHASE	1	2	2 PED	3		4		4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	21,22, 23	NU	31	32	41	42	NU	51,52	61,62, 63,64	NU	NU	NU	NU
RED		128		116	116	101	101			134				
YELLOW		129		117	117	102	102			135				
GREEN		130		118	118	103	103			136				
RED ARROW	125								131					
YELLOW ARROW	126								132					
GREEN ARROW	127			118		103			133					

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

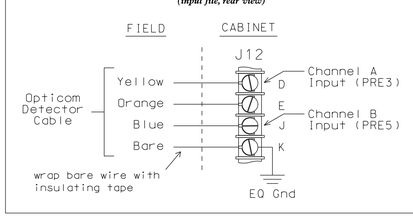
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" U	Ø1 1A	Ø2 2A	Ø2 2C	SLOT EMPTY	Ø3 3A	Ø3 3B	Ø4 4B	SLOT EMPTY	SYS. DET. S21	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
FILE "I" L	NOT USED	Ø2 2B	NOT USED		NOT USED	Ø4 4A	Ø4 4C		SYS. DET. S22					ST DC ISOLATOR
FILE "J" U	Ø5 5A	Ø5 5B	Ø6 6B	Ø6 6D	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	PRE3 OPTICOM 2 Ch. Card	SLOT EMPTY	SLOT EMPTY
FILE "J" L	NOT USED	Ø6 6A	Ø6 6C	NOT USED								PRE5		

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

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



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
1A	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
2C	TB2-9,10	I3U	63	25	32	2	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
3B	TB4-9,10	I6U	41	3	4	3	Y	Y			
4A	TB4-11,12	I6L	45	7	14	4	Y	Y			3
4B	TB6-1,2	I7U	65	27	34	4	Y	Y			3
4C	TB6-3,4	I7L	78	40	44	4	Y	Y			15
✳S21	TB6-9,10	I9U	60	22	11	SYS					
✳S22	TB6-11,12	I9L	62	24	13	SYS					
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			
6A	TB3-7,8	J2L	44	6	16	6	Y	Y			
6B	TB3-9,10	J3U	64	26	36	6	Y	Y			
6C	TB3-11,12	J3L	77	39	46	6	Y	Y			
6D	TB5-1,2	J4U	48	10	26	6	Y	Y			

✳ System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   | 12345678910111213141516
1 255  0.0  0.0  |  X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS
          OPTIONS
PRIORITY (Y/N TO SELECT) .....MED
DELAY TIMER (0-255 SEC) .....0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .....12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .....0
LATCH CALL? .....N
LINK TO NEXT PREEMPT? .....N
ENABLE BACKUP PROTECTION? .....N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .....N
PED CLEARANCE THROUGH YELLOW? .....N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .....N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? .....N
ALLOW PEDS IN DWELL INTERVAL? .....N
RE-TIME DWELL INTERVAL? .....N
OVERLAPS:              | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW |
OMIT OVERLAPS:         |
```

PRESS 'NEXT' TWICE

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   | 12345678910111213141516
1 255  0.0  0.0  |  X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   0  0.0  0.0  |
EXIT CALLS
          OPTIONS
PRIORITY (Y/N TO SELECT) .....MED
DELAY TIMER (0-255 SEC) .....0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .....12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .....0
LATCH CALL? .....N
LINK TO NEXT PREEMPT? .....N
ENABLE BACKUP PROTECTION? .....N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? .....N
PED CLEARANCE THROUGH YELLOW? .....N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? .....N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? .....N
ALLOW PEDS IN DWELL INTERVAL? .....N
RE-TIME DWELL INTERVAL? .....N
OVERLAPS:              | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW |
OMIT OVERLAPS:         |
```

Program extend time an optical detector unit for 5.0 seconds.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-0682
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 301 Byp (N. Wesleyan Blvd) at SR 1598 (Independence Dr) / Ring Road

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared for the Offices of:
Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signals Management Section
750 N.Greenfield Pkwy.Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-0682

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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ENC-A5386 AT LU5290321

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 16.0

PHASING DIAGRAM

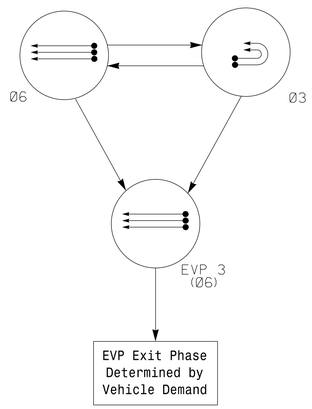


TABLE OF OPERATION				
SIGNAL FACE	PHASE Ø 3	PHASE Ø 6	PHASE EVP 3	PHASE FLASH
31, 32		R	R	R
61, 62, 63	R	G	G	Y

SIGNAL FACE I.D.

All Heads L.E.D.



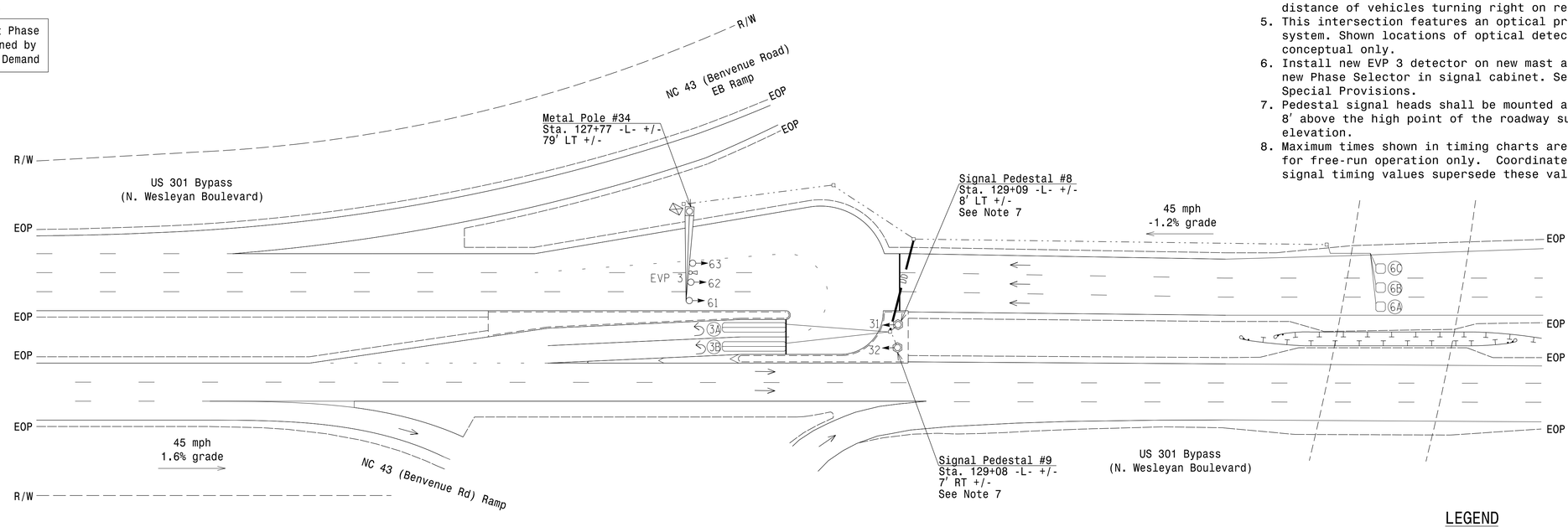
31,32 61,62,63

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
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
6A	6x6	300	5	Y	6	Y	Y	-	-	-	-	Y
6B	6x6	300	5	Y	6	Y	Y	-	-	-	-	Y
6C	6x6	300	5	Y	6	Y	Y	-	-	-	-	Y

2 Phase W/ EV Preempt
Fully Actuated
Rocky Mount Signal System

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
6. Install new EVP 3 detector on new mast arm. Install new Phase Selector in signal cabinet. See Project Special Provisions.
7. Pedestal signal heads shall be mounted a minimum of 8' above the high point of the roadway surface elevation.
8. Maximum times shown in timing charts are for free-run operation only. Coordinated signal timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Metal Pole with Mastarm	
	Signal Pedestal	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	

OASIS 2070E TIMING CHART		
FEATURE	PHASE 3	PHASE 6
Min Green 1 *	7	12
Extension 1 *	2.0	6.0
Max Green 1 *	30	60
Yellow Clearance	3.0	4.7
Red Clearance	3.5	1.1
Red Revert	2.0	2.0
Walk 1 *	-	-
Don't Walk 1	-	-
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	34
Time Before Reduction *	-	15
Time To Reduce *	-	30
Minimum Gap	-	3.0
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT	
FUNCTION	PRE 3
Interval 1 – Dwell Green	255
Interval 1 – Dwell Yellow	0.0*
Interval 1 – Dwell Red	0.0*
Interval 5 – Exit Green	0
Interval 5 – Yellow	0.0
Interval 5 – Red	0.0
Exit Phase(s)	-
Priority	MED
Delay Time	0.0
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	12
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	5

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp. (N. Wesleyan Blvd) at NB U-turn South of NC 43 (Benvenue Rd)

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1413

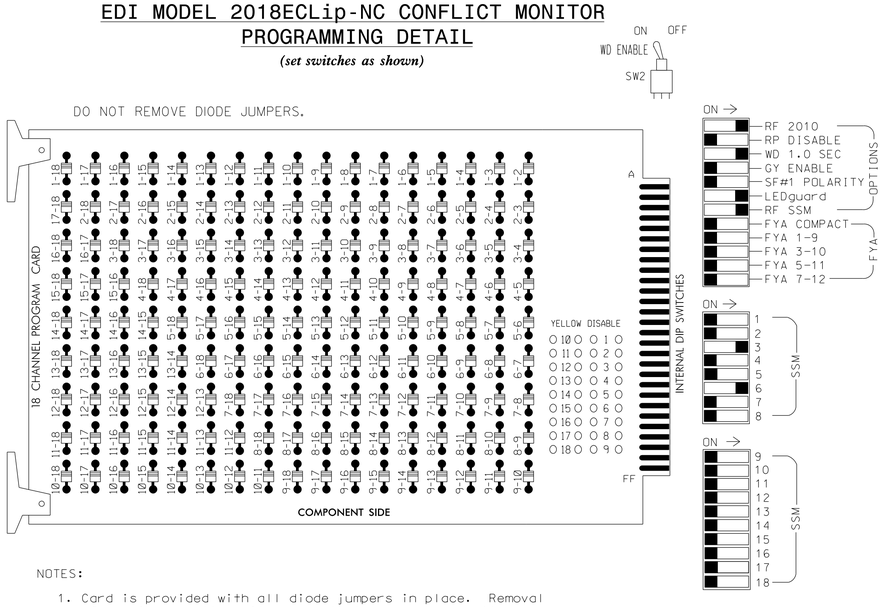
ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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EDI MODEL 2018ECLip-NC CONFLICT MONITOR PROGRAMMING DETAIL

(set switches as shown)



■ = DENOTES POSITION OF SWITCH

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. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Variable Initial and Gap Reduction.
4. Program phase 6 for Start Up In Green.
5. Program phase 6 for Yellow Flash.
6. The cabinet and controller are part of the Rocky Mount Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070E
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S4,S8
PHASES USED.....3,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 16.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	NU	NU	31,32	NU	NU	NU	61,62, 63	NU	NU	NU	NU
RED								134				
YELLOW								135				
GREEN								136				
RED ARROW				116								
YELLOW ARROW				117								
GREEN ARROW				118								

NU = Not Used

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

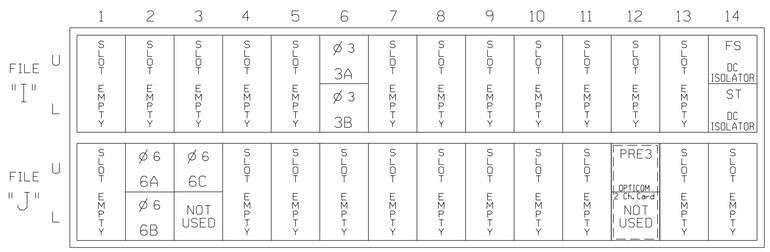
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    PREEMPTION  #3  SETTINGS (NEXT:1-10)
 INTERVAL/TIMING  |  CLEAR/DWELL PHASES
   GRN YEL  RED   | 123456789101112131415 16
1 255  0.0  0.0   |      X
2   0  0.0  0.0   |
3   0  0.0  0.0   |
4   0  0.0  0.0   |
5   0  0.0  0.0   |
EXIT CALLS        |
          OPTIONS
PRIORITY (Y/N TO SELECT) .............MED
DELAY TIMER (0-255 SEC) ..............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? ..........................N
LINK TO NEXT PREEMPT? ................N
ENABLE BACKUP PROTECTION? ............N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ................N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? ..............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW
OMIT OVERLAPS:           |
```

PROGRAMING COMPLETE

Program extend time an optical detector unit for 5.0 seconds.

INPUT FILE POSITION LAYOUT

(front view)



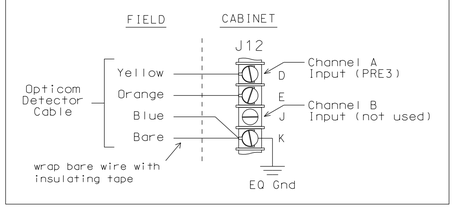
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME
PRE = PREEMPT

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

TYPICAL OPTICOM FIELD WIRE DETAIL

(input file, rear view)



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
3A	TB4-9,10	I6U	41	3	4	3	Y	Y			
3B	TB4-11,12	I6L	45	7	14	3	Y	Y			
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			
6C	TB3-9,10	J3U	64	26	36	6	Y	Y			

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 04-1413
DESIGNED: November 2016
SEALED: 1/30/2017
REVISED:

ELECTRICAL DETAIL - Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
Traffic Engineering Branch, Mobility and Safety Division, NCDOT Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Byp (N. Wesleyan Blvd) at NB U-turn South of NC 43 (Benvenue Road)

Division 04 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: MB Toth

PREPARED BY: AM Encarnacion | REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Designed by: Melissa B. Toth
SIGNATURE 1/30/2017 DATE

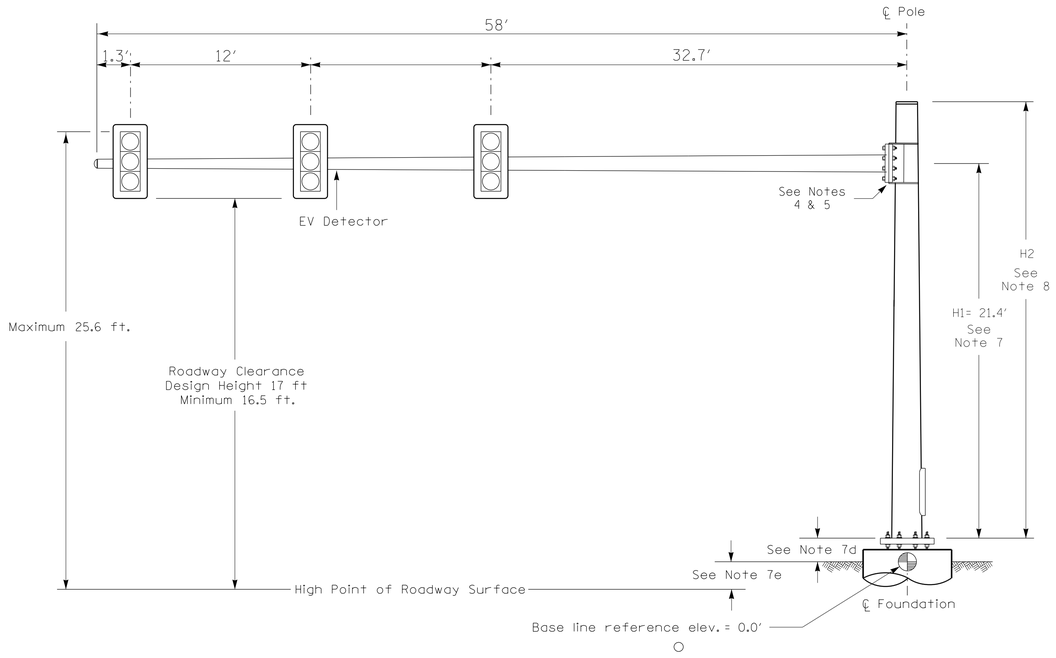
SIG. INVENTORY NO. 04-1413

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Design Loading for METAL POLE NO. 34, MAST ARM A

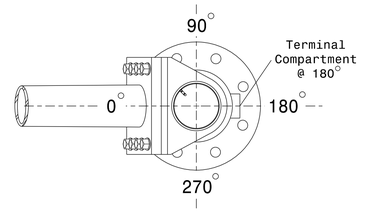


SPECIAL NOTE

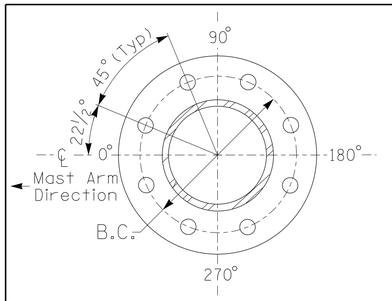
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:		
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	
Elevation difference at High point of roadway surface	+2.4 ft.	
Elevation difference at Edge of travelway or face of curb	+1.9 ft.	

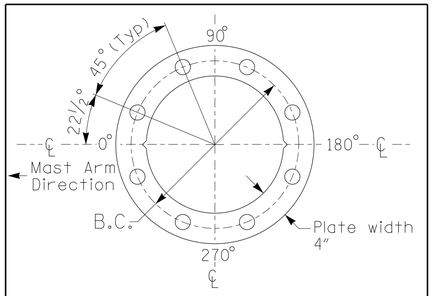


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

METAL POLE No. 34

PROJECT REFERENCE NO.	SHEET NO.
U-3330	Sig. 16.2

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″W X 52.5″L	60 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 5th Edition 2009 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate arm connection points.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 773-2800.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NCDOT Wind Zone 3 (110 mph)

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

Prepared for the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Metal Pole #34
US 301 Byp (N. Wesleyan Blvd)
at NB U-turn South of
NC 43 (Benvenue Road)

Division 04 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: MB Toth
PREPARED BY: AM Encarnacion REVIEWED BY:

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 025892 ENGINEER MELISSA B. TOTH

Developed by: Melissa B. Toth 1/30/2017
SIGNATURE DATE

SIG. INVENTORY NO. 04-1413

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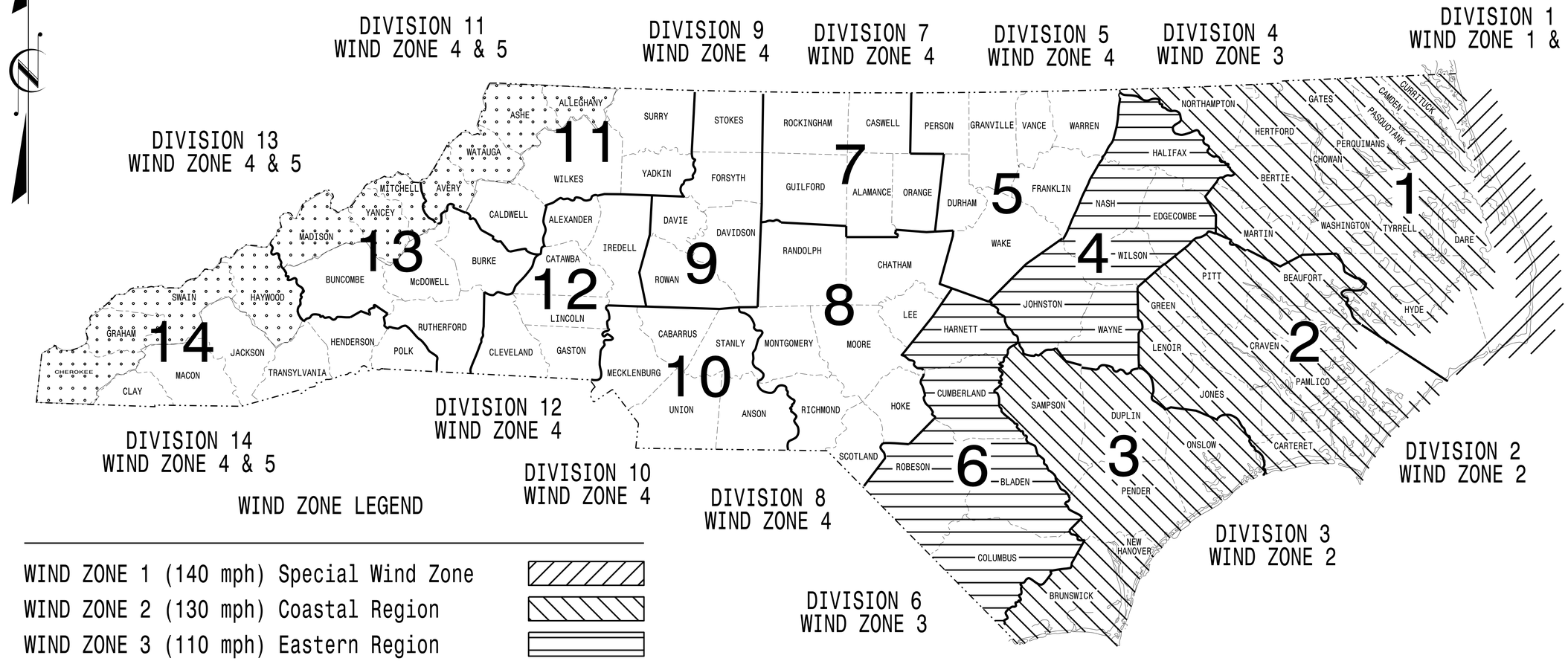
POLE STANDARDS

NCDOT METAL POLES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT I.D. NO.	SHEET NO.
U-3330	Sig.M1

STANDARD DRAWINGS FOR ALL METAL POLES



WIND ZONE LEGEND

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

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

Prepared In the Offices of:

Transportation Mobility and Safety Division
Signal Design Section
STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

750 N.Greenfield Pkwy.
Garner,NC 27529

Designed in conformance with the latest 2015 Interim to the 6th Edition 2013

AASHTO

Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals

INDEX OF PLANS

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

NCDOT CONTACTS:

MOBILITY AND SAFETY DIVISION – ITS AND SIGNALS UNIT

G. A. FULLER, P.E. – STATE ITS AND SIGNALS ENGINEER

G. G. MURR, JR., P.E. – STATE SIGNALS ENGINEER

D.C. SARKAR, P.E. – ITS AND SIGNALS SENIOR STRUCTURAL ENGINEER

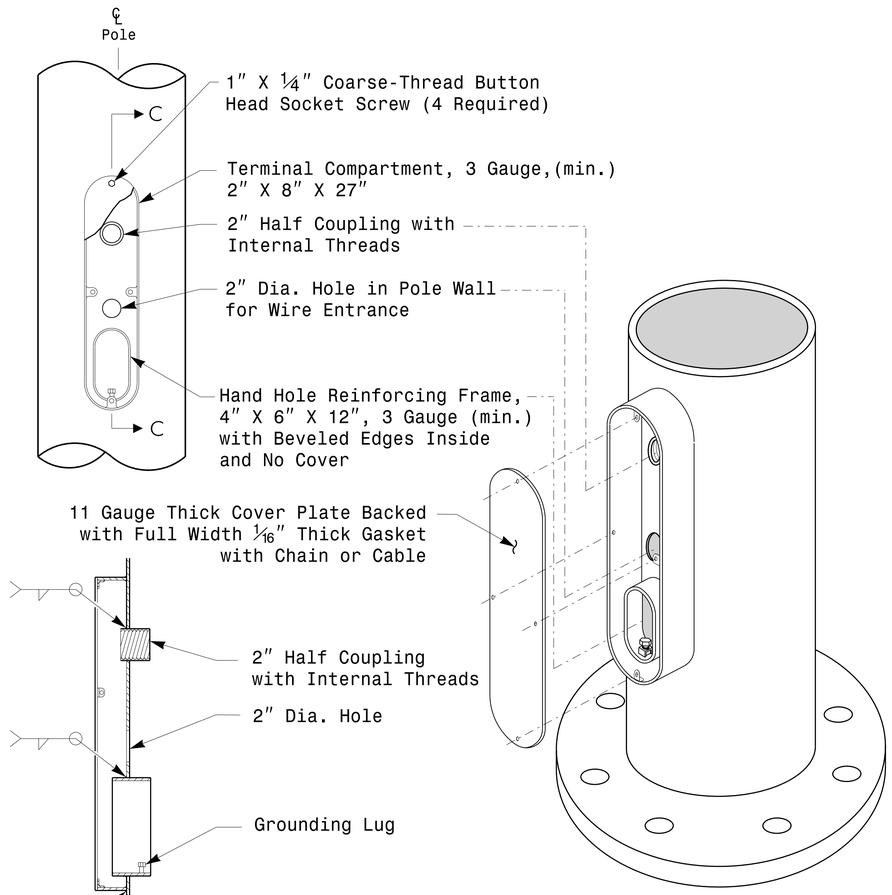
C.F. ANDREWS – ITS AND SIGNALS JOURNEY STRUCTURAL ENGINEER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

DocuSigned by: Debesh C. Sarkar
44E8E32E7A764C4...
SIGNATURE

2/17/2016
DATE



Section C-C

Note: Unless otherwise specified, locate Terminal Compartment 1 foot above the pole base plate at 180 degrees on the pole's radial index.

Terminal Compartment Detail

MFG _____ MFG. DATE: MM/YY
SHAFT D/T/L/Y ----/----/----/----
ARM-A D/T/L/Y ----/----/----/----
----/----/----/----
ARM-B D/T/L/Y ----/----/----/----
----/----/----/----
A.B. DIA./B.C./L/Y ----/----/----/----
NCDOT SIG. INV. NO. _ _ _ _ _ _ _ _
NCDOT POLE NO. _ _ _ _ _ _ _ _

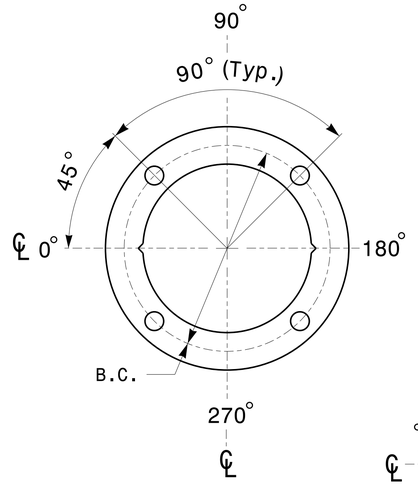
Shaft I.D. Tag
(Provide on Shaft of Strain Poles and Mast Arm Poles Shaft)

MFG _____ MFG. DATE: MM/YY
SECTION D/T/L/Y ----/----/----/----
NCDOT SIG. INV. NO. _ _ _ _ _ _ _ _
NCDOT POLE NO. _ _ _ _ _ _ _ _

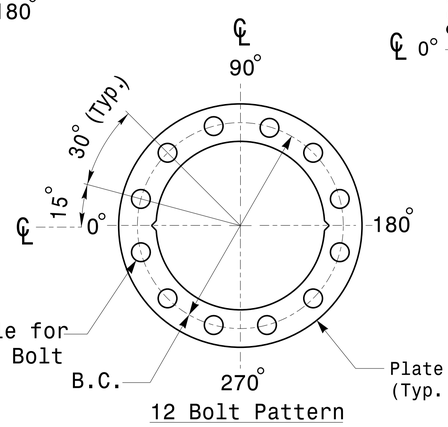
Arm I.D. Tag
(Provide on each section of a multi-section mast arm.)

Notes:
1) D= Diameter, T= Thickness, L= Length, Y= Yield Strength
2) A.B. = Anchor Bolt
3) B.C. = Bolt Circle of Anchor Bolts
4) If Custom Design, use "NCDOT STANDARD" line for Signal Inv. Number and pole I.D. number
5) See drawing M3 and M4 for mounting positions of I.D. tags.

Identification Tag Details



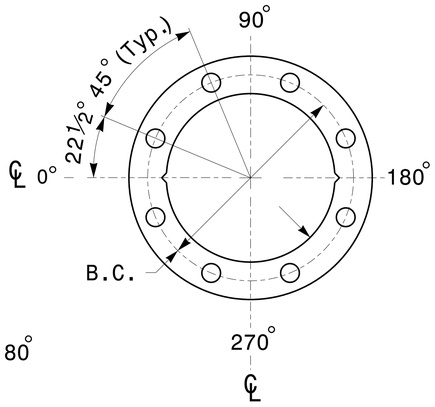
4 Bolt Pattern



2¼"" dia. hole for 2"dia. Anchor Bolt

Plate Width = 4" min. (Typ. for all plates)

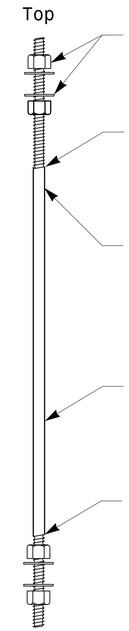
12 Bolt Pattern



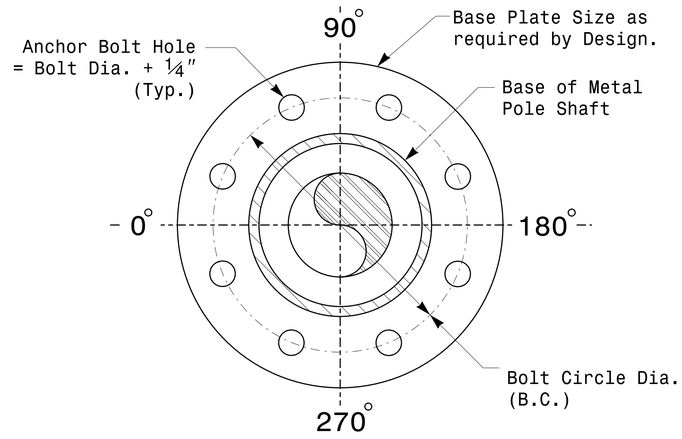
8 Bolt Pattern

Construct Templates and Plates from ¼" min. thick Steel. Galvanizing is not required.

Base Plate Template and Anchor Bolt Lock Plate Details



Anchor Bolt Detail



Note: Base plate may be circular,octagonal,square or rectangular in shape.

Typical Base Plate Detail

Fabrication Details – All Metal Poles

PROJECT ID. NO.	SHEET NO.
U-3330	Sig.M2

Prepared in the Offices of: Transportation Mobility and Safety Division, Traffic Engineering Branch, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE: 0 NA — NONE

Typical Fabrication Details For All Metal Poles

PLAN DATE: FEBRUARY 2016	DESIGNED BY: C.F.ANDREWS
PREPARED BY: N. BITTING	REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

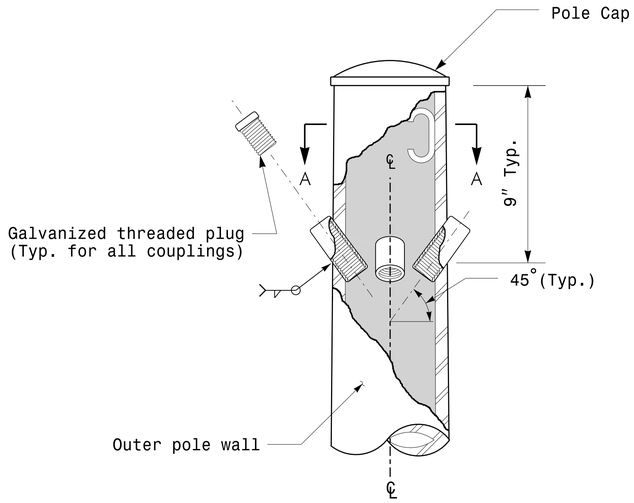
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

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2/17/2016 DATE

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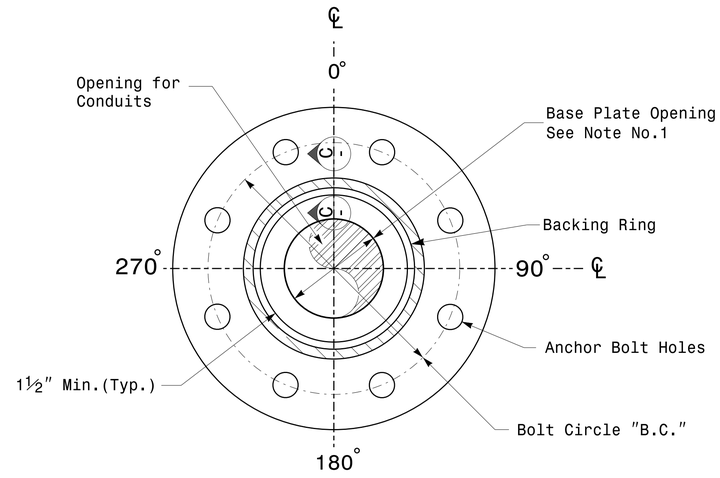
PROJECT ID. NO.	SHEET NO.
U-3330	Sig.M3

Details – Strain Poles



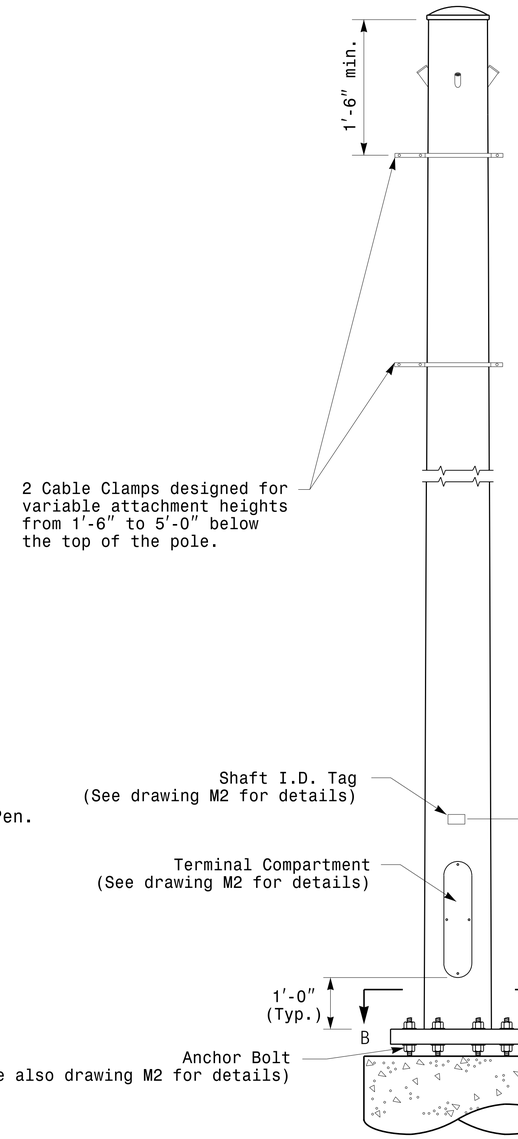
Cable Entrances at Top of Pole

Note:
1. Opening in pole base plate shall be equal to pole base inside diameter minus 3½" but shall not be less than 8½".

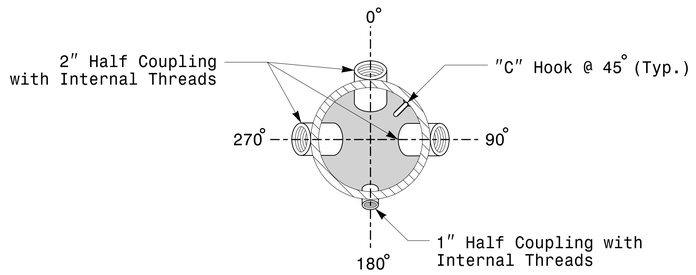


Section B-B

Pole Base Plate Details
(8 and 12 Bolt Pattern)

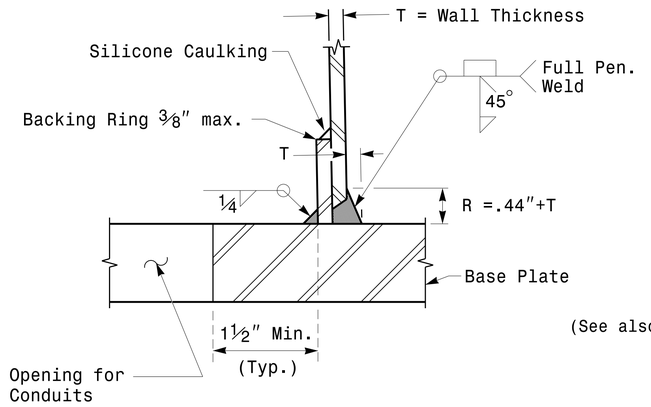


Monotube Strain Pole



Section A-A

Radial Orientation for Factory Installed
Accessories at Top of Pole



Section C-C
(Pole Attachment to Base Plate)

Full-Penetration
Groove Weld Detail

Prepared in the Offices of:
Transportation Mobility and Safety Division
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

Typical Fabrication Details
For
Strain Poles

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	K.C.DURIGON
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SCALE
0 NA
NONE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER
DEBESH C. SARKAR

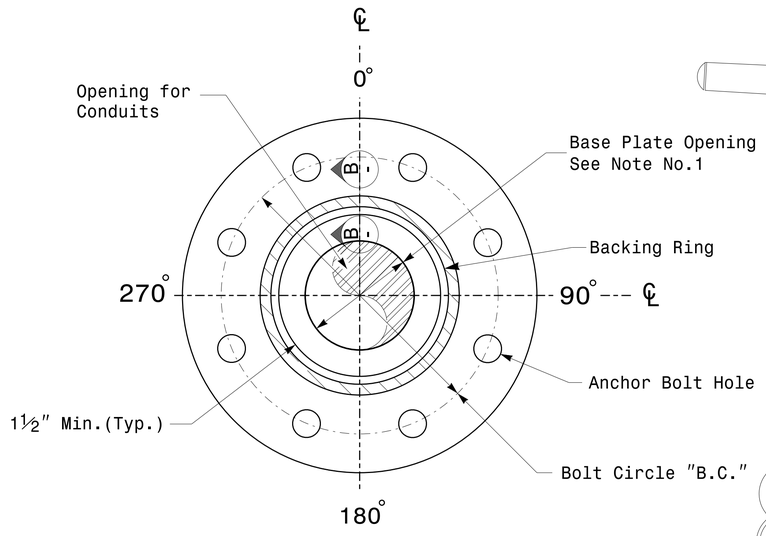
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jbatts (JWD)

PROJECT ID. NO.	SHEET NO.
U-3330	Sig.M4

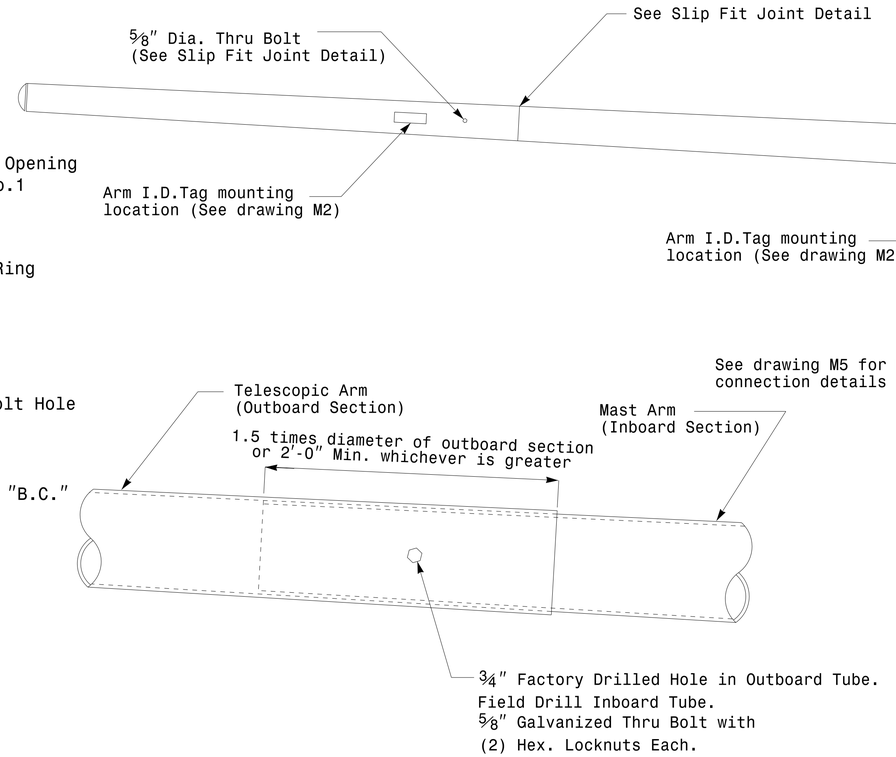
Fabrication Details – Mast Arm Poles

Note:
1. Opening in pole base plate shall be equal to pole base inside diameter minus 3½" but shall not be less than 8½".

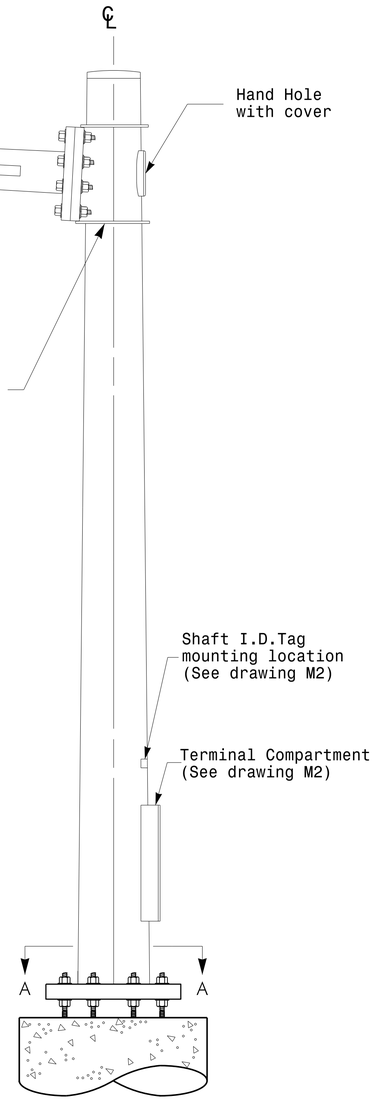


Section A-A

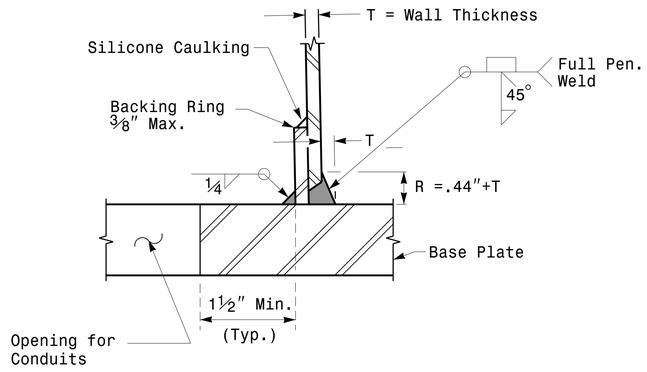
Pole Base Plate Details



Slip Fit Joint Detail for Mast Arm



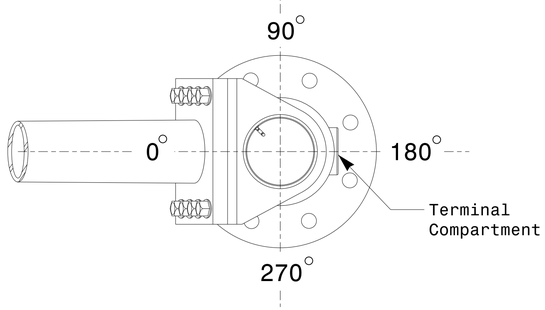
Mast Arm Pole



Section B-B

(Pole Attachment to Base Plate)

Full-Penetration Groove Weld Detail



Mast Arm Radial Orientation

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SCALE: 0 NA NONE

Typical Fabrication Details For Mast Arm Poles

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	K.C.DURIGON
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

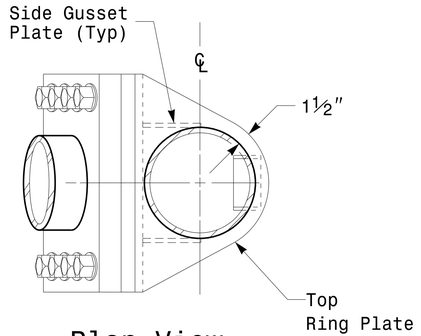
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2/17/2016
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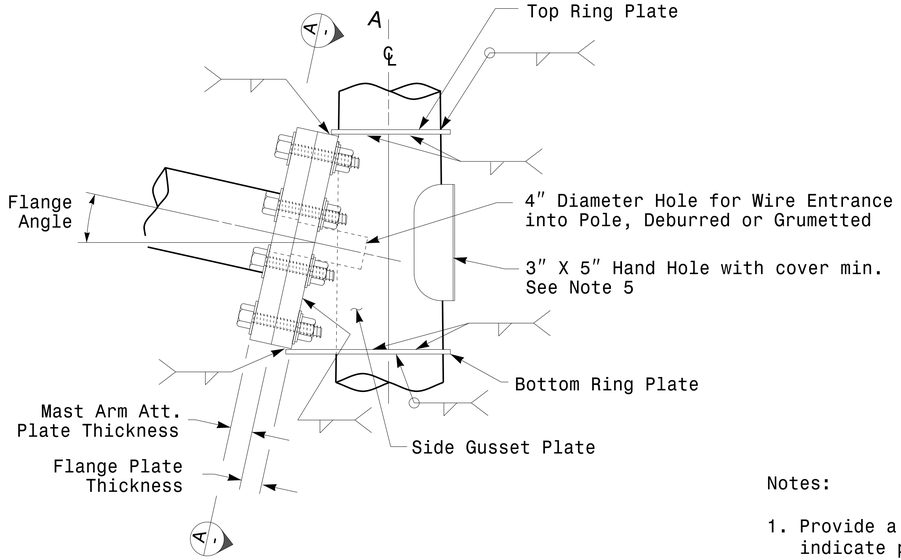
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jgulloney

Welded Ring Stiffened Mast Arm Connection

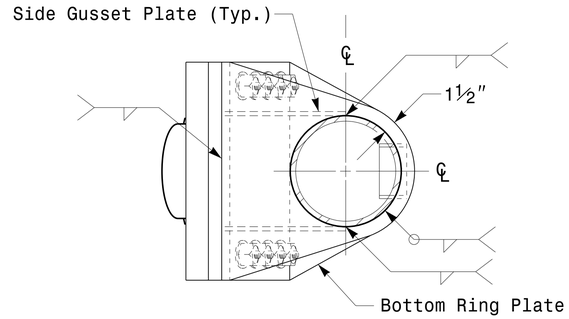
PROJECT ID. NO.	SHEET NO.
U-3330	Sig.M5



Plan View



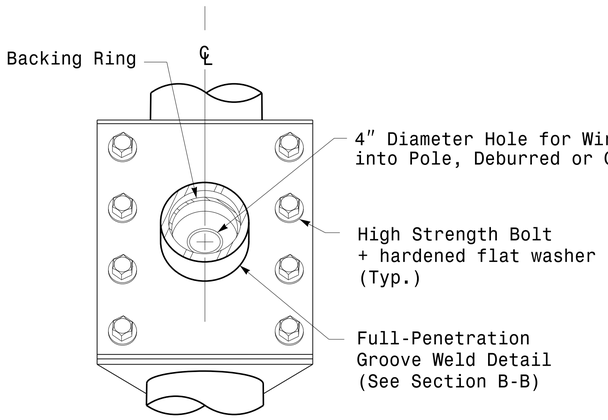
Side Elevation View



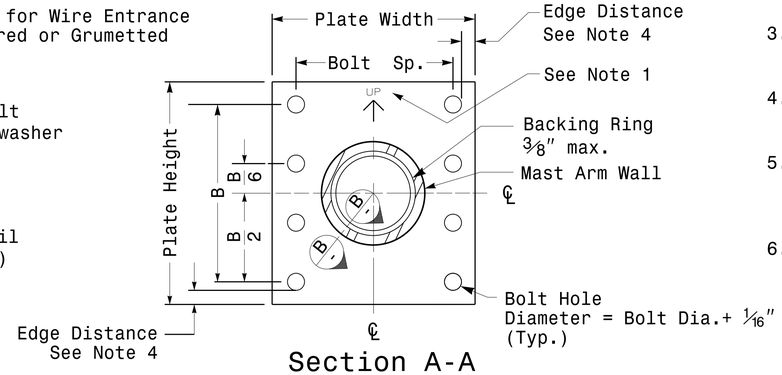
Bottom View

Notes:

1. Provide a permanent means of identification above the mast arm to indicate proper attachment orientation of the mast arm.
2. Designer will determine the size of all structural components, plates, fasteners, and welds shown unless they are already specified.
3. Fabricator is responsible for providing appropriate holes at drainage points to drain galvanizing materials.
4. For minimum edge distance follow AISC Table J3.4 and J3.5. For nominal bolt hole size use Table J3.3.
5. Provide upper handhole as necessary when shaft extensions are reguired for luminaire arms or camera. For poles without luminaires/camera, wiring can be done through the top of pole.
6. Allowable range of flange tilt angle will vary from 0° to as required.

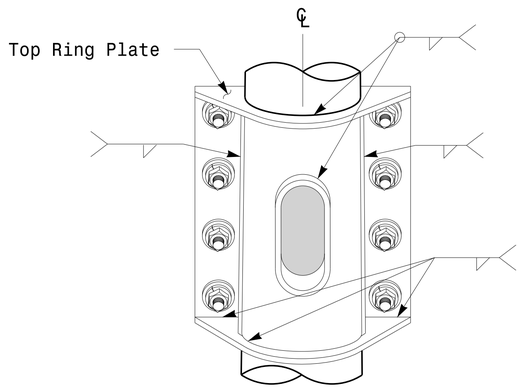


Front Elevation View

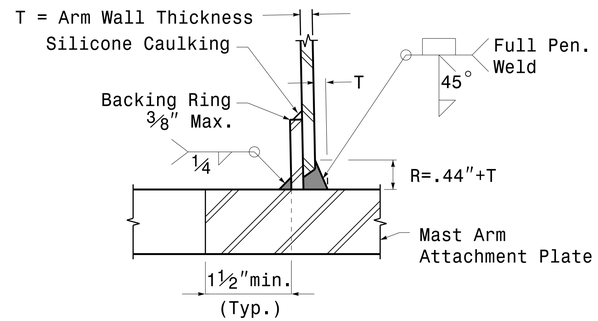


Section A-A

Mast Arm Attachment Plate



Back Elevation View



Section B-B

Full-Penetration Groove Weld Detail

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Typical Fabrication Details For Mast Arm Connection To Pole

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	C.F.ANDREWS
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SCALE 0 NA NONE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

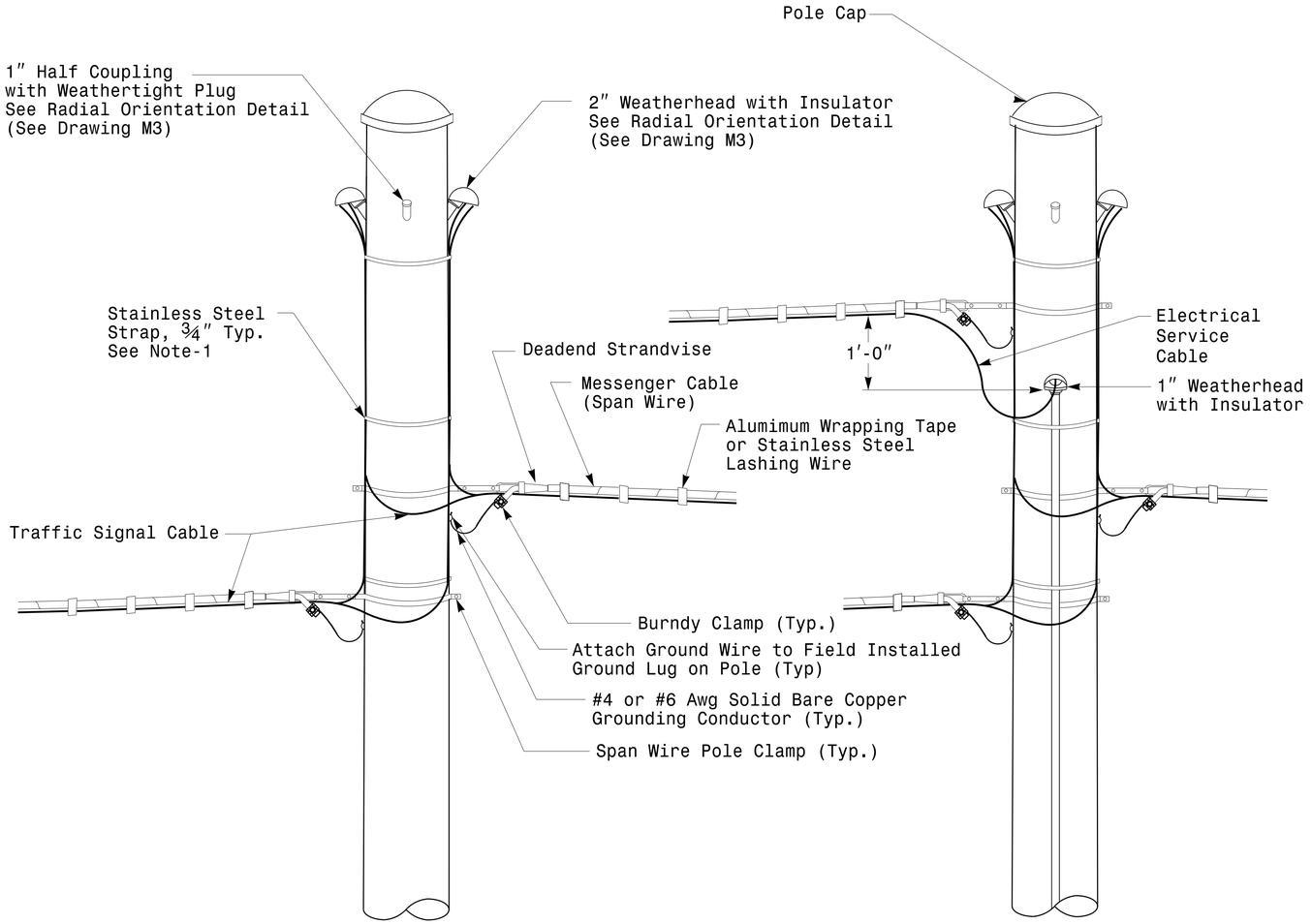
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2/17/2016
DATE

Fabrication Details – Mast Arm Connection

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jsullivan

PROJECT ID. NO.	SHEET NO.
U-3330	Sig.M6

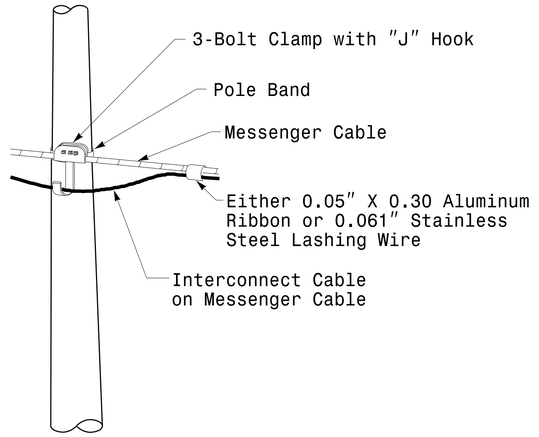
Fabrication Details – Strain Pole Attachments



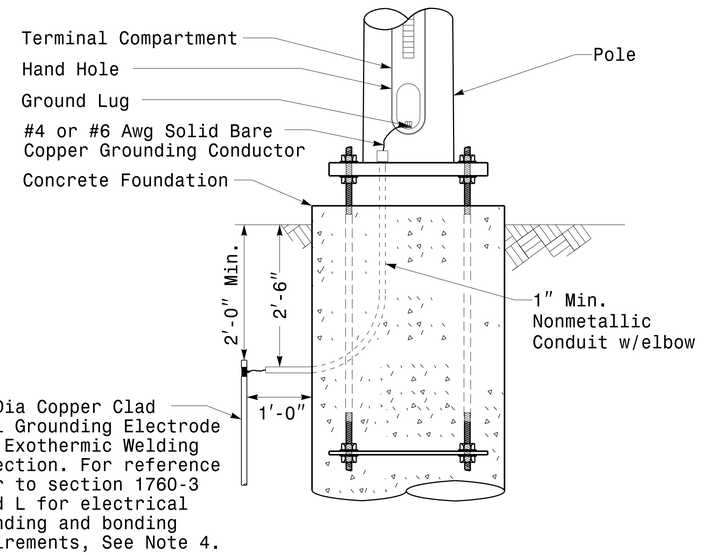
Strain Pole Attachments

NOTE:

1. Strap all signal cables to the side of the pole with ¾″ stainless steel straps when the distance between the spanwire attachment clamp and the weatherheads exceeds 3′-0″.
2. Provide minimum two spanwire pole clamps per pole.
3. It is prohibited to attach two span wires at one pole clamp.
4. For general requirements refer to NCDOT Standard Specifications for Roadway and Structures, January 2012.



Attachment of Cable to Intermediate Metal Pole



Metal Pole Grounding Detail For Strain Pole and Mast Arm

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SCALE
0 NA
NONE

Typical Fabrication Details
For
Strain Pole Attachments

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	C.F.ANDREWS
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

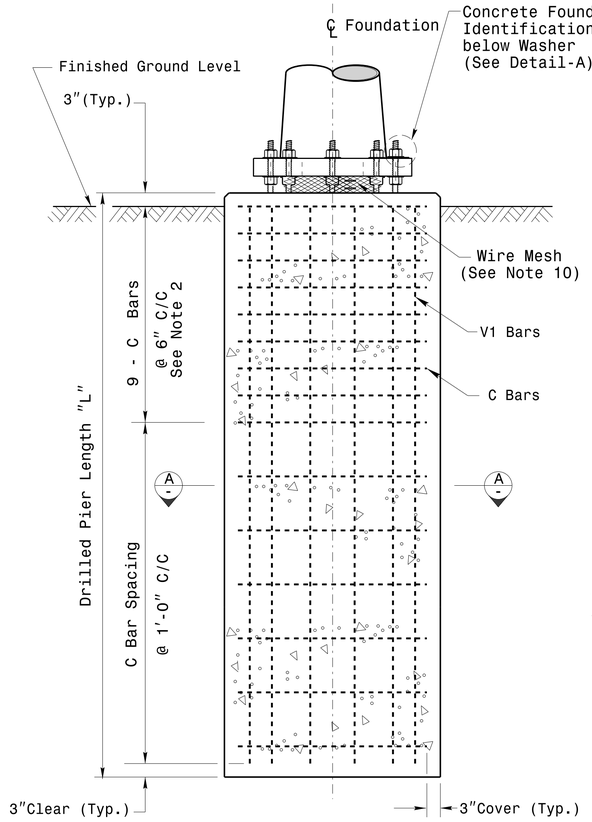
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NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

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2/17/2016
DATE

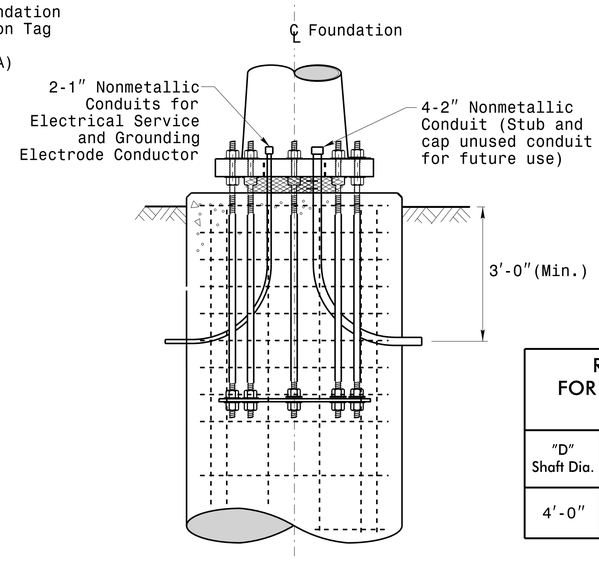
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PROJECT ID. NO.	SHEET NO.
U-3330	Sig.M7

Construction Details – Foundations



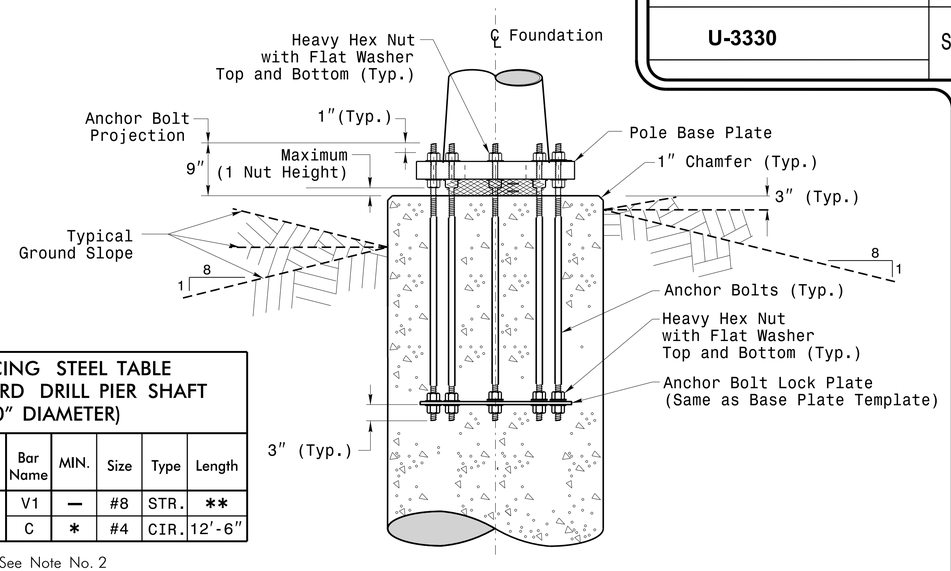
Concrete Shaft Elevation



Typical Foundation Conduit Details

REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (4′–0″ DIAMETER)						
"D" Shaft Dia.	Conc. Volume (cu. yds.)	Bar Name	MIN.	Size	Type	Length
4′-0″	.465 x L	V1	—	#8	STR.	**
		C	*	#4	CIR.	12′-6″

* See Note No. 2
** See Note No. 3



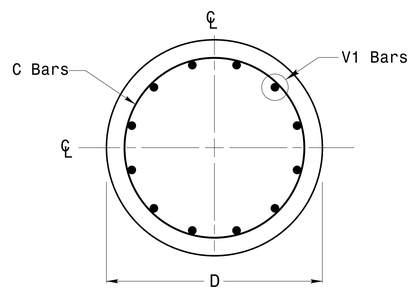
Typical Foundation Anchor Bolt Details

(Reinforcing Cage Not Shown for Clarity)

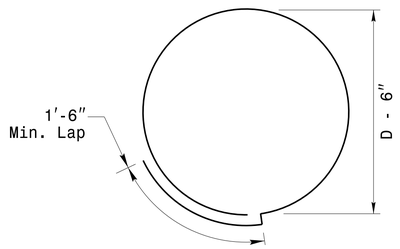
General Notes:

1. If actual subsurface conditions differ significantly from boring data contact the Engineer before excavating or placing concrete.
2. Circular tie reinforcing rings may be vertically adjusted by +/-3″ at a depth between 2′-0″ and 3′-0″ to facilitate the installation of electrical conduit entering in the cage.
3. For standard foundations, see sheet Sig. M8 for details. Vertical reinforcing bars (V1) may be horizontally adjusted by +/-3″ to facilitate the installation of electrical conduit entering into the cage.
4. Provide 2″ to 5″ foundation projection above ground level depending on the ground slope.
5. Unless otherwise shown, foundation designs are based on non-sloping level ground surfaces with slope ratios of 8:1 (H:V) or flatter. If actual ground line slopes are steeper contact the Engineer before excavating or placing concrete.
6. Construct foundations in accordance with NCDOT Standard Provisions SP09 R005- Foundations and Anchor Rod Assemblies for Metal Poles. All applicable 2012 NCDOT Standard Specifications are referenced in this provision. Refer to the NCDOT Resources/Specifications page located on the Connect NCDOT website.

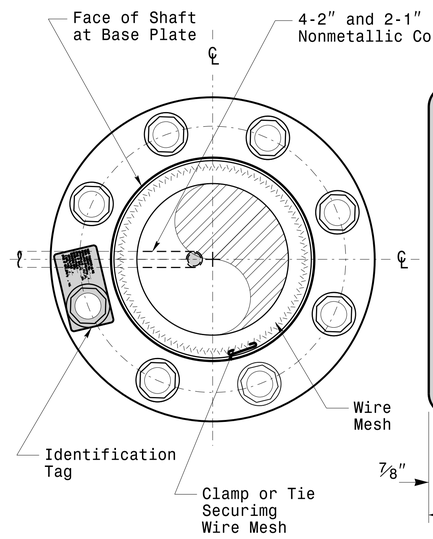
   https://connect.ncdot.gov/resources/Specifications and Special Provisions.aspx
7. Use air entrained AA concrete mix with a compression strength of f′c=4500 psi.(min.) after 28 days.
8. Use ASTM A615 grade 60 deformed bars for all reinforcing steel. Maintain at least 3″ cover on all reinforcement.
9. Locate the Identification Tag on the top of the base plate, directly above the conduit's entry point.
10. Provide two layers of galvanized welded 23 gauge (0.25) 6″ wide 4 mesh wire around pipes under the base plate and secure it with ties if necessary.
11. Preferred location for the I.D. Tag is as shown in Detail-A; directly above the conduit entering the foundation.

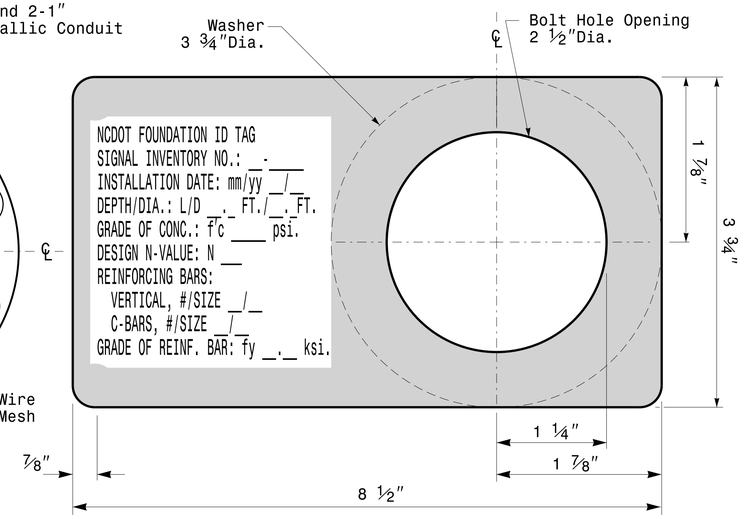


Section A-A



Typical "C" Bar Detail





Concrete Foundation Identification Tag Details

D = Diameter
L = Length/Depth
mm = Month
yy = Year

Detail-A

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Construction Details For Foundations

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	C.B.COGDELL
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REV. NO.	COMMENTS	INIT.	DATE
1	Revised Foundation Tag Details	N.B.	5/11/2015

SCALE: 0 NA — NONE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

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Debesh C. Sarkar
SIGNATURE
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2/17/2016
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jsullivan2

SOIL CONDITION

PROJECT ID. NO.	SHEET NO.
U-3330	Sig.M8

		STANDARD STRAIN POLES						STANDARD FOUNDATIONS 48″ Diameter Drilled Pier Length (L) – Feet							Reinforcement			
					Reactions at the Pole Base			Clay				Sand			Longitudinal		Stirrups	
		Case No.	Pole Height (Ft.)	Base Plate BC (In.)	Axial (kip)	Shear (kip)	Moment (ft-kip)	Medium N-Value 4–8	Stiff N-Value 9–15	Very Stiff N-Value 16–30	Hard N-Value >30	Loose N-Value 4–10	Medium N-Value 11–30	Dense N-Value >30	Bar Size (#)	Quantity (ea.)	Bar Size (#)	Spacing (in.)
WIND ZONE 1	LIGHT	S26L3	26	25	2	11	270	19	13	10	8	17	14.5	12.5	8	12	4	12
		S30L3	30	25	2	11	300	19.5	13.5	10	8	17.5	15	13	8	14	4	12
		S35L3	35	25	3	11	320	20	13.5	10.5	8	17.5	15	13	8	14	4	12
	HEAVY	S30H3	30	29	3	16	450	24.5	16	12	9	21	17.5	15	8	16	4	6
		S35H3	35	29	4	16	515	26	17	12.5	9.5	22	18.5	16	8	16	4	6
WIND ZONE 2	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
		S30L2	30	23	2	10	270	18.5	12.5	10	8	16.5	14	12.5	8	12	4	12
		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6
WIND ZONE 3	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
		S30L2	30	23	2	10	270	18.5	12.5	10	8	16.5	14	12.5	8	12	4	12
		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6
WIND ZONE 4	LIGHT	S26L1	26	22	2	8	190	16	11.5	8.5	8	15	12.5	11	8	12	4	12
		S30L1	30	22	2	8	205	16.5	11.5	9	8	15	13	11.5	8	12	4	12
		S35L1	35	22	3	8	230	17	12	9	8	15.5	13.5	11.5	8	12	4	12
	HEAVY	S30H1	30	25	3	12	320	20.5	13.5	10.5	8	18	15	13.5	8	16	4	6
		S35H1	35	25	4	12	350	21	14	10.5	8.5	18.5	15.5	13.5	8	16	4	6
WIND ZONE 5	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
		S30L2	30	23	2	10	270	18.5	12.5	10	8	16.5	14	12.5	8	12	4	12
		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6

48″ Dia. Foundations Concrete Volume (cubic yards) = (0.465) x Drilled Pier Length

General Notes:

1. Values shown in the "Reactions at the Pole Base" column represent the minimum acceptable capacity allowed for design using a design CSR of 1.00.
2. Use chairs and spacers to maintain proper clearance.
3. For foundation, always use air-entrain concrete mix.

Foundation Selection:

1. Perform a standard penetration test at each proposed foundation site to determine "N" value.
2. Select the appropriate wind zone from M 1 drawing.
3. Select the soil type (Clay or Sand) that best describes the soil characteristics.
4. Get the appropriate standard pole case number from the plans or from the Engineer.
5. Select the appropriate column under "Standard Foundations" based on soil type and "N" value. Select the appropriate row based on the pole load case.
6. The foundation depth is the value shown in the "Standard Foundations" category where the column and the row intersect.
7. Use Construction Procedures and Design Methods prescribed by FHWA-NHI-10-016 for Reference Drilled Shafts.

Standard Strain Pole Foundation–All Soil Condition

Prepared in the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.,Garner,NC 27529

Standard Strain Pole Foundation for All Soil Conditions

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	C.B. COGDELL
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE
Changed "Foundation Depth" to "Drilled Pier Length"in Conc. Eqn.	N.B.	7/12/2015

SCALE: 0 NA NONE

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NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBRESH C. SARKAR

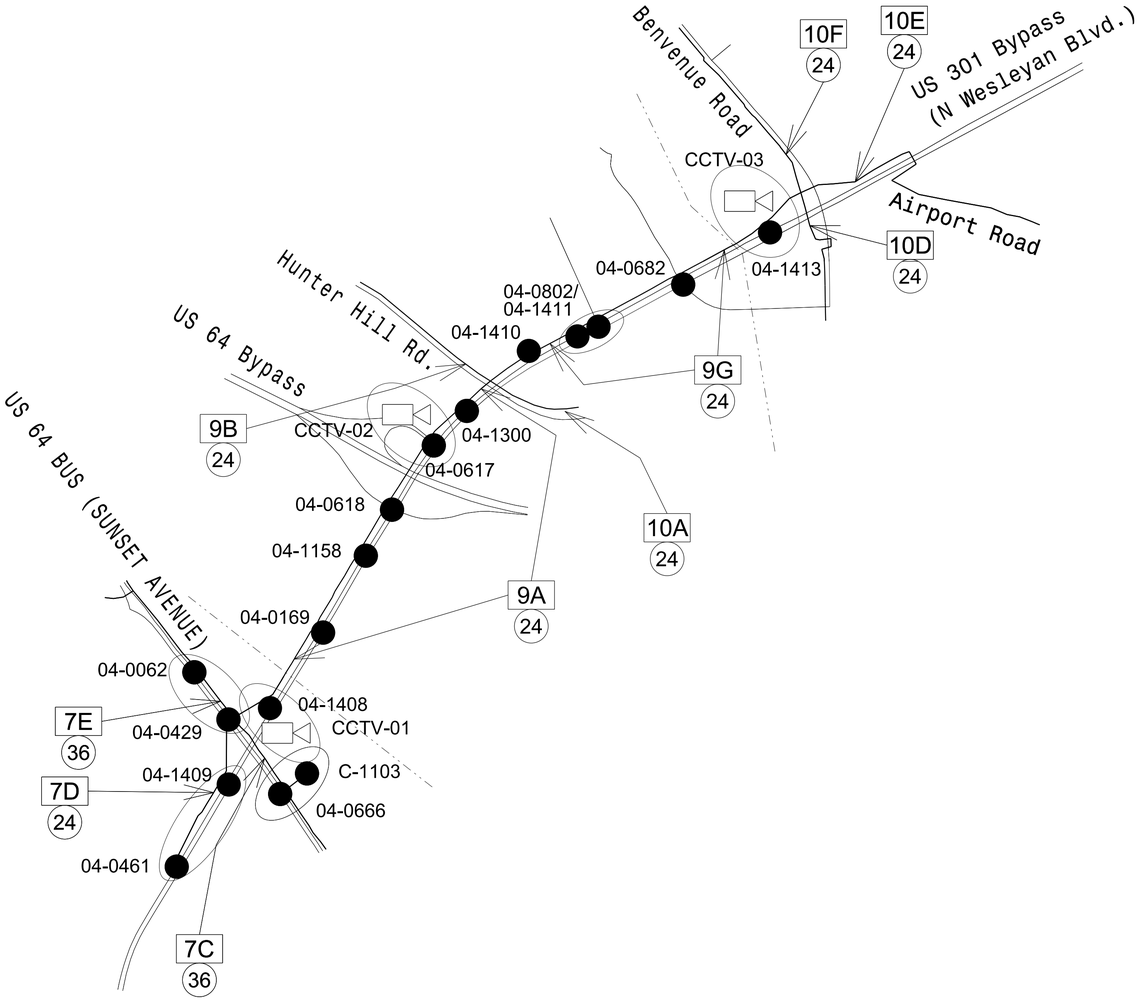
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Debresh C. Sarkar
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2/17/2016
DATE

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jgallaway

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-1



LEGEND

- FIBER OPTIC CABLE ROUTE
- SIGNALS IN PROJECT
- EXISTING SIGNALS
- CCTV CAMERA
- RAILROAD
- #X — CABLE NAME
- (#) — NUMBER OF FIBERS IN CABLE
- SE X-X — SPLICE ENCLOSURE NO.
- RING BOUNDARY
- COMMON FIBER OPTIC SPLICE FOR LOCAL CABINETS

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spellman ATLUSS0114

ATKINS
5200 SEVENTY SEVEN CENTER DR, SUITE 500
CHARLOTTE, NORTH CAROLINA 28217
(704) 665-4411 NCBEES #F-0326

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Prepared for the Offices of:
Transportation Mobility and Safety
North Carolina Department of Transportation
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening
Cable Schematic

Division 4 Rocky Mount Nash County

PLAN DATE: November 2016 REVIEWED BY: HA Badgett
PREPARED BY: AM Quigley REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

SCALE N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 019962 ENGINEER HENRY ALFRED BADGETT

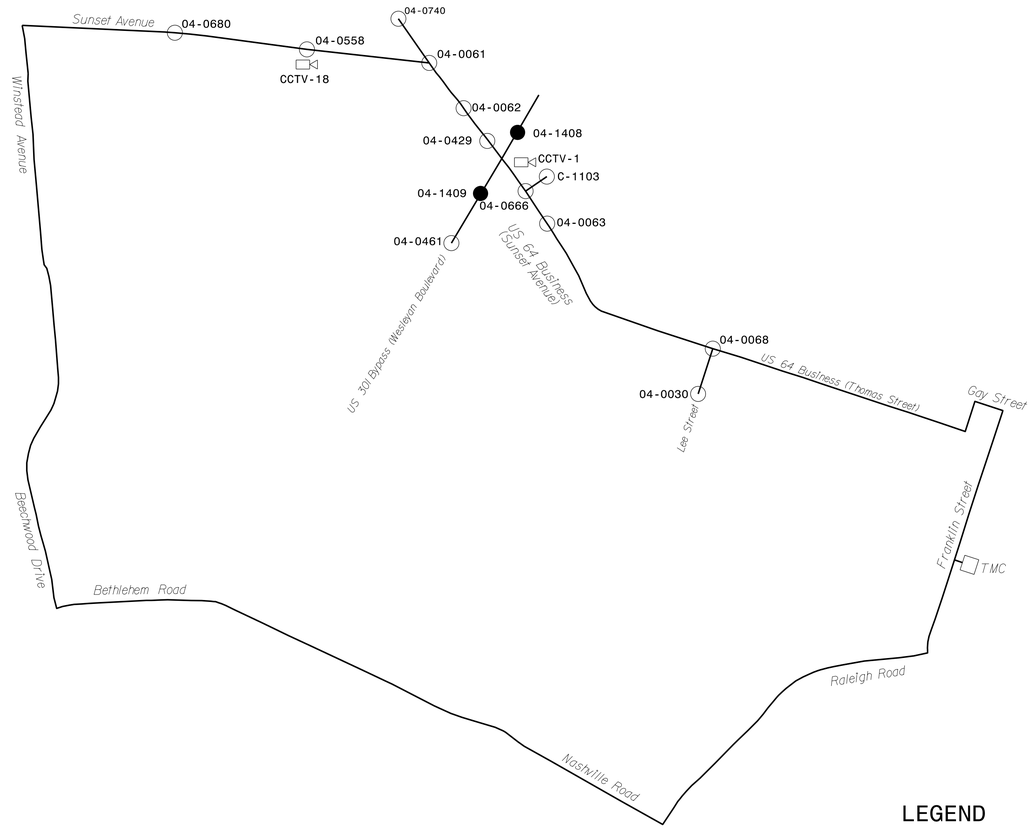
Developed by: Henry Alford Badgett III 1/30/2017
SIGNATURE DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-2

RING 7



LEGEND

- ○ EXISTING SIGNALS/CCTV
- ● PROPOSED SIGNALS/CCTV

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Prepared For the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening
Fiber Optic Ring Schematic
(1 of 2)

Division 04 Nash County Rocky Mount

PLAN DATE:	November 2016	REVIEWED BY:	HA Badgett
PREPARED BY:	AM Quigley	REVIEWED BY:	JT Brooks

SCALE: N.T.S.

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 HENRY ALFRED BADGETT III

Digitally signed by Henry Alfred Badgett III 1/30/2017
SIGNATURE DATE

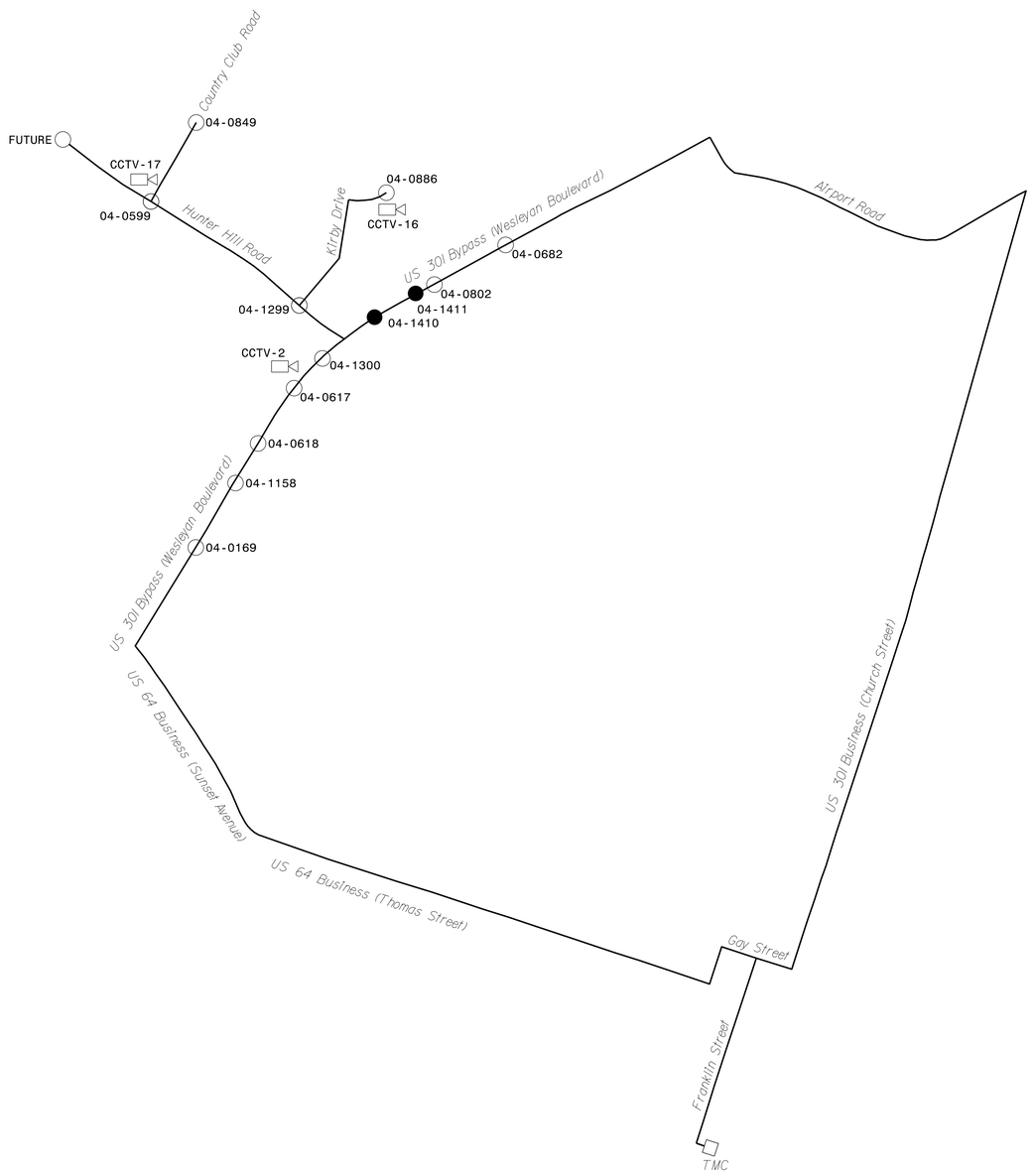
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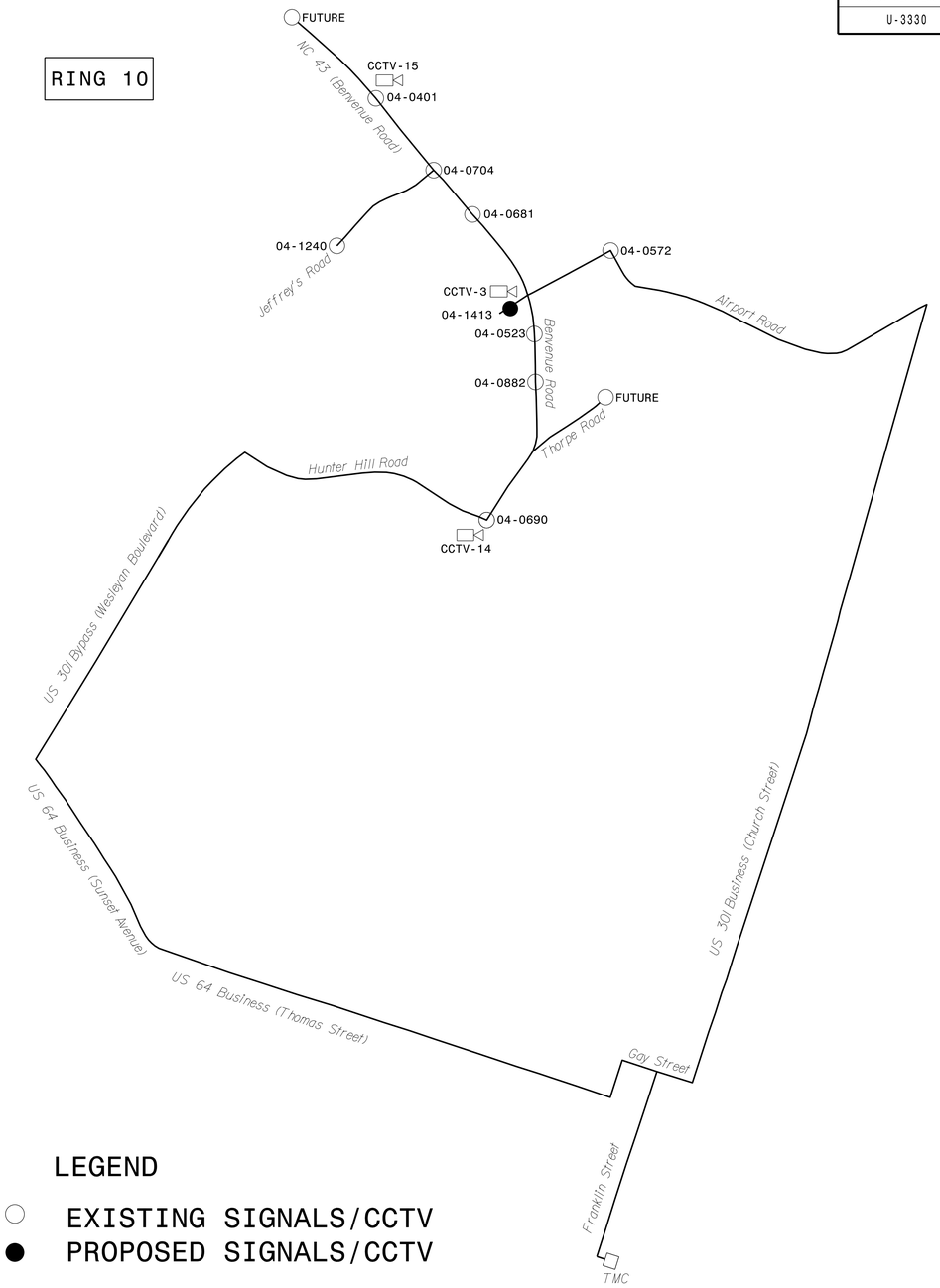
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-3

RING 9



RING 10



LEGEND

- ○ EXISTING SIGNALS/CCTV
- ● PROPOSED SIGNALS/CCTV

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(919) 876-6888 NCBEES #F-0326

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Prepared for the Offices of:
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber-Optic Ring Schematic (2 of 2)

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

N.T.S.

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 019962 ENGINEER HENRY ALFRED BADGETT III

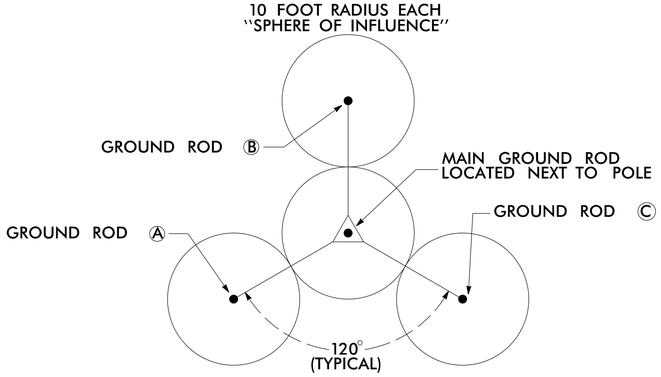
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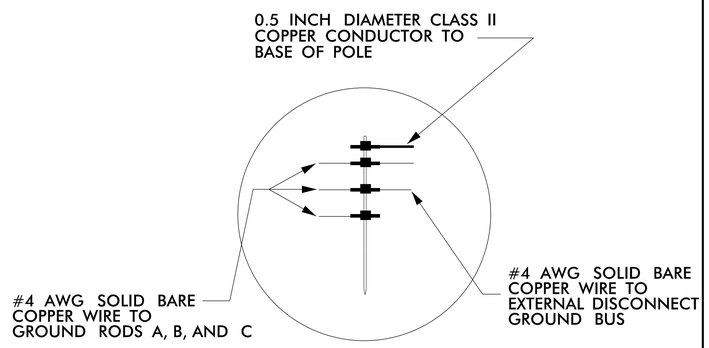
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U-3330	SCP-4

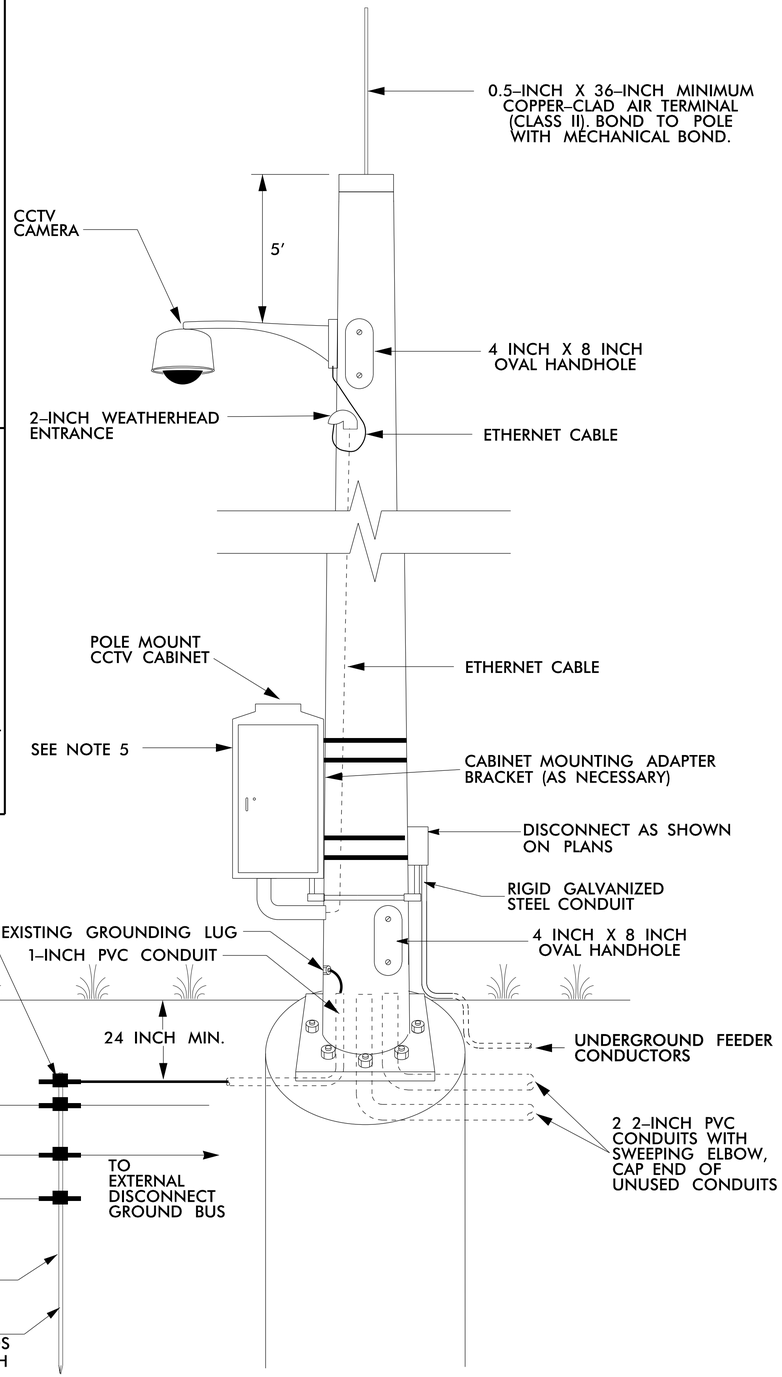


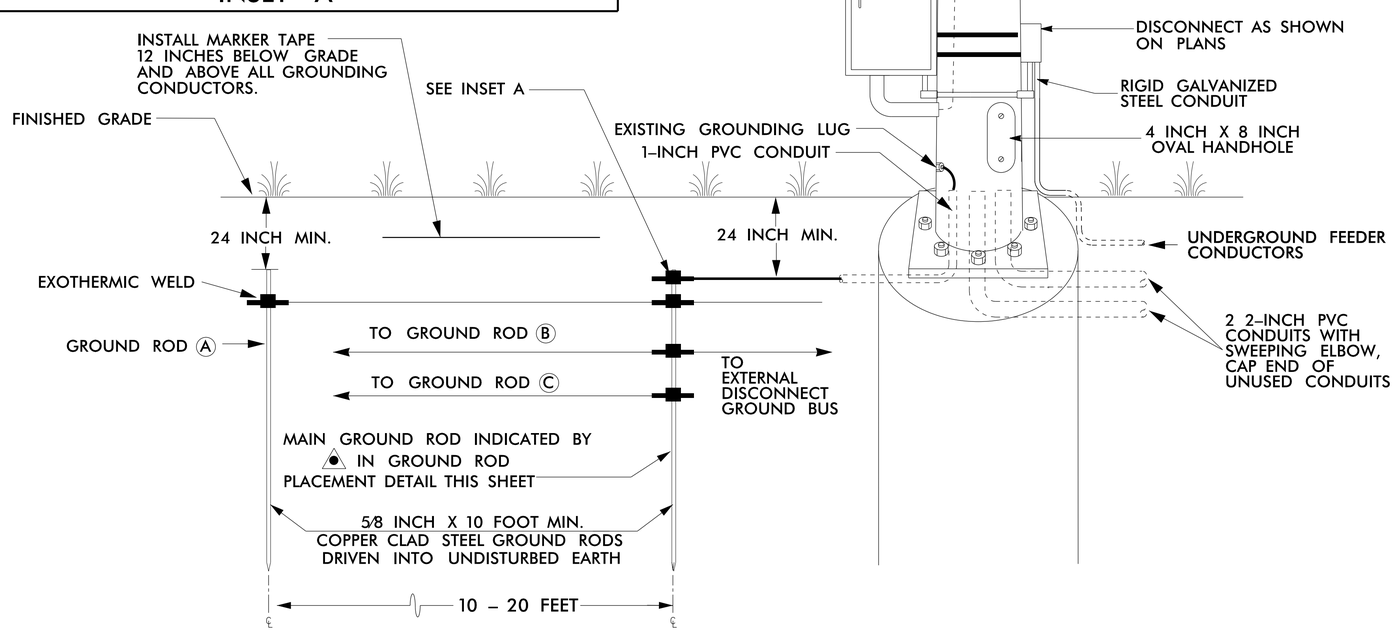
GROUND ROD PLACEMENT DETAIL

(TYPICAL EACH POLE)



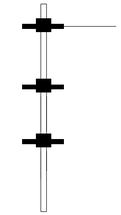
INSET `A'





ALTERNATE GROUNDING METHOD

IF SPACE IS NOT AVAILABLE TO DRIVE MULTIPLE RODS, DRIVE SECTIONAL GROUND RODS A MINIMUM OF 30 FEET.



JOIN SECTIONAL GROUND RODS BY EXOTHERMIC WELDING CONNECTION

NOTES

1. BOND 0.5 INCH DIAMETER, 28 STRAND (MINIMUM) CLASS II COPPER CONDUCTOR TO THE MAIN GROUND ROD BY A MECHANICAL METHOD.
2. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
3. BOND #4 AWG SOLID BARE COPPER WIRE TO REBAR CAGE AND THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
4. ENSURE CAMERA HOUSING, CAMERA, AND PAN–TILT UNIT ARE BONDED TO POLE.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUS AND NEUTRAL BUS.
6. THE CONTRACTOR MAY, UPON APPROVAL OF THE ENGINEER, INSTALL A 30–FOOT SECTIONAL GROUND ROD WHEN CONDITIONS WILL NOT ALLOW FOR THE INSTALLATION OF THE 3 – RADIAL GROUND RODS.
7. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
8. INSTALL AIR TERMINAL ON PROPOSED CCTV POLES.

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(919) 876-6888 NCBEES #F-0326

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Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

CCTV Camera Installation, Metal Poles U/G Elec. Service

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

NTS

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 017586 ENGINEER
J. TODD BROOKS

DocuSigned by: 1/30/2017
DATE

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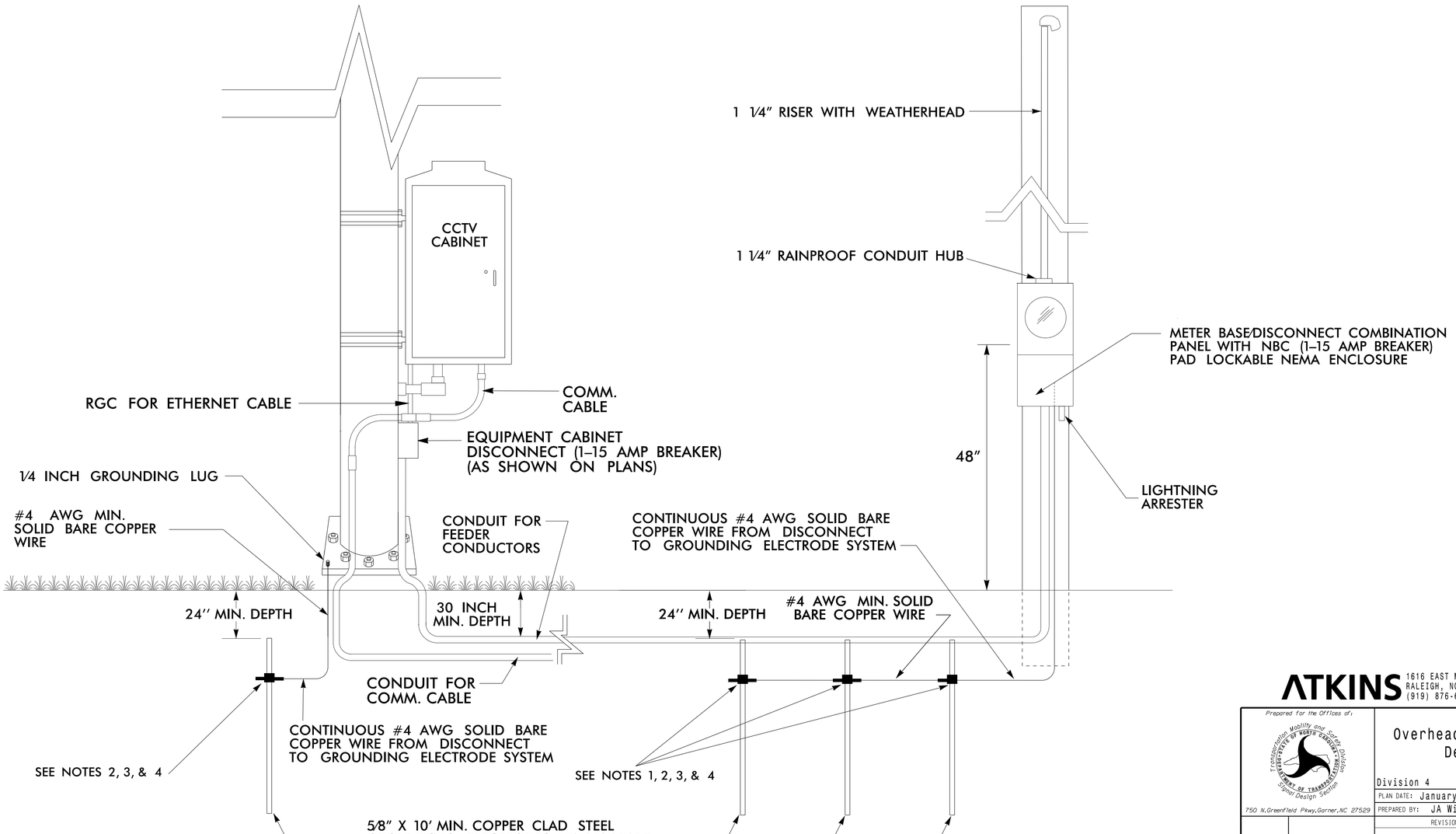
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-5

NOTES

1. INSTALL A MINIMUM OF THREE GROUND RODS SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHALL MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUND RODS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
5. REMOVE BONDING JUMPER IN EQUIPMENT CABINET IF INSTALLED BETWEEN AC NEUTRAL AND EQUIPMENT GROUND.
6. BOND ALL RIGID GALVANIZED STEEL CONDUITS ENTERING THE CABINET TO EQUIPMENT GROUND.
7. INSTALL CONDUIT BETWEEN DISCONNECT, TRANSFORMER, AND CABINET.
8. ENSURE EQUIPMENT GROUND IS ELECTRICALLY BONDED TO EQUIPMENT CABINET.



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Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

Overhead Electrical Service Detail for CCTV

Division 4 | Nash County | Rocky Mount
PLAN DATE: January 2017 | REVIEWED BY: JT Brooks
PREPARED BY: JA Wiles | REVIEWED BY:

REVISIONS	INIT.	DATE
NTS		

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NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

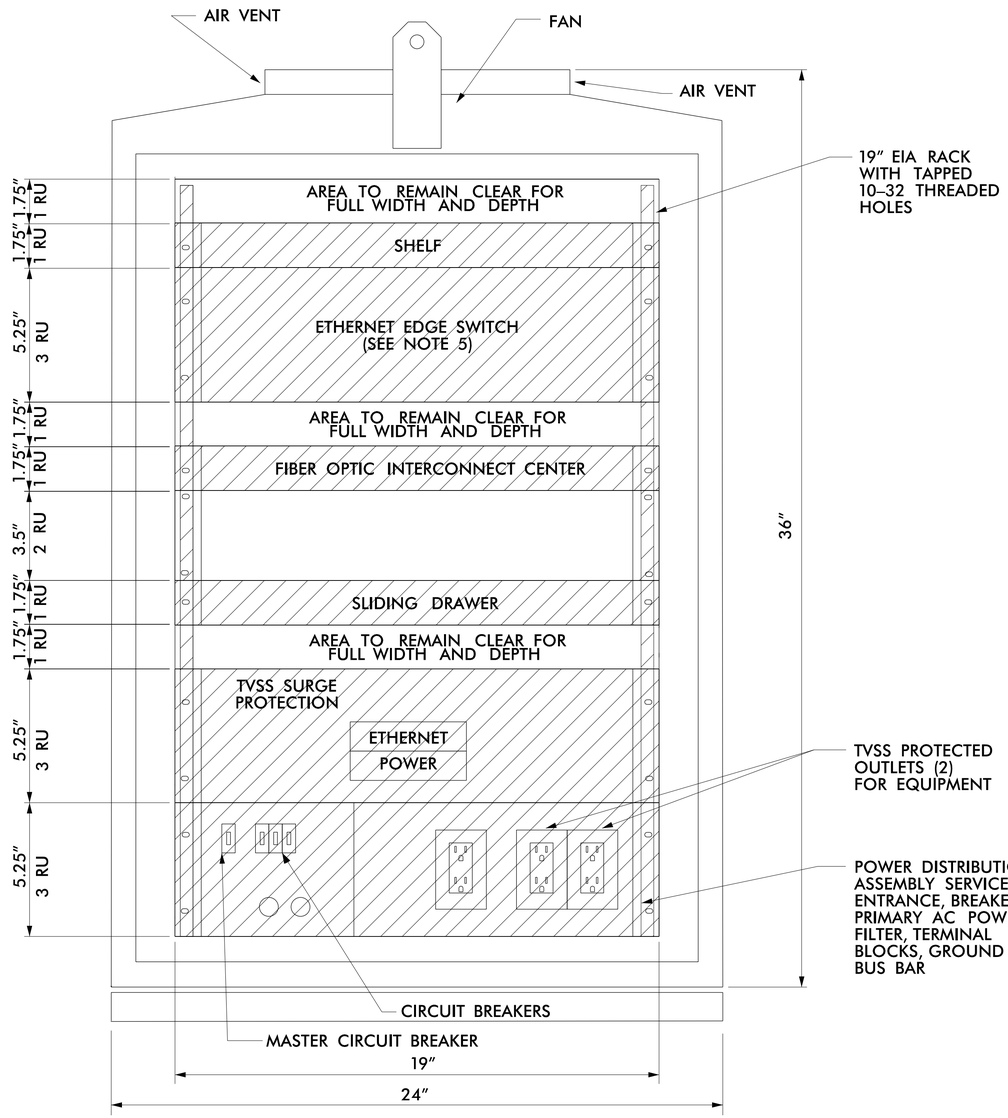
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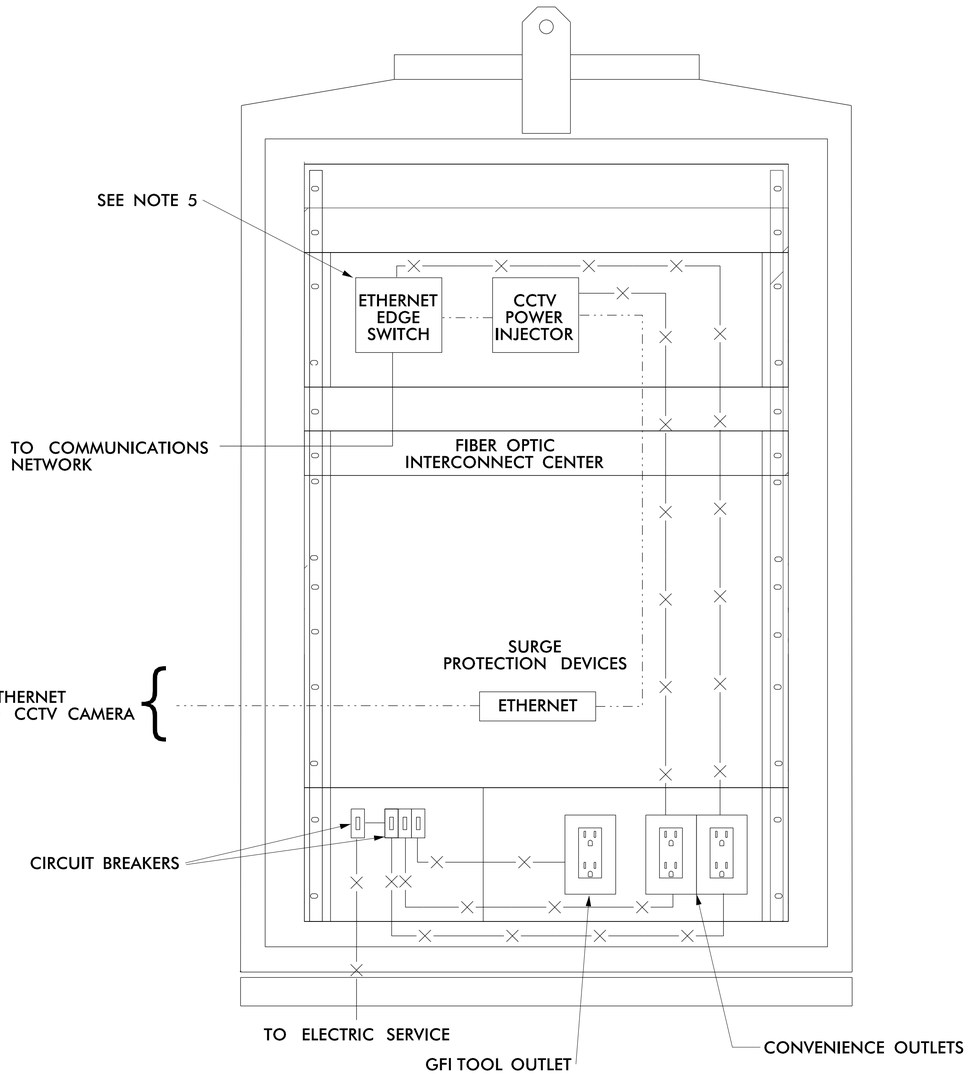
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-6



FRONT VIEW



CABINET WIRING VIEW

CONNECTION LEGEND

- 100 BASE TX ETHERNET
- ANALOG VIDEO
- ELECTRICAL POWER
- RS–232/422/485

NOTES

1. ALL DIMENSIONS AND SCALE ARE APPROXIMATE.
2. CABINETS WILL BE CALTRANS TYPE 336A
3. CONDUIT ENTRANCES SHALL BE IN BOTTOM OF CABINET.
4. THERE WILL BE FRONT AND REAR DOORS. BOTH DOORS SHALL HAVE THE HINGE–SIDE NEXT TO THE POLE WHEN POLE MOUNTED.
5. INSTALL ETHERNET EDGE SWITCH WHEN SHOWN IN PLANS.

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Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

CCTV Cabinet Assembly Layout

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

NTS

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NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

Docusigned by: 1/30/2017
DATE

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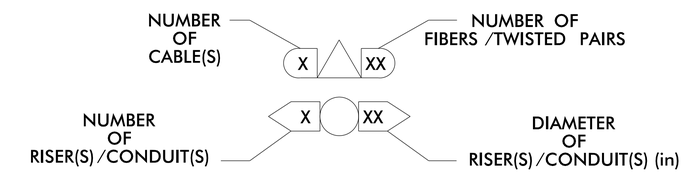
1. INSTALL COMPOSITE CCTV CABLE
2. INSTALL 3 WIRE FEEDER CONDUCTORS
3. INSTALL CATEGORY 5E CABLE
4. INSTALL SMFO CABLE
5. BACK–PULL EXIST SMFO CABLE
6. INSTALL FIBER–OPTIC DROP CABLE
7. INSTALL TRACER WIRE
8. TRENCH CONDUIT
9. INSTALL PVC CONDUIT
10. INSTALL RIGID, GALVANIZED STEEL CONDUIT
11. INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
12. INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING
13. INSTALL HEAT SHRINK TUBING RETROFIT KIT
14. INSTALL HIGH DENSITY POLYETHYLENE CONDUIT
15. DIRECTIONAL DRILL CONDUIT
16. BORE AND JACK CONDUIT
17. INSTALL CABLE(S) IN EXISTING CONDUIT
18. INSTALL CABLE(S) IN NEW CONDUIT
19. INSTALL CABLE(S) IN EXISTING RISER(S)
20. INSTALL CABLE(S) IN NEW RISER(S)
21. INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE
22. INSTALL NEW CONDUIT INTO CABINET BASE (USE EX CONDUIT STUBOUTS WHEN AVAILABLE)
23. INSTALL NEW RISER INTO CABINET BASE (USE EX CONDUIT STUBOUTS WHEN AVAILABLE)
24. INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET
25. INSTALL NEW RISER INTO POLE MOUNTED CABINET
26. INSTALL DIGITAL VIDEO ENCODER
27. INSTALL NEW ETHERNET EDGE SWITCH IN CABINET
28. INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET
29. INSTALL UNDERGROUND SPLICE ENCLOSURE
30. INSTALL AERIAL SPLICE ENCLOSURE
31. INSTALL SPLICE CABINET
32. MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER
33. REMOVE EXISTING SPLICE /HUB /CCTV CABINET
34. INSTALL CABINET FOUNDATION
35. REMOVE EXISTING CABINET FOUNDATION
36. INSTALL CCTV CAMERA ASSEMBLY
37. INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
38. INSTALL STANDARD SIZE JUNCTION BOX
39. INSTALL SPECIAL–SIZED JUNCTION BOX
40. INSTALL OVERSIZED JUNCTION BOX
41. REMOVE EXISTING JUNCTION BOX
42. INSTALL WOOD POLE
43. REMOVE EXISTING WOOD POLE
44. INSTALL AERIAL GUY ASSEMBLY
45. INSTALL DOWN GUY ASSEMBLY
46. INSTALL SIDEWALK GUY ASSEMBLY
47. INSTALL MESSENGER CABLE
48. REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE
49. REMOVE EXISTING COMMUNICATIONS CABLE
50. INSTALL WIRELESS DSL
51. INSTALL CABLE STORAGE GUIDE(S) [SNOW SHOE(S)] AND STORE 100 FEET OF CABLE
52. INSTALL DELINEATOR MARKER
53. STORE 50 FEET OF COMMUNICATIONS CABLE (EACH CABLE)
54. LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
55. LASH CABLE(S) TO EXISTING MESSENGER CABLE
56. LASH CABLE(S) TO NEW MESSENGER CABLE
57. MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV
58. INSTALL NEW ELECTRICAL SERVICE FOR CCTV
59. INSTALL NEW POLE MOUNTED CCTV CABINET (336)
60. REMOVE EXISTING METAL CCTV POLE AND FOUNDATION
61. REMOVE EXISTING CCTV CAMERA ASSEMBLY
62. NEW CABINET ENTRANCE INTO NEW FOUNDATION
63. DRILL/CORE DRILL EXISTING FOUNDATION
64. INTERCEPT AND REROUTE EXISTING CONDUITS
65. BOND MESSENGER TO POLE GROUND
66. BOND RISER TO POLE GROUND
67. BOND TRACER WIRE TO EQUIPMENT GROUND BUS
68. BOND TRACER WIRE TO POLE GROUND
69. INSTALL MANAGED ETHERNET SWITCH
70. INSTALL CCTV METAL POLE AND FOUNDATION
71. INSTALL DISCONNECT ON CCTV POLE

LEGEND

PROPOSED		EXISTING
FO	OVERHEAD FIBER OPTIC CABLE	EXI
DD	DIRECTIONAL DRILLED CONDUIT	
	UNDERGROUND CONDUIT	
REM	OVERHEAD FIBER OPTIC CABLE REMOVAL	N/A
○	WOOD POLE	●
▣	METAL POLE	▣
□	OVERSIZED /SPECIAL SIZED JUNCTION BOX	■
▷□	CCTV CAMERA ASSEMBLY	▶■
⊠	EQUIPMENT CABINET	⊠
04–XXXX	SIGNAL INVENTORY NUMBER	04–XXXX
CCTV–X	CCTV CAMERA NUMBER	CCTV–X
S	AERIAL SPLICE ENCLOSURE	S
S	UNDERGROUND SPLICE ENCLOSURE	S
	CABLE STORAGE GUIDES (SNOW SHOES)	
	STANDARD GUY ASSEMBLY	
	SIDEWALK GUY ASSEMBLY	

CONSTRUCTION NOTE SYMBOLOGY KEY

- X — INDICATES NUMBER OF CABLES, LOOPS, ETC.
- XX — INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- X — INDICATES NUMBER OF RISER(S) /CONDUIT(S)
- XX — INDICATES DIAMETER OF RISER(S) /CONDUIT(S) (in)



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RALEIGH, NORTH CAROLINA 27609
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State of North Carolina Department of Transportation
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

ITS Construction Notes and Legend

Division 4 | Nash County | Rocky Mount

PLAN DATE: January 2017 | REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles | REVIEWED BY:

REVISIONS	INIT.	DATE

NTS

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

Developed by: 1/30/2017
DESIGNENGINEER DATE

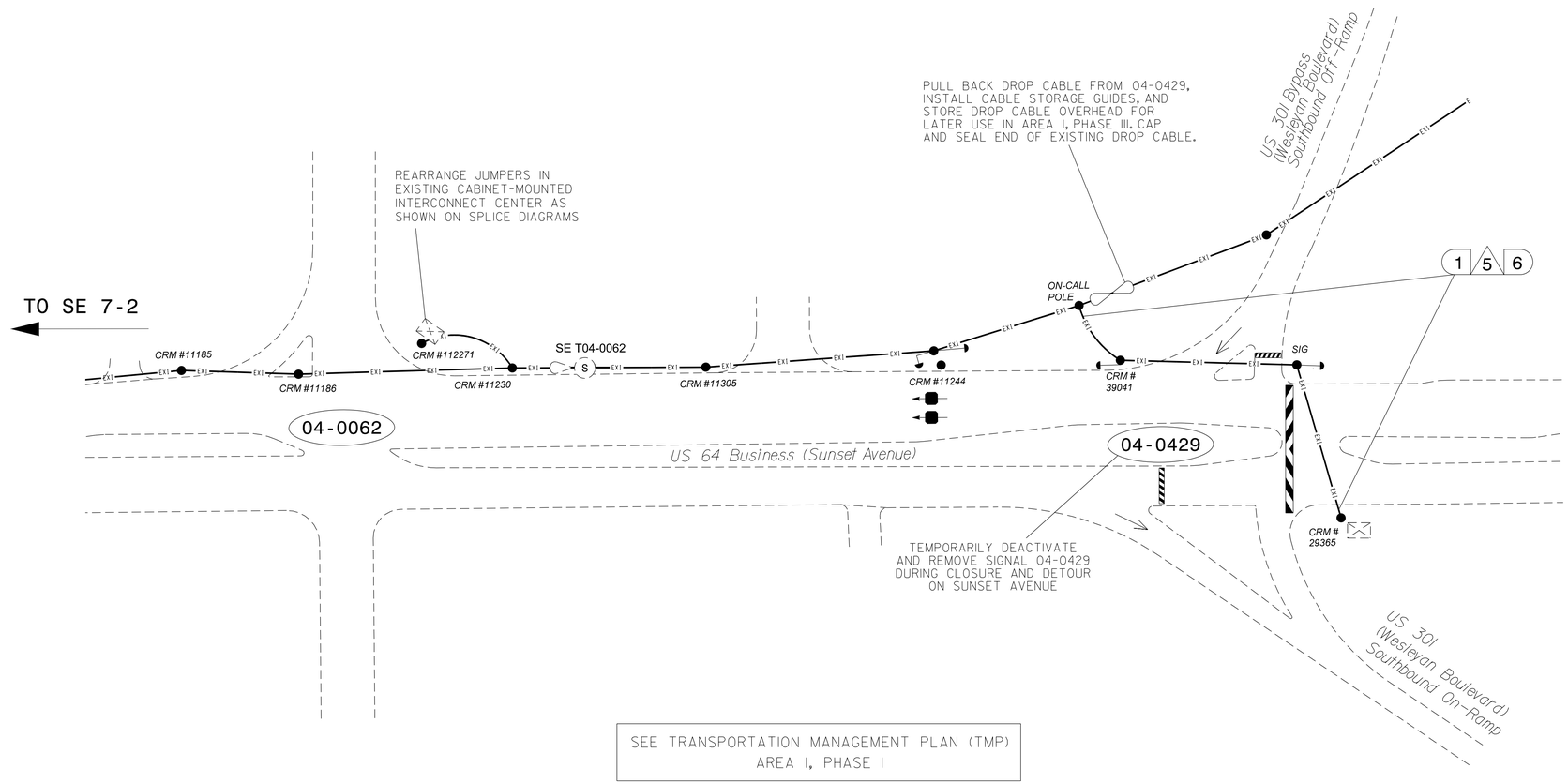
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-8

SEE SIGNAL PLAN FOR SYSTEM DETECTOR INSTALLATION/ASSIGNMENT DETAILS. REFER TO "SYSTEM DETECTORS AND CONTROL ZONES" SCHEMATIC. FOR ADDITIONAL INFORMATION.



SEE TRANSPORTATION MANAGEMENT PLAN (TMP) AREA I, PHASE I

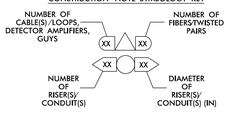
NOTES:
1. UNLESS OTHERWISE NOTED:
   – OVERLASH NEW FIBER OPTIC CABLE TO EXISTING COMMUNICATIONS CABLE.
   – ATTACH NEW MESSENGER CABLE 40" BELOW POWER.
   – ATTACH ON FRONT SIDE (FS) OF POLE.
2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
3. EXISTING (ON–CALL) DENOTES FO CABLE INSTALLED BY DIVISION 4 ON–CALL CONTRACTOR PRIOR TO CONSTRUCTION.

1 INSTALL COMPOSITE CCTV CABLE
2 INSTALL 3 WIRE FEEDER CONDUCTORS
3 INSTALL CATEGORY 5E CABLE
4 INSTALL SMFO CABLE
5 BACK–PULL EXIST SMFO CABLE
6 INSTALL FIBER–OPTIC DROP CABLE
7 INSTALL TRACER WIRE
8 TRENCH CONDUIT
9 INSTALL PVC CONDUIT
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11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
12 INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING
13 INSTALL HEAT SHRINK TUBING RETROFIT KIT
14 INSTALL HIGH DENSITY POLYETHYLENE CONDUIT
15 DIRECTIONAL DRILL CONDUIT
16 BORE AND JACK CONDUIT
17 INSTALL CABLE(S) IN EXISTING CONDUIT
18 INSTALL CABLE(S) IN NEW CONDUIT
19 INSTALL CABLE(S) IN EXISTING RISER(S)
20 INSTALL CABLE(S) IN NEW RISER(S)
21 INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE
22 INSTALL NEW CONDUIT INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)
23 INSTALL NEW RISER INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)
24 INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET
25 INSTALL NEW RISER INTO POLE MOUNTED CABINET
26 INSTALL DIGITAL VIDEO ENCODER
27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET
28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET
29 INSTALL UNDERGROUND SPLICE ENCLOSURE
30 INSTALL AERIAL SPLICE ENCLOSURE
31 INSTALL SPLICE CABINET
32 MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER
33 REMOVE EXISTING SPLICE /HUB / CCTV CABINET
34 INSTALL CABINET FOUNDATION
35 REMOVE EXISTING CABINET FOUNDATION
36 INSTALL CCTV CAMERA ASSEMBLY
37 INSTALL CCTV WOOD POLE (60')
38 INSTALL STANDARD SIZE JUNCTION BOX
39 INSTALL SPECIAL–SIZED JUNCTION BOX
40 INSTALL OVER–SIZED JUNCTION BOX
41 REMOVE EXISTING JUNCTION BOX
42 INSTALL WOOD POLE (50')
43 REMOVE EXISTING WOOD POLE
44 INSTALL AERIAL GUY ASSEMBLY
45 INSTALL STANDARD GUY ASSEMBLY
46 INSTALL SIDEWALK GUY ASSEMBLY
47 INSTALL MESSENGER CABLE
48 REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE
49 REMOVE EXISTING COMMUNICATIONS CABLE
50 INSTALL WIRELESS DSL
51 INSTALL CABLE STORAGE GUIDE(S) [SNOW SHOE(S)] AND STORE 100 FEET OF EACH CABLE
52 INSTALL DELINEATOR MARKER
53 STORE 50 FEET OF COMMUNICATIONS CABLE (EACH CABLE)
54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
56 LASH CABLE(S) TO NEW MESSENGER CABLE
57 MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV
58 INSTALL NEW ELECTRICAL SERVICE FOR CCTV
59 INSTALL NEW POLE MOUNTED CCTV CABINET (336)
60 REMOVE EXISTING METAL CCTV POLE AND FOUNDATION
61 REMOVE EXISTING CCTV CAMERA ASSEMBLY
62 NEW CABINET ENTRANCE INTO NEW FOUNDATION
63 DRILL/CORE DRILL EXISTING FOUNDATION
64 INTERCEPT AND REROUTE EXISTING CONDUITS
65 BOND MESSENGER TO POLE GROUND
66 BOND RISER TO POLE GROUND
67 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
68 BOND TRACER WIRE TO POLE GROUND
69 INSTALL MANAGED ETHERNET SWITCH
70 INSTALL CCTV METAL POLE & FOUNDATION
71 INSTALL DISCONNECT ON CCTV POLE

TMP Area 1 Phase 1

ATTACHMENT POINT:
XXX / YYY — DISTANCE ABOVE (IN) REFERENCE POINT
YYY / XXX — REFERENCE POINT DISTANCE BELOW (IN)

CONSTRUCTION NOTE SYMBOLOGY KEY



ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Planning Division — North Carolina Department of Transportation — Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks
PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER JT TODD BROOKS

Designed by: 1/30/2017
DATE

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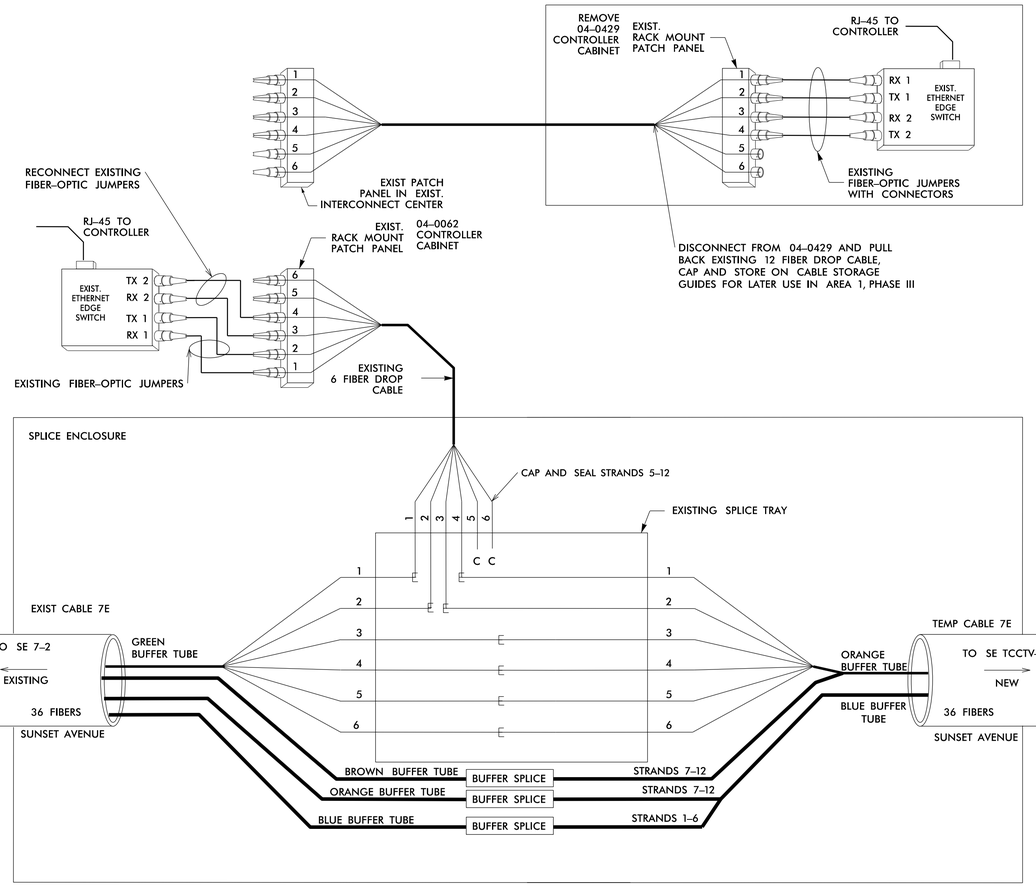
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-9

SPLICE ENCLOSURE NO.

T04-0062



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

NOTE: USE DURING AREA 1, PHASES I & II OF CONSTRUCTION WHEN SUNSET AVENUE IS TEMPORARILY CLOSED AND DETOURED AT US 301 (WESYLEYAN BLVD) AND SIGNAL 04-0429 IS DEACTIVATED AND TEMPORARILY REMOVED.

LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED	E =	EXIST. FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	X =	FUSION SPLICE INDIVIDUAL FIBER
(3) GREEN	(9) YELLOW	C =	CAP AND SEAL
(4) BROWN	(10) VIOLET	EXPRESS =	EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING
(5) SLATE	(11) ROSE	BUFFER SPLICE =	SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR
(6) WHITE	(12) AQUA		

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252–972–1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
5. CONTRACTOR TO RECORD EXISTNG SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS–BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGED DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731–3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A–D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP Area 1, Phase I

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Integrated Mobility and Safety Division Transportation Systems Section
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 | Nash County | Rocky Mount

PLAN DATE: November 2016 | REVIEWED BY: HA Badgett
PREPARED BY: GB Spell | REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 HENRY ALFORD BADGETT III

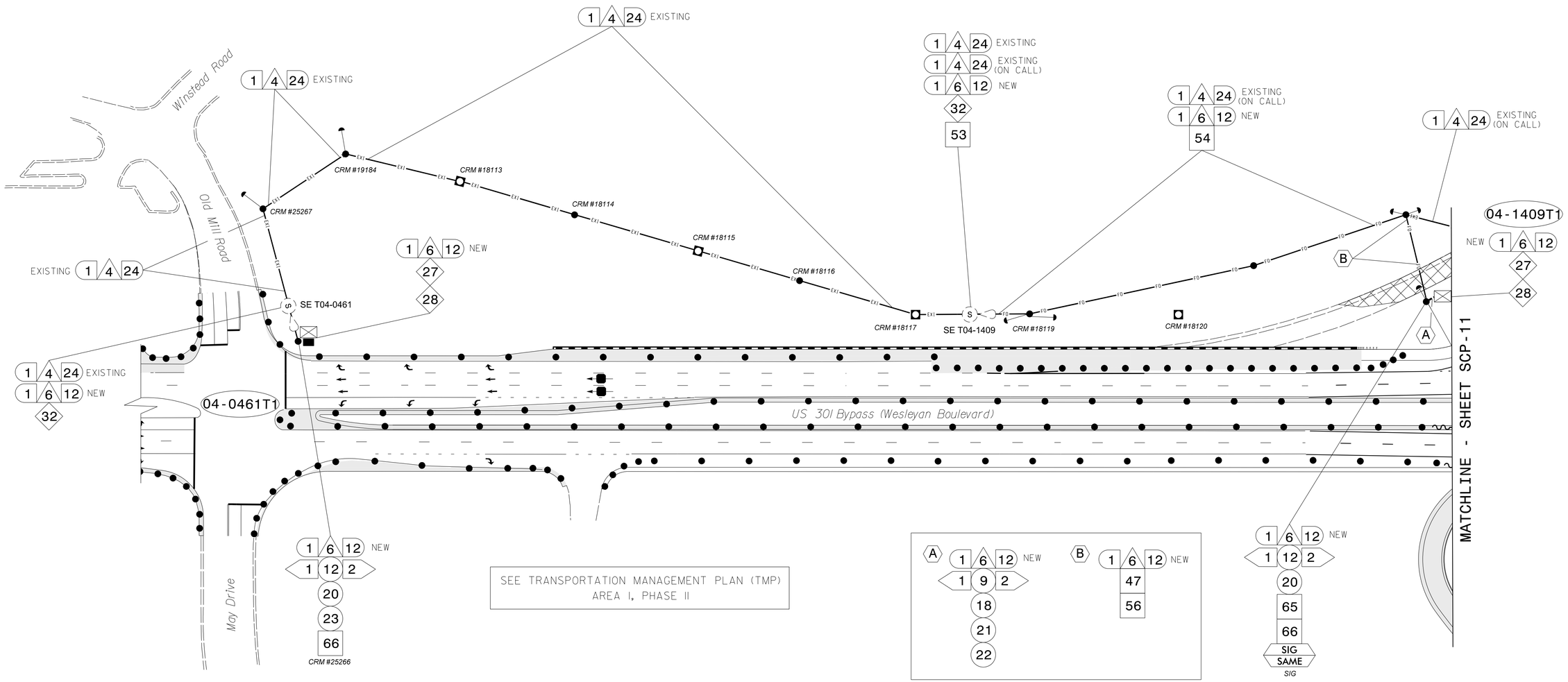
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-10



SEE TRANSPORTATION MANAGEMENT PLAN (TMP)
AREA I, PHASE II

NOTES:
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1 INSTALL COMPOSITE CCTV CABLE	13 INSTALL HEAT SHRINK TUBING RETROFIT KIT	25 INSTALL NEW RISER INTO POLE MOUNTED CABINET	37 INSTALL CCTV WOOD POLE (60')	49 REMOVE EXISTING COMMUNICATIONS CABLE	61 REMOVE EXISTING CCTV CAMERA ASSEMBLY
2 INSTALL 3 WIRE FEEDER CONDUCTORS	14 INSTALL HIGH DENSITY POLYETHYLENE CONDUIT	26 INSTALL DIGITAL VIDEO ENCODER	38 INSTALL STANDARD SIZE JUNCTION BOX	50 INSTALL WIRELESS DSL	62 NEW CABINET ENTRANCE INTO NEW FOUNDATION
3 INSTALL CATEGORY 5E CABLE	15 DIRECTIONAL DRILL CONDUIT	27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39 INSTALL SPECIAL–SIZED JUNCTION BOX	51 INSTALL CABLE STORAGE GUIDE(S) (SNOW SHOE(S)) AND STORE 100 FEET OF EACH CABLE	63 DRILL/CORE DRILL EXISTING FOUNDATION
4 INSTALL SMFO CABLE	16 BORE AND JACK CONDUIT	28 INSTALL INTERCONNECT CENTER, PATCH PANEL JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40 INSTALL OVER–SIZED JUNCTION BOX	52 INSTALL DELINEATOR MARKER	64 INTERCEPT AND REROUTE EXISTING CONDUITS
5 BACK–PULL EXIST SMFO CABLE	17 INSTALL CABLE(S) IN EXISTING CONDUIT	29 INSTALL UNDERGROUND SPLICE ENCLOSURE	41 REMOVE EXISTING JUNCTION BOX	53 STORE 50 FEET OF COMMUNICATIONS CABLE (EACH CABLE)	65 BOND MESSENGER TO POLE GROUND
6 INSTALL FIBER–OPTIC DROP CABLE	18 INSTALL CABLE(S) IN NEW CONDUIT	30 INSTALL AERIAL SPLICE ENCLOSURE	42 INSTALL WOOD POLE (50')	54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	66 BOND RISER TO POLE GROUND
7 INSTALL TRACER WIRE	19 INSTALL CABLE(S) IN EXISTING RISER(S)	31 INSTALL SPLICE CABINET	43 REMOVE EXISTING WOOD POLE	55 LASH CABLE(S) TO EXISTING MESSENGER CABLE	67 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
8 TRENCH CONDUIT	20 INSTALL CABLE(S) IN NEW RISER(S)	32 MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER	44 INSTALL AERIAL GUY ASSEMBLY	56 LASH CABLE(S) TO NEW MESSENGER CABLE	68 BOND TRACER WIRE TO POLE GROUND
9 INSTALL PVC CONDUIT	21 INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE	33 REMOVE EXISTING SPLICE /HUB / CCTV CABINET	45 INSTALL STANDARD GUY ASSEMBLY	57 MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV	69 INSTALL MANAGED ETHERNET SWITCH
10 INSTALL RIGID, GALVANIZED STEEL CONDUIT	22 INSTALL NEW CONDUIT INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)	34 INSTALL CABINET FOUNDATION	46 INSTALL SIDEWALK GUY ASSEMBLY	58 INSTALL NEW ELECTRICAL SERVICE FOR CCTV	70 INSTALL CCTV METAL POLE & FOUNDATION
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TMP Area 1, Phase II

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CONSTRUCTION NOTE SYMBOLOGY KEY
NUMBER OF CABLE(S)/LOOPS, DETECTOR AMPLIFIERS, GUYS
NUMBER OF FIBERS/TWISTED PAIRS
NUMBER OF RISER(S)/ CONDUIT(S)
DIAMETER OF RISER(S)/ CONDUIT(S) (IN)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

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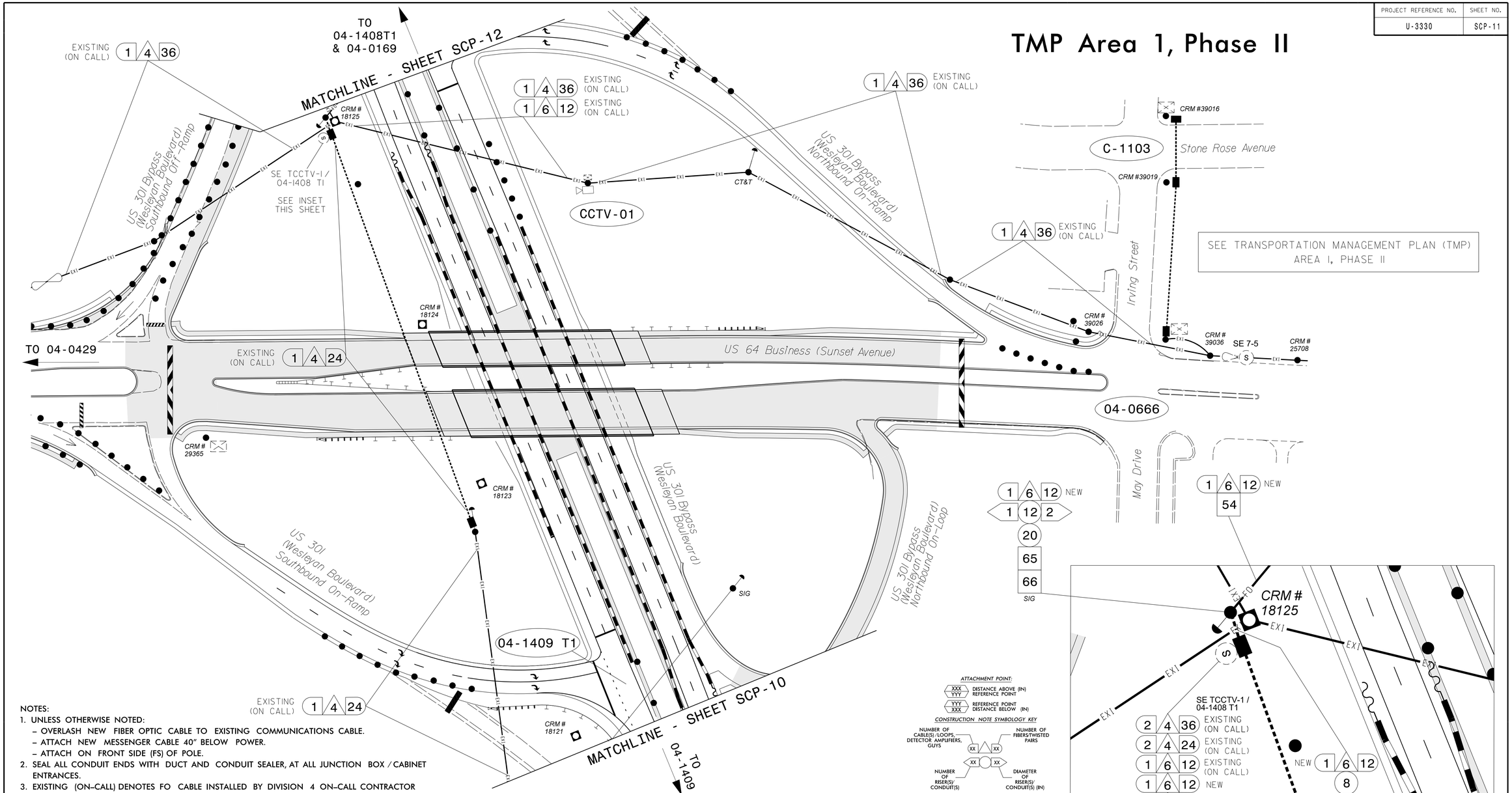
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-11

TMP Area 1, Phase II



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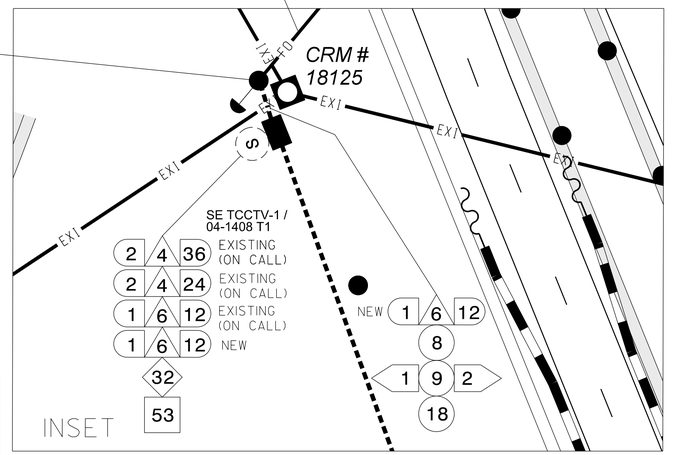
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US 301 Widening

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Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

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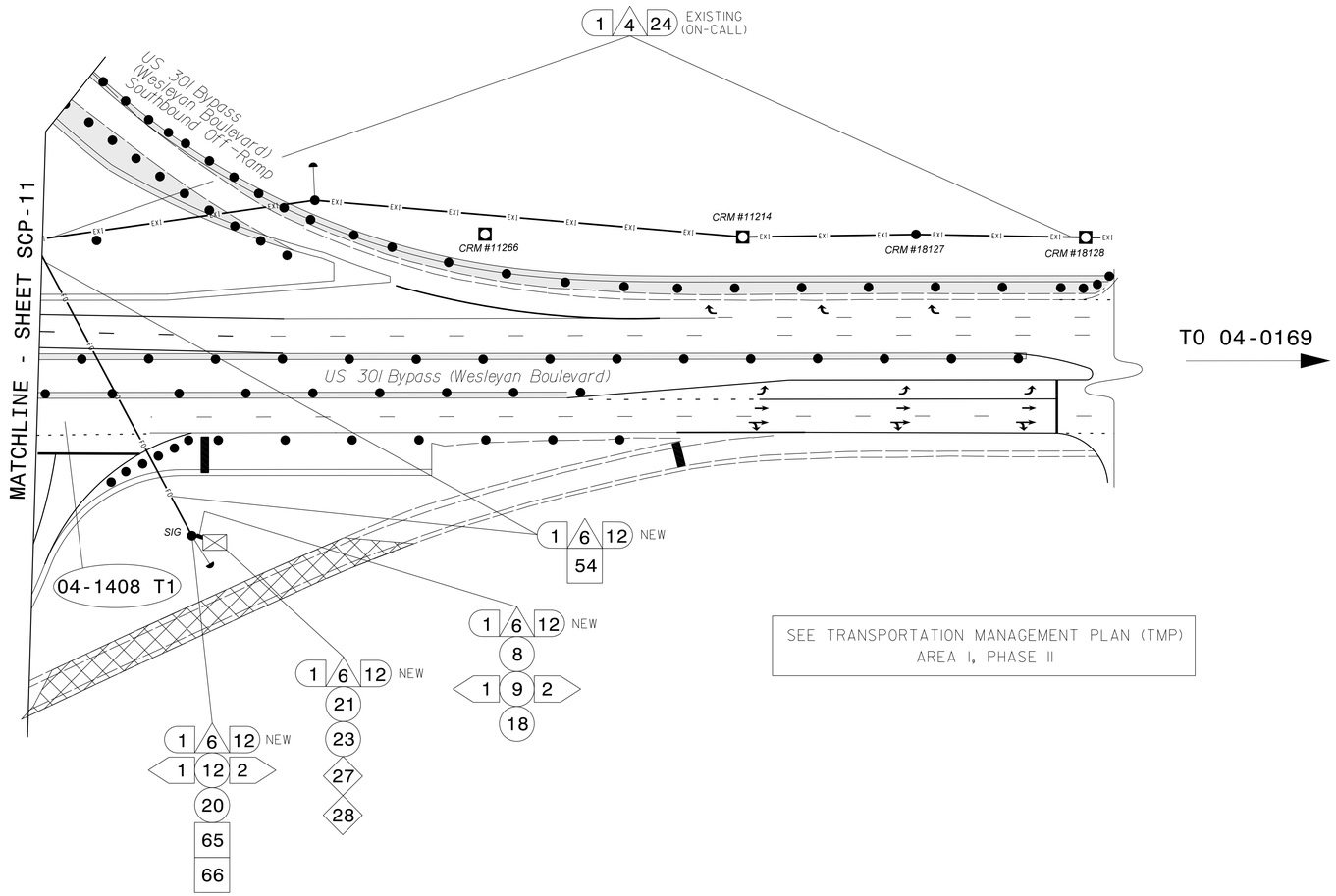
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SEE TRANSPORTATION MANAGEMENT PLAN (TMP) AREA I, PHASE II

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   – ATTACH NEW MESSENGER CABLE 40" BELOW POWER.
   – ATTACH ON FRONT SIDE (FS) OF POLE.
2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
3. EXISTING (ON–CALL) DENOTES FO CABLE INSTALLED BY DIVISION 4 ON–CALL CONTRACTOR PRIOR TO CONSTRUCTION.

1 INSTALL COMPOSITE CCTV CABLE	13 INSTALL HEAT SHRINK TUBING RETROFIT KIT	25 INSTALL NEW RISER INTO POLE MOUNTED CABINET	37 INSTALL CCTV WOOD POLE (60')	49 REMOVE EXISTING COMMUNICATIONS CABLE	61 REMOVE EXISTING CCTV CAMERA ASSEMBLY
2 INSTALL 3 WIRE FEEDER CONDUCTORS	14 INSTALL HIGH DENSITY POLYETHYLENE CONDUIT	26 INSTALL DIGITAL VIDEO ENCODER	38 INSTALL STANDARD SIZE JUNCTION BOX	50 INSTALL WIRELESS DSL	62 NEW CABINET ENTRANCE INTO NEW FOUNDATION
3 INSTALL CATEGORY 5E CABLE	15 DIRECTIONAL DRILL CONDUIT	27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39 INSTALL SPECIAL–SIZED JUNCTION BOX	51 INSTALL CABLE STORAGE GUIDE(S) (SNOW SHOE(S)) AND STORE 100 FEET OF EACH CABLE	63 DRILL/CORE DRILL EXISTING FOUNDATION
4 INSTALL SMFO CABLE	16 BORE AND JACK CONDUIT	28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40 INSTALL OVER–SIZED JUNCTION BOX	52 INSTALL DELINEATOR MARKER	64 INTERCEPT AND REROUTE EXISTING CONDUITS
5 BACK–PULL EXIST SMFO CABLE	17 INSTALL CABLE(S) IN EXISTING CONDUIT	29 INSTALL UNDERGROUND SPLICE ENCLOSURE	41 REMOVE EXISTING JUNCTION BOX	53 STORE 50 FEET OF COMMUNICATIONS CABLE (EACH CABLE)	65 BOND MESSENGER TO POLE GROUND
6 INSTALL FIBER–OPTIC DROP CABLE	18 INSTALL CABLE(S) IN NEW CONDUIT	30 INSTALL AERIAL SPLICE ENCLOSURE	42 INSTALL WOOD POLE (50')	54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	66 BOND RISER TO POLE GROUND
7 INSTALL TRACER WIRE	19 INSTALL CABLE(S) IN EXISTING RISER(S)	31 INSTALL SPLICE CABINET	43 REMOVE EXISTING WOOD POLE	55 LASH CABLE(S) TO EXISTING MESSENGER CABLE	67 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
8 TRENCH CONDUIT	20 INSTALL CABLE(S) IN NEW RISER(S)	32 MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER	44 INSTALL AERIAL GUY ASSEMBLY	56 LASH CABLE(S) TO NEW MESSENGER CABLE	68 BOND TRACER WIRE TO POLE GROUND
9 INSTALL PVC CONDUIT	21 INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE	33 REMOVE EXISTING SPLICE /HUB / CCTV CABINET	45 INSTALL STANDARD GUY ASSEMBLY	57 MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV	69 INSTALL MANAGED ETHERNET SWITCH
10 INSTALL RIGID, GALVANIZED STEEL CONDUIT	22 INSTALL NEW CONDUIT INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)	34 INSTALL CABINET FOUNDATION	46 INSTALL SIDEWALK GUY ASSEMBLY	58 INSTALL NEW ELECTRICAL SERVICE FOR CCTV	70 INSTALL CCTV METAL POLE & FOUNDATION
11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD	23 INSTALL NEW RISER INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)	35 REMOVE EXISTING CABINET FOUNDATION	47 INSTALL MESSENGER CABLE	59 INSTALL NEW POLE MOUNTED CCTV CABINET (336)	71 INSTALL DISCONNECT ON CCTV POLE
12 INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING	24 INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET	36 INSTALL CCTV CAMERA ASSEMBLY	48 REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE	60 REMOVE EXISTING METAL CCTV POLE AND FOUNDATION	

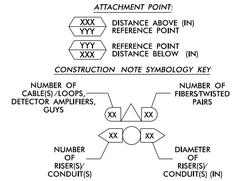
TMP Area 1, Phase II

ATTACHMENT POINT:

XXX / YYY DISTANCE ABOVE (IN) REFERENCE POINT

YYY / XXX REFERENCE POINT DISTANCE BELOW (IN)

CONSTRUCTION NOTE SYMBOLOGY KEY



ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of: Transportation Mobility and Safety Division, NC Department of Transportation, Signal Design Section

750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

Docusigned by: 1/30/2017

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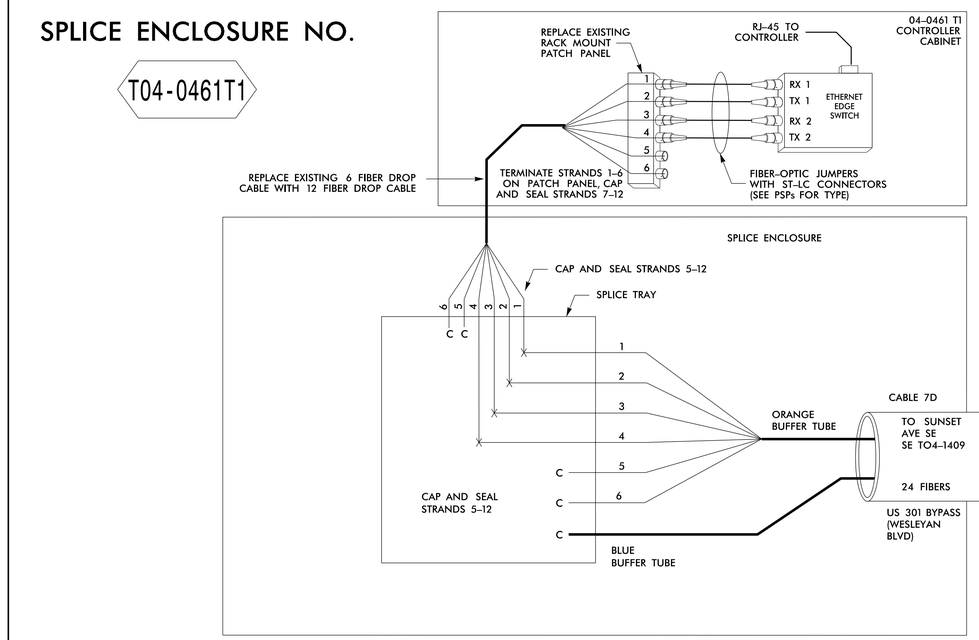
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-13

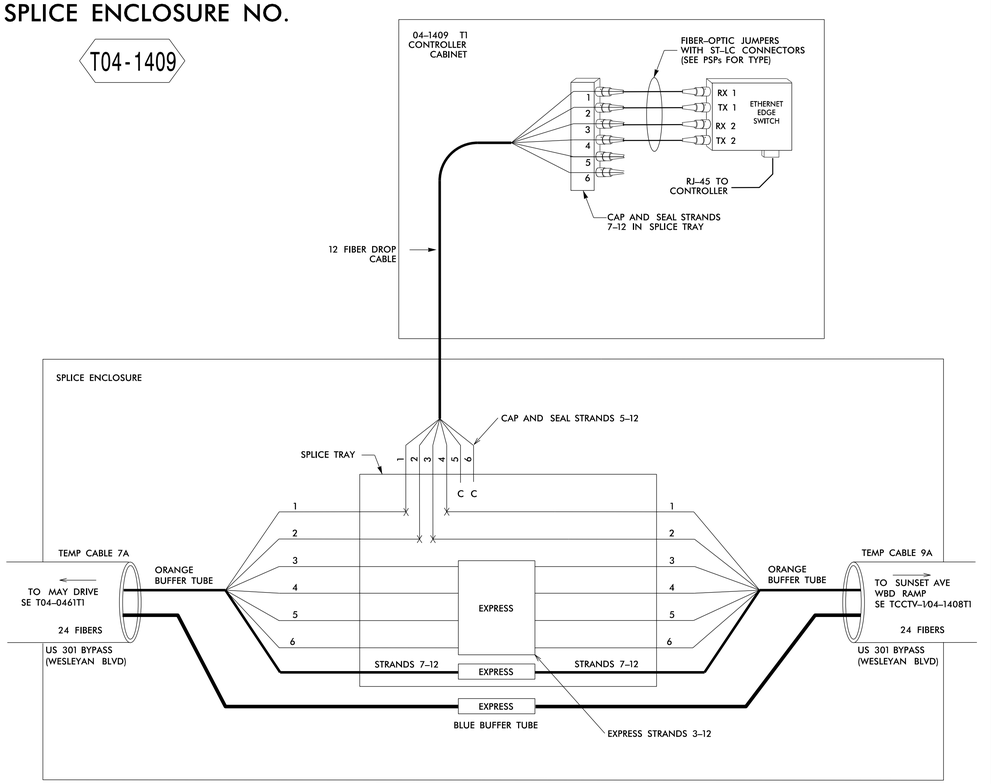
SPLICE ENCLOSURE NO.

T04-0461T1



SPLICE ENCLOSURE NO.

T04-1409



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598-B	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252-972-1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
5. CONTRACTOR TO RECORD EXISTNG SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGED DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731-3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A-D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP Area 1, Phase II

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 019962 ENGINEER ALFRED BADGETT III

DocuSigned by: Alfred Badgett III 1/30/2017

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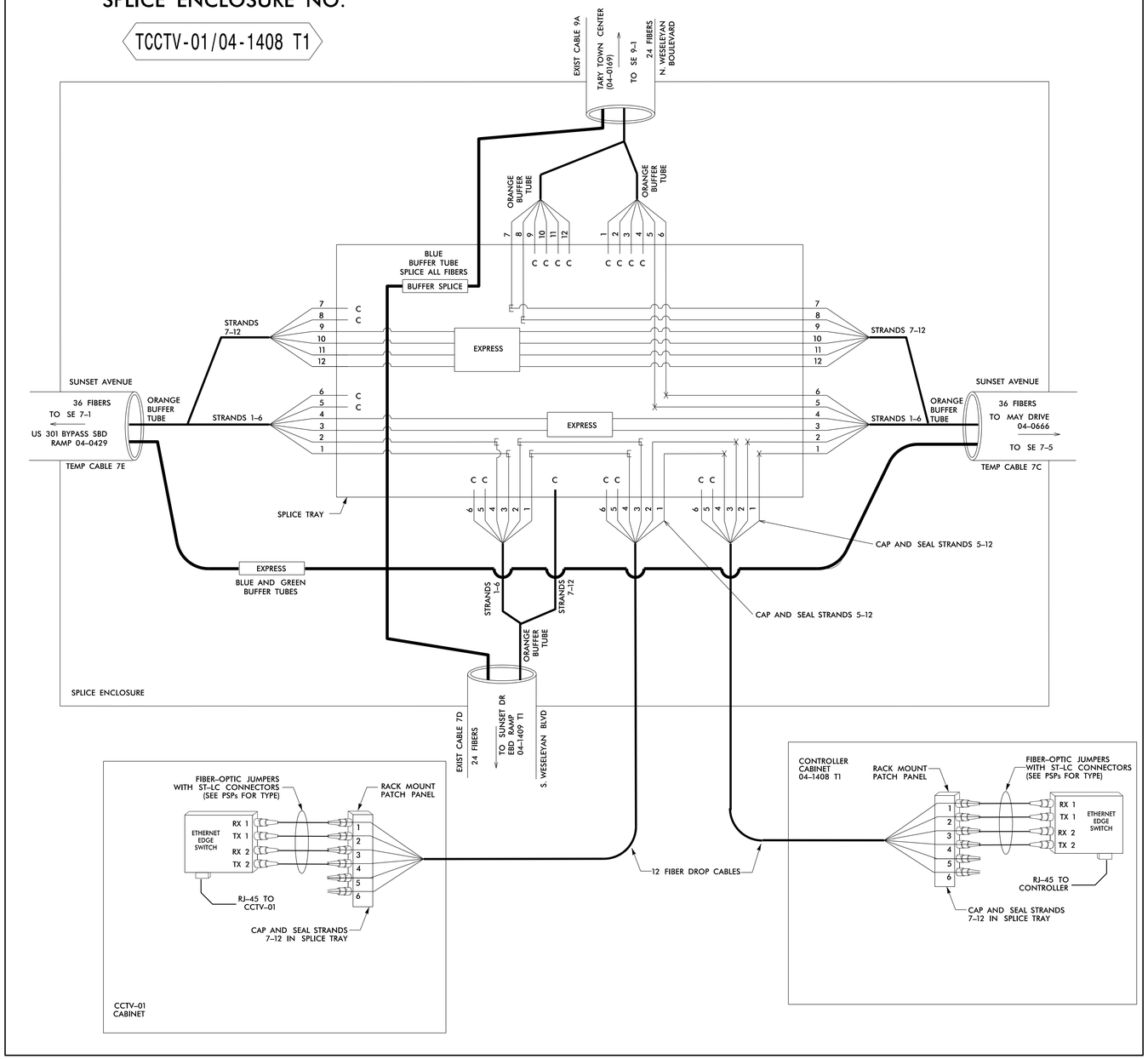
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-14

SPLICE ENCLOSURE NO.

TCCTV-01/04-1408 T1



LEGEND

COLOR CODE TIA-EIA 598-B	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

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EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252-972-1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
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PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A-D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP Area 1, Phase II

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
NC DEPARTMENT OF TRANSPORTATION
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT

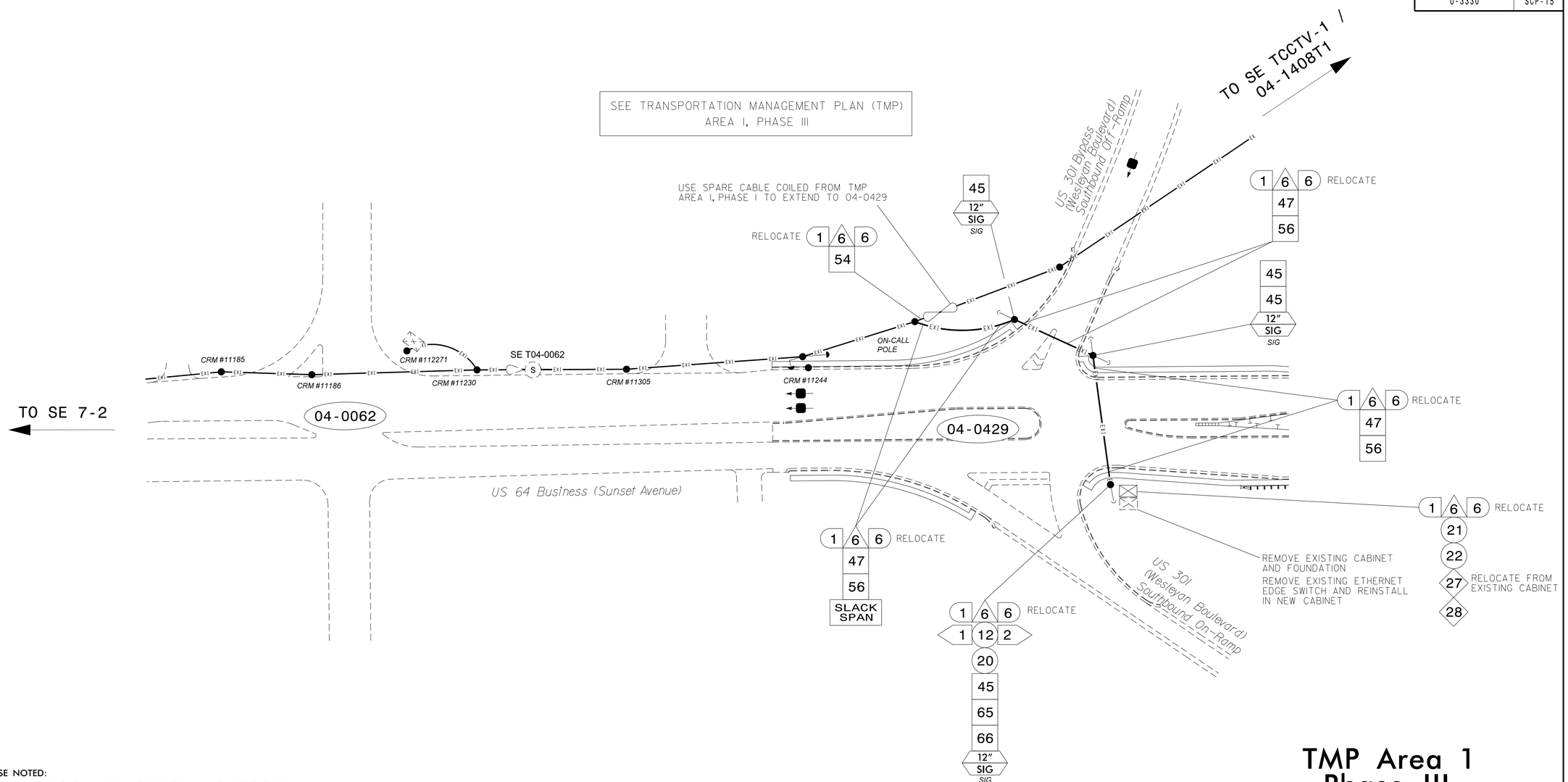
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-15



NOTES:
1. UNLESS OTHERWISE NOTED:
   – OVERLASH NEW FIBER OPTIC CABLE TO EXISTING COMMUNICATIONS CABLE.
   – ATTACH NEW MESSENGER CABLE 40" BELOW POWER.
   – ATTACH ON FRONT SIDE (FS) OF POLE.
2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
3. EXISTING (ON–CALL) DENOTES FO CABLE INSTALLED BY DIVISION 4 ON–CALL CONTRACTOR PRIOR TO CONSTRUCTION.

1 INSTALL COMPOSITE CCTV CABLE	13 INSTALL HEAT SHRINK TUBING RETROFIT KIT	25 INSTALL NEW RISER INTO POLE MOUNTED CABINET	37 INSTALL CCTV WOOD POLE (60')	49 REMOVE EXISTING COMMUNICATIONS CABLE	61 REMOVE EXISTING CCTV CAMERA ASSEMBLY
2 INSTALL 3 WIRE FEEDER CONDUCTORS	14 INSTALL HIGH DENSITY POLYETHYLENE CONDUIT	26 INSTALL DIGITAL VIDEO ENCODER	38 INSTALL STANDARD SIZE JUNCTION BOX	50 INSTALL WIRELESS DSL	62 NEW CABINET ENTRANCE INTO NEW FOUNDATION
3 INSTALL CATEGORY 5E CABLE	15 DIRECTIONAL DRILL CONDUIT	27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39 INSTALL SPECIAL–SIZED JUNCTION BOX	51 INSTALL CABLE STORAGE GUIDE(S) [SNOW SHOE(S)] AND STORE 100 FEET OF EACH CABLE	63 DRILL/CORE DRILL EXISTING FOUNDATION
4 INSTALL SMFO CABLE	16 BORE AND JACK CONDUIT	28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40 INSTALL OVER–SIZED JUNCTION BOX	52 INSTALL DELINEATOR MARKER	64 INTERCEPT AND REROUTE EXISTING CONDUITS
5 BACK–PULL EXIST SMFO CABLE	17 INSTALL CABLE(S) IN EXISTING CONDUIT	29 INSTALL UNDERGROUND SPLICE ENCLOSURE	41 REMOVE EXISTING JUNCTION BOX	53 STORE 50 FEET OF COMMUNICATIONS CABLE (EACH CABLE)	65 BOND MESSENGER TO POLE GROUND
6 INSTALL FIBER–OPTIC DROP CABLE	18 INSTALL CABLE(S) IN NEW CONDUIT	30 INSTALL AERIAL SPLICE ENCLOSURE	42 INSTALL WOOD POLE (50')	54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	66 BOND RISER TO POLE GROUND
7 INSTALL TRACER WIRE	19 INSTALL CABLE(S) IN EXISTING RISER(S)	31 INSTALL SPLICE CABINET	43 REMOVE EXISTING WOOD POLE	55 LASH CABLE(S) TO EXISTING MESSENGER CABLE	67 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
8 TRENCH CONDUIT	20 INSTALL CABLE(S) IN NEW RISER(S)	32 MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER	44 INSTALL AERIAL GUY ASSEMBLY	56 LASH CABLE(S) TO NEW MESSENGER CABLE	68 BOND TRACER WIRE TO POLE GROUND
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12 INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING	24 INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET	36 INSTALL CCTV CAMERA ASSEMBLY	48 REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE	60 REMOVE EXISTING METAL CCTV POLE AND FOUNDATION	

TMP Area 1 Phase III

ATTACHMENT POINT:
XXX / YYY — DISTANCE ABOVE (IN) REFERENCE POINT
YYY / XXX — REFERENCE POINT DISTANCE BELOW (IN)

CONSTRUCTION NOTE SYMBOLOGY KEY
NUMBER OF CABLE(S) /LOOPS, DETECTOR AMPLIFIERS, GUYS
NUMBER OF FIBERS/TWISTED PAIRS
NUMBER OF RISER(S)/ CONDUIT(S)
DIAMETER OF RISER(S)/ CONDUIT(S) (IN)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J TODD BROOKS
DocuSigned by: 1/30/2017
DATE

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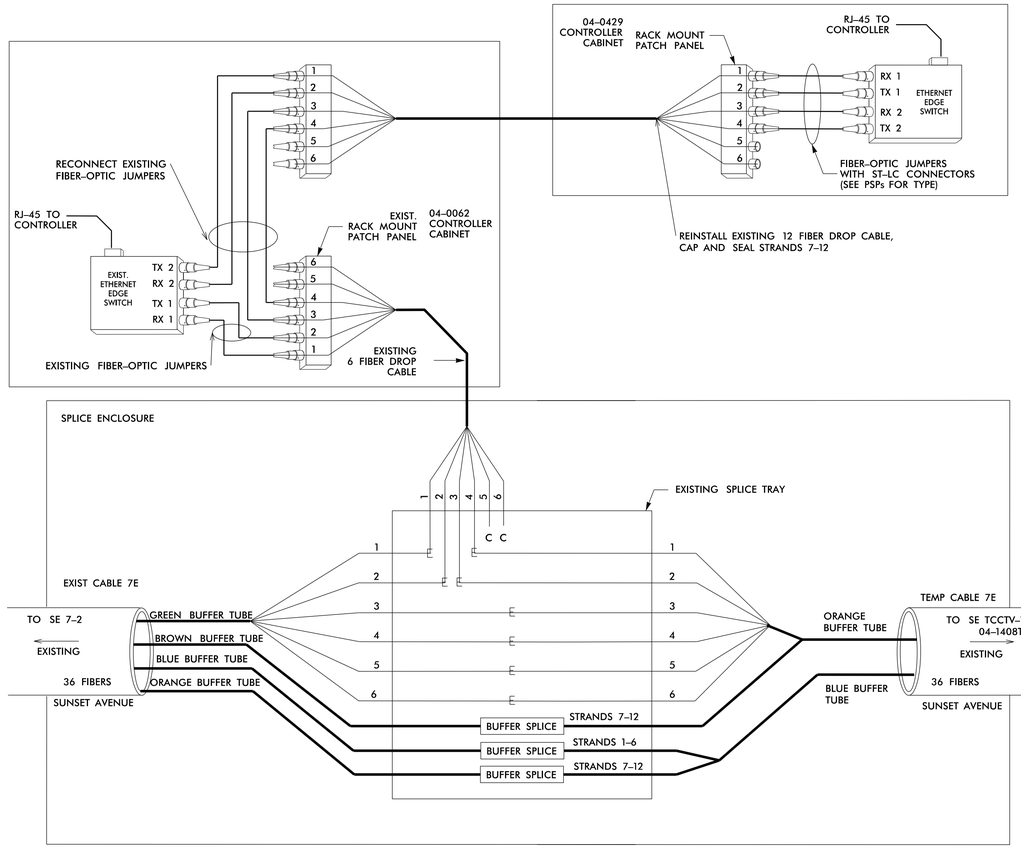
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-16

SPLICE ENCLOSURE NO.

T04-0062



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598–B	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252–972–1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
5. CONTRACTOR TO RECORD EXISTNG SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS–BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGED DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731–3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A–D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP Area 1, Phase III

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Transportation Mobility and Safety Division Traffic Engineering Branch Transportation Systems Section

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 019962 ENGINEER ALFRED BADGETT III

Digitally signed by: Henry Alfred Badgett III 1/30/2017

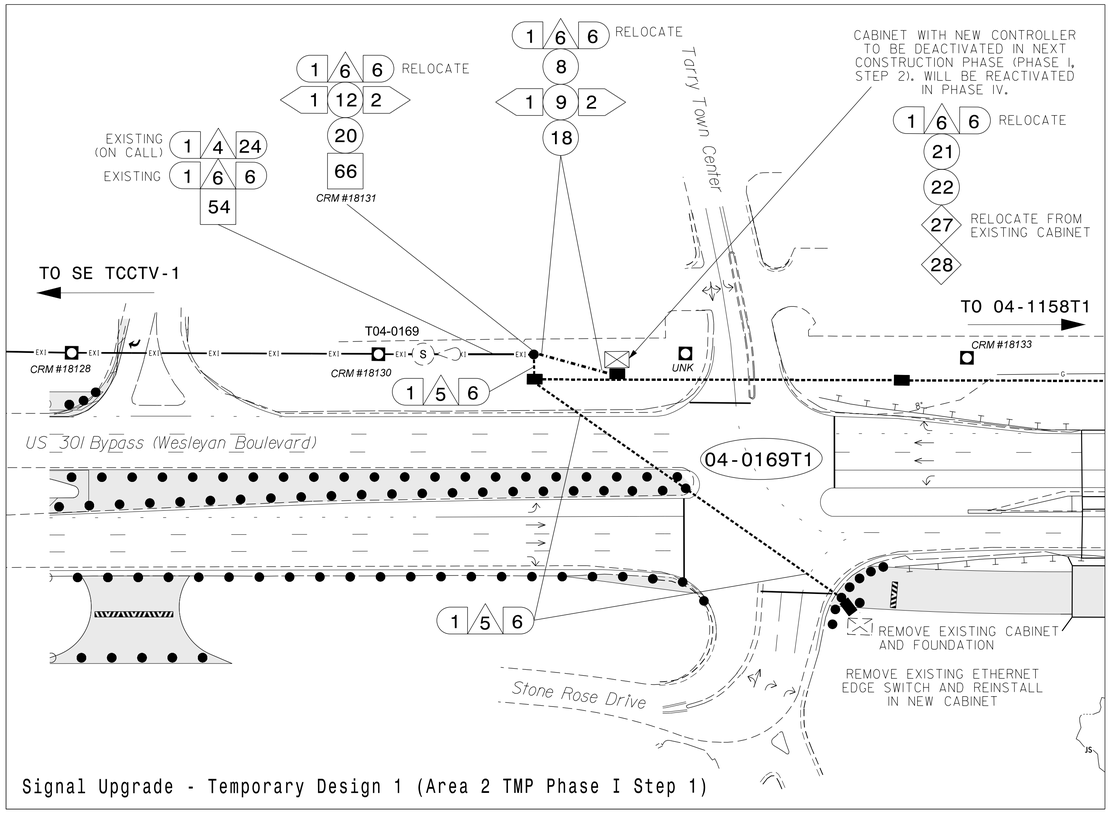
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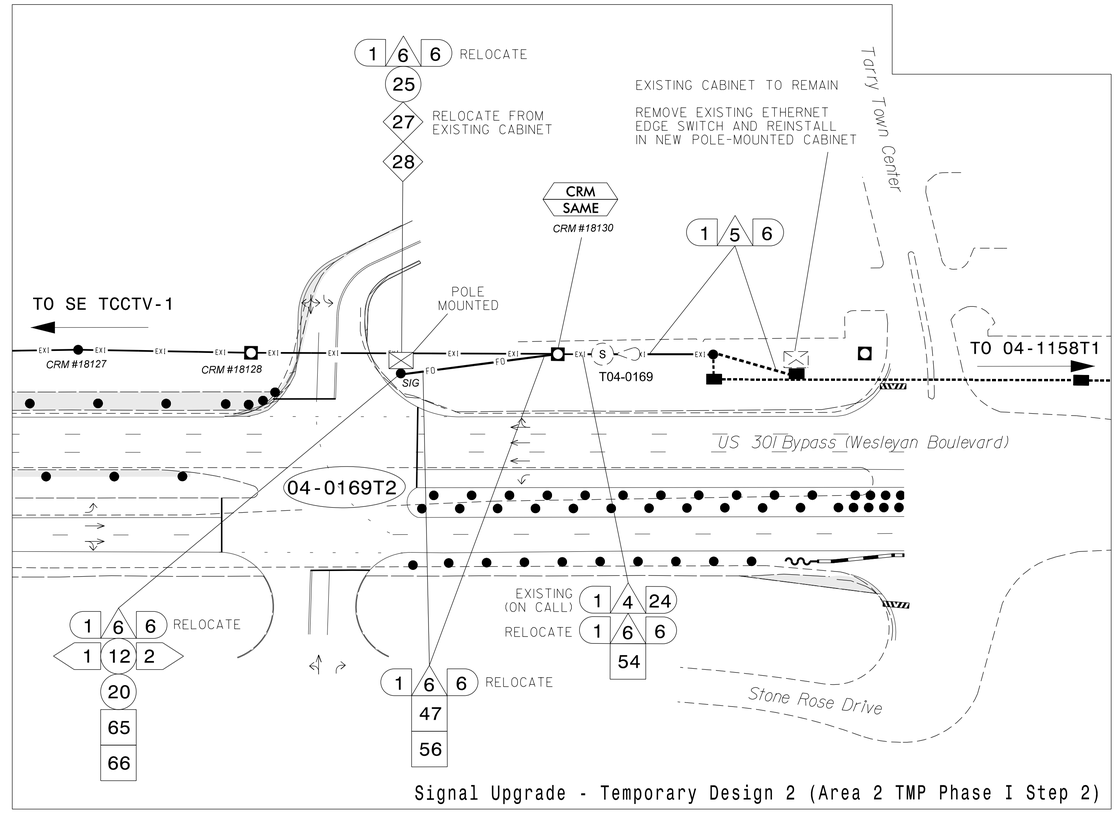
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-17



Signal Upgrade - Temporary Design 1 (Area 2 TMP Phase I Step 1)



Signal Upgrade - Temporary Design 2 (Area 2 TMP Phase I Step 2)

SEE TRANSPORTATION MANAGEMENT PLAN (TMP)
AREA 2, PHASE I, STEPS 1 & 2

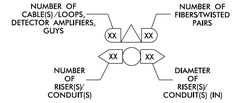
NOTES:
1. UNLESS OTHERWISE NOTED:
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   – ATTACH ON FRONT SIDE (FS) OF POLE.
2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
3. EXISTING (ON–CALL) DENOTES FO CABLE INSTALLED BY DIVISION 4 ON–CALL CONTRACTOR PRIOR TO CONSTRUCTION.

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2 INSTALL 3 WIRE FEEDER CONDUCTORS	14 INSTALL HIGH DENSITY POLYETHYLENE CONDUIT	26 INSTALL DIGITAL VIDEO ENCODER	38 INSTALL STANDARD SIZE JUNCTION BOX	50 INSTALL WIRELESS DSL	62 NEW CABINET ENTRANCE INTO NEW FOUNDATION
3 INSTALL CATEGORY 5E CABLE	15 DIRECTIONAL DRILL CONDUIT	27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39 INSTALL SPECIAL–SIZED JUNCTION BOX	51 INSTALL CABLE STORAGE GUIDE(S) [SNOW SHOE(S)] AND STORE 100 FEET OF EACH CABLE	63 DRILL/CORE DRILL EXISTING FOUNDATION
4 INSTALL SMFO CABLE	16 BORE AND JACK CONDUIT	28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40 INSTALL OVER–SIZED JUNCTION BOX	52 INSTALL DELINEATOR MARKER	64 INTERCEPT AND REROUTE EXISTING CONDUITS
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TMP Area 2
Phase I, Steps 1 & 2

ATTACHMENT POINT:
- XXX / YYY — DISTANCE ABOVE (IN) REFERENCE POINT
- YYY / XXX — REFERENCE POINT DISTANCE BELOW (IN)

CONSTRUCTION NOTE SYMBOLOGY KEY



ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

DocuSigned by: 1/30/2017
8E5B7B90A2A346 DATE

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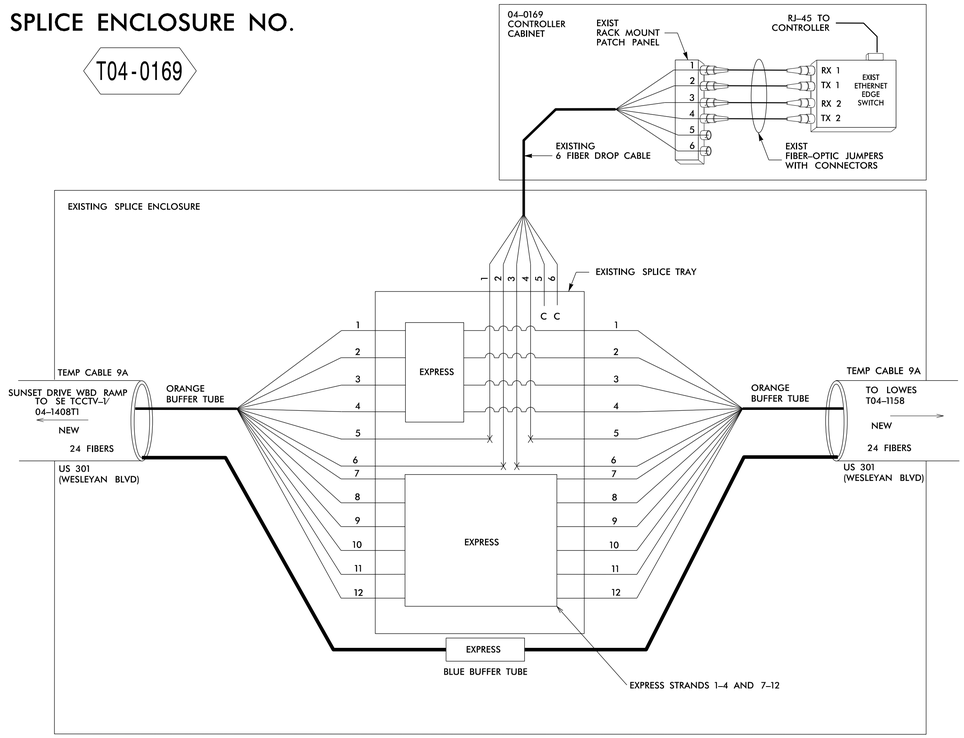
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-18

SPLICE ENCLOSURE NO.

T04-0169



LEGEND

COLOR CODE TIA-EIA 598-B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

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C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

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2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
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4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252-972-1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
5. CONTRACTOR TO RECORD EXISTNG SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGED DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731-3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A-D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP Area 2, Phase I, Steps 1 & 2

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
NC DEPARTMENT OF TRANSPORTATION
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett
PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

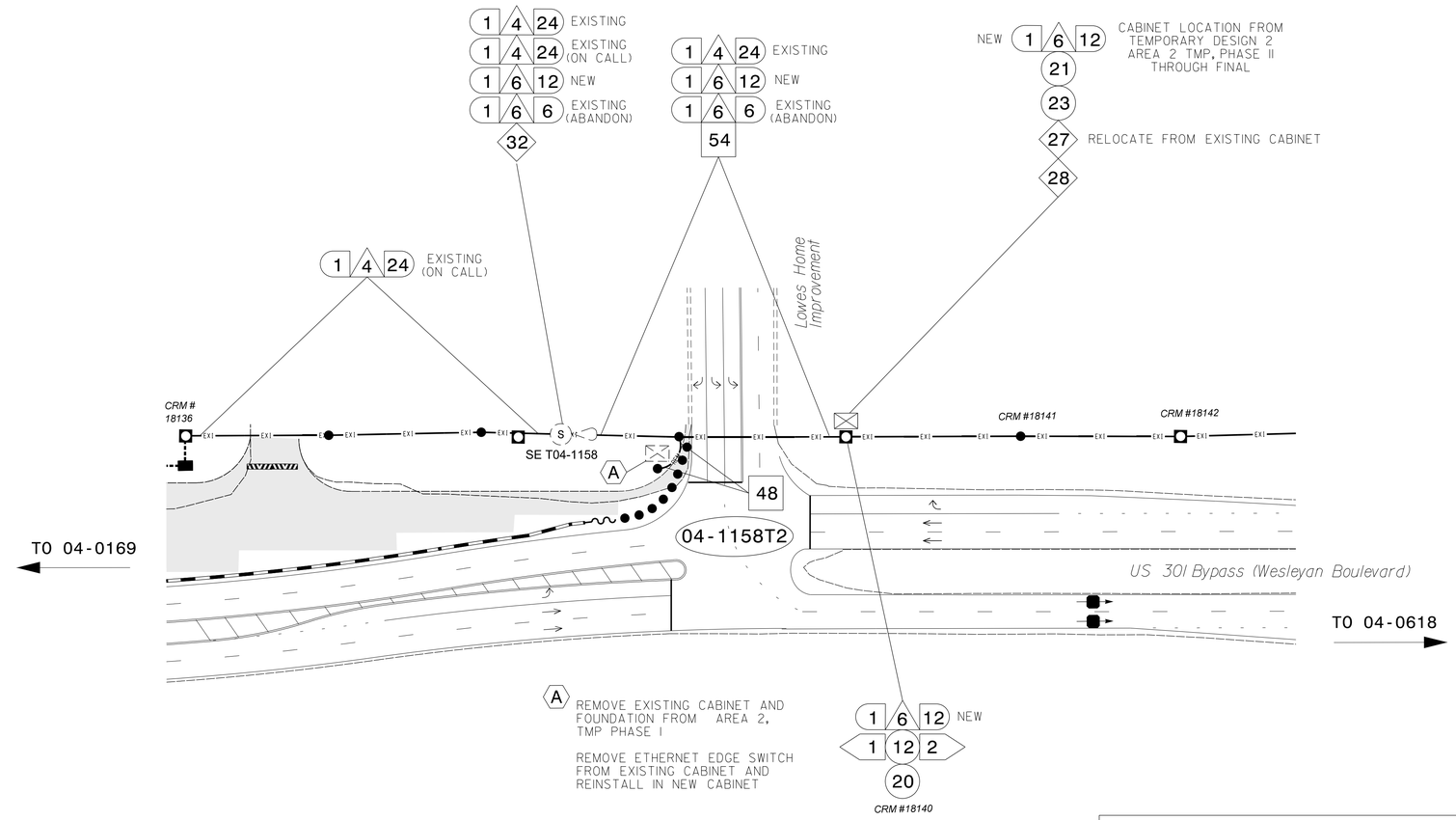
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 HENRY ALFRED BADGETT III
Docusigned by: Henry Alfred Badgett III 1/30/2017
DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-19



SEE TRANSPORTATION MANAGEMENT PLAN (TMP) AREA 2, PHASE II

NOTES:
1. UNLESS OTHERWISE NOTED:
   – OVERLASH NEW FIBER OPTIC CABLE TO EXISTING COMMUNICATIONS CABLE.
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1. INSTALL COMPOSITE CCTV CABLE
2. INSTALL 3 WIRE FEEDER CONDUCTORS
3. INSTALL CATEGORY 5E CABLE
4. INSTALL SMFO CABLE
5. BACK–PULL EXIST SMFO CABLE
6. INSTALL FIBER–OPTIC DROP CABLE
7. INSTALL TRACER WIRE
8. TRENCH CONDUIT
9. INSTALL PVC CONDUIT
10. INSTALL RIGID, GALVANIZED STEEL CONDUIT
11. INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
12. INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING
13. INSTALL HEAT SHRINK TUBING RETROFIT KIT
14. INSTALL HIGH DENSITY POLYETHYLENE CONDUIT
15. DIRECTIONAL DRILL CONDUIT
16. BORE AND JACK CONDUIT
17. INSTALL CABLE(S) IN EXISTING CONDUIT
18. INSTALL CABLE(S) IN NEW CONDUIT
19. INSTALL CABLE(S) IN EXISTING RISER(S)
20. INSTALL CABLE(S) IN NEW RISER(S)
21. INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE
22. INSTALL NEW CONDUIT INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)
23. INSTALL NEW RISER INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)
24. INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET
25. INSTALL NEW RISER INTO POLE MOUNTED CABINET
26. INSTALL DIGITAL VIDEO ENCODER
27. INSTALL NEW ETHERNET EDGE SWITCH IN CABINET
28. INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET
29. INSTALL UNDERGROUND SPLICE ENCLOSURE
30. INSTALL AERIAL SPLICE ENCLOSURE
31. INSTALL SPLICE CABINET
32. MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER
33. REMOVE EXISTING SPLICE /HUB / CCTV CABINET
34. INSTALL CABINET FOUNDATION
35. REMOVE EXISTING CABINET FOUNDATION
36. INSTALL CCTV CAMERA ASSEMBLY
37. INSTALL CCTV WOOD POLE (60')
38. INSTALL STANDARD SIZE JUNCTION BOX
39. INSTALL SPECIAL–SIZED JUNCTION BOX
40. INSTALL OVER–SIZED JUNCTION BOX
41. REMOVE EXISTING JUNCTION BOX
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44. INSTALL AERIAL GUY ASSEMBLY
45. INSTALL STANDARD GUY ASSEMBLY
46. INSTALL SIDEWALK GUY ASSEMBLY
47. INSTALL MESSENGER CABLE
48. REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE
49. REMOVE EXISTING COMMUNICATIONS CABLE
50. INSTALL WIRELESS DSL
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62. NEW CABINET ENTRANCE INTO NEW FOUNDATION
63. DRILL/CORE DRILL EXISTING FOUNDATION
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TMP Area 2 Phase II

ATTACHMENT POINT:
XXX / YYY — DISTANCE ABOVE (IN) / REFERENCE POINT
YYY / XXX — REFERENCE POINT / DISTANCE BELOW (IN)

CONSTRUCTION NOTE SYMBOLOGY KEY
NUMBER OF CABLE(S) /LOOPS, DETECTOR AMPLIFIERS, GUYS
NUMBER OF FIBERS/TWISTED PAIRS
NUMBER OF RISER(S)/ CONDUIT(S)
DIAMETER OF RISER(S)/ CONDUIT(S) (IN)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of: Transportation Mobility and Safety Division, North Carolina Department of Transportation, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

Docusigned by: 1/30/2017
SIGNATURE DATE

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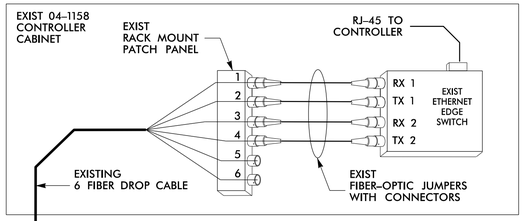
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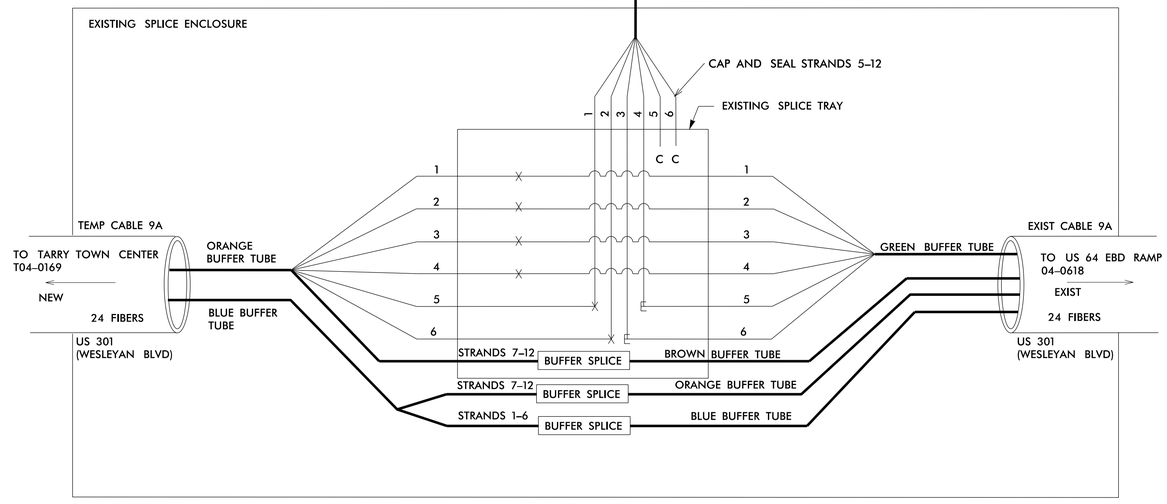
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-20

SPLICE ENCLOSURE NO.

T04-1158





LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED		
(2) ORANGE	(8) BLACK		
(3) GREEN	(9) YELLOW		
(4) BROWN	(10) VIOLET		
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X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

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TMP Area 2, Phase II

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 HENRY ALFRED BADGETT III

Docusigned by: Henry Alfred Badgett III 1/30/2017
DATE

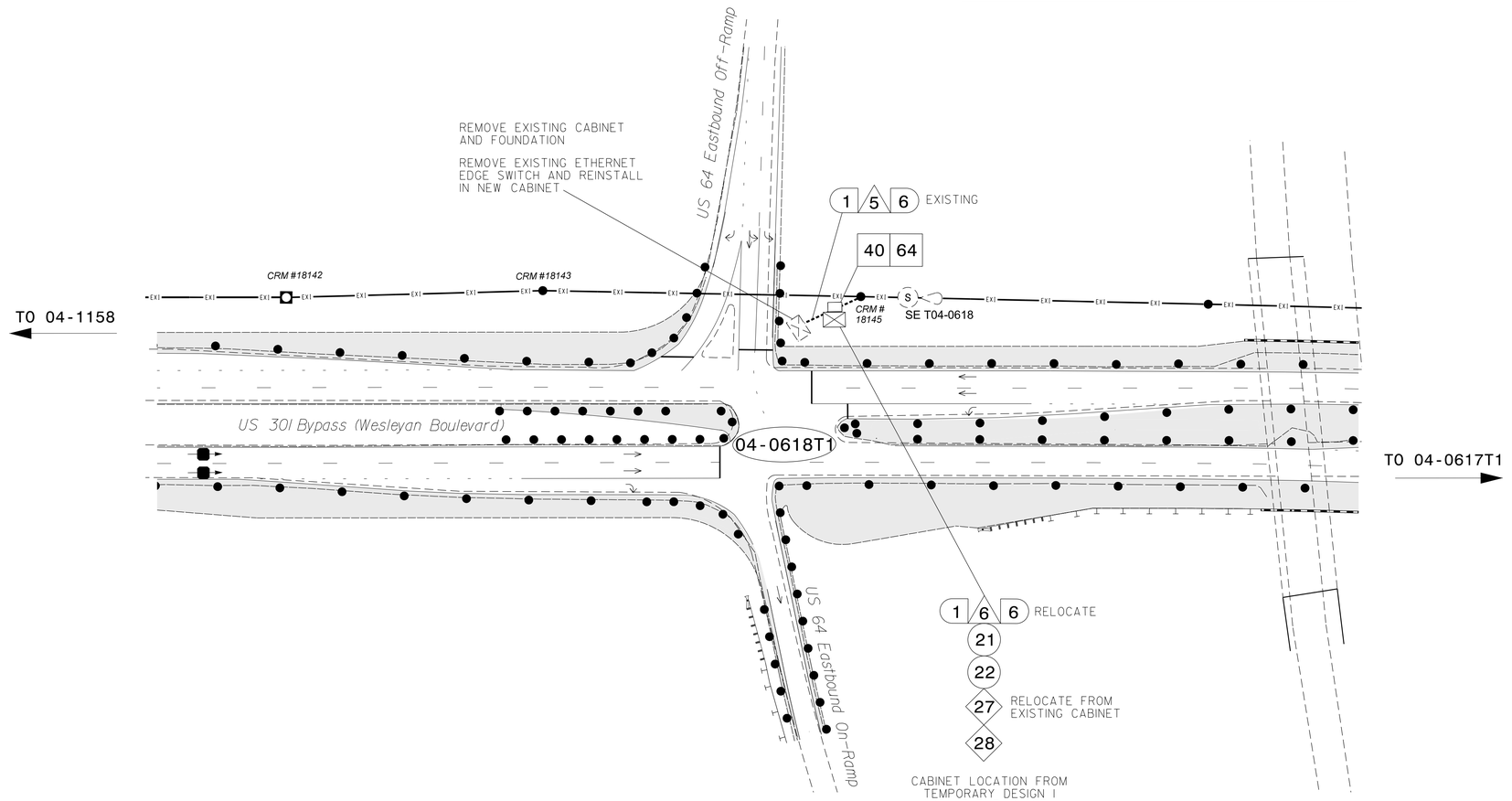
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-21

SEE TRANSPORTATION MANAGEMENT PLAN (TMP)
AREA 3, PHASE I



NOTES:
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10 INSTALL RIGID, GALVANIZED STEEL CONDUIT	22 INSTALL NEW CONDUIT INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)	34 INSTALL CABINET FOUNDATION	46 INSTALL SIDEWALK GUY ASSEMBLY	58 INSTALL NEW ELECTRICAL SERVICE FOR CCTV	70 INSTALL CCTV METAL POLE & FOUNDATION
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12 INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING	24 INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET	36 INSTALL CCTV CAMERA ASSEMBLY	48 REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE	60 REMOVE EXISTING METAL CCTV POLE AND FOUNDATION	

TMP Area 3 Phase I

ATTACHMENT POINT:
XXX / YYY — DISTANCE ABOVE (IN) REFERENCE POINT
YYY / XXX — REFERENCE POINT DISTANCE BELOW (IN)

CONSTRUCTION NOTE SYMBOLOGY KEY
NUMBER OF CABLE(S) /LOOPS, DETECTOR AMPLIFIERS, GUYS
NUMBER OF FIBERS/TWISTED PAIRS
NUMBER OF RISER(S)/ CONDUIT(S)
DIAMETER OF RISER(S)/ CONDUIT(S) (IN)

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of: Transportation Mobility and Safety Division, North Carolina Department of Transportation, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS
Digitally signed by
DATE 1/30/2017

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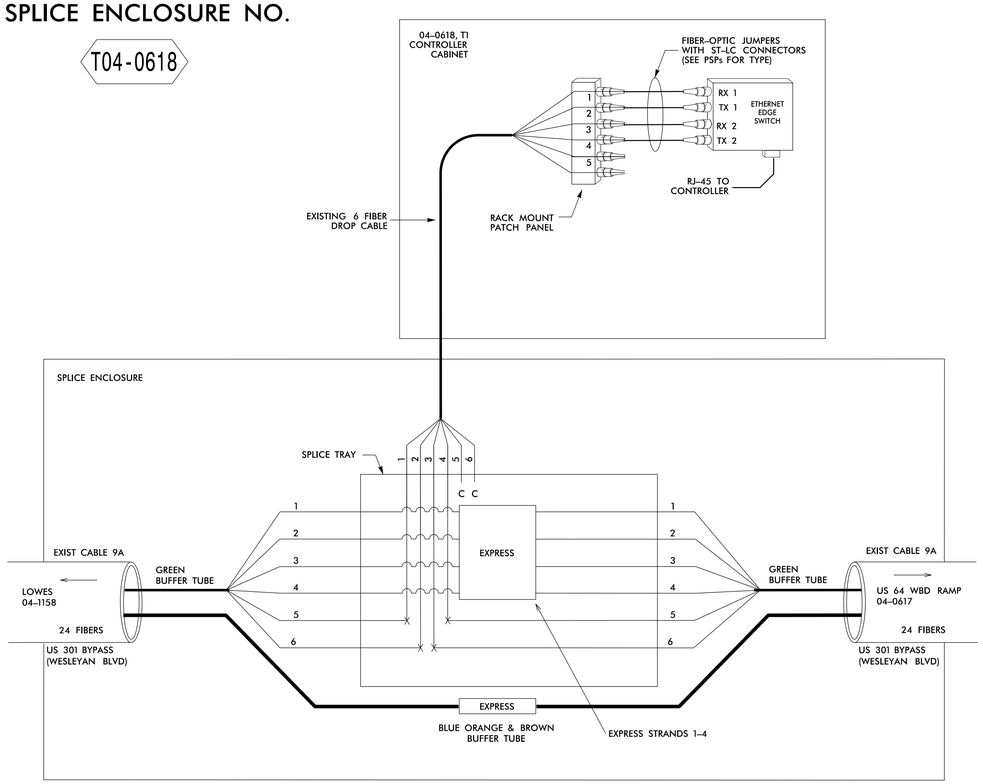
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-22

SPLICE ENCLOSURE NO.

T04-0618



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598–B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252–972–1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
5. CONTRACTOR TO RECORD EXISTNG SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS–BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGED DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731–3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A–D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP Area 3, Phase I

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

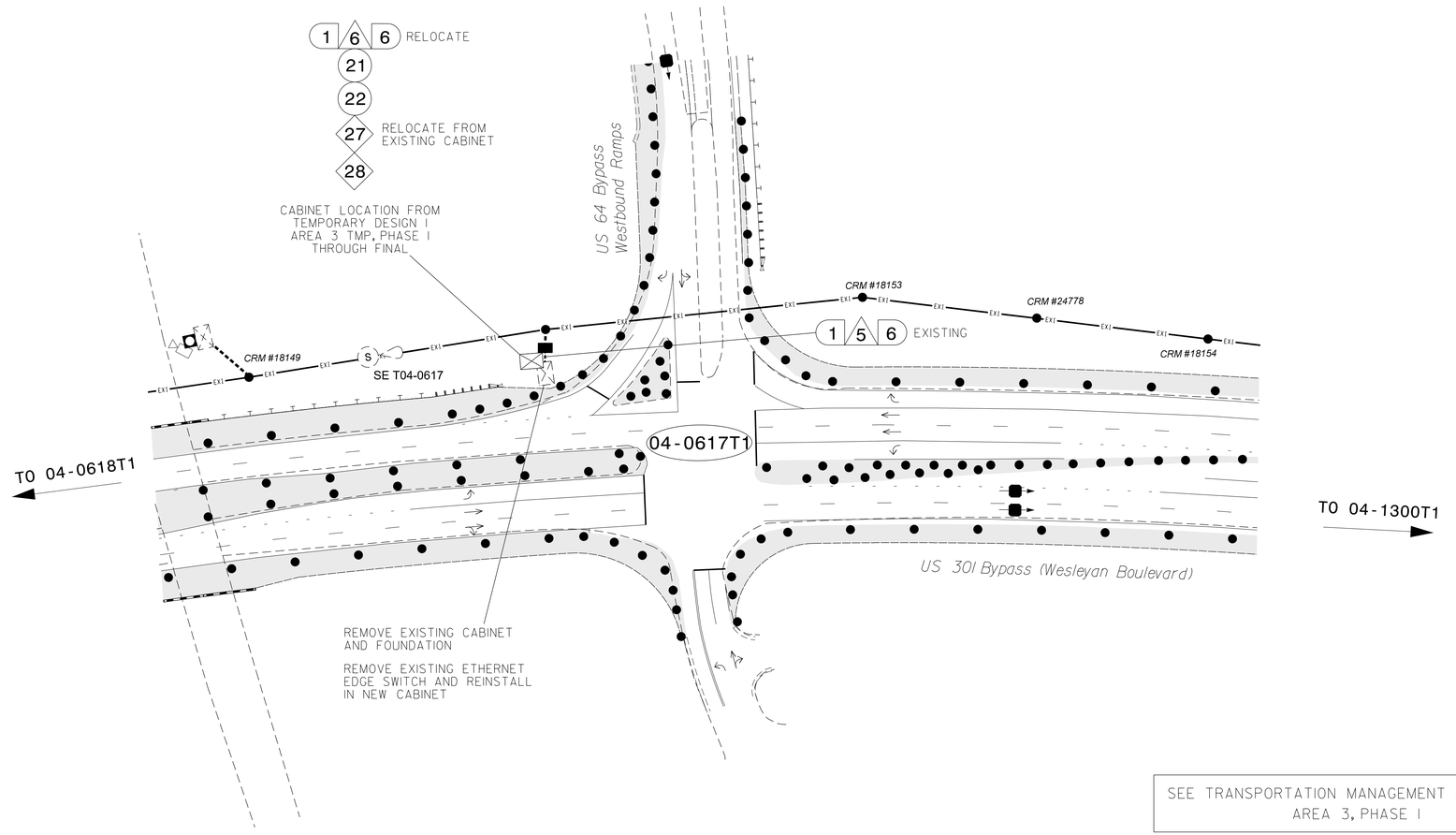
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT
DocuSigned by: Henry Alfred Badgett III 1/30/2017
DESIGNER'S SIGNATURE DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-23



SEE TRANSPORTATION MANAGEMENT PLAN (TMP) AREA 3, PHASE 1

NOTES:
1. UNLESS OTHERWISE NOTED:
   – OVERLASH NEW FIBER OPTIC CABLE TO EXISTING COMMUNICATIONS CABLE.
   – ATTACH NEW MESSENGER CABLE 40" BELOW POWER.
   – ATTACH ON FRONT SIDE (FS) OF POLE.
2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
3. EXISTING (ON–CALL) DENOTES FO CABLE INSTALLED BY DIVISION 4 ON–CALL CONTRACTOR PRIOR TO CONSTRUCTION.

1	INSTALL COMPOSITE CCTV CABLE	13	INSTALL HEAT SHRINK TUBING RETROFIT KIT	25	INSTALL NEW RISER INTO POLE MOUNTED CABINET	37	INSTALL CCTV WOOD POLE (60')
2	INSTALL 3 WIRE FEEDER CONDUCTORS	14	INSTALL HIGH DENSITY POLYETHYLENE CONDUIT	26	INSTALL DIGITAL VIDEO ENCODER	38	INSTALL STANDARD SIZE JUNCTION BOX
3	INSTALL CATEGORY 5E CABLE	15	DIRECTIONAL DRILL CONDUIT	27	INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39	INSTALL SPECIAL–SIZED JUNCTION BOX
4	INSTALL SMFO CABLE	16	BORE AND JACK CONDUIT	28	INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40	INSTALL OVER–SIZED JUNCTION BOX
5	BACK–PULL EXIST SMFO CABLE	17	INSTALL CABLE(S) IN EXISTING CONDUIT	29	INSTALL UNDERGROUND SPLICE ENCLOSURE	41	REMOVE EXISTING JUNCTION BOX
6	INSTALL FIBER–OPTIC DROP CABLE	18	INSTALL CABLE(S) IN NEW CONDUIT	30	INSTALL AERIAL SPLICE ENCLOSURE	42	INSTALL WOOD POLE (50')
7	INSTALL TRACER WIRE	19	INSTALL CABLE(S) IN EXISTING RISER(S)	31	INSTALL SPLICE CABINET	43	REMOVE EXISTING WOOD POLE
8	TRENCH CONDUIT	20	INSTALL CABLE(S) IN NEW RISER(S)	32	MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER	44	INSTALL AERIAL GUY ASSEMBLY
9	INSTALL PVC CONDUIT	21	INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE	33	REMOVE EXISTING SPLICE /HUB / CCTV CABINET	45	INSTALL STANDARD GUY ASSEMBLY
10	INSTALL RIGID, GALVANIZED STEEL CONDUIT	22	INSTALL NEW CONDUIT INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)	34	INSTALL CABINET FOUNDATION	46	INSTALL SIDEWALK GUY ASSEMBLY
11	INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD	23	INSTALL NEW RISER INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)	35	REMOVE EXISTING CABINET FOUNDATION	47	INSTALL MESSENGER CABLE
12	INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING	24	INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET	36	INSTALL CCTV CAMERA ASSEMBLY	48	REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE

49	REMOVE EXISTING COMMUNICATIONS CABLE	61	REMOVE EXISTING CCTV CAMERA ASSEMBLY		
50	INSTALL WIRELESS DSL	62	NEW CABINET ENTRANCE INTO NEW FOUNDATION		
51	INSTALL CABLE STORAGE GUIDE(S) (SNOW SHOE(S)) AND STORE 100 FEET OF EACH CABLE	63	DRILL/CORE DRILL EXISTING FOUNDATION		
52	INSTALL DELINEATOR MARKER	64	INTERCEPT AND REROUTE EXISTING CONDUITS		
53	STORE 50 FEET OF COMMUNICATIONS CABLE (EACH CABLE)	65	BOND MESSENGER TO POLE GROUND		
54	LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	66	BOND RISER TO POLE GROUND		
55	LASH CABLE(S) TO EXISTING MESSENGER CABLE	67	BOND TRACER WIRE TO EQUIPMENT GROUND BUS		
56	LASH CABLE(S) TO NEW MESSENGER CABLE	68	BOND TRACER WIRE TO POLE GROUND		
57	MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV	69	INSTALL MANAGED ETHERNET SWITCH		
58	INSTALL NEW ELECTRICAL SERVICE FOR CCTV	70	INSTALL CCTV METAL POLE & FOUNDATION		
59	INSTALL NEW POLE MOUNTED CCTV CABINET (336)	71	INSTALL DISCONNECT ON CCTV POLE		
60	REMOVE EXISTING METAL CCTV POLE AND FOUNDATION				

ATTACHMENT POINT:
XXX / YYY — DISTANCE ABOVE (IN) REFERENCE POINT
YYY / XXX — REFERENCE POINT DISTANCE BELOW (IN)

CONSTRUCTION NOTE SYMBOLOGY KEY
NUMBER OF CABLE(S)/LOOPS, DETECTOR AMPLIFIERS, GUYS
NUMBER OF FIBERS/TWISTED PAIRS
NUMBER OF RISER(S)/ CONDUIT(S)
DIAMETER OF RISER(S)/ CONDUIT(S) (IN)

TMP Area 3 Phase 1

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Planning Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks
PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

Docusigned by: 1/30/2017 DATE

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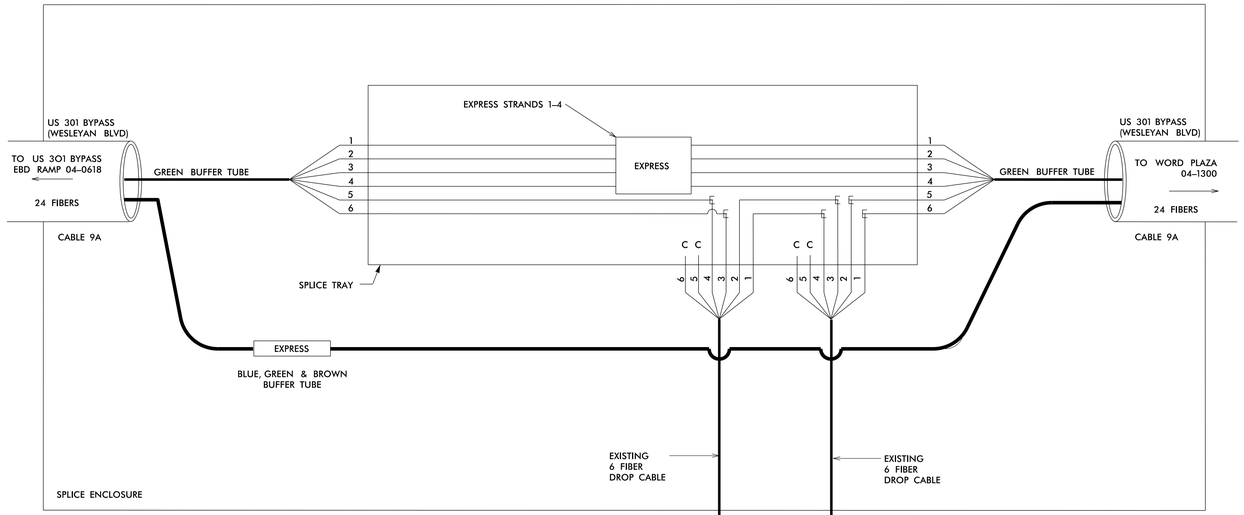
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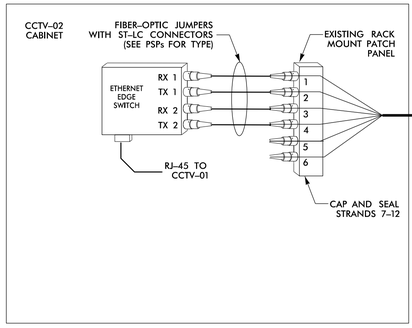
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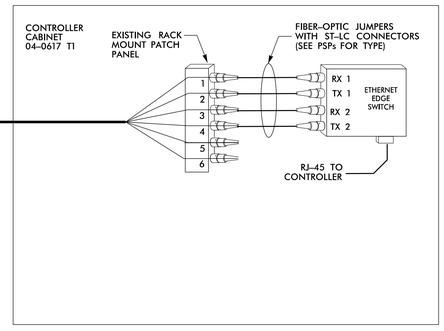
PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-24

SPLICE ENCLOSURE NO.

T04-0617







LEGEND

COLOR CODE TIA/EIA 598-B			
(1)	BLUE	(7)	RED
(2)	ORANGE	(8)	BLACK
(3)	GREEN	(9)	YELLOW
(4)	BROWN	(10)	VIOLET
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(6)	WHITE	(12)	AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252-972-1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO; THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
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6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731-3(A)):

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PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A-D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP Area 3, Phase I

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016	REVIEWED BY: HA Badgett
PREPARED BY: GB Spell	REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE
N.T.S.		

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT

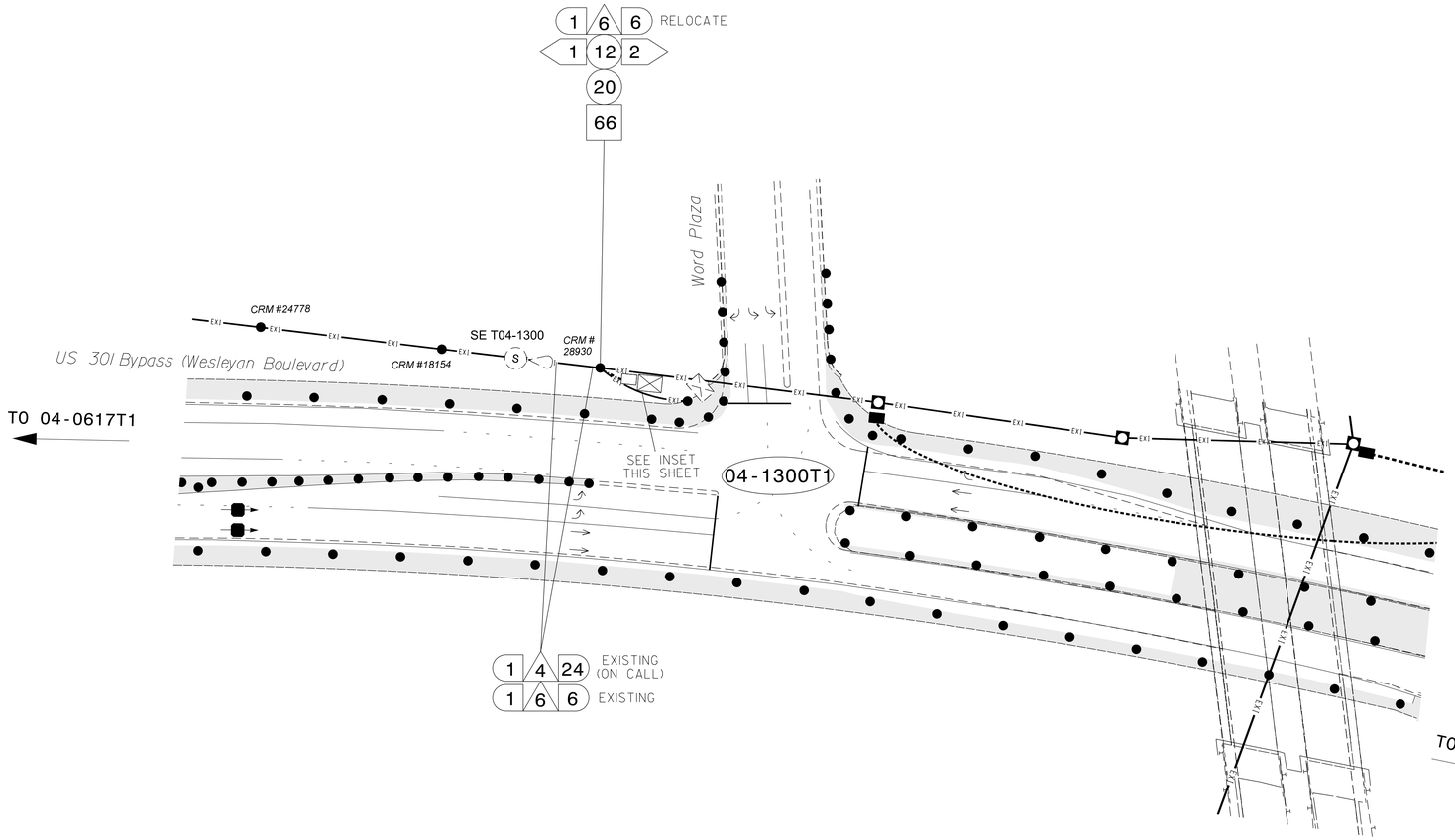
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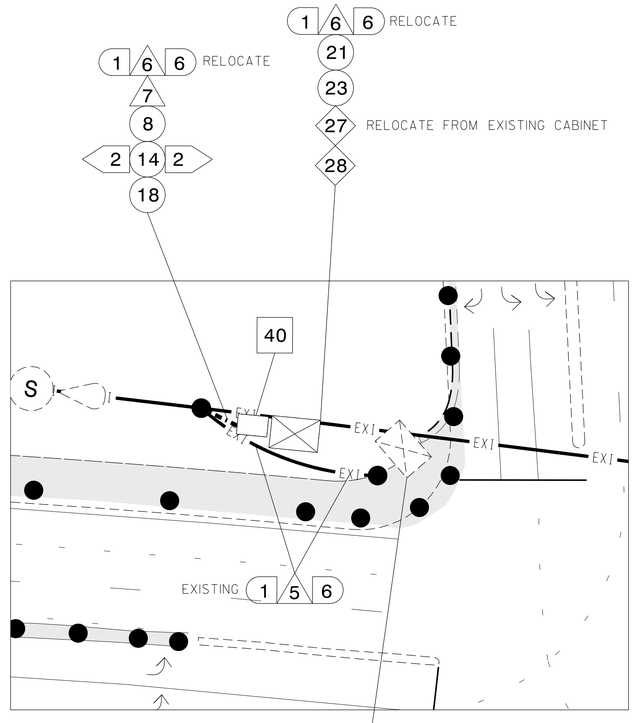
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-25



CABINET LOCATION FROM TEMPORARY DESIGN I AREA 3 TMP, PHASES I & II THROUGH FINAL



INSET

REMOVE EXISTING CABINET AND FOUNDATION

REMOVE EXISTING ETHERNET EDGE SWITCH AND REINSTALL IN NEW CABINET

SEE TRANSPORTATION MANAGEMENT PLAN (TMP) AREA 3, PHASES I & II

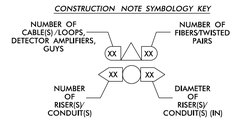
NOTES:
1. UNLESS OTHERWISE NOTED:
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   – ATTACH NEW MESSENGER CABLE 40" BELOW POWER.
   – ATTACH ON FRONT SIDE (FS) OF POLE.
2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
3. EXISTING (ON–CALL) DENOTES FO CABLE INSTALLED BY DIVISION 4 ON–CALL CONTRACTOR PRIOR TO CONSTRUCTION.

1	INSTALL COMPOSITE CCTV CABLE	13	INSTALL HEAT SHRINK TUBING RETROFIT KIT	25	INSTALL NEW RISER INTO POLE MOUNTED CABINET	37	INSTALL CCTV WOOD POLE (60')	49	REMOVE EXISTING COMMUNICATIONS CABLE	61	REMOVE EXISTING CCTV CAMERA ASSEMBLY
2	INSTALL 3 WIRE FEEDER CONDUCTORS	14	INSTALL HIGH DENSITY POLYETHYLENE CONDUIT	26	INSTALL DIGITAL VIDEO ENCODER	38	INSTALL STANDARD SIZE JUNCTION BOX	50	INSTALL WIRELESS DSL	62	NEW CABINET ENTRANCE INTO NEW FOUNDATION
3	INSTALL CATEGORY 5E CABLE	15	DIRECTIONAL DRILL CONDUIT	27	INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39	INSTALL SPECIAL–SIZED JUNCTION BOX	51	INSTALL CABLE STORAGE GUIDE(S) [SNOW SHOE(S)] AND STORE 100 FEET OF EACH CABLE	63	DRILL/CORE DRILL EXISTING FOUNDATION
4	INSTALL SMFO CABLE	16	BORE AND JACK CONDUIT	28	INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40	INSTALL OVER–SIZED JUNCTION BOX	52	INSTALL DELINEATOR MARKER	64	INTERCEPT AND REROUTE EXISTING CONDUITS
5	BACK–PULL EXIST SMFO CABLE	17	INSTALL CABLE(S) IN EXISTING CONDUIT	29	INSTALL UNDERGROUND SPLICE ENCLOSURE	41	REMOVE EXISTING JUNCTION BOX	53	STORE 50 FEET OF COMMUNICATIONS CABLE (EACH CABLE)	65	BOND MESSENGER TO POLE GROUND
6	INSTALL FIBER–OPTIC DROP CABLE	18	INSTALL CABLE(S) IN NEW CONDUIT	30	INSTALL AERIAL SPLICE ENCLOSURE	42	INSTALL WOOD POLE (50')	54	LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	66	BOND RISER TO POLE GROUND
7	INSTALL TRACER WIRE	19	INSTALL CABLE(S) IN EXISTING RISER(S)	31	INSTALL SPLICE CABINET	43	REMOVE EXISTING WOOD POLE	55	LASH CABLE(S) TO EXISTING MESSENGER CABLE	67	BOND TRACER WIRE TO EQUIPMENT GROUND BUS
8	TRENCH CONDUIT	20	INSTALL CABLE(S) IN NEW RISER(S)	32	MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER	44	INSTALL AERIAL GUY ASSEMBLY	56	LASH CABLE(S) TO NEW MESSENGER CABLE	68	BOND TRACER WIRE TO POLE GROUND
9	INSTALL PVC CONDUIT	21	INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE	33	REMOVE EXISTING SPLICE /HUB / CCTV CABINET	45	INSTALL STANDARD GUY ASSEMBLY	57	MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV	69	INSTALL MANAGED ETHERNET SWITCH
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TMP Area 3 Phases I & II

ATTACHMENT POINT:
- XXX / YYY — DISTANCE ABOVE (IN) REFERENCE POINT
- YYY / XXX — REFERENCE POINT DISTANCE BELOW (IN)

CONSTRUCTION NOTE SYMBOLOGY KEY



ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

Docusigned by: 1/30/2017 DATE

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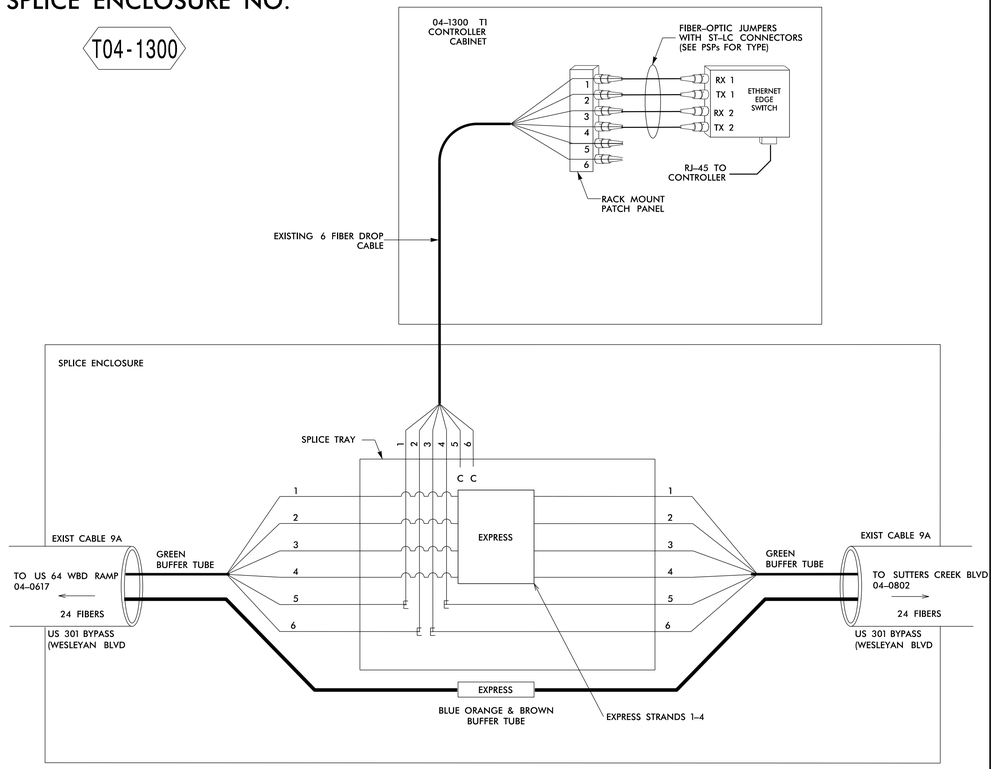
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ATKINS
U00052135

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-26

SPLICE ENCLOSURE NO.

T04-1300



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA-EIA 598-B	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252-972-1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
5. CONTRACTOR TO RECORD EXISTNG SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGED DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731-3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A-D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

TMP Area 3, Phases I & II

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
NC DEPARTMENT OF TRANSPORTATION
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett
PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

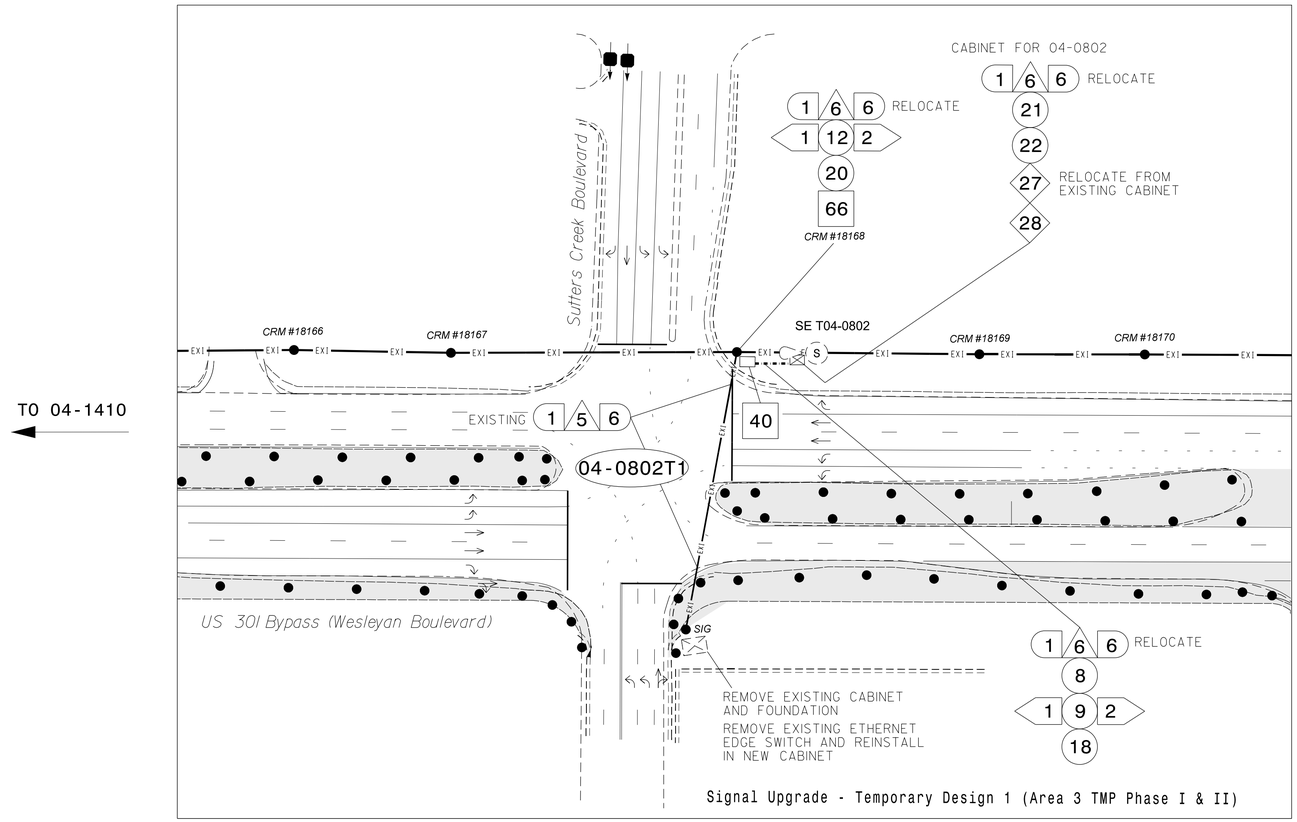
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DocuSigned by: Alfred Badgett III 1/30/2017 DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-27



Signal Upgrade - Temporary Design 1 (Area 3 TMP Phase I & II)

SEE TRANSPORTATION MANAGEMENT PLAN (TMP)
AREA 3, PHASES I & II

NOTES:
1. UNLESS OTHERWISE NOTED:
   – OVERLASH NEW FIBER OPTIC CABLE TO EXISTING COMMUNICATIONS CABLE.
   – ATTACH NEW MESSENGER CABLE 40" BELOW POWER.
   – ATTACH ON FRONT SIDE (FS) OF POLE.
2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
3. EXISTING (ON–CALL) DENOTES FO CABLE INSTALLED BY DIVISION 4 ON–CALL CONTRACTOR PRIOR TO CONSTRUCTION.

1	INSTALL COMPOSITE CCTV CABLE	13	INSTALL HEAT SHRINK TUBING RETROFIT KIT	25	INSTALL NEW RISER INTO POLE MOUNTED CABINET	37	INSTALL CCTV WOOD POLE (60')	49	REMOVE EXISTING COMMUNICATIONS CABLE	61	REMOVE EXISTING CCTV CAMERA ASSEMBLY
2	INSTALL 3 WIRE FEEDER CONDUCTORS	14	INSTALL HIGH DENSITY POLYETHYLENE CONDUIT	26	INSTALL DIGITAL VIDEO ENCODER	38	INSTALL STANDARD SIZE JUNCTION BOX	50	INSTALL WIRELESS DSL	62	NEW CABINET ENTRANCE INTO NEW FOUNDATION
3	INSTALL CATEGORY 5E CABLE	15	DIRECTIONAL DRILL CONDUIT	27	INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39	INSTALL SPECIAL–SIZED JUNCTION BOX	51	INSTALL CABLE STORAGE GUIDE(S) [SNOW SHOE(S)] AND STORE 100 FEET OF EACH CABLE	63	DRILL/CORE DRILL EXISTING FOUNDATION
4	INSTALL SMFO CABLE	16	BORE AND JACK CONDUIT	28	INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40	INSTALL OVER–SIZED JUNCTION BOX	52	INSTALL DELINEATOR MARKER	64	INTERCEPT AND REROUTE EXISTING CONDUITS
5	BACK–PULL EXIST SMFO CABLE	17	INSTALL CABLE(S) IN EXISTING CONDUIT	29	INSTALL UNDERGROUND SPLICE ENCLOSURE	41	REMOVE EXISTING JUNCTION BOX	53	STORE 50 FEET OF COMMUNICATIONS CABLE (EACH CABLE)	65	BOND MESSENGER TO POLE GROUND
6	INSTALL FIBER–OPTIC DROP CABLE	18	INSTALL CABLE(S) IN NEW CONDUIT	30	INSTALL AERIAL SPLICE ENCLOSURE	42	INSTALL WOOD POLE (50')	54	LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	66	BOND RISER TO POLE GROUND
7	INSTALL TRACER WIRE	19	INSTALL CABLE(S) IN EXISTING RISER(S)	31	INSTALL SPLICE CABINET	43	REMOVE EXISTING WOOD POLE	55	LASH CABLE(S) TO EXISTING MESSENGER CABLE	67	BOND TRACER WIRE TO EQUIPMENT GROUND BUS
8	TRENCH CONDUIT	20	INSTALL CABLE(S) IN NEW RISER(S)	32	MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER	44	INSTALL AERIAL GUY ASSEMBLY	56	LASH CABLE(S) TO NEW MESSENGER CABLE	68	BOND TRACER WIRE TO POLE GROUND
9	INSTALL PVC CONDUIT	21	INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE	33	REMOVE EXISTING SPLICE /HUB / CCTV CABINET	45	INSTALL STANDARD GUY ASSEMBLY	57	MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV	69	INSTALL MANAGED ETHERNET SWITCH
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ATTACHMENT POINT:
XXX DISTANCE ABOVE (IN)
YYY REFERENCE POINT
YYY REFERENCE POINT DISTANCE BELOW (IN)
XXX

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NUMBER OF CABLE(S) /LOOPS, DETECTOR AMPLIFIERS, GUYS
NUMBER OF FIBERS/TWISTED PAIRS
NUMBER OF RISER(S)/ CONDUIT(S)
DIAMETER OF RISER(S)/ CONDUIT(S) (IN)

TMP Area 3 Phases I & II

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
North Carolina Department of Transportation
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening
Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks
PREPARED BY: JA Wiles REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 017586
ENGINEER J. TODD BROOKS

DocuSigned by: 1/30/2017
SIGNATURE DATE

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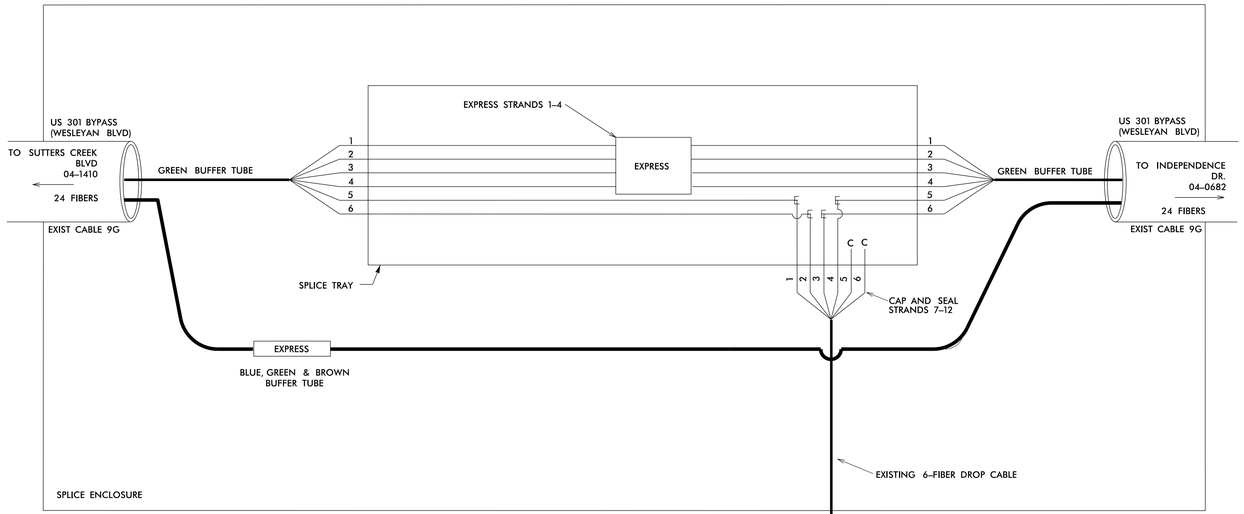
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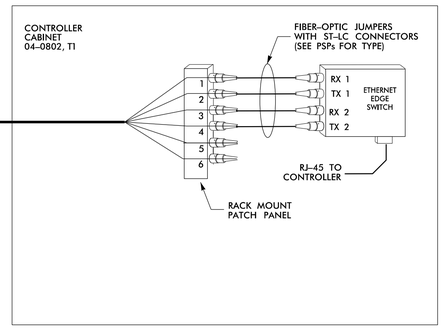
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-28

SPLICE ENCLOSURE NO.

T04-0802





LEGEND

COLOR CODE TIA/EIA 598–B			
(1) BLUE	(7) RED		
(2) ORANGE	(8) BLACK		
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TMP Area 3, Phases I & II

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of: NC Department of Transportation

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER ALFRED BADGETT SEAL 019962

Alfred Badgett III 1/30/2017

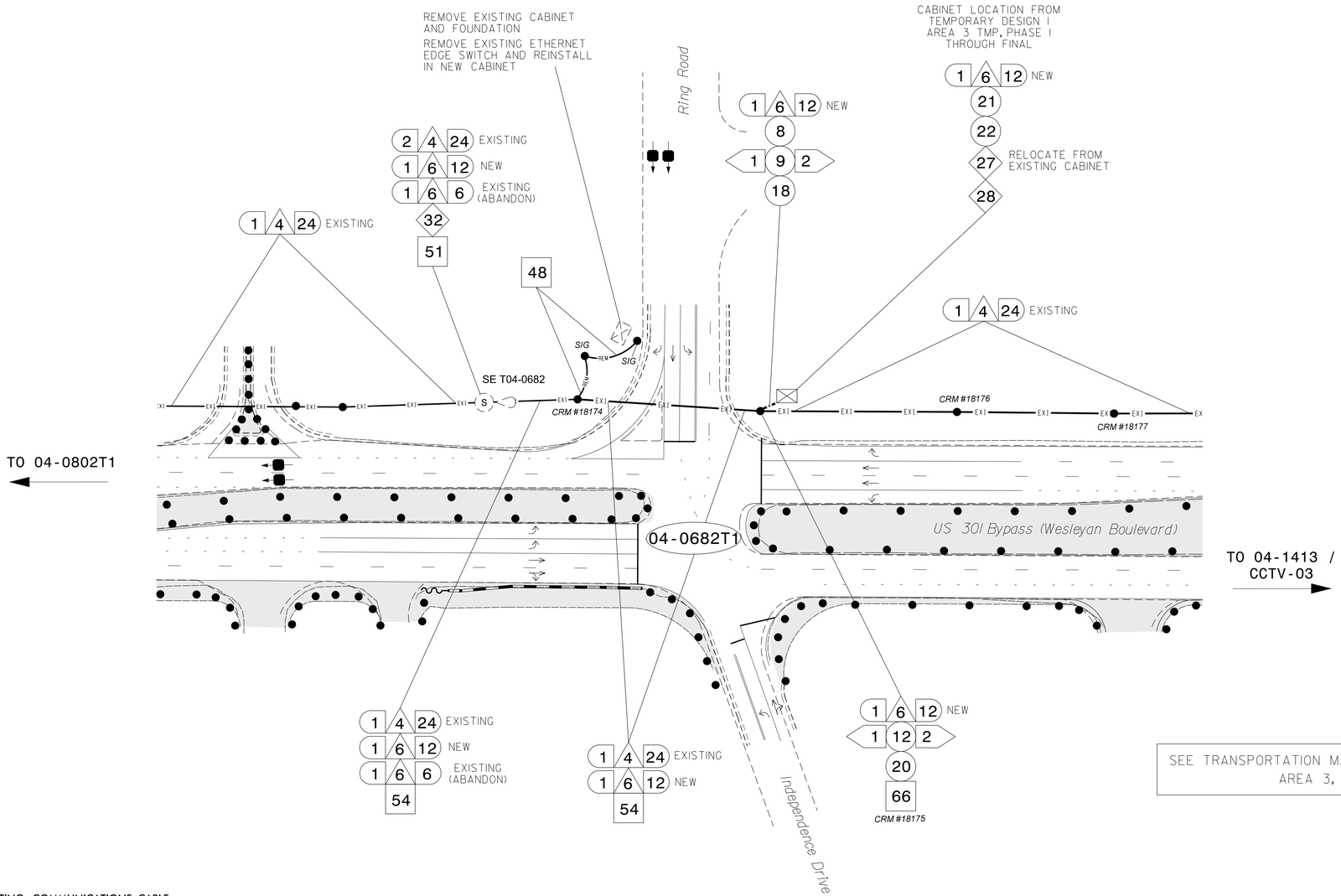
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-29



SEE TRANSPORTATION MANAGEMENT PLAN (TMP) AREA 3, PHASE I

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YYY REFERENCE POINT DISTANCE BELOW (IN)
XXX

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TMP Area 3 Phase I

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS
Digitally signed by
DATE 1/30/2017

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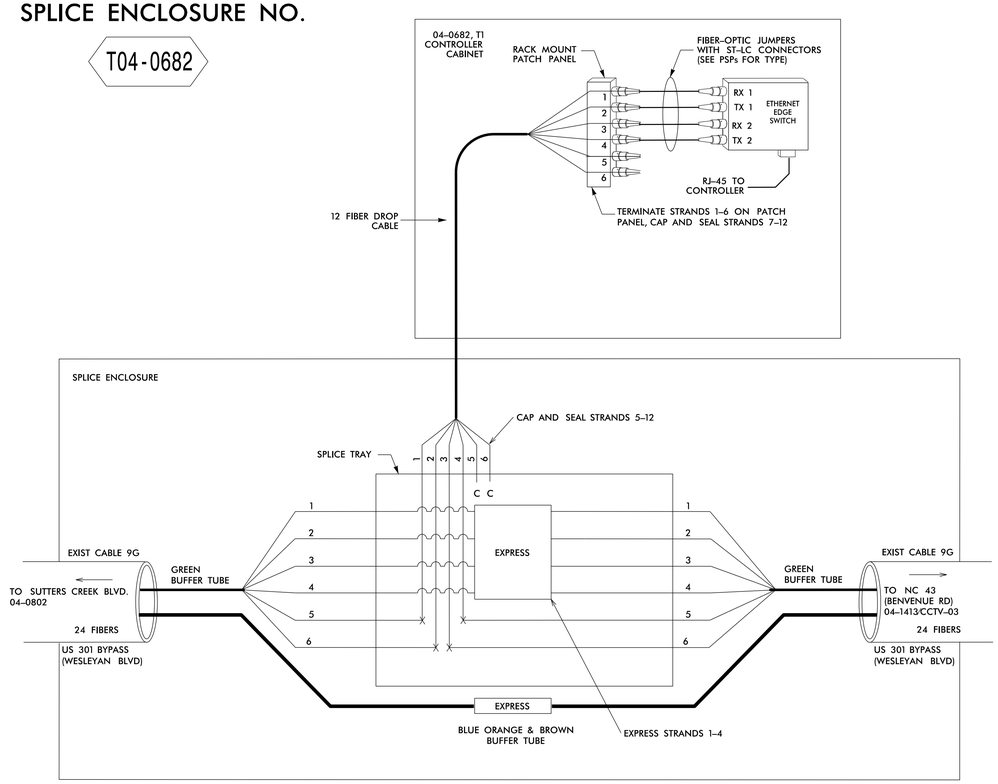
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-30

SPLICE ENCLOSURE NO.

T04-0682



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598-B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
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TMP Area 3, Phase I

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett
PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

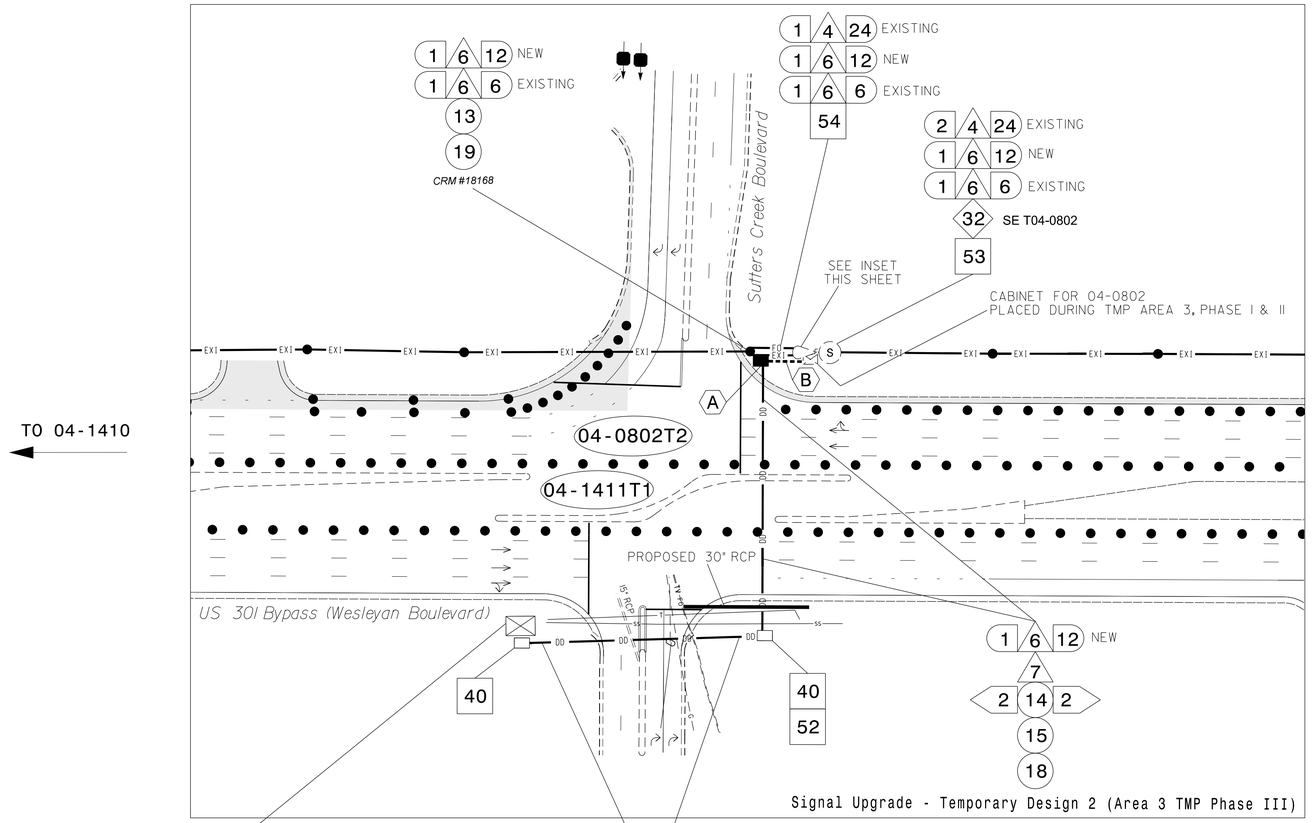
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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT
DocuSigned by: Henry Alfred Badgett III 1/30/2017
DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-31



SEE TRANSPORTATION MANAGEMENT PLAN (TMP) AREA 3, PHASE III

NOTES:
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2 INSTALL 3 WIRE FEEDER CONDUCTORS	14 INSTALL HIGH DENSITY POLYETHYLENE CONDUIT	26 INSTALL DIGITAL VIDEO ENCODER	38 INSTALL STANDARD SIZE JUNCTION BOX	50 INSTALL WIRELESS DSL	62 NEW CABINET ENTRANCE INTO NEW FOUNDATION
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4 INSTALL SMFO CABLE	16 BORE AND JACK CONDUIT	28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40 INSTALL OVER–SIZED JUNCTION BOX	52 INSTALL DELINEATOR MARKER	64 INTERCEPT AND REROUTE EXISTING CONDUITS
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6 INSTALL FIBER–OPTIC DROP CABLE	18 INSTALL CABLE(S) IN NEW CONDUIT	30 INSTALL AERIAL SPLICE ENCLOSURE	42 INSTALL WOOD POLE (50')	54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	66 BOND RISER TO POLE GROUND
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NUMBER OF FIBERS/TWISTED PAIRS
NUMBER OF RISER(S)/ CONDUIT(S)
DIAMETER OF RISER(S)/ CONDUIT(S) (IN)

TMP Area 3 Phase III

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plan

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS
Developed by
1/30/2017
DATE

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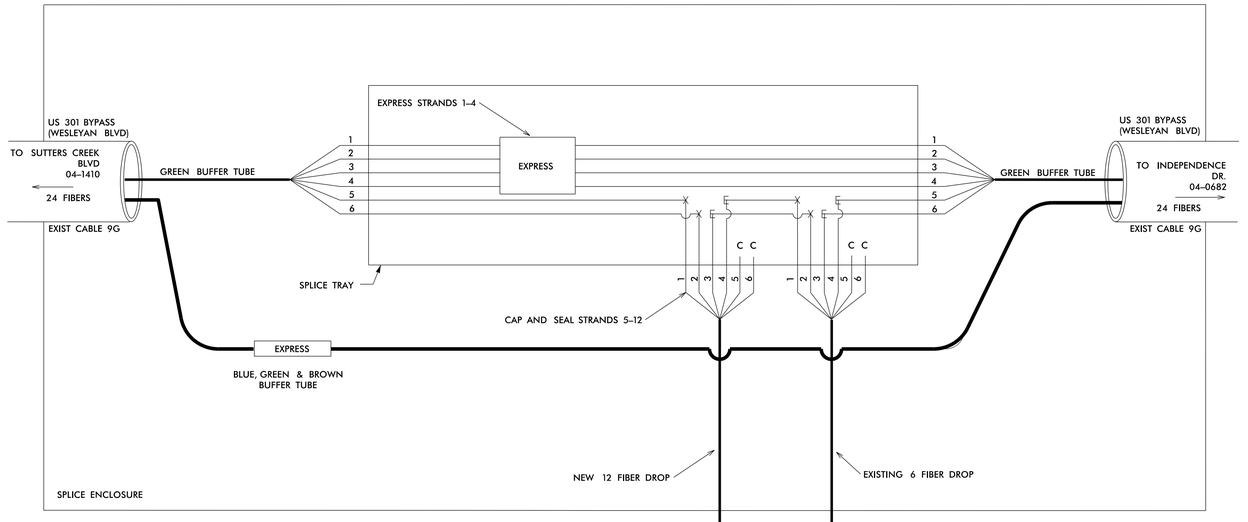
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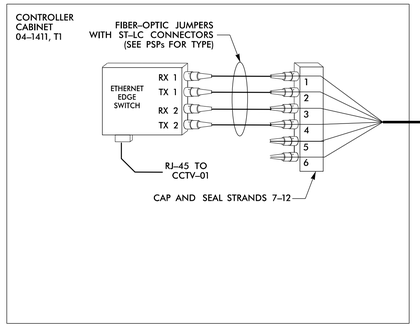
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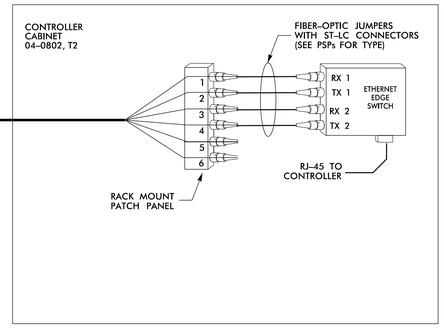
PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-32

SPLICE ENCLOSURE NO.

T04-0802







TMP Area 3, Phase III

LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED	E =	EXIST. FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	X =	FUSION SPLICE INDIVIDUAL FIBER
(3) GREEN	(9) YELLOW	C =	CAP AND SEAL
(4) BROWN	(10) VIOLET	EXPRESS =	EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING
(5) SLATE	(11) ROSE	BUFFER SPLICE =	SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR
(6) WHITE	(12) AQUA		

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252–972–1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
5. CONTRACTOR TO RECORD EXISTNG SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS–BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGED DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731–3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A–D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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Prepared for the Offices of: Traffic Engineering Branch, Traffic Engineering Division, North Carolina Department of Transportation, Transportation Mobility and Safety Division

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Temp. Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT

Developed by: Henry Alfred Badgett III 1/30/2017 DATE

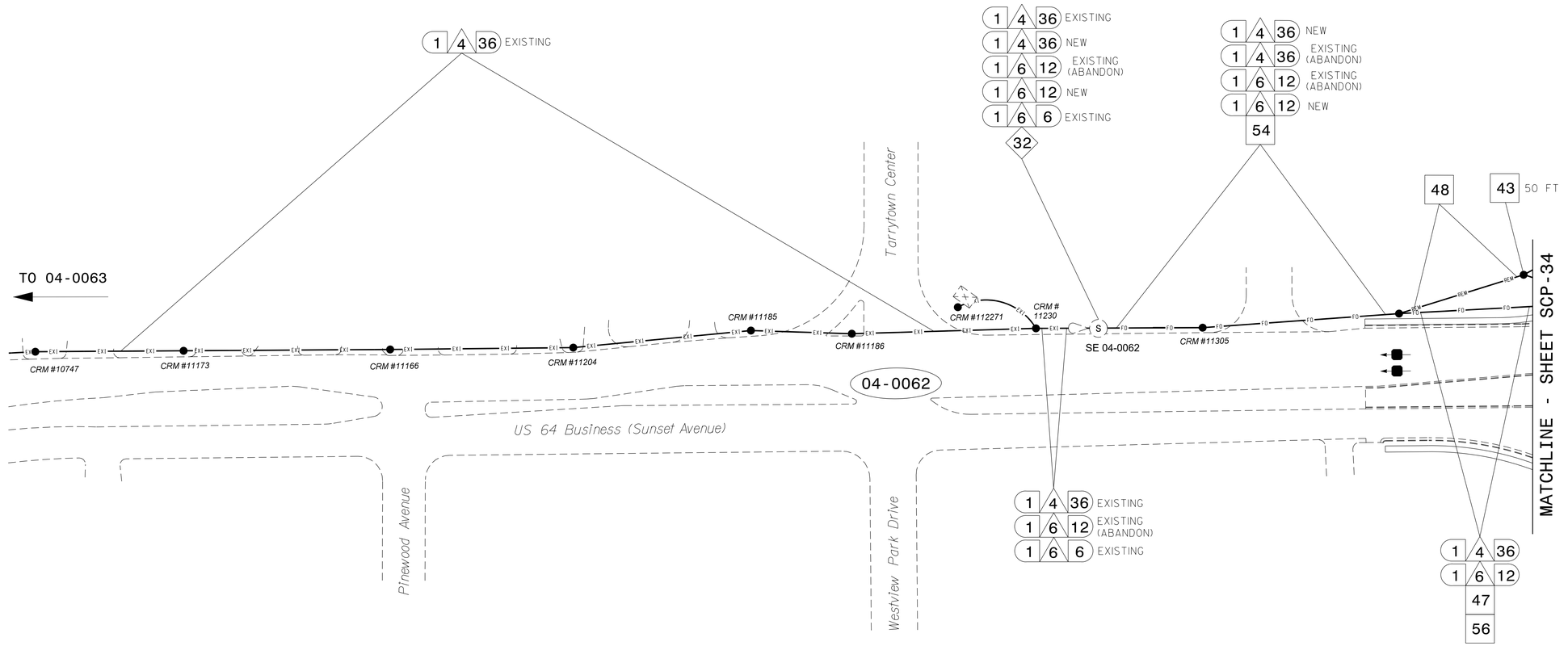
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-33

SEE SIGNAL PLAN FOR SYSTEM DETECTOR INSTALLATION/ASSIGNMENT DETAILS. REFER TO "SYSTEM DETECTORS AND CONTROL ZONES" SCHEMATIC. FOR ADDITIONAL INFORMATION.



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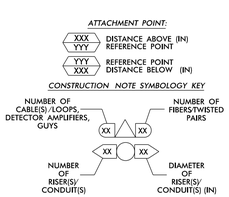
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CONSTRUCTION NOTE SYMBOLOGY KEY



Final

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 310 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

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Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plans

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 017586 ENGINEER J. TODD BROOKS

Docusigned by: 1/30/2017
SIGNATURE DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-34

EXPRESS FIBERS
SEE SPLICE DETAIL
DO NOT CUT CABLE

SEE SIGNAL PLAN FOR SYSTEM DETECTOR INSTALLATION/ASSIGNMENT DETAILS. REFER TO "SYSTEM DETECTORS AND CONTROL ZONES" SCHEMATIC. FOR ADDITIONAL INFORMATION.

TO 04-1408 & 04-0169

MATCHLINE - SHEET SCP-36

MATCHLINE - SHEET SCP-33

MATCHLINE - SHEET SCP-35

RELOCATE CCTV CABINET TO NEW METAL POLE SHOWN IN CCTV-01 INSET THIS SHEET

RELOCATE CCTV CAMERA TO NEW METAL POLE SHOWN IN CCTV-01 INSET THIS SHEET

OLD SE TCCTV-1/ 04-1408 T1

SE CCTV-01

04-0429

04-1409

04-0666

SLACK SPAN

CCTV-01 SEE INSET THIS SHEET

36 RELOCATED

43 60 FT CCTV POLE

50 FT 43

CRM #18123

CRM #39016

CRM #39019

CRM # 16535 SAME CRM

CRM # 25708

CRM # 39036

SE 04-0666

POLE MOUNTED

C-1103

Stone Rose Avenue

Irving Street

May Drive

US 301 Bypass (Wesleyan Boulevard) Southbound On-Ramp

US 301 Bypass (Wesleyan Boulevard) Northbound On-Ramp

US 301 Bypass (Wesleyan Boulevard)

US 64 Business (Sunset Avenue)

TO 04-0063

EXISTING (RETAIN)

EXISTING (RETAIN)

EXISTING

NEW

EXISTING (ABANDON)

NEW

EXISTING (ABANDON)

EXISTING

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Final

CCTV-01 INSET

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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Cable Routing Plans

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS
Docusigned by: 1/30/2017 DATE

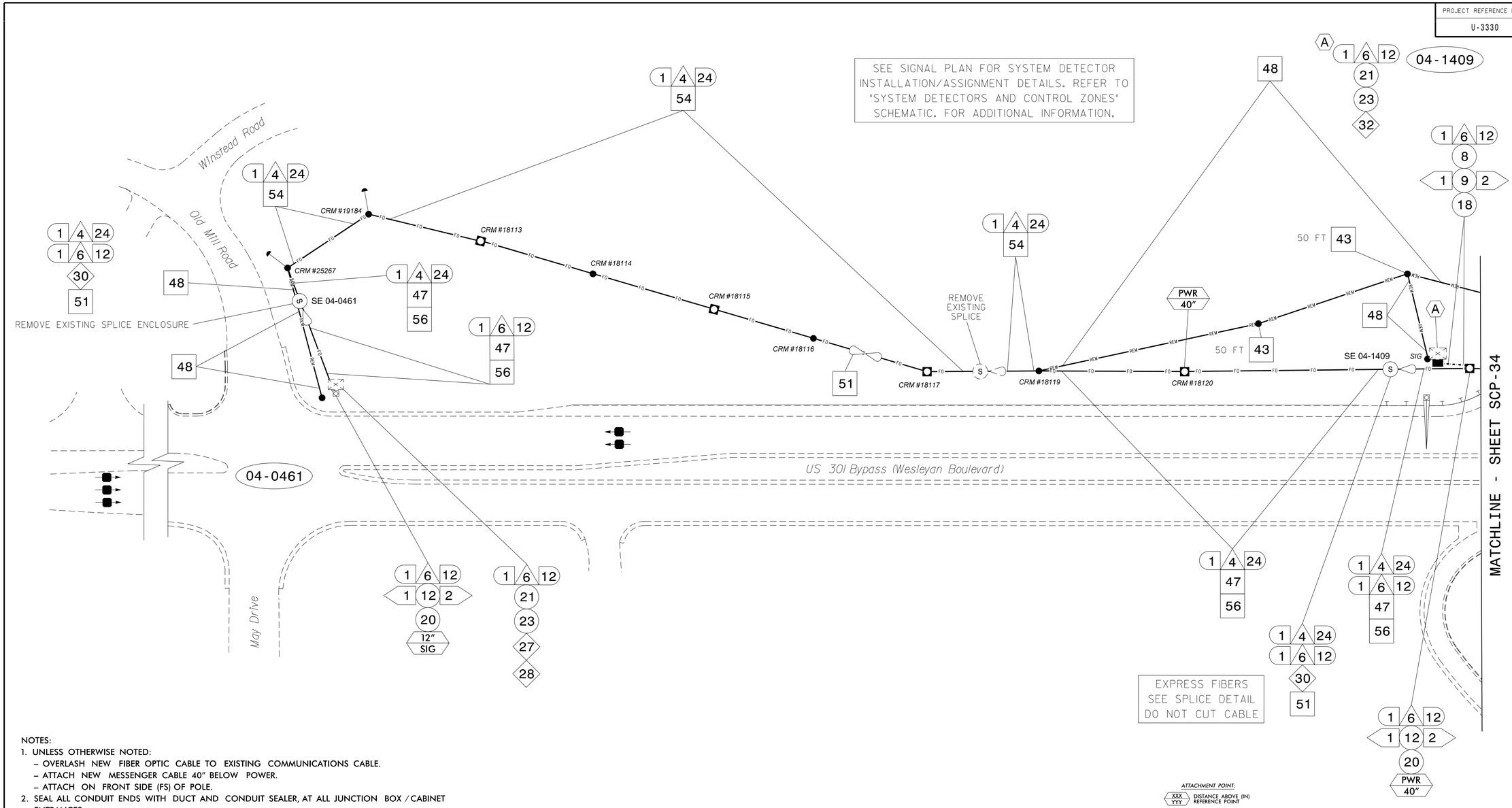
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-35

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3 INSTALL CATEGORY 5E CABLE	15 DIRECTIONAL DRILL CONDUIT	27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39 INSTALL SPECIAL–SIZED JUNCTION BOX	51 INSTALL CABLE STORAGE GUIDE(S) (SNOW SHOE(S)) AND STORE 100 FEET OF EACH CABLE	63 DRILL/CORE DRILL EXISTING FOUNDATION
4 INSTALL SMFO CABLE	16 BORE AND JACK CONDUIT	28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40 INSTALL OVER–SIZED JUNCTION BOX	52 INSTALL DELINEATOR MARKER	64 INTERCEPT AND REROUTE EXISTING CONDUITS
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6 INSTALL FIBER–OPTIC DROP CABLE	18 INSTALL CABLE(S) IN NEW CONDUIT	30 INSTALL AERIAL SPLICE ENCLOSURE	42 INSTALL WOOD POLE (50')	54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE	66 BOND RISER TO POLE GROUND
7 INSTALL TRACER WIRE	19 INSTALL CABLE(S) IN EXISTING RISER(S)	31 INSTALL SPLICE CABINET	43 REMOVE EXISTING WOOD POLE	55 LASH CABLE(S) TO EXISTING MESSENGER CABLE	67 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
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11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD	23 INSTALL NEW RISER INTO CABINET BASE (USE EX CABINET ENTRANCE WHEN AVAILABLE)	35 REMOVE EXISTING CABINET FOUNDATION	47 INSTALL MESSENGER CABLE	59 INSTALL NEW POLE MOUNTED CCTV CABINET (336)	71 INSTALL DISCONNECT ON CCTV POLE
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Final

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Prepared for the Offices of:
Transportation Mobility and Safety — North Carolina Department of Transportation — Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plans

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks
PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

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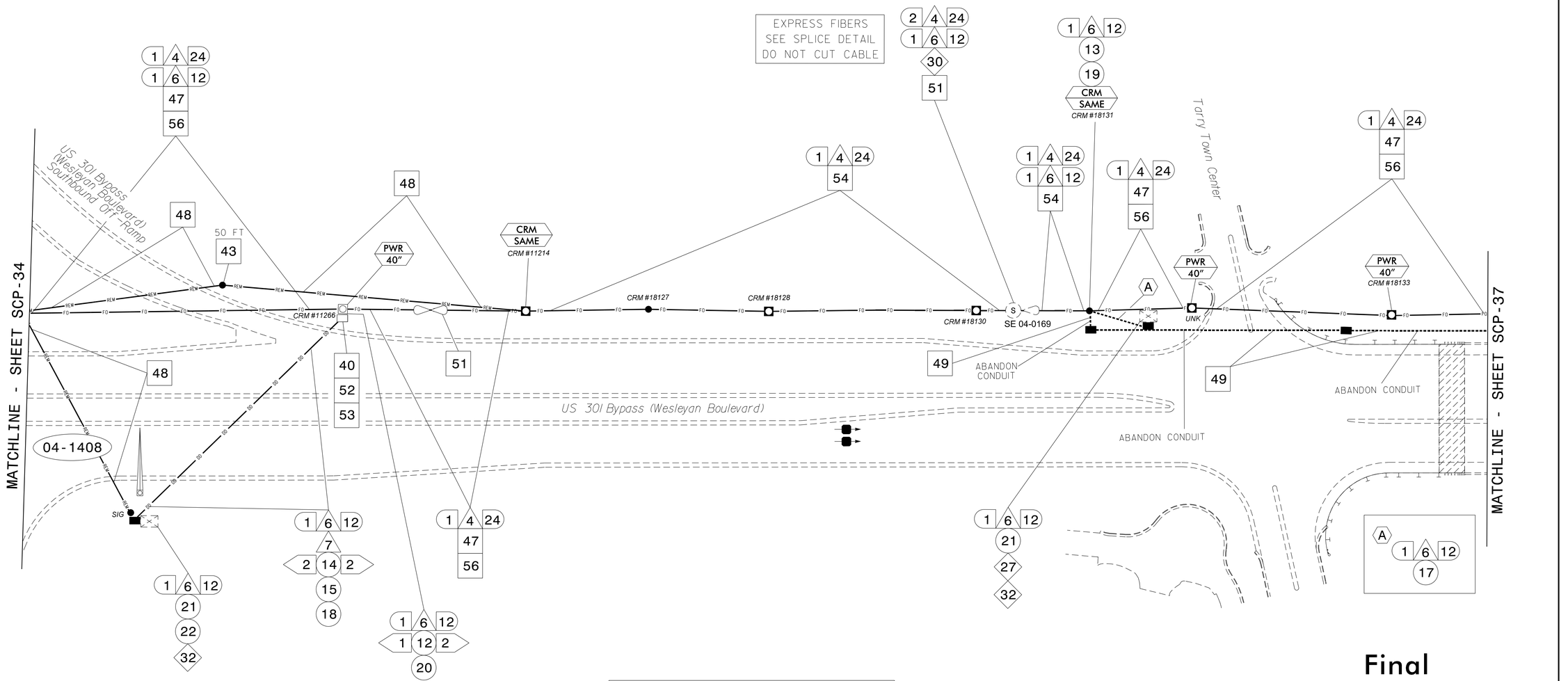
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DocuSigned by: 1/30/2017 DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-36



NOTES:
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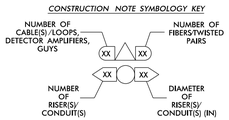
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58	INSTALL NEW ELECTRICAL SERVICE FOR CCTV	70	INSTALL CCTV METAL POLE & FOUNDATION
59	INSTALL NEW POLE MOUNTED CCTV CABINET (336)	71	INSTALL DISCONNECT ON CCTV POLE
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CONSTRUCTION NOTE SYMBOLOGY KEY



Final

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Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.,Garner,NC 27529

US 301 Widening

Cable Routing Plans

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J TODD BROOKS

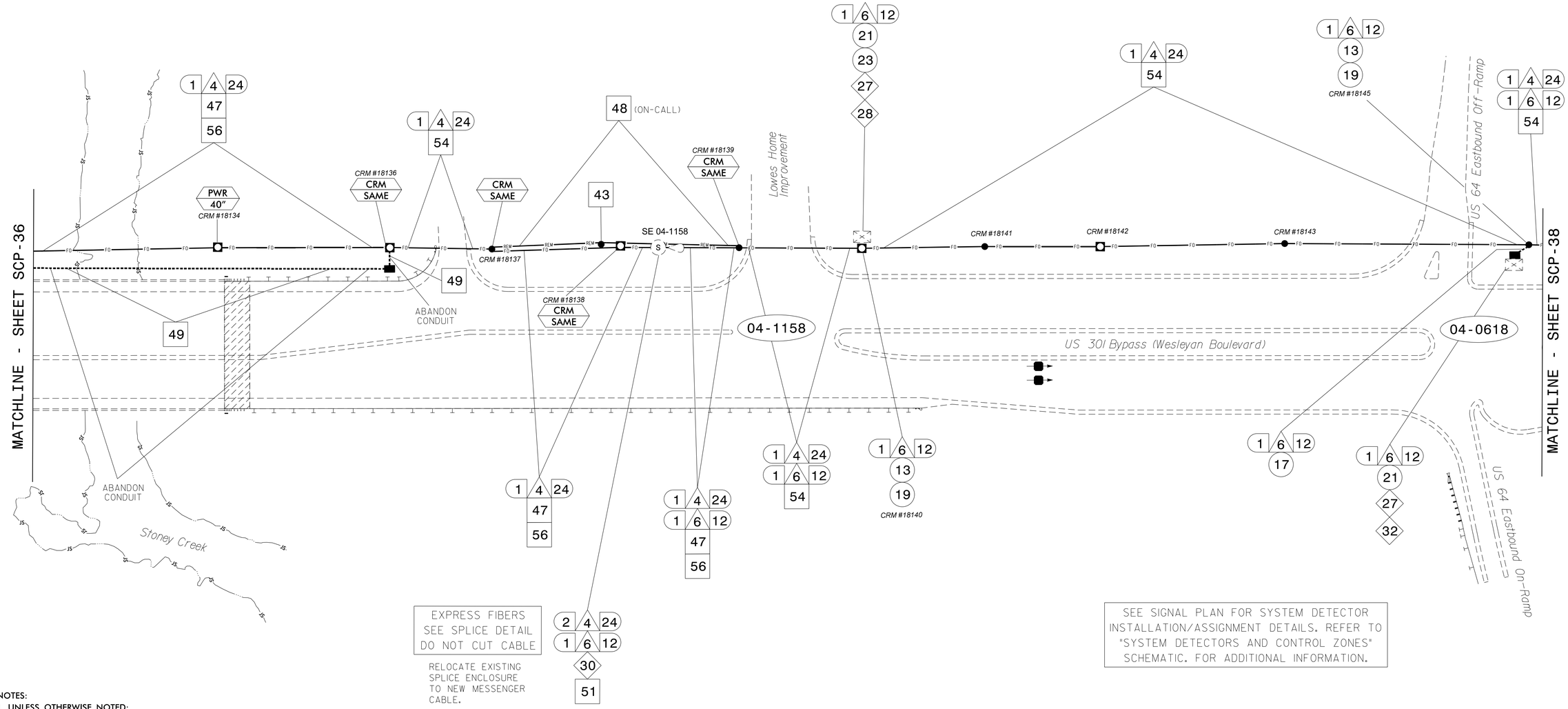
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-37



SEE SIGNAL PLAN FOR SYSTEM DETECTOR INSTALLATION/ASSIGNMENT DETAILS. REFER TO "SYSTEM DETECTORS AND CONTROL ZONES" SCHEMATIC. FOR ADDITIONAL INFORMATION.

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7. INSTALL TRACER WIRE
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29. INSTALL UNDERGROUND SPLICE ENCLOSURE
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31. INSTALL SPLICE CABINET
32. MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER
33. REMOVE EXISTING SPLICE /HUB / CCTV CABINET
34. INSTALL CABINET FOUNDATION
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36. INSTALL CCTV CAMERA ASSEMBLY
37. INSTALL CCTV WOOD POLE (60')
38. INSTALL STANDARD SIZE JUNCTION BOX
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42. INSTALL WOOD POLE (50')
43. REMOVE EXISTING WOOD POLE
44. INSTALL AERIAL GUY ASSEMBLY
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46. INSTALL SIDEWALK GUY ASSEMBLY
47. INSTALL MESSENGER CABLE
48. REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE
49. REMOVE EXISTING COMMUNICATIONS CABLE
50. INSTALL WIRELESS DSL
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57. MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV
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ATKINS
1616 EAST MILLBROOK ROAD, SUITE 310
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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Prepared for the Offices of:
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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening

Cable Routing Plans

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks
PREPARED BY: JA Wiles REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50 1"=50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS
Docusigned by: 1/30/2017 DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-38

EXPRESS FIBERS SEE SPLICE DETAIL DO NOT CUT CABLE

EXPRESS FIBERS SEE SPLICE DETAIL DO NOT CUT CABLE

EXPRESS FIBERS SEE SPLICE DETAIL DO NOT CUT CABLE

CCTV-02

CRM #18147

CRM #18149

CRM #18151

CRM #18153

CRM #24778

CRM #18154

CRM #28930

SE 04-0618

SE 04-0617

SE 04-1300

US 64 Bypass Westbound Ramps

US 64 East

US 64 West

US 301 Bypass (Wesleyan Boulevard)

Word Plaza

04-0617

04-1300

MATCHLINE - SHEET SCP-37

MATCHLINE - SHEET SCP-39

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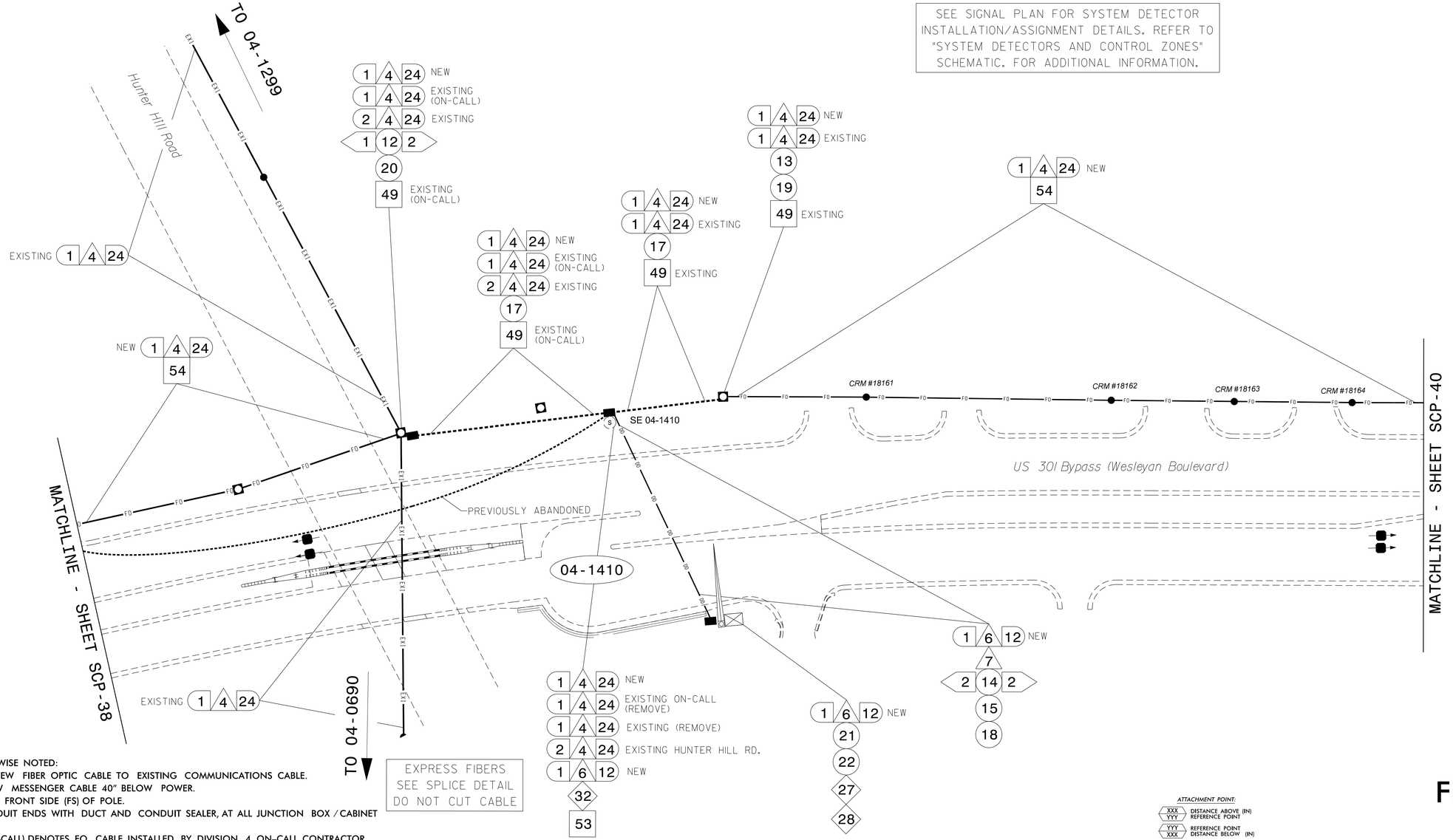
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2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
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Final

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Prepared for the Offices of: Traffic Engineering Branch, Signal Design Section, NCDOT Division of Highways, Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 301 Widening
Cable Routing Plans

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks
PREPARED BY: JA Wiles REVIEWED BY:

SCALE 0 50 1"=50'

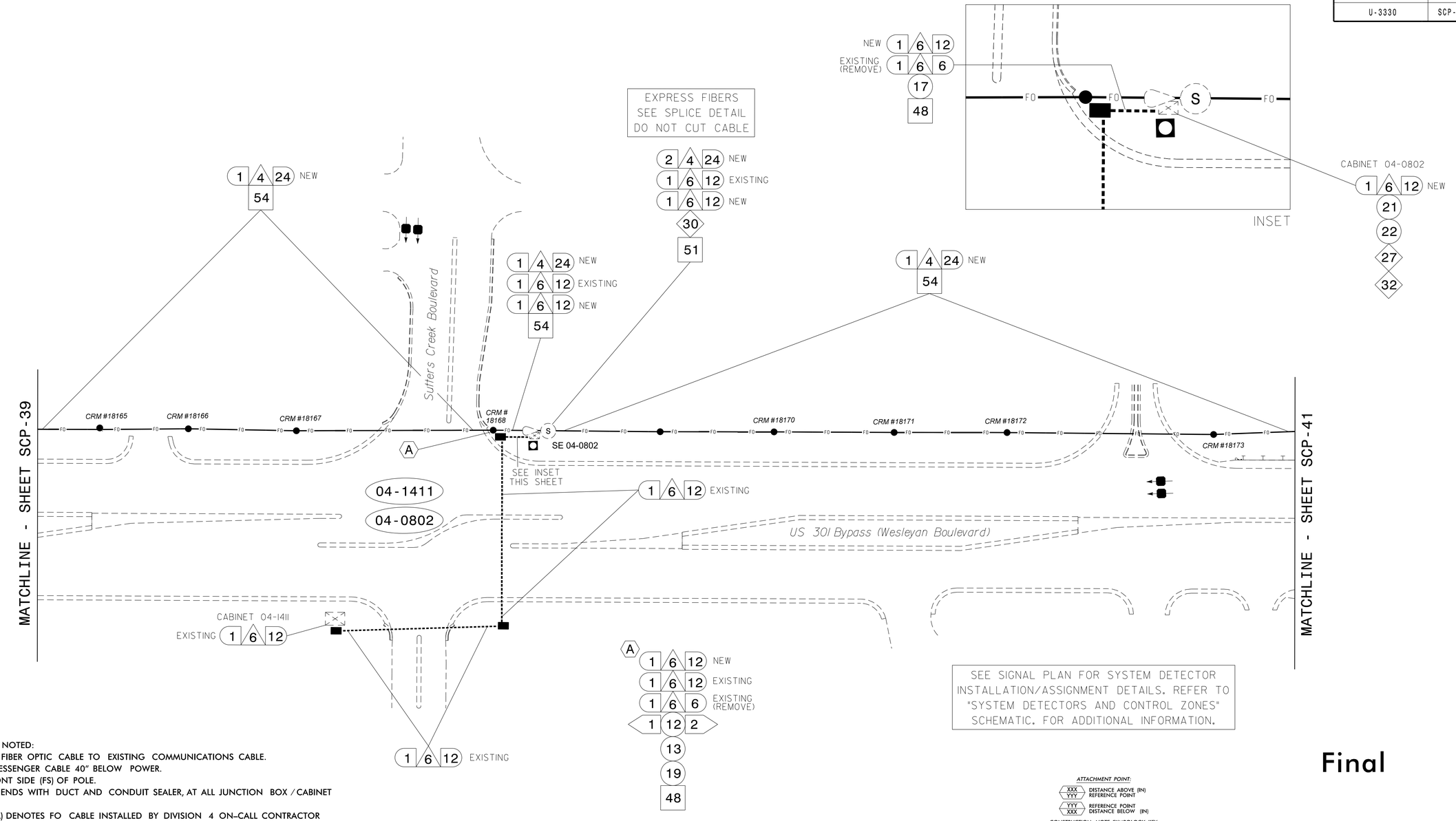
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 017586 J. TODD BROOKS
Docusigned by: 1/30/2017
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-40



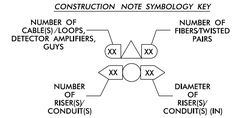
SEE SIGNAL PLAN FOR SYSTEM DETECTOR INSTALLATION/ASSIGNMENT DETAILS. REFER TO "SYSTEM DETECTORS AND CONTROL ZONES" SCHEMATIC. FOR ADDITIONAL INFORMATION.

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Prepared for the Offices of: Traffic Engineering Branch, Traffic Signal Design Section, Mobility and Safety Division, North Carolina Department of Transportation
750 N.Greenfield Pkwy.,Garner,NC 27529

US 301 Widening

Cable Routing Plans

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks

PREPARED BY: JA Wiles REVIEWED BY:

SCALE 0 50 1"=50'

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS

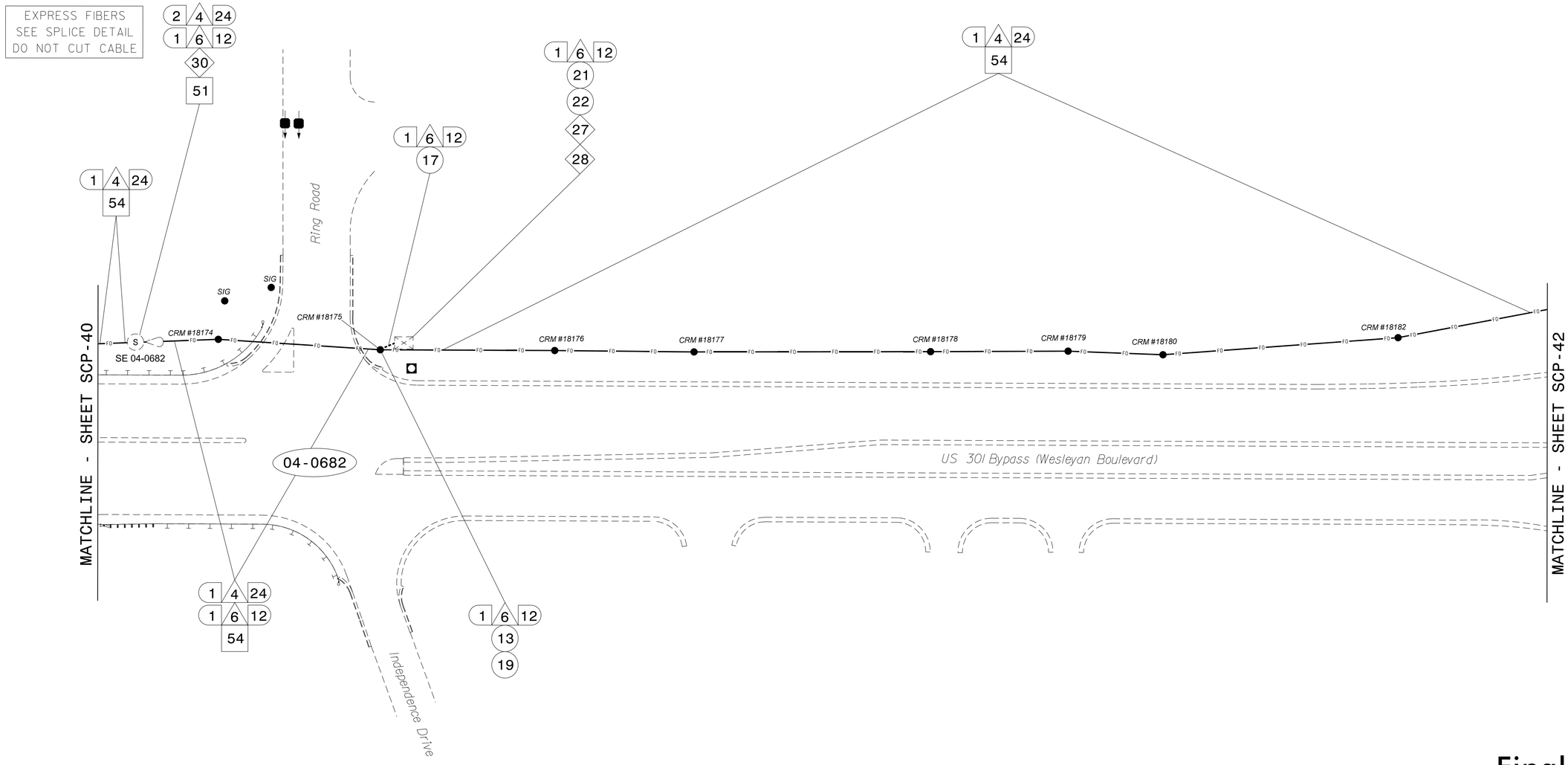
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-41



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7. INSTALL TRACER WIRE
8. TRENCH CONDUIT
9. INSTALL PVC CONDUIT
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RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

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Prepared for the Offices of:
Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

US 301 Widening
Cable Routing Plans

Division 4 Nash County Rocky Mount

PLAN DATE: January 2017 REVIEWED BY: JT Brooks
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SCALE 0 50 1"=50'

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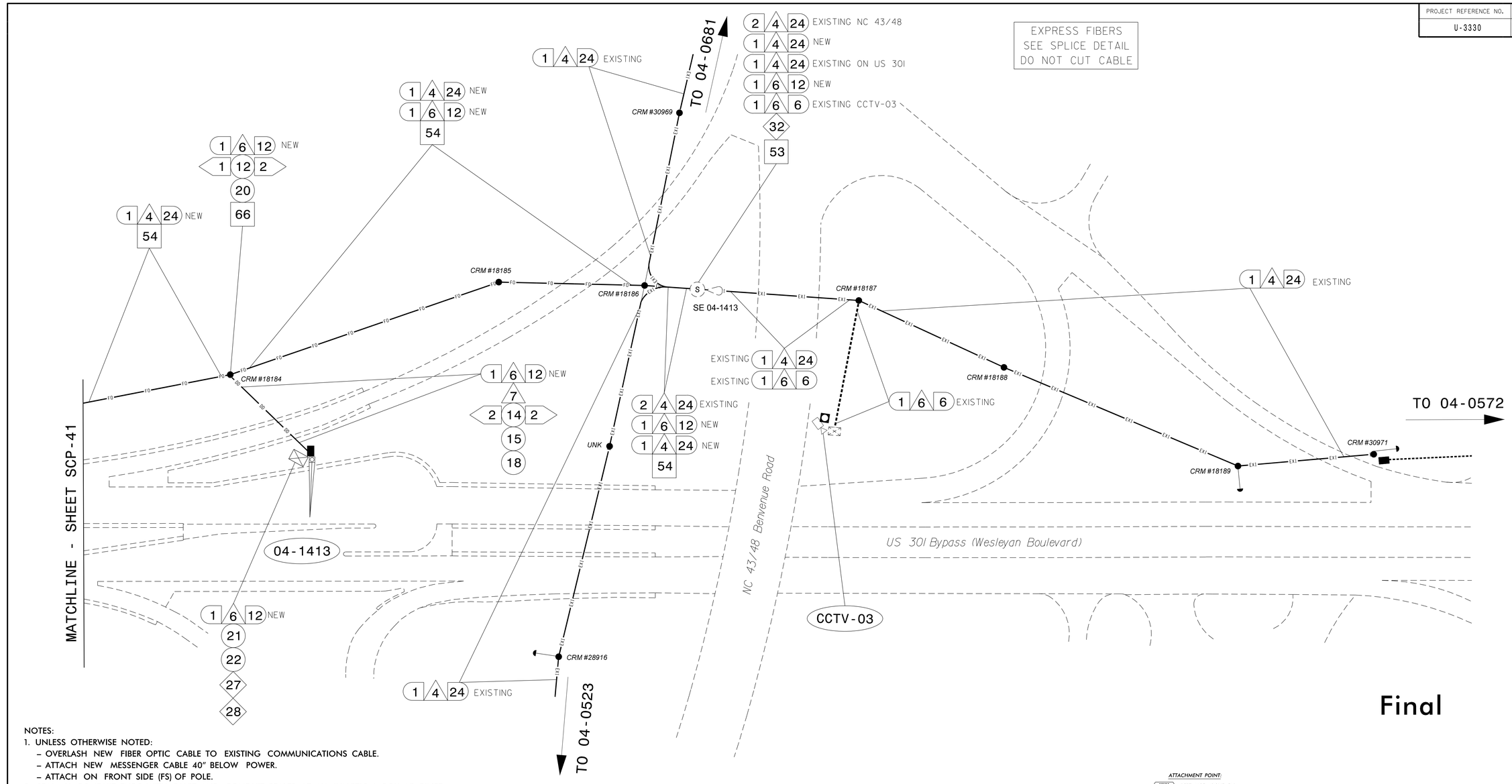
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NORTH CAROLINA PROFESSIONAL SEAL 017586 ENGINEER J. TODD BROOKS
Docusigned by: [signature] 1/30/2017 DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-42



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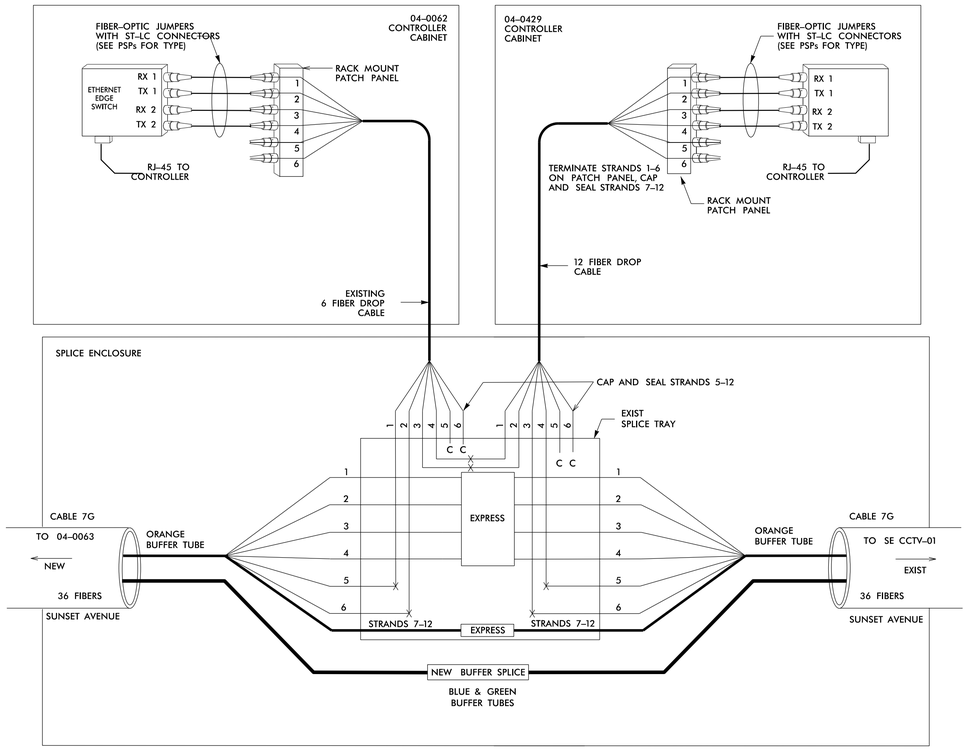
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-43

SPLICE ENCLOSURE NO.

04-0062



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED	E =	EXIST. FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	X =	FUSION SPLICE INDIVIDUAL FIBER
(3) GREEN	(9) YELLOW	C =	CAP AND SEAL
(4) BROWN	(10) VIOLET	EXPRESS =	EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING
(5) SLATE	(11) ROSE	BUFFER SPLICE =	SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR
(6) WHITE	(12) AQUA		

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF ROCKY MOUNT SENIOR SIGNAL SYSTEM OPERATOR, MICHAEL WEBB, AT 252-972-1132 TO ARRANGE FOR THE CITY OF ROCKY MOUNT TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NO LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SENIOR SIGNAL SYSTEM OPERATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL
5. CONTRACTOR TO RECORD EXISTNG SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGED DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731-3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A-D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
THE STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett
PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 019962 ENGINEER
ALFRED BADGETT III

Alfred Badgett III 1/30/2017
DATE

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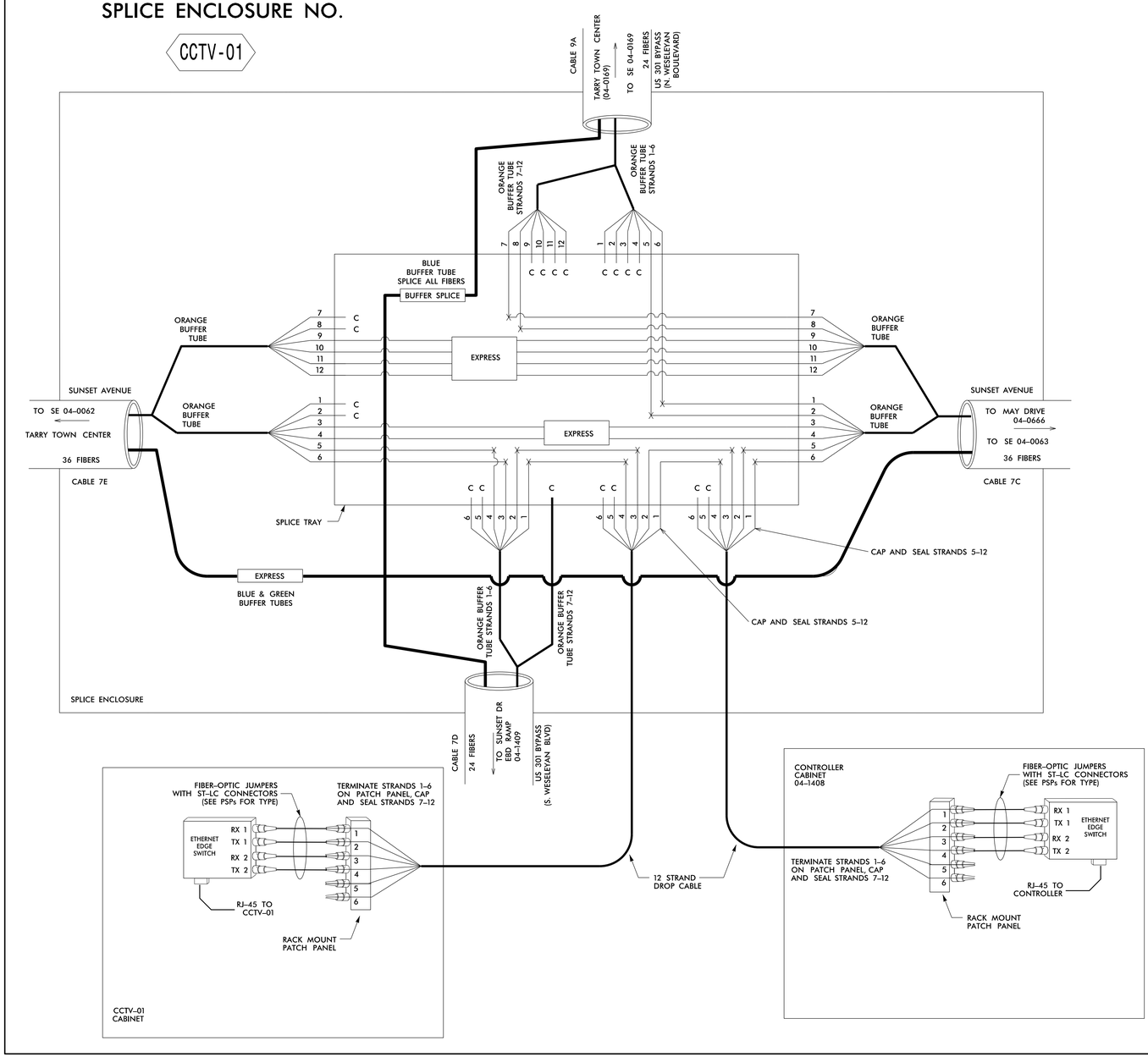
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-44

SPLICE ENCLOSURE NO.

CCTV-01



LEGEND

COLOR CODE TIA/EIA 598-B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

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ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

N.T.S.

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 019962 ENGINEER ALFRED BADGETT III

Henry Alfred Badgett III 1/30/2017

DATE

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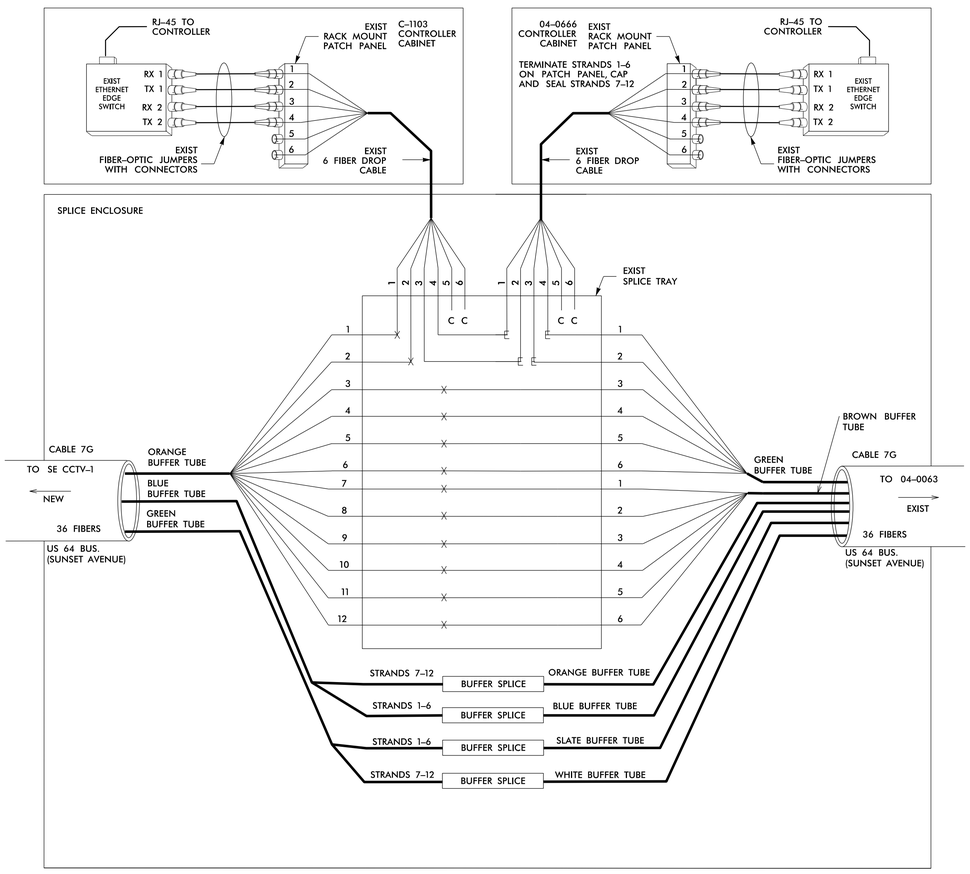
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-45

EXISTING SPLICE ENCLOSURE NO.

04-0666



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

Fiber Optic Splicing Details

LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED		
(2) ORANGE	(8) BLACK		
(3) GREEN	(9) YELLOW		
(4) BROWN	(10) VIOLET		
(5) SLATE	(11) ROSE		
(6) WHITE	(12) AQUA		

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ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

N.T.S.

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 019962 ENGINEER HENRY ALFRED BADGETT III

Developed by: Henry Alfred Badgett III 1/30/2017
DATE

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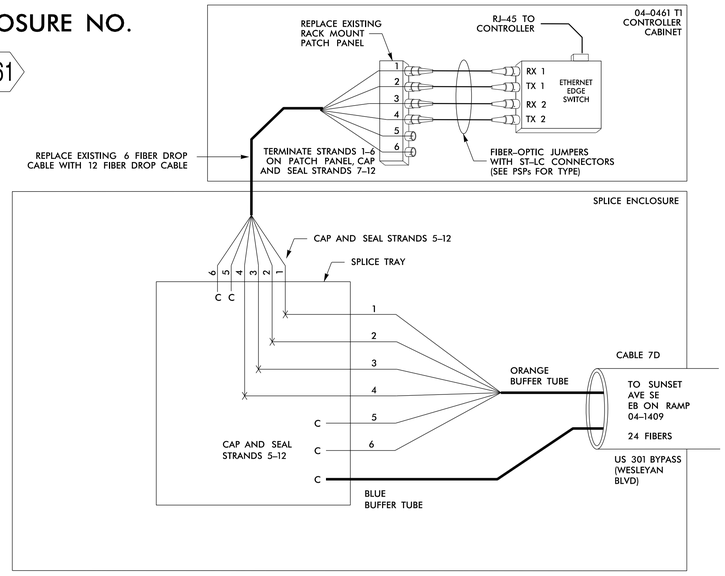
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-46

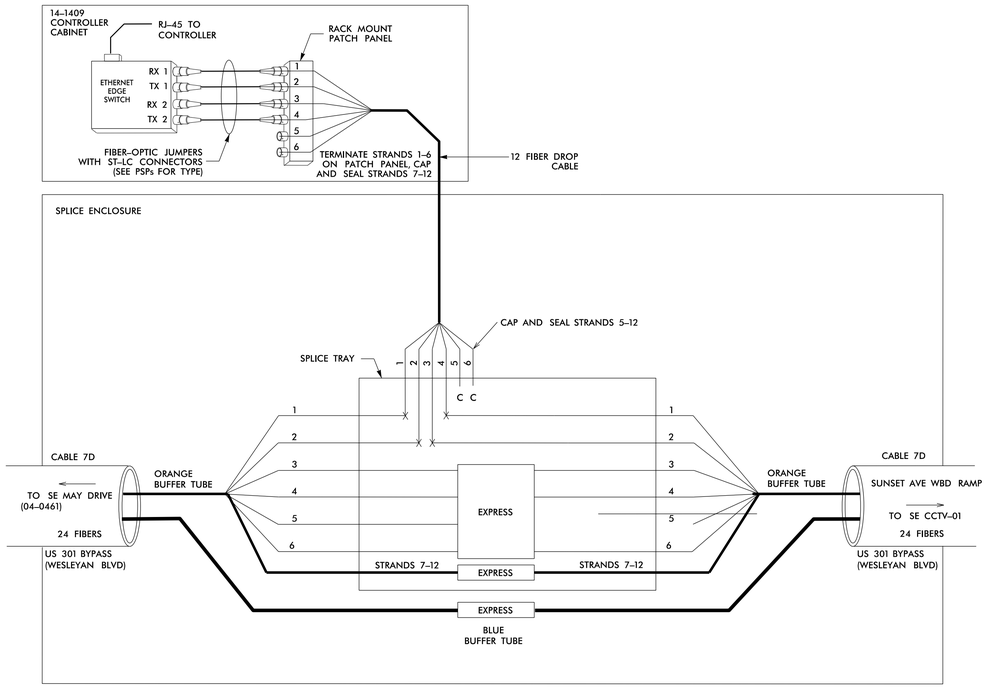
SPLICE ENCLOSURE NO.

04-0461



SPLICE ENCLOSURE NO.

04-1409



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED	E =	EXIST. FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	X =	FUSION SPLICE INDIVIDUAL FIBER
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b. DATE
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ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

N.T.S.

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 HENRY ALFORD BADGETT III
Henry Alford Badgett III 1/30/2017
DATE

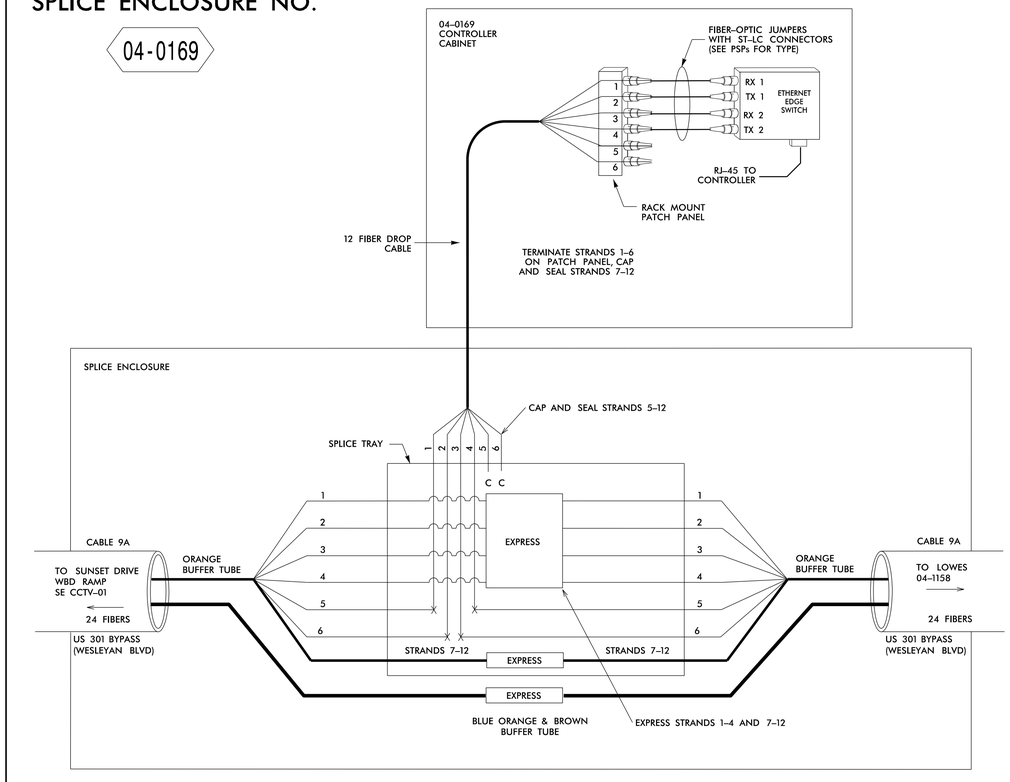
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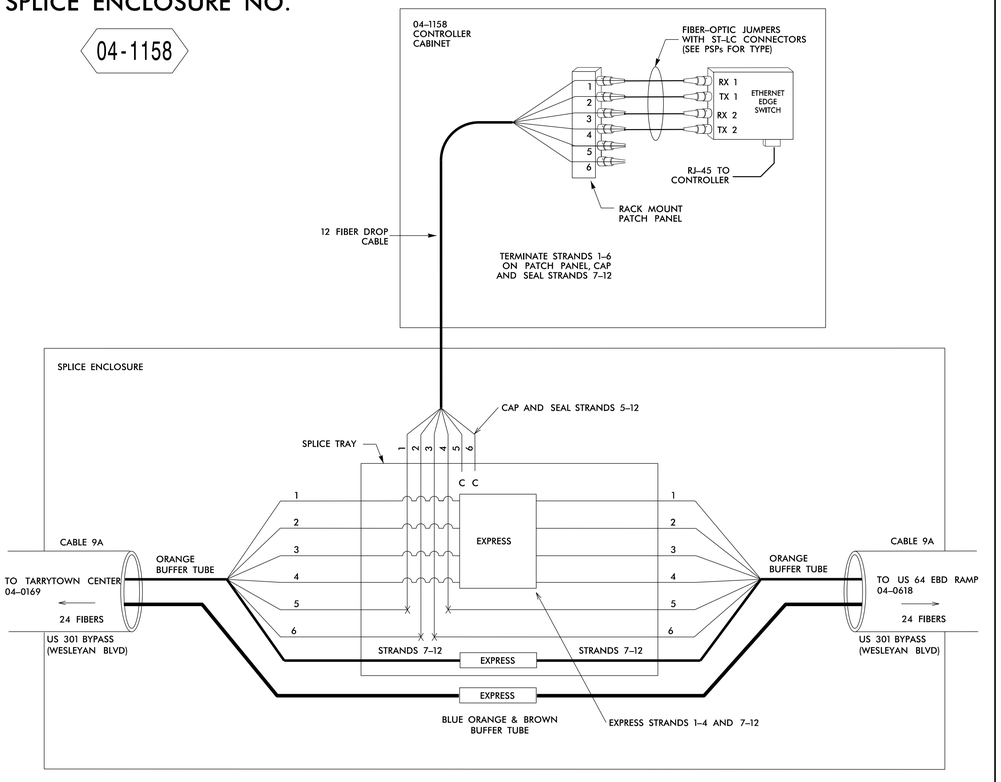
PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-47

SPLICE ENCLOSURE NO. 04-0169



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

SPLICE ENCLOSURE NO. 04-1158



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598–B	
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

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ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

N.T.S.

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 HENRY ALFORD BADGETT III
Henry Alford Badgett III 1/30/2017
DATE

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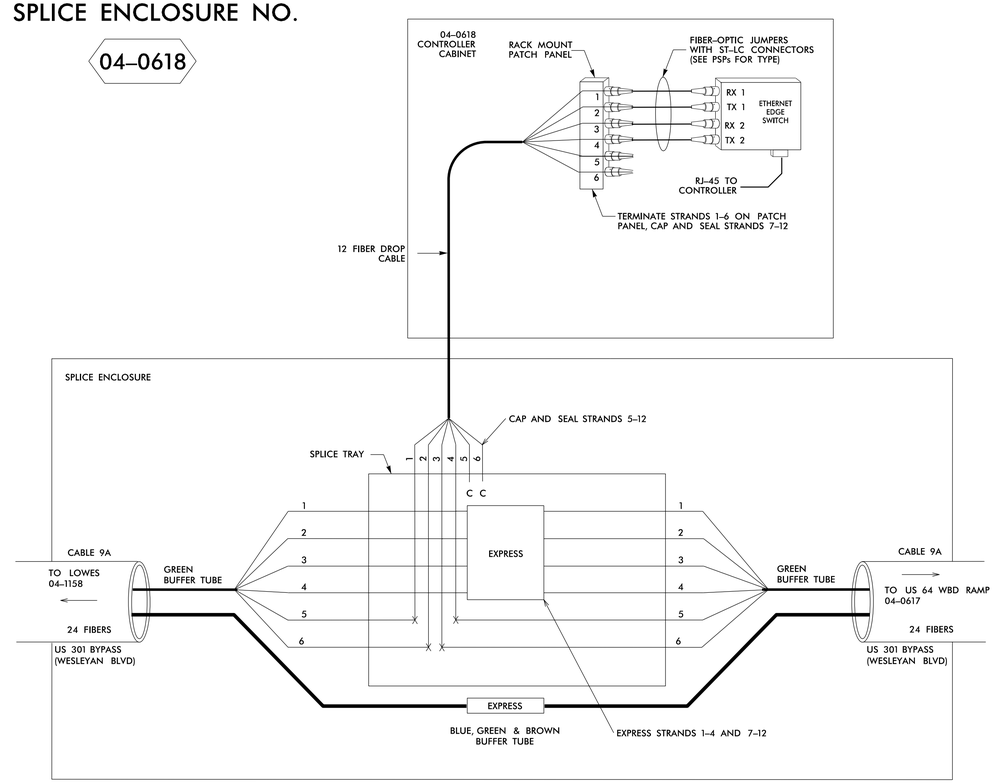
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spell232 ATLAS60114

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-48

SPLICE ENCLOSURE NO.

04–0618



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598–B			
(1)	BLUE	(7)	RED
(2)	ORANGE	(8)	BLACK
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(4)	BROWN	(10)	VIOLET
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ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — Traffic Engineering Branch — Signal Design Section

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT

Digitally signed by: Henry Alfred Badgett III 1/30/2017
DATE

CADD Filename: SCP-48.dgn

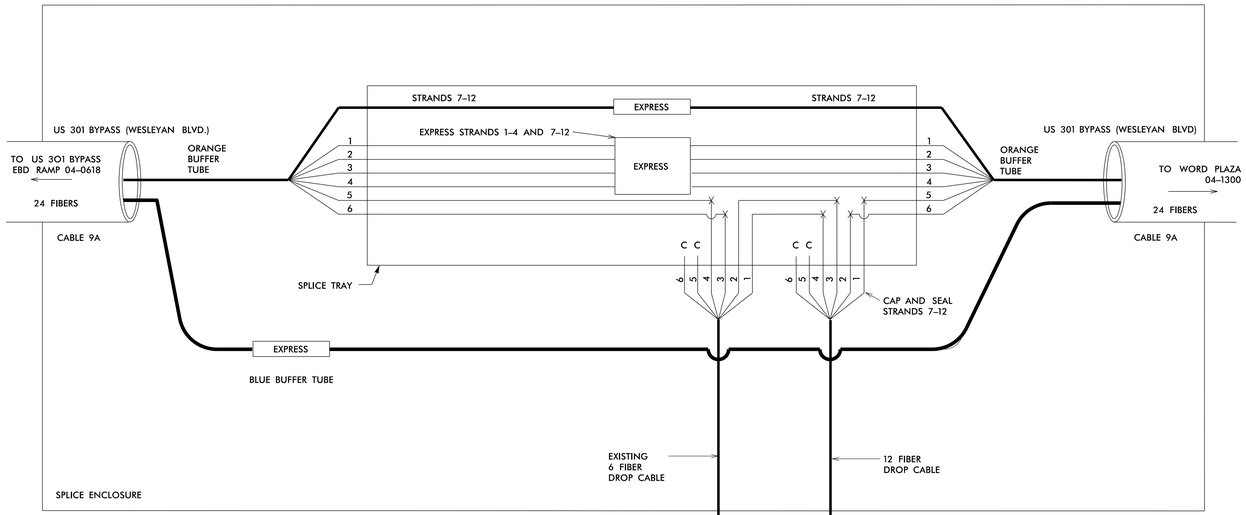
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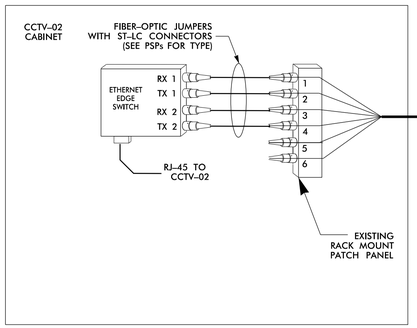
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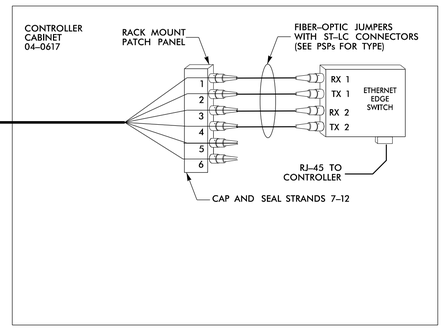
PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-49

SPLICE ENCLOSURE NO.

04-0617







LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED		
(2) ORANGE	(8) BLACK		
(3) GREEN	(9) YELLOW		
(4) BROWN	(10) VIOLET		
(5) SLATE	(11) ROSE		
(6) WHITE	(12) AQUA		

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
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6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731-3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A–D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett
PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 019962 ENGINEER HENRY ALFRED BADGETT III
DocuSigned by: Henry Alfred Badgett III 1/30/2017
DATE

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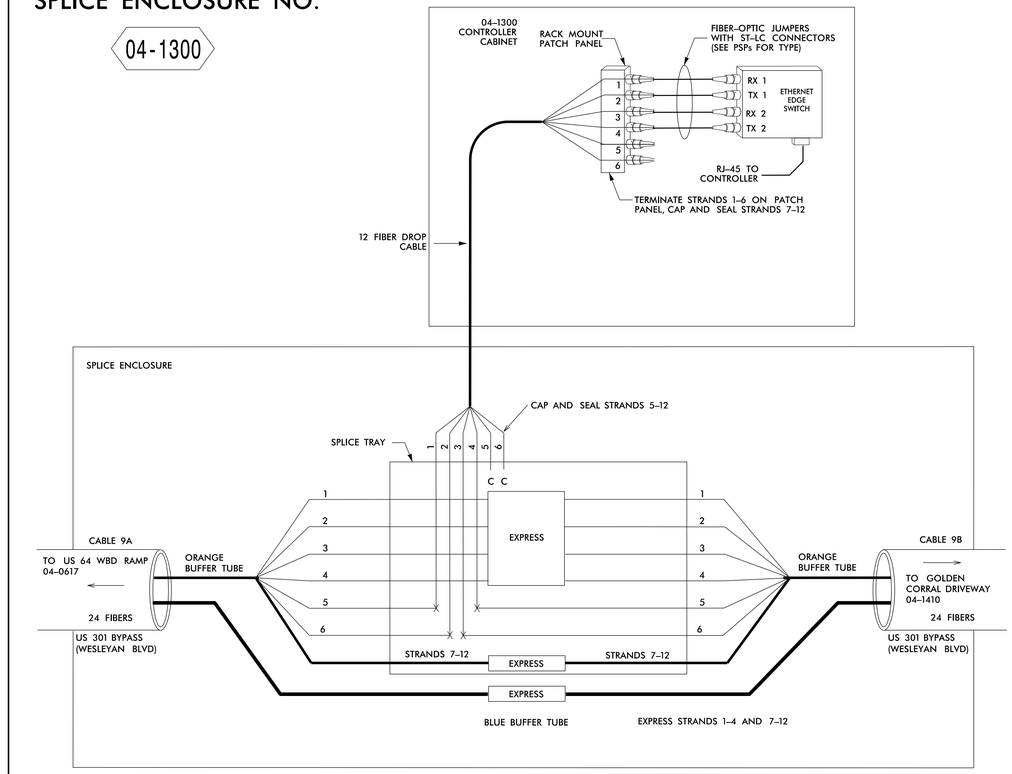
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-50

SPLICE ENCLOSURE NO.

04-1300



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED		
(2) ORANGE	(8) BLACK		
(3) GREEN	(9) YELLOW		
(4) BROWN	(10) VIOLET		
(5) SLATE	(11) ROSE		
(6) WHITE	(12) AQUA		

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ATKINS
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:
NCDOT North Carolina Department of Transportation
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening
Fiber Optic
Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett
PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT
DocuSigned by: Henry Alfred Badgett III 1/30/2017
ENGINEER'S SIGNATURE DATE

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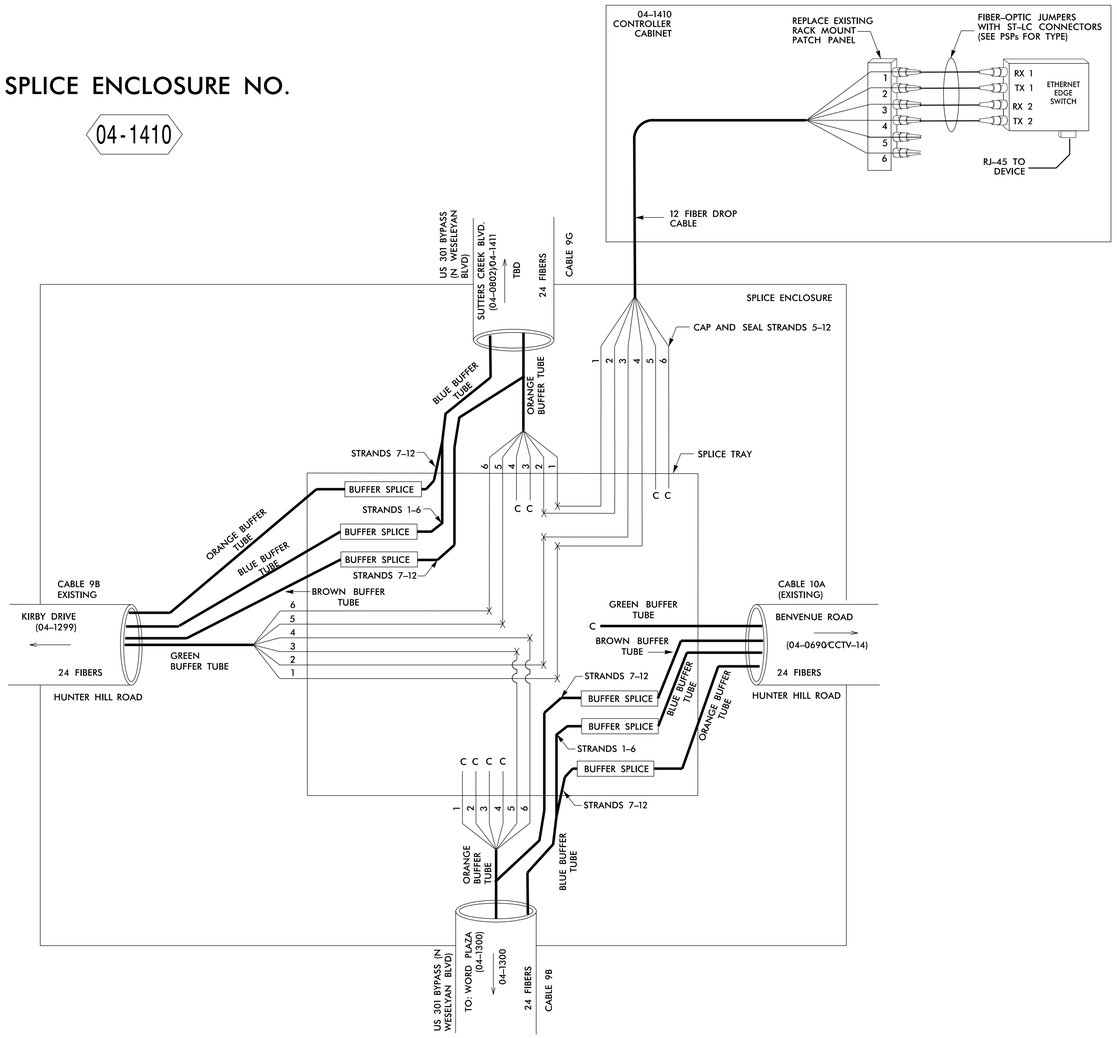
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-51

SPLICE ENCLOSURE NO.

04-1410



LEGEND

COLOR CODE TIA/EIA 598–B			
(1) BLUE	(7) RED		
(2) ORANGE	(8) BLACK		
(3) GREEN	(9) YELLOW	EXPRESS	= EXPRESS ENTIRE BUFFER TUBE /FIBERS THROUGH WITHOUT CUTTING
(4) BROWN	(10) VIOLET		
(5) SLATE	(11) ROSE	BUFFER SPLICE	= SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR
(6) WHITE	(12) AQUA		

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

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d. NAME OF INDIVIDUAL PERFORMING THE SPLICE

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ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Splicing Details

Division 4	Nash County		Rocky Mount
PLAN DATE: November 2016		REVIEWED BY:	HA Badgett
PREPARED BY: GB Spell		REVIEWED BY:	JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER ALFRED BADGETT III SEAL 019962

Alfred Badgett III 1/30/2017
DATE

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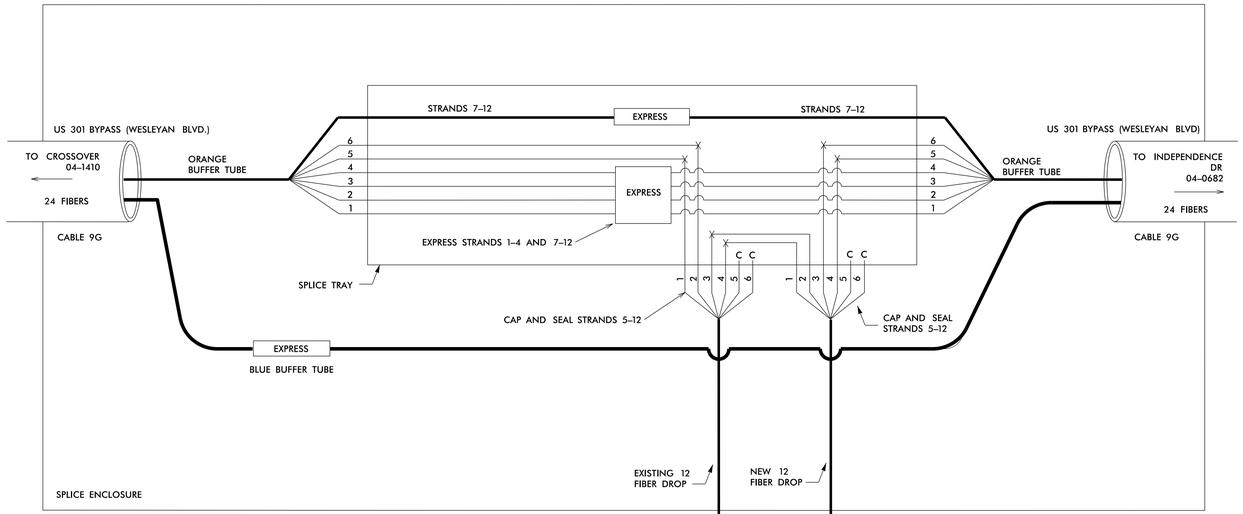
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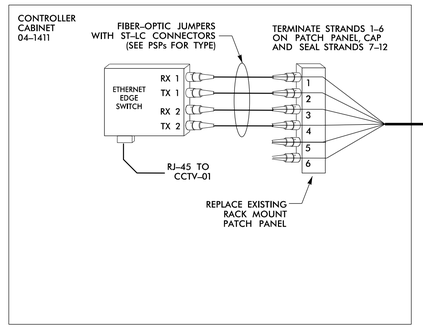
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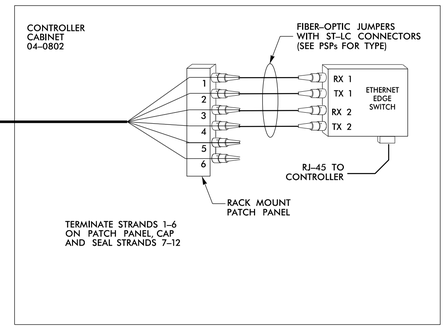
PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-52

SPLICE ENCLOSURE NO.

04-0802 04-1411







LEGEND

COLOR CODE TIA/EIA 598–B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

E = EXIST. FUSION SPLICE INDIVIDUAL FIBER

X = FUSION SPLICE INDIVIDUAL FIBER

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6. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING INFORMATION (SEE STANDARD SPECIFICATIONS ARTICLE 1731–3(A)):

a. SPLICE LOCATION
b. DATE
c. COMPANY NAME
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ATKINS 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 876-6888 NCBEES #F-0326

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of:

750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

N.T.S.

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 019962 ENGINEER ALFRED BADGETT

DocuSigned by: Henry Alfred Badgett III 1/30/2017

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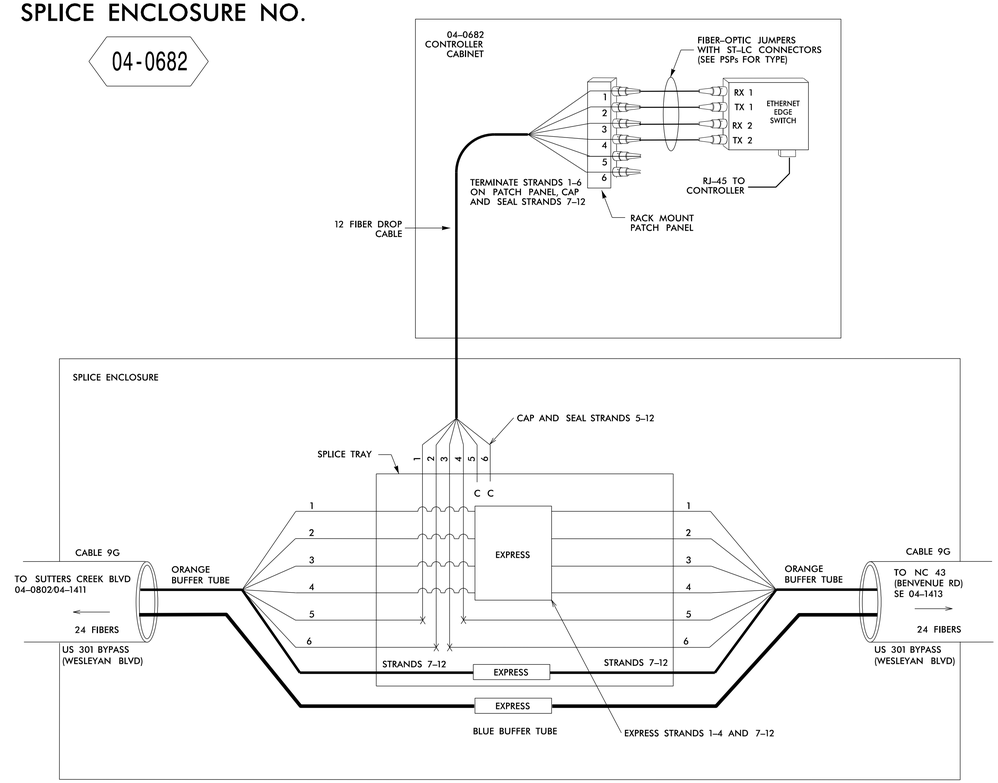
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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-53

SPLICE ENCLOSURE NO.

04-0682



NOTE: MATCH CABLE NUMBER TO CORRESPONDING CABLE DESTINATION TO DETERMINE CORRECT DIAGRAM ORIENTATION.

LEGEND

COLOR CODE TIA/EIA 598-B			
(1) BLUE	(7) RED		
(2) ORANGE	(8) BLACK		
(3) GREEN	(9) YELLOW		
(4) BROWN	(10) VIOLET		
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ATKINS
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(919) 876-6888 NCBEES #F-0326

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Prepared for the Offices of:
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Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

REVISIONS	INIT.	DATE

N.T.S.

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT III

DocuSigned by: Alfred Badgett III 1/30/2017
DATE

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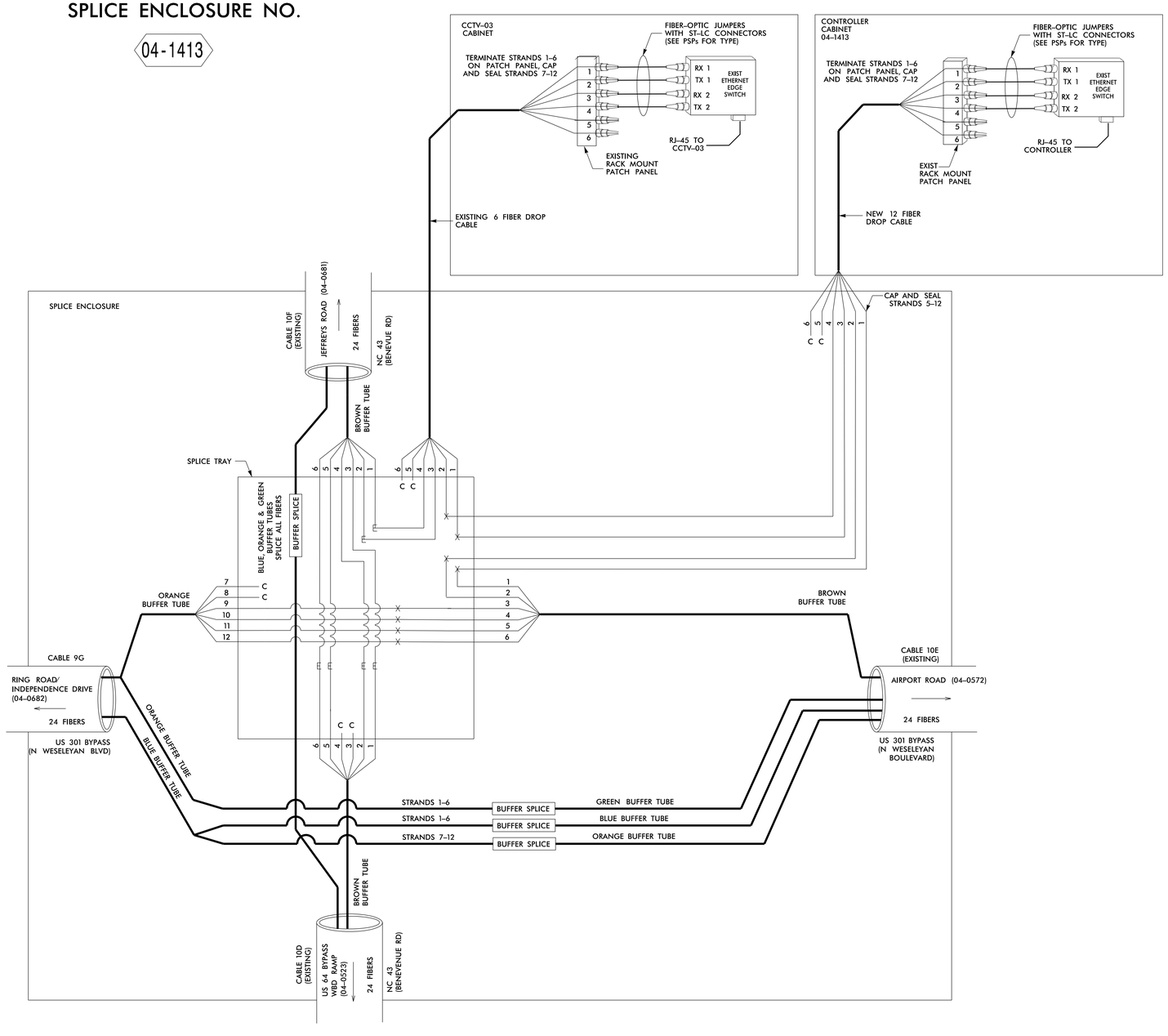
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sbell232 AT LDS\40114

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PROJECT REFERENCE NO.	SHEET NO.
U-3330	SCP-54

SPLICE ENCLOSURE NO.

04-1413



LEGEND

COLOR CODE TIA/EIA 598-B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
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RALEIGH, NORTH CAROLINA 27609
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Prepared for the Offices of:
750 Greenfield Parkway, Garner, NC 27529

US 301 Widening Fiber Optic Splicing Details

Division 4 Nash County Rocky Mount

PLAN DATE: November 2016 REVIEWED BY: HA Badgett

PREPARED BY: GB Spell REVIEWED BY: JT Brooks

N.T.S.

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019962 ALFRED BADGETT III

DocuSigned by: Alfred Badgett III 1/30/2017 DATE

CADD Filename: SCP-54.dgn

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