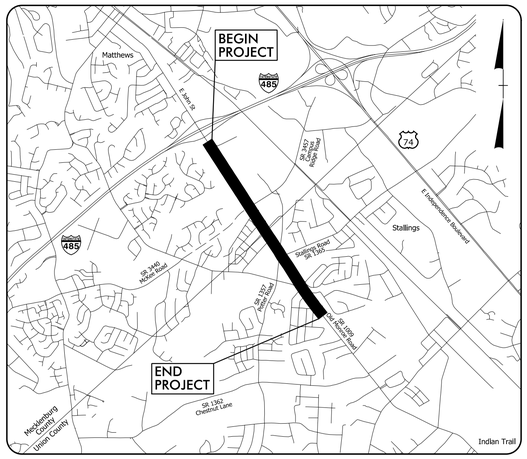
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TIP PROJECT: U-4714AC

CONTRACT: C205184



VICINITY MAP

NOT TO SCALE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG & UNION COUNTY

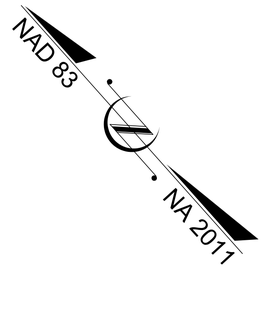
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U-4714AC	Sig. 1.0

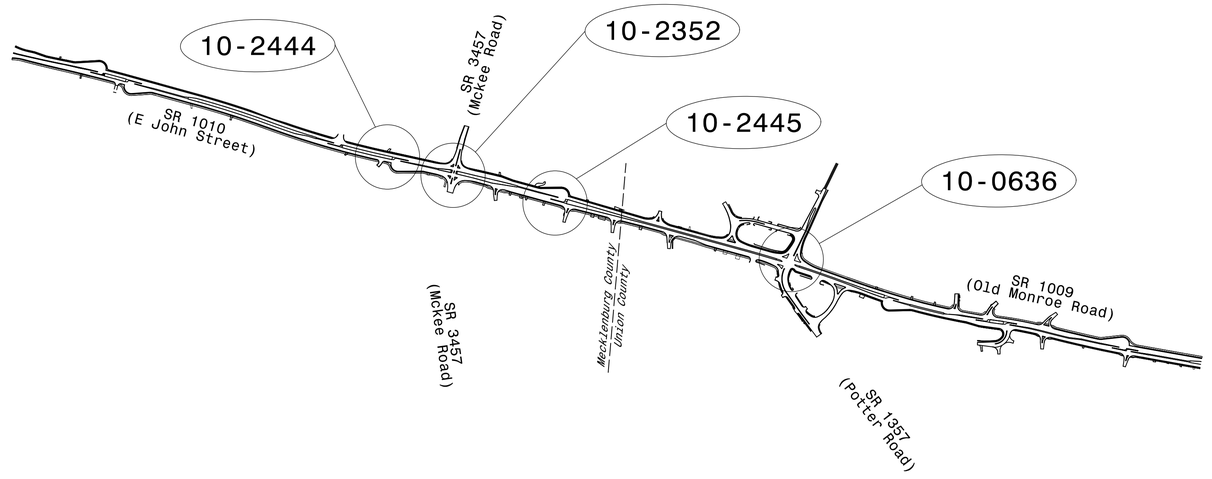


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LOCATION: SR 1010 (E JOHN STREET)/SR 1009 (OLD MONROE ROAD) FROM EAST OF I-485 INTERCHANGE TO WEST OF MORNINGSIDE MEADOW LANE

TYPE OF WORK: TRAFFIC SIGNALS AND SIGNAL COMMUNICATIONS





STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

Refer to Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.

Index of Plans

Sheet #	Reference #	Location/Description
Sig. 1.0	N/A	Project Titlesheet
Sig. 2.0-2.2	10-2444	SR 1010 (E John Street) EB at U-turn West of SR 3457 (Mckee Road)
Sig. 3.0-3.1	10-2352	SR 1010 (E John Street) at SR 3457 (Mckee Road)
Sig. 4.0-4.1	10-2445	SR 1010 (E John Street) WB at U-turn East of SR 3457 (Mckee Road)
Sig. 5.0-9.2	10-0636	SR 1009 (Old Monroe Road) at SR 1365 (Stallings Road)/SR 1357 (Potter Road)
Sig. M1A-M9	N/A	2024 Standard Metal Pole Sheets
SCP 1-2	N/A	Signal Communication Wireless Plans

NCDOT TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS UNIT
Contacts:
Bailey M. Harden, PE – Western Region Signals Engineer
Keith M. Mims, PE – State Signal Equipment Design Engineer
Ryan W. Hough, PE – State ITS Engineer
Taylor A. Kenion, PE – State Signal System Design Engineer
STV Engineers, Inc.
Contacts:
Trent M. Moody, PE – Senior Associate Engineering Director
Alex M. Wiseman, PE – Traffic Engineer
Brian J. Roth-Roffy, PE – Transporation Project Manager

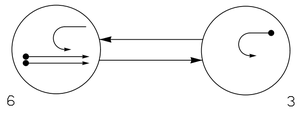
Prepared for the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY DIVISION
TSMO UNIT
750 N. Greenfield Parkway, Garner, NC 27529

10/20/2026
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jwilson

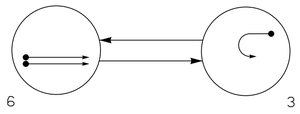
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 2.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

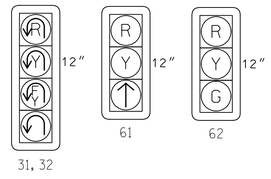
SIGNAL FACE	PHASE 6	PHASE 3	FLASH
61	↑	R	R
62	G	R	R
31, 32	(Y)	∩	(R)

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 6	PHASE 3	FLASH
61	↑	R	R
62	G	R	R
31, 32	(R)	∩	(R)

SIGNAL FACE I.D.

All Heads L.E.D.
See Note 3



MAXTIME DETECTOR INSTALLATION CHART

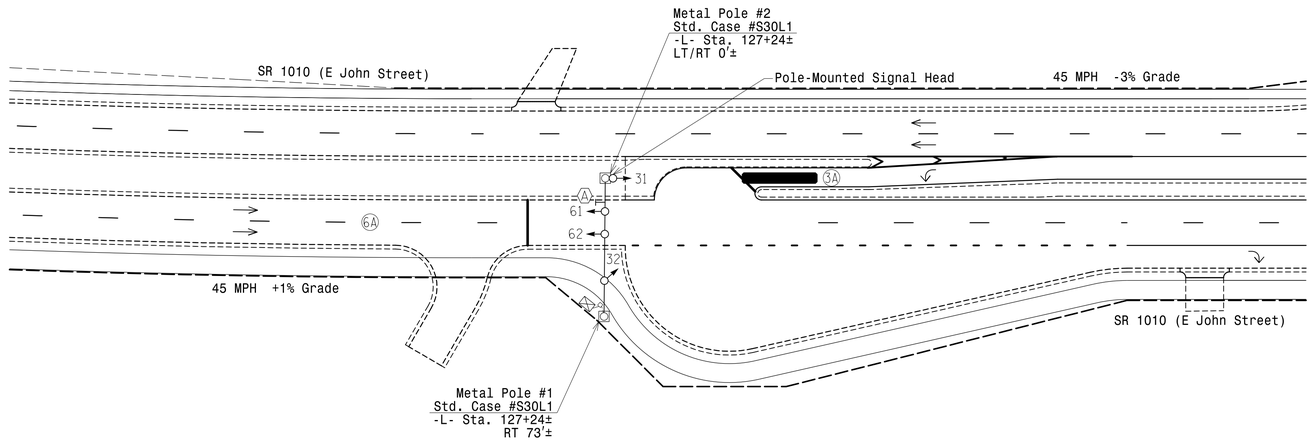
DETECTOR					PROGRAMMING						
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND ADDED INITIAL	CALL DELAY DURING GREEN	NEW CARD	
3A	✳	0	✳	✳	3	15.0**	-	X	-	X	-	✳
					6#	-	-	X	-	X	-	✳

✳ Multi-zone Microwave Detection Zone
** Disable Delay During Alternate Phasing
# Disable Phase Call for Loop During Alternate Phasing

2 Phase
Fully Actuated
w/ Alternate Phasing Operation
D10-58_Stallings

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024, "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Install backplates with retro-reflecting sheeting on all signal heads.
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. The Division Traffic Engineer will determine the hours of use for each phasing plan.
7. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Pole mounted signal heads shall be mounted a minimum of 8' above the high point of the roadway surface elevation.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head With Push Button & Sign	■
◎	Metal Strain Pole	◘
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·-·	2-in Underground Conduit	·-·-·-·
N/A	Right of Way	— — — —
→	Directional Arrow	→
▬	Non-Intrusive Detection Zone	▬
(A)	No Left Turn Sign (R3-2)	(A)

MAXTIME TIMING CHART

FEATURE	PHASE 3	PHASE 6
Walk *	–	–
Ped Clear *	–	–
Min Green	7	12
Passage *	2.0	2.0
Max 1 *	30	90
Yellow Change	3.0	4.4
Red Clear	4.3	1.9
Added Initial *	–	–
Maximum Initial *	–	–
Time Before Reduction *	–	–
Time To Reduce *	–	–
Minimum Gap	–	–
Advance Walk	–	–
Non Lock Detector	X	–
Vehicle Recall	–	MIN RECALL
Dual Entry	–	–

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

Advance Microwave Detection

FUNCTION	SENSOR 1 – (6A)	
Channel	1	
Phase	6	
Direction of Travel	EB	
Type	Priority	
Level	2	QUEUE
Discovery Zone (ft)	<750	N/A
Detection Zone (ft)	100 – 600	100 – 150
Enable Speed	Y	Y
Speed Range (mph)	35 – 100	1 – 35
Enable Estimated Time of Arrival	Y	N
Estimated Time of Arrival (sec)	2.5 – 6.5	–

New Installation

stv
STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

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

SR 1010 (E John Street) EB
at
WB U-Turn West of
SR 3457 (McKee Road)

Division 10 Mecklenburg County Matthews

PLAN DATE:	August 2025	REVIEWED BY:	T.M. Moody
PREPARED BY:	J.C. Grimm	REVIEWED BY:	A.M. Wiseman

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by:
Trent Moody 8/11/2026
SIGNATURE DATE

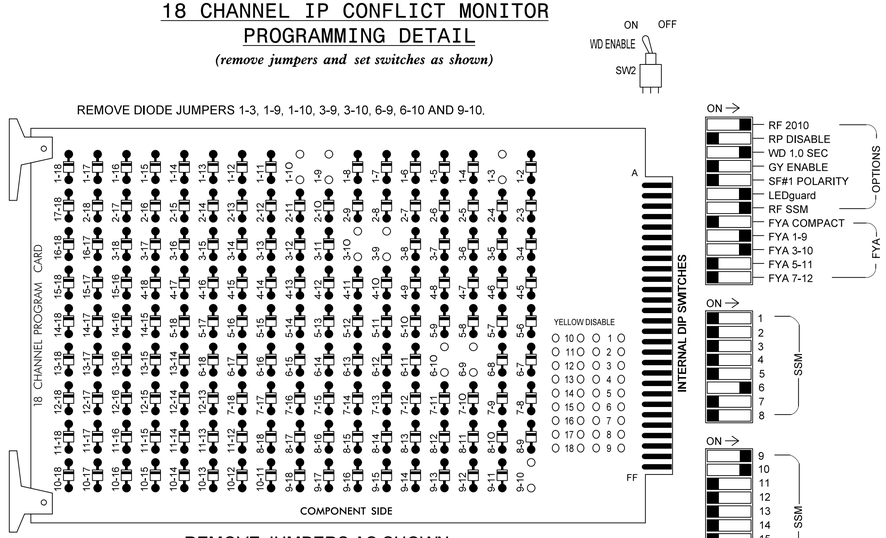
SIG. INVENTORY NO. 10-2444

8/11/2026
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18 CHANNEL IP 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 vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program controller to start up in phase 2 Phase Not On and phase 6 Green No Walk.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the D10-58_Stallings Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....Q-FREE MAXTIME
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS.....18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S4,S8,AUX S1,AUX S2
PHASES USED.....3, 6
OVERLAP "1".....*
OVERLAP "2".....*
OVERLAP "3".....NOT USED
OVERLAP "4".....NOT USED
OVERLAP "7".....*

* See overlap programming details on Sheet 2.

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	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	OL7	2	2 PED	3	4	4 PED	5	6		6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	32★	NU	NU	31★	NU	NU	NU	61	62	NU	NU	NU	NU	32★	31★	NU	NU	NU	NU
RED	.	.	.	.	.	.	.	134	134	.	.	.	.	.	.	.	.	.	.
YELLOW	*	.	.	*	.	.	.	135	135	.	.	.	.	.	.	.	.	.	.
GREEN	.	.	.	.	.	.	.	.	136	.	.	.	.	.	.	.	.	.	.
RED ARROW	.	.	.	.	.	.	.	.	.	.	.	.	.	A121	A124	.	.	.	.
YELLOW ARROW	.	.	.	.	.	.	.	.	.	.	.	.	.	A122	A125	.	.	.	.
FLASHING YELLOW ARROW	.	.	.	.	.	.	.	.	.	.	.	.	.	A123	A126	.	.	.	.
GREEN ARROW	127	.	.	118	.	.	.	136	.	.	.	.	.	.	.	.	.	.	.

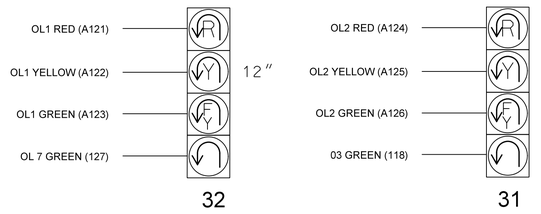
NU = Not Used

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

★See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



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	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø3 3A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L					NOT USED									ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

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 POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
3A	TB4-5,6	I5U	58	20	7★	3	15.0		X		X	
				-	30★	6			X		X	

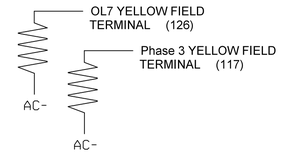
★ For the detectors to work as shown on the signal plan, see the Detector Programming Detail for Alternate Phasing on sheet 2 of this plan.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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)



MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to the manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the signal design plans.

For Zone 3A, inputs associated with the typical slots for an NCDOT installation are compatible with time of day instructions located on Sheet 2 of this electrical detail.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-2444
DESIGNED: August 2025
SEALED: 8/11/2026
REVISED:

New Installation
Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

SR 1010 (E John Street) EB
at
WB U-Turn West of
SR 3457 (McKee Road)

Division 10 Mecklenburg County Matthews

PLAN DATE:	August 2025	REVIEWED BY:	A.M. Wiseman
PREPARED BY:	G. Whitehouse	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

Prepared for the Offices of:
NC Department of Transportation Mobility and Safety Division
Traffic Engineering Branch
Traffic Signal Management Section

750 N.Greenfield Pkwy.Garner,NC 27529

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(704) 372-1885
NC License Number F-0991

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DocuSigned by:
Trent Moody
SIGNATURE
8/11/2026
DATE

SIG. INVENTORY NO. 10-2444

8/11/2026
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 2.2

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

NOTE OL7 ASSIGNED TO CHANNEL 1 →

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Overlap	7		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

↑ ↑
NOTE: ALL RED FLASH

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2.
A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVATE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVATE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 31 and 32 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on Zone 3A and reduces delay time for phase 3 call on Zone 3A to 0.0 seconds.

SEQUENCE DETAIL

Front Panel
Main Menu >Controller >Sequence & Phs Config>Sequences

Web Interface
Home >Controller >Sequence

Sequence 1

Ring	Sequence Data
1	6,a,3,b
2	-

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	7
Type	FYA 4 - Section	FYA 4 - Section	Normal
Included Phases	6	6	3
Modifier Phases	3	3	-
Modifier Overlaps	-	-	-
Trail Green	0	0	0
Trail Yellow	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on the "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2.
Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	2	7
Type	FYA 4 - Section	FYA 4 - Section	Normal
Included Phases	-	-	3
Modifier Phases	3	3	-
Modifier Overlaps	-	-	-
Trail Green	0	0	0
Trail Yellow	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0

← NOTE INCLUDED PHASES

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Divsion and/or City Traffic Engineer.

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING ZONE 3A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface, right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2.
Modify Detector Plan 2 as shown below and save changes.

Plan 2

3A

Detector	Call Phase	Delay
7	3	0.0
30	0	

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-2444
DESIGNED: August 2025
SEALED: 8/11/2026
REVISED:

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

New Installation
Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

SR 1010 (E John Street) EB
at
WB U-Turn West of
SR 3457 (McKee Road)

Division 10 Mecklenburg County Matthews

PLAN DATE:	August 2025	REVIEWED BY:	A.M. Wiseman
PREPARED BY:	G. Whitehouse	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 8/11/2026
SIGNATURE DATE

SIG. INVENTORY NO. 10-2444

8/11/2026
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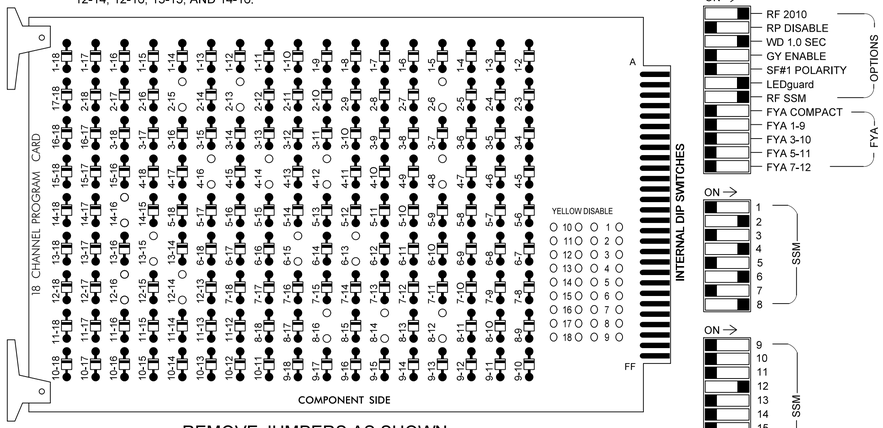
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18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

ON OFF
WD ENABLE
SW2

REMOVE DIODE JUMPERS 2-6, 2-13, 2-15, 4-8, 4-12, 4-14, 4-16, 6-13, 6-15, 8-12, 8-14, 8-16, 12-14, 12-16, 13-15, AND 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for dual entry.
3. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
5. The cabinet and controller are part of the D10-58_Stallings Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....Q-FREE MAXTIME
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS.....18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S3,S5,S6,S8,S9,S11,S12,AUX S5
PHASE USED.....2,2PED,4,4PED,6,6PED,8,8PED
OVERLAP "1".....NOT USED
OVERLAP "2".....NOT USED
OVERLAP "3".....NOT USED
OVERLAP "4".....*

* See overlap programming details on this sheet.

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 3.1

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	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	NU	21	22	P21, P22	NU	41	42	P41, P42	NU	61	62	P61, P62, P63, P64	NU	81	82	P81, P82	NU	NU	NU	NU	43,44	NU
RED		128	128			101	101			134	134			107	107							
YELLOW		129	129			102	102			135	135			108	108							
GREEN			130				103				136				109							
RED ARROW																					A101	
YELLOW ARROW																					A102	
FLASHING YELLOW ARROW																						
GREEN ARROW		130				103				136				109							A103	
✋				113				104				119				110						
🚶				115				106				121				112						

NU = Not Used

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE: ALL RED FLASH

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OVERLAP PROGRAMMING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	4
Type	Normal
Included Phases	4
Modifier Phases	-
Modifier Overlaps	-
Trail Green	0
Trail Yellow	0.0
Trail Red	0.0

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	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L												Ø4 PED DC ISOLATOR	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L														

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 POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62, P63,P64	TB8-7,9	I13U	68	34	6	PED 6						
P81,P82	TB8-8,9	I13L	70	36	8	PED 8						

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

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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.

COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection zone for vehicle detection. Perform installation according to the manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the signal design plans.

stv
STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

New Installation
Electrical Detail

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

SR 1010 (E John Street)
at
SR 3457 (McKee Road)

Division 10 Mecklenburg County Matthews

PLAN DATE: August 2025	REVIEWED BY: A. M. Wiseman
PREPARED BY: G. Whitehouse	REVIEWED BY: T.M. Moody

REVISIONS	INIT.	DATE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-2352
DESIGNED: August 2025
SEALED: 8/11/2026
REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 8/11/2026
SIGNATURE DATE

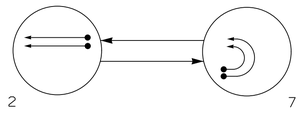
SIG. INVENTORY NO. 10-2352

8/11/2026
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 4.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

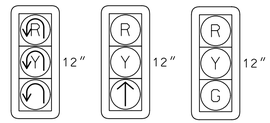
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 2	PHASE 7	FLASH
21	↑	R	R
22	G	R	R
71, 72	(R)	∩	(R)

SIGNAL FACE I.D.

All Heads L.E.D.
See Note 3



MAXTIME DETECTOR INSTALLATION CHART

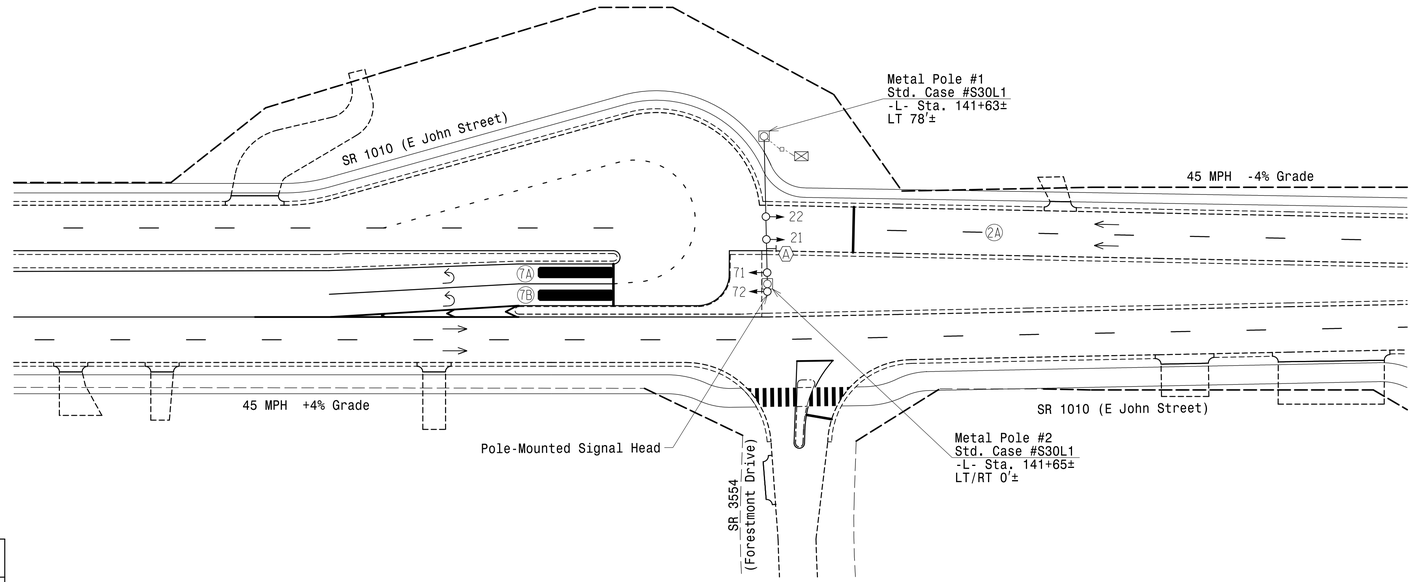
DETECTOR					PROGRAMMING							
ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
7A	✳	0	✳	✳	7	-	-	X	-	X	-	✳
7B	✳	0	✳	✳	7	-	-	X	-	X	-	✳

✳ Multi-zone Microwave Detection Zone

2 Phase
Fully Actuated
D10-58_Stallings

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024, "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Install backplates with retro-reflecting sheeting on all signal heads.
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. The cabinet should be designed to include an Auxilliary Output File for future use.
7. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Pole mounted signal heads shall be mounted a minimum of 8' above the high point of the roadway surface elevation.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□↓	Pedestrian Signal Head With Push Button & Sign	■↓
◎	Metal Strain Pole	◘
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	- - - -
→	Directional Arrow	→
▬	Non-Intrusive Detection Zone	▬
Ⓐ	No Left Turn Sign (R3-2)	Ⓐ

MAXTIME TIMING CHART

FEATURE	PHASE 2	PHASE 7
Walk *	–	–
Ped Clear *	–	–
Min Green	12	7
Passage *	2.0	2.0
Max 1 *	90	30
Yellow Change	4.9	3.0
Red Clear	2.0	4.6
Added Initial *	–	–
Maximum Initial *	–	–
Time Before Reduction *	–	–
Time To Reduce *	–	–
Minimum Gap	–	–
Advance Walk	–	–
Non Lock Detector	–	X
Vehicle Recall	MIN RECALL	–
Dual Entry	–	–

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

Advance Microwave Detection

FUNCTION	SENSOR 1 – (2A)	
Channel	1	
Phase	2	
Direction of Travel	WB	
Type	Priority	
Level	2	QUEUE
Discovery Zone (ft)	<750	N/A
Detection Zone (ft)	100 – 600	100 – 150
Enable Speed	Y	Y
Speed Range (mph)	35 – 100	1 – 35
Enable Estimated Time of Arrival	Y	N
Estimated Time of Arrival (sec)	2.5 – 6.5	–

New Installation

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

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

SR 1010 (E John Street) WB
at
EB U-Turn East of
SR 3457 (McKee Road)
Division 10 Mecklenburg County Matthews

PLAN DATE:	August 2025	REVIEWED BY:	T.M. Moody
PREPARED BY:	J.C. Grimm	REVIEWED BY:	A.M. Wiseman

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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DocuSigned by: Trent Moody SIGNATURE 8/11/2026 DATE

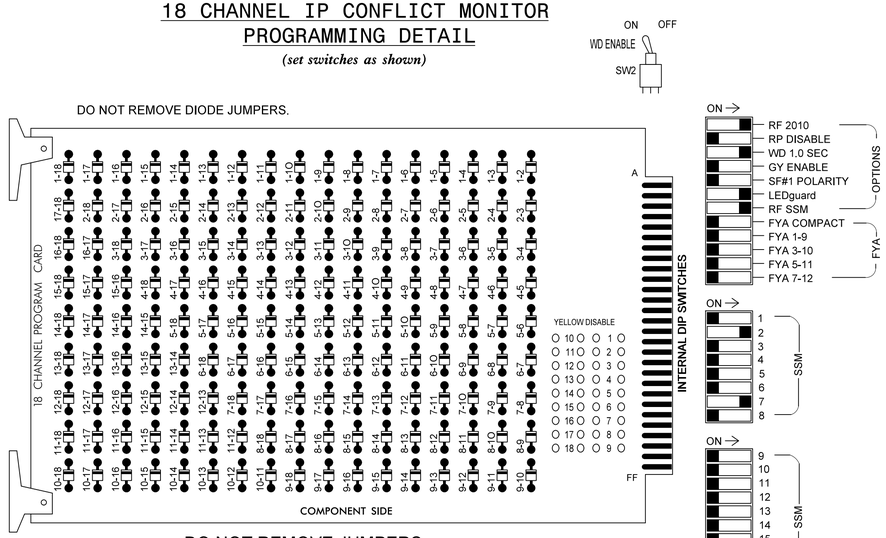
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8/11/2026
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18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(set switches as shown)



DO NOT REMOVE JUMPERS

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 vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program controller to start up in phase 2 Green No Walk and phase 6 Phase Not On.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. The cabinet and controller are part of the D10-58_Stallings Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....Q-FREE MAXTIME
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS.....18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S10
PHASES USED.....2, 7
OVERLAPS.....NONE

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 4.1

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	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	NU	21	22	NU	NU	NU	NU	NU	NU	NU	71,72	NU	NU	NU	NU	NU	NU	NU	NU
RED		128	128																
YELLOW		129	129																
GREEN			130																
RED ARROW											122								
YELLOW ARROW											123								
FLASHING YELLOW ARROW																			
GREEN ARROW		130									124								

NU = Not Used

SEQUENCE DETAIL

Front Panel
Main Menu >Controller >Sequence & Phs Config>Sequences

Web Interface
Home >Controller >Sequence

Sequence 1

Ring	Sequence Data
1	2,a,7,b
2	-

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	1O	11	12	13	14
FILE "I"	U	SLOT EMPTY													FS DC ISOLATOR
	L														ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY													SLOT EMPTY
	L														

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

FS = FLASH SENSE
ST = STOP TIME

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE: ALL RED FLASH

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection zone for vehicle detection. Perform installation according to the manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the signal design plans.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-2445
DESIGNED: August 2025
SEALED: 8/11/2026
REVISED:

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

New Installation
Electrical Detail

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:
NC Department of Transportation Mobility and Safety Division Traffic Engineering Branch Traffic Signal Management Section

750 N.Greenfield Pkwy.Garner,NC 27529

SR 1010 (E John Street) WB
at
EB U-Turn East of
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Division 10 Mecklenburg County Matthews

PLAN DATE:	August 2025	REVIEWED BY:	A.M. Wiseman
PREPARED BY:	G. Whitehouse	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 8/11/2026
SIGNATURE DATE

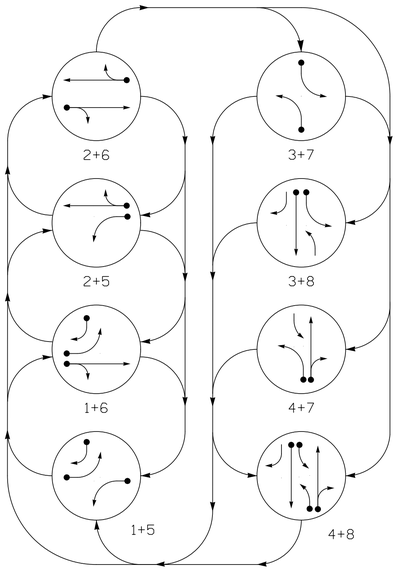
SIG. INVENTORY NO. 10-2445

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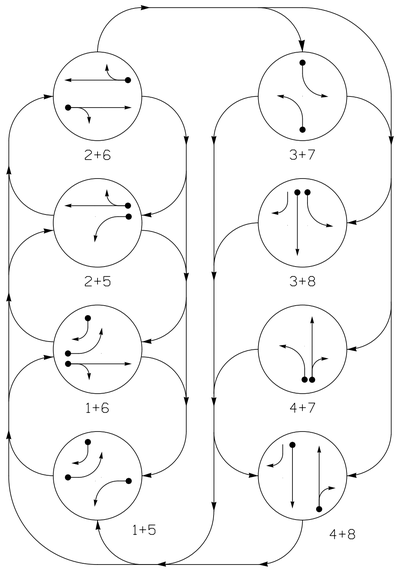
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 5.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3+7	3+8	4+7	4+8	FLASH
11	↚	←	↷̸	↷̸	↷̸	↷̸	↷̸	↷̸	↷̸
21, 22	R	R	G	G	R	R	R	R	R
31	↷̸	↷̸	↷̸	↷̸	←	←	F Y	F Y	↷̸
41, 42, 43	R	R	R	R	R	R	G	G	R
51	↚	↷̸	↚	↷̸	↷̸	↷̸	↷̸	↷̸	↷̸
61, 62	R	G	R	G	R	R	R	R	R
71	↷̸	↷̸	↷̸	↷̸	←	←	F Y	F Y	↷̸
81, 82	R	R	R	R	R	G	R	G	R
83	→	→	R	R	R	F Y	R	F Y	R

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3+7	3+8	4+7	4+8	FLASH
11	↚	←	↷̸	↷̸	↷̸	↷̸	↷̸	↷̸	↷̸
21, 22	R	R	G	G	R	R	R	R	R
31	↷̸	↷̸	↷̸	↷̸	←	←	↷̸	↷̸	↷̸
41, 42, 43	R	R	R	R	R	R	G	G	R
51	↚	↷̸	↚	↷̸	↷̸	↷̸	↷̸	↷̸	↷̸
61, 62	R	G	R	G	R	R	R	R	R
71	↷̸	↷̸	↷̸	↷̸	←	↷̸	←	↷̸	↷̸
81, 82	R	R	R	R	R	G	R	G	R
83	→	→	R	R	R	F Y	R	F Y	R

MAXTIME DETECTOR INSTALLATION CHART

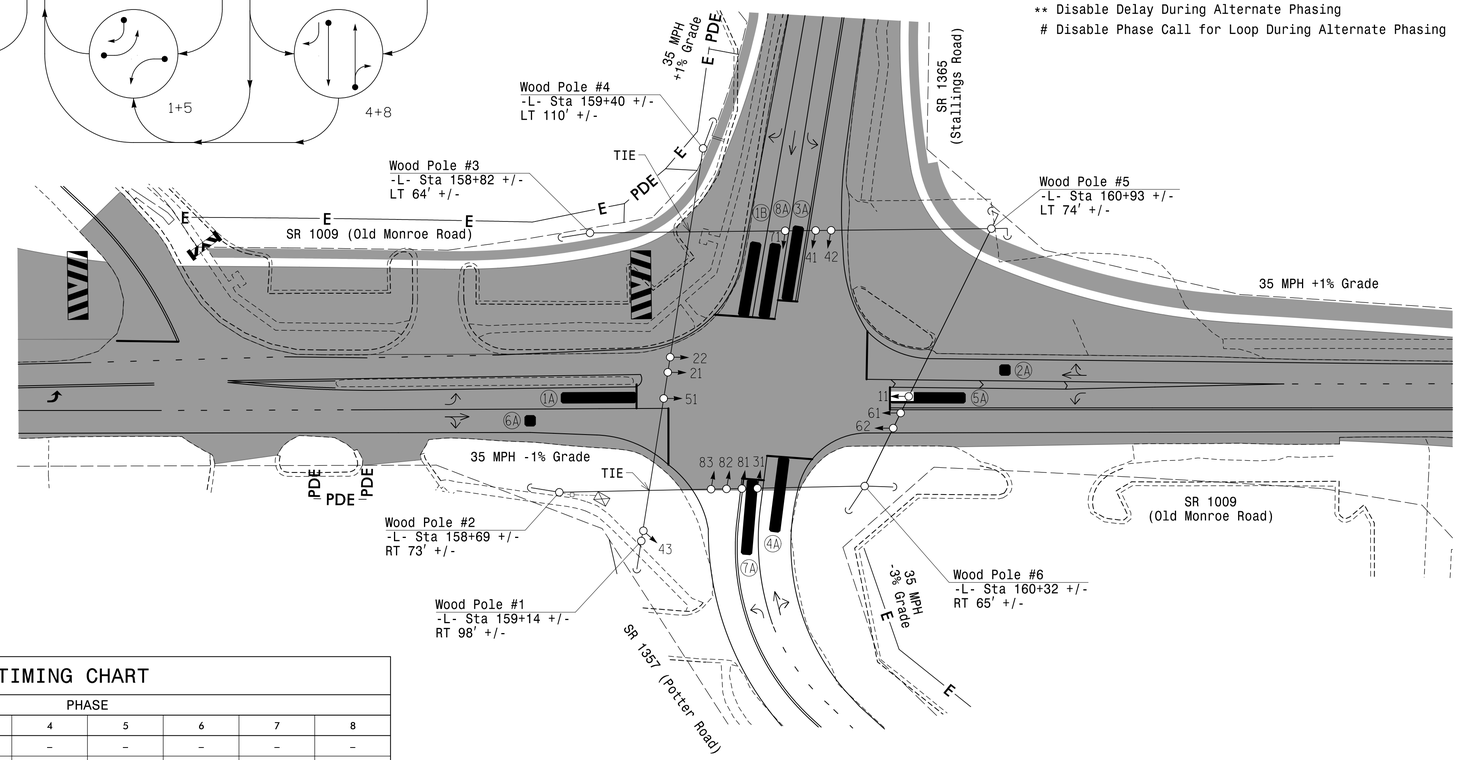
DETECTOR					PROGRAMMING							
LOOP/ ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	✳	0	✳	✳	1	-	-	X	-	X	-	✳
1B	✳	0	✳	✳	1	15.0	-	X	-	X	-	✳
2A	✳	70	✳	✳	2	-	-	X	-	X	-	✳
3A	✳	0	✳	✳	3	15.0**	-	X	-	X	-	✳
					8#	-	-	X	-	X	-	✳
4A	✳	0	✳	✳	4	10.0	-	X	-	X	-	✳
5A	✳	0	✳	✳	5	3.0	-	X	-	X	-	✳
6A	✳	70	✳	✳	6	-	-	X	-	X	-	✳
7A	✳	0	✳	✳	7	15.0**	-	X	-	X	-	✳
					4#	-	-	X	-	X	-	✳
8A	✳	0	✳	✳	8	-	-	X	-	X	-	✳

✳ Multi-zone Microwave Detection Zone
** Disable Delay During Alternate Phasing
# Disable Phase Call for Loop During Alternate Phasing

8 Phase
Fully Actuated
w/ Alternate Phasing Operation
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
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. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
7. Pavement markings are existing.
8. The Division Traffic Engineer will determine the hours of use for each phasing plan.
9. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▯	Pedestrian Signal Head	■
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	⊠
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	— — —
→	Directional Arrow	→
▬	Non-Intrusive Detection Zone	▬
▬	Construction Zone	▬
▨	Construction Barricade	▨

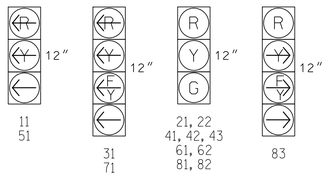
MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Walk *	–	–	–	–	–	–	–	–
Ped Clear *	–	–	–	–	–	–	–	–
Min Green	7	10	7	7	7	10	7	7
Passage *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	20	90	15	30	20	90	15	30
Yellow Change	3.0	3.9	3.0	4.1	3.0	3.9	3.0	4.1
Red Clear	2.9	1.5	2.1	1.3	2.8	1.5	2.3	1.3
Added Initial *	–	–	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–	–	–
Advance Walk	–	–	–	–	–	–	–	–
Non Lock Detector	X	–	X	X	X	–	X	X
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL	–	–
Dual Entry	–	–	–	X	–	–	–	X

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

SIGNAL FACE I.D.

All Heads L.E.D.



This plan supersedes the plan signed and sealed on 08/11/2026.

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

Signal Upgrade
Temporary Design 1 - TMP Phase I

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

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 Union County Stallings

PLAN DATE:	October 2026	REVIEWED BY:	T.M. Moody
PREPARED BY:	J.C. Grimm	REVIEWED BY:	A.M. Wiseman

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 10/20/2026
4SE9SIGN87MRC

SIG. INVENTORY NO. 10-0636TI

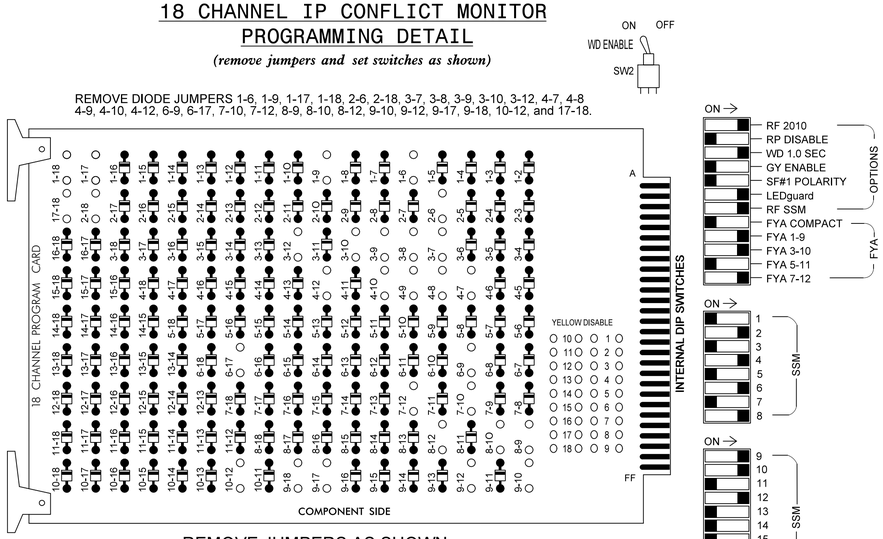
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18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 1-9, 1-17, 1-18, 2-6, 2-18, 3-7, 3-8, 3-9, 3-10, 3-12, 4-7, 4-8
4-9, 4-10, 4-12, 6-9, 6-17, 7-10, 7-12, 8-9, 8-10, 8-12, 9-10, 9-12, 9-17, 9-18, 10-12, and 17-18.



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 vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for dual entry.
3. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....Q-FREE MAXTIME
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS.....18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S1,S2,S4,S5,S8,S10,S11,AUX S1,AUX S2,AUX S3,AUX S5
PHASES USED.....2,3,4,6,7,8
OVERLAP "1".....*
OVERLAP "2".....*
OVERLAP "3".....NOT USED
OVERLAP "4".....*
OVERLAP "5".....*
OVERLAP "6".....*

* See overlap programming details on Sheet 2.

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 5.1

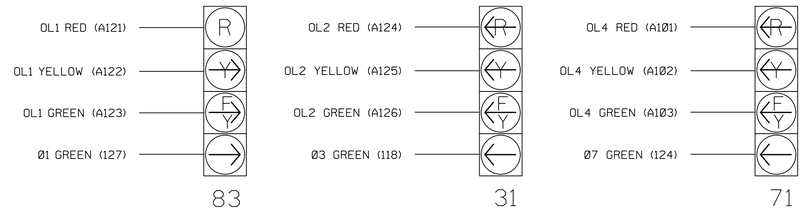
SIGNAL HEAD HOOK-UP CHART

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	OL1	OL2	OL5	OL3	OL4	OL6
SIGNAL HEAD NO.	83★	21,22	NU	31★	41,42, 43	NU	NU	61,62	NU	71★	81,82	NU	83★	31★	11	NU	71★	51
RED	.	128	.	.	101	.	.	134	.	.	107	.	A121	.	.	.	.	.
YELLOW	*	129	.	*	102	.	.	135	.	*	108	.	.	.	.	.	.	.
GREEN	.	130	.	.	103	.	.	136	.	.	109	.	.	.	.	.	.	.
RED ARROW	.	.	.	.	.	.	.	.	.	.	.	.	.	A124	A111	.	A101	A104
YELLOW ARROW	.	.	.	.	.	.	.	.	.	.	.	.	A122	A125	A112	.	A102	A105
FLASHING YELLOW ARROW	.	.	.	.	.	.	.	.	.	.	.	.	A123	A126	.	.	A103	.
GREEN ARROW	127	.	.	118	.	.	.	.	.	124	.	.	.	.	A113	.	.	A106

NU = Not Used
*Denotes install load resistor. See load resistor installation detail this sheet.
★See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø3 3A / NOT USED	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR / ST DC ISOLATOR
L														
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø7 7A / NOT USED	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
L														

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

FS = FLASH SENSE
ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to the manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the signal design plans.

For Zones 3A and 7A, inputs associated with the typical slots for an NCDOT installation are compatible with time of day instructions located on Sheet 2 of this electrical detail.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
3A	TB4-5,6	I5U	58	20	7★	3	15.0		X		X	
				-	30★	8			X		X	
7A	TB5-5,6	J5U	57	19	21★	7	15.0		X		X	
				-	32★	4			X		X	

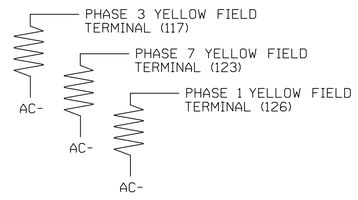
★ For the detectors to work as shown on the signal plan, see the Detector Programming Detail for Alternate Phasing on sheet 2 of this plan.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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: 10-0636T1
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

Signal Upgrade
Temporary Design 1 - TMP Phase I
Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV Engineers, Inc.
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NC License Number F-0991

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE:	March 2026	REVIEWED BY:	J.C. Grimm
PREPARED BY:	A.M. Wiseman	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY
DocuSigned by: Trent Moody SIGNATURE 8/11/2026 DATE

SIG. INVENTORY NO. 10-0636T1

8/11/2026
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 5.2

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More >Channels >Channel Options

Web Interface
Home >Controller >Advanced IO >Channels >Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE: ALL RED FLASH

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	4	5	6
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	8	4	8	1	5
Modifier Phases	1	3	7	-	-
Modifier Overlaps	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0

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.

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVATE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVATE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 31 and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 8 call on zone 3A and reduces delay time for phase 3 call on zone 3A to 0.0 seconds.

Disables phase 4 call on zone 7A and reduces delay time for phase 7 call on zone 7A to 0.0 seconds.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on the "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	2	4	5	6
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	8	-	-	1	5
Modifier Phases	1	3	7	-	-
Modifier Overlaps	-	-	-	-	-
Trail Green	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0

← NOTE INCLUDED PHASES

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING ZONES 3A & 7A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface, right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

3A

Detector	Call Phase	Delay
7	3	0.0
30	0	0.0

7A

Detector	Call Phase	Delay
21	7	0.0
32	0	0.0

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Divsion and/or City Traffic Engineer.

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-0636T1
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
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(704) 372-1885
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ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC Department of Transportation Traffic Engineering Branch Traffic Engineering & Safety Systems Section Transportation Mobility and Safety Division Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

Signal Upgrade
Temporary Design 1 - TMP Phase I
Electrical Detail - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE: March 2026 | REVIEWED BY: J.C. Grimm
PREPARED BY: A.M. Wiseman | REVIEWED BY: T.M. Moody

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 8/11/2026
SIGNATURE DATE

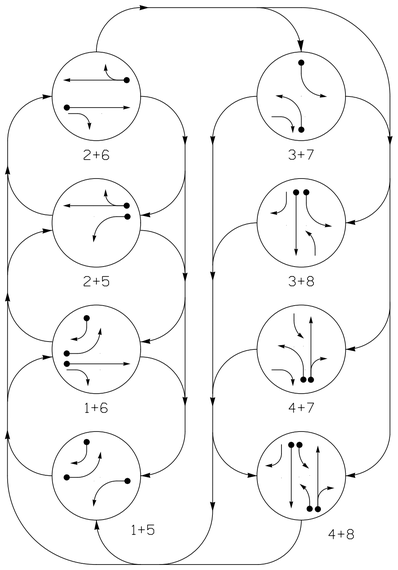
SIG. INVENTORY NO. 10-0636T1

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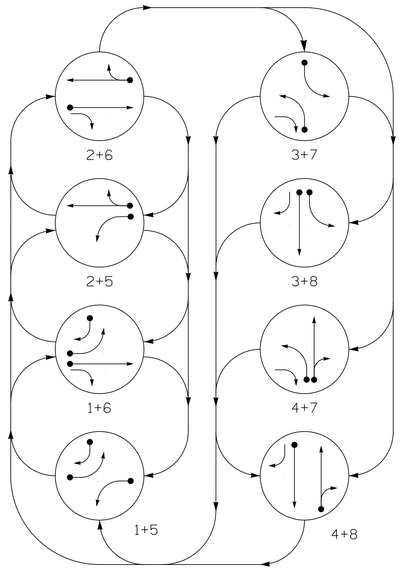
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 6.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3+7	3+8	4+7	4+8	FLASH
11	↚	←	R̸	R̸	R̸	R̸	R̸	R̸	R̸
21, 22	R	R	G	G	R	R	R	R	R
31	R̸	R̸	R̸	R̸	←	←	F̸Y	F̸Y	R̸
41, 42, 43	R	R	R	R	R	R	G	G	R
51	↚	R̸	←	R̸	R̸	R̸	R̸	R̸	R̸
61, 62	R	G	R	G	R	R	R	R	R
63	R	F̸Y	R	F̸Y	→	R	→	R	R
71	R̸	R̸	R̸	R̸	←	F̸Y	←	F̸Y	R̸
81, 82	R	R	R	R	R	G	R	G	R
83	→	→	R	R	R	F̸Y	R	F̸Y	R

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3+7	3+8	4+7	4+8	FLASH
11	↚	↚	R̸	R̸	R̸	R̸	R̸	R̸	R̸
21, 22	R	R	G	G	R	R	R	R	R
31	R̸	R̸	R̸	R̸	↚	↚	R̸	R̸	R̸
41, 42, 43	R	R	R	R	R	R	G	G	R
51	↚	R̸	↚	R̸	R̸	R̸	R̸	R̸	R̸
61, 62	R	G	R	G	R	R	R	R	R
63	R	F̸Y	R	F̸Y	→	R	→	R	R
71	R̸	R̸	R̸	R̸	↚	R̸	↚	R̸	R̸
81, 82	R	R	R	R	R	G	R	G	R
83	→	→	R	R	R	F̸Y	R	F̸Y	R

MAXTIME DETECTOR INSTALLATION CHART

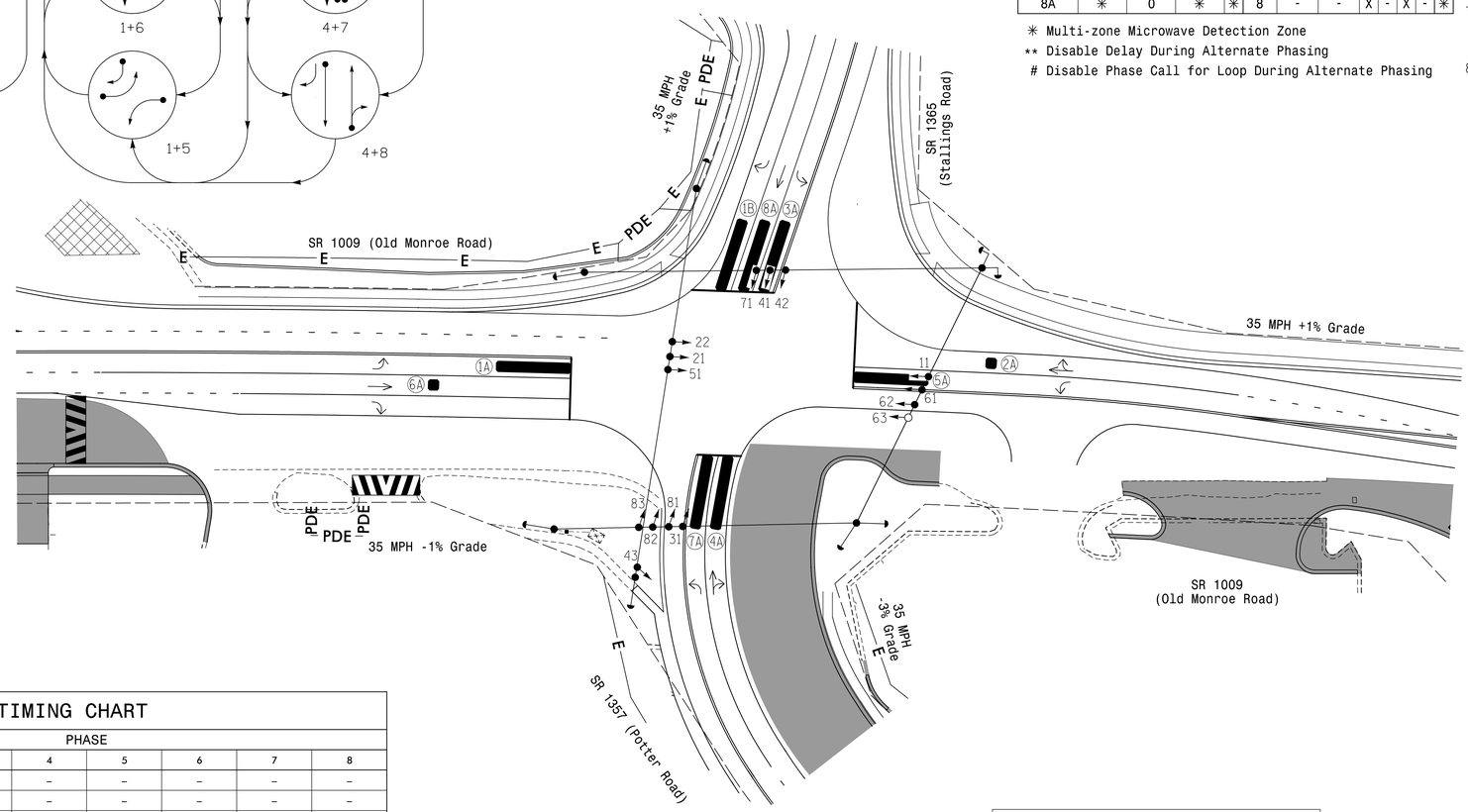
DETECTOR: LOOP/ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	✳	0	✳	✳	1	-	-	X	-	X	-	✳
1B	✳	0	✳	✳	1	15.0	-	X	-	X	-	✳
2A	✳	70	✳	✳	2	-	-	X	-	X	-	✳
3A	✳	0	✳	✳	3	15.0**	-	X	-	X	-	✳
					8#	-	-	X	-	X	-	✳
4A	✳	0	✳	✳	4	10.0	-	X	-	X	-	✳
5A	✳	0	✳	✳	5	3.0	-	X	-	X	-	✳
6A	✳	70	✳	✳	6	-	-	X	-	X	-	✳
7A	✳	0	✳	✳	7	15.0**	-	X	-	X	-	✳
					4#	-	-	X	-	X	-	✳
8A	✳	0	✳	✳	8	-	-	X	-	X	-	✳

✳ Multi-zone Microwave Detection Zone
** Disable Delay During Alternate Phasing
# Disable Phase Call for Loop During Alternate Phasing

8 Phase
Fully Actuated
w/ Alternate Phasing Operation
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
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 all existing signal heads.
6. Set all detector units to presence mode.
7. The Division Traffic Engineering will determine the hours of use for each phasing plan.
8. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head	■
○	Signal Pole with Guy	●
○	Signal Pole with Sidewalk Guy	●
⊠	Controller & Cabinet	⊠
□	Junction Box	■
----------	2-in Underground Conduit	----------
N/A	Right of Way	----------
→	Directional Arrow	→
▬	Non-Intrusive Detection Zone	▬
▭	Construction Zone	▭
▨	Construction Barricade	▨

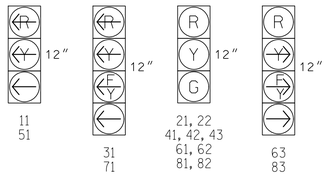
MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Walk *	–	–	–	–	–	–	–	–
Ped Clear *	–	–	–	–	–	–	–	–
Min Green	7	10	7	7	7	10	7	7
Passage *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	20	90	15	30	20	90	15	30
Yellow Change	3.0	3.9	3.0	4.1	3.0	3.9	3.0	4.1
Red Clear	3.4	2.1	2.1	1.5	3.2	2.1	2.3	1.5
Added Initial *	–	–	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–	–	–
Advance Walk	–	–	–	–	–	–	–	–
Non Lock Detector	X	–	X	X	X	–	X	X
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL	–	–
Dual Entry	–	–	–	X	–	–	–	X

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

SIGNAL FACE I.D.

All Heads L.E.D.



This plan supersedes the plan signed and sealed on 08/11/2026.

Signal Upgrade
Temporary Design 2 - TMP Phase III

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STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

Prepared for the Offices of:
Traffic Engineering Branch
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 Union County Stallings

PLAN DATE:	October 2026	REVIEWED BY:	T.M. Moody
PREPARED BY:	J.C. Grimm	REVIEWED BY:	A.M. Wiseman

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL
SEAL 040329
ENGINEER
TRENT M. MOODY

DocuSigned by: Trent Moody 10/20/2026
SIGNATURE DATE

SIG. INVENTORY NO. 10-0636T2

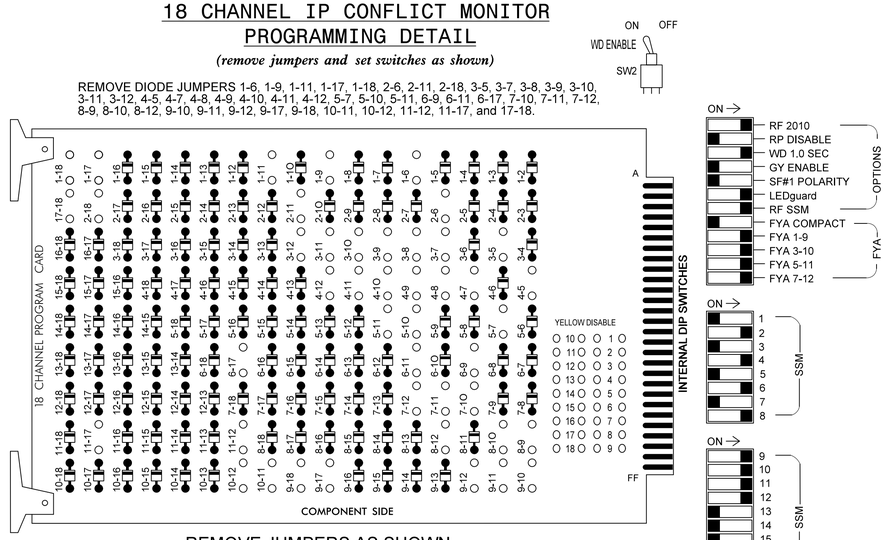
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18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 1-9, 1-11, 1-17, 1-18, 2-6, 2-11, 2-18, 3-5, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 4-5, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 5-7, 5-10, 5-11, 6-9, 6-11, 6-17, 7-10, 7-11, 7-12, 8-9, 8-10, 8-12, 9-10, 9-11, 9-12, 9-17, 9-18, 10-11, 10-12, 11-12, 11-17, and 17-18.



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 vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for dual entry.
3. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....Q-FREE MAXTIME
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 S3 AUXS4, AUX S5,AUX S6
PHASES USED.....2,3,4,6,7,8
OVERLAP "1".....*
OVERLAP "2".....*
OVERLAP "3".....*
OVERLAP "4".....*
OVERLAP "5".....*
OVERLAP "6".....*
OVERLAP "7".....*

* See overlap programming details on Sheet 2.

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 6.1

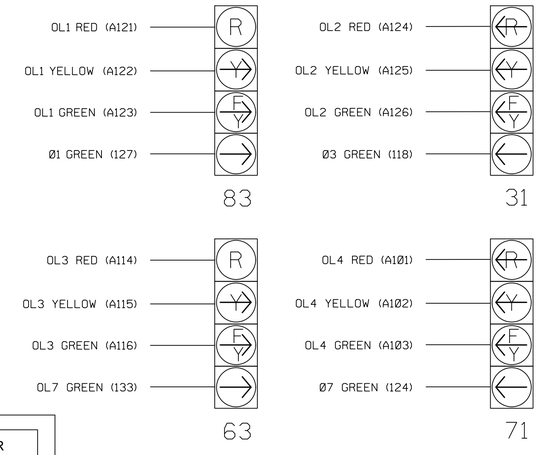
SIGNAL HEAD HOOK-UP CHART

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	OL7	6	6 PED	7	8	8 PED	OL1	OL2	OL5	OL3	OL4	OL6
SIGNAL HEAD NO.	83★	21,22	NU	31★	41,42, 43	NU	63★	61,62	NU	71★	81,82	NU	83★	31★	11	63★	71★	51
RED	·	128	·	·	101	·	·	134	·	·	107	·	A121	·	·	A114	·	·
YELLOW	★	129	·	★	102	·	★	135	·	★	108	·	·	·	·	·	·	·
GREEN	·	130	·	·	103	·	·	136	·	·	109	·	·	·	·	·	·	·
RED ARROW	·	·	·	·	·	·	·	·	·	·	·	·	·	A124	A111	·	A101	A104
YELLOW ARROW	·	·	·	·	·	·	·	·	·	·	·	·	A122	A125	A112	A115	A102	A105
FLASHING YELLOW ARROW	·	·	·	·	·	·	·	·	·	·	·	·	A123	A126	·	A116	A103	·
GREEN ARROW	127	·	·	118	·	·	133	·	·	124	·	·	·	·	A113	·	·	A106

NU = Not Used
★ Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø3 3A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
L					NOT USED									ST DC ISOLATOR
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø7 7A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
L					NOT USED									

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

FS = FLASH SENSE
ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to the manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the signal design plans.

For Zones 3A and 7A, inputs associated with the typical slots for an NCDOT installation are compatible with time of day instructions located on Sheet 2 of this electrical detail.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
3A	TB4-5,6	I5U	58	20	7★	3	15.0		X		X	
				-	30★	8			X		X	
7A	TB5-5,6	J5U	57	19	21★	7	15.0		X		X	
				-	32★	4			X		X	

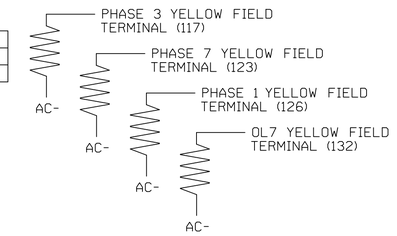
★ For the detectors to work as shown on the signal plan, see the Detector Programming Detail for Alternate Phasing on sheet 2 of this plan.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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: 10-0636T2
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

Signal Upgrade
Temporary Design 2 - TMP Phase III
Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV Engineers, Inc.
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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Traffic Engineering, Mobility and Safety Division
Traffic Engineering Branch
Traffic Signals Management Section
NC DEPARTMENT OF TRANSPORTATION

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE:	March 2026	REVIEWED BY:	J.C. Grimm
PREPARED BY:	A.M. Wiseman	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody
SIGNATURE
8/11/2026
DATE

SIG. INVENTORY NO. 10-0636T2

8/11/2026
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 6.2

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More >Channels >Channel Options

Web Interface
Home >Controller >Advanced IO >Channels >Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Overlap	7		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 5

NOTE: ALL RED FLASH

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.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	4	5	6	7
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	Normal
Included Phases	8	4	6	8	1	5	7
Modifier Phases	1	3	7	7	-	-	-
Modifier Overlaps	-	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVATE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVATE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 31 and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 8 call on zone 3A and reduces delay time for phase 3 call on zone 3A to 0.0 seconds.

Disables phase 4 call on zone 7A and reduces delay time for phase 7 call on zone 7A to 0.0 seconds.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on the "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2.
Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	2	3	4	5	6	7
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	Normal
Included Phases	8	-	6	-	1	5	7
Modifier Phases	1	3	7	7	-	-	-
Modifier Overlaps	-	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0

NOTE INCLUDED PHASES

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING ZONES 3A & 7A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface, right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2.
Modify Detector Plan 2 as shown below and save changes.

Plan 2

3A

Detector	Call Phase	Delay
7	3	0.0
30	0	0.0

7A

Detector	Call Phase	Delay
21	7	0.0
32	0	0.0

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Divsion and/or City Traffic Engineer.

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-0636T2
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

750 N.Greenfield Pkwy,Garner,NC 27529

Signal Upgrade
Temporary Design 2 - TMP Phase III
Electrical Detail - Sheet 2 of 2

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE:	March 2026	REVIEWED BY:	J.C. Grimm
PREPARED BY:	A.M. Wiseman	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by:
Trent Moody 8/11/2026
SIGNATURE DATE

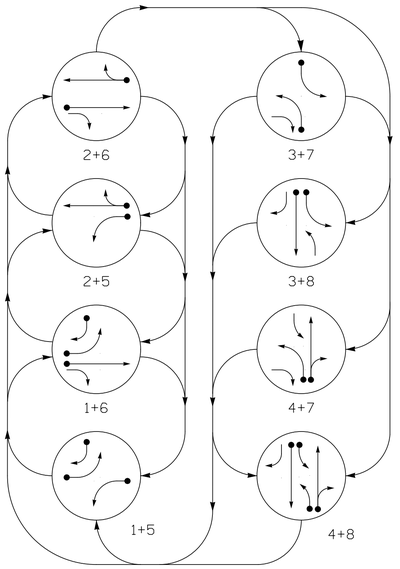
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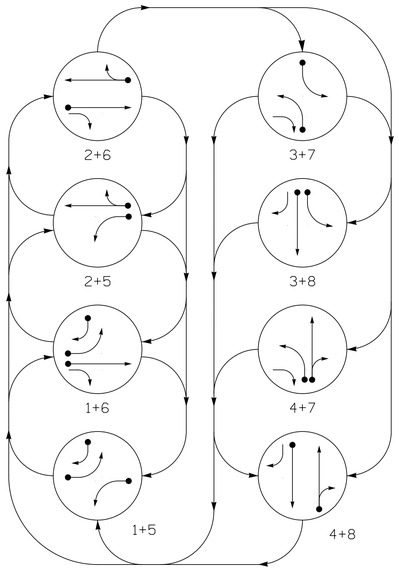
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PROJECT REFERENCE NO.	SHEET NO.
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DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3+7	3+8	4+7	4+8	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21, 22	R	R	G	G	R	R	R	R	R
31	~~R~~	~~R~~	~~R~~	~~R~~	←	←	~~F~~ Y	~~F~~ Y	~~R~~
41, 42, 43	R	R	R	R	R	R	G	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61, 62	R	G	R	G	R	R	R	R	R
63	R	~~F~~ Y	R	~~F~~ Y	→	R	→	R	R
71	~~R~~	~~R~~	~~R~~	~~R~~	←	~~F~~ Y	←	~~F~~ Y	~~R~~
81, 82	R	R	R	R	G	R	G	R	R
83	→	→	R	R	~~F~~ Y	R	~~F~~ Y	R	R

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3+7	3+8	4+7	4+8	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21, 22	R	R	G	G	R	R	R	R	R
31	~~R~~	~~R~~	~~R~~	~~R~~	←	←	~~R~~	~~R~~	~~R~~
41, 42, 43	R	R	R	R	R	R	G	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
61, 62	R	G	R	G	R	R	R	R	R
63	R	~~F~~ Y	R	~~F~~ Y	→	R	→	R	R
71	~~R~~	~~R~~	~~R~~	~~R~~	←	~~R~~	←	~~R~~	~~R~~
81, 82	R	R	R	R	G	R	G	R	R
83	→	→	R	R	~~F~~ Y	R	~~F~~ Y	R	R

MAXTIME DETECTOR INSTALLATION CHART

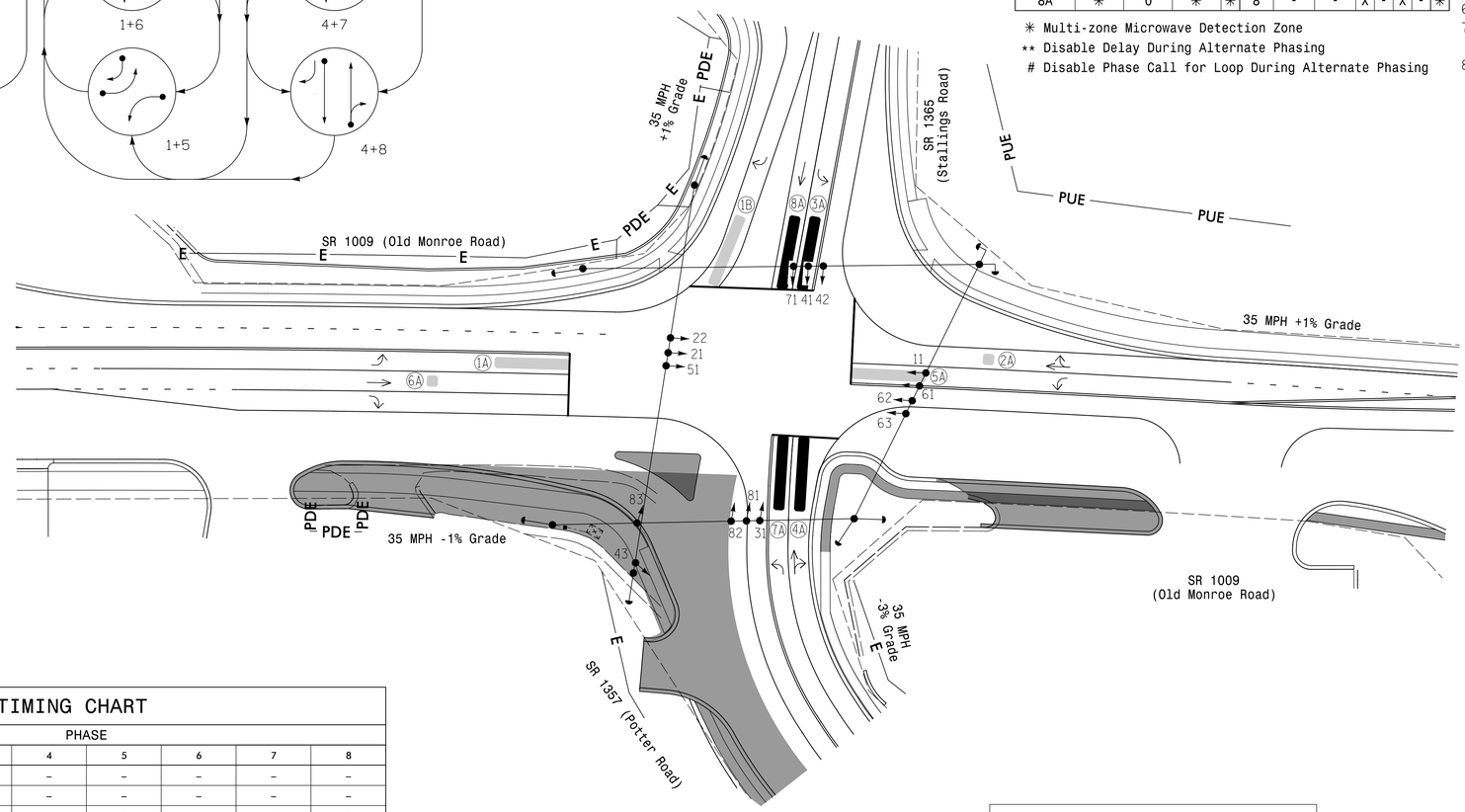
DETECTOR: LOOP/ ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	✳	0	✳	✳	1	-	-	X	-	X	-	✳
1B	✳	0	✳	✳	1	15.0	-	X	-	X	-	✳
2A	✳	70	✳	✳	2	-	-	X	-	X	-	✳
3A	✳	0	✳	✳	3	15.0**	-	X	-	X	-	✳
					8#	-	-	X	-	X	-	✳
4A	✳	0	✳	✳	4	10.0	-	X	-	X	-	✳
5A	✳	0	✳	✳	5	3.0	-	X	-	X	-	✳
6A	✳	70	✳	✳	6	-	-	X	-	X	-	✳
7A	✳	0	✳	✳	7	15.0**	-	X	-	X	-	✳
					4#	-	-	X	-	X	-	✳
8A	✳	0	✳	✳	8	-	-	X	-	X	-	✳

✳ Multi-zone Microwave Detection Zone
** Disable Delay During Alternate Phasing
# Disable Phase Call for Loop During Alternate Phasing

8 Phase
Fully Actuated
w/ Alternate Phasing Operation
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Reposition existing signal heads numbered 31, 41, 42, 71, 81, and 82.
6. Set all detector units to presence mode.
7. The Division Traffic Engineer will determine the hours of use for each phasing plan.
8. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.



LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▭↓	Pedestrian Signal Head	■↓
○→	Signal Pole with Guy	●→
○↷	Signal Pole with Sidewalk Guy	●↷
⊠	Controller & Cabinet	⊠
□	Junction Box	■
·-·-·	2-in Underground Conduit	·-·-·
N/A	Right of Way	– – – –
→	Directional Arrow	→
▬	Non-Intrusive Detection Zone	▬
▬	Construction Zone	▬

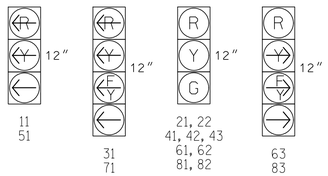
MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Walk *	–	–	–	–	–	–	–	–
Ped Clear *	–	–	–	–	–	–	–	–
Min Green	7	10	7	7	7	10	7	7
Passage *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	20	90	15	30	20	90	15	30
Yellow Change	3.0	3.9	3.0	4.1	3.0	3.9	3.0	4.1
Red Clear	3.8	2.8	2.1	1.8	1.9	2.8	2.9	1.8
Added Initial *	–	–	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–	–	–
Advance Walk	–	–	–	–	–	–	–	–
Non Lock Detector	X	–	X	X	X	–	X	X
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL	–	–
Dual Entry	–	–	–	X	–	–	–	X

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

SIGNAL FACE I.D.

All Heads L.E.D.



This plan supersedes the plan signed and sealed on 08/11/2026.

Signal Upgrade
Temporary Design 3 - TMP Phase IIIA

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV Engineers, Inc.
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(704) 372-1885
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Prepared for the Offices of:
Traffic Engineering Branch, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 1009 (Old Monroe Road) at SR 1365 (Stallings Road)/ SR 1357 (Potter Road)
Division 10 Union County Stallings

PLAN DATE:	October 2026	REVIEWED BY:	T.M. Moody
PREPARED BY:	J.C. Grimm	REVIEWED BY:	A.M. Wiseman

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 10/20/2026
SIGNATURE DATE

SIG. INVENTORY NO. 10-0636T3

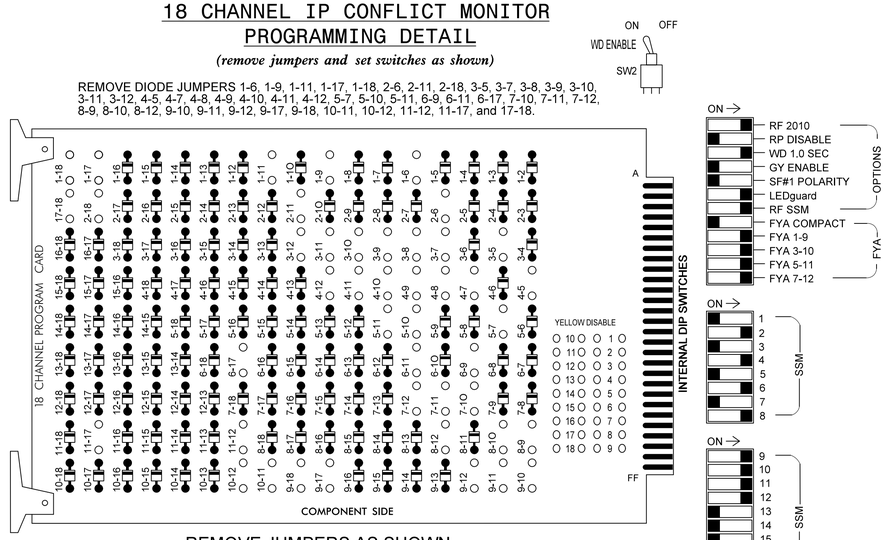
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18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 1-9, 1-11, 1-17, 1-18, 2-6, 2-11, 2-18, 3-5, 3-7, 3-8, 3-9, 3-10, 3-11, 3-12, 4-5, 4-7, 4-8, 4-9, 4-10, 4-11, 4-12, 5-7, 5-10, 5-11, 6-9, 6-11, 6-17, 7-10, 7-11, 7-12, 8-9, 8-10, 8-12, 9-10, 9-11, 9-12, 9-17, 9-18, 10-11, 10-12, 11-12, 11-17, and 17-18.



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 vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for dual entry.
3. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....Q-FREE MAXTIME
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 S3 AUXS4, AUX S5,AUX S6
PHASES USED.....2,3,4,6,7,8
OVERLAP "1".....*
OVERLAP "2".....*
OVERLAP "3".....*
OVERLAP "4".....*
OVERLAP "5".....*
OVERLAP "6".....*
OVERLAP "7".....*

* See overlap programming details on Sheet 2.

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 7.1

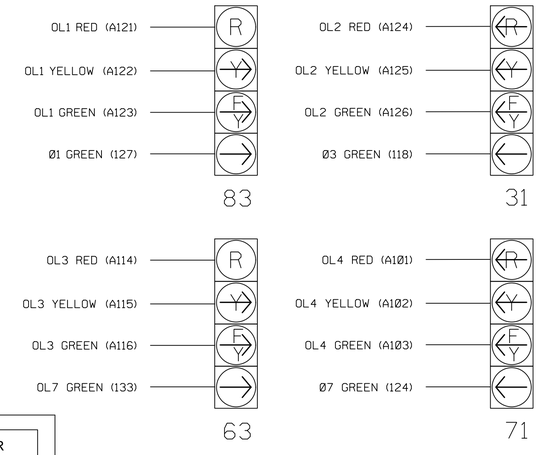
SIGNAL HEAD HOOK-UP CHART

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	OL7	6	6 PED	7	8	8 PED	OL1	OL2	OL5	OL3	OL4	OL6
SIGNAL HEAD NO.	83★	21,22	NU	31★	41,42, 43	NU	63★	61,62	NU	71★	81,82	NU	83★	31★	11	63★	71★	51
RED	·	128	·	·	101	·	·	134	·	·	107	·	A121	·	·	A114	·	·
YELLOW	★	129	·	★	102	·	★	135	·	★	108	·	·	·	·	·	·	·
GREEN	·	130	·	·	103	·	·	136	·	·	109	·	·	·	·	·	·	·
RED ARROW	·	·	·	·	·	·	·	·	·	·	·	·	·	A124	A111	·	A101	A104
YELLOW ARROW	·	·	·	·	·	·	·	·	·	·	·	·	A122	A125	A112	A115	A102	A105
FLASHING YELLOW ARROW	·	·	·	·	·	·	·	·	·	·	·	·	A123	A126	·	A116	A103	·
GREEN ARROW	127	·	·	118	·	·	133	·	·	124	·	·	·	·	A113	·	·	A106

NU = Not Used
★ Denotes install load resistor. See load resistor installation detail this sheet.
★ See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø3 3A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
L					NOT USED									ST DC ISOLATOR
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø7 7A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
L					NOT USED									

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

FS = FLASH SENSE
ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to the manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the signal design plans.

For Zones 3A and 7A, inputs associated with the typical slots for an NCDOT installation are compatible with time of day instructions located on Sheet 2 of this electrical detail.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
3A	TB4-5,6	I5U	58	20	7★	3	15.0		X		X	
				-	30★	8			X		X	
7A	TB5-5,6	J5U	57	19	21★	7	15.0		X		X	
				-	32★	4			X		X	

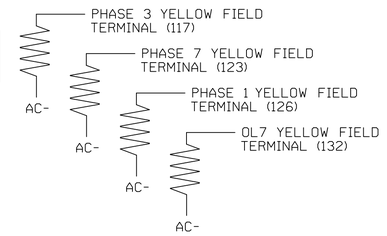
★ For the detectors to work as shown on the signal plan, see the Detector Programming Detail for Alternate Phasing on sheet 2 of this plan.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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: 10-0636T3
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

Signal Upgrade
Temporary Design 3 - TMP Phase IIIA
Electrical Detail - Sheet 1 of 2

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Traffic Engineering, Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Traffic Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE:	March 2026	REVIEWED BY:	J.C. Grimm
PREPARED BY:	A.M. Wiseman	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody
SIGNATURE
8/11/2026
DATE

SIG. INVENTORY NO. 10-0636T3

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 7.2

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More >Channels >Channel Options

Web Interface
Home >Controller >Advanced IO >Channels >Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Overlap	7		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 5 →

NOTE: ALL RED FLASH

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.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	4	5	6	7
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	Normal
Included Phases	8	4	6	8	1	5	7
Modifier Phases	1	3	7	7	-	-	-
Modifier Overlaps	-	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2.
A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVATE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVATE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 31 and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 8 call on zone 3A and reduces delay time for phase 3 call on zone 3A to 0.0 seconds.

Disables phase 4 call on zone 7A and reduces delay time for phase 7 call on zone 7A to 0.0 seconds.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on the "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1.
Paste Overlap Plan 1 into Overlap Plan 2.
Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	2	3	4	5	6	7
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	Normal
Included Phases	8	-	6	-	1	5	7
Modifier Phases	1	3	7	7	-	-	-
Modifier Overlaps	-	-	-	-	-	-	-
Trail Green	0	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0

← NOTE INCLUDED PHASES

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING ZONES 3A & 7A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface, right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2.
Modify Detector Plan 2 as shown below and save changes.

Plan 2

3A

Detector	Call Phase	Delay
7	3	0.0
30	0	0.0

7A

Detector	Call Phase	Delay
21	7	0.0
32	0	0.0

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Divsion and/or City Traffic Engineer.

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-0636T3
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
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(704) 372-1885
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ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC Department of Transportation Traffic Engineering Branch Traffic Signals & Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

Signal Upgrade
Temporary Design 3 - TMP Phase IIIA
Electrical Detail - Sheet 2 of 2

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE:	March 2026	REVIEWED BY:	J.C. Grimm
PREPARED BY:	A.M. Wiseman	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

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DocuSigned by:
Trent Moody 8/11/2026
SIGNATURE DATE

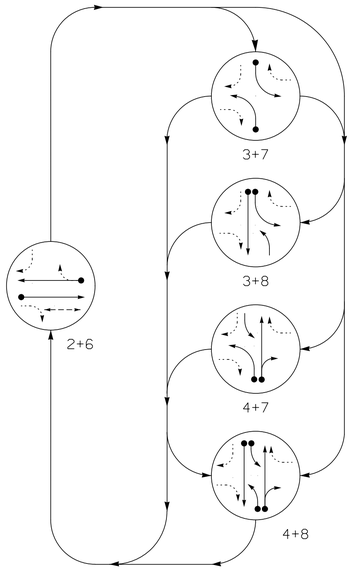
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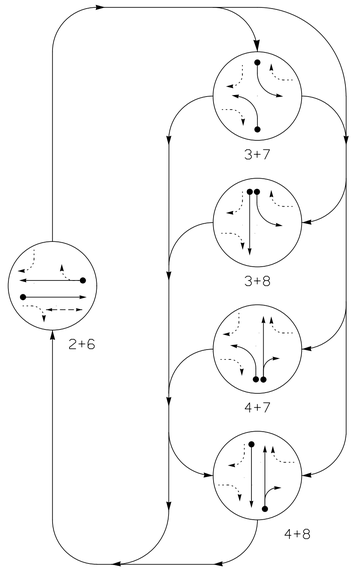
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PROJECT REFERENCE NO.	SHEET NO.
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DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	3+7	3+8	4+7	4+8	FLASH
21	↑	R	R	R	R	R
22	G	R	R	R	R	R
31	~~R~~	←	←	~~F Y~~	~~F Y~~	~~R~~
41, 42, 43	R	R	R	G	G	R
61	↑	R	R	R	R	R
62	G	R	R	R	R	R
71	~~R~~	←	~~F Y~~	←	~~F Y~~	~~R~~
81, 82	R	R	G	R	G	R
P61, P62	W	DW	DW	DW	DW	DRK

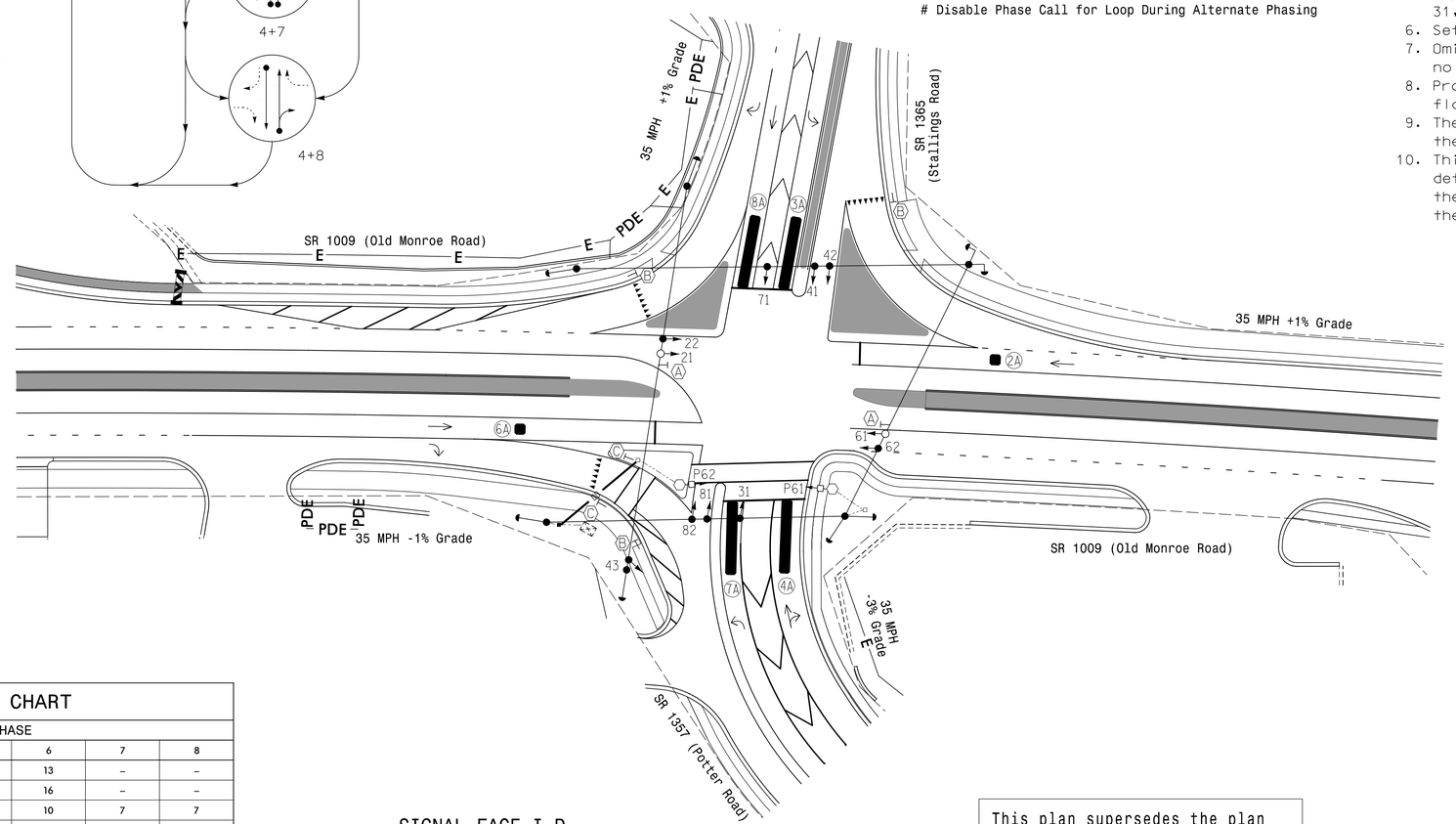
ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	3+7	3+8	4+7	4+8	FLASH
21	↑	R	R	R	R	R
22	G	R	R	R	R	R
31	~~R~~	←	←	~~R~~	~~R~~	~~R~~
41, 42, 43	R	R	R	G	G	R
61	↑	R	R	R	R	R
62	G	R	R	R	R	R
71	~~R~~	←	~~R~~	←	~~R~~	~~R~~
81, 82	R	R	G	R	G	R
P61, P62	W	DW	DW	DW	DW	DRK

MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP/ ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2A	✳	70	✳	✳	2	-	-	X	-	X	-	✳
3A	✳	0	✳	✳	3	15.0**	-	X	-	X	-	✳
					8#	-	-	X	-	X	-	✳
4A	✳	0	✳	✳	4	10.0	-	X	-	X	-	✳
6A	✳	70	✳	✳	6	-	-	X	-	X	-	✳
7A	✳	0	✳	✳	7	15.0**	-	X	-	X	-	✳
					4#	-	-	X	-	X	-	✳
8A	✳	0	✳	✳	8	-	-	X	-	X	-	✳

✳ Multi-zone Microwave Detection Zone
** Disable Delay During Alternate Phasing
# Disable Phase Call for Loop During Alternate Phasing



5 Phase
Fully Actuated
w/ Alternate Phasing Operation
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 3 and/or phase 7 may be lagged.
4. Remove existing signal heads numbered 11, 21, 51, 61, 63, and 83.
5. Reposition existing signal heads numbered 31, 41, 42, 62, 71, 81, and 82.
6. Set all detector units to presence mode.
7. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. The Division Traffic Engineer will determine the hours of use for each phasing plan.
10. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.

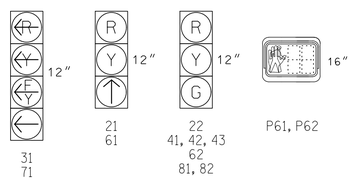
MAXTIME TIMING CHART

FEATURE	PHASE 2	3	4	6	7	8
Walk *	–	–	–	13	–	–
Ped Clear *	–	–	–	16	–	–
Min Green	10	7	7	10	7	7
Passage *	3.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	90	20	30	90	20	30
Yellow Change	3.9	3.0	4.1	3.9	3.0	4.1
Red Clear	1.8	2.9	2.1	1.8	2.8	2.1
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	–	–	6	–	–
Non Lock Detector	–	X	X	–	X	X
Vehicle Recall	MIN RECALL	–	–	MIN RECALL	–	–
Dual Entry	–	–	X	–	–	X

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

SIGNAL FACE I.D.

All Heads L.E.D.



This plan supersedes the plan signed and sealed on 08/11/2026.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
▯↓	Pedestrian Signal Head	■↓
○ ○↓	Signal Pole with Guy / Signal Pole with Sidewalk Guy	● ●↓
⊠	Controller & Cabinet	⊠
□	Junction Box	■
⬡	Type II Signal Pedestal	⬢
DD	Directional Drill	N/A
-----	2-in Underground Conduit	-----
N/A	Right of Way	-----
→	Directional Arrow	→
▬	Non-Intrusive Detection Zone	▬
▭	Construction Zone	▭
▨	Construction Barricade	▨
Ⓐ	No U-Turn/No Left Turn Sign (R3-18)	Ⓐ
Ⓑ	"YIELD" Sign (R1-2)	Ⓑ
Ⓒ	Pedestrian Crossing Sign (W11-2) w/ Diagonal Downward Arrow (W16-7P)	Ⓒ

Signal Upgrade
Temporary Design 4 - TMP Phase IV

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STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

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

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 Union County Stallings

PLAN DATE:	October 2026	REVIEWED BY:	T.M. Moody
PREPARED BY:	J.C. Grimm	REVIEWED BY:	A.M. Wiseman

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 10/20/2026
SIGNATURE DATE

SIG. INVENTORY NO. 10-0636T4

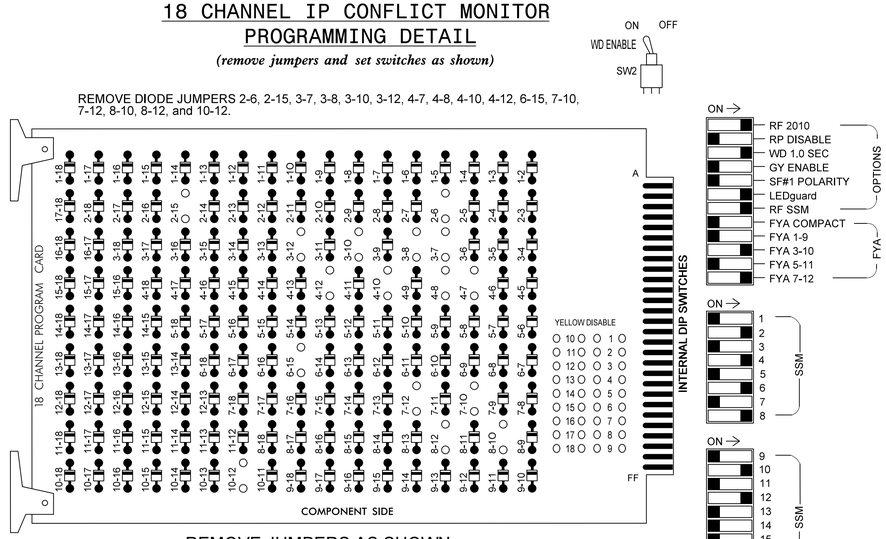
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18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-15, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 6-15, 7-10, 7-12, 8-10, 8-12, and 10-12.



■ = DENOTES POSITION OF SWITCH

REMOVE JUMPERS AS SHOWN

NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for dual entry.
3. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....Q-FREE MAXTIME
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS.....18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S4,S5,S8,S9,S10,S11,AUX S2,AUX S5
PHASES USED.....2,3,4,6,6 PED,7,8
OVERLAP "1".....NOT USED
OVERLAP "2".....*
OVERLAP "3".....NOT USED
OVERLAP "4".....*

* See overlap programming details on Sheet 2.

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 8.1

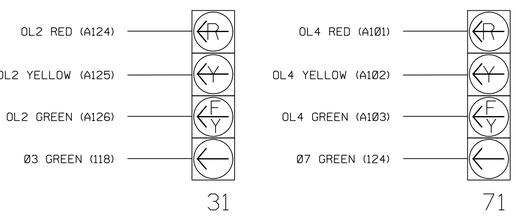
SIGNAL HEAD HOOK-UP CHART

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	OL1	OL2	NU	OL3	OL4	NU
SIGNAL HEAD NO.	NU	21	22	NU	31★	41,42, 43	NU	NU	61	62	P61, P62	71★	81,82	NU	NU	31★	NU	NU	71★	NU
RED	·	128	128		·	101	·	·	134	134	·	·	107	·	·	·	·	·	·	·
YELLOW	·	129	129		★	102	·	·	135	135	·	★	108	·	·	·	·	·	·	·
GREEN	·	·	130		·	103	·	·	·	136	·	·	109	·	·	·	·	·	·	·
RED ARROW	·	·	·		·	·	·	·	·	·	·	·	·	·	·	A124	·	·	A101	·
YELLOW ARROW	·	·	·		·	·	·	·	·	·	·	·	·	·	·	A125	·	·	A102	·
FLASHING YELLOW ARROW	·	·	·		·	·	·	·	·	·	·	·	·	·	·	A126	·	·	A103	·
GREEN ARROW	·	130	·		118	·	·	·	136	·	·	124	·	·	·	·	·	·	·	·
✋											119									
🚶											121									

NU = Not Used
★Denotes install load resistor. See load resistor installation detail this sheet.
★See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø3 3A / NOT USED	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø6 PED DC ISOLATOR / NOT USED	FS DC ISOLATOR / ST DC ISOLATOR
L														
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø7 7A / NOT USED	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
L														

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

FS = FLASH SENSE
ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to the manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the signal design plans.

For Zones 3A and 7A, inputs associated with the typical slots for an NCDOT installation are compatible with time of day instructions located on Sheet 2 of this electrical detail.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
3A	TB4-5,6	I5U	58	20	7★	3	15.0		X		X	
				-	30★	8			X		X	
7A	TB5-5,6	J5U	57	19	21★	7	15.0		X		X	
				-	32★	4			X		X	
PED PUSH BUTTONS												
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

NOTE
INSTALL DC ISOLATOR
IN INPUT FILE SLOT I13.

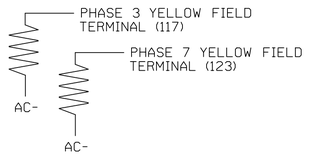
★ For the detectors to work as shown on the signal plan, see the Detector Programming Detail for Alternate Phasing on sheet 2 of this plan.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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: 10-0636T4
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

Signal Upgrade
Temporary Design 4 - TMP Phase IV
Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
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NC License Number F-0991

ELECTRICAL AND PROGRAMMING DETAILS FOR:

750 N.Greenfield Pkwy,Garner,NC 27529

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE:	March 2026	REVIEWED BY:	J.C. Grimm
PREPARED BY:	A.M. Wiseman	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 8/11/2026
SIGNATURE DATE

SIG. INVENTORY NO. 10-0636T4

8/11/2026
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 8.2

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More >Channels >Channel Options

Web Interface
Home >Controller >Advanced IO >Channels >Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE: ALL RED FLASH

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	2	4
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	4	8
Modifier Phases	3	7
Modifier Overlaps	-	-
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0

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.

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVATE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVATE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 31 and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 8 call on zone 3A and reduces delay time for phase 3 call on zone 3A to 0.0 seconds.

Disables phase 4 call on zone 7A and reduces delay time for phase 7 call on zone 7A to 0.0 seconds.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on the "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2.
Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	2	4
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	-	-
Modifier Phases	3	7
Modifier Overlaps	-	-
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0

← NOTE INCLUDED PHASES

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING ZONES 3A & 7A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface, right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

3A

Detector	Call Phase	Delay
7	3	0.0
30	0	0.0

7A

Detector	Call Phase	Delay
21	7	0.0
32	0	0.0

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Divsion and/or City Traffic Engineer.

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-0636T4
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC Department of Transportation Transportation Mobility and Safety Division Traffic Engineering Branch Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

Signal Upgrade
Temporary Design 4 - TMP Phase IV
Electrical Detail - Sheet 2 of 2

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE: March 2026 | REVIEWED BY: J.C. Grimm
PREPARED BY: A.M. Wiseman | REVIEWED BY: T.M. Moody

REVISIONS	INIT.	DATE

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by:
Trent Moody
SIGNATURE
8/11/2026
DATE

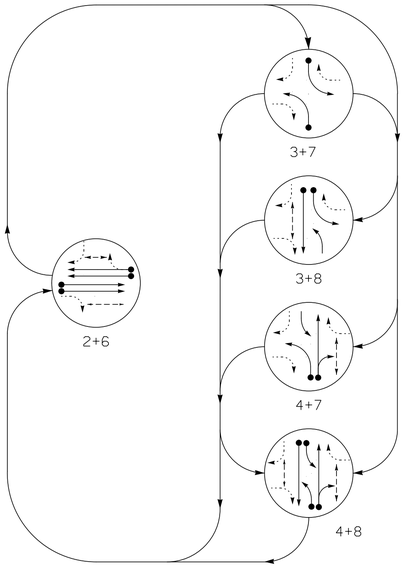
SIG. INVENTORY NO. 10-0636T4

8/11/2026
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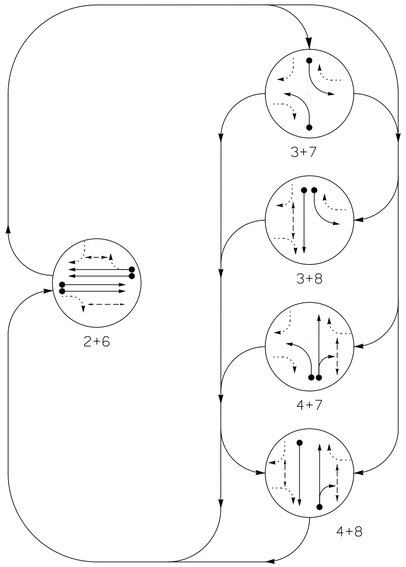
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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 9.0

DEFAULT PHASING DIAGRAM



ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	3+7	3+8	4+7	4+8	FLASH
2I	↑	R	R	R	R	R
22, 23	G	R	R	R	R	R
3I	~~R~~	←	←	~~FY~~	~~FY~~	~~R~~
4I, 42, 43	R	R	R	G	G	R
6I	↑	R	R	R	R	R
62, 63	G	R	R	R	R	R
7I	~~R~~	←	~~FY~~	←	~~FY~~	~~R~~
8I, 82	R	R	G	R	G	R
P2I, P22	W	DW	DW	DW	DW	DRK
P4I, P42	DW	DW	DW	W	W	DRK
P6I, P62	W	DW	DW	DW	DW	DRK
P8I, P82	DW	DW	W	DW	W	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE 2+6	3+7	3+8	4+7	4+8	FLASH
2I	↑	R	R	R	R	R
22, 23	G	R	R	R	R	R
3I	~~R~~	←	←	~~R~~	~~R~~	~~R~~
4I, 42, 43	R	R	R	G	G	R
6I	↑	R	R	R	R	R
62, 63	G	R	R	R	R	R
7I	~~R~~	←	~~R~~	←	~~R~~	~~R~~
8I, 82	R	R	G	R	G	R
P2I, P22	W	DW	DW	DW	DW	DRK
P4I, P42	DW	DW	DW	W	W	DRK
P6I, P62	W	DW	DW	DW	DW	DRK
P8I, P82	DW	DW	W	DW	W	DRK

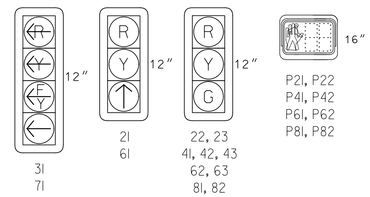
MAXTIME DETECTOR INSTALLATION CHART

DETECTOR					PROGRAMMING							
LOOP/ ZONE	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
2A,2B	✳	70	✳	✳	2	-	-	X	-	X	-	✳
3A	✳	0	✳	✳	3	15.0**	-	X	-	X	-	✳
					8 #	-	-	X	-	X	-	✳
4A	✳	0	✳	✳	4	10.0	-	X	-	X	-	✳
6A,6B	✳	70	✳	✳	6	-	-	X	-	X	-	✳
7A	✳	0	✳	✳	7	15.0**	-	X	-	X	-	✳
					4 #	-	-	X	-	X	-	✳
8A	✳	0	✳	✳	8	-	-	X	-	X	-	✳

✳ Multi-zone Microwave Detection Zone
** Disable Delay During Alternate Phasing
# Disable Phase Call for Loop During Alternate Phasing

SIGNAL FACE I.D.

All Heads L.E.D.
See Note 4



MAXTIME TIMING CHART

FEATURE	PHASE 2	3	4	6	7	8
Walk *	13	–	12	13	–	12
Ped Clear *	14	–	15	16	–	16
Min Green	10	7	7	10	7	7
Passage *	3.0	2.0	2.0	3.0	2.0	2.0
Max 1 *	90	20	30	90	20	30
Yellow Change	3.9	3.0	4.1	3.9	3.0	4.1
Red Clear	1.9	2.6	2.0	1.9	2.6	2.0
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	6	–	5	6	–	5
Non Lock Detector	–	X	X	–	X	X
Vehicle Recall	MIN RECALL	–	–	MIN RECALL	–	–
Dual Entry	–	–	X	–	–	X

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

5 Phase Fully Actuated w/ Alternate Phasing Operation D10-58_Stallings

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 3 and/or phase 7 may be lagged.
4. Install backplates with retro-reflecting sheeting on all signal heads.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
8. The Division Traffic Engineer will determine the hours of use for each phasing plan.
9. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
10. 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	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Type II Signal Pedestal	
DD	Directional Drill	N/A
	Non-Intrusive Detection Zone	
N/A	Curb Ramp	
Ⓐ	No U-Turn/No Left Turn Sign (R3-18)	Ⓐ
Ⓑ	"YIELD" Sign (R1-2)	Ⓑ
Ⓒ	Pedestrian Crossing Sign (W11-2) w/ Diagonal Downward Arrow (W16-7P)	Ⓒ

This plan supersedes the plan signed and sealed on 08/11/2026.

Signal Upgrade - Final Design

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

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

SR 1009 (Old Monroe Road) at SR 1365 (Stallings Road)/ SR 1357 (Potter Road)
Division 10 Union County Stallings

PLAN DATE:	October 2026	REVIEWED BY:	T.M. Moody
PREPARED BY:	J.C. Grimm	REVIEWED BY:	A.M. Wiseman

SCALE: 0 40 — 1"=40'

REVISIONS	INIT.	DATE

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 10/20/2026
SIGNATURE DATE

SIG. INVENTORY NO. 10-0636

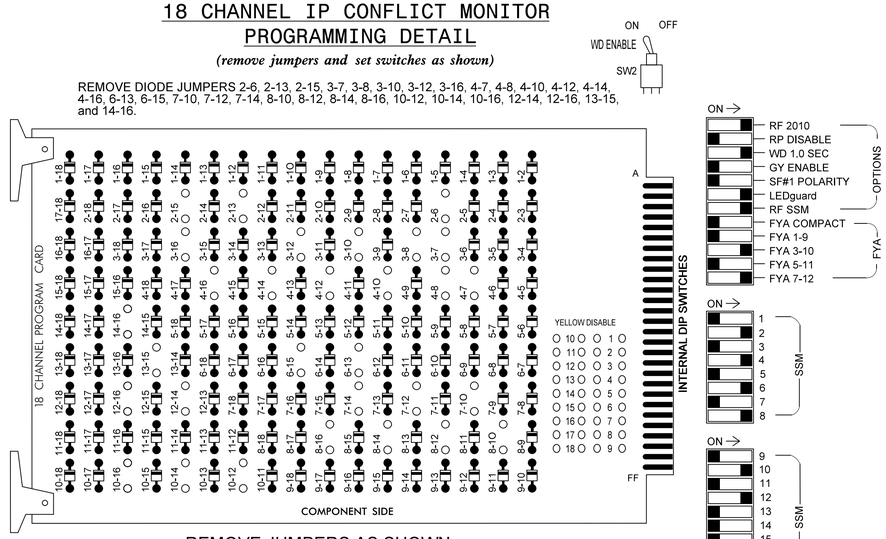
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18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 2-6, 2-13, 2-15, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-14, 4-16, 6-13, 6-15, 7-10, 7-12, 7-14, 8-10, 8-12, 8-14, 8-16, 10-12, 10-14, 10-16, 12-14, 12-16, 13-15, and 14-16.



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
2. Program phases 4 and 8 for dual entry.
3. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
5. This cabinet and controller are part of the D10-58_Stallings Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070LX
CABINET.....332 W/AUX
SOFTWARE.....Q-FREE MAXTIME
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS.....18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED.....S2,S3,S4,S5,S6,S8,S9,S10,S11,S12,AUX S2,AUX S5
PHASES USED.....2,2 PED,3,4,4 PED,6,6 PED,7,8,8 PED
OVERLAP "1".....NOT USED
OVERLAP "2".....*
OVERLAP "3".....NOT USED
OVERLAP "4".....*

* See overlap programming details on Sheet 2.

PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 9.1

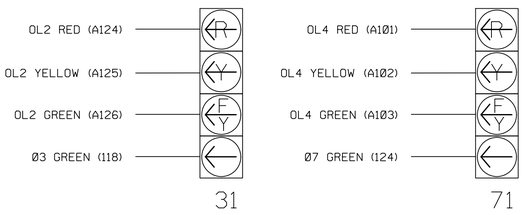
SIGNAL HEAD HOOK-UP CHART

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	OL1	OL2	NU	OL3	OL4	NU
SIGNAL HEAD NO.	NU	21	22,23	P21, P22	31★	41,42, 43	P41, P42	NU	61	62,63	P61, P62	71★	81,82	P81, P82	NU	31★	NU	NU	71★	NU
RED	·	128	128	·	·	101	·	·	134	134	·	·	107	·	·	·	·	·	·	·
YELLOW	·	129	129	·	★	102	·	·	135	135	·	★	108	·	·	·	·	·	·	·
GREEN	·	·	130	·	·	103	·	·	·	136	·	·	109	·	·	·	·	·	·	·
RED ARROW	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	124	·	·	101	·
YELLOW ARROW	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	125	·	·	102	·
FLASHING YELLOW ARROW	·	·	·	·	·	·	·	·	·	·	·	·	·	·	·	126	·	·	103	·
GREEN ARROW	·	130	·	·	118	·	·	·	136	·	·	124	·	·	·	·	·	·	·	·
✋				113			104				119			110						
🚶				115			106				121			112						

NU = Not Used
★Denotes install load resistor. See load resistor installation detail this sheet.
★See pictorial of head wiring in detail this sheet.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø3 3A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
L					NOT USED							Ø4 PED DC ISOLATOR	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø7 7A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
L					NOT USED									

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

FS = FLASH SENSE
ST = STOP TIME

SPECIAL DETECTOR NOTE

Install a multi-zone microwave detection system for vehicle detection. Perform installation according to the manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the signal design plans.

For Zones 3A and 7A, inputs associated with the typical slots for an NCDOT installation are compatible with time of day instructions located on Sheet 2 of this electrical detail.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
3A	TB4-5,6	I5U	58	20	7★	3	15.0		X		X	
				-	30★	8			X		X	
7A	TB5-5,6	J5U	57	19	21★	7	15.0		X		X	
				-	32★	4			X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						
P81,P82	TB8-8,9	I13L	70	36	8	PED 8						

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

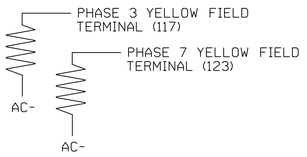
★ For the detectors to work as shown on the signal plan, see the Detector Programming Detail for Alternate Phasing on sheet 2 of this plan.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

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: 10-0636
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Traffic Engineering Branch, Transportation Mobility and Safety Division, NC Department of Transportation, Traffic Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE:	March 2026	REVIEWED BY:	J.C. Grimm
PREPARED BY:	A.M. Wiseman	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody 8/11/2026
SIGNATURE DATE

SIG. INVENTORY NO. 10-0636

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	Sig. 9.2

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More >Channels >Channel Options

Web Interface
Home >Controller >Advanced IO >Channels >Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1		X	X	1
2	Phase Vehicle	2		X		2
3	Phase Vehicle	3		X	X	3
4	Phase Vehicle	4		X		4
5	Phase Vehicle	5		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	8		X	X	8
9	Overlap	1		X	X	9
10	Overlap	2		X	X	10
11	Overlap	3		X		11
12	Overlap	4		X		12
13	Phase Ped	2				13
14	Phase Ped	4				14
15	Phase Ped	6				15
16	Phase Ped	8				16
17	Overlap	5		X	X	17
18	Overlap	6		X		18

NOTE: ALL RED FLASH

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	2	4
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	4	8
Modifier Phases	3	7
Modifier Overlaps	-	-
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0

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.

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVATE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVATE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 31 and 71 to run protected turns only.

VEH DET PLAN 2: Disables phase 8 call on zone 3A and reduces delay time for phase 3 call on zone 3A to 0.0 seconds.

Disables phase 4 call on zone 7A and reduces delay time for phase 7 call on zone 7A to 0.0 seconds.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on the "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	2	4
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	-	-
Modifier Phases	3	7
Modifier Overlaps	-	-
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0

← NOTE INCLUDED PHASES

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING ZONES 3A & 7A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface, right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

3A

Detector	Call Phase	Delay
7	3	0.0
30	0	0.0

7A

Detector	Call Phase	Delay
21	7	0.0
32	0	0.0

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Divsion and/or City Traffic Engineer.

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Unit

Web Interface
Home >Controller >Unit

Modify parameters as shown below and save changes.

Start Up Parameters

StartUp Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-0636
DESIGNED: March 2026
SEALED: 8/11/2026
REVISED:

STV Engineers, Inc.
2151 Hawkins Street, Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC Department of Transportation Mobility and Safety Division Traffic Engineering Branch Traffic Signals & Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

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

SR 1009 (Old Monroe Road)
at
SR 1365 (Stallings Road)/
SR 1357 (Potter Road)

Division 10 | Union County | Stallings

PLAN DATE:	March 2026	REVIEWED BY:	J.C. Grimm
PREPARED BY:	A.M. Wiseman	REVIEWED BY:	T.M. Moody

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody SIGNATURE 8/11/2026 DATE

SIG. INVENTORY NO. 10-0636

8/11/2026
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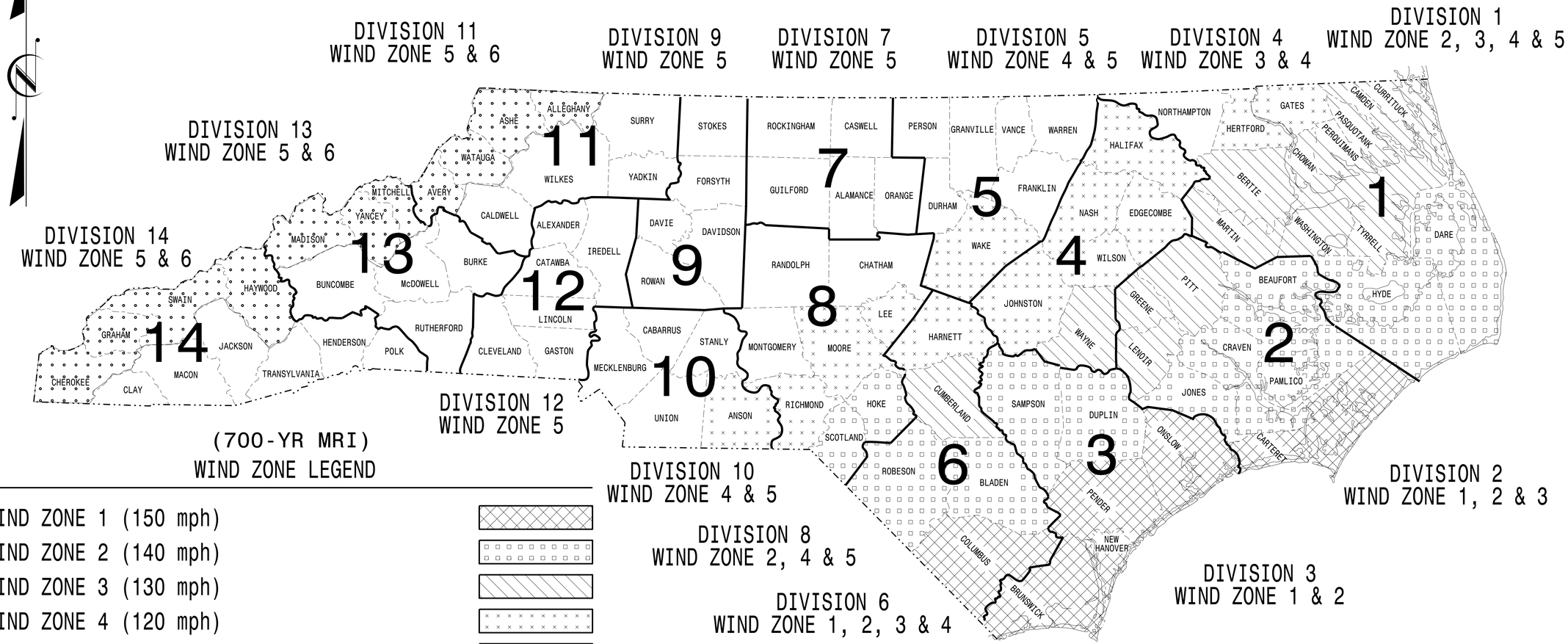
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PROJECT I.D.NO.	SHEET NO.
U-4714AC	Sig.M1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANDARD DRAWINGS FOR ALL METAL POLES (LRFD)

NCDOT METAL POLE STANDARDS



(700-YR MRI)
WIND ZONE LEGEND

WIND ZONE 1 (150 mph)	
WIND ZONE 2 (140 mph)	
WIND ZONE 3 (130 mph)	
WIND ZONE 4 (120 mph)	
WIND ZONE 5 (110 mph)	
WIND ZONE 6 (135 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
750 N.Greenfield Pkwy.
Garner, NC 27529

Designed in conformance with the latest 2020 Interim to the 1st Edition 2015

AASHTO LRFD

Standard Specifications for Highway Signs, Luminaires, and Traffic Signals

INDEX OF PLANS

DRAWING NUMBER	DESCRIPTION
Sig. M 1A	Statewide Wind Zone Map (700–yr MRI)
Sig. M 1B	Statewide Wind Zone Map (10–yr MRI)
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
Sig. M 9	Typical Fabrication Details–CCTV Camera Poles

MOBILITY AND SAFETY DIVISION – TRANSPORTATION SYSTEMS MANAGEMENT AND OPERATIONS UNIT

D.Y. ISHAK – STATE SIGNALS ENGINEER

K. DURIGON, P.E. – ITS AND SIGNALS STRUCTURAL ENGINEER

B. WALKER, P.E. – ITS AND SIGNALS STRUCTURAL ENGINEER

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

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Kevin Durigon
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09/21/2023
DATE

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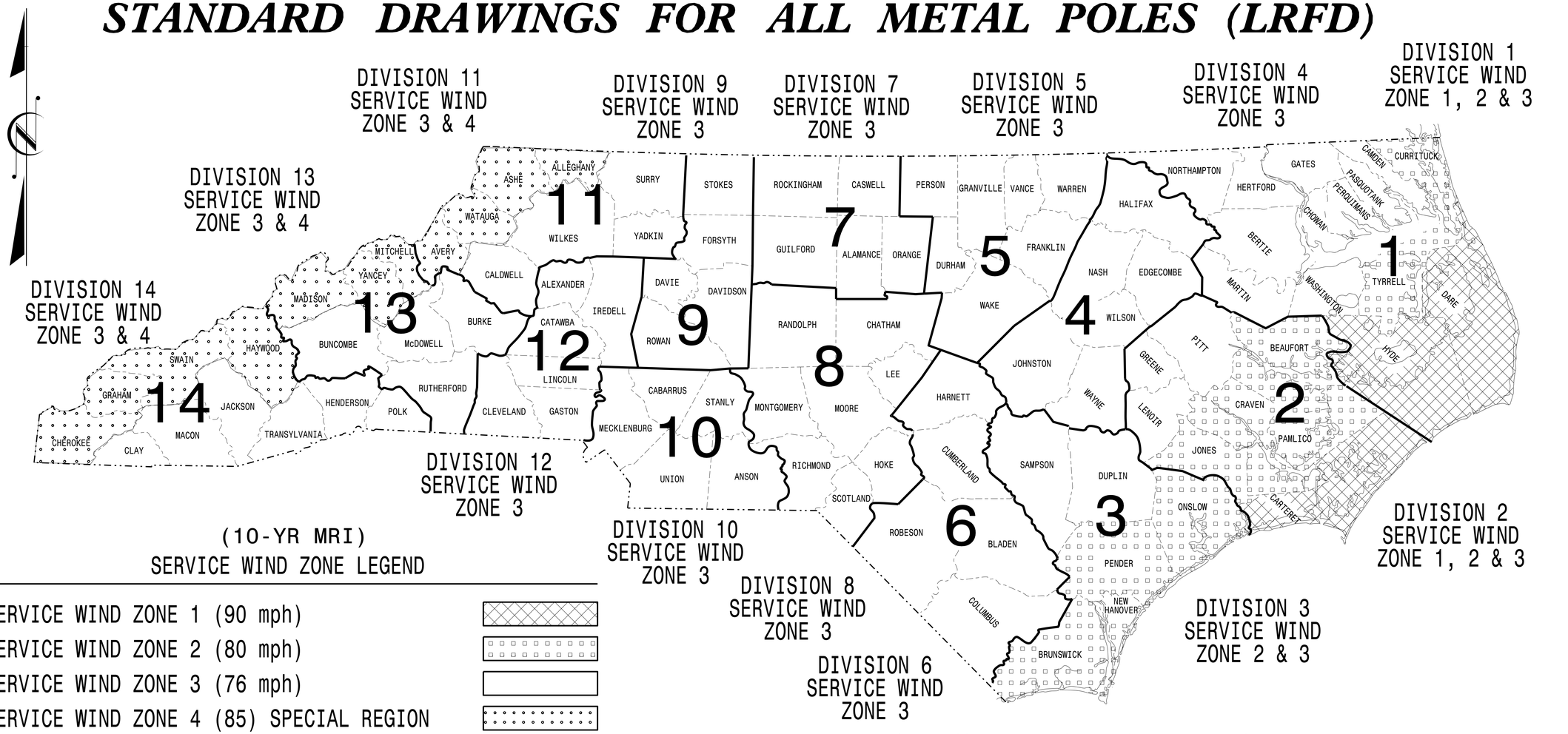
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANDARD DRAWINGS FOR ALL METAL POLES (LRFD)

NCDOT METAL POLE STANDARDS



(10-YR MRI)
SERVICE WIND ZONE LEGEND

SERVICE WIND ZONE 1 (90 mph)	
SERVICE WIND ZONE 2 (80 mph)	
SERVICE WIND ZONE 3 (76 mph)	
SERVICE WIND ZONE 4 (85) SPECIAL REGION	

https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

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NCDOT CONTACTS:

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SEAL

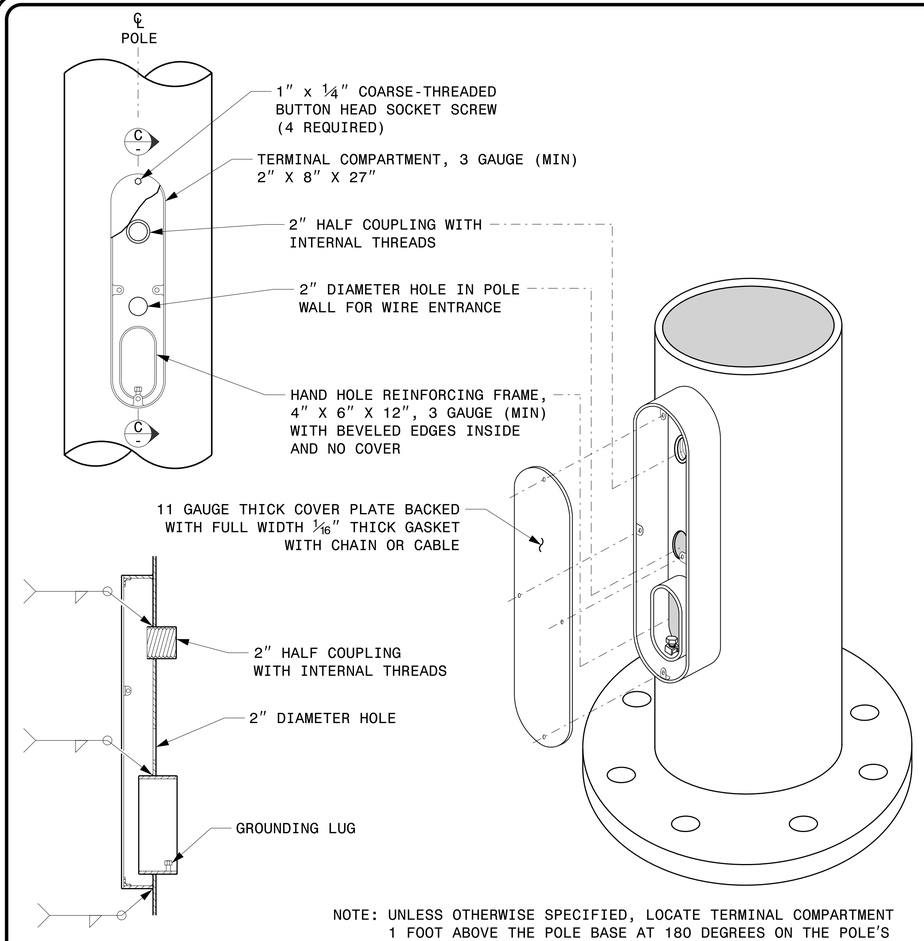
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Kevin Durigon
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DATE

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kdurigon

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SECTION C-C

NOTE: UNLESS OTHERWISE SPECIFIED, LOCATE TERMINAL COMPARTMENT 1 FOOT ABOVE THE POLE BASE 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 POLE SHAFT)

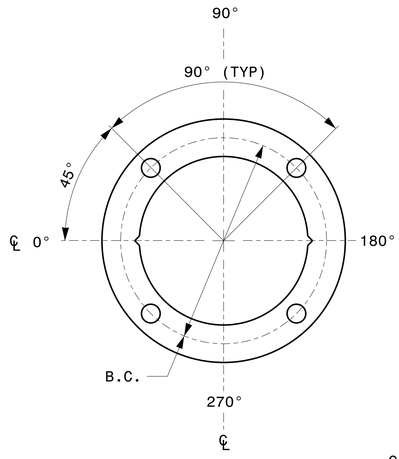
MFG _____ MFG. DATE: MM/YY
SECTION D/T/L/Y ----/----/----/----
NCDOT SIG. INV. NO. _ _ _ _ _ _ _ _
NCDOT POLE NO. _ _ _ _ _ _ _ _

ARM I.D. TAG
(PROVIDE ON EACH SECTION OF
A MULTI-SECTION MAST ARM)

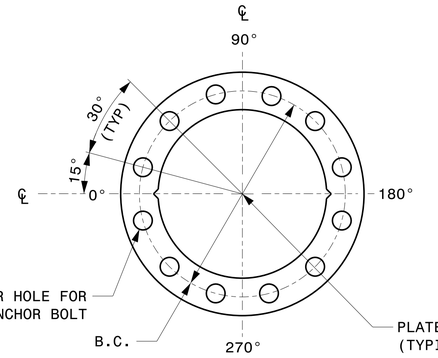
NOTES:

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 STANDARD DESIGN, INCLUDE CASE NUMBER IN ADDITION TO POLE NUMBER ON "NCDOT POLE NO." LINE.
5. SIGNAL INV. NUMBER AND POLE I.D. NUMBER. SEE DRAWING M3 AND M4 FOR MOUNTING POSITIONS OF I.D. TAGS.

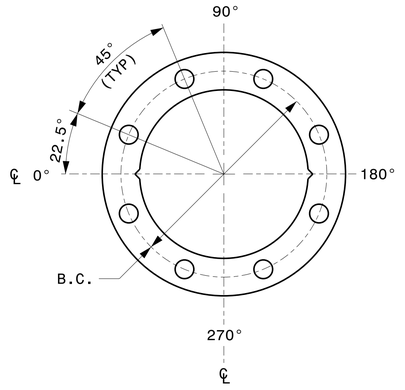
IDENTIFICATION TAG DETAILS



4 BOLT PATTERN



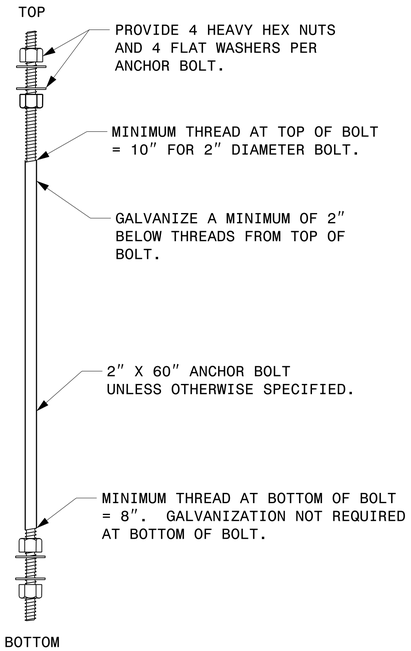
12 BOLT PATTERN



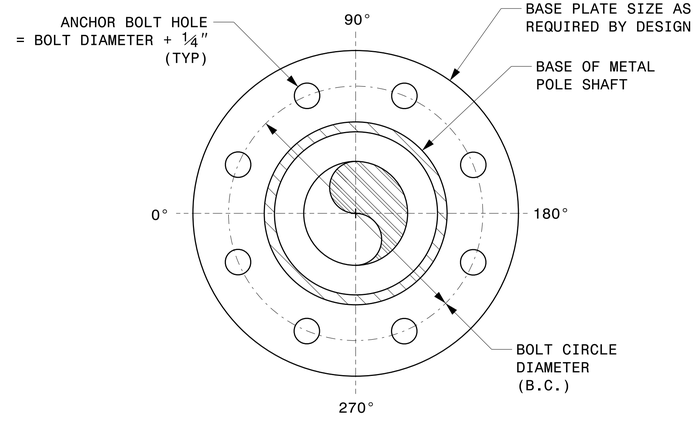
8 BOLT PATTERN

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

PROJECT I.D. NO.	SHEET NO.
U-4714AC	Sig.M2

Fabrication Details – All Metal Poles

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 All Metal Poles

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: C.F.ANDREWS
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
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09/21/2023
DATE

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kcdurigon

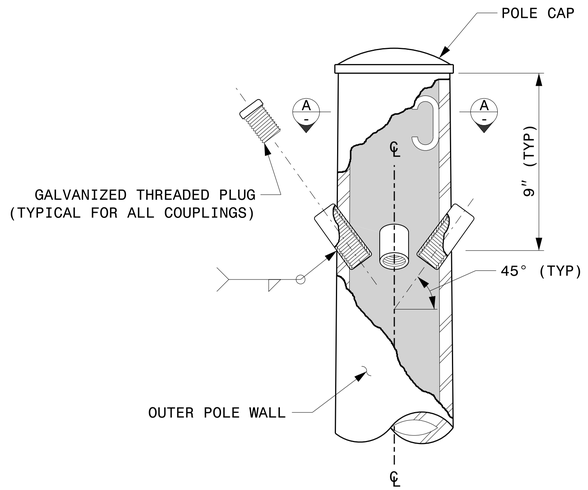
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PROJECT I.D. NO.	SHEET NO.
U-4714AC	Sig.M3

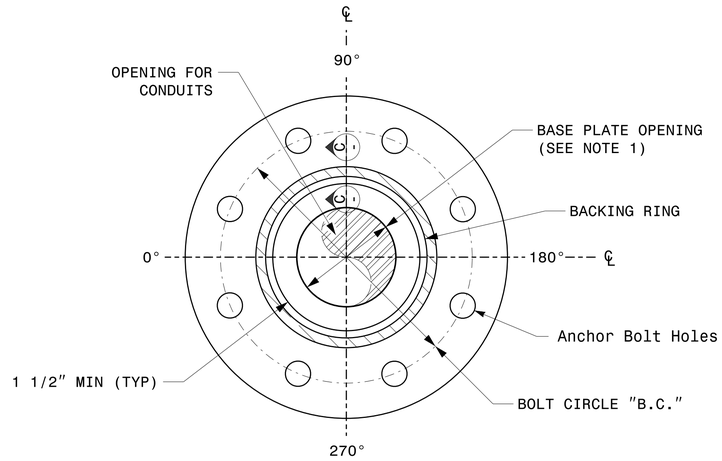
Fabrication Details – Strain Poles

NOTE:

1. OPENING IN POLE BASE PLATE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3½" BUT SHALL NOT BE LESS THAN 8½".

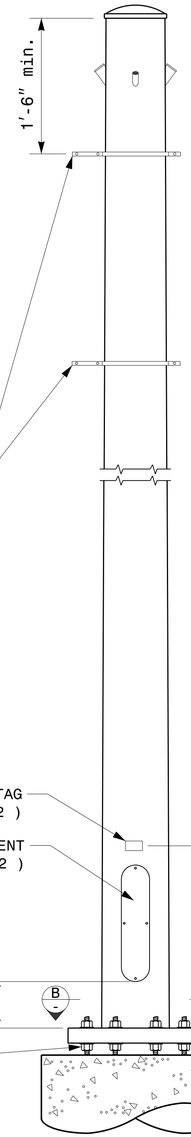


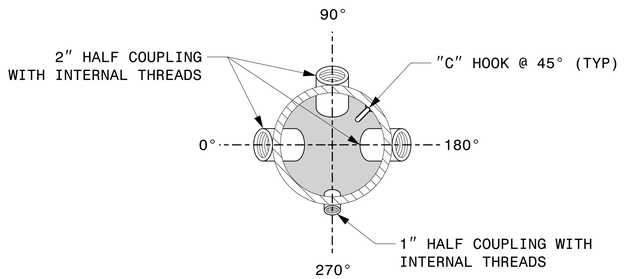
CABLE ENTRANCES AT TOP OF POLE



SECTION B-B

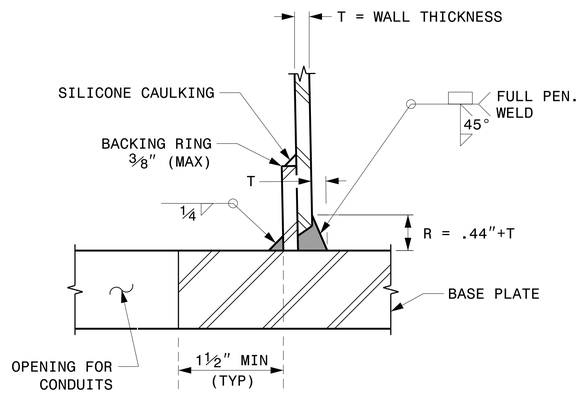
POLE BASE PLATE DETAILS
(8 AND 12 BOLT PATTERN)





SECTION A-A

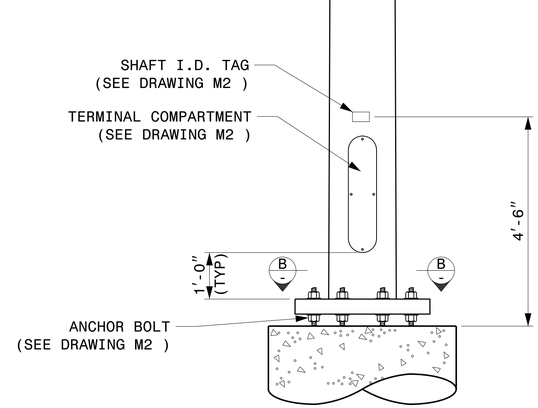
RADIAL ORIENTATION OF FACTORY INSTALLED ACCESSORIES AT TOP OF POLE



SECTION C-C

(POLE ATTACHMENT TO BASE PLATE)

FULL-PENETRATION GROOVE WELD DETAIL



MONOTUBE STRAIN POLE

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 Poles

PLAN DATE:	SEPTEMBER 2023	DESIGNED BY:	K.C. DURIGON
PREPARED BY:	K.C. DURIGON	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
036626
ENGINEER
KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
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09/21/2023
DATE

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kcdurigon

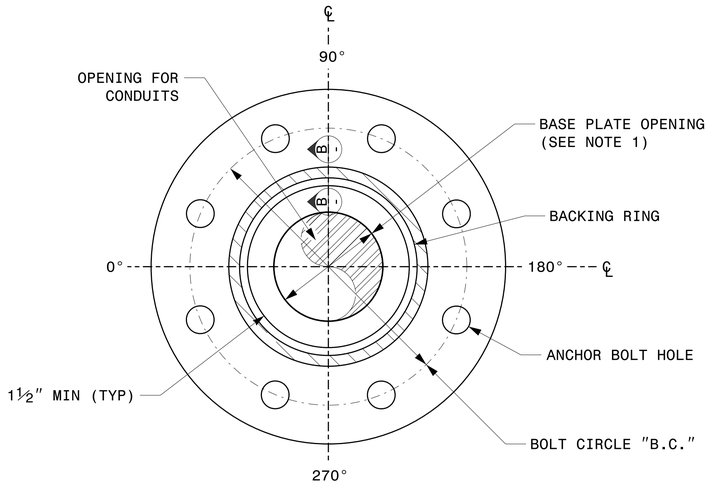
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PROJECT I.D. NO.	SHEET NO.
U-4714AC	Sig.M4

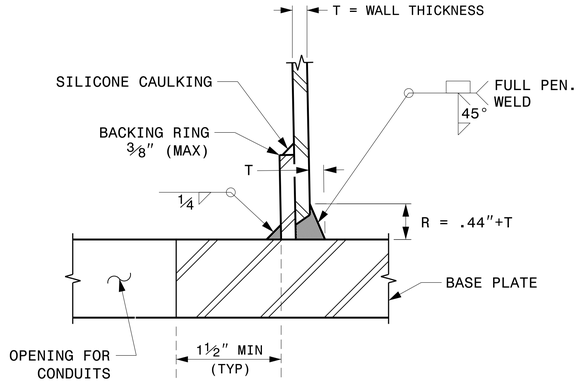
Fabrication Details – Mast Arm Poles

NOTE:

1. OPENING IN POLE BASE PLATE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3½" BUT SHALL NOT BE LESS THAN 8½".

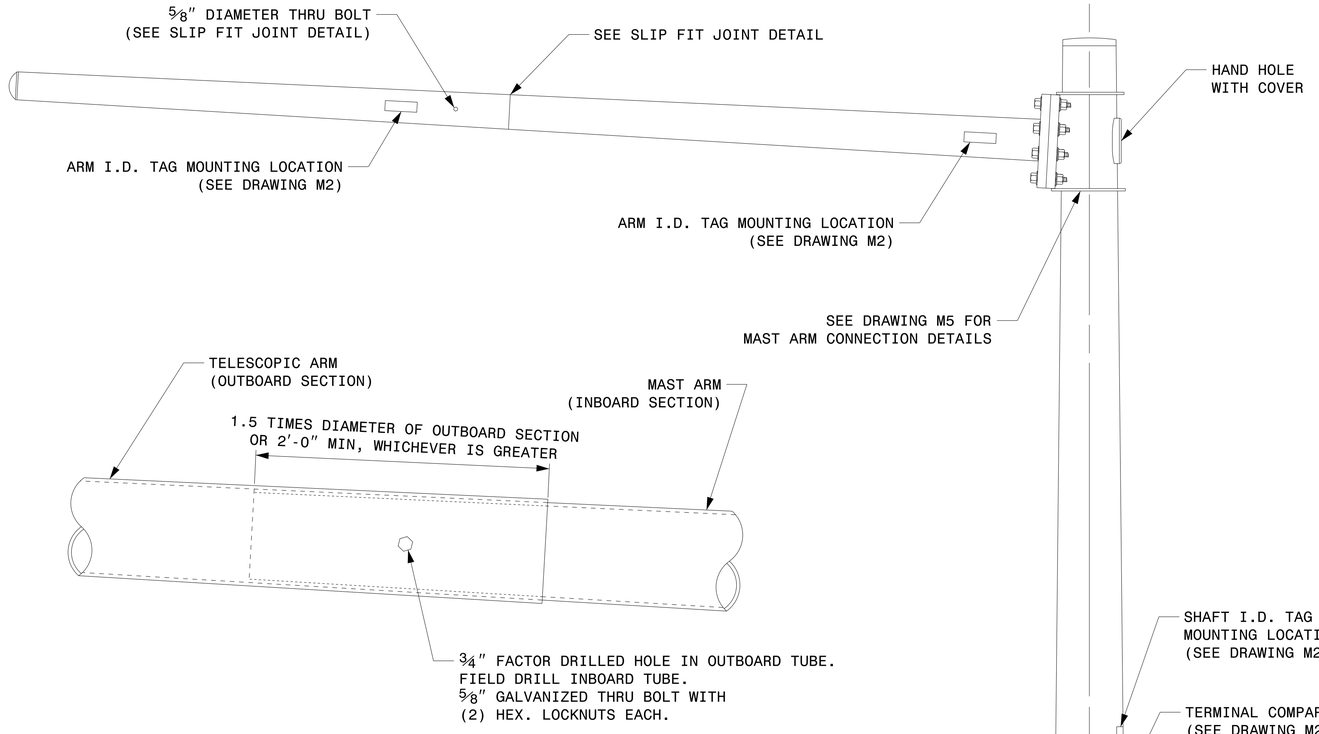


SECTION A-A
POLE BASE PLATE DETAILS

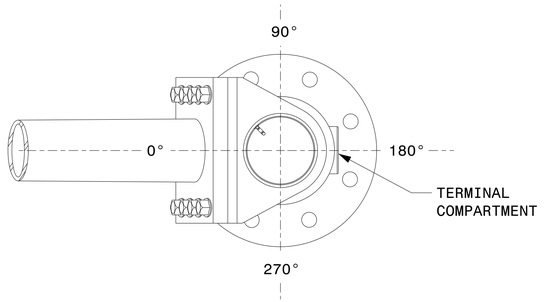


SECTION B-B
(POLE ATTACHMENT TO BASE PLATE)

FULL-PENETRATION GROOVE WELD DETAIL



SLIP FIT JOINT DETAIL FOR MAST ARM



MAST ARM RADIAL ORIENTATION

MAST ARM POLE

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 Mast Arm Poles

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

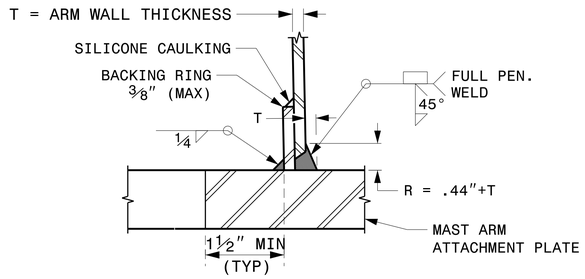
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Kevin Durigon
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09/21/2023
DATE

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kcdurigon

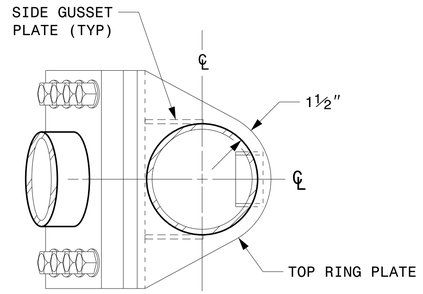
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WELDED RING STIFFENED MAST ARM CONNECTION

PROJECT I.D. NO.	SHEET NO.
U-4714AC	Sig.M5



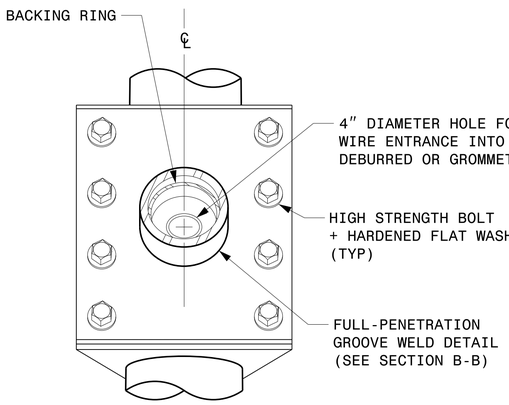
SECTION B-B
FULL-PENETRATION GROOVE WELD DETAIL



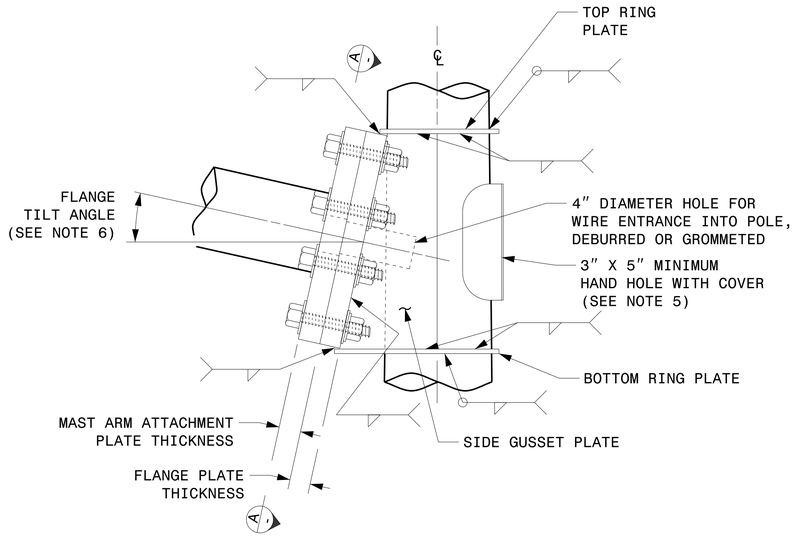
PLAN VIEW

NOTES:

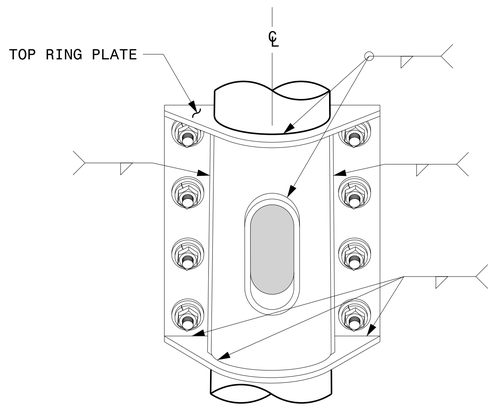
1. PROVIDE A PERMANENT MEANS OF IDENTIFICATION ABOVE THE MAST ARM TO INDICATE PROPER ATTACHMENT ORIENTATION OF THE MAST ARM.
2. DESIGNER WILL DETERMINE THE SIZE OF ALL STRUCTURAL COMPONENTS, PLATES, FASTENERS, AND WELDS SHOWN UNLESS THEY ARE ALREADY SPECIFIED.
3. FABRICATOR IS RESPONSIBLE FOR PROVIDING APPROPRIATE HOLES AT DRAINAGE POINTS TO DRAIN GALVANIZING MATERIALS.
4. FOR MINIMUM EDGE DISTANCE AND NOMINAL BOLT HOLE SIZE, FOLLOW THE LATEST AISC STEEL CONSTRUCTION MANUAL.
5. PROVIDE UPPER HANDHOLE AS NECESSARY WHEN SHAFT EXTENSIONS ARE REQUIRED 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.



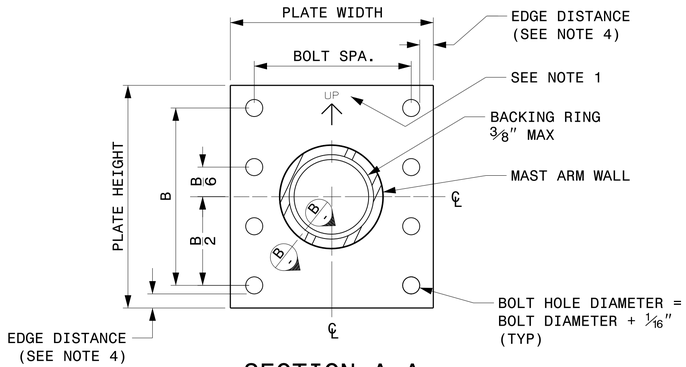
FRONT ELEVATION VIEW



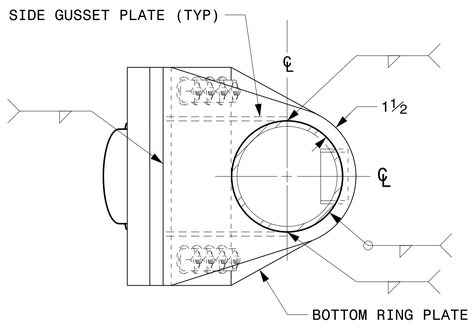
SIDE ELEVATION VIEW



BACK ELEVATION VIEW



SECTION A-A
MAST ARM ATTACHMENT PLATE



BOTTOM VIEW

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
Mast Arm Connection To Pole

PLAN DATE: SEPTEMBER 2023	DESIGNED BY: C.F. ANDREWS
PREPARED BY: K.C. DURIGON	REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
SIGNATURE
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09/21/2023
DATE

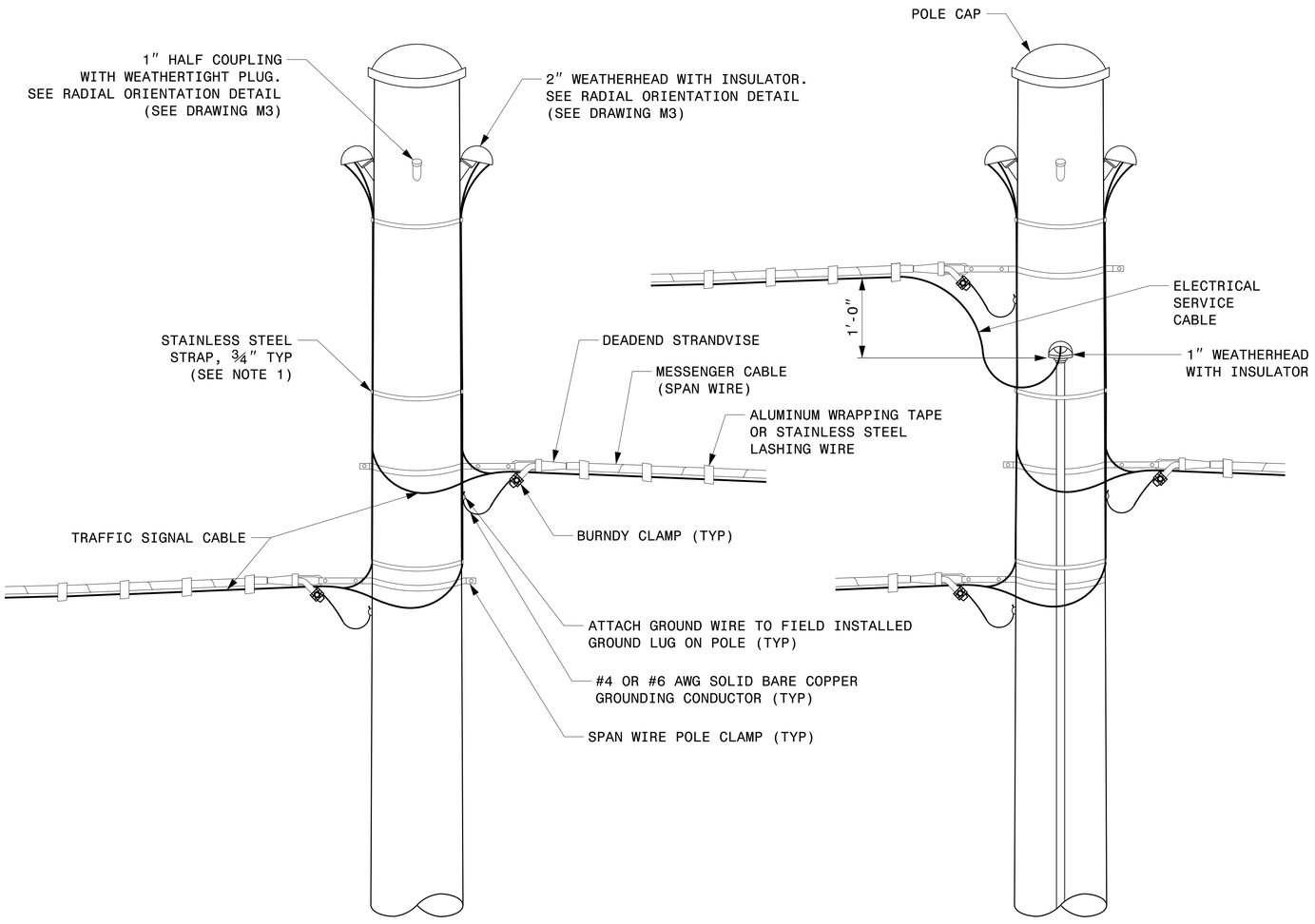
Fabrication Details – Mast Arm Connection

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kcdurigon

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PROJECT I.D. NO.	SHEET NO.
U-4714AC	Sig.M6

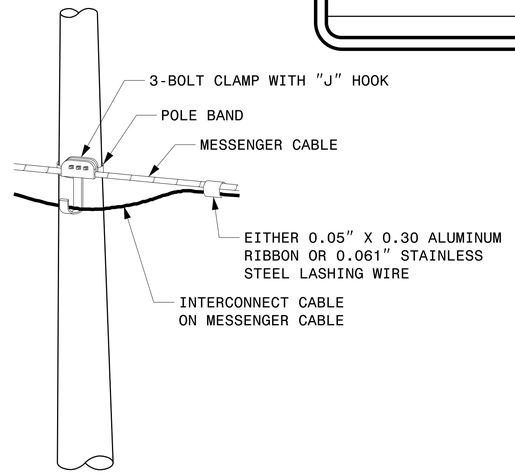
Fabrication Details – Strain Pole Attachments



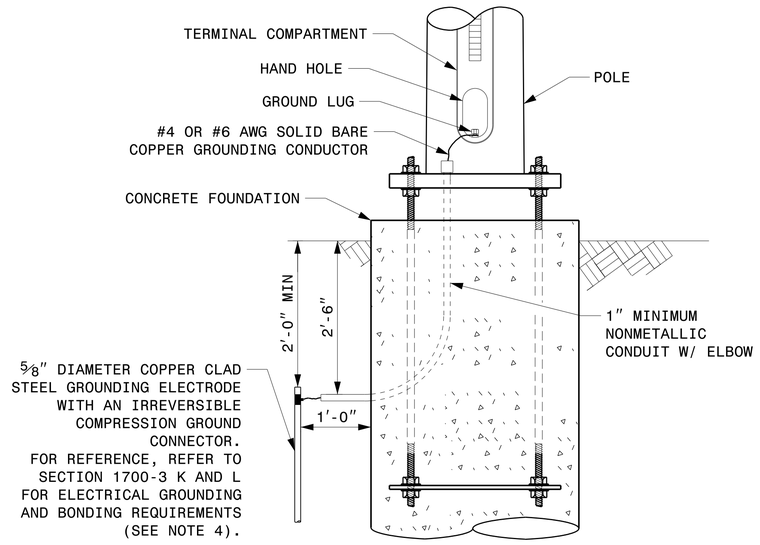
STRAIN POLE ATTACHMENTS

NOTES:

1. STRAP ALL SIGNAL CABLES TO THE SIDE OF THE POLE WITH ¾″ STAINLESS STEEL STRAPS WHEN THE DISTANCE BETWEEN SPAN WIRE ATTACHMENT CLAMP AND WEATHERHEADS EXCEEDS 3′-0″.
2. PROVIDE MINIMUM TWO SPAN WIRE 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 2024.



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:	SEPTEMBER 2023	DESIGNED BY:	C.F. ANDREWS
PREPARED BY:	K.C. DURIGON	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

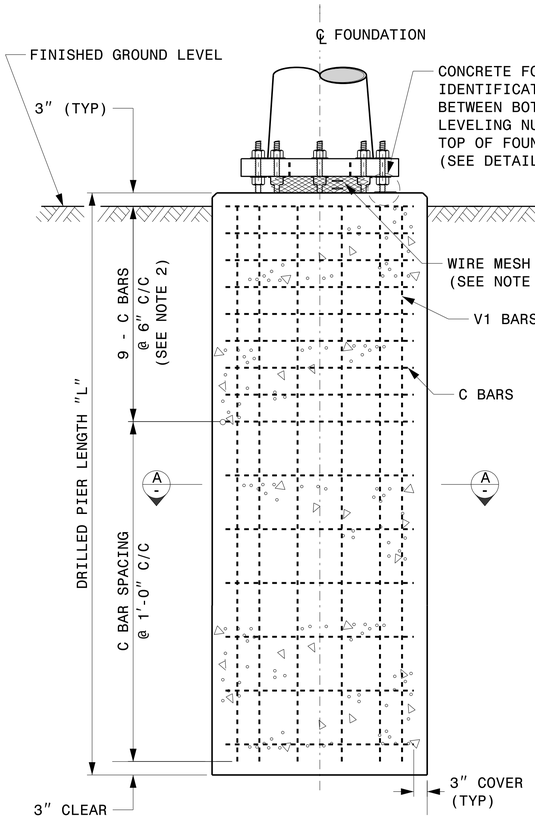
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kcdurigon

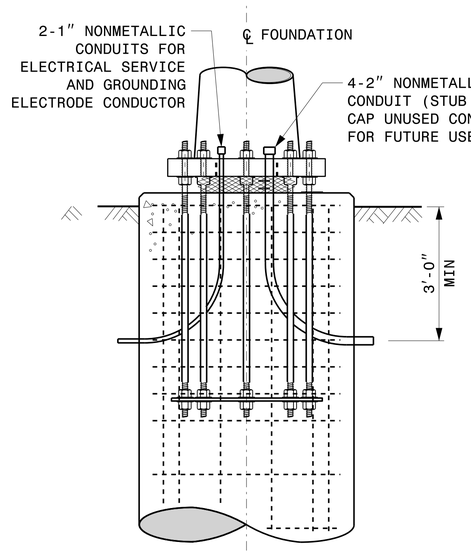
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PROJECT I.D. NO.	SHEET NO.
U-4714AC	Sig.M7

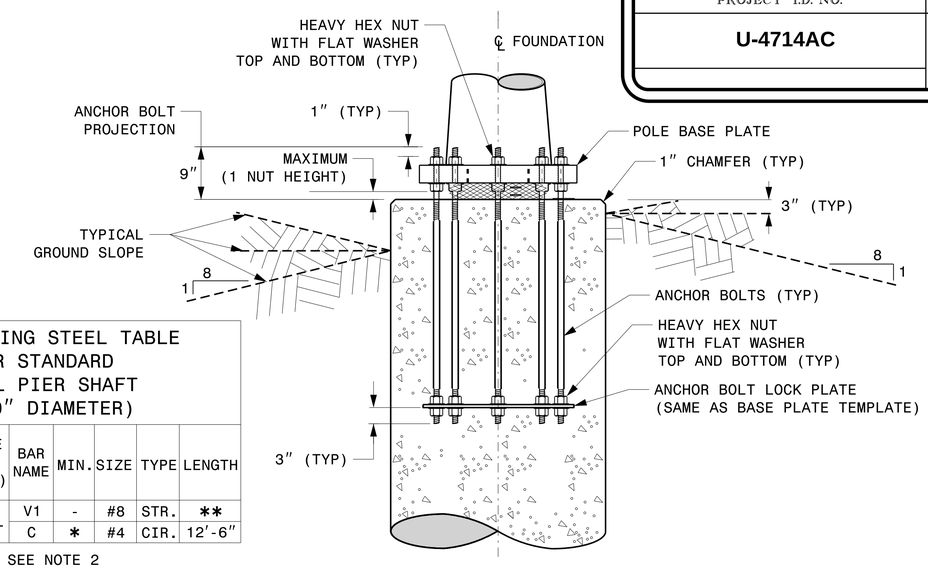
Construction Details – Foundations



CONCRETE SHAFT ELEVATION



TYPICAL FOUNDATION CONDUIT DETAILS



TYPICAL FOUNDATION ANCHOR BOLT DETAILS

(REINFORCING CAGE NOT SHOWN FOR CLARITY)

REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (4′-0″ DIAMETER)

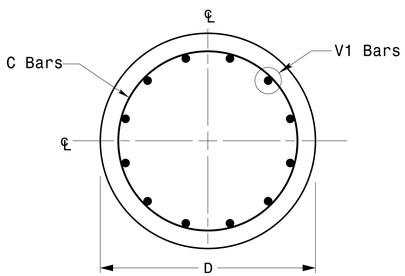
"D" SHAFT DIAMETER	CONCRETE VOLUME (CU. YDS)	BAR NAME	MIN.	SIZE	TYPE	LENGTH
4′-0″	.465 X L	V1	-	#8	STR.	**
		C	*	#4	CIR.	12′-6″

* SEE NOTE 2
** SEE NOTE 3

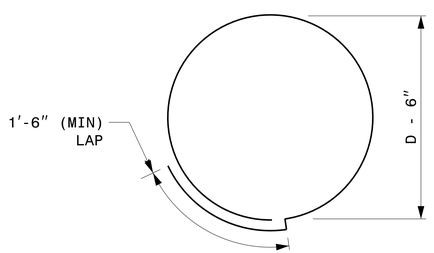
GENERAL NOTES:

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 2024 NCDOT STANDARD SPECIFICATIONS ARE REFERENCED IN THIS PROVISION. REFER TO THE NCDOT RESOURCES/SPECIFICATIONS PAGE LOCATED ON THE CONNECT NCDOT WEBSITE.

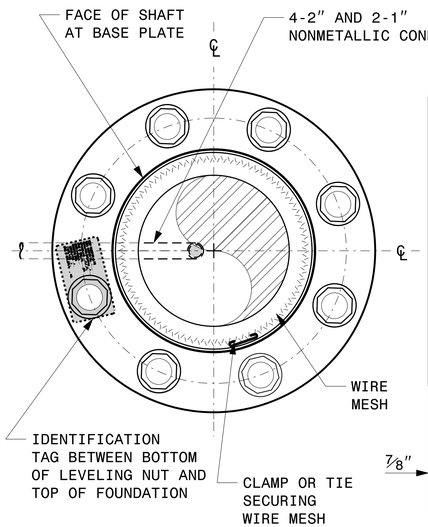
   https://connect.ncdot.gov/resources/Specifications and Special Provisions.aspx
7. USE AIR ENTRAINED AA CONCRETE MIX WITH A COMPRESSION STRENGTH OF f′c=4500 psi (MIN) AFTER 28 DAYS.
8. USE ASTM A615 GRADE 60 DEFORMED BARS FOR ALL REINFORCING STEEL. MAINTAIN AT LEAST 3″ COVER ON ALL REINFORCEMENT.
9. LOCATE IDENTIFICATION TAG ON TOP OF THE FOUNDATION, DIRECTLY ABOVE THE CONDUIT'S ENTRY POINT.
10. PROVIDE TWO LAYERS OF 4 MESH GALVANIZED WELDED 23 GAUGE (0.025) 6″ WIDE 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

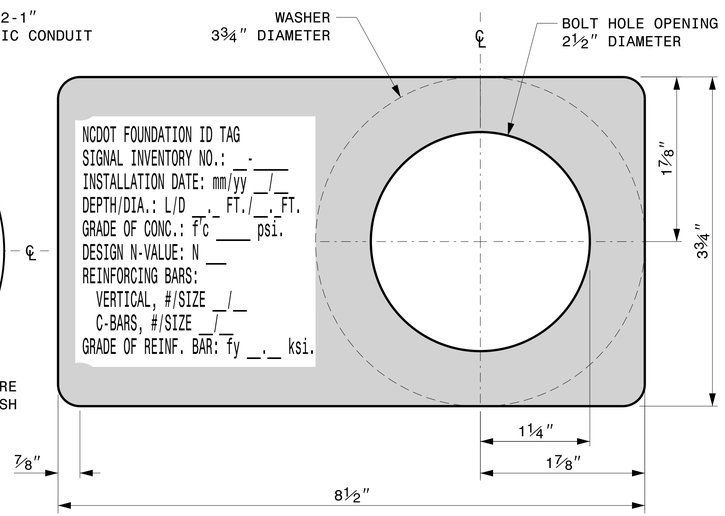


TYPICAL "C" BAR DETAIL



D = DIAMETER
L = LENGTH / DEPTH
mm = MONTH
yy = YEAR

DETAIL-A



CONCRETE FOUNDATION IDENTIFICATION TAG DETAILS

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

Construction Details For Foundations

PLAN DATE:	SEPTEMBER 2023	DESIGNED BY:	K.C. DURIGON
PREPARED BY:	K.C. DURIGON	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

DocuSigned by:
Kevin Durigon
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09/21/2023
DATE

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kcdurigon

Docusign Envelope ID: 0B1E5471-BEC9-84C4-83E1-8BEB3EAA2A31

SOIL CONDITION

Case No.	Pole Height (Ft.)	Base Plate BC (In.)	Reactions at the Pole Base: Axial (kip)	Shear (kip)	Moment (ft–kip)	Clay: Medium N–Value 4–8	Clay: Stiff N–Value 9–15	Clay: Very Stiff N–Value 16–30	Clay: Hard N–Value >30	Sand: Loose N–Value 4–10	Sand: Medium N–Value 11–30	Sand: Dense N–Value >30	Reinforcement: Longitudinal Bar Size (#)	Longitudinal Quantity (ea.)	Stirrups Bar Size (#)	Stirrups Spacing (in.)
			STANDARD STRAIN POLES			STANDARD FOUNDATIONS 48″ Diameter Drilled Pier Length (L) – Feet							Reinforcement			
S26L1	26	22	2	9	210	19.5	12.5	9	6.5	15.5	14.5	13	8	12	4	12
S26L2	26	23	2	10	240	19.5	12	9	6.5	15.5	14.5	13	8	12	4	12
S26L3	26	25	2	11	260	20.5	12	10	8	16	15	13	8	12	4	12
S30L1	30	22	2	9	230	19	11	9	7	15.5	14	12.5	8	12	4	12
S30L2	30	23	2	10	270	20	12	10	8	16	14.5	13	8	12	4	12
S30L3	30	25	2	11	290	21	12	10	8	17	15	13.5	8	12	4	12
S30H1	30	25	3	13	355	23	13	11	9	18	16.5	14.5	8	12	4	12
S30H2	30	29	3	15	405	25	14	11	9	19	17.5	15.5	8	14	4	12
S30H3	30	29	3	16	430	26	15	12	9	20	18	16	8	14	4	6
S35L1	35	22	3	8	260	19.5	12	10	8	15.5	14.5	13	8	12	4	12
S35L2	35	23	3	10	300	21	12	10	8	16.5	15	13.5	8	12	4	12
S35L3	35	25	3	10	320	21.5	13	10	8	17	15.5	14	8	12	4	12
S35H1	35	25	3	12	390	23.5	14	11	9	18	17	15	8	14	4	12
S35H2	35	29	4	14	460	26	15	12	9	20	18	16	8	14	4	6
S35H3	35	29	4	16	495	28.5	15	13.5	10	21.5	19	17	8	14	4	6

48″ DIAMETER FOUNDATION 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 COMBINED FORCE RATIO (CFR) OF 1.00.
2. USE CHAIRS AND SPACERS TO MAINTAIN PROPER CLEARANCE.
3. FOR FOUNDATION, ALWAYS USE AIR-ENTRAINED 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 M1 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 MANUAL FOR DRILLED SHAFTS.

PROJECT I.D. NO.	SHEET NO.
U-4714AC	Sig.M8

Standard Strain Pole Foundation – All Soil Conditions

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

Standard Strain Pole Foundation for All Soil Conditions

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036626 ENGINEER KEVIN C. DURIGON

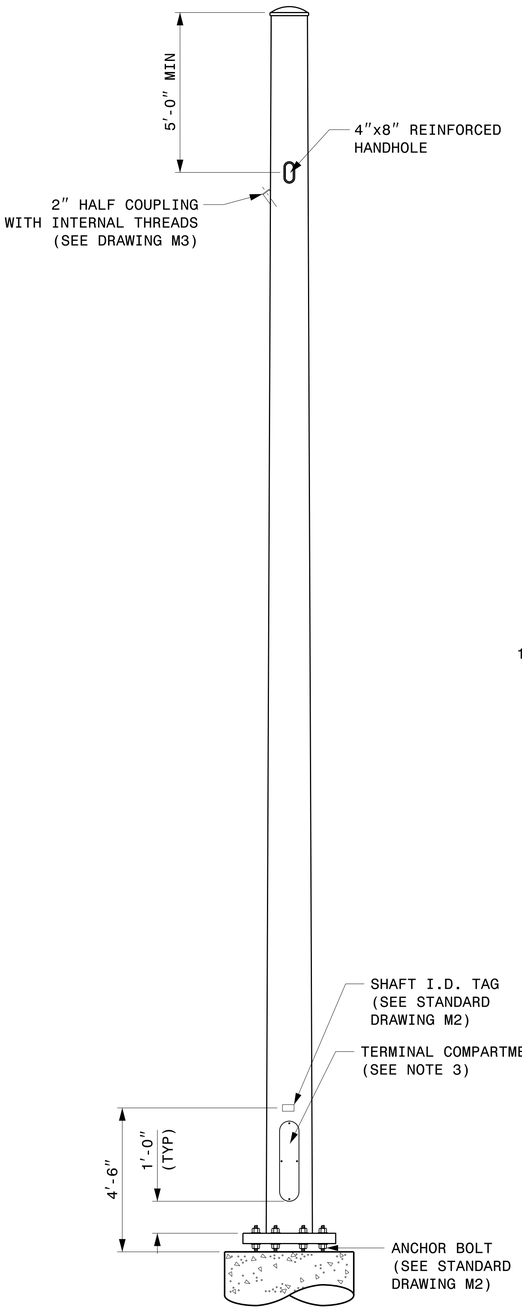
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kcdurigon

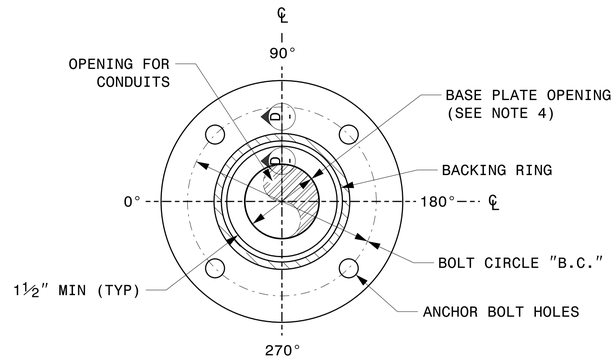
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PROJECT I.D. NO.	SHEET NO.
U-4714AC	Sig.M9

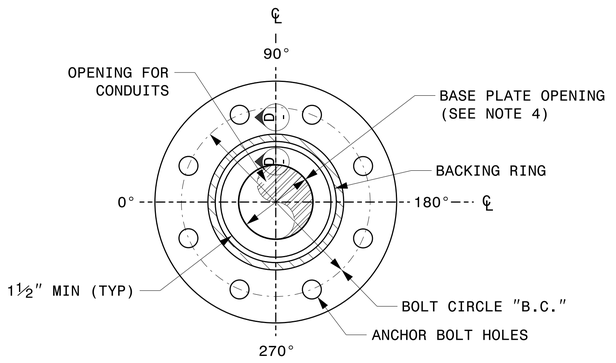
Fabrication Details – CCTV Camera Poles



CCTV CAMERA POLE
(NOT TO SCALE)

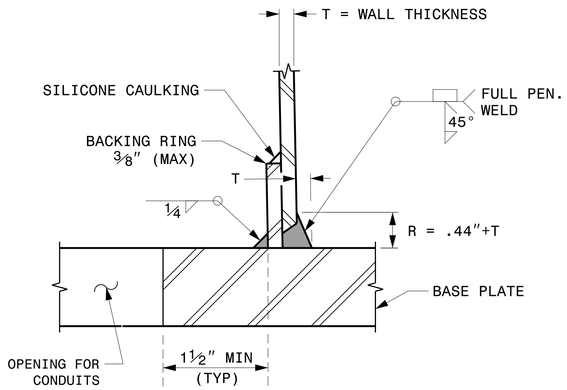


4 BOLT PATTERN
FOR POLES UP TO 40'



8 BOLT PATTERN
FOR POLES TALLER THAN 40'

BASE PLATE DETAILS



SECTION D-D
(POLE ATTACHMENT TO BASE PLATE)

FULL-PENETRATION
GROOVE WELD DETAIL

NOTES:

1. THIS DRAWING PROVIDES BASIC DETAILS FOR CCTV POLES. PROJECT REQUIREMENTS MAY REQUIRE SPECIAL FACTORY PREPS THAT ARE NOT SHOWN ON THESE DETAILS.
2. DETAILS FOR INTERNAL CAMERA LOWERING SYSTEMS ARE NOT SHOWN.
3. POLE MOUNTED CABINETS MAY REQUIRE MODIFICATIONS TO THE LOWER HANDHOLE OPENING TO MOUNT CABINETS. 4" X 8" REINFORCED HANDHOLES ARE ACCEPTABLE OPTIONS, AND MAY BE PREFERRED.
4. OPENING IN POLE BASE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3½" BUT SHALL NOT BE LESS THAN 8½".
5. USE COMPACT SECTION CRITERIA D/T RATIO PER AASHTO LTS-LRFD 1ST EDITION SECTION 5.7.2.

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
CCTV Poles

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON REVIEWED BY: C.F. ANDREWS

REVISIONS	INIT.	DATE

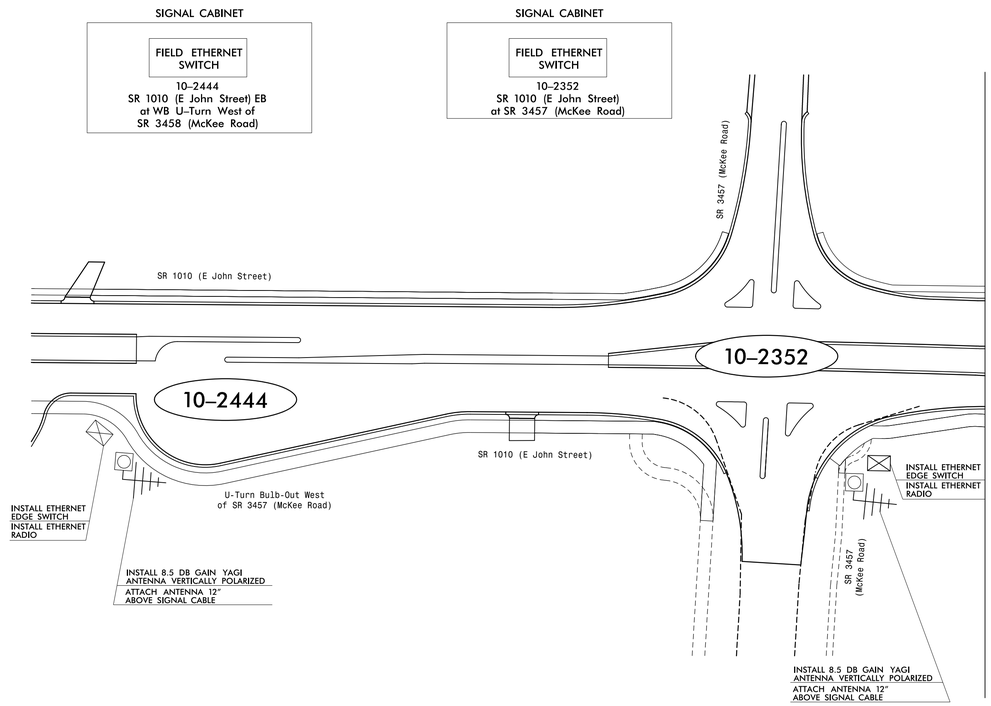
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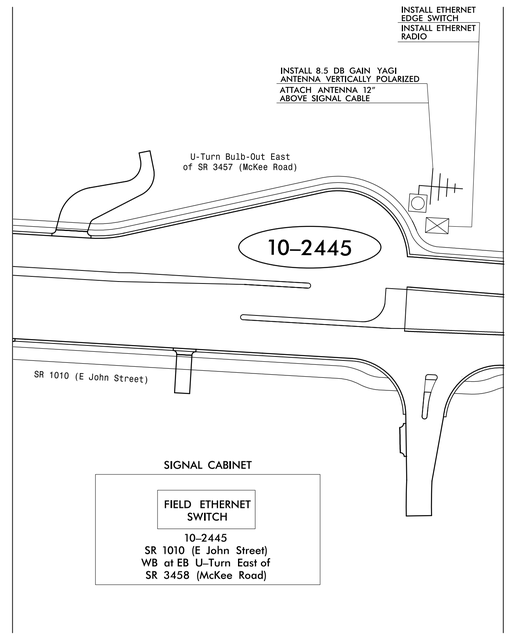
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09/21/2023
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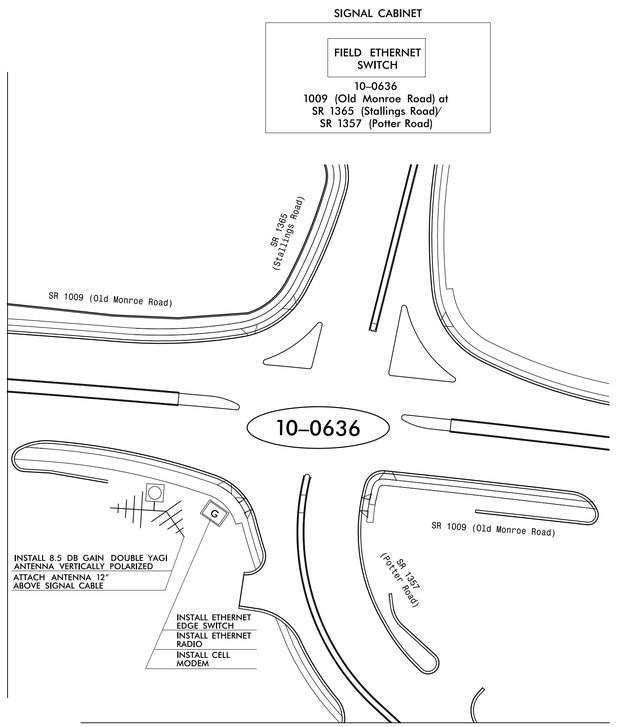
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kcdurigon

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U-4714AC	SCP 1

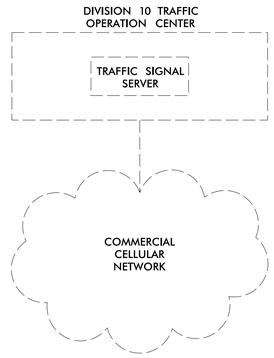


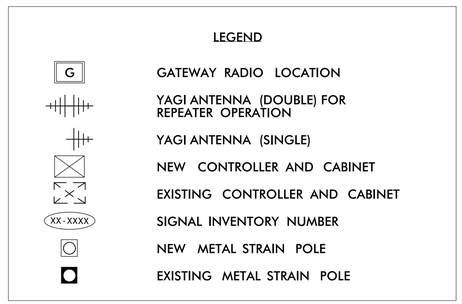




NOTES FOR WIRELESS COMMUNICATIONS:

1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 10 TRAFFIC ENGINEER AT (704) 983–4400. NOTIFY THE DIVISION TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL WIRELESS CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL ALL SIGNALS ARE COMMUNICATING WITH THE CENTRAL SYSTEM.
2. INSTALL COAXIAL CABLE:
   A. ON WOOD POLES, REQUIRING A NEW RIGID GALVANIZED STEEL RISER, INSTALL A 2" RISER WITH WEATHERHEAD AND ROUTE THE COAXIAL CABLE TO THE ANTENNA.
   B. ON METAL POLES WITH MAST ARMS, RUN COAXIAL CABLE UP THROUGH THE POLE AND OUT THE MAST ARM; FIELD DRILL A 1⁄2" HOLE UP THROUGH THE BOTTOM OF THE MAST ARM FOR INSTALLATION OF THE COAXIAL CABLE TO THE ANTENNA.
   C. ON METAL STRAIN POLES, RUN COAXIAL CABLE UP THROUGH THE POLE AND OUT THE WEATHERHEAD AND ROUTE THE COAXIAL CABLE TO THE ANTENNA.
   D. BETWEEN THE POINT OF EXITING THE RISER, METAL POLE, OR MAST ARM AND THE ANTENNA, SECURE THE COAXIAL CABLE TO THE STRUCTURE USING 3⁄4" STAINLESS STEEL STRAPS EVERY 12".
3. IF AN EXISTING 2" SPARE RIGID GALVANIZED STEEL RISER IS AVAILABLE, INSTALL THE COAXIAL CABLE IN THE SPARE RISER.
4. INSTALL WIRELESS ANTENNA ON POLE WITH RF WARNING SIGN. (NOTE: RF WARNING SIGN NOT REQUIRED WHEN ANTENNA IS INSTALLED ON AN NCDOT–OWNED POLE.)
5. MAINTAIN PROPER CLEARANCE FROM ALL UTILITIES PER THE NATIONAL ELECTRIC SAFETY CODE.
6. INSTALL WIRELESS RADIO MODEM WITH EXTERIOR DISCONNECT SWITCH LOCATED ON CABINET. (NOTE: RF ANTENNA DISCONNECT SWITCH AND DECAL ARE NOT REQUIRED WHEN THE ANTENNA IS INSTALLED ON AN NCDOT–OWNED POLE.)
7. REFERENCE SPREAD SPECTRUM RADIO ROADWAY STANDARD DRAWINGS 1736.01.
8. CELL MODEMS TO BE SUPPLIED BY THE DEPARTMENT, CONTACT DIVISION 10 TRAFFIC ENGINEER AT (704) 983–4400 TO REQUEST THE CELL MODEM. ALLOW 8 WEEKS LEAD TIME BEFORE ANTICIPATED DEPLOYMENT.





Final Design - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

Prepared for the Offices of:
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
750 N.Greenfield Pkwy,Garner,NC 27529

Signal System
D10-58_Stallings
Wireless Communication Plans

Division 10	Mecklenburg/ Union County	Matthews/ Stallings
PLAN DATE: March 2026	REVIEWED BY: T.M. Moody	
PREPARED BY: G. Whitehouse	REVIEWED BY: A.M. Wiseman	

SCALE: 0 N/A

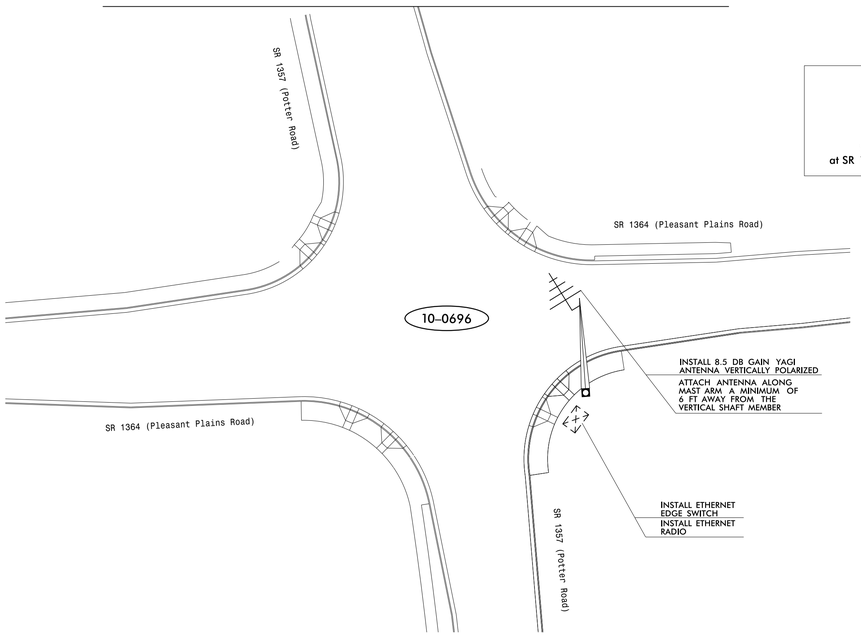
REVISIONS	INIT.	DATE

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NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY
DocuSigned by: Trent Moody SIGNATURE 8/11/2026 DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-4714AC	SCP 2



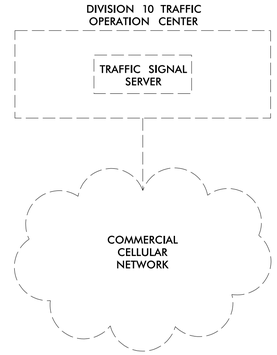
SIGNAL CABINET

FIELD ETHERNET SWITCH

10-0696
Sr 1357 (Potter Road)
at SR 1364 (Pleasant Plains Road)

NOTES FOR WIRELESS COMMUNICATIONS:

1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION 10 TRAFFIC ENGINEER AT (704) 983-4400. NOTIFY THE DIVISION TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL WIRELESS CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL ALL SIGNALS ARE COMMUNICATING WITH THE CENTRAL SYSTEM.
2. INSTALL COAXIAL CABLE:
   A. ON WOOD POLES, REQUIRING A NEW RIGID GALVANIZED STEEL RISER, INSTALL A 2" RISER WITH WEATHERHEAD AND ROUTE THE COAXIAL CABLE TO THE ANTENNA.
   B. ON METAL POLES WITH MAST ARMS, RUN COAXIAL CABLE UP THROUGH THE POLE AND OUT THE MAST ARM; FIELD DRILL A 1/2" HOLE UP THROUGH THE BOTTOM OF THE MAST ARM FOR INSTALLATION OF THE COAXIAL CABLE TO THE ANTENNA.
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   (NOTE: RF ANTENNA DISCONNECT SWITCH AND DECAL ARE NOT REQUIRED WHEN THE ANTENNA IS INSTALLED ON AN NCDOT-OWNED POLE.)
7. REFERENCE SPREAD SPECTRUM RADIO ROADWAY STANDARD DRAWINGS 1736.01.
8. CELL MODEMS TO BE SUPPLIED BY THE DEPARTMENT, CONTACT DIVISION 10 TRAFFIC ENGINEER AT (704) 983-4400 TO REQUEST THE CELL MODEM. ALLOW 8 WEEKS LEAD TIME BEFORE ANTICIPATED DEPLOYMENT.



LEGEND

- G — GATEWAY RADIO LOCATION
- YAGI ANTENNA (DOUBLE) FOR REPEATER OPERATION
- YAGI ANTENNA (SINGLE)
- NEW CONTROLLER AND CABINET
- EXISTING CONTROLLER AND CABINET
- XX-XXXX — SIGNAL INVENTORY NUMBER
- EXISTING MAST ARM

Final Design - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STV Engineers, Inc.
2151 Hawkins St., Suite 1400
Charlotte, NC 28203
(704) 372-1885
NC License Number F-0991

Prepared for the Offices of:
750 N.Greenfield Pkwy.Garner,NC 27529

Signal System
D10-58_Stallings
Wireless Communication Plans

Division 10	Mecklenburg/ Union County	Matthews/ Stallings
PLAN DATE: March 2026	REVIEWED BY: T.M. Moody	
PREPARED BY: G. Whitehouse	REVIEWED BY: A.M. Wiseman	

SCALE: 0 — N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 040329 ENGINEER TRENT M. MOODY

DocuSigned by: Trent Moody SIGNATURE 8/11/2026 DATE

CADD FILE NAME: U-4714AC_SCP_02