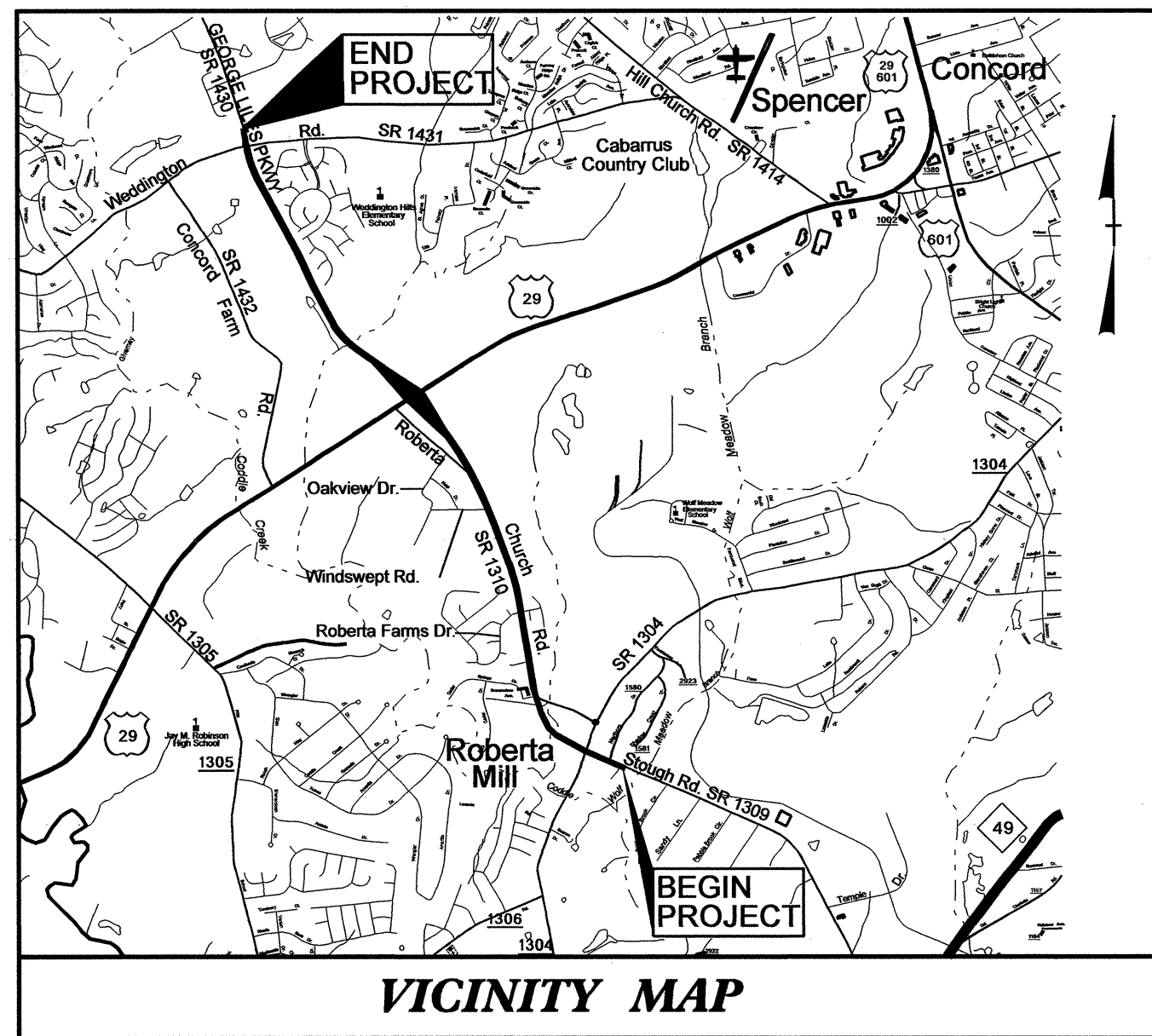


09/28/99

See Sheet 1-A For Index of Sheets

Project No.	Sheet No.
R-2246 B	Sig. 1

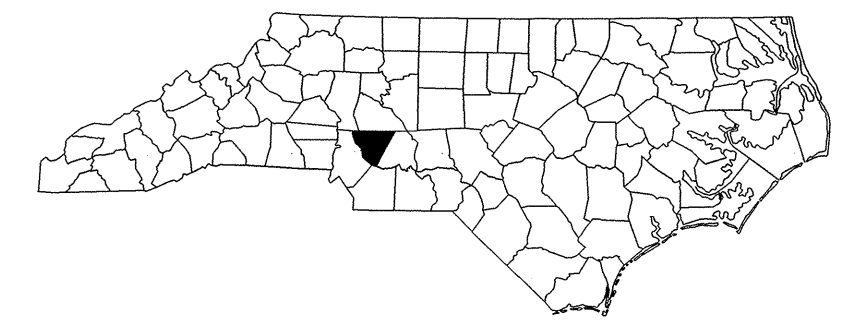


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

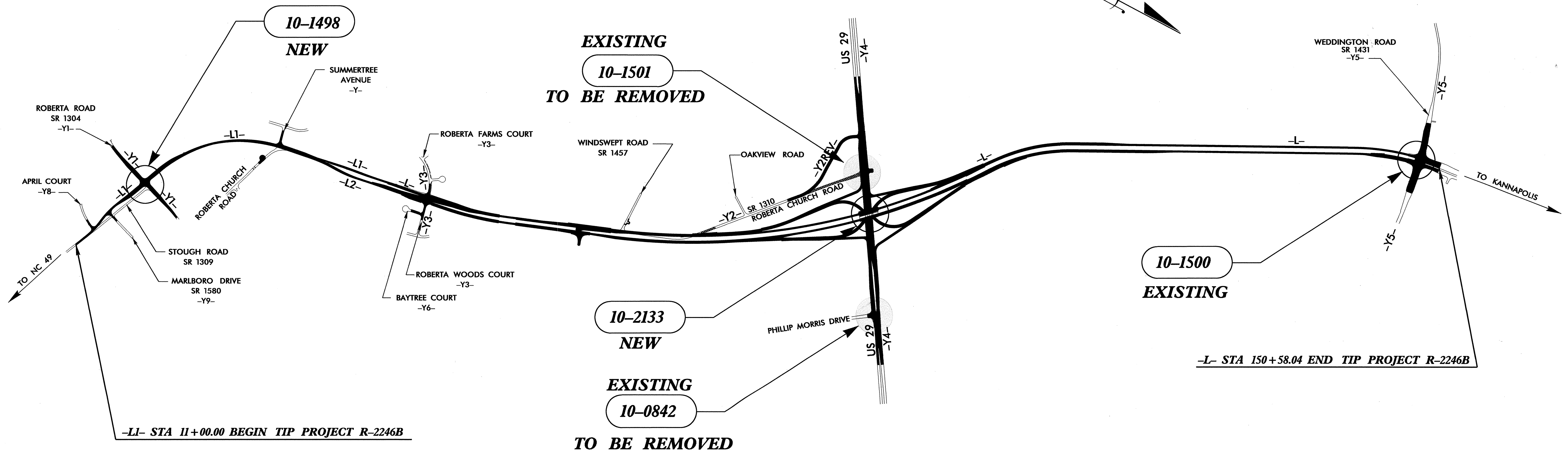
LOCATION: GEORGE LILES PARKWAY FROM SOUTH OF SR 1304 (ROBERTA ROAD) TO SR 1431 (WEDDINGTON ROAD)

TYPE OF WORK: TRAFFIC SIGNALS



STATEWIDE TIER PROJECT

TIP PROJECT: R-2246B



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

Sheet #	Reference #	Location/Description
Sig. 1		Title Sheet
Sig. 2-4	10-1498	George Liles Parkway at SR 1304 (Roberta Road) / SR 1309 (Stought Road)
Sig. 5-6	10-2133T	US 29 (Concord Parkway) at George Liles Parkway
Sig. 7-8	10-2133	US 29 (Concord Parkway) at George Liles Parkway
Sig. 9-11	10-1500	George Liles Parkway at SR 1431 (Weddington Road)
Sig. 12-17		Standard Drawings for Metal Poles
Sig. 18-33		Communications Cable & Conduit Routing Plans
Sig. 34-36		Splice Plans

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

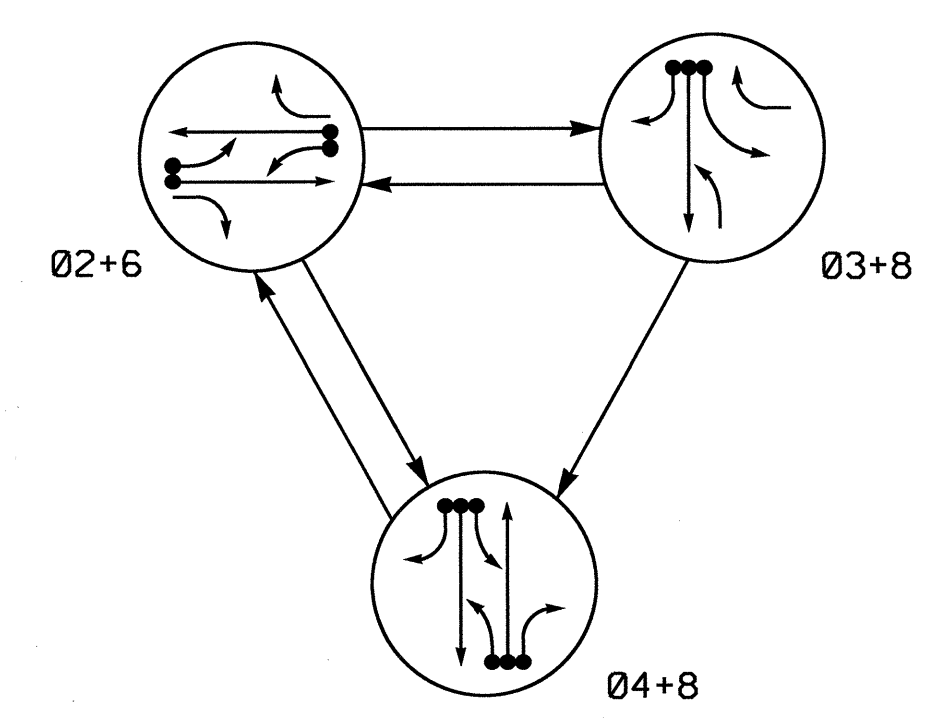
Greg A. Fuller, PE - State ITS and Signals Engineer
Timothy J. Williams, PE - Western Region Signals Engineer
John T. Rowe, Jr., PE - Signal Equipment Design Engineer

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

750 N. Greefield Parkway, Garner, NC 27529

09-JAN-2013 10:20 R:\Traffic\Signals\Design\TIPsheet\2246b_rdy_tsh.dgn

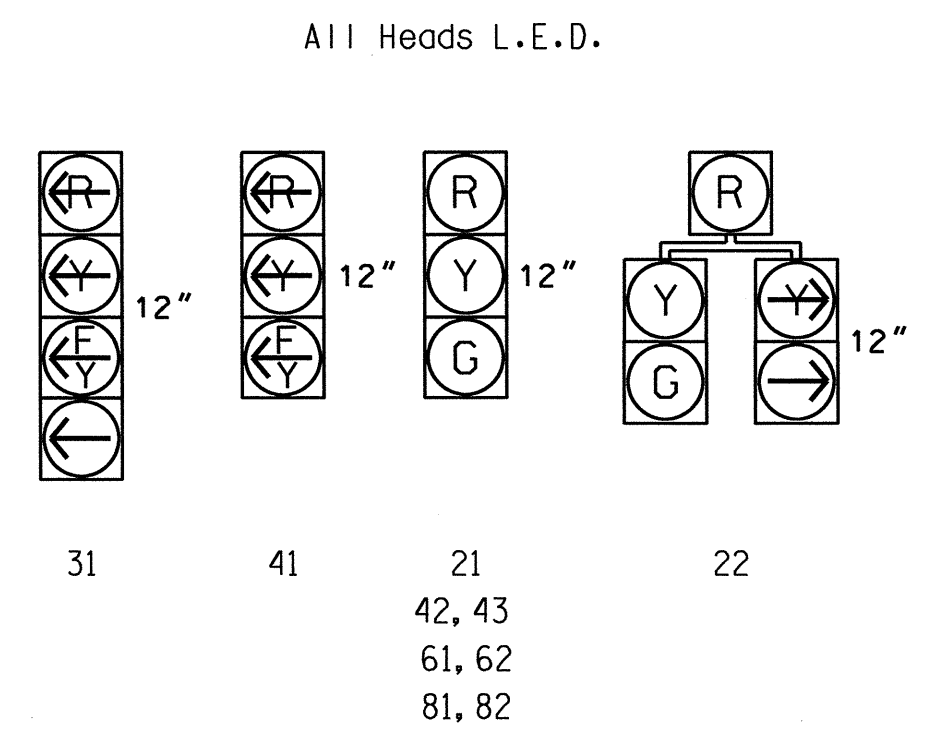
PHASING DIAGRAM



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

SIGNAL FACE	PHASE				FLASH
	02+6	03+8	04+8		
21	G	R	R	Y	
22	G	R	R	Y	
31	R	F	F	R	
41	R	F	F	R	
42, 43	R	R	G	R	
61, 62	G	R	R	Y	
81, 82	R	G	G	R	

SIGNAL FACE I.D.



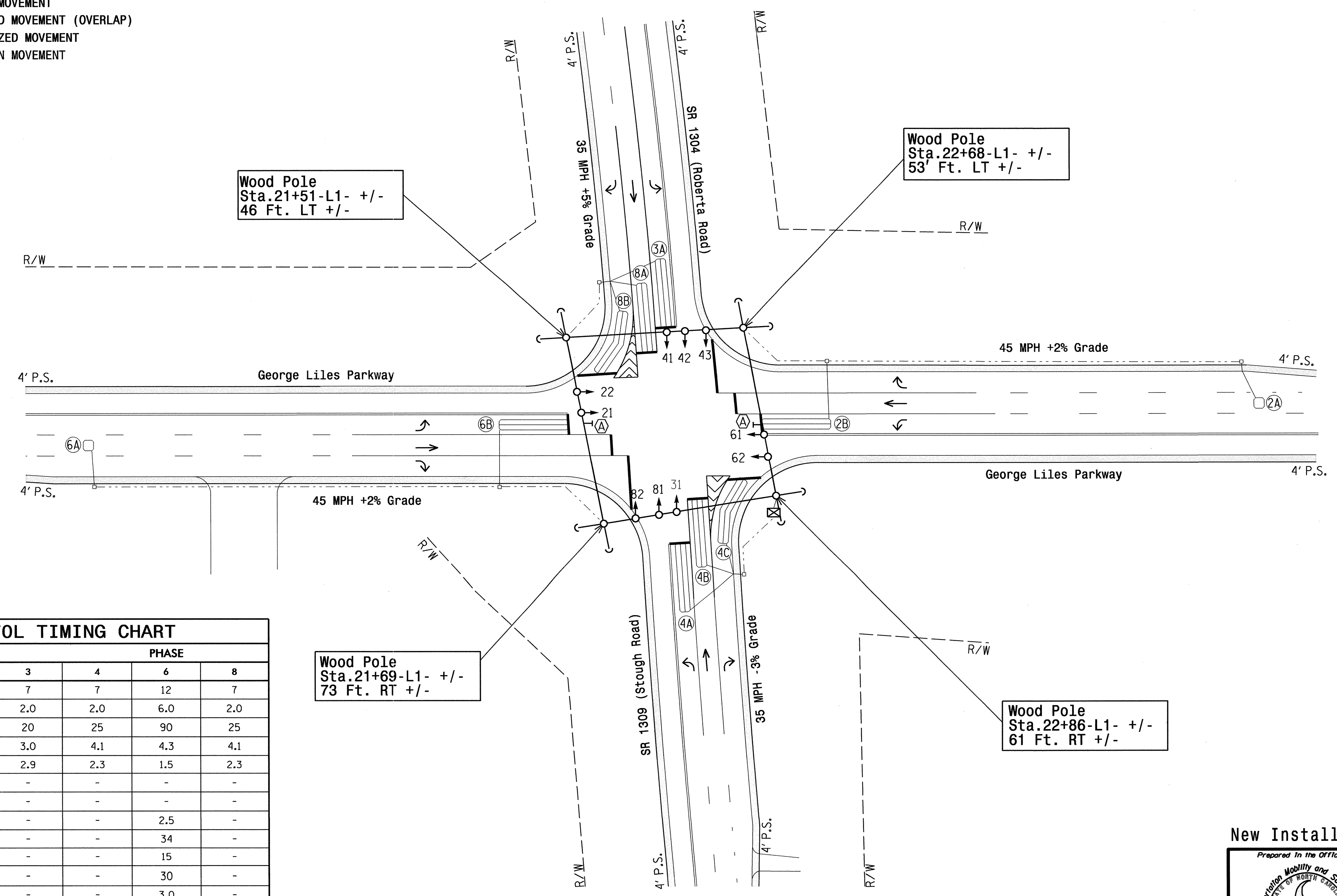
OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

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

3 Phase Fully Actuated City of Concord CLS

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 3 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. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
7. Closed loop system data: Controller Asset # 1498.



FEATURE	PHASE				
	2	3	4	6	8
Min Green 1 *	12	7	7	12	7
Extension 1 *	6.0	2.0	2.0	6.0	2.0
Max Green 1 *	90	20	25	90	25
Yellow Clearance	4.3	3.0	4.1	4.3	4.1
Red Clearance	1.3	2.9	2.3	1.5	2.3
Walk 1 *	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation *	2.5	-	-	2.5	-
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	-	-	ON	-	ON
Simultaneous Gap	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.

PROPOSED		EXISTING	
○ →	Traffic Signal Head	● →	N/A
○ →	Modified Signal Head	○ →	N/A
○ →	Sign	○ →	N/A
○ →	Pedestrian Signal Head With Push Button & Sign	○ →	N/A
○ →	Signal Pole with Guy	○ →	N/A
○ →	Signal Pole with Sidewalk Guy	○ →	N/A
○ →	Inductive Loop Detector	○ →	N/A
○ →	Controller & Cabinet	○ →	N/A
○ →	Junction Box	○ →	N/A
○ →	2-in Underground Conduit	○ →	N/A
○ →	Right of Way	○ →	N/A
○ →	Directional Arrow	○ →	N/A
○ →	Left Arrow "ONLY" Sign (R3-5L)	○ →	N/A

New Installation

Prepared in the Office of:

 NORTH CAROLINA
 PROFESSIONAL ENGINEER
 T. WILLIAMS
 24393

George Liles Parkway at SR 1304 (Roberta Road) / SR 1309 (Stough Road)

Division 10 Cabarrus County Concord
 PLAN DATE: November 2012 REVIEWED BY: T. Williams
 PREPARED BY: M. Mahbooba REVIEWED BY:

SEAL

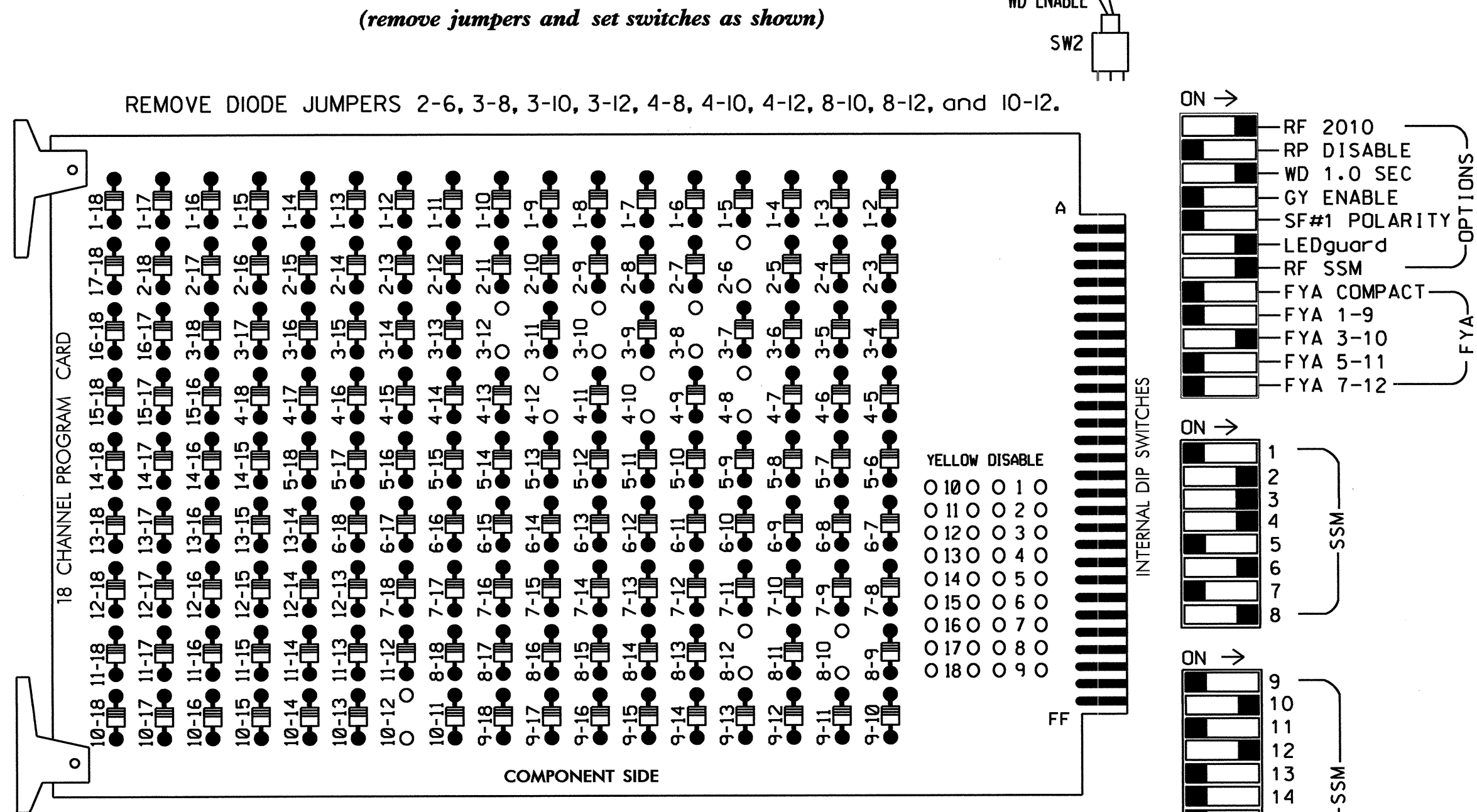
 T. WILLIAMS
 12/10/12
 DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 0 40
 1" = 40'

08-DEC-2012 09:12
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 mmahbooba

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL
(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
- The cabinet and controller are part of the City of Concord Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX FILE
 LOAD SWITCHES USED.....S2,S4,S5,S8,S11,AUX S2,AUX S5
 PHASES USED.....2,3,4,6,8
 OVERLAP A.....NONE
 OVERLAP B.....3+4
 OVERLAP C.....NONE
 OVERLAP D.....8

SIGNAL HEAD HOOK-UP CHART

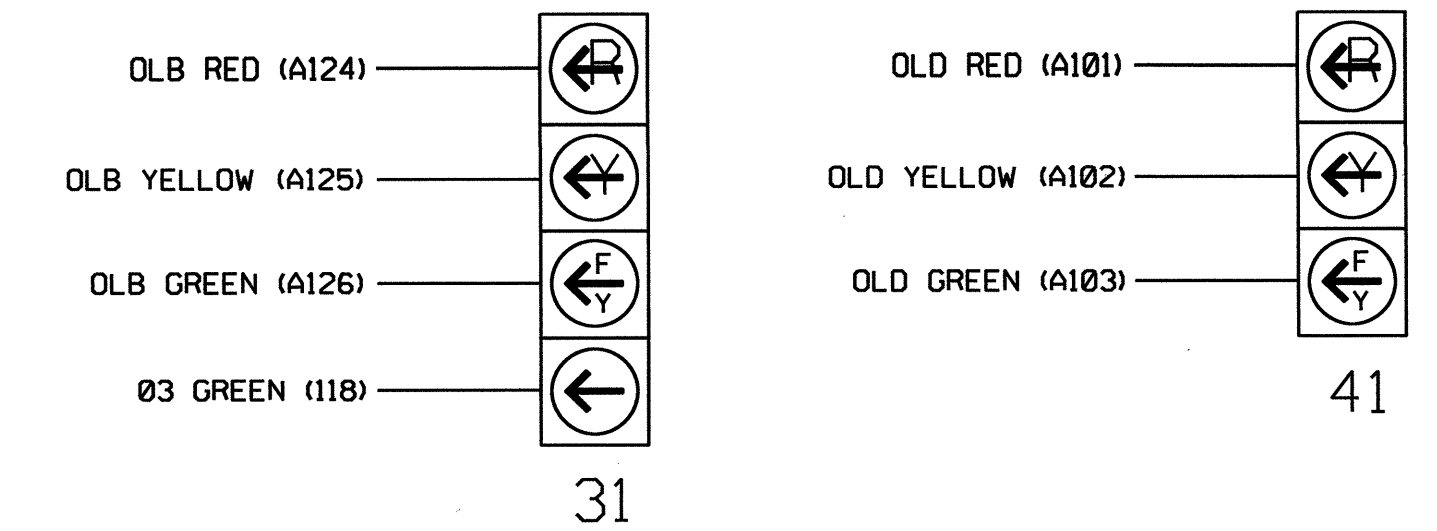
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6	
DMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18	
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE	
SIGNAL HEAD NO.	NU	21,22	NU	22	31	42,43	NU	NU	61,62	NU	NU	81,82	NU	NU	31	NU	NU	41	NU
RED		128		*	101			134			107								
YELLOW		129			102			135			108								
GREEN		130			103			136			109								
RED ARROW														A124				A101	
YELLOW ARROW				117										A125				A102	
FLASHING YELLOW ARROW														A126				A103	
GREEN ARROW				118	118														

NU = Not Used

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

★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL
(wire signal heads as shown)



NOTE

The sequence display for signal head 31 requires special logic programming. See sheet 2 for programming instructions.

INPUT FILE POSITION LAYOUT
(front view)

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

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

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y	Y		3
3A ¹	TB4-5,6	I5U	58	20	3	3	Y	Y			15
		J8U	50	12	28	8	Y	Y			3
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	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	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

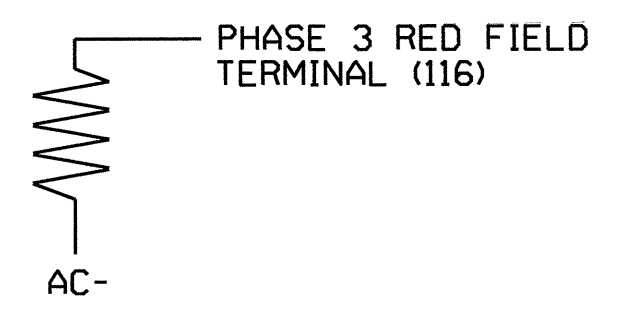
¹Add jumper from I5-W to J8-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL
(install resistor as shown below)

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



New Installation - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

George Liles Parkway at SR 1304 (Roberta Road) / SR 1309 (Stough Road)

Division 10 Cabarrus County Concord

PLAN DATE: November 2012 REVIEWED BY: JTR

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS: INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL: JOHN T. ROWE, JR. ENGINEER 008453

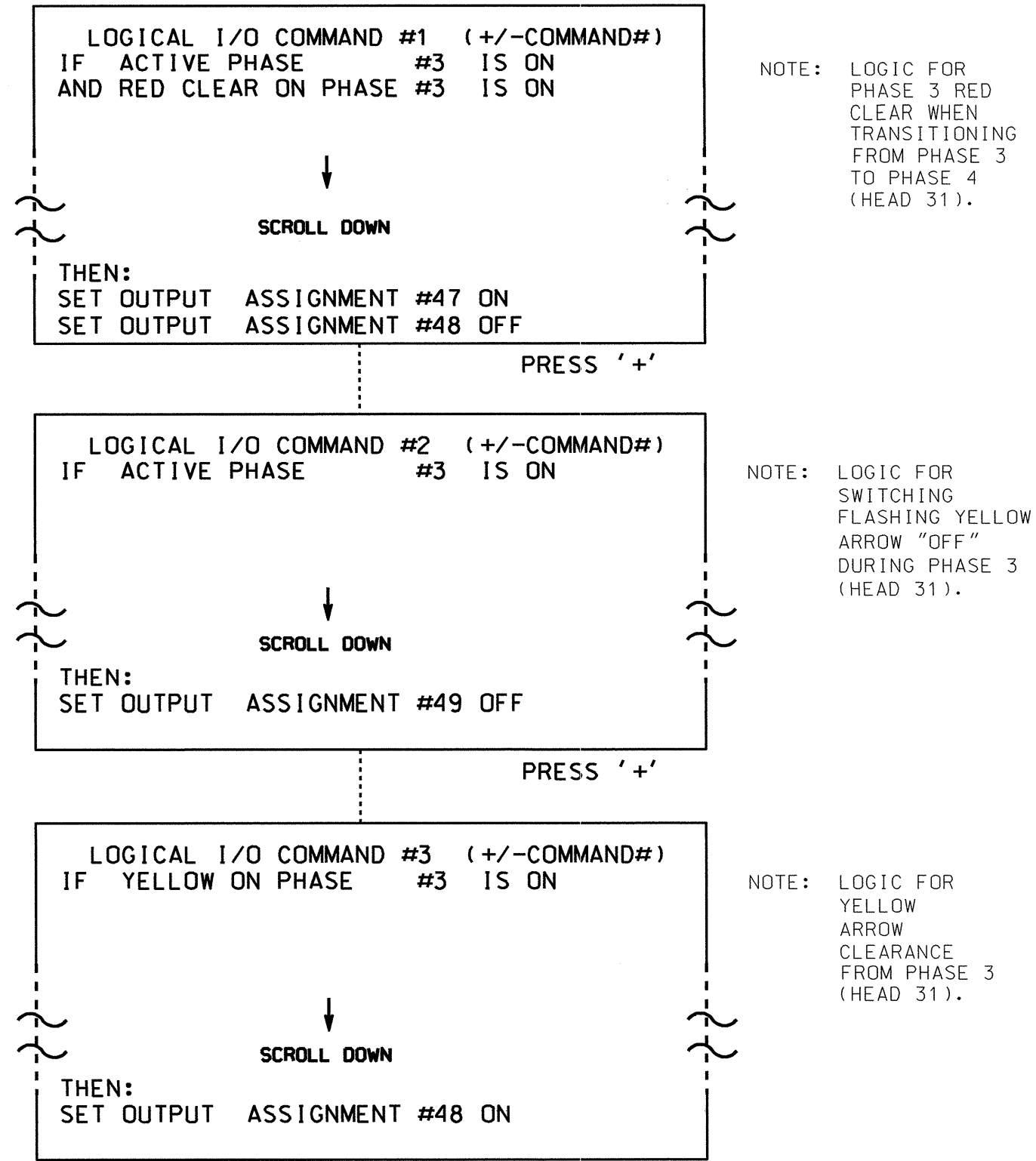
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SIG. INVENTORY NO. 10-1498

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

(program controller as shown below)

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



LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE	
USE TO INTERPRET LOGIC PROCESSOR	
OUTPUT 47 =	Overlap B Red
OUTPUT 48 =	Overlap B Yellow
OUTPUT 49 =	Overlap B Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' ONCE

```

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
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0.0
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
    
```

← NOTICE GREEN FLASH

PRESS '+' TWICE

```

PAGE 1: VEHICLE OVERLAP 'D' 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 X GREEN
SELECT VEHICLE OVERLAP OPTIONS: (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC)...0.0
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
    
```

← NOTICE GREEN FLASH

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:

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-1498
DESIGNED: November 2012
SEALED: 12/18/12
REVISED: N/A

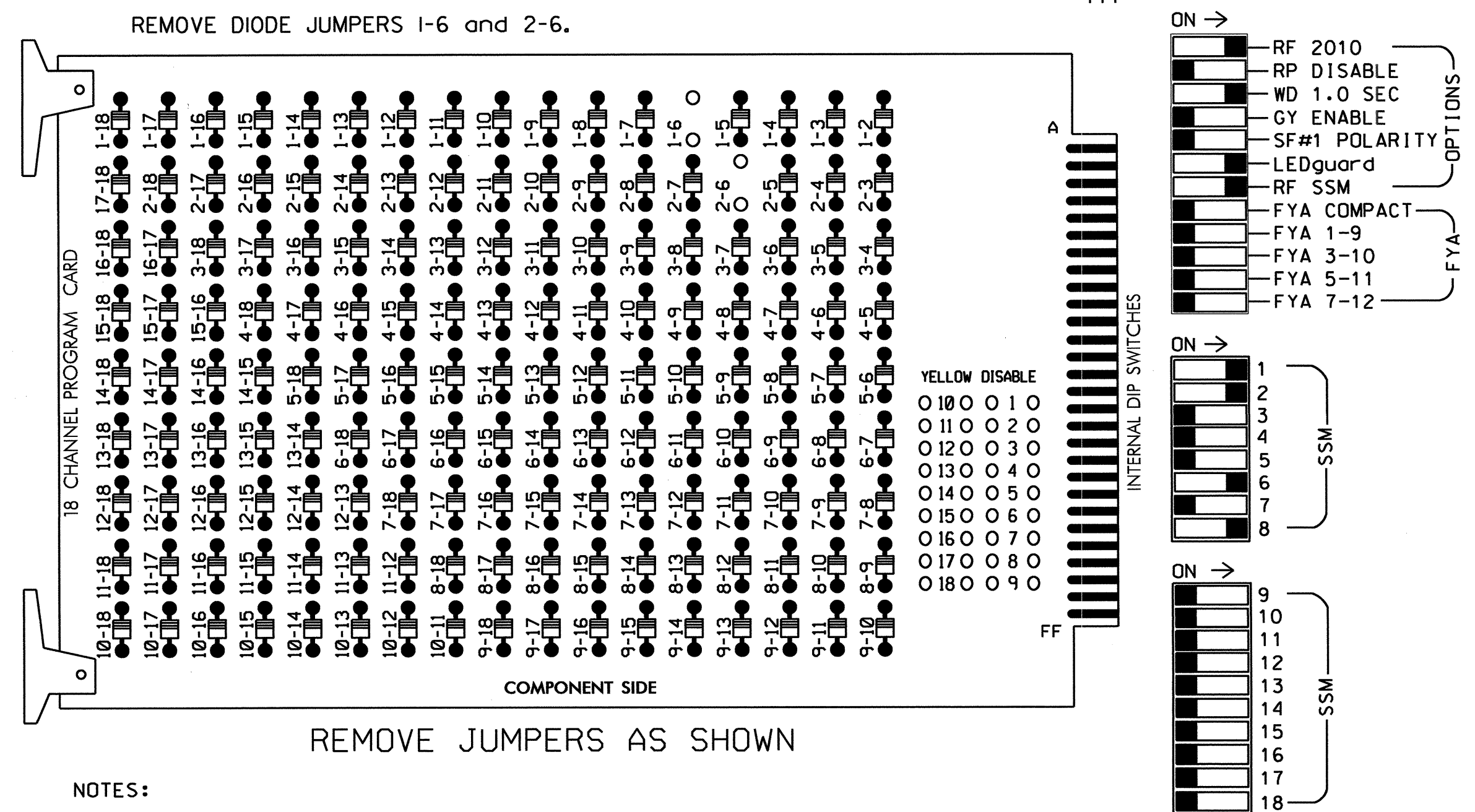
New Installation - Sheet 2 of 2

	ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of:		George Liles Parkway at SR 1304 (Roberta Road)/ SR 1309 (Stough Road)		SEAL
	Division 10 Cabarrus County Concord		PLAN DATE: November 2012 REVIEWED BY: JTR PREPARED BY: S. Armstrong REVIEWED BY:		
REVISIONS		INIT.	DATE	SIGNATURE: <i>John T. Rowe</i> 12-20-12 DATE:	
				SIG. INVENTORY NO. 10-1498	

20-REC-2012_07-19
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 armstrong

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.

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.	12	21,22	NU	NU	NU	NU	NU	61,62	NU	NU	81,82 83,84	NU
RED		128						134				
YELLOW		129						135				
GREEN		130						136				
RED ARROW	125										107	
YELLOW ARROW	126										108	
GREEN ARROW	127										109	

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S1,S2,S8,S11
 PHASES USED.....1,2,6,8
 OVERLAPS.....NONE

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	S	NOT USED	∅ 2	S	S	S	S	S	S	S	S	S	S	FS
	1B	2A	2B											DC ISOLATOR
FILE "J"	S	S	∅ 6	S	S	∅ 8	S	S	S	S	S	S	S	S
			6A			8A								DC ISOLATOR
			6B			8B								

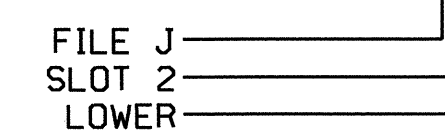
EX. : 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1B	TB2-7,8	I2L	43	5	12	1	Y	Y			
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
6A	TB3-9,10	J3U	64	26	36	6	Y	Y			
6B	TB3-11,12	J3L	77	39	46	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			

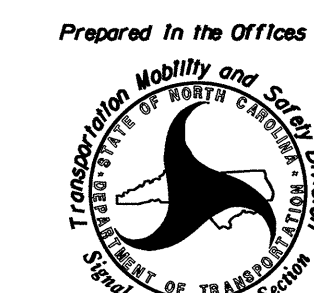
INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-2133T
 DESIGNED: November 2012
 SEALED: 1/2/13
 REVISED: N/A

New Installation - Temporary Design (TCP - PHASE II)

ELECTRICAL AND PROGRAMMING DETAILS FOR:



750 N. Greenfield Pkwy, Garner, NC 27529

US 29 (Concord Parkway)
 at
 George Liles Parkway

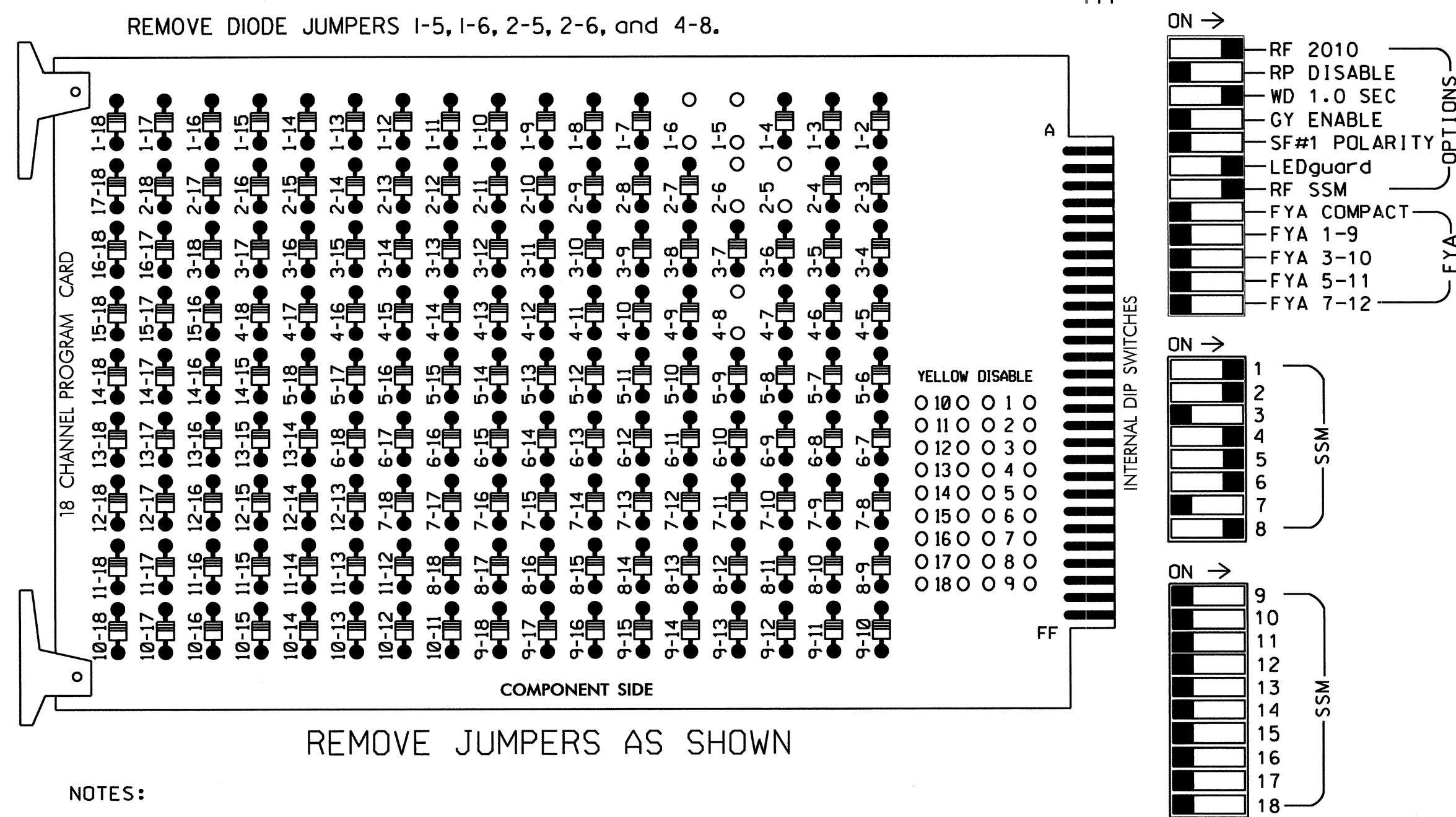
Division 10	Cabarrus County	Concord
PLAN DATE: December 2012	REVIEWED BY: JTR	
PREPARED BY: S. Armstrong	REVIEWED BY:	
REVISIONS	INIT.	DATE

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 008453
 JOHN T. ROWE, P.E.
 SIGNATURE DATE 1-3-13

SIG. INVENTORY NO. 10-2133T

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash.
- The cabinet and controller are part of the US 29 (Concord Pkwy) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S1,S2,S5,S7,S8,S11
 PHASES USED.....1,2,4,5,6,8
 OVERLAPS.....NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11,12	21,22	NU	NU	41,42 43,44	NU	51,52	61,62	NU	NU	81,82 83,84	NU
RED		128						134				
YELLOW		129						135				
GREEN		130						136				
RED ARROW	125				101		131				107	
YELLOW ARROW	126				102		132				108	
GREEN ARROW	127				103		133				109	

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE U	∅ 1	∅ 2	∅ 1	∅ 2	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	FS
I	1A	2A	1A	2A	4A	4A	4A	4A	4A	4A	4A	4A	4A	DC ISOLATOR
L	∅ 1	∅ 2	∅ 1	∅ 2	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	∅ 4	ST
FILE U	∅ 5	∅ 6	∅ 5	∅ 6	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	S
I	5A	6A	5A	6A	8A	8A	8A	8A	8A	8A	8A	8A	8A	DC ISOLATOR
L	∅ 5	∅ 6	∅ 5	∅ 6	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	∅ 8	S
FILE U	5B	6B	5B	6B	8B	8B	8B	8B	8B	8B	8B	8B	8B	DC ISOLATOR

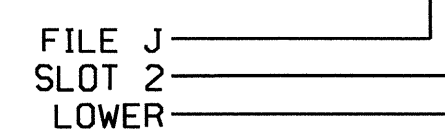
EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-5,6	I2U	39	1	2	1	Y	Y			3
1B	TB2-7,8	I2L	43	5	12	1	Y	Y			
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	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			
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			3
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			
6A	TB3-9,10	J3U	64	26	36	6	Y	Y			
6B	TB3-11,12	J3L	77	39	46	6	Y	Y			
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			

INPUT FILE POSITION LEGEND: J2L



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-2133
 DESIGNED: November 2012
 SEALED: 1/2/13
 REVISED: N/A

New Installation - Final Design

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

 750 N. Greenfield Pkwy, Garner, NC 27529

US 29 (Concord Parkway)
 at
 George Liles Parkway

Division 10	Cabarrus County	Concord
PLAN DATE: December 2012	REVIEWED BY: JTR	
PREPARED BY: S. Armstrong	REVIEWED BY:	
REVISIONS	INIT.	DATE

SEAL

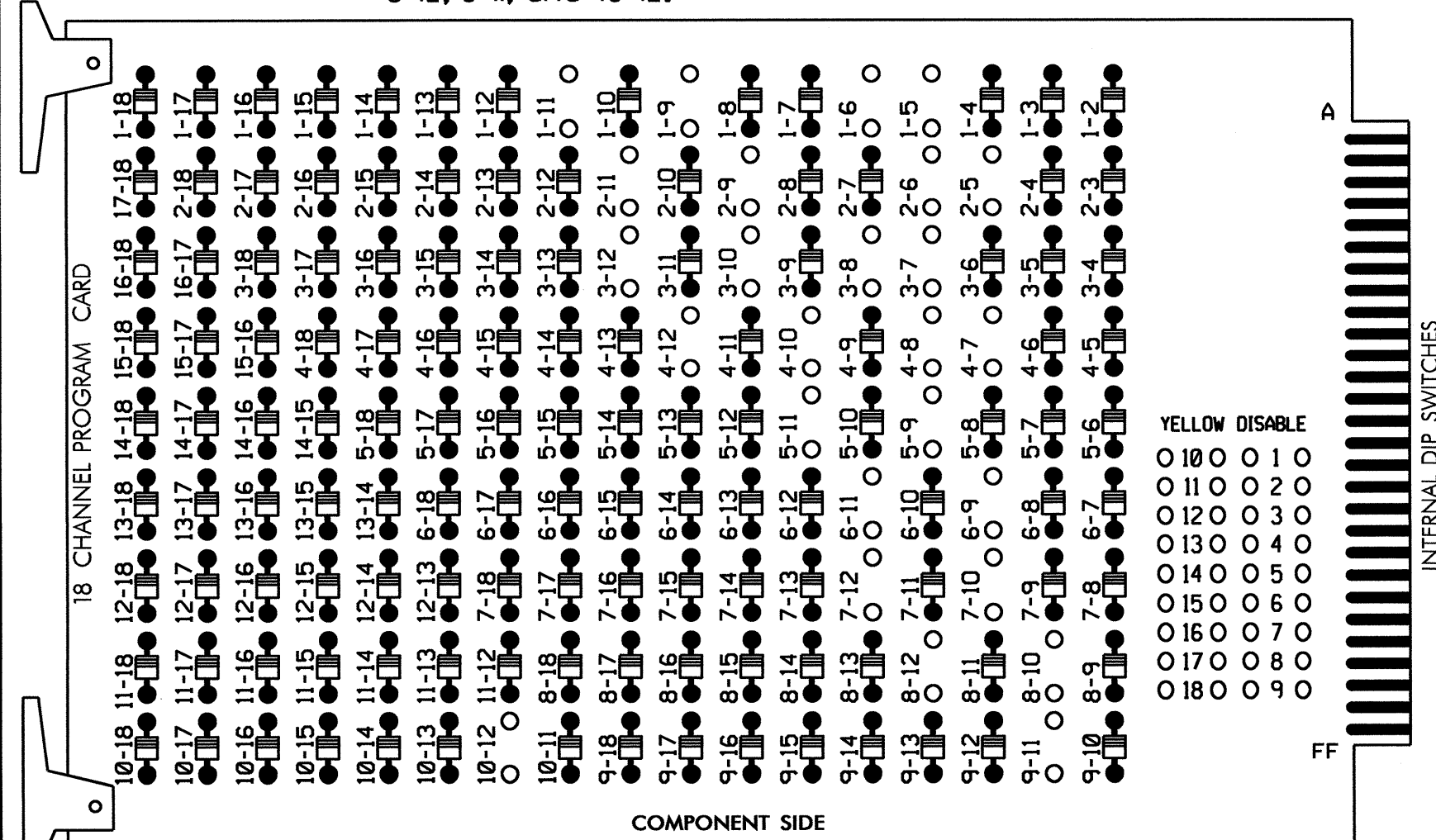
 JOHN T. ROWE, P.E.
 SIGNATURE DATE 1-3-13
 SIG. INVENTORY NO. 10-2133

EDI MODEL 2018ECL-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

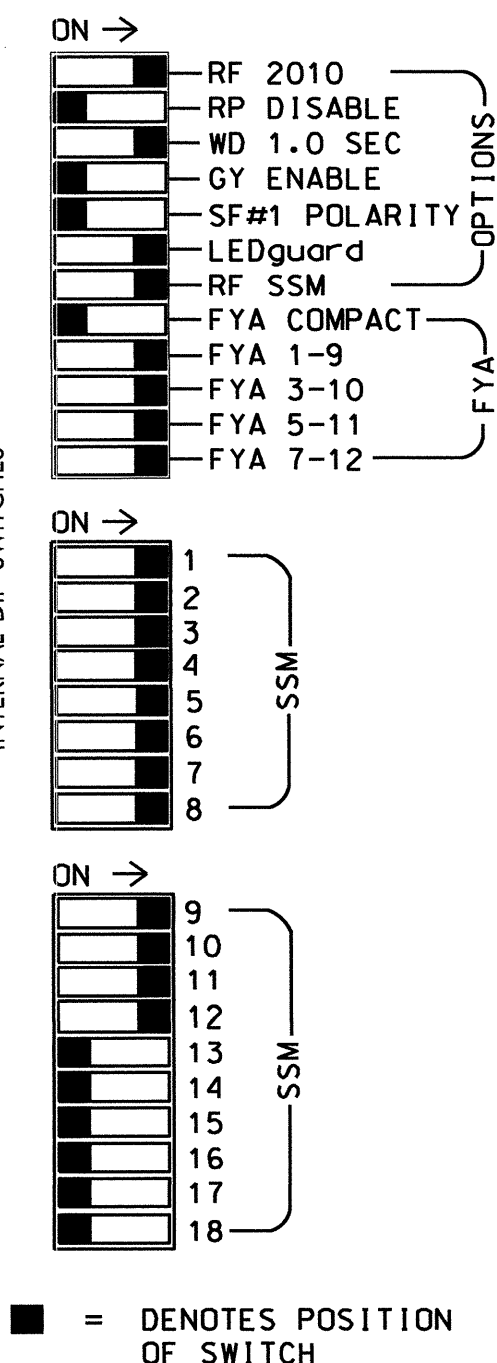
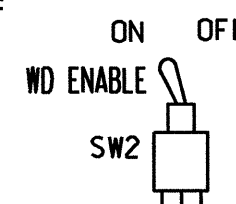
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 7-10, 7-12, 8-10, 8-12, 9-11, and 10-12.



REMOVE JUMPERS AS SHOWN

NOTES:

- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
- Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
- Ensure that Red Enable is active at all times during normal operation.
- Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.



NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Variable Initial.
- Program phases 2, 4, 6, and 8 for Gap Reduction.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash and overlaps 1 and 2 as Wag Overlaps.
- The cabinet and controller are part of the City of Concord Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
 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 S1,
 AUX S2,AUX S4,AUX S5
 PHASES USED.....1,2,3,4,5,6,7,8
 OVERLAP "A".....1+2
 OVERLAP "B".....3+4
 OVERLAP "C".....5+6
 OVERLAP "D".....7+8

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	DLA	DLB	SPARE	OLC	OLD	SPARE				
SIGNAL HEAD NO.	11*	82	21,22	NU	22	31*	41,42	NU	42	51*	61,62	NU	62	71*	81,82	NU	11*	31*	51*	71*	NU	
RED		*	128		*	101		*	134		*	107										
YELLOW			129			102			135			108										
GREEN			130			103			136			109										
RED ARROW																	A121	A124		A114	A101	
YELLOW ARROW		126			117			132			123						A122	A125		A115	A102	
FLASHING YELLOW ARROW																	A123	A126		A116	A103	
GREEN ARROW	127	127				118	118		133	133		124	124									

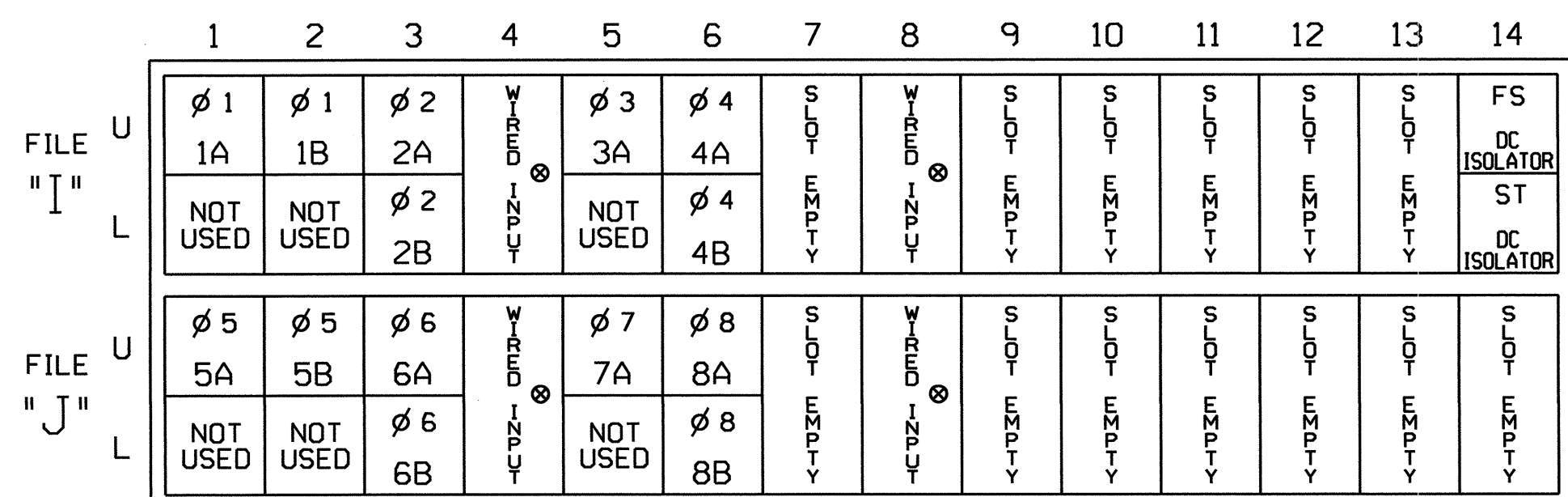
NU = Not Used

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

* See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
 ST = STOP TIME

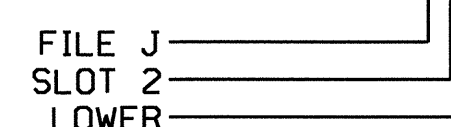
Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

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	Y		3
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			15
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
3A ²	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			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y	Y	2.0	5
5A ³	TB3-1,2	J1U	55	17	5	5	Y	Y			15
	-	I4U	47	9	22	2	Y	Y	Y		3
5B	TB3-5,6	J2U	40	2	6	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			
7A ⁴	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			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y	Y	2.0	5

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

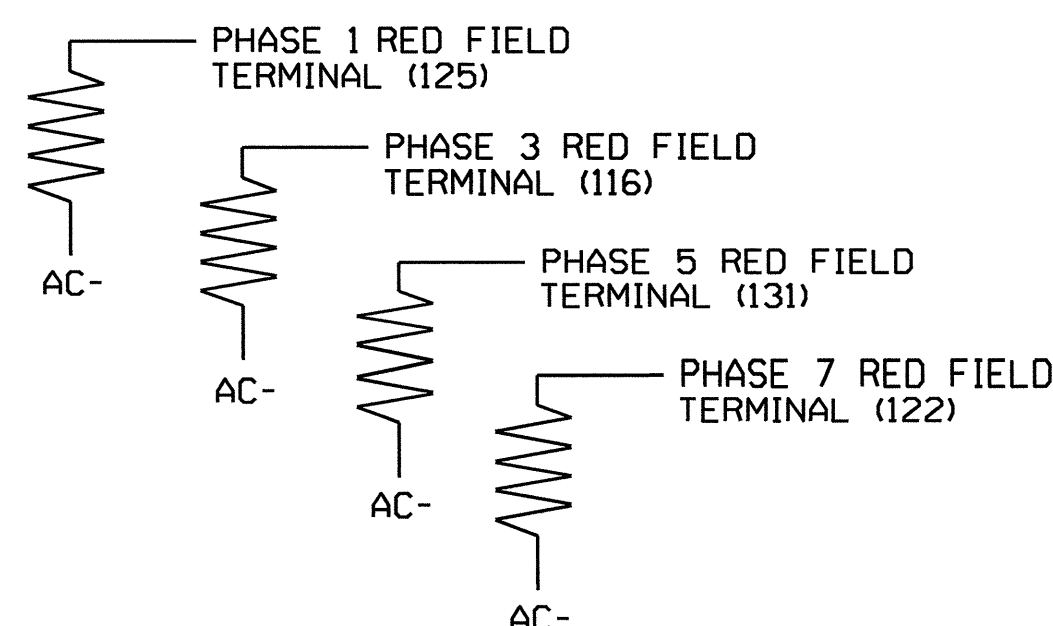
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

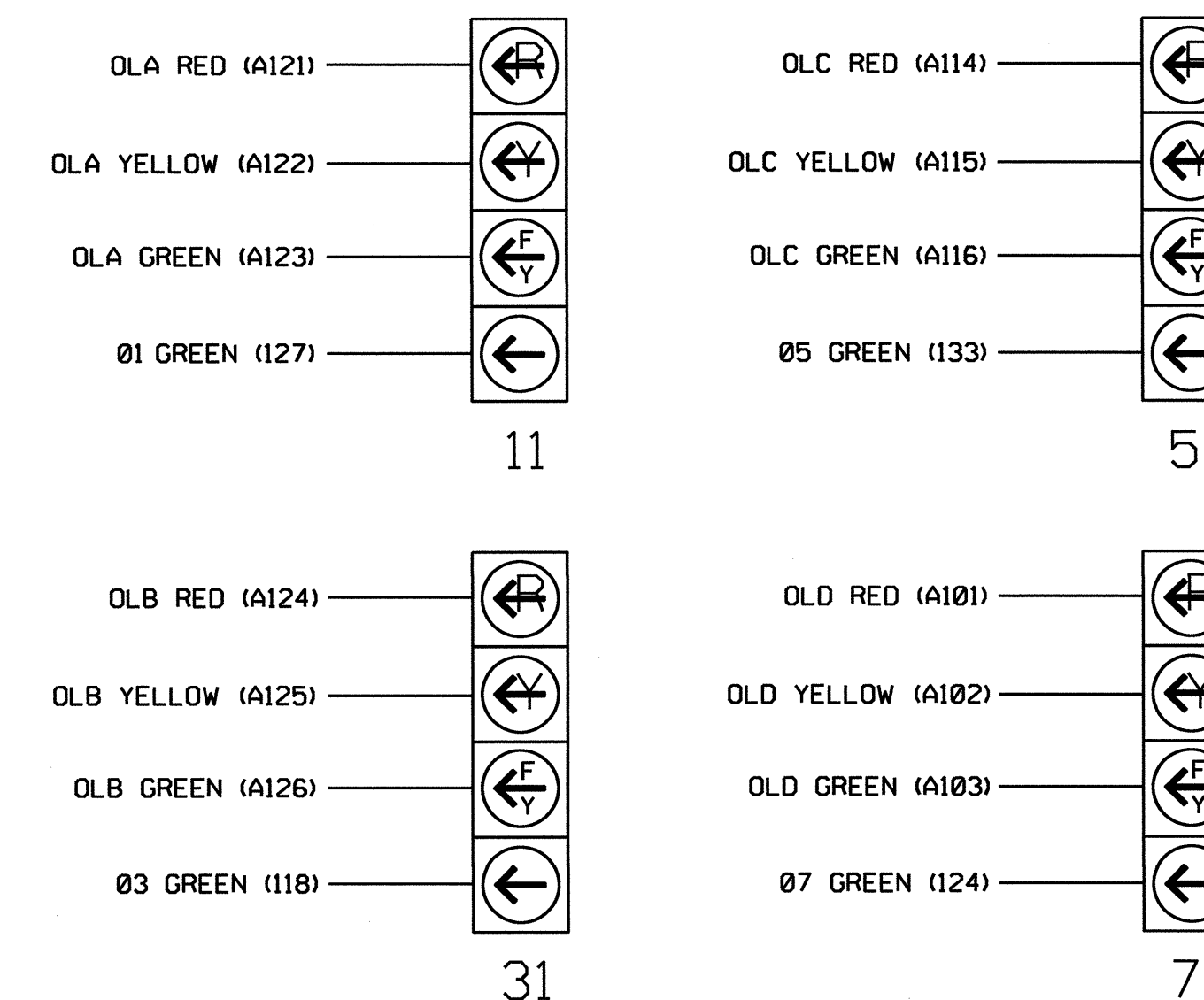
(install resistors as shown below)

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



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 11, 31, 51, and 71 requires special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-1500
 DESIGNED: November 2012
 SEALED: 12/19/12
 REVISED: N/A

Signal Upgrade - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

George Liles Parkway at SR 1431 (Weddington Road)

Division 10 Cabarrus County Concord

PLAN DATE: November 2012 REVIEWED BY: JTR

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS: INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SEAL: JOHN T. ROWE, ENGINEER, SEAL 008453

SIGNATURE: John T. Rowe DATE: 12-20-12

SIG. INVENTORY NO. 10-1500

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, 3, 4, 5, 6, 7, 8, 9, 10, 11, AND 12.
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

PRESS '+'

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

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

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #52 OFF

PRESS '+'

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

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

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #51 ON

PRESS '+'

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

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE PHASE #5 IS ON
AND RED CLEAR ON PHASE #5 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #42 ON
SET OUTPUT ASSIGNMENT #43 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

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

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #44 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON PHASE #5 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #43 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #7 (+/-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 #8 (+/-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 #9 (+/-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 #10 (+/-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 #11 (+/-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 #12 (+/-COMMAND#)
IF YELLOW ON PHASE #7 IS ON

↓
SCROLL DOWN

THEN:
SET OUTPUT ASSIGNMENT #40 ON

PRESS '+'

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

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

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: XX
VEH OVL NOT VEH:
VEH OVL NOT PED:
VEH OVL GRN EXT:
STARTUP COLOR: - RED - YELLOW - GREEN
FLASH COLORS: - RED - YELLOW X GREEN

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

PRESS '+'

← NOTICE GREEN FLASH

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

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 '+'

← NOTICE GREEN FLASH

PAGE 1: VEHICLE OVERLAP 'C' 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

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

PRESS '+'

← NOTICE GREEN FLASH

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

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 '+'

← NOTICE GREEN FLASH

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:

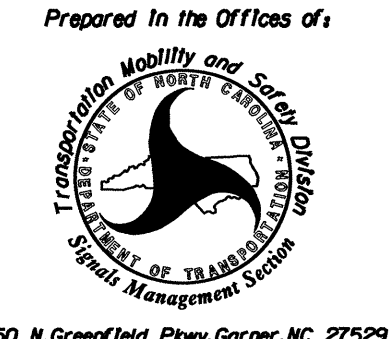
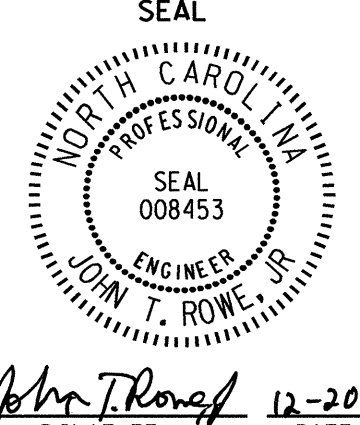
1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

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

OUTPUT REFERENCE SCHEDULE	
USE TO INTERPRET LOGIC PROCESSOR	
OUTPUT 39 =	Overlap D Red
OUTPUT 40 =	Overlap D Yellow
OUTPUT 41 =	Overlap D Green
OUTPUT 42 =	Overlap C Red
OUTPUT 43 =	Overlap C Yellow
OUTPUT 44 =	Overlap C Green
OUTPUT 47 =	Overlap B Red
OUTPUT 48 =	Overlap B Yellow
OUTPUT 49 =	Overlap B Green
OUTPUT 50 =	Overlap A Red
OUTPUT 51 =	Overlap A Yellow
OUTPUT 52 =	Overlap A Green

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-1500
DESIGNED: November 2012
SEALED: 12/19/12
REVISED: N/A

Signal Upgrade - Sheet 2 of 2

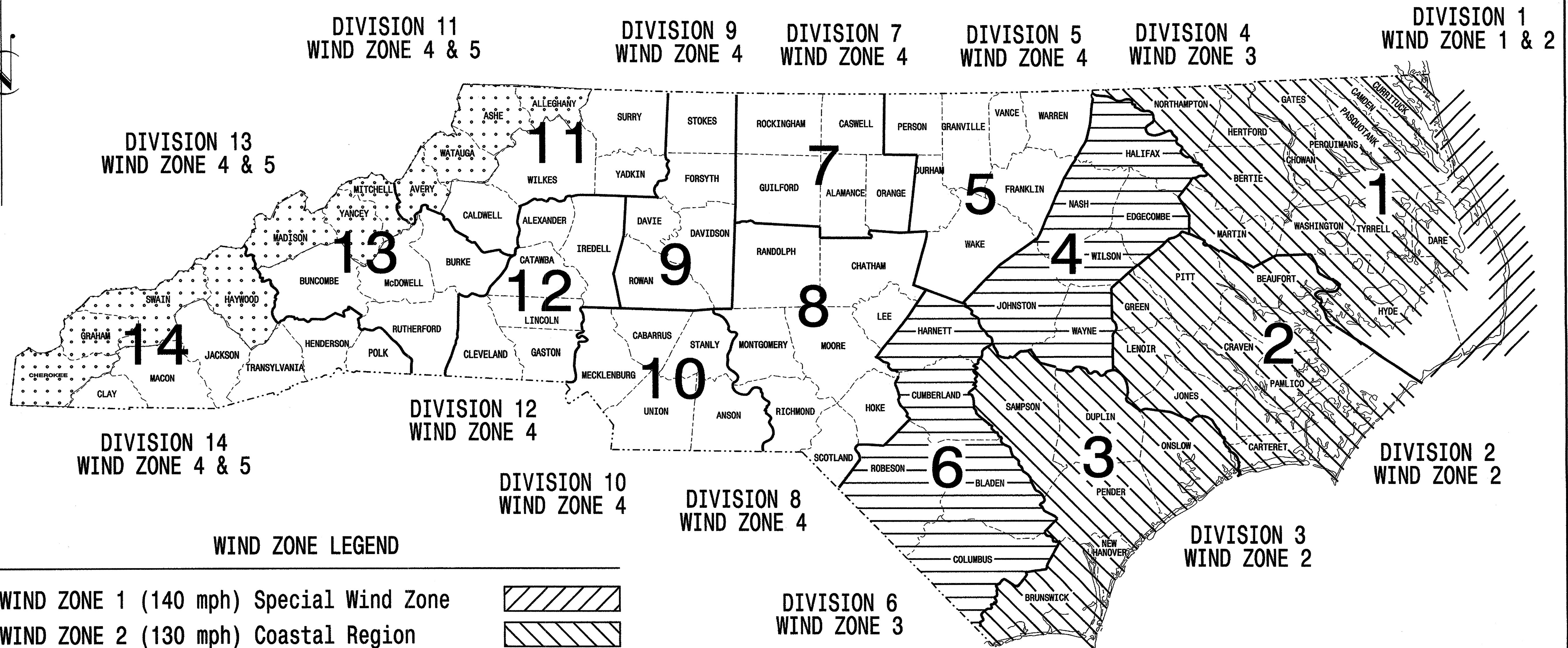
	George Liles Parkway at SR 1431 (Weddington Road)		SEAL 
	Division 10 Cabarrus County Concord PLAN DATE: November 2012 REVIEWED BY: JTK PREPARED BY: S. Armstrong REVIEWED BY:	REVISIONS: INIT. DATE	

20-DEC-2012 07:48 115 Signal\worker\outputs\101500_sml@10-xxx.dgn

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

STATE	PROJECT NO.	SHEET NO.
N.C.	R-2246B	Sig. 12
F.A. PROJ. NO.	M 1	
PROJECT ID. NO.		

STANDARD DRAWINGS FOR METAL POLES



<http://www.ncdot.org/doh/preconstruct/traffic/ITSS/ws/mpoles/poles.html>

Prepared In the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

Designed in conformance
with the
2002 Interim to the
4th Edition 2001
AASHTO
Standard Specifications for
Structural Supports for
Highway Signs, Luminaires,
and Traffic Signals

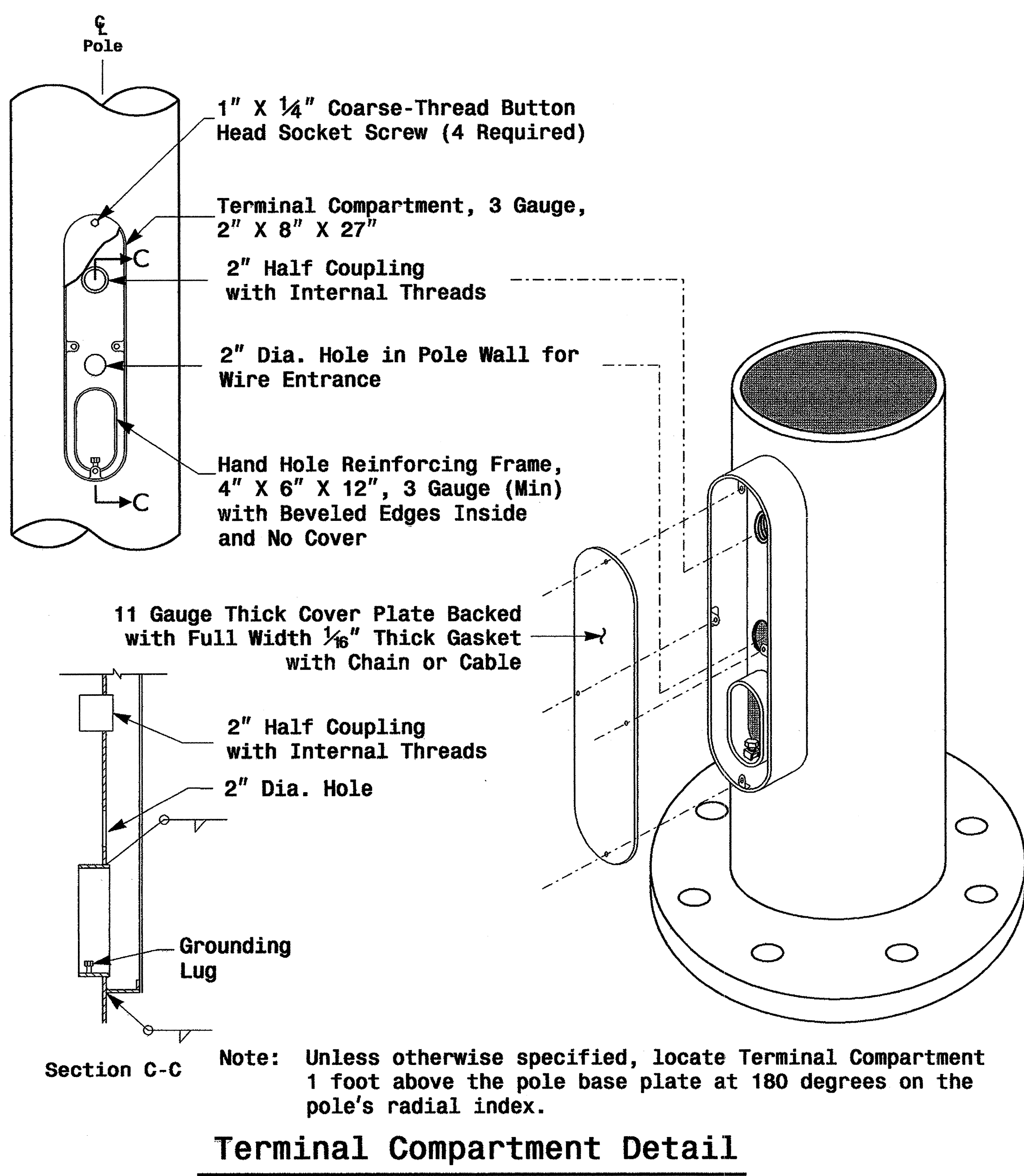
INDEX OF PLANS	
DRAWING NUMBER	DESCRIPTION
M 1	Title Sheet
M 2	Fabrication Details - All Poles
M 3	Fabrication Details - Strain Poles
M 4,5	Fabrication Details - Mast Arm Poles
M 6	Construction Details - Strain Poles
M 7	Construction Details - Foundations
M 8	Standard Strain Poles

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, Jr. - ITS and Signals Structural Project Engineer
 M. Aslam - ITS and Signals Structural Project Engineer
 N. Bitting, P.E. - ITS and Signals Structural Project Engineer

SEAL

D. Sarkar 7.21.2009
SIGNATURE DATE



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 STANDARD _____	

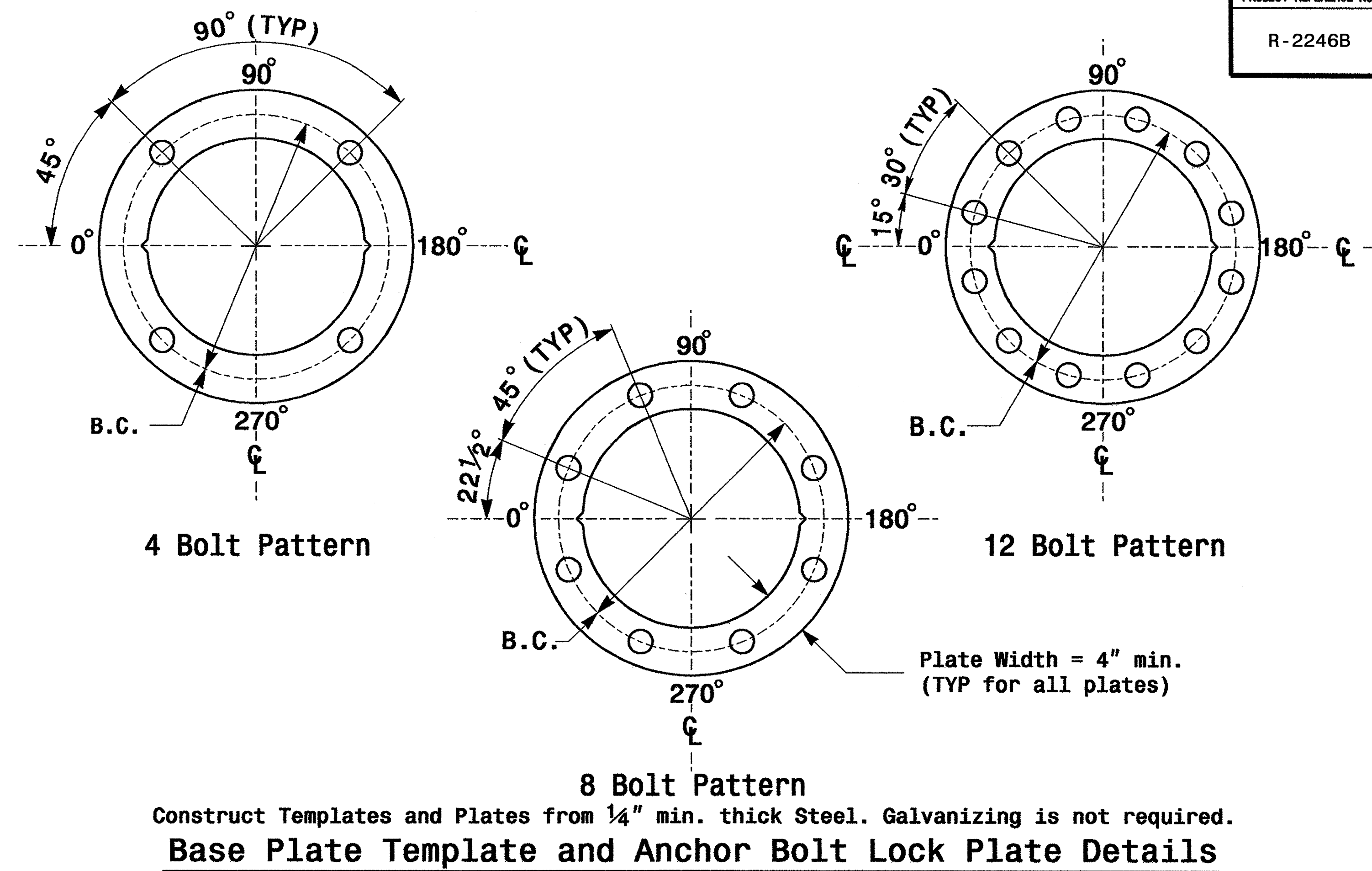
Shaft I.D. Tag
(Provide on Strain Poles and Mast Arm Poles)

- 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 plan pole I.D.
 - 5) See drawing M4 for mounting positions of I.D. tags.

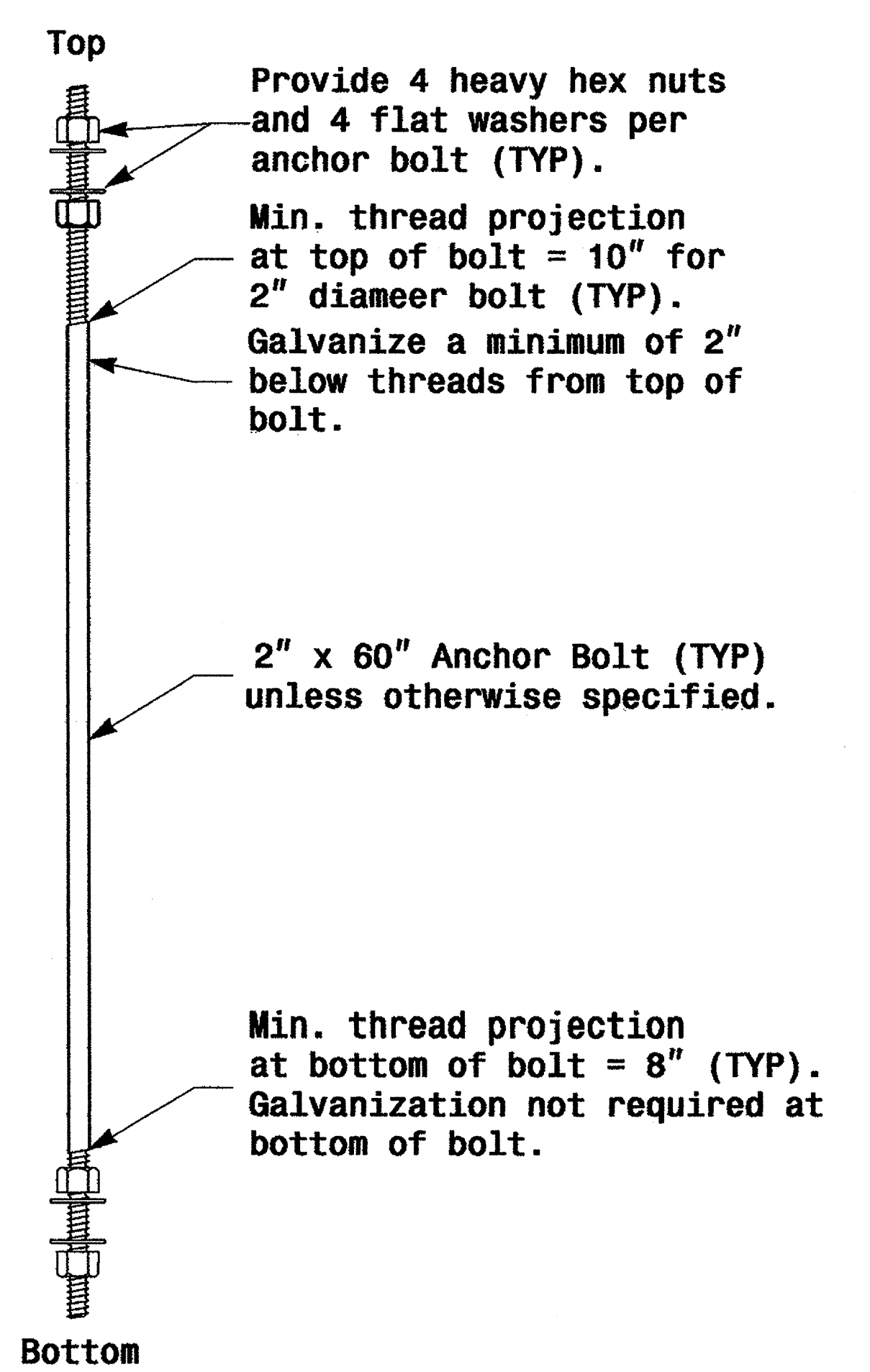
Identification Tag Details

MFG _____	MFG. DATE: MM/YY _____
SECTION D/T/L/Y _____	
NCDOT STANDARD _____	

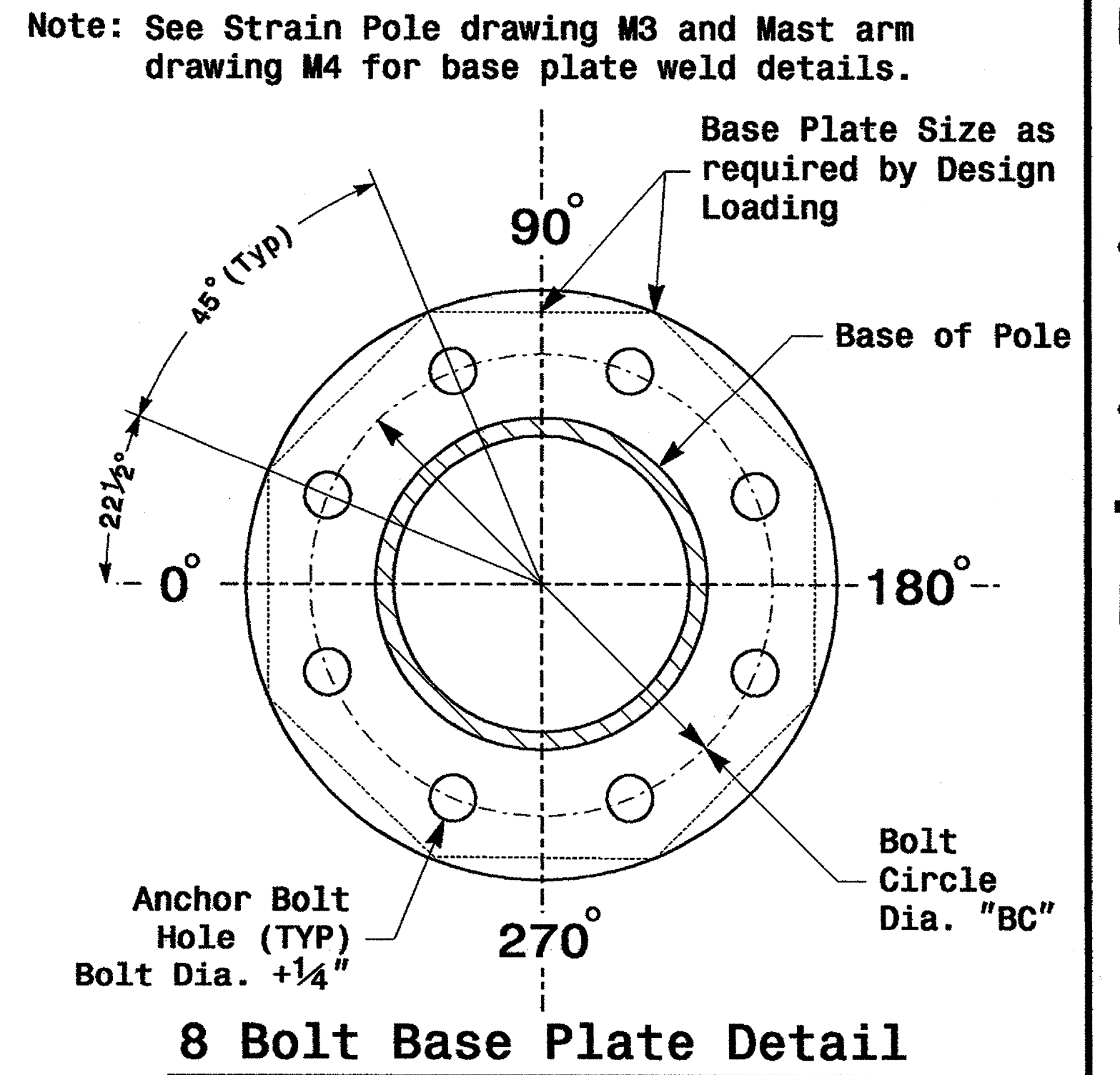
Arm I.D. Tag
(Provide on each section of a multi-section mast arm)



Base Plate Template and Anchor Bolt Lock Plate Details



Anchor Bolt Detail

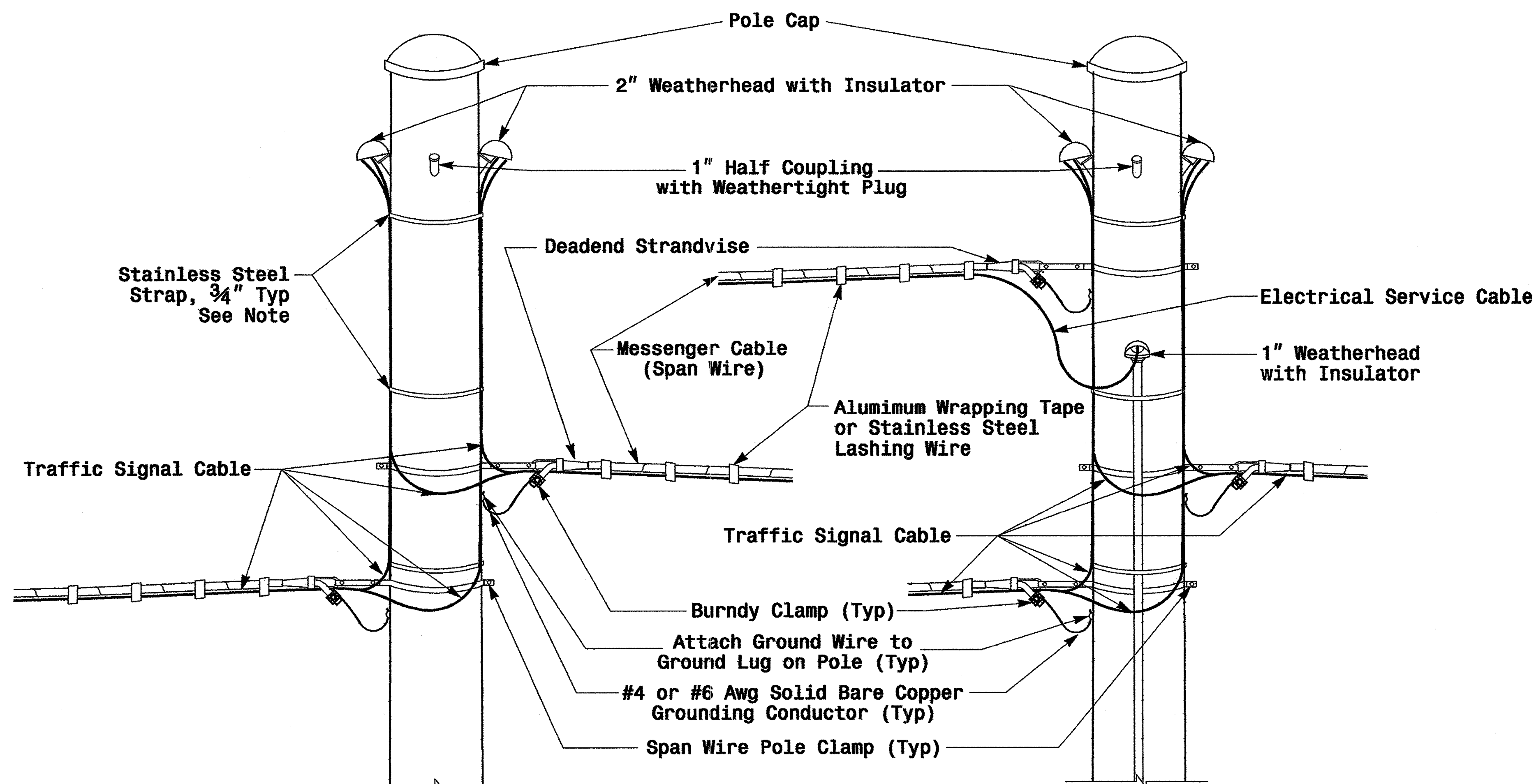


8 Bolt Base Plate Detail

	Typical Fabrication Details Common To All Metal Poles		
	PLAN DATE: May 2005 PREPARED BY: P.L. Alexander SCALE: 0 NA NONE	REVIEWED BY: C.F. Andrews REVIEWED BY: A.W. Esposito	

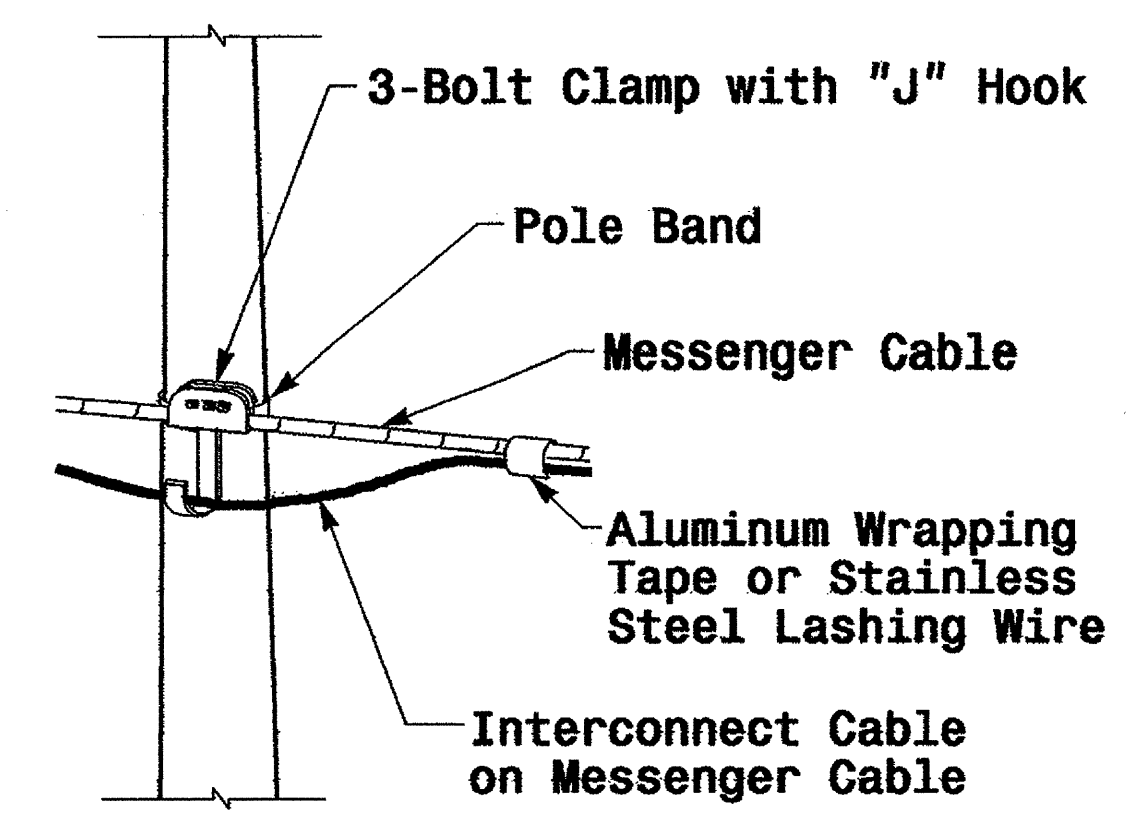
Fabrication Details - All Poles

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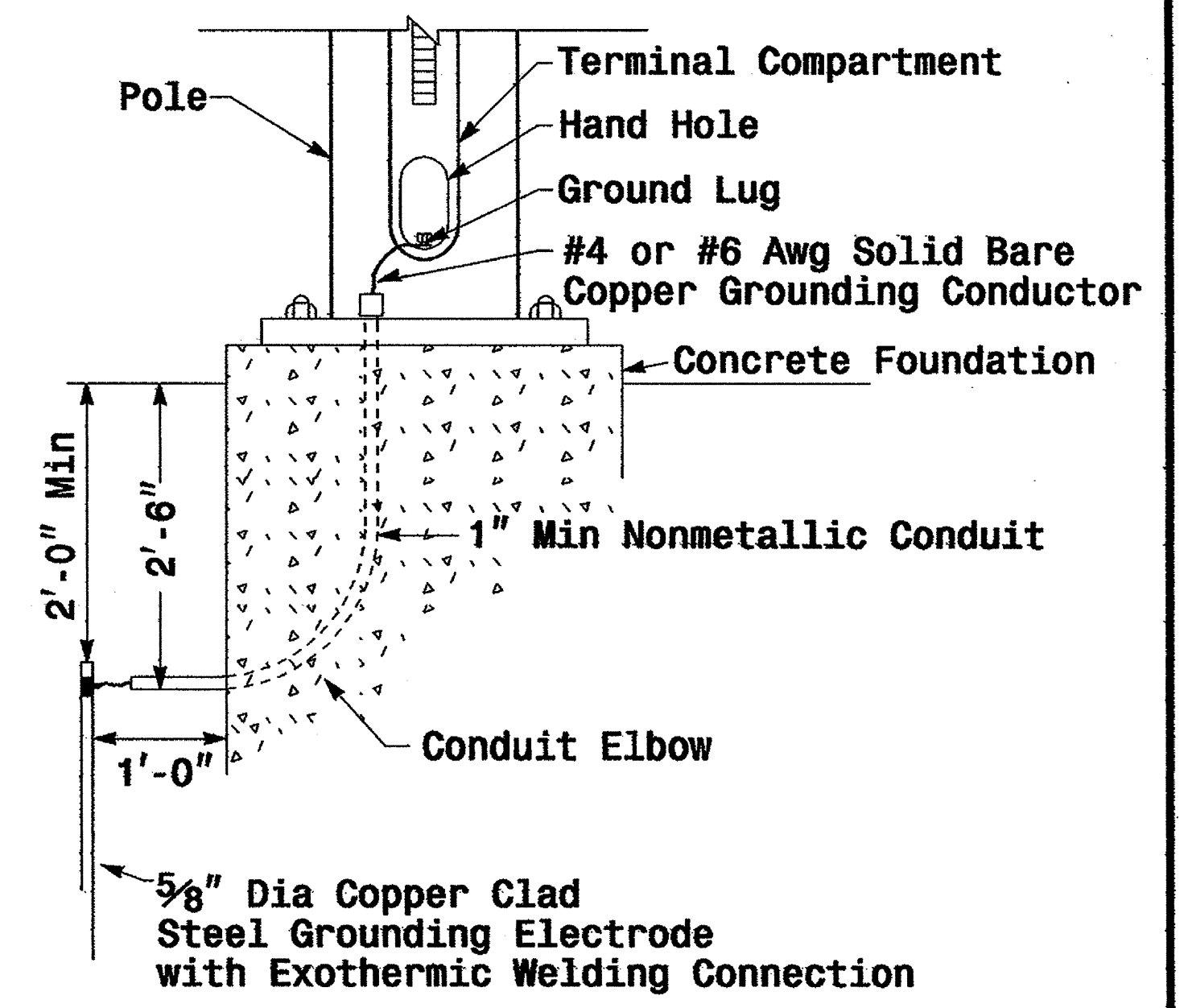


Note: Strap all signal cables to the side of the pole with 3/4" stainless steel straps when the distance between the spanwire attachment clamp and the weatherheads exceeds 36"

Strain Pole Attachments



Attachment of Cable to Intermediate Metal Pole



Metal Pole Grounding Detail

01-SEP-2005 16:13:13 \\fs1\p01\eg-um\1\work\groups\2004\metal_pole_standards\2004_m6.dgn

	Construction Details Strain Poles		
	PLAN DATE: May 2005 PREPARED BY: C.F. ANDREWS	REVIEWED BY: P.L. ALEXANDER REVIEWED BY: D.C. SARKAR	
SCALE: 0 NA NONE	REVISIONS:	INET. DATE:	SIGNATURE: <i>P.L. Alexander</i> 9-1-05 DATE:

		STANDARD STRAIN POLES				STANDARD FOUNDATIONS 42" Diameter Drilled Pier Length (L) - Feet						
		Case No.	Pole Height (Ft.)	Base Plate BC (In.)	Moment at the Pole Base (ft-kp)	Clay				Sand		
						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
WIND ZONE 1	LIGHT	S26L3	26	25	280	20.5	14.0	11.5	9.5	18.0	16.0	14.0
		S30L3	30	25	310	21.0	14.5	11.5	9.5	18.5	16.5	14.5
		S35L3	35	25	350	22.5	15.0	12.0	10.0	19.5	17.5	15.5
	HEAVY	S30H3	30	29	450	25.5	16.5	13.0	11.0	21.0	18.5	16.5
		S35H3	35	29	540	26.0	17.0	13.5	11.5	22.0	19.5	17.0
	WIND ZONE 2	LIGHT	S26L2	26	23	250	19.5	13.5	11.0	9.0	18.0	15.5
S30L2			30	23	290	20.0	14.0	11.5	9.5	18.5	16.0	14.0
S35L2			35	23	315	21.0	14.5	11.5	9.5	19.0	16.5	14.5
HEAVY		S30H2	30	29	415	24.5	16.0	13.0	10.5	21.0	18.5	16.0
		S35H2	35	29	485	25.5	16.5	13.5	11.0	21.5	19.0	16.5
WIND ZONE 3		LIGHT	S26L2	26	23	250	18.5	13.0	10.5	9.0	17.5	15.0
	S30L2		30	23	290	19.5	13.5	11.0	9.0	18.0	15.5	14.0
	S35L2		35	23	315	20.0	14.0	11.5	9.5	18.5	16.0	14.5
	HEAVY	S30H2	30	29	415	23.0	15.5	12.5	10.0	20.5	17.5	16.0
		S35H2	35	29	485	24.0	16.0	13.0	10.5	21.0	18.0	16.5
	WIND ZONE 4	LIGHT	S26L1	26	22	195	18.0	13.0	10.5	9.0	16.5	14.5
S30L1			30	22	225	18.5	13.0	10.5	9.0	17.0	15.0	13.5
S35L1			35	22	255	19.0	13.5	11.0	9.0	17.5	15.5	14.0
HEAVY		S30H1	30	25	330	22.0	15.0	12.0	9.5	19.5	17.0	15.0
		S35H1	35	25	385	23.0	15.5	12.5	10.0	20.0	17.5	15.5
WIND ZONE 5		LIGHT	S26L2	26	23	250	19.0	13.5	10.5	9.0	17.5	15.5
	S30L2		30	23	290	20.0	14.0	11.0	9.5	18.0	16.0	14.0
	S35L2		35	23	315	21.0	14.5	11.5	10.0	19.0	16.5	14.5
	HEAVY	S30H2	30	29	415	23.5	15.5	12.5	10.5	21.0	18.0	16.0
		S35H2	35	29	485	25.0	16.5	13.0	11.0	21.5	18.5	16.5

Concrete Volume (cubic yards) = .356 X L

Fabrication Design Notes:

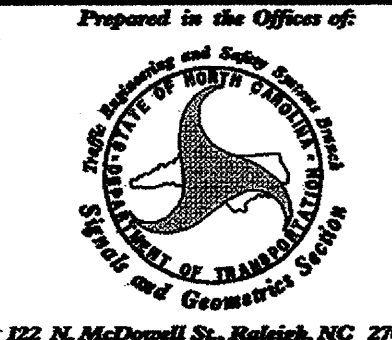
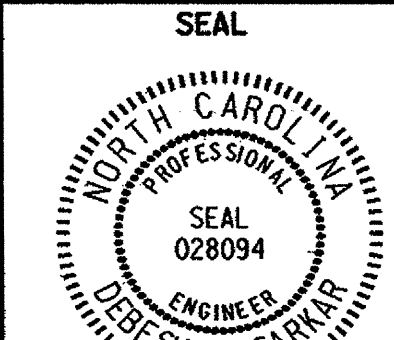
1. Values shown in "Moment at the Pole Base" column represents the minimum acceptable capacity allowable for design using a design CSR of 1.
2. Base plate thickness (T) is 2.0 inches.

Foundation Selection:

1. Perform a standard penetration test at each proposed foundation site to determine "N" value.
2. Select the appropriate wind zone from sheet M 1.
3. Select the soil type (Clay or Sand) that best describes the soil characteristics.
4. Get the appropriate pole case load number from the plans or from the Engineer.
5. Select the appropriate column in the chart based on soil type and "N" value. Select the appropriate row based on the pole load case. The foundation depth is the value where the column and the row intersect.

Standard Strain Poles

02-SEP-2005 12:42 P:\Projects\2005\09\05\std_strain_pole.dgn

	Standard Strain Poles and Standard Foundations		
	PLAN DATE: May 2005 PREPARED BY: P.L. Alexander	REVIEWED BY: C.F. Andrews REVIEWED BY: A.M. Esposito	
REVISIONS		INIT. DATE	SIGNATURE: D. Sarkar 9/2/2005 DATE

- 1 INSTALL REA, PE - 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL REA, PE - 38, (FIGURE 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 3 INSTALL REA, PE - 39, (UNDERGROUND) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL MMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 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 FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL 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
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 27 INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER 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 POLE MOUNTED SPlice CABINET
- 32 INSTALL BASE MOUNTED SPlice CABINET
- 33 REMOVE EXISTING SPlice CABINET

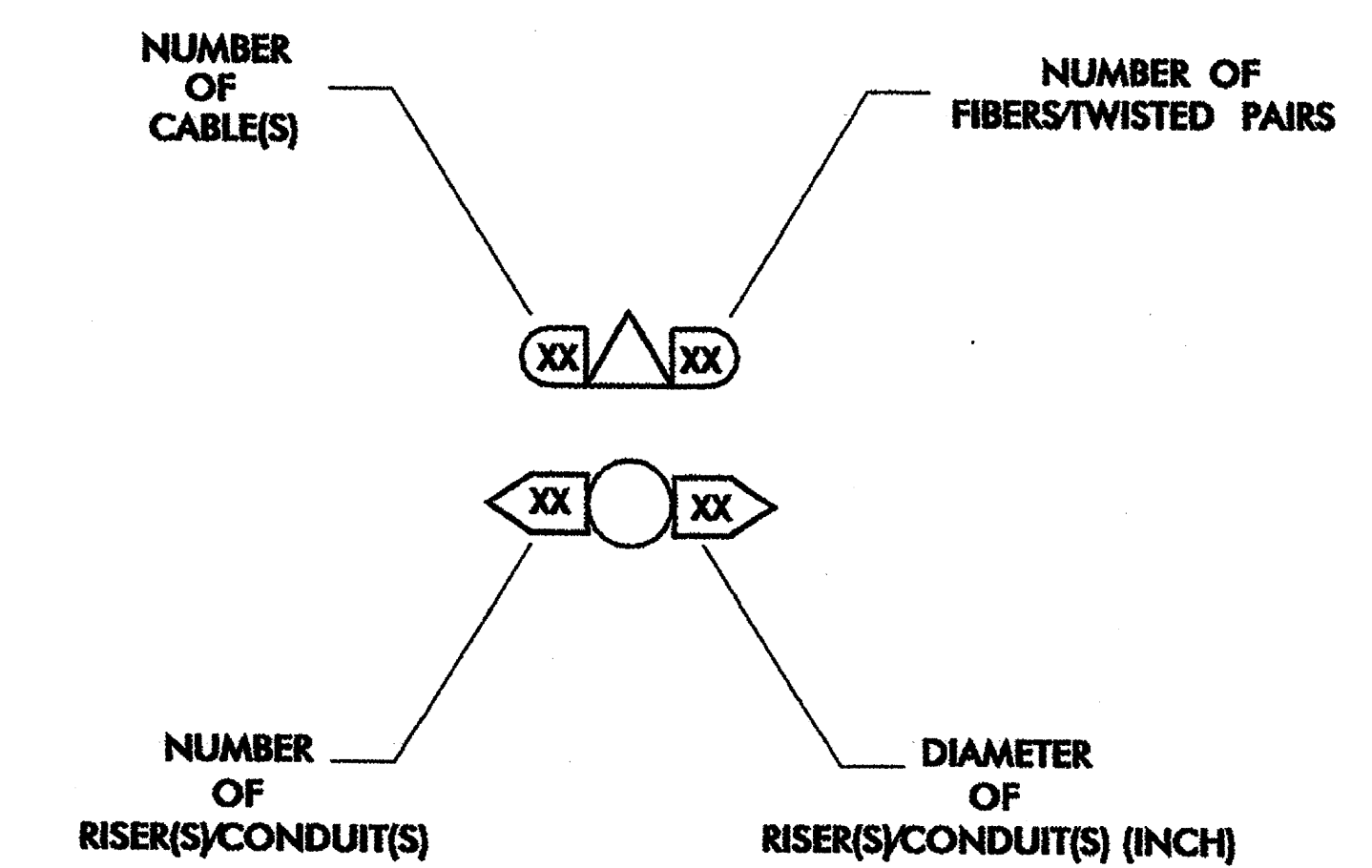
- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 49 REMOVE EXISTING MESSENGER CABLE
- 50 INSTALL TELEPHONE SERVICE
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 20 FEET OF COMMUNICATIONS 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
- 58 INSTALL NEW ELECTRICAL SERVICE

LEGEND

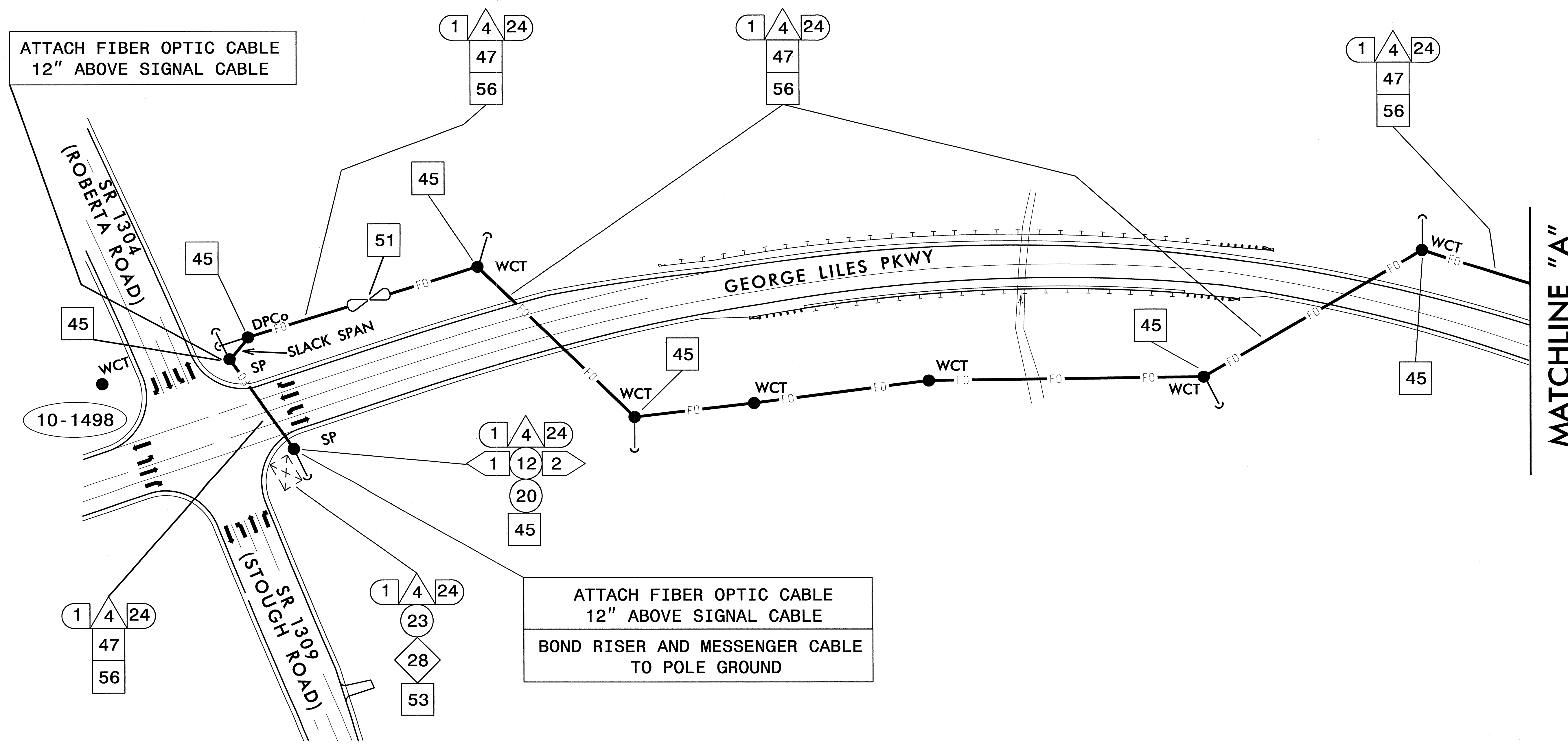
- FO NEW FIBER OPTIC COMMUNICATIONS CABLE
- TWIST PR NEW TWISTED PAIR COMMUNICATIONS CABLE
- EXI EXISTING COMMUNICATIONS CABLE
- REM EXISTING COMMUNICATIONS CABLE TO BE REMOVED
- NEW AERIAL GUY ASSEMBLY
- NEW CONDUIT
- EXISTING CONDUIT
- DD NEW DIRECTIONAL DRILLED CONDUIT
- B&J NEW BORED AND JACKED CONDUIT
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- AERIAL SPlice ENCLOSURE
- NEW METAL POLE
- EXISTING METAL POLE
- NEW CCTV ASSEMBLY
- NEW STANDARD GUY ASSEMBLY
- NEW SIDEWALK GUY ASSEMBLY
- NEW CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CONTROLLER AND CABINET
- EXISTING SPlice CABINET
- NEW SPlice CABINET
- SP SIGNAL POLE
- XX-XXXX SIGNAL INVENTORY NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

- XX INDICATES NUMBER OF CABLES, LOOPS, ETC.
- XX INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- XX INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- XX INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)

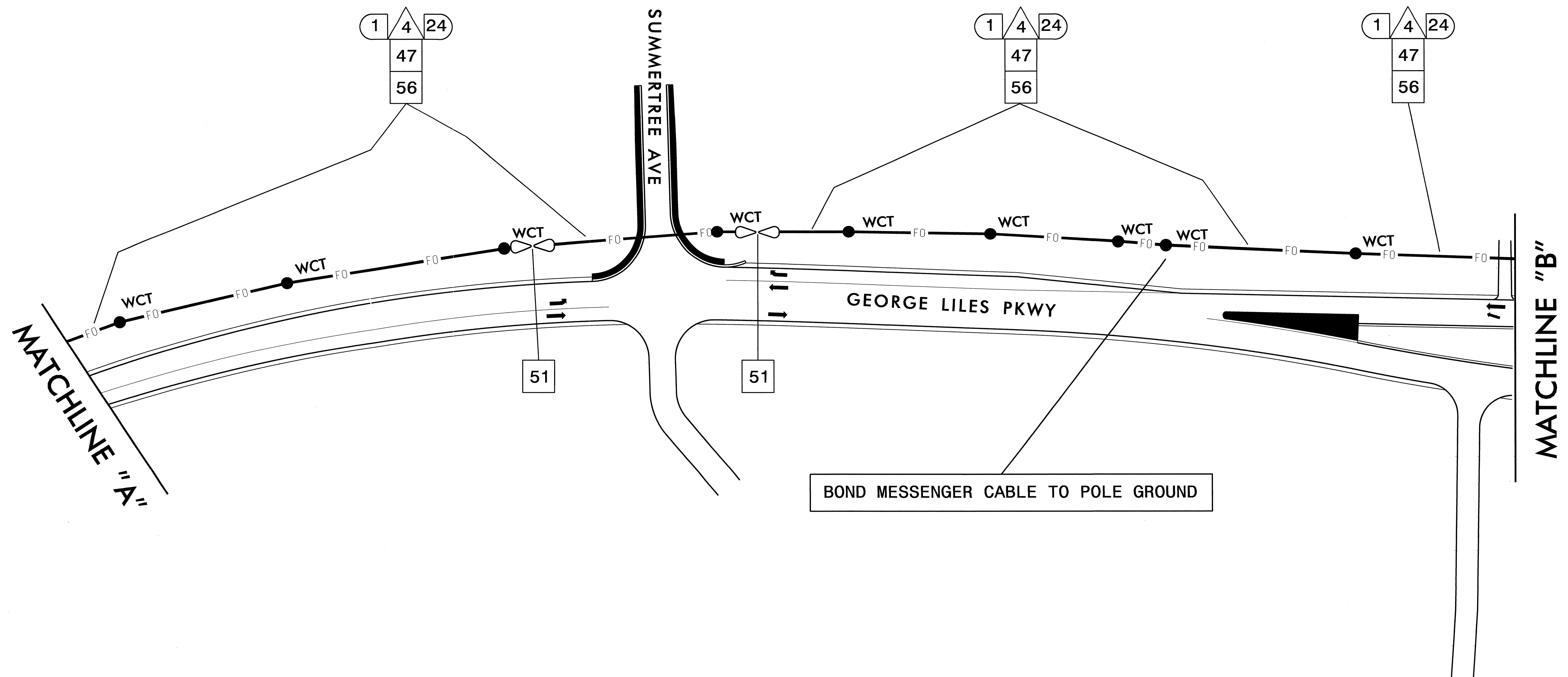


	CONSTRUCTION NOTES		
	PLAN DATE: _____ PREPARED BY: _____	REVIEWED BY: _____ REVIEWED BY: G. A. FULLER	
222 N. McDowell St., Raleigh, NC 27603 SCALE: _____	Signature: _____ DATE: 10/31/02		SEAL



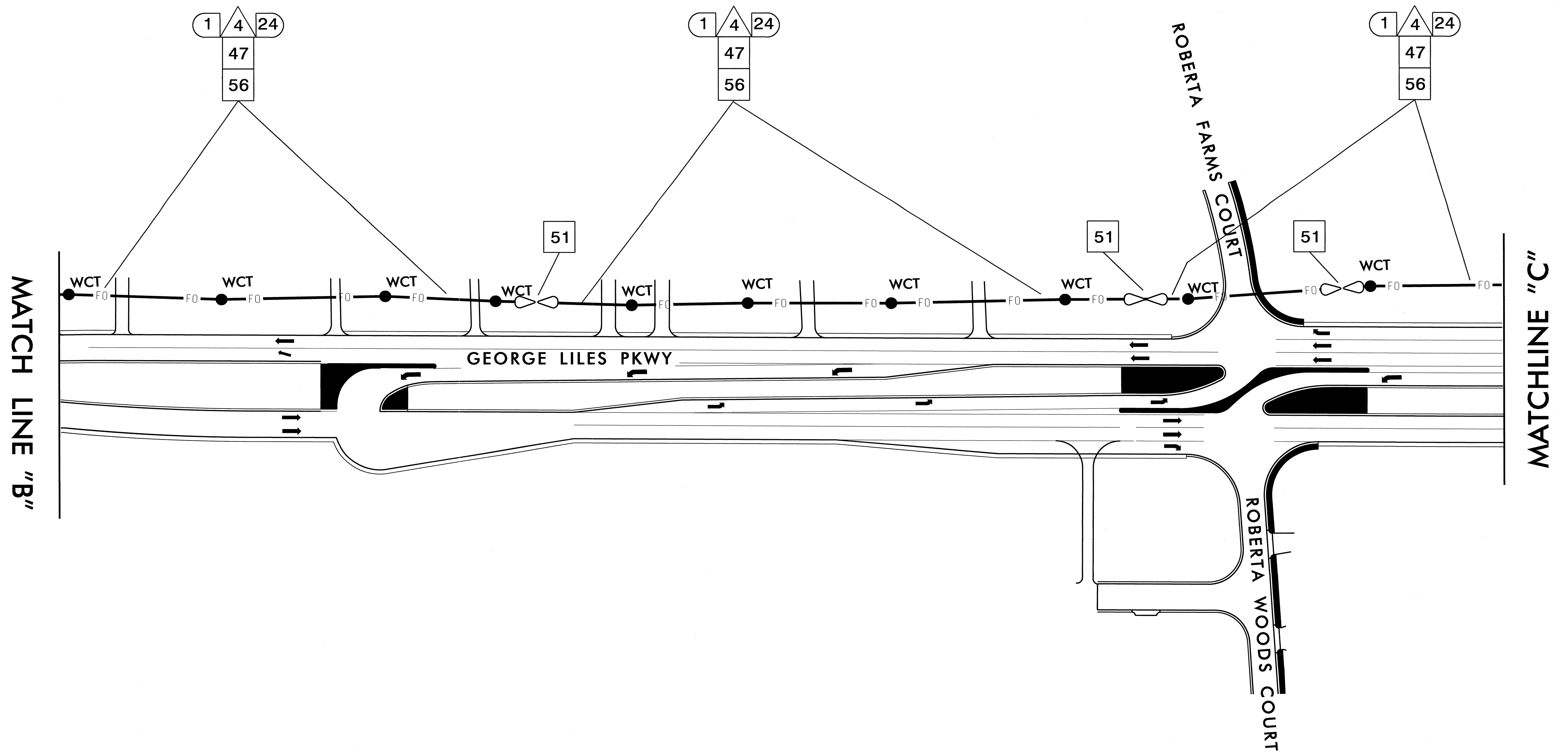
ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
PLAN DATE: DECEMBER 2012	REVIEWED BY: I.N. AVERY	PREPARED BY: S.C. WARDLE	REVIEWED BY: G.A. FULLER
SCALE: 0	REVISIONS	INIT.	DATE
		SIGNATURE: <i>Gregory A. Fuller</i> DATE: 1/9/13	



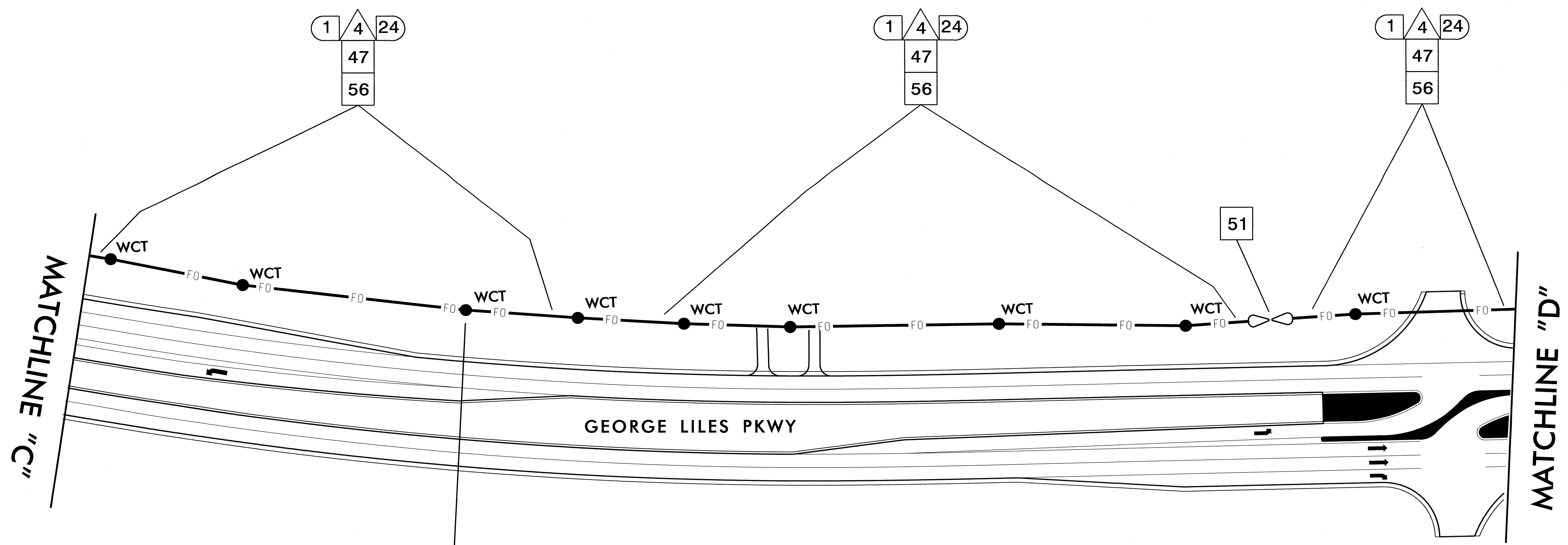
ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

<p>Prepared in the Offices of: Transportation, Mobility and Safety Division NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 750 N. Greenfield Pkwy., Garner, NC 27529</p>	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
	PLAN DATE: DECEMBER 2012	REVIEWED BY: I.N. AVERY	
PREPARED BY: S.C. WARDLE	REVIEWED BY: G.A. FULLER	REVISIONS INIT. DATE	SIGNATURE: <i>Gregory A. Fuller</i> 1/9/13 DATE



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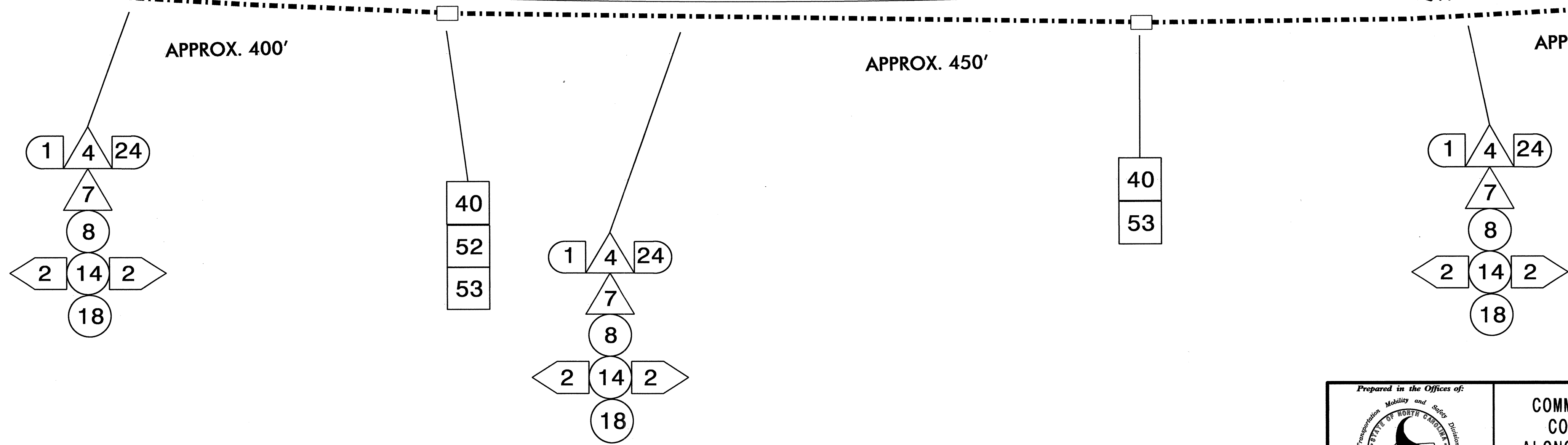
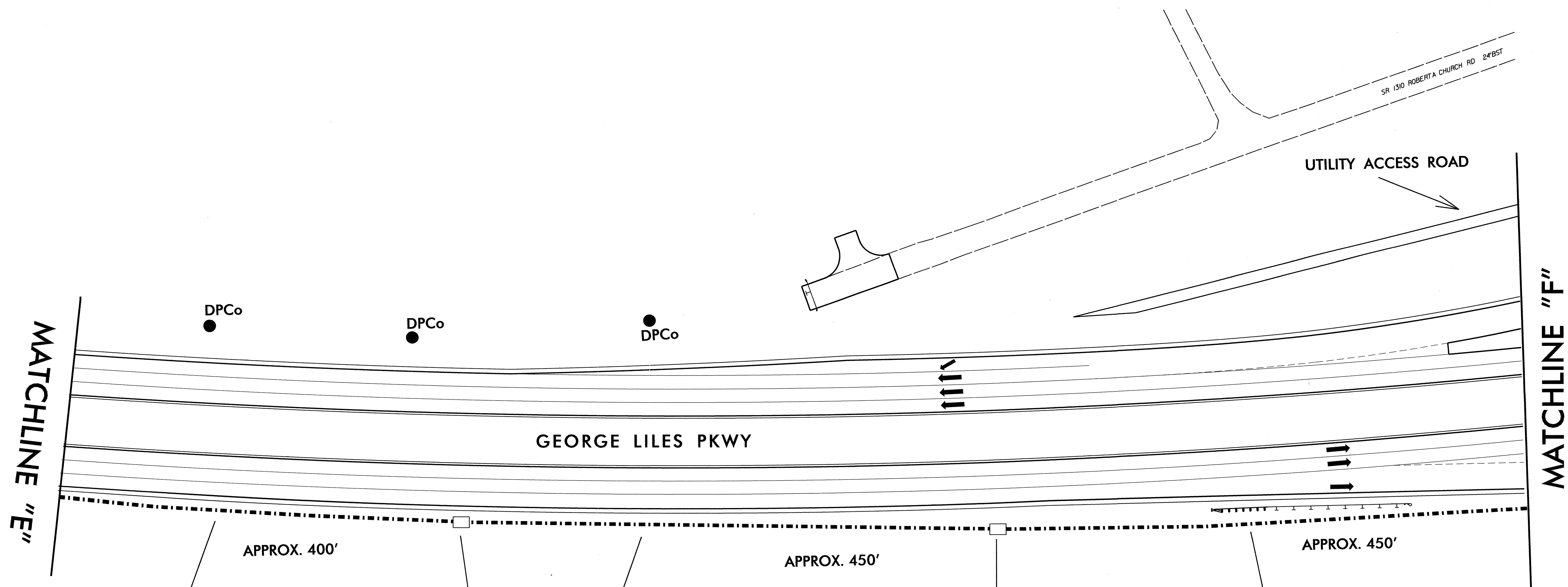
<p>750 N. Greenfield Pkwy., Garner, NC 27529</p>	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
	PLAN DATE: DECEMBER 2012	REVIEWED BY: I.N. AVERY	
	PREPARED BY: S.C. WARDLE	REVIEWED BY: G.A. FULLER	
SCALE: 0	REVISIONS	INIT.	DATE
		CADD File name:	



BOND MESSENGER CABLE TO POLE GROUND

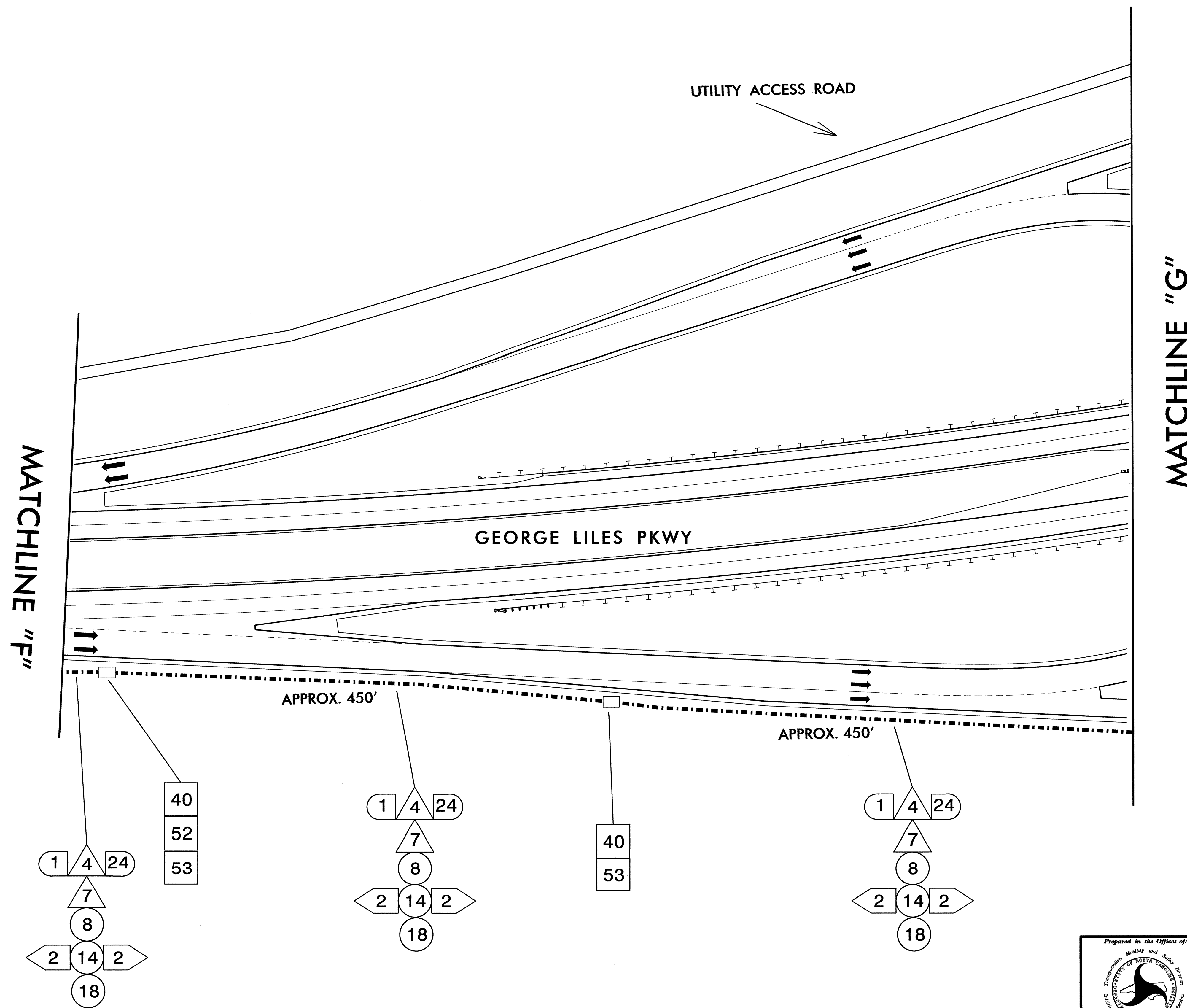
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	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY															
	DIVISION 10 CABARRUS CO. CONCORD															
	PLAN DATE: DECEMBER 2012	REVIEWED BY: I.N. AVERY														
	PREPARED BY: S.C. WARDLE	REVIEWED BY: G.A. FULLER														
<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE				<table border="1"> <tr> <td>SCALE</td> <td>0</td> <td>1</td> </tr> </table>		SCALE	0	1	<table border="1"> <tr> <td>SEAL</td> <td>DATE</td> </tr> <tr> <td><i>Gregory A. Fuller</i></td> <td>1/9/13</td> </tr> </table>	SEAL	DATE	<i>Gregory A. Fuller</i>	1/9/13
REVISIONS	INIT.	DATE														
SCALE	0	1														
SEAL	DATE															
<i>Gregory A. Fuller</i>	1/9/13															
CADD Filename:																



ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	ALONG GEORGE LILES PARKWAY		
DIVISION 10 CABARRUS CO. CONCORD		PLAN DATE: DECEMBER 2012 REVIEWED BY: I.N. AVERY	
PREPARED BY: S.C. WARDLE		REVIEWED BY: G.A. FULLER	
REVISIONS: _____ INIT. DATE		SIGNATURE: <i>Gregory A. Fuller</i> DATE: 1/10/13	
SCALE: 0 _____		CADD Filename:	

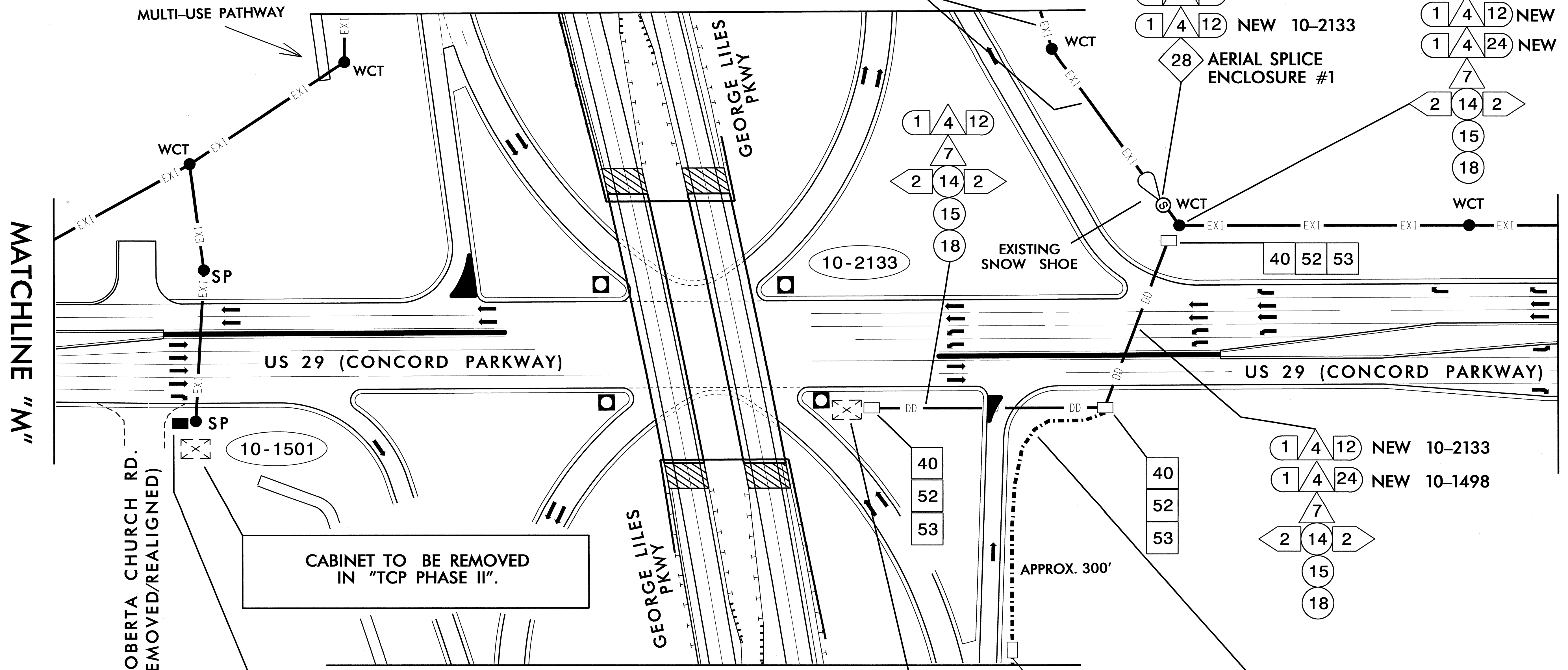


ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
PLAN DATE: DECEMBER 2012	REVIEWED BY: I.N. AVERY		PREPARED BY: S.C. WARDLE REVIEWED BY: G.A. FULLER
SCALE: 0	REVISIONS	INIT. DATE	
SIGNATURE: <i>Gregory A. Fuller</i>		DATE: 1/10/13	SEAL

MATCHLINE "H"

- 1 4 24 NEW 10-1498
- 1 4 24 NEW 10-1500
- 1 4 12 EXISTING 10-1501
- 1 4 12 EXISTING 10-0842
- 1 4 12 NEW 10-2133
- 1 4 12 NEW 10-2133
- 1 4 12 NEW 10-2133
- 1 4 24 NEW 10-1498



MATCHLINE "M"

MATCHLINE "N"

MATCHLINE "G"

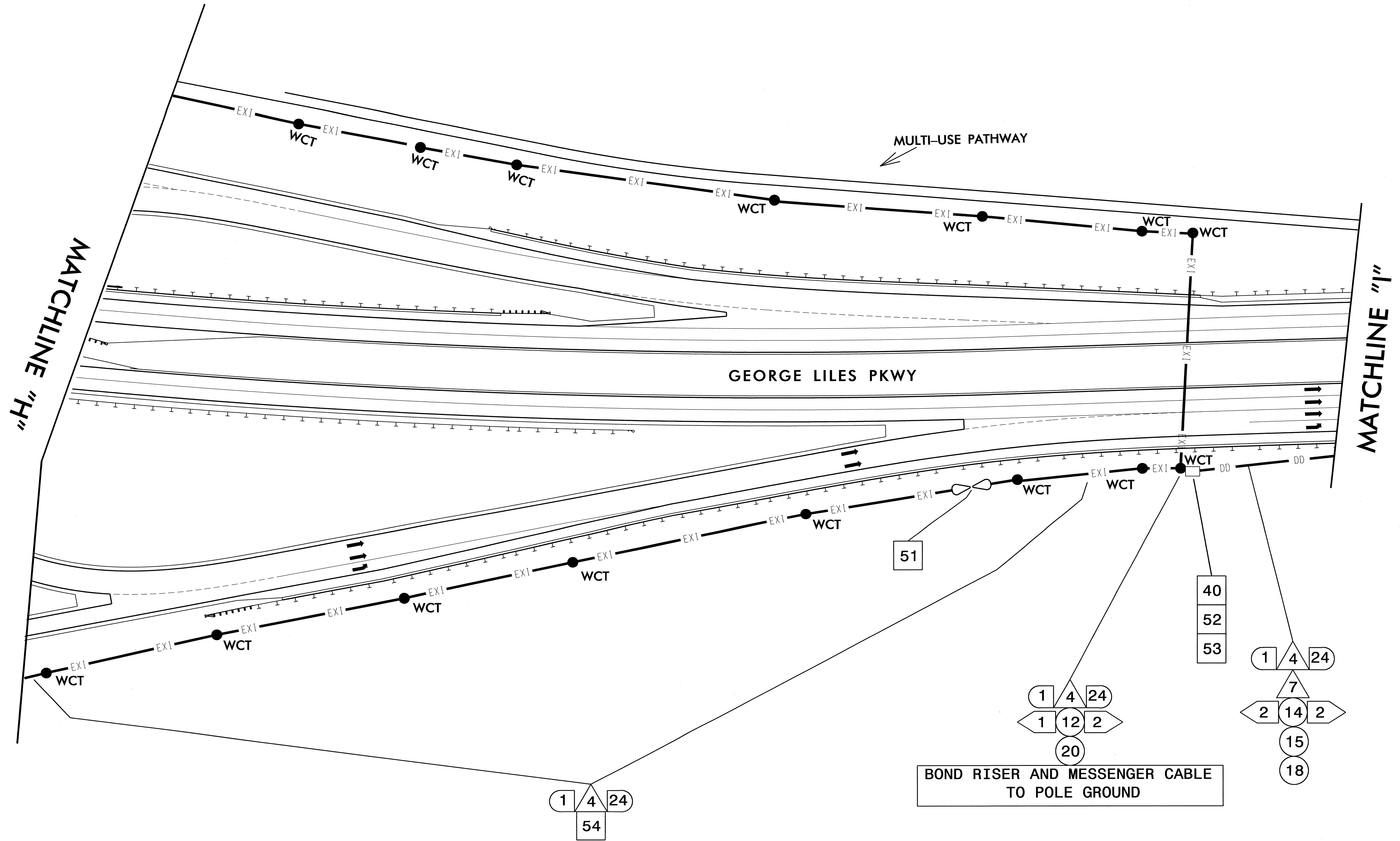
- 1 4 12 NEW 10-2133
- 1 4 24 NEW 10-1498
- 1 4 24 NEW 10-2133

UPON REMOVAL OF THE SIGNAL CABINET, BACK PULL THE EXISTING FIBER OPTIC CABLES TO THE EXISTING JUNCTION BOX. INSTALL UNDERGROUND SPLICE ENCLOSURE IN JUNCTION BOX AND SPLICE ACCORDING TO SPLICE PLANS.

BOND TRACER WIRE TO EQUIPMENT GROUND BUS

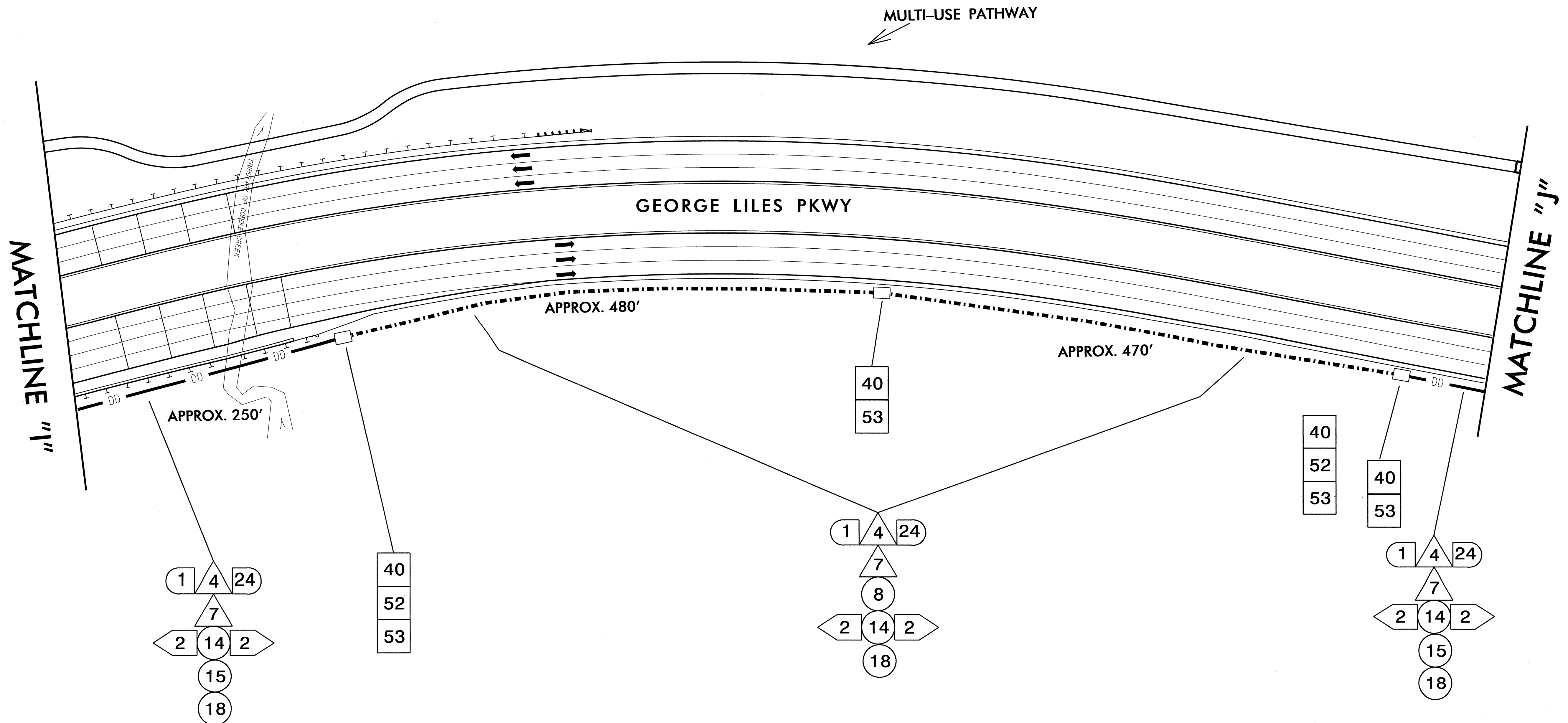
ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

	<p>COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY</p>		
	<p>DIVISION 10 CABARRUS CO. CONCORD</p>	<p>PLANNING</p>	
<p>750 N. Greenfield Place, Garner, NC 27529</p>	<p>PLAN DATE: DECEMBER 2012</p>	<p>REVIEWED BY: I.N. AVERY</p>	<p>SEAL</p>
<p>SCALE</p>	<p>PREPARED BY: S.C. WARDLE</p>	<p>REVIEWED BY: G.A. FULLER</p>	<p>DATE</p>
<p>0</p>	<p>REVISIONS</p>	<p>INIT.</p>	<p>DATE</p>
<p>North Arrow</p>	<p>REVISIONS</p>	<p>INIT.</p>	<p>DATE</p>
<p>CADD File Name:</p>	<p>REVISIONS</p>	<p>INIT.</p>	<p>DATE</p>



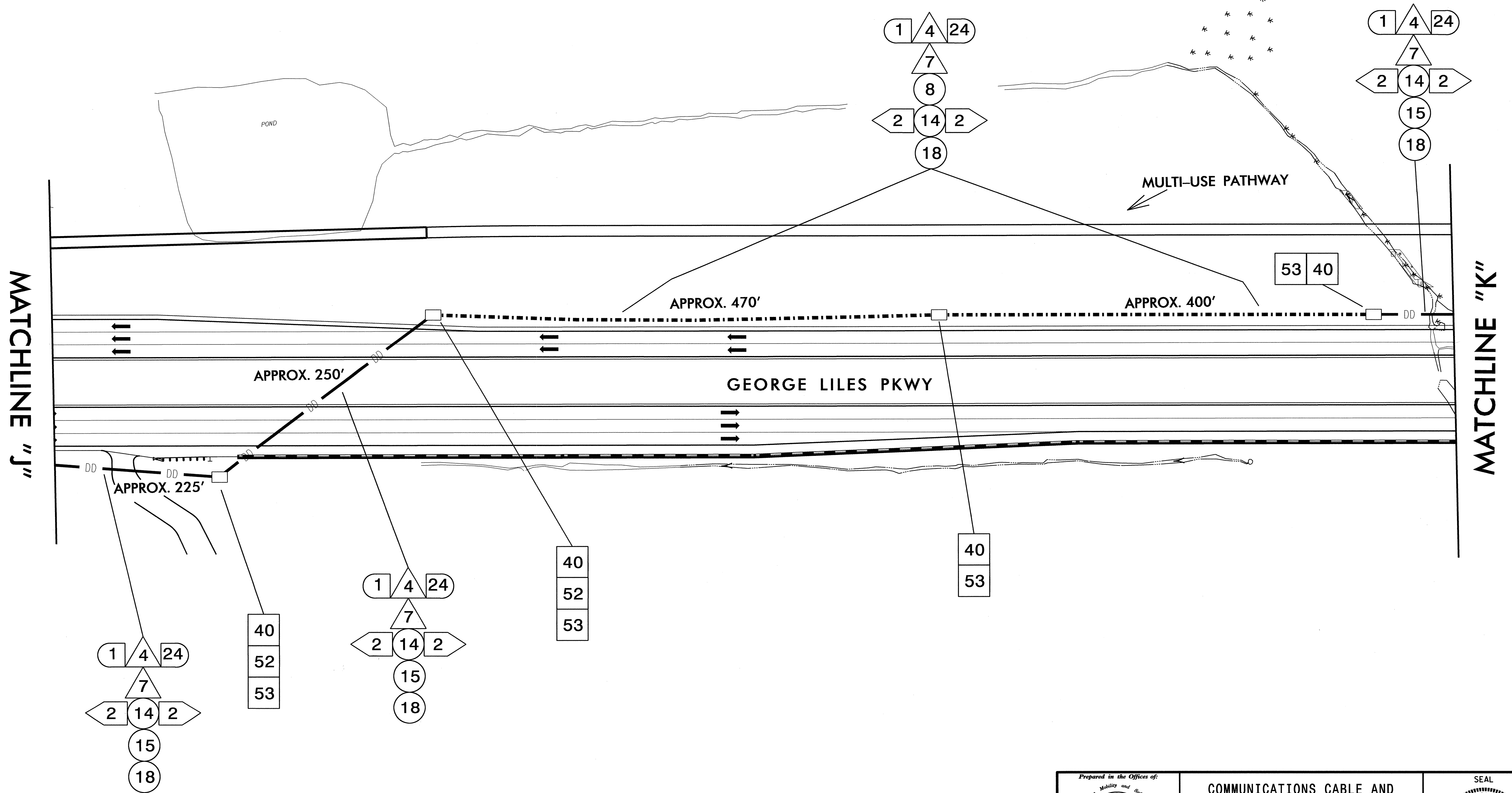
ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

<p>750 N. Greenfield Pkwy., Garner, NC 27529</p>	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
	PLAN DATE: DECEMBER 2012	REVIEWED BY: I.N. AVERY	
	PREPARED BY: S.C. WARDLE	REVIEWED BY: G.A. FULLER	
SCALE: 0' = 1"	REVISIONS:	INIT.:	DATE:
Signature: <i>G.A. Fuller</i> 4/9/13			SEAL:



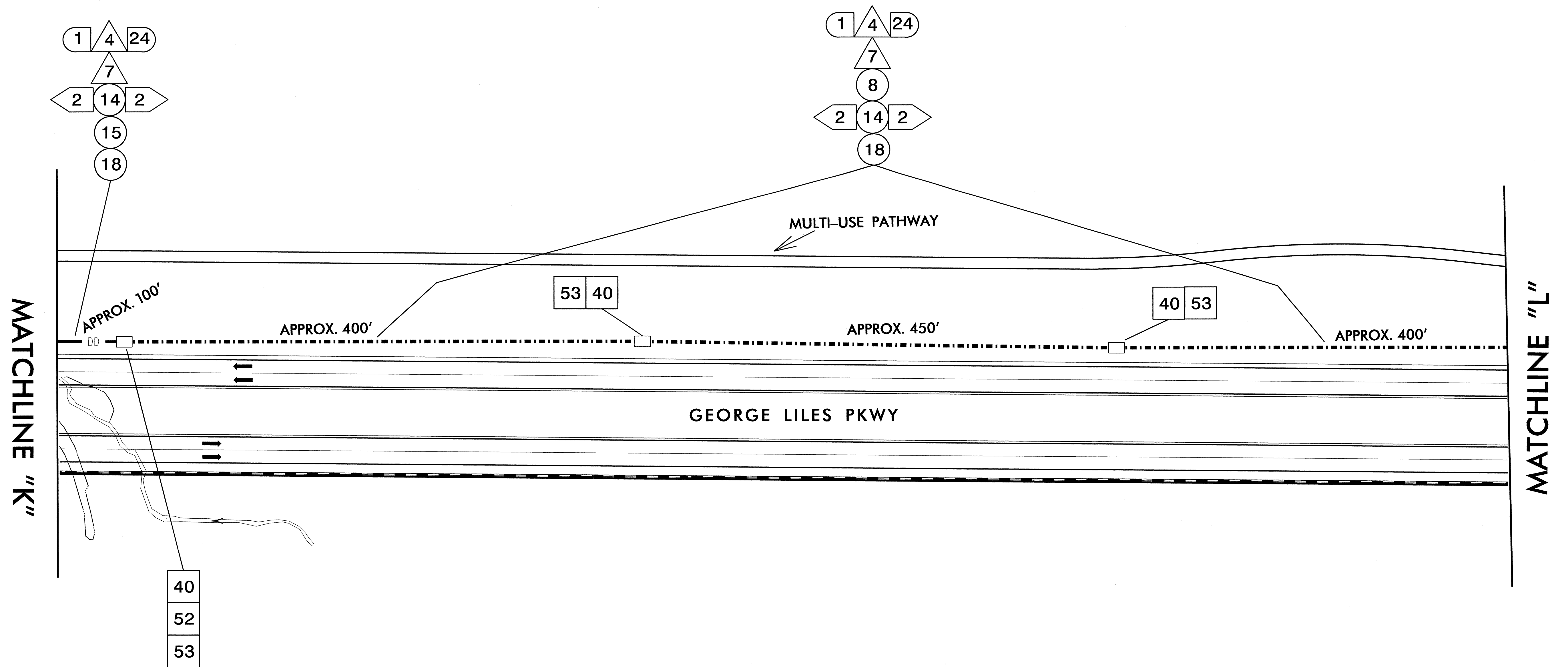
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	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD PLAN DATE: DECEMBER 2012 REVIEWED BY: I.N. AVERY PREPARED BY: S.C. WARDLE REVIEWED BY: G.A. FULLER		
750 N. Greenfield Pkwy., Garner, NC 27529 SCALE: 0'	REVISIONS: _____ INIT.: _____ DATE: _____	Signature: <i>Gregory A. Fuller</i> 1/9/13 DATE: _____ CADD File name: _____	



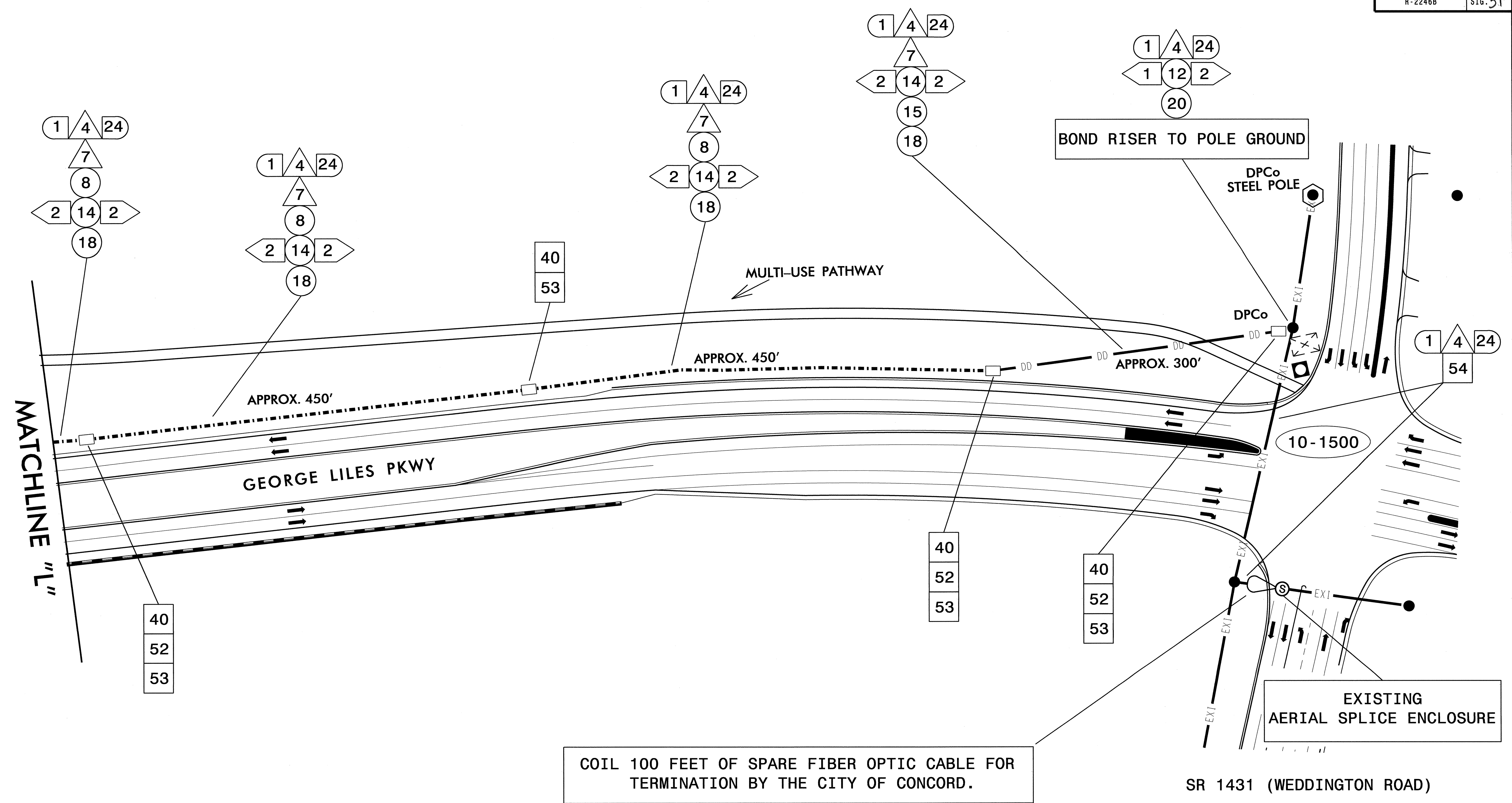
ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

<p>750 N. Greenfield Pkwy., Garner, NC 27529</p>	<p>COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY</p>							
	<p>DIVISION 10 CABARRUS CO. CONCORD</p>							
	<p>PLAN DATE: DECEMBER 2012</p>	<p>REVIEWED BY: I.N. AVERY</p>						
	<p>PREPARED BY: S.C. WARDLE</p>	<p>REVIEWED BY: G.A. FULLER</p>						
<p>SCALE: 0</p>	<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE				<p>SEAL</p> <p>PROFESSIONAL ENGINEER</p> <p>GREGORY A. FULLER</p> <p>023919</p> <p>Signature: <i>Gregory A. Fuller</i> 1/9/13</p> <p>CADD File Name: _____</p>
REVISIONS	INIT.	DATE						



ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

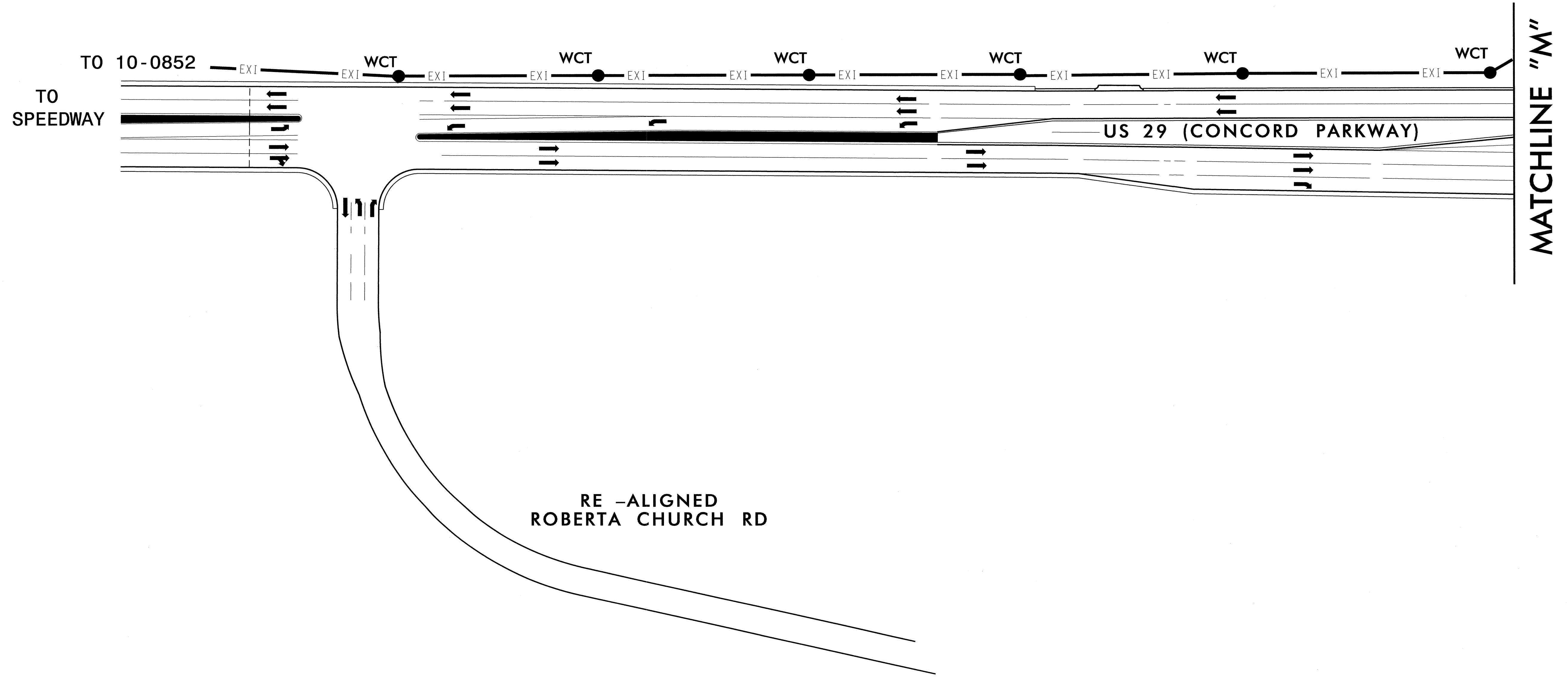
	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
PLAN DATE: DECEMBER 2012 REVIEWED BY: I.N. AVERY		PREPARED BY: S.C. WARDLE REVIEWED BY: G.A. FULLER	
SCALE: 0		REVISIONS: INIT. DATE	
SIGNATURE: <i>S.C. Wardle</i> DATE: 1/9/13		SIGNATURE: <i>G.A. Fuller</i> DATE: 1/9/13	



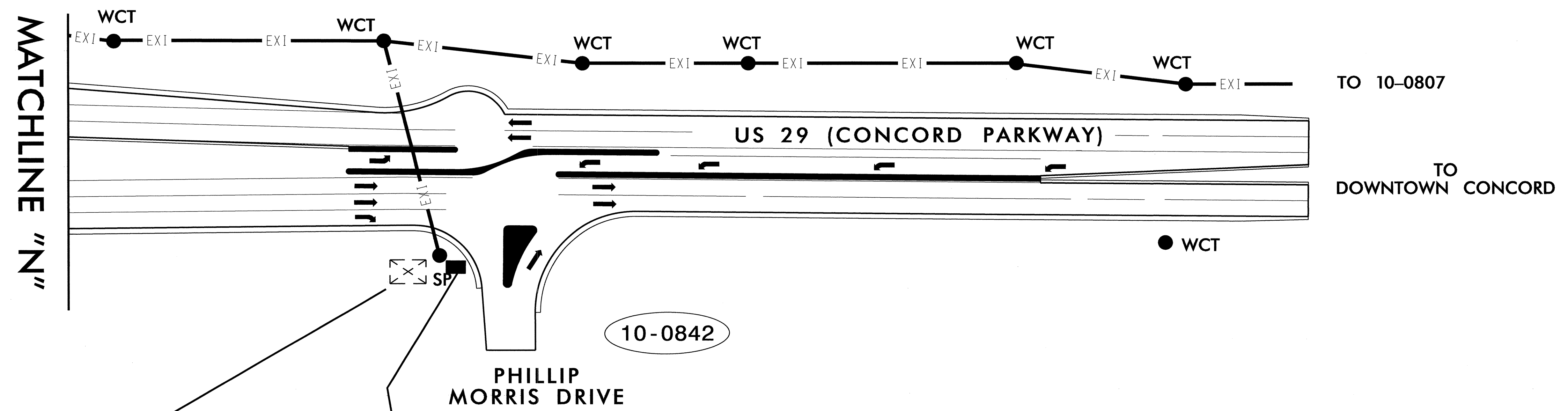
ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
	PLAN DATE: DECEMBER 2012	REVIEWED BY: I.N. AVERY	
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SCALE: 0	REVISIONS	INIT.	DATE

NO ITS WORK REQUIRED SHOWN FOR INFORMATIONAL PURPOSES ONLY



<p>750 N. Greenfield Pkwy., Garner, NC 27529</p>	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
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SCALE: 0	REVISIONS	INIT. DATE	
SIGNATURE: <i>Gregory A. Fuller</i> DATE: 1/9/13			SEAL:



CABINET TO BE REMOVED IN "TCP PHASE II".

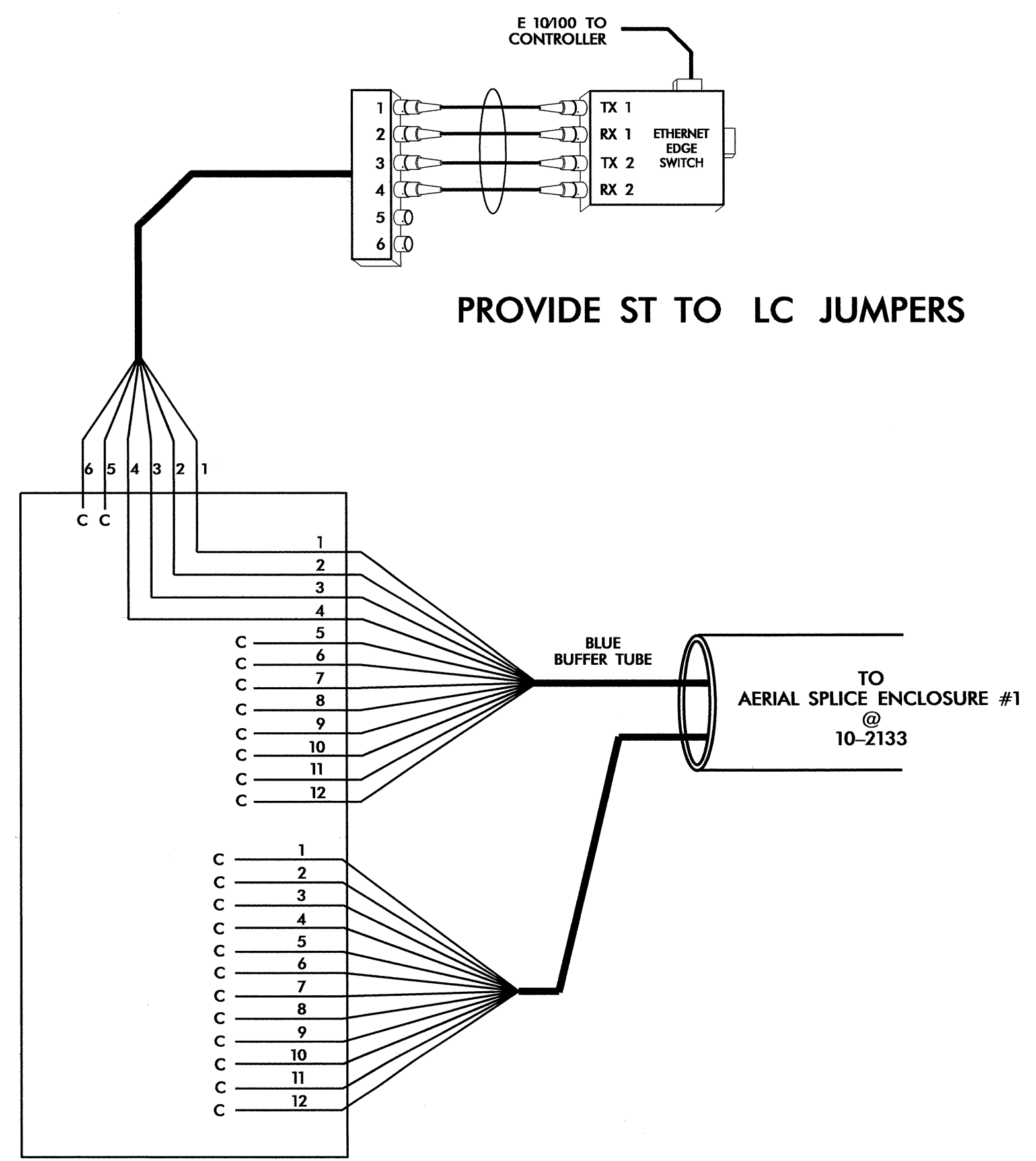
27 SPlice ENCLOSURE (REMOVED SIGNAL 10-0842)

UPON REMOVAL OF THE SIGNAL CABINET, BACK PULL THE EXISTING FIBER OPTIC CABLES TO THE EXISTING JUNCTION BOX. INSTALL UNDERGROUND SPlice ENCLOSURE IN JUNCTION BOX AND SPlice ACCORDING TO SPlice PLANS.

ALL NCDOT CABLE ATTACHMENT POINTS SHALL BE 40" BELOW POWER, FRONT SIDE OF POLE, UNLESS OTHERWISE NOTED.

	COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS ALONG GEORGE LILES PARKWAY		
	DIVISION 10 CABARRUS CO. CONCORD		
PLAN DATE: DECEMBER 2012	REVIEWED BY: I.N. AVERY		SIGNATURE: <i>Gregory A. Fuller</i> / 1/9/13 DATE:
PREPARED BY: S.C. WARDLE	REVIEWED BY: G.A. FULLER		
REVISIONS:	INIT.:	DATE:	CAD FILE NAME:

SSP 10-1498
SR 1304 (ROBERTA RD)/SR 1309 (STROUGH RD)
@
GEORGE LILES PARKWAY



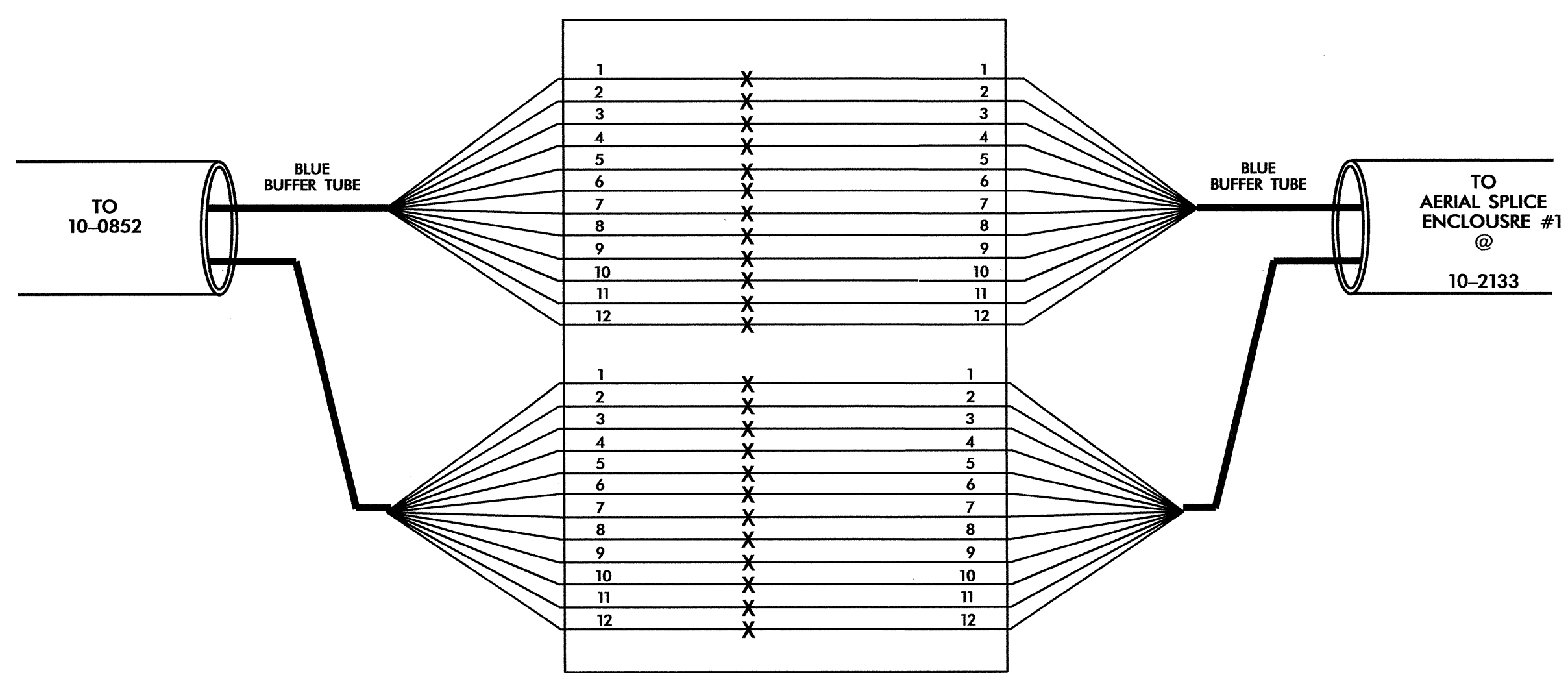
CONTACT THE CITY OF CONCORD'S TRAFFIC ENGINEER (MR. DANIEL JOHNSON @ 704-788-7925) TO ARRANGE FOR THE CITY TO PROGRAM THE ETHERNET EDGE SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA (INCLUDING BUT NOT LIMITED TO PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION).

PROVIDE FIVE (5) DAYS WORKING NOTICE TO THE CITY.

LEGEND		NOTES												
<table border="0"> <tr> <td>(1) BLUE</td> <td>(7) RED</td> </tr> <tr> <td>(2) ORANGE</td> <td>(8) BLACK</td> </tr> <tr> <td>(3) GREEN</td> <td>(9) YELLOW</td> </tr> <tr> <td>(4) BROWN</td> <td>(10) VIOLET</td> </tr> <tr> <td>(5) SLATE</td> <td>(11) ROSE</td> </tr> <tr> <td>(6) WHITE</td> <td>(12) AQUA</td> </tr> </table>		(1) BLUE	(7) RED	(2) ORANGE	(8) BLACK	(3) GREEN	(9) YELLOW	(4) BROWN	(10) VIOLET	(5) SLATE	(11) ROSE	(6) WHITE	(12) AQUA	<p>1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY</p> <p>2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE</p> <p>3. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING THE PROPER TERMINATIONS.</p>
(1) BLUE	(7) RED													
(2) ORANGE	(8) BLACK													
(3) GREEN	(9) YELLOW													
(4) BROWN	(10) VIOLET													
(5) SLATE	(11) ROSE													
(6) WHITE	(12) AQUA													
<p>x = FUSION SPLICE INDIVIDUAL FIBER</p> <p>c = CAP AND SEAL</p> <p>EXPRESS = EXPRESS ENTIRE BUFFER TUBE THROUGH WITHOUT CUTTING</p> <p>BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR</p>														

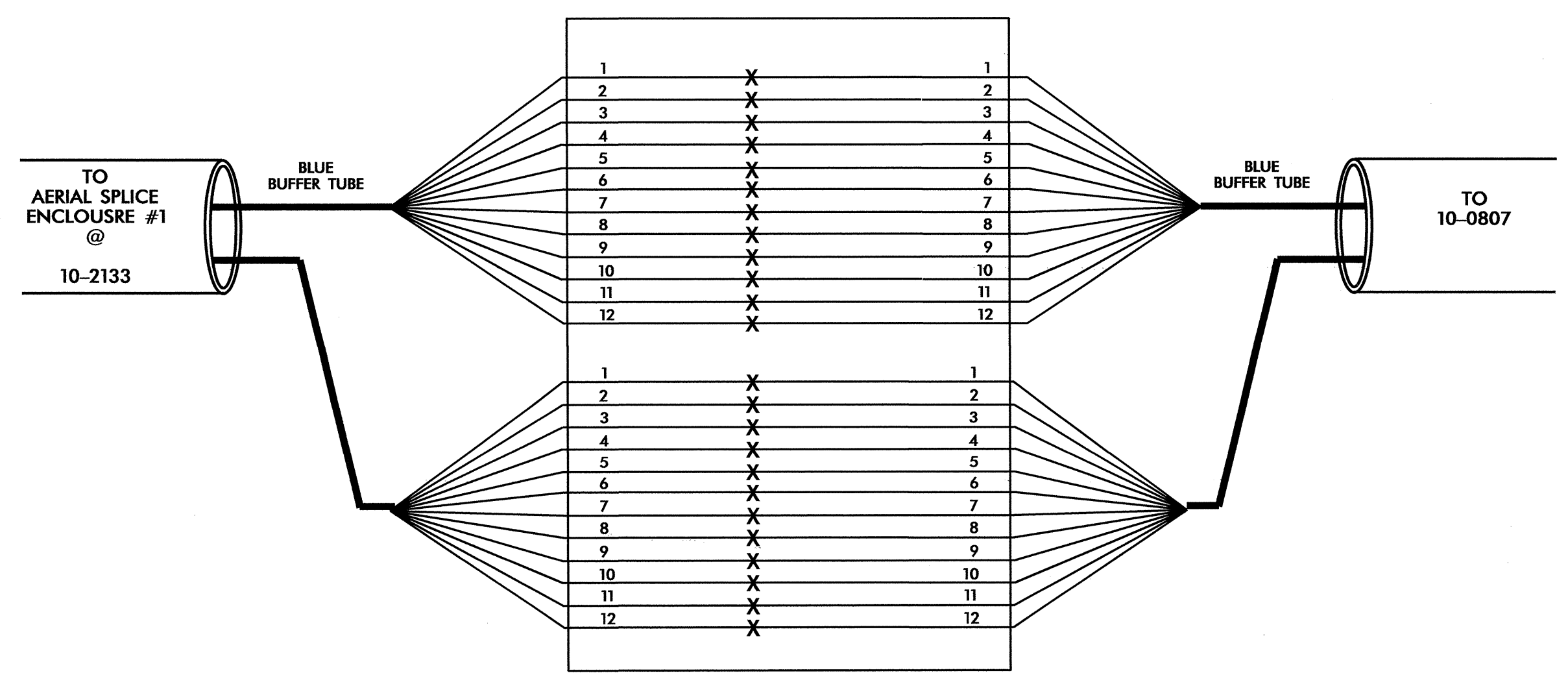
	SPLICE PLANS ALONG GEORGE LILES PARKWAY		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER GREGORY A. FULLER 023919								
	DIVISION 10 CABARRUS CO. CONCORD PLAN DATE: DECEMBER 2012 REVIEWED BY: G. A. FULLER PREPARED BY: I. N. AVERY REVIEWED BY:	<table border="1"> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>		REVISIONS	INIT.	DATE					
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Prepared in the Offices of: 750 N. Greenfield Pkwy., Garner, NC 27529		SCALE 	Signature: <i>Gregory A. Fuller</i> 1/1/13 Date: _____ CADD File Name: _____								

SSP 10-1501 SPLICE ENCLOSURE (REMOVED SIGNAL)
 US 29 (CONCORD PARKWAY)
 @
 ORIGIANL ROBERTA CHURCH RD.



PERFORM THIS WORK DURING "TCP PHASE II" OR WHEN DIRECTED BY THE ENGINEER.

SSP 10-0842 SPLICE ENCLOSURE (REMOVED SIGNAL)
 US 29 (CONCORD PARKWAY)
 @
 PHILLIP MORRIS DRIVE



PERFORM THIS WORK DURING "TCP PHASE II" OR WHEN DIRECTED BY THE ENGINEER.

COLOR CODE TIA/EIA 598-B		LEGEND		NOTES	
(1) BLUE	(7) RED	X =	FUSION SPLICE INDIVIDUAL FIBER	1.	UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY
(2) ORANGE	(8) BLACK	C =	CAP AND SEAL	2.	UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE ENCLOSURE
(3) GREEN	(9) YELLOW	EXPRESS	EXPRESS ENTIRE BUFFER TUBE THROUGH WITHOUT CUTTING	3.	ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING THE PROPER TERMINATIONS.
(4) BROWN	(10) VIOLET	BUFFER SPLICE	SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR		
(5) SLATE	(11) ROSE				
(6) WHITE	(12) AQUA				

	SPLICE PLANS ALONG GEORGE LILES PARKWAY		DIVISION 10 CABARRUS CO. CONCORD PLAN DATE: DECEMBER 2012 REVIEWED BY: G. A. FULLER PREPARED BY: I. N. AVERY REVIEWED BY:							
	SCALE 	REVISIONS <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>		NO.	DATE	INIT.	DATE			
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