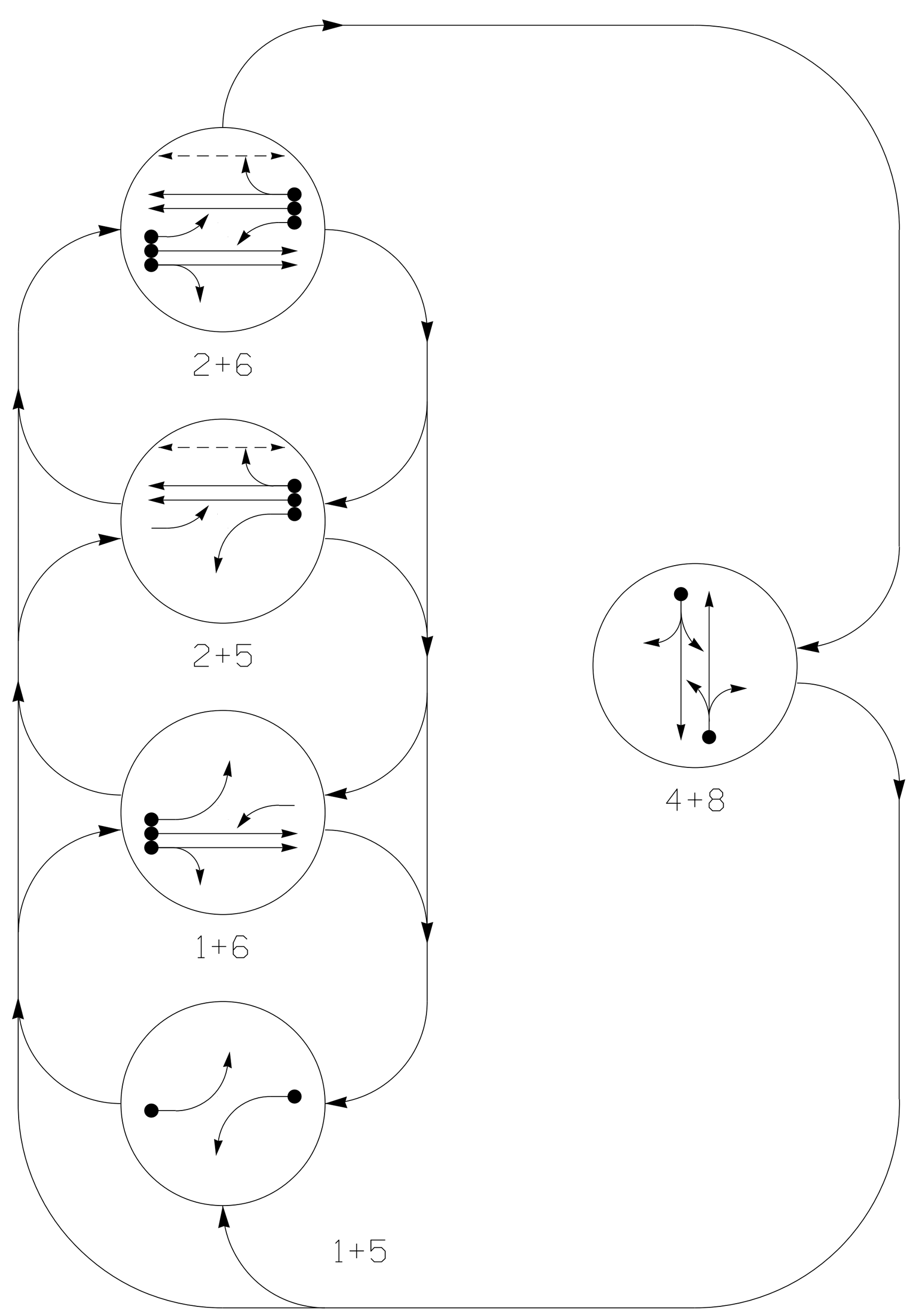
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-15.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

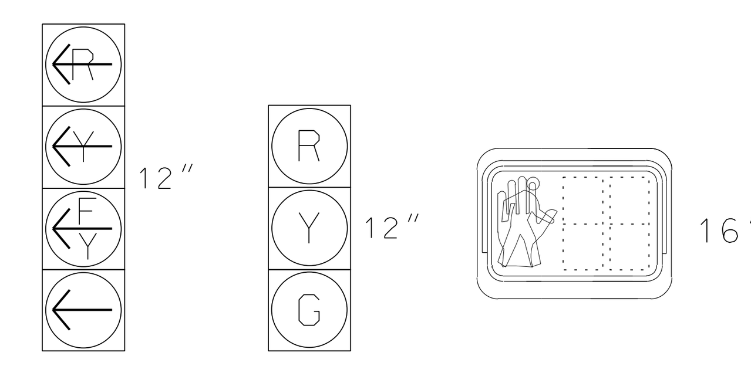
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 4+8	FLASH
11	←	←	←F/Y	←F/Y	←R	←R
21,22	R	R	G	G	R	R
41,42,43	R	R	R	R	G	R
51	←	←F/Y	←	←F/Y	←R	←R
61,62	R	G	R	G	R	R
81,82	R	R	R	R	G	R
P21, P22	DW	DW	W	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

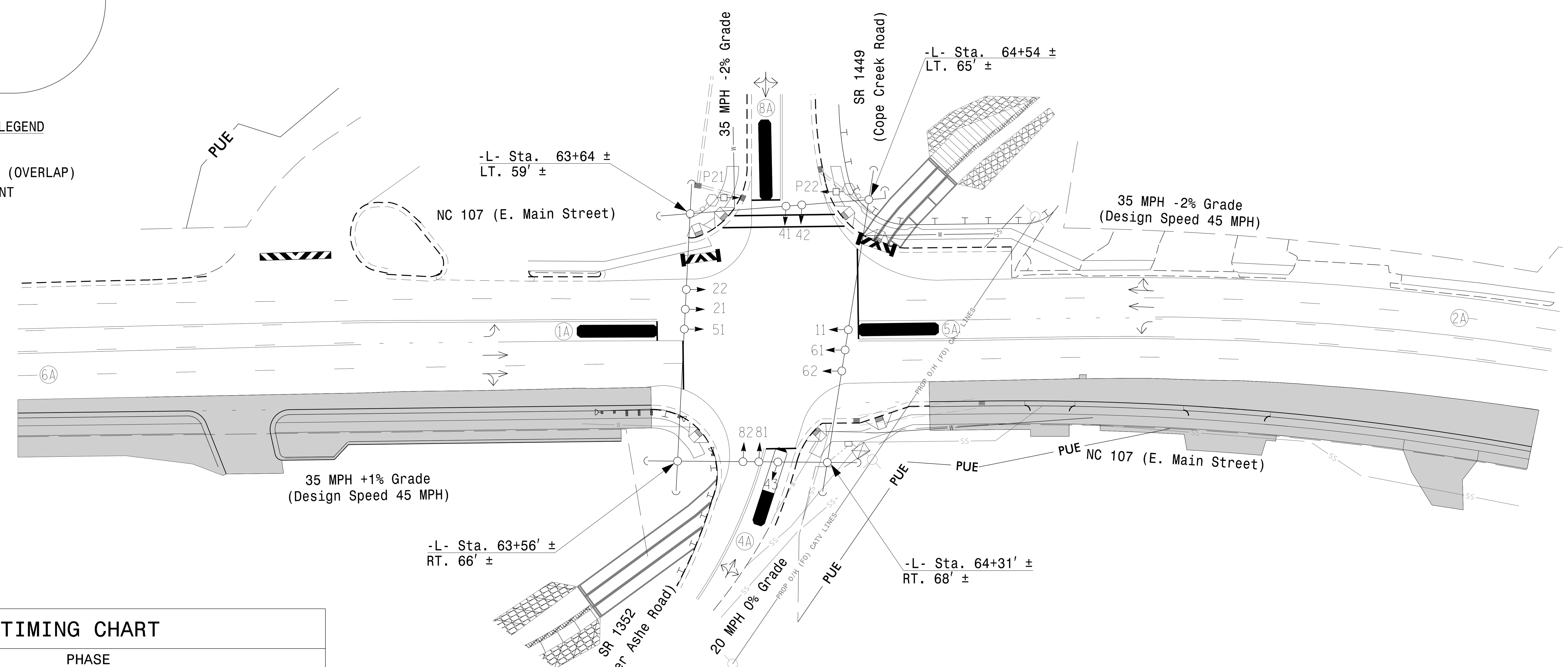
DETECTOR					PROGRAMMING								
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	15.0	-	X	-	X	-	*
					6	-	-	X	-	X	-	*
4A	*	0	*	X	4	5.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-	X	-	*
					2	-	-	X	-	X	-	*
8A	*	0	*	X	8	5.0	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

5 Phase
Fully Actuated
(Time Based Coordination)

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. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only
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.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
	Directional Drill	N/A
	Type II Signal Pedestal	
PUE	Permanent Utility Easement	N/A
N/A	Guardrail	
N/A	U/G Sanitary Sewer	
N/A	U/G Water Line	
N/A	O/H Pwr. & Utl. Lines	PROP O/H TEL CATV & FO LINES
N/A	Utility Pole	
	Construction Zone	N/A
N/A	Barricade	

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Walk *	–	14	–	–	–	–
Ped Clear	–	14	–	–	–	–
Min Green *	7	12	7	7	12	7
Passage *	3.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	15	70	20	15	70	20
Yellow Change	3.0	4.7	4.0	3.0	4.7	4.0
Red Clear	3.2	2.4	3.5	2.6	2.4	3.5
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	–	–	–	–
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.

Microwave Detection

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

Signal Upgrade
Temporary Design 2 - TMP Ph1, S2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

NC 107 (E. Main Street) at SR 1352 (Walter Ashe Road) / SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 1E09340E1094484... 8/26/2025 DATE

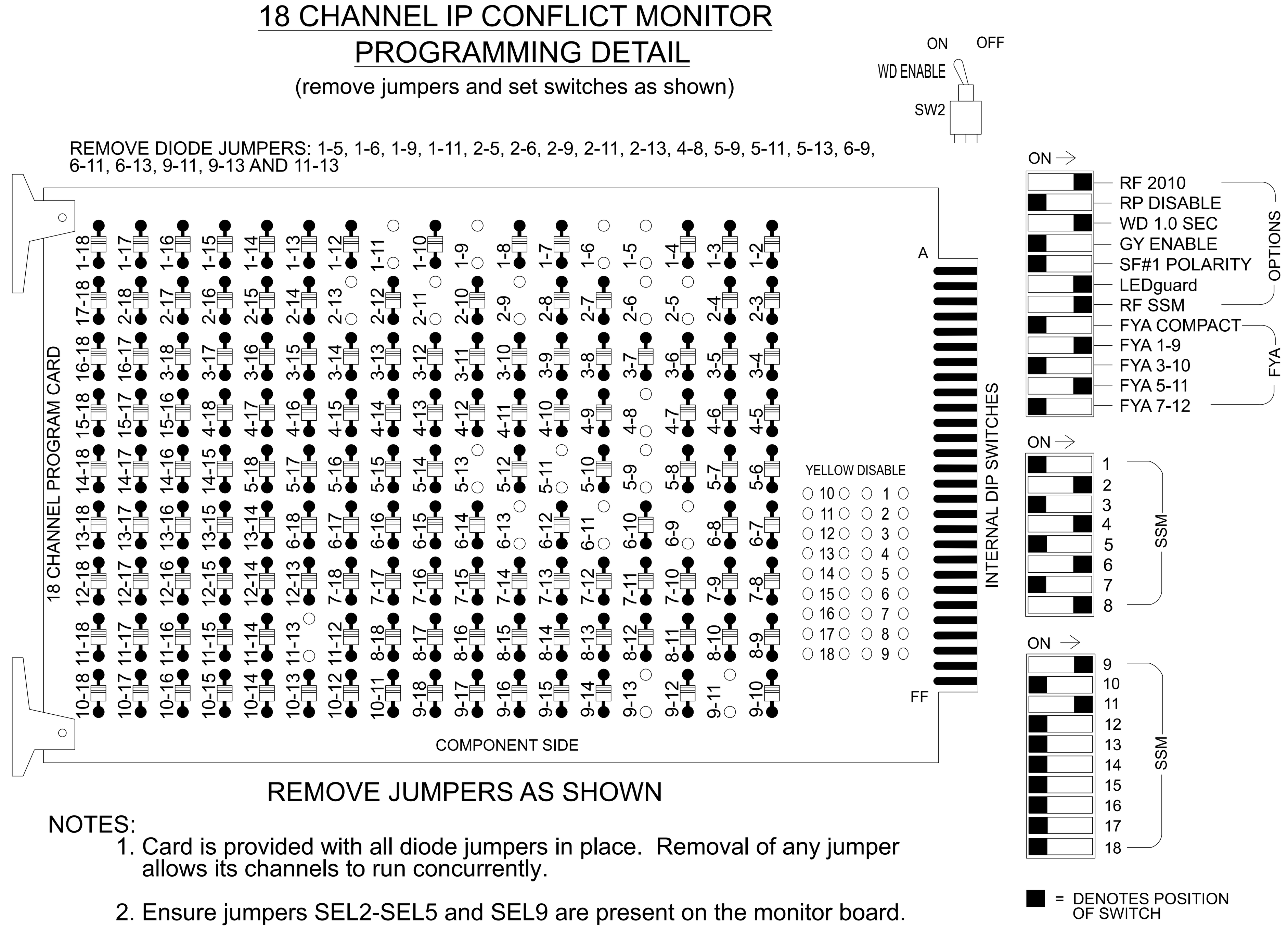
SIG. INVENTORY NO. 14-0694T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-15.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS: 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 2-13, 4-8, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 9-11, 9-13 AND 11-13



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 the 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.
5. The cabinet and controller are part of the NC 107 Time Based 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, S2, S3, S5, S7, S8, S11, AUX S1, AUX S4
Phases Used..1, 2, 2PED, 4, 5, 6, 8
Overlap "1"...*
Overlap "2"...NOT USED
Overlap "3"...*
Overlap "4"...NOT USED

*See overlap programming detail on sheet 2.

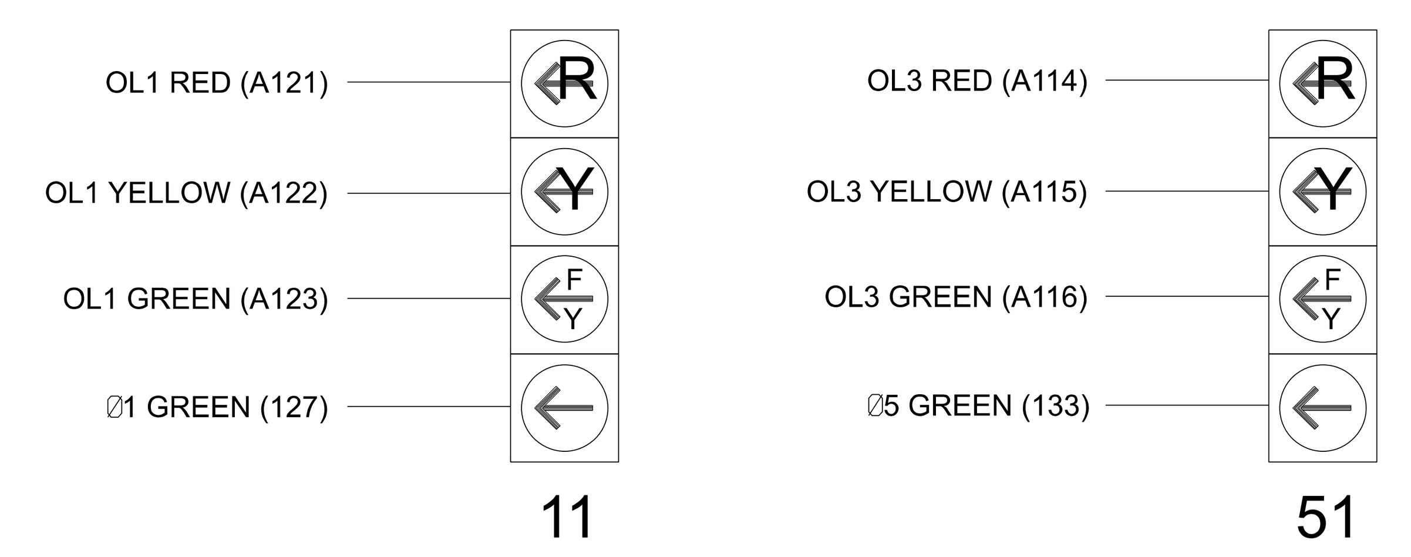
SIGNAL HEAD HOOK-UP CHART

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.	11★	21,22	P21, P22	NU	41,42 43	NU	51★	61,62	NU	NU	81,82	NU	11★	NU	NU	51★	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127						133											
(Don't Walk)			113															
(Walk)			115															

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)

FILE		1	2	3	4	5	6	7	8	9	1O	11	12	13	14
FILE "I"	U	Ø 1 1A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 2 PED DC ISOLATOR	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED											NOT USED		ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	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	NOT USED													

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
1A	TB2-1,2	I1U	56	18	1	1	15.0		X		X	
				-	29	6			X		X	
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2			X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOT I12.

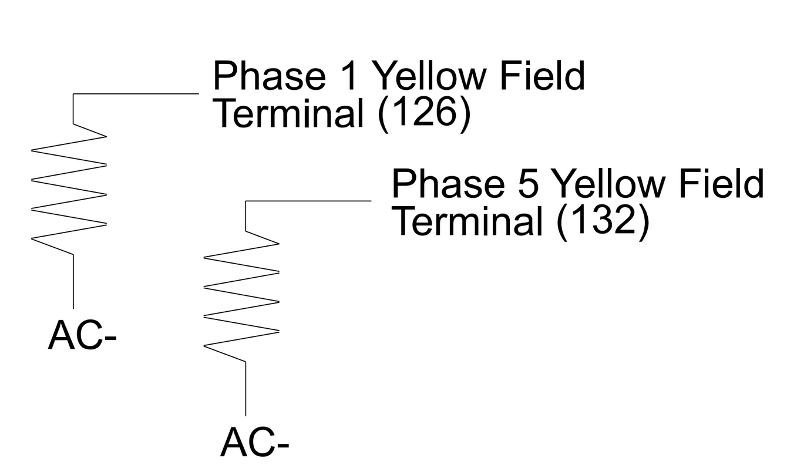
INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0694T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For Detection Zones 1A and 5A, the equipment placement is typical for a NCDOT installation.

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 2 - TMP Ph1, S2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) / SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 8/26/2025
1E09340E1094484...
DATE

SIG. INVENTORY NO. 14-0694T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-15.2

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	2	6
Modifier Phases	1	5
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0
FYA Ped Delay	0.0	0.0

OUTPUT CHANNEL CONFIGURATION

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

Web Interface
Home >Controller >Advanced IO>Channels>Channels 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		17
18	Overlap	6		X	X	18

NOTICE FLASHING RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 2 - TMP Ph1, S2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

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

Plans Prepared By:
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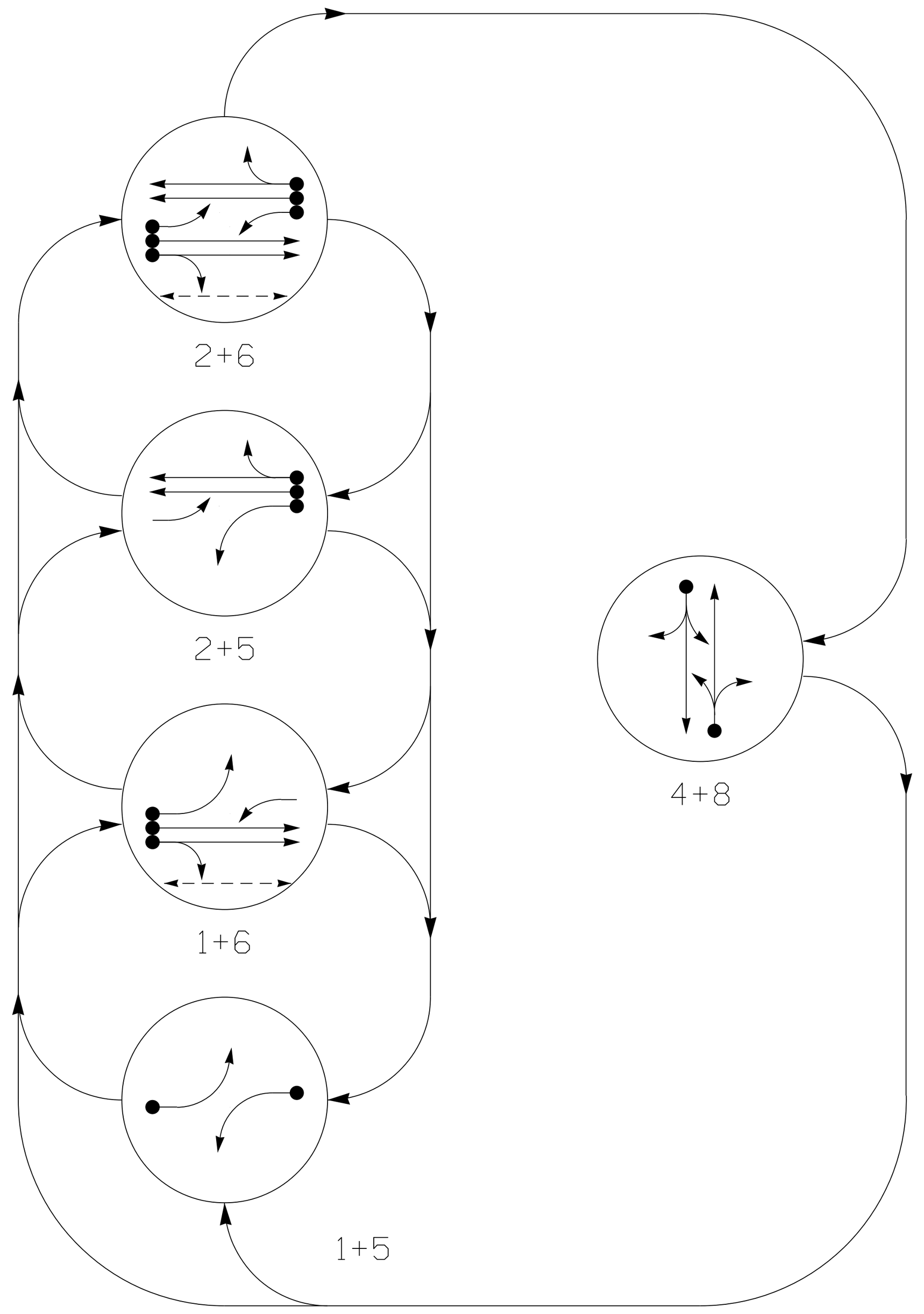
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by:
Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-0694T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-16.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

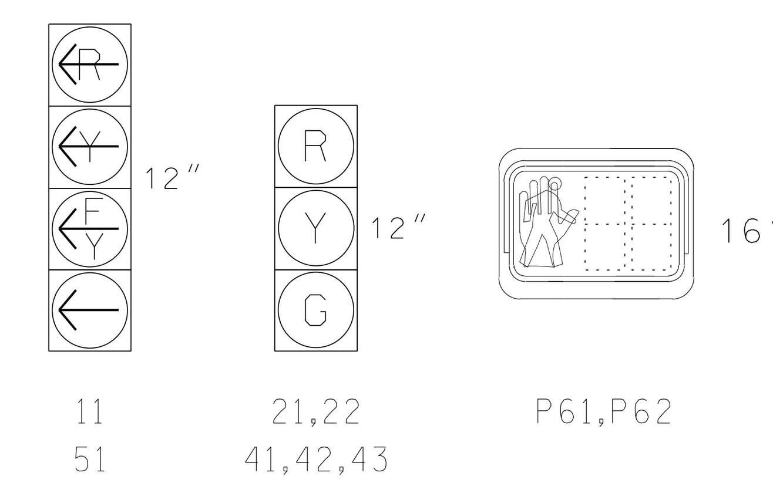
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 4+8	FLASH
11	←	←	←F/Y	←F/Y	←R	←R
21,22	R	R	G	G	R	R
41,42,43	R	R	R	R	G	R
51	←	←F/Y	←	←F/Y	←R	←R
61,62	R	G	R	G	R	R
81,82	R	R	R	R	G	R
P61, P62	DW	W	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

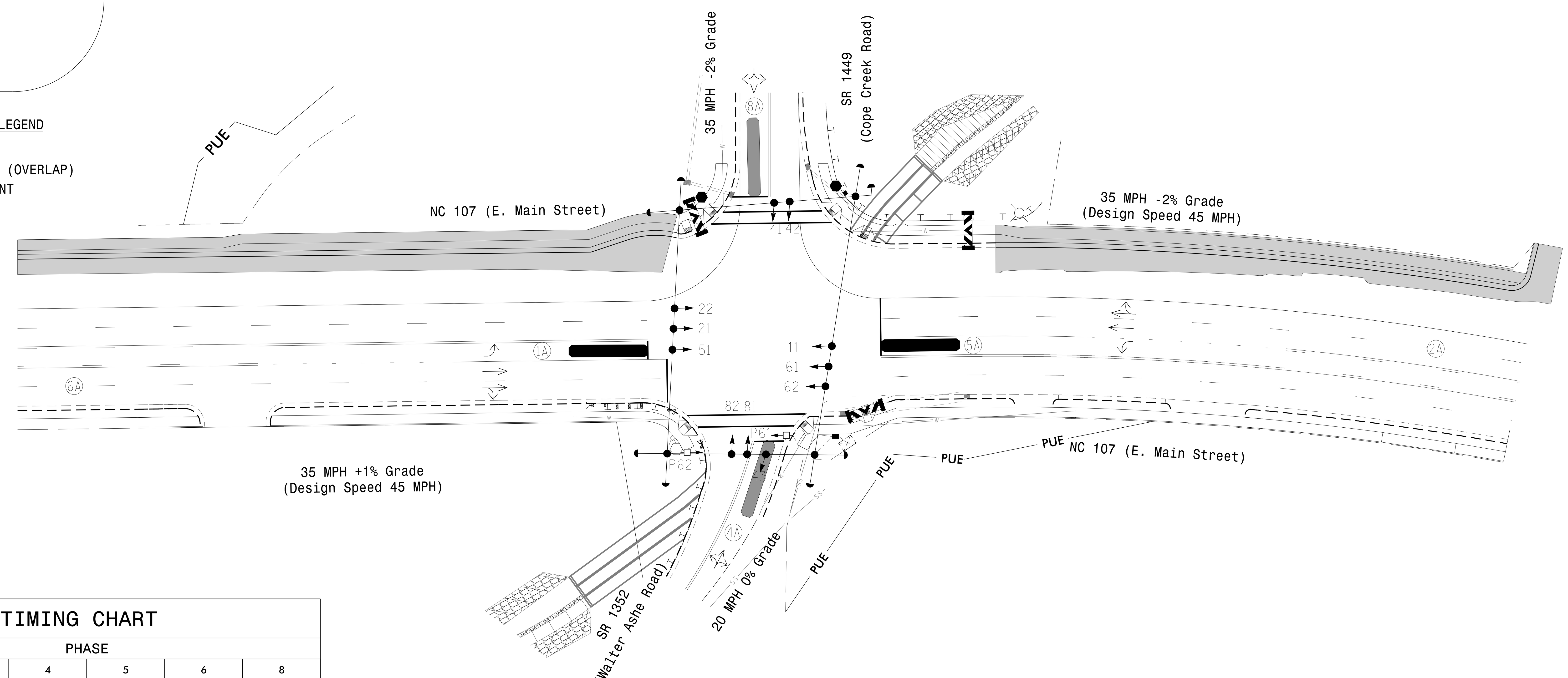
DETECTOR					PROGRAMMING								
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	15.0	-	X	-	X	-	*
					6	-	-	X	-	X	-	*
4A	*	0	*	X	4	5.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-	X	-	*
					2	-	-	X	-	X	-	*
8A	*	0	*	X	8	5.0	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

5 Phase
Fully Actuated
(Time Based Coordination)

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. Reposition existing signal heads 11, 21, 22, 51, 61 and 62.
5. Disconnect and bag existing pedestrian heads and pushbuttons P21 and P22.
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. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Non-Intrusive Detection Zone	
	Directional Arrow	
N/A	Directional Drill	
	Type II Signal Pedestal	
PUE	Permanent Utility Easement	N/A
N/A	Guardrail	
	Construction Zone	N/A
N/A	U/G Sanitary Sewer	
N/A	U/G Water Line	
N/A	O/H Pwr. & Utl. Lines	
N/A	Barricade	

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Walk *	–	–	–	–	14	–
Ped Clear	–	–	–	–	14	–
Min Green *	7	12	7	7	12	7
Passage *	3.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	15	70	20	15	70	20
Yellow Change	3.0	4.7	4.0	3.0	4.7	4.0
Red Clear	3.2	2.4	3.5	2.6	2.4	3.5
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	–	–	–	7	–
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.

Microwave Detection

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

Plans Prepared By:

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Signal Upgrade
Temporary Design 3 - TMP Ph2, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

NC 107 (E. Main Street) at SR 1352 (Walter Ashe Road) / SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

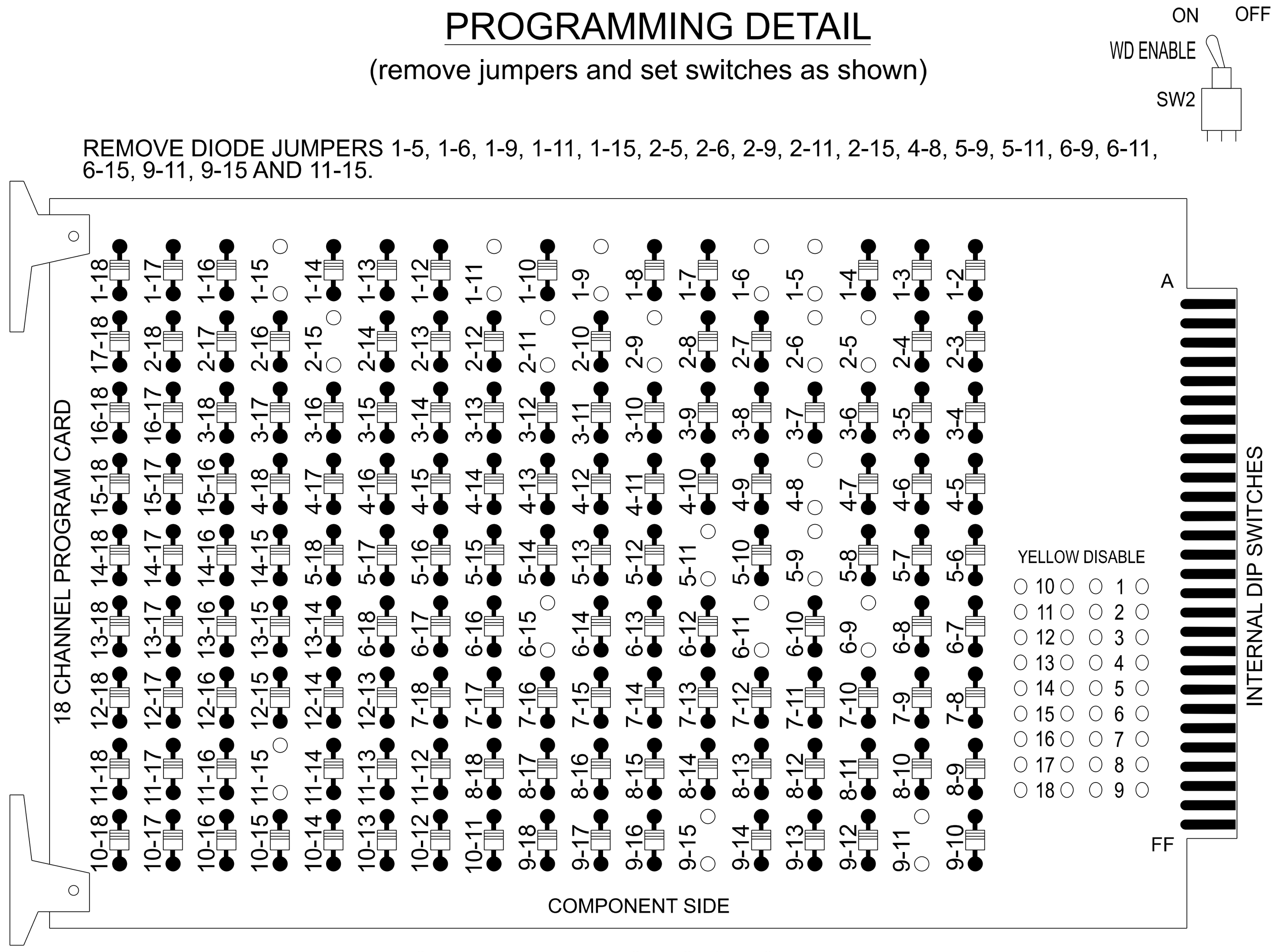
Signed by: Brittany Groome 1E09340E1094484... 8/26/2025 DATE

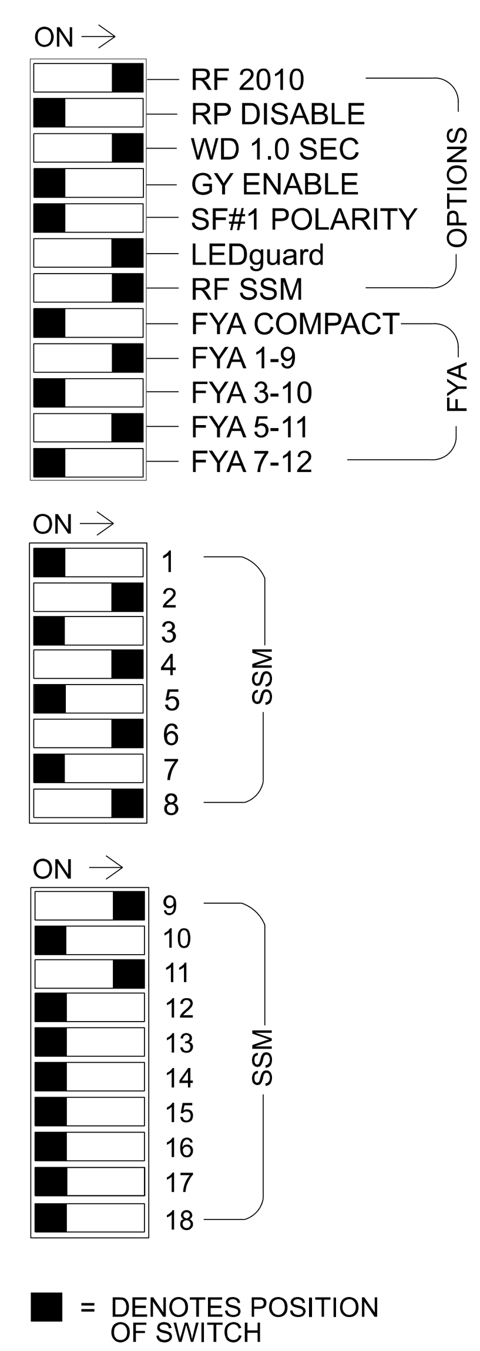
SIG. INVENTORY NO. 14-0694T3

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-15, 4-8, 5-9, 5-11, 6-9, 6-11, 6-15, 9-11, 9-15 AND 11-15.





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 the 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.
5. The cabinet and controller are part of the NC 107 Time Based 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, S2, S5, S7, S8, S9, S11
AUX S1, AUX S4
Phases Used..1, 2, 4, 5, 6, 6PED, 8
Overlap "1"...*
Overlap "2"...NOT USED
Overlap "3"...*
Overlap "4"...NOT USED

*See overlap programming detail on sheet 2.

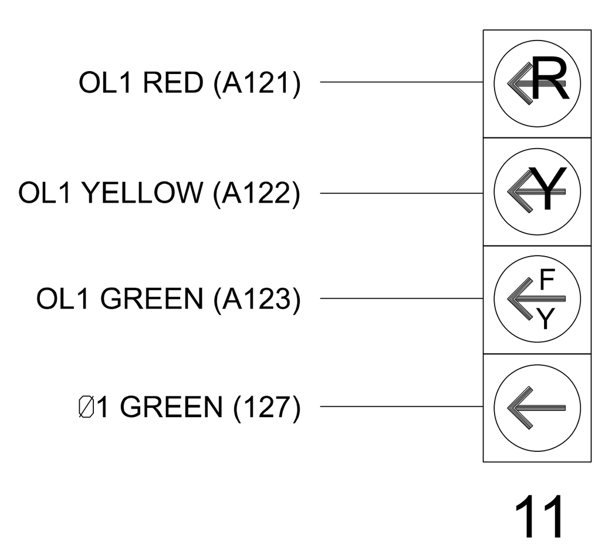
SIGNAL HEAD HOOK-UP CHART

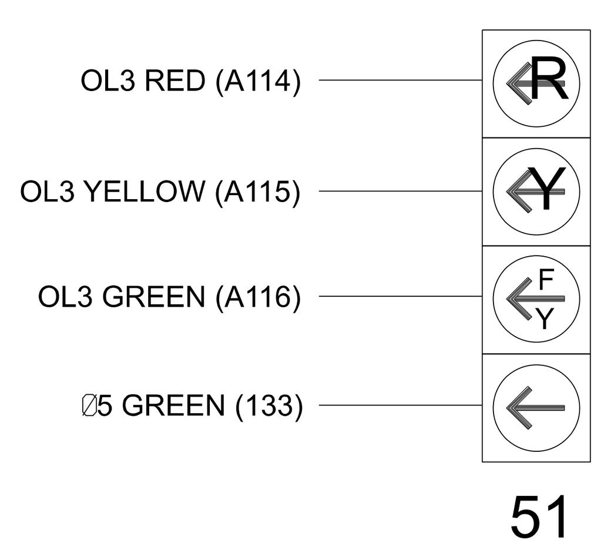
LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11★	21,22	NU	NU	41,42, 43	NU	51★	61,62	P61, P62	NU	81,82	NU	11★	NU	NU	51★	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127						133											
(Don't Walk hand)									119									
(Walk person)									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)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	Ø 1 1A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
"I"	L	NOT USED												NOT USED	ST DC ISOLATOR
"J"	U	Ø 5 5A	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
"J"	L	NOT USED													

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
1A	TB2-1,2	I1U	56	18	1	1	15.0		X		X	
				-	29	6			X		X	
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2			X		X	
PED PUSH BUTTONS												
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOT I13.

INPUT FILE POSITION LEGEND: J2L

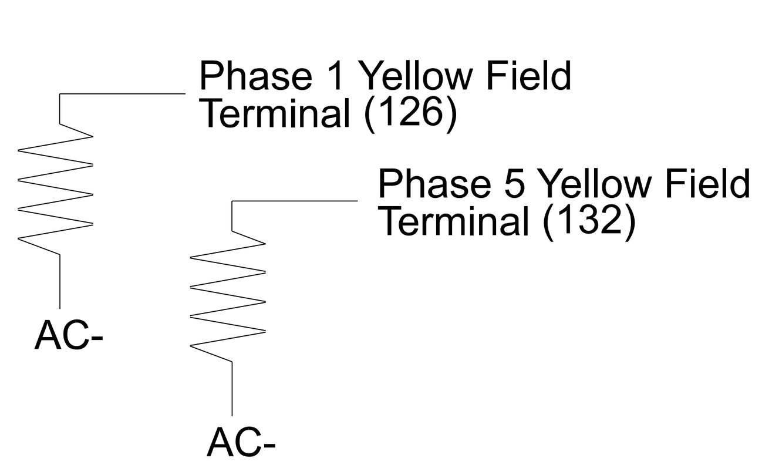
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For Detection Zones 1A and 5A, the equipment placement is typical for a NCDOT installation.

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 3 - TMP Ph2, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

ITS & Signals Management Section, Transportation Mobility and Safety Division, Department of Transportation, State of North Carolina
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME
Signed by: Brittany Groome 1E09340E1094484... 8/26/2025
DATE

SIG. INVENTORY NO. 14-0694T3

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-16.2

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	2	6
Modifier Phases	1	5
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0
FYA Ped Delay	0.0	0.0

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OUTPUT CHANNEL CONFIGURATION

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

Web Interface
Home >Controller >Advanced IO>Channels>Channels 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		17
18	Overlap	6		X	X	18

NOTICE FLASHING RED

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 3 - TMP Ph2, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

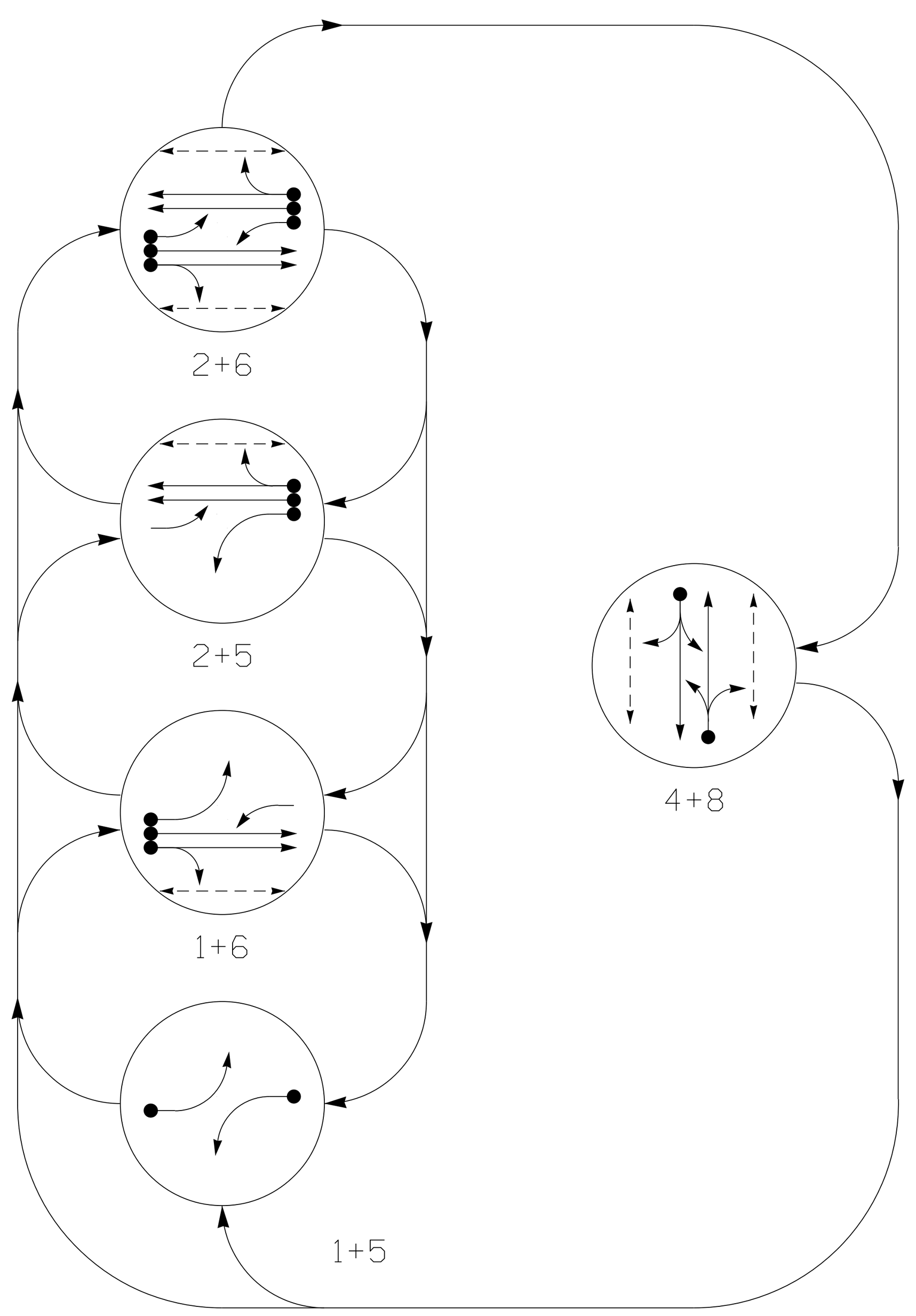
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-0694T3

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-17.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

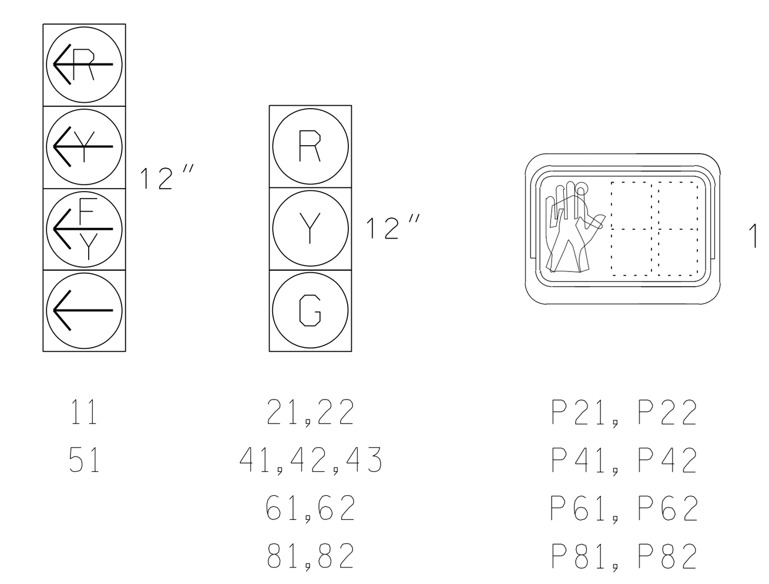
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 4+8	FLASH
11	←	←	F Y ←	F Y ←	R ←	R ←
21,22	R	R	G	G	R	R
41,42,43	R	R	R	R	G	R
51	←	F Y ←	←	F Y ←	R ←	R ←
61,62	R	G	R	G	R	R
81,82	R	R	R	R	G	R
P21, P22	DW	DW	W	W	DW	DRK
P41, P42	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

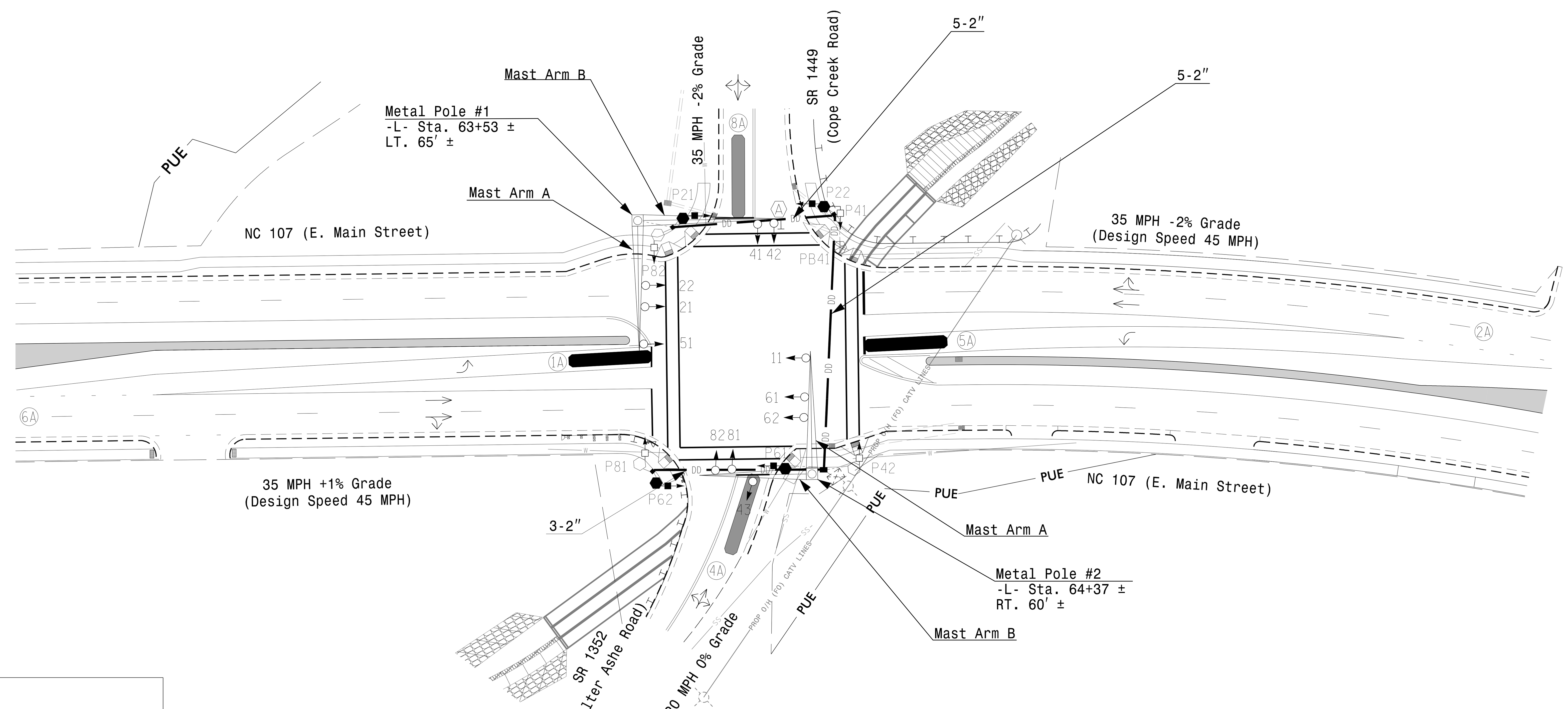
DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	15.0	-	X	-	X	-	*
					6	-	-	X	-	X	-	*
4A	*	0	*	X	4	5.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-	X	-	*
					2	-	-	X	-	X	-	*
8A	*	0	*	X	8	5.0	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

5 Phase
Fully Actuated
(Time Based Coordination)

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. Unbag and reconnect existing pedestrian heads and pushbuttons P21 and P22.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrians heads to countdown the flashing "Don't Walk" time only.
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.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
DD	Directional Drill	N/A
	Metal Pole with Mastarm	
PUE	Permanent Utility Easement	N/A
N/A	Guardrail	
N/A	U/G Sanitary Sewer	SS
N/A	U/G Water Line	W
N/A	O/H Pwr. & Utl. Lines	PROP O/H TEL CATV & FO LINES
N/A	Utility Pole	
	Construction Zone	N/A

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Walk *	–	14	12	–	14	13
Ped Clear	–	13	23	–	14	25
Min Green *	7	12	7	7	12	7
Passage *	3.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	15	70	20	15	70	20
Yellow Change	3.0	4.7	4.0	3.0	4.7	4.0
Red Clear	2.8	2.0	3.5	2.8	2.0	3.5
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	5	–	7	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.

Microwave Detection

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

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Signal Upgrade
Temporary Design 4 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SCALE 0 40 1"=40'

NC 107 (E. Main Street) at SR 1352 (Walter Ashe Road) / SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

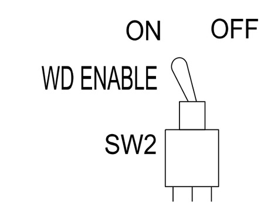
Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-0694T4

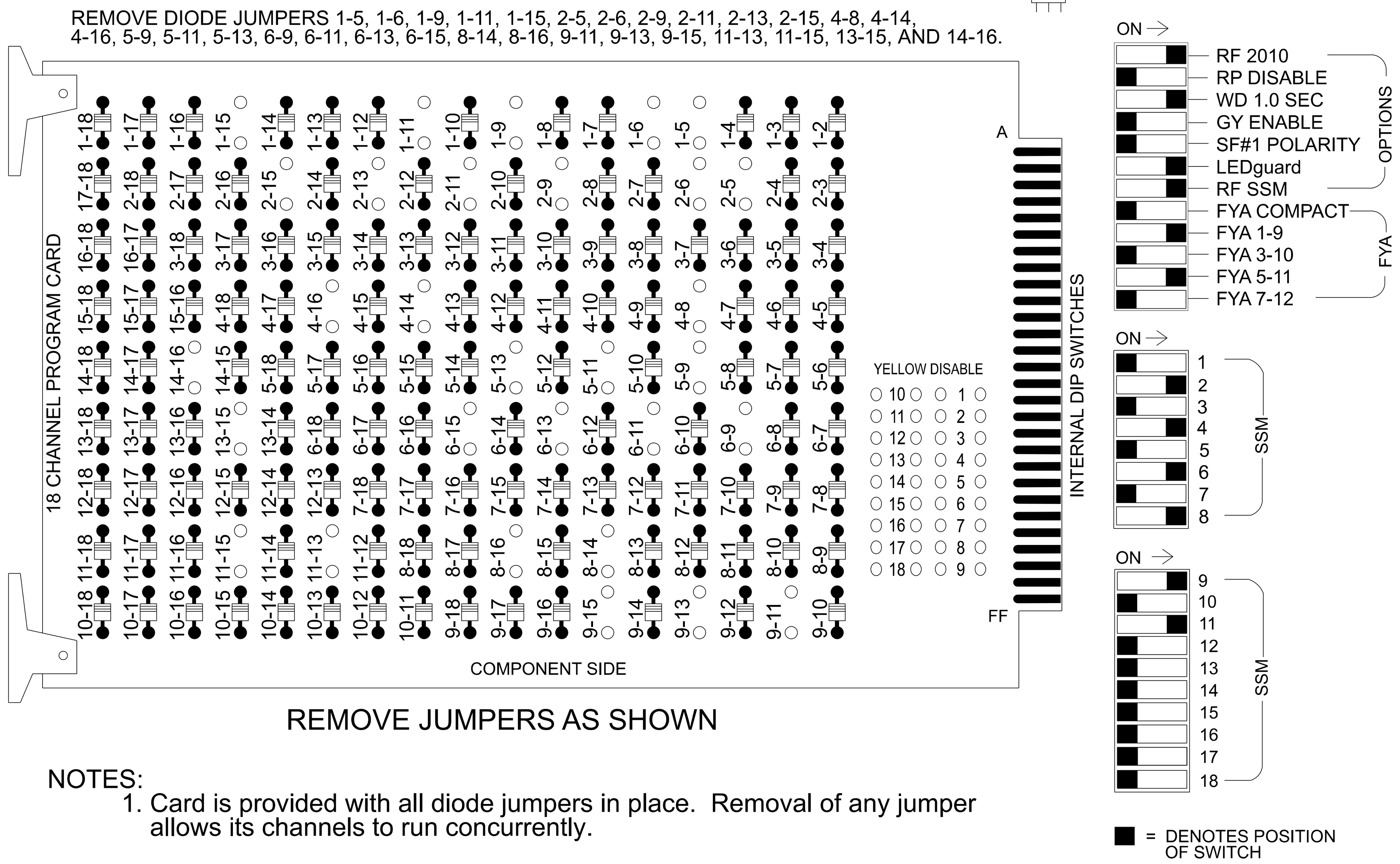
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-17.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 4-8, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 8-14, 8-16, 9-11, 9-13, 9-15, 11-13, 11-15, 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 the 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 and Simultaneous Start.
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 NC 107 Time Based 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, S2, S3, S5, S6, S7, S8, S9 S11, S12, AUX S1, AUX S4
Phases Used..1, 2, 2PED, 4, 4PED, 5, 6, 6PED, 8, 8PED
Overlap "1"...*
Overlap "2"...NOT USED
Overlap "3"...*
Overlap "4"...NOT USED

*See overlap programming detail on sheet 2.

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.	11★	21,22	P21, P22	NU	41,42, 43	P41, P42	51★	61,62	P61, P62	NU	81,82	P81, P82	11★	NU	NU	51★	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127						133											
(Don't Walk hand)			113			104			119			110						
(Walk person)			115			106			121			112						

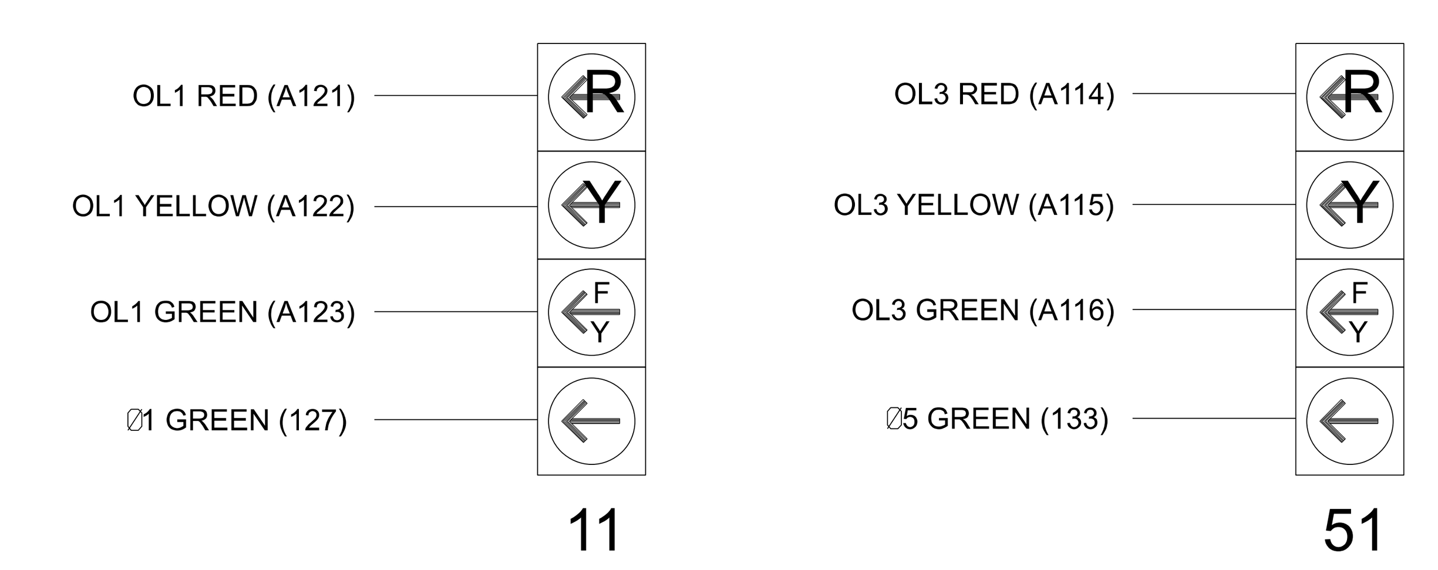
NU = Not Used

* 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)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	Ø 1 1A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 2 PED DC ISOLATOR	Ø 6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED											Ø 4 PED DC ISOLATOR	Ø 8 PED DC ISOLATOR	ST DC ISOLATOR
"J"	U	Ø 5 5A	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	NOT USED													

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
1A	TB2-1,2	I1U	56	18	1	1	15.0		X		X	
				-	29	6			X		X	
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2			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.

INPUT FILE POSITION LEGEND: J2L

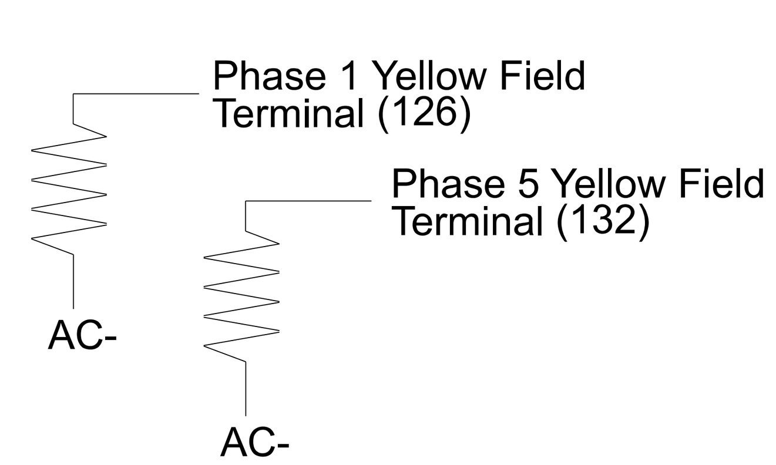
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694T4
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For Detection Zones 1A and 5A, the equipment placement is typical for a NCDOT installation.

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 4 - TMP Ph3, S1

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

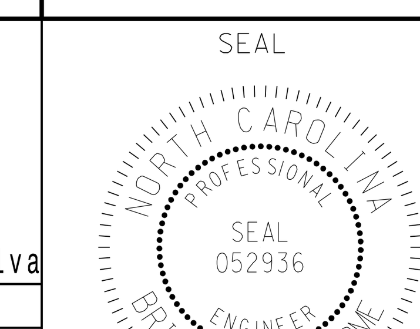
PLAN DATE: August 2025 REVIEWED BY: BN Groome
PREPARED BY: KA Jones REVIEWED BY: ZM Esposito

REVISIONS INIT. DATE

750 N.Greenfield Pkwy,Garner,NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL



Signed by: Brittany Groome 8/26/2025
DATE

SIG. INVENTORY NO. 14-0694T4

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	2	6
Modifier Phases	1	5
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0
FYA Ped Delay	0.0	0.0

OUTPUT CHANNEL CONFIGURATION

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

Web Interface
Home >Controller >Advanced IO>Channels>Channels 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		17
18	Overlap	6		X	X	18

↑ NOTICE FLASHING RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694T4
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 4 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:
DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation

750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

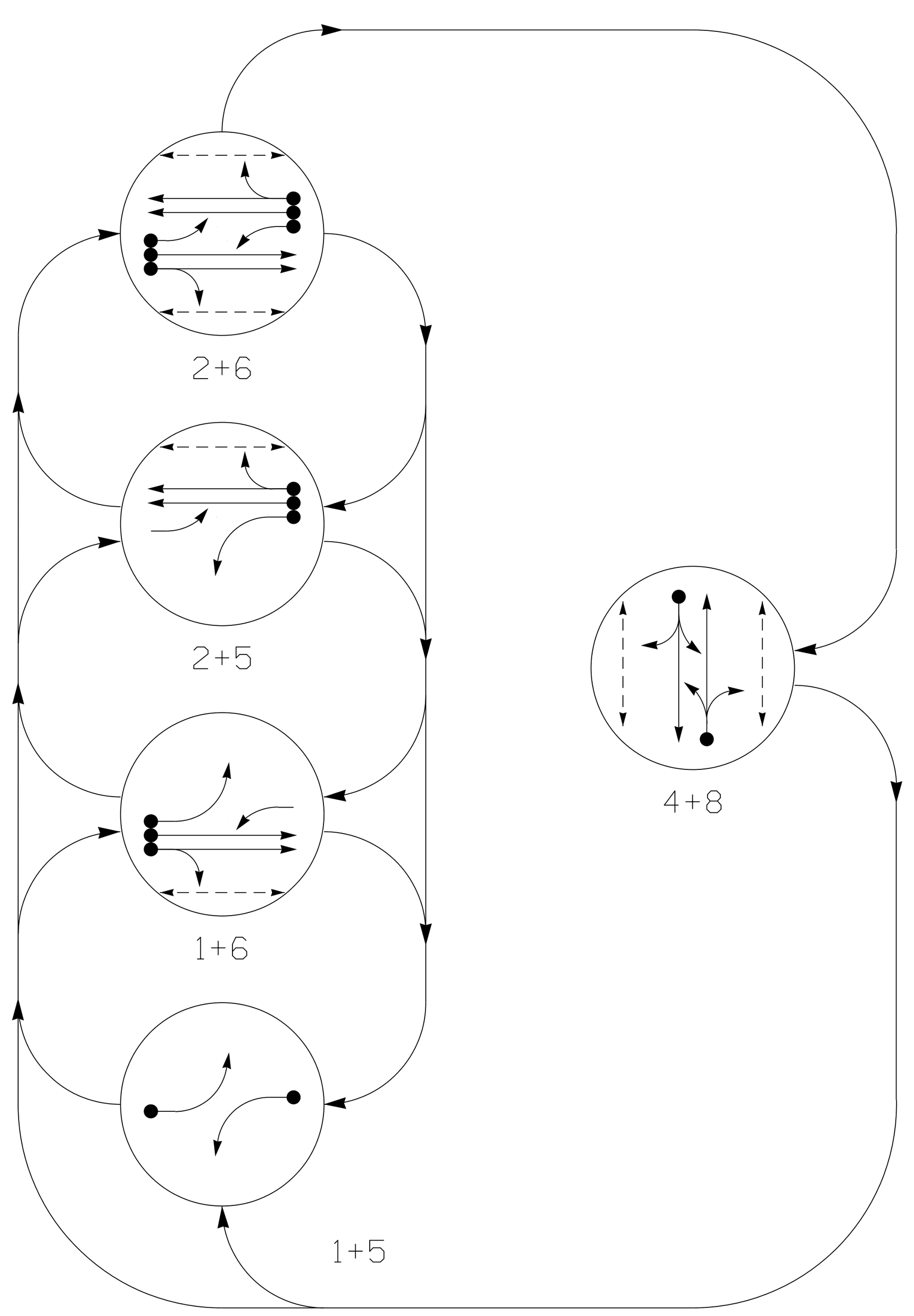
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by:
Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-0694T4

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-18.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

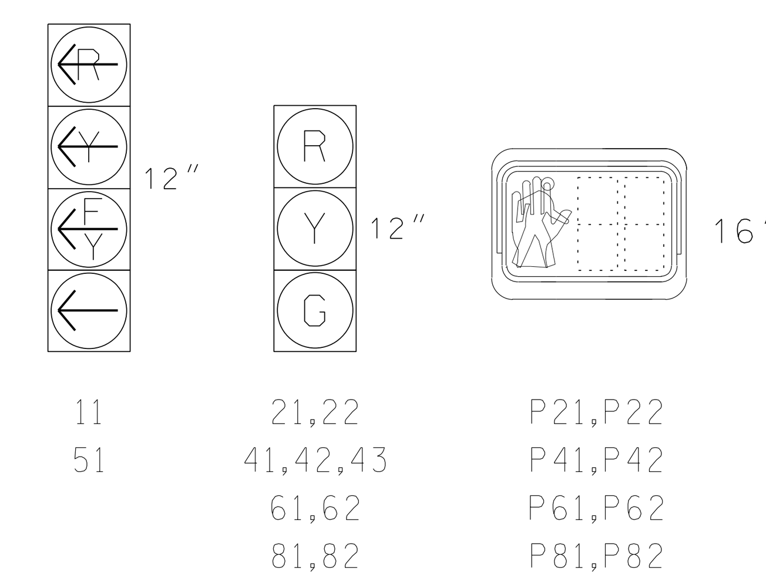
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 4+8	FLASH
11	←	←	← F/Y	← F/Y	← R	← R
21,22	R	R	G	G	R	R
41,42,43	R	R	R	R	G	R
51	←	← F/Y	←	← F/Y	← R	← R
61,62	R	G	R	G	R	R
81,82	R	R	R	R	G	R
P21,P22	DW	DW	W	W	DW	DRK
P41,P42	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

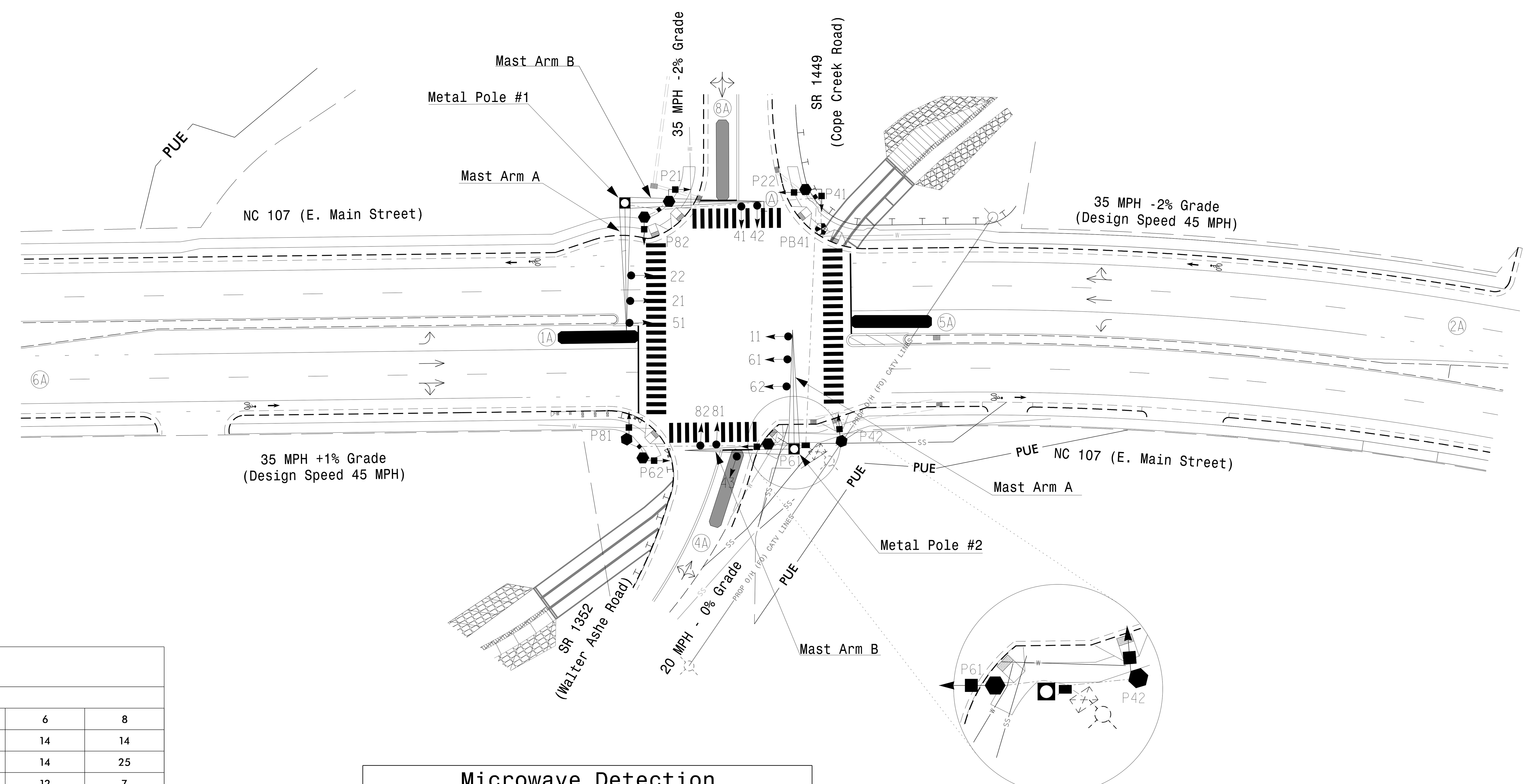
DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	15.0	-	X	-	X	-	*
					6	-	-	X	-	X	-	*
4A	*	0	*	X	4	5.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-	X	-	*
					2	-	-	X	-	X	-	*
8A	*	0	*	X	8	5.0	-	X	-	X	-	*

*Multi-Zone Microwave Detection Zone

5 Phase
Fully Actuated
(NC 107 - D14-14)

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. Repostion existing signal heads 11 and 51.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
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.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
	Directional Drill	N/A
	Metal Pole with Mastarm	
	Type I Pushbutton Post	
	Type II Signal Pedestal	
PUE	Permanent Utility Easement	N/A
N/A	Guardrail	
N/A	U/G Sanitary Sewer	
N/A	U/G Water Line	
N/A	O/H Pwr. & Utl. Lines	PROP O/H TEL CATV
N/A	Utility Pole	
A	Right "TURNING VEHICLES" Yield "TO" Pedestrians Sign (R10-15R)	A

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Walk *	–	14	14	–	14	14
Ped Clear	–	13	23	–	14	25
Min Green *	7	12	7	7	12	7
Passage *	3.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	15	70	40	15	70	40
Yellow Change	3.0	4.7	4.0	3.0	4.7	4.0
Red Clear	2.8	2.0	3.5	2.9	2.0	3.5
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	7	–	7	7
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.

Microwave Detection

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

Plans Prepared By:

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DRMP, INC.
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NC LICENSE NO. F-1524 (704) 549-4260

Signal Upgrade - Final Design

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

SCALE 0 40 — 1"=40'

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-0694

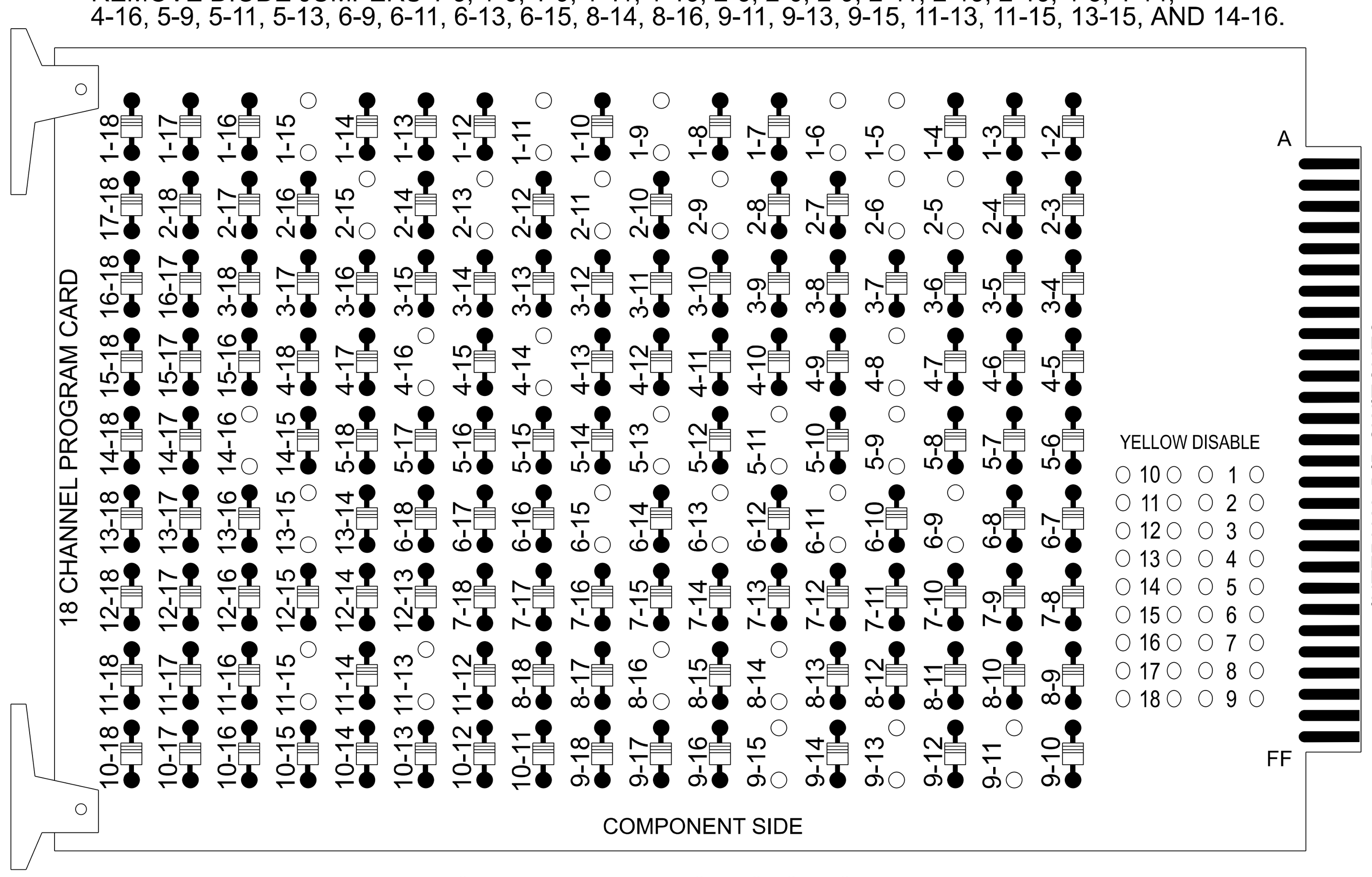
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-18.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

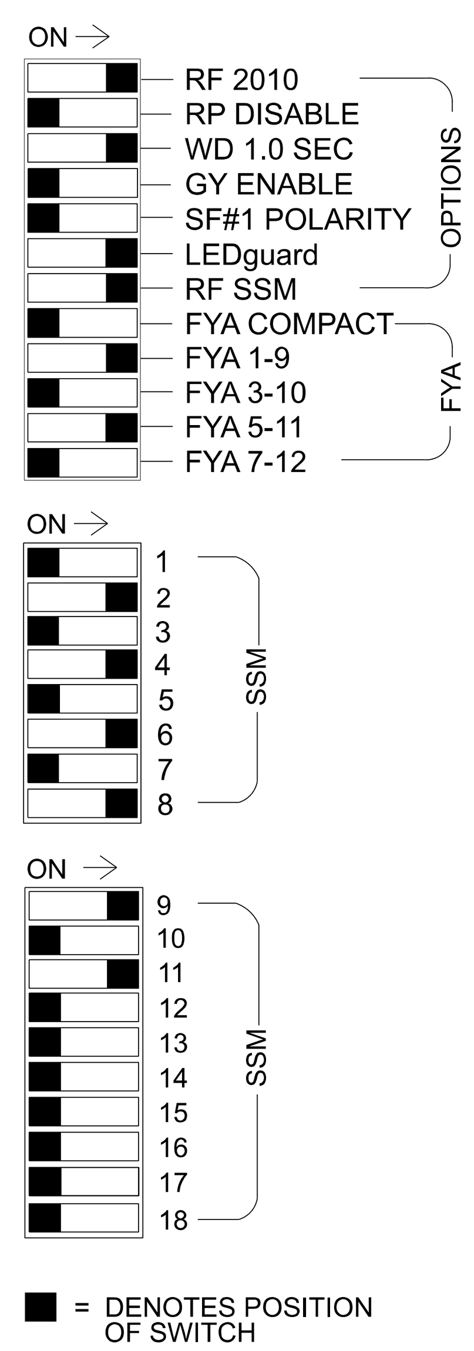
(remove jumpers and set switches as shown)

ON OFF
WD ENABLE
SW2

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 4-8, 4-14, 4-16, 5-9, 5-11, 5-13, 6-9, 6-11, 6-13, 6-15, 8-14, 8-16, 9-11, 9-13, 9-15, 11-13, 11-15, 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 the 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.
5. The cabinet and controller are part of the NC 107 - D14-14 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, S2, S3, S5, S6, S7, S8, S9 S11, S12, AUX S1, AUX S4
Phases Used..1, 2, 2PED, 4, 4PED, 5, 6, 6PED, 8, 8PED
Overlap "1"...*
Overlap "2"...NOT USED
Overlap "3"...*
Overlap "4"...NOT USED

*See overlap programming detail on sheet 2.

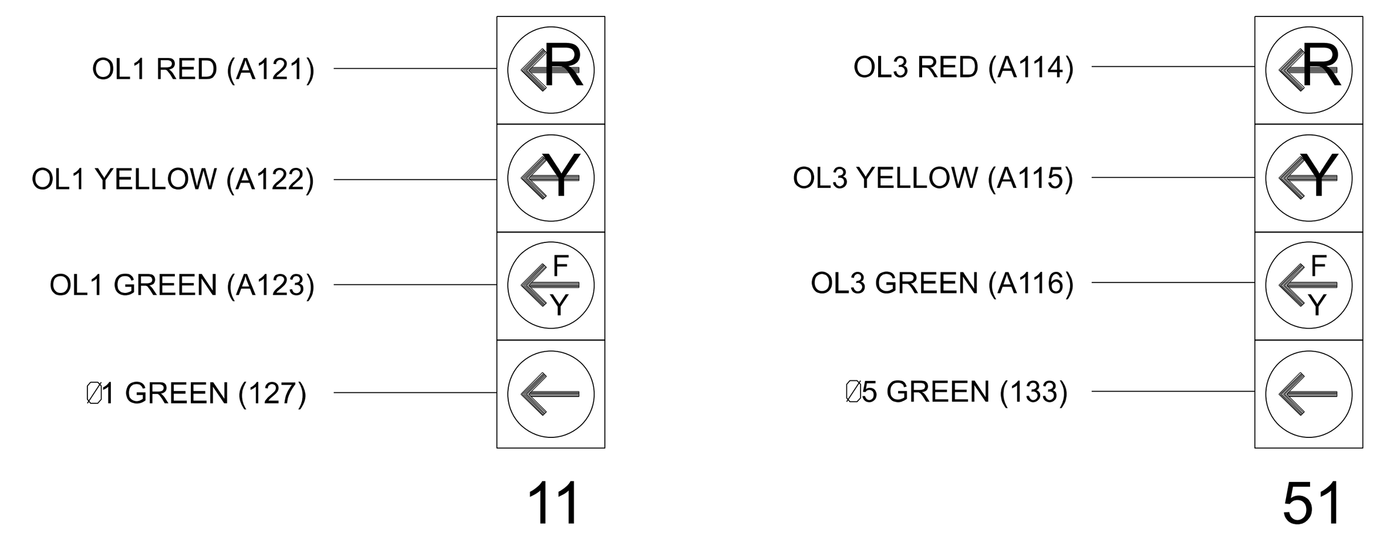
SIGNAL HEAD HOOK-UP CHART

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.	11★	21,22	P21, P22	NU	41,42, 43	P41, P42	51★	61,62	P61, P62	NU	81,82	P81, P82	11★	NU	NU	51★	NU	NU
RED		128			101			134			107							
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122			A115		
FLASHING YELLOW ARROW													A123			A116		
GREEN ARROW	127						133											
(hand)			113			104			119			110						
(pedestrian)			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)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	Ø 1 1A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 2 PED DC ISOLATOR	Ø 6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED											Ø 4 PED DC ISOLATOR	Ø 8 PED DC ISOLATOR	ST DC ISOLATOR
"J"	U	Ø 5 5A	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	NOT USED													

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
1A	TB2-1,2	I1U	56	18	1	1	15.0		X		X	
				-	29	6			X		X	
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2			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.

INPUT FILE POSITION LEGEND: J2L

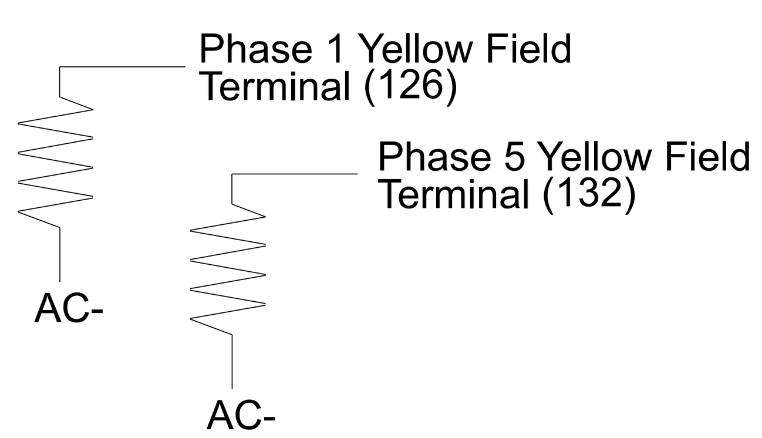
FILE J
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For Detection Zones 1A and 5A, the equipment placement is typical for a NCDOT installation.

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Electrical Detail
Final Design - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: BN Groome
PREPARED BY: KA Jones	REVIEWED BY: ZM Esposito

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 1E09340E1094484... 8/26/2025
DATE

SIG. INVENTORY NO. 14-0694

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-18.2

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	3
Type	FYA 4 - Section	FYA 4 - Section
Included Phases	2	6
Modifier Phases	1	5
Trail Green	0	0
Trail Yellow	0.0	0.0
Trail Red	0.0	0.0
FYA Ped Delay	0.0	0.0

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OUTPUT CHANNEL CONFIGURATION

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

Web Interface
Home >Controller >Advanced IO>Channels>Channels 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		17
18	Overlap	6		X	X	18

↑ NOTICE FLASHING RED

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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-0694
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail
Final Design - Sheet 2 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	BN Groome
PREPARED BY:	KA Jones	REVIEWED BY:	ZM Esposito

REVISIONS	INIT.	DATE

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

Plans Prepared By:
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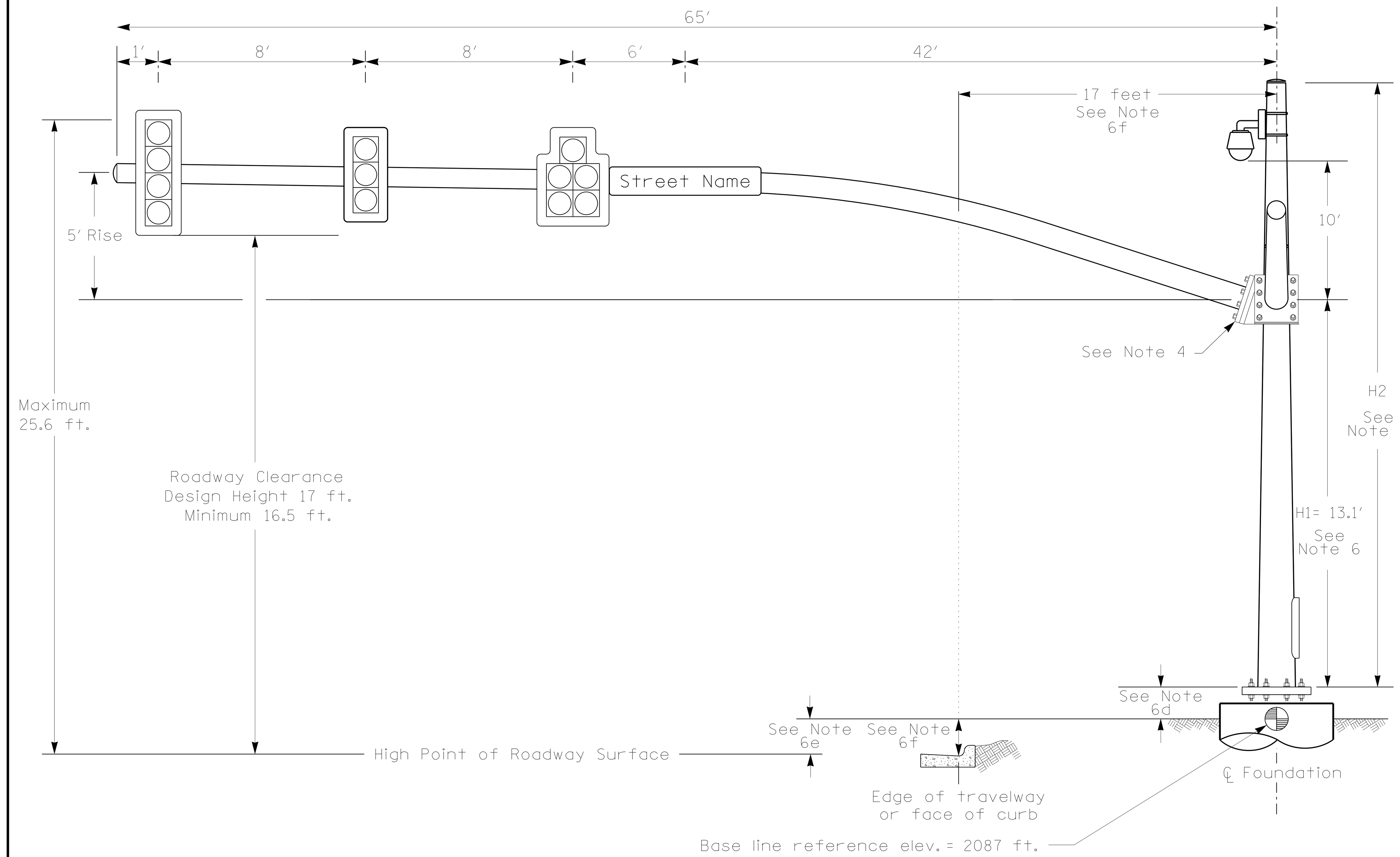
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by:
Brittany Groome
1E09340E1094484...
8/26/2025
DATE

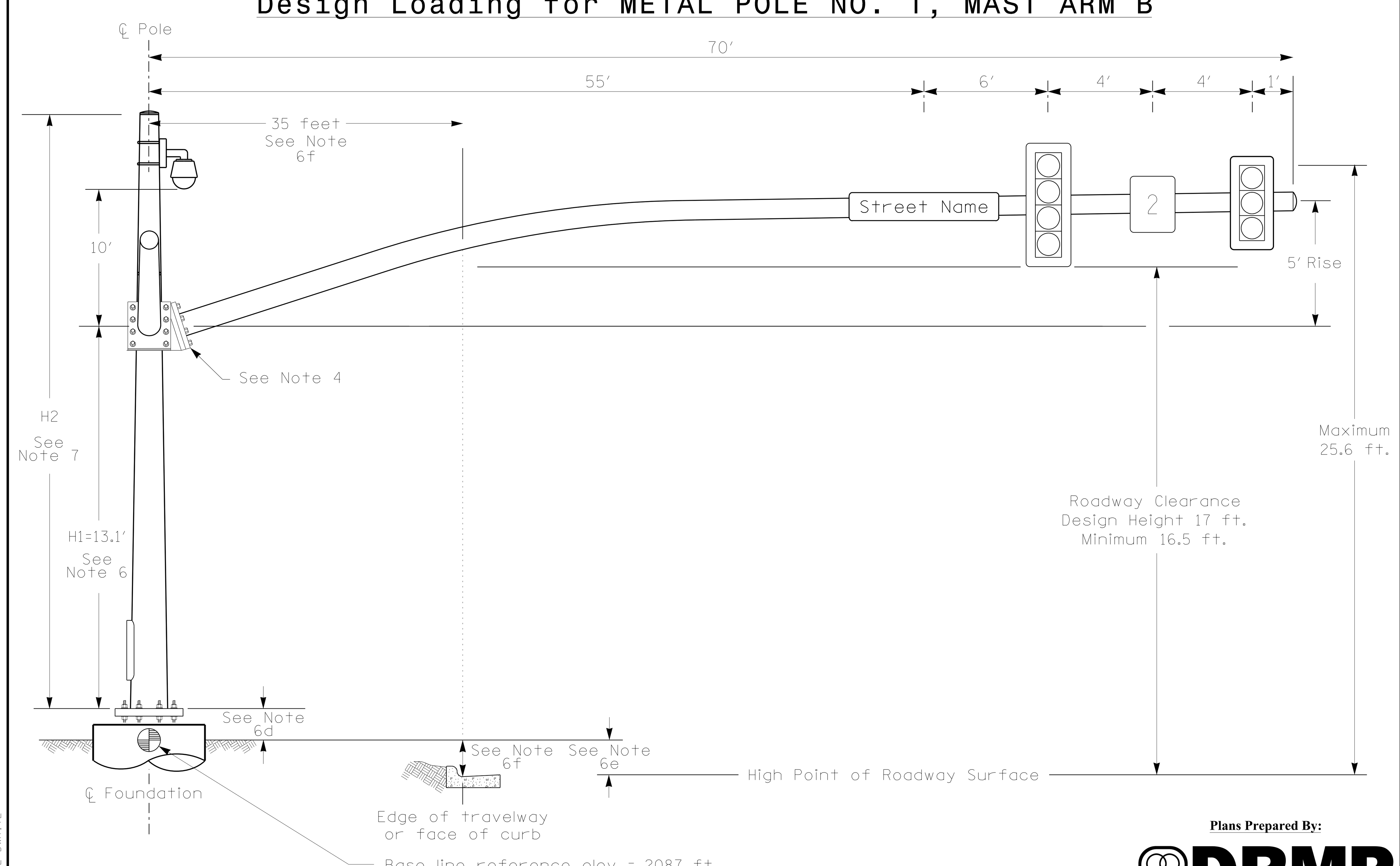
SIG. INVENTORY NO. 14-0694

Design Loading for METAL POLE NO. 1, MAST ARM A



Elevation View @ 270°

Design Loading for METAL POLE NO. 1, MAST ARM B



Elevation View @ 0°

Plans Prepared By:

DRMP

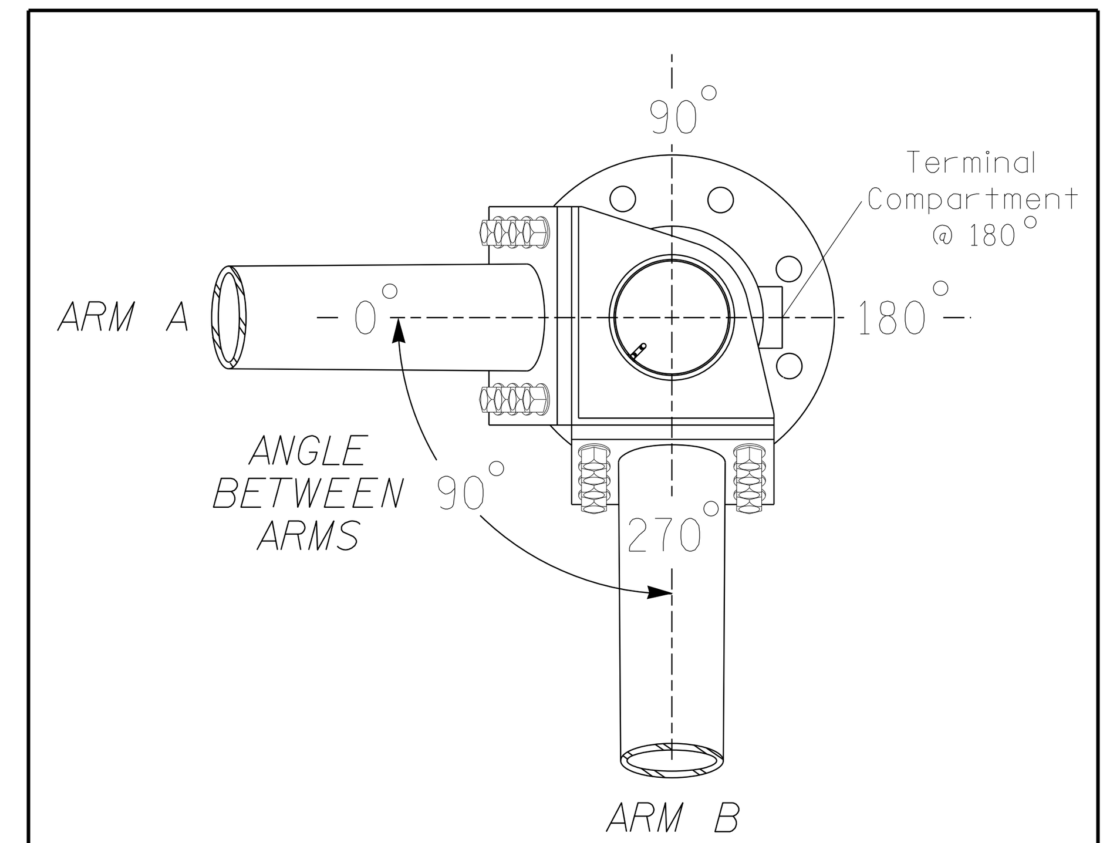
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SPECIAL NOTE

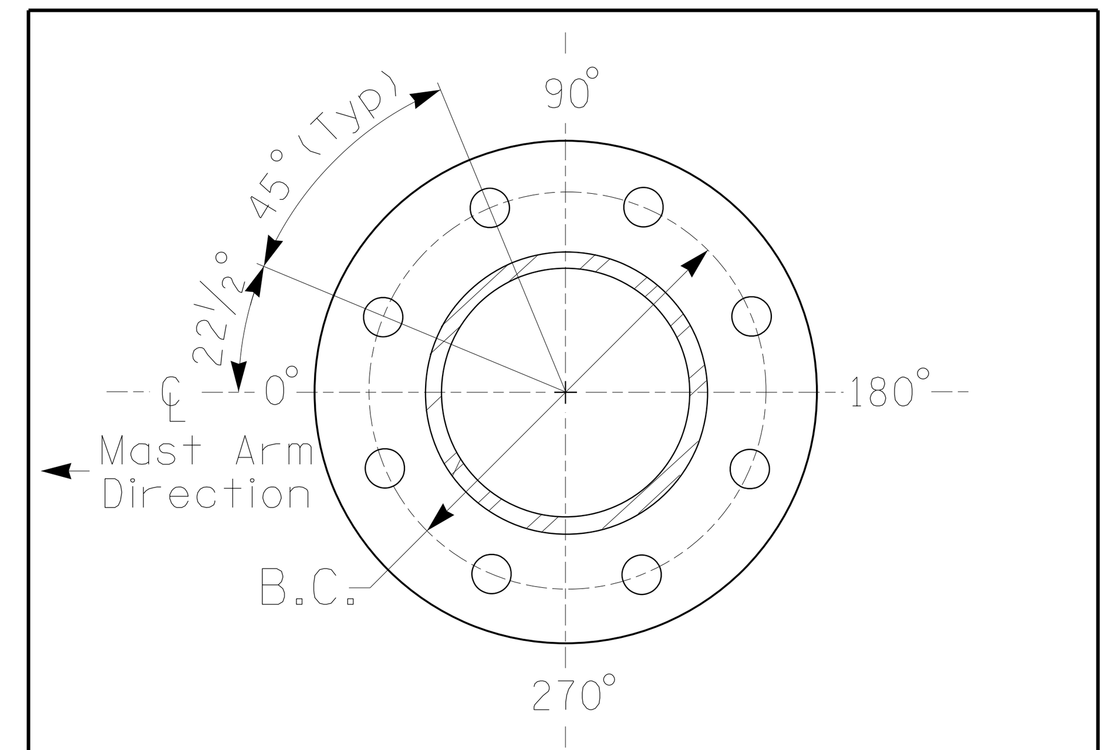
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Arm A	Arm B
Baseline reference point at ℄ Foundation @ ground level	2087.0 ft.	2087.0 ft.
Elevation difference at High point of roadway surface	-1.9 ft.	-0.3 ft.
Elevation difference at Edge of travelway or face of curb	-1.6 ft.	-0.4 ft.

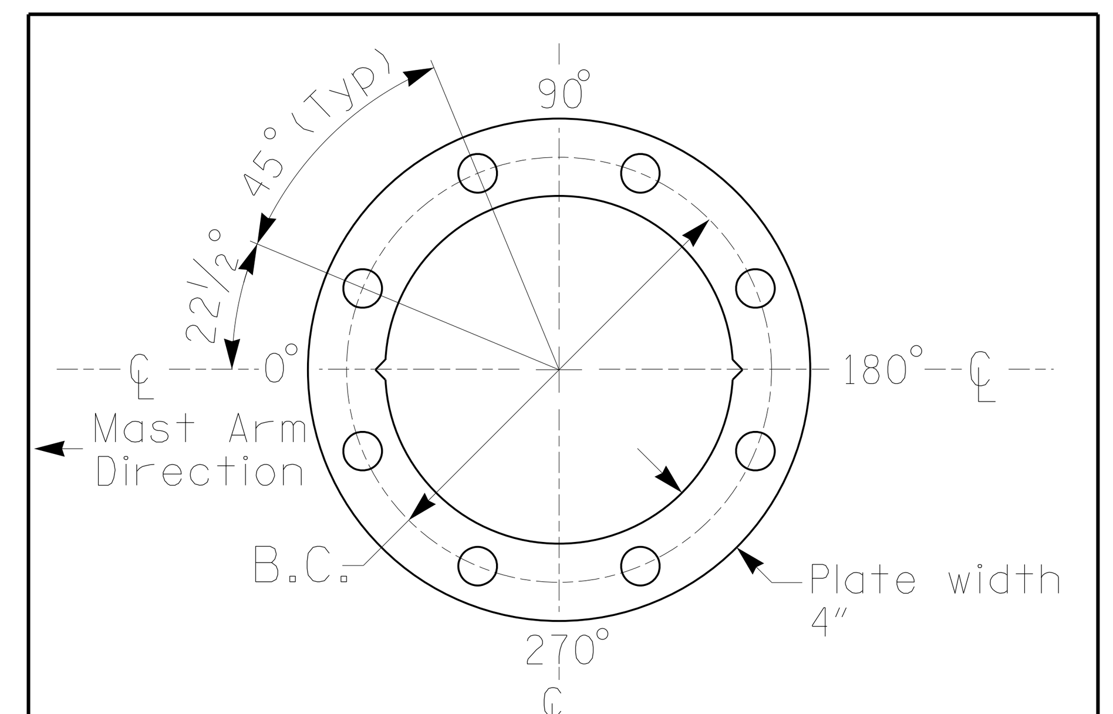


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

METAL POLE No. 1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-18.3

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12″-5 SECTION-WITH BACKPLATE	16.3 S.F.	42.0″W X 56.0″L	103 LBS
	RIGID MOUNTED SIGNAL HEAD 12″-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5″W X 66.0″L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12″-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5″W X 52.5″L	60 LBS
	CCTV CAMERA POLE-MOUNTED	1.0 S.F.	11.0″W X 11.0″L	30 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0″W X 96.0″L	36 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2024 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using force ratios that do not exceed 0.9.
4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements. This requires staggering the connections. Use elevation data for each arm to determine appropriate connection points.
5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
6. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
   f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot, or
   - From top of CCTV Camera assembly plus 2 feet.
8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

NCDOT Wind Zone 5 (110 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Espostio
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE 0 N/A
N/A

REVISIONS | INIT. | DATE

SEAL
North Carolina Professional Engineer Seal 052936 Brittany N Groome

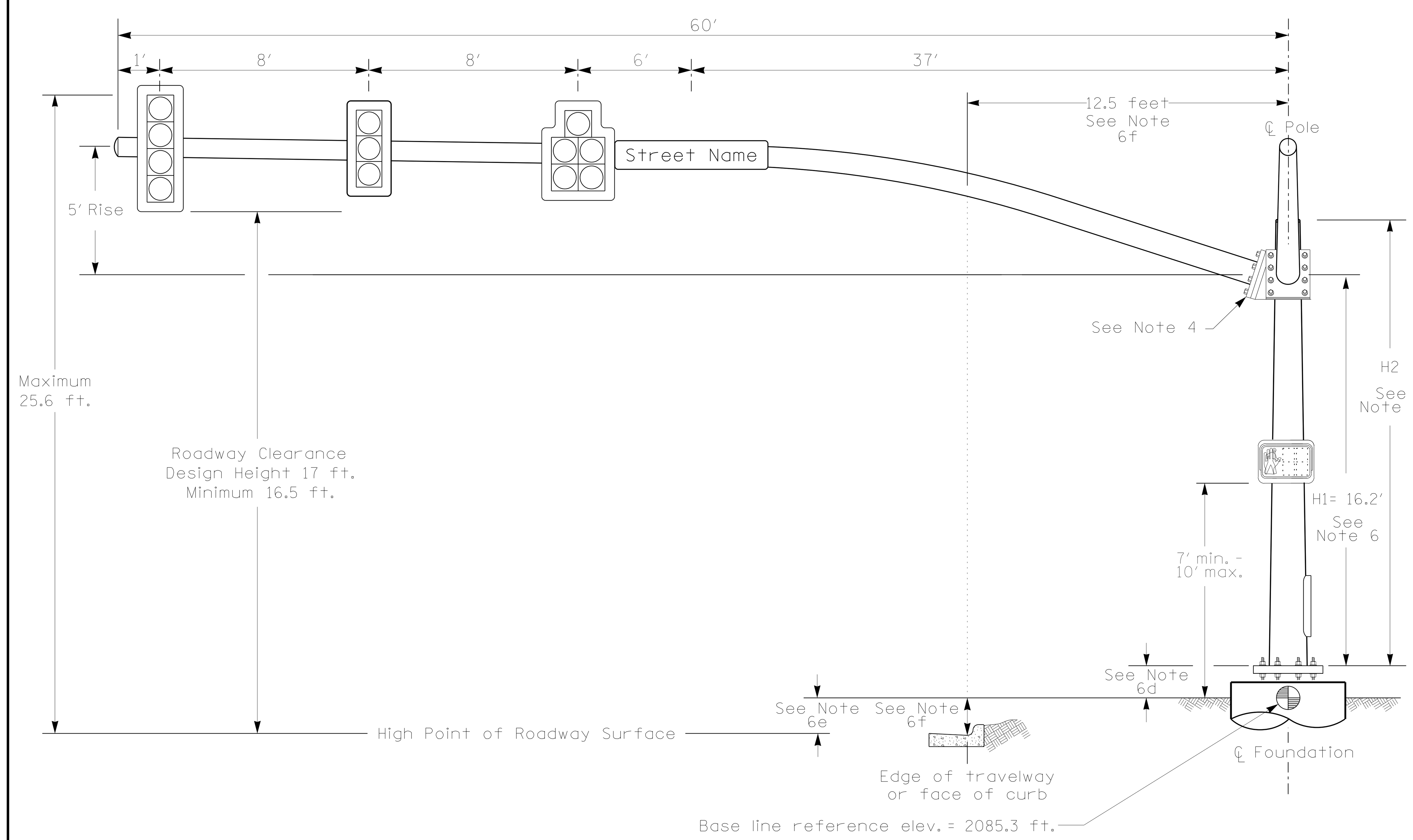
Signed by: Brittany Groome 8/26/2025
DATE

SIG. INVENTORY NO. 14-0694

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-18.4

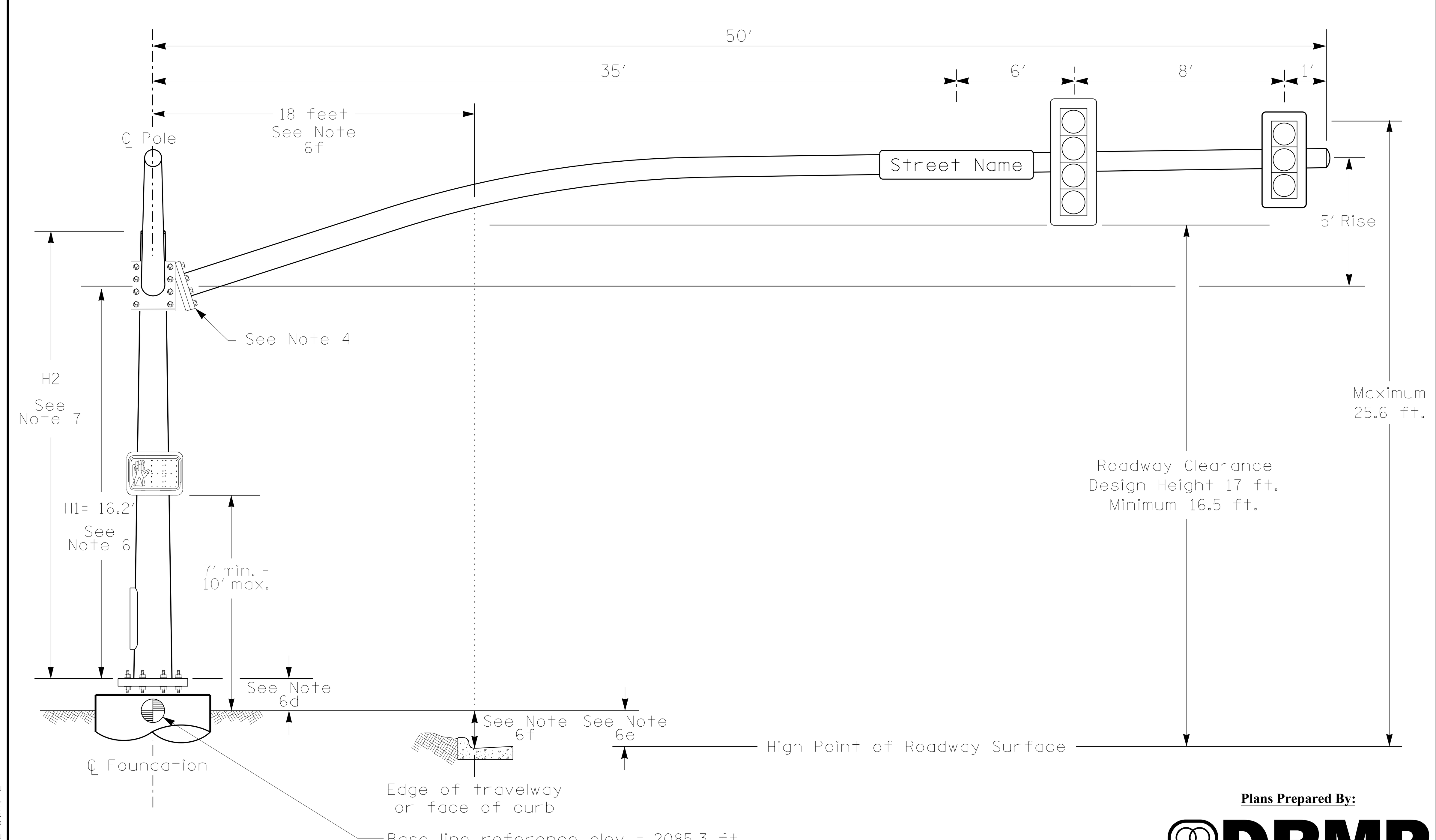
METAL POLE No. 2

Design Loading for METAL POLE NO. 2, MAST ARM A



Elevation View @ 270°

Design Loading for METAL POLE NO. 2, MAST ARM B



Elevation View @ 0°

Plans Prepared By:

DRMP

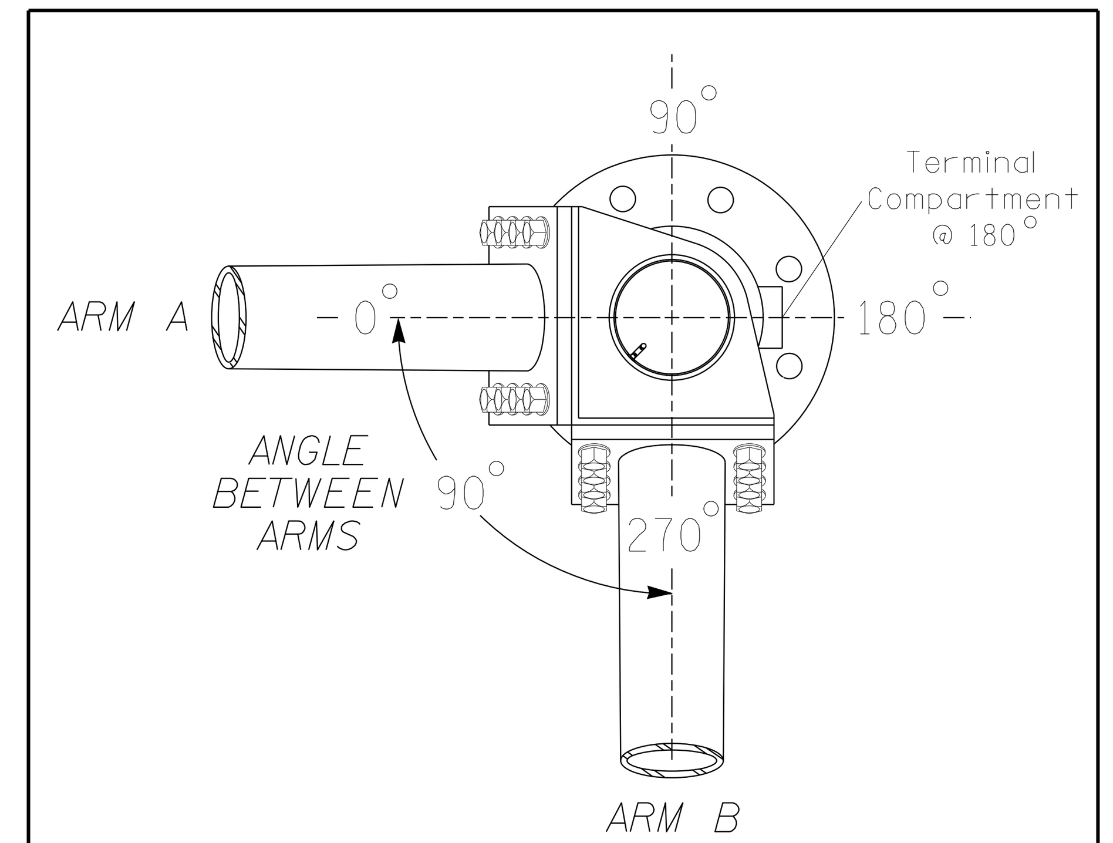
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SPECIAL NOTE

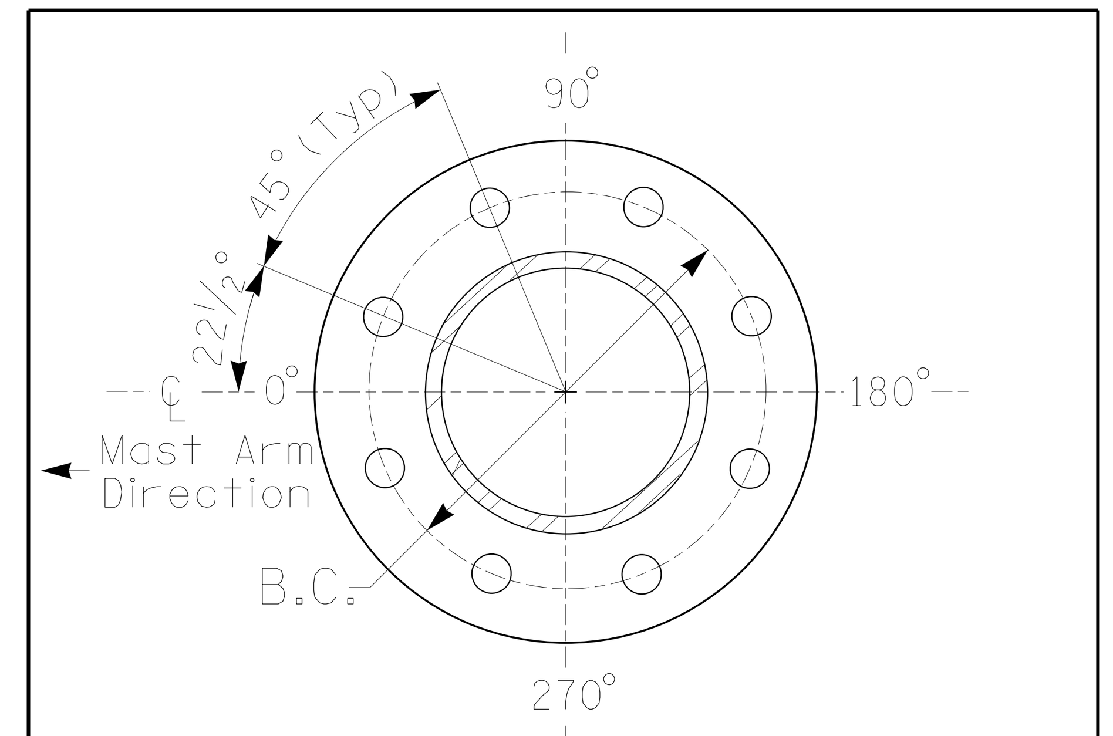
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Arm A	Arm B
Baseline reference point at ℄ Foundation @ ground level	2085.3 ft.	2085.3 ft.
Elevation difference at High point of roadway surface	+2.2 ft.	+0.5 ft.
Elevation difference at Edge of travelway or face of curb	+1.6 ft.	+0.8 ft.

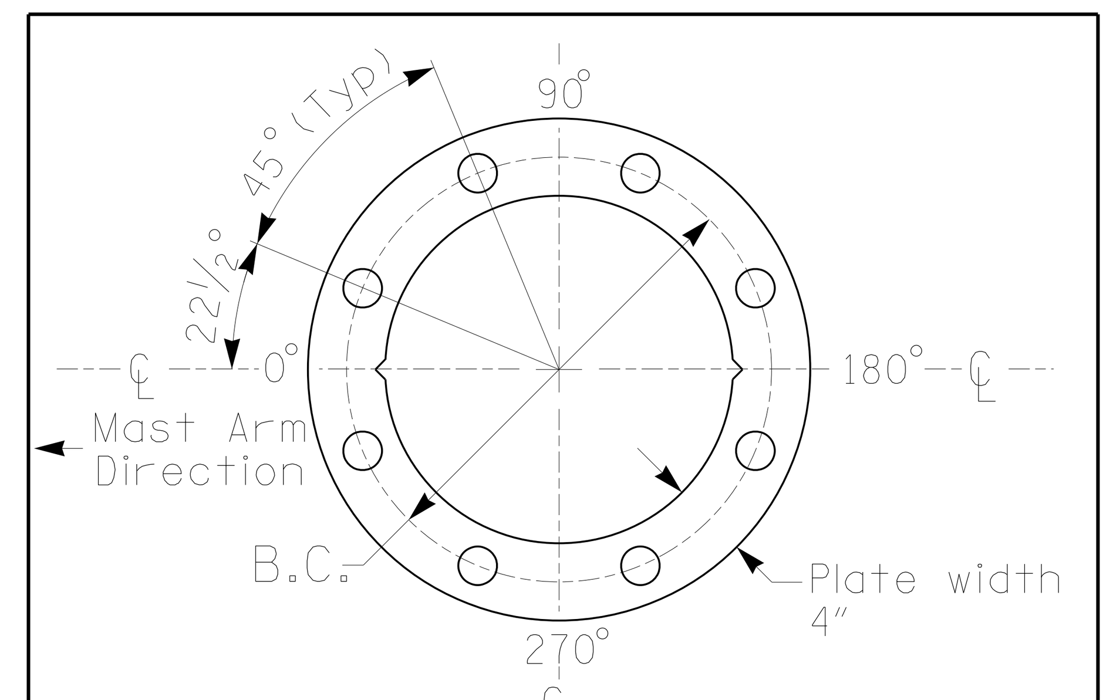


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

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   f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
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NCDOT Wind Zone 5 (110 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

NC 107 (E. Main Street)
at
SR 1352 (Walter Ashe Road) /
SR 1449 (Cope Creek Road)

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE: 0 N/A
N/A

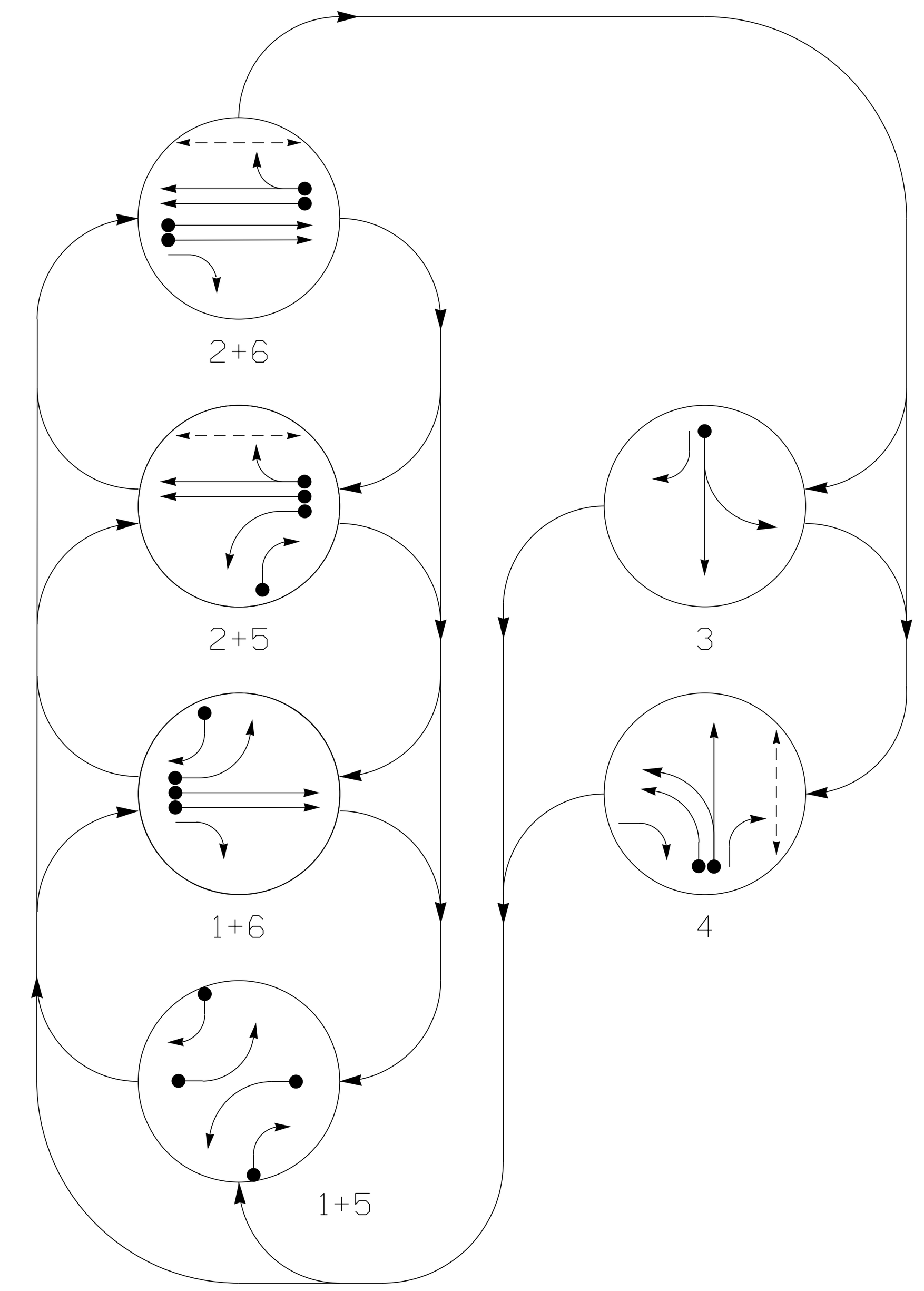
REVISIONS | INIT. | DATE

SEAL
North Carolina Professional Engineer
SEAL 052936
Brittany N Groome

Signed by: Brittany Groome 8/26/2025
DATE

SIG. INVENTORY NO. 14-0694

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

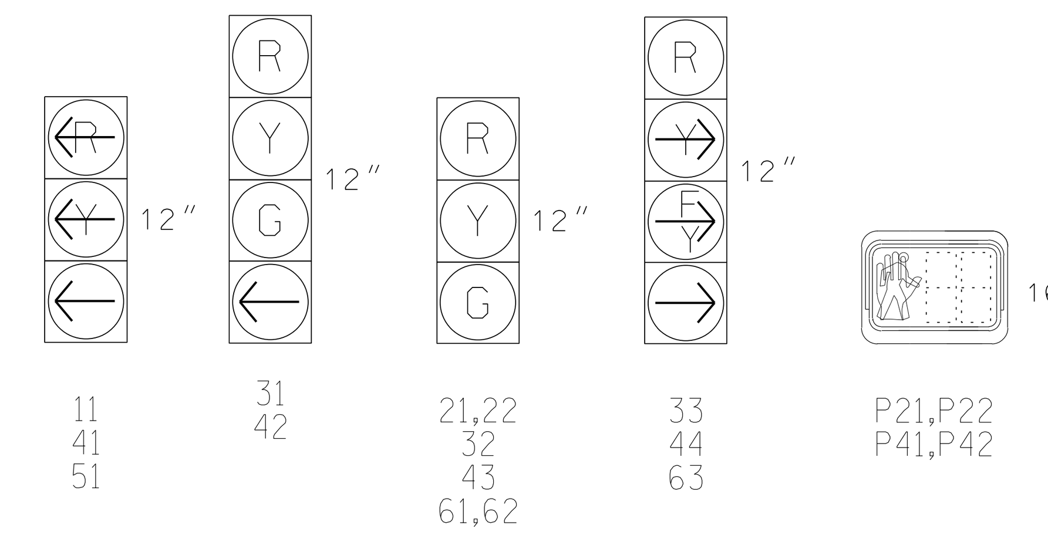
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 3	PHASE 4	FLASH
11	←	←	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	R
31	R	R	R	R	G←	R	R
32	R	R	R	R	G	R	R
33	→	→	R	R	→	R	R
41	←R	←R	←R	←R	←R	←	←R
42	R	R	R	R	R	G←	R
43	R	R	R	R	R	G	R
44	→	R	→	R	R	F/Y→	R
51	←	←R	←	←R	←R	←R	←R
61,62	R	G	R	G	R	R	R
63	R	F/Y→	R	F/Y→	R	→	R
P21,P22	DW	DW	W	W	DW	DW	DRK
P41,P42	DW	DW	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

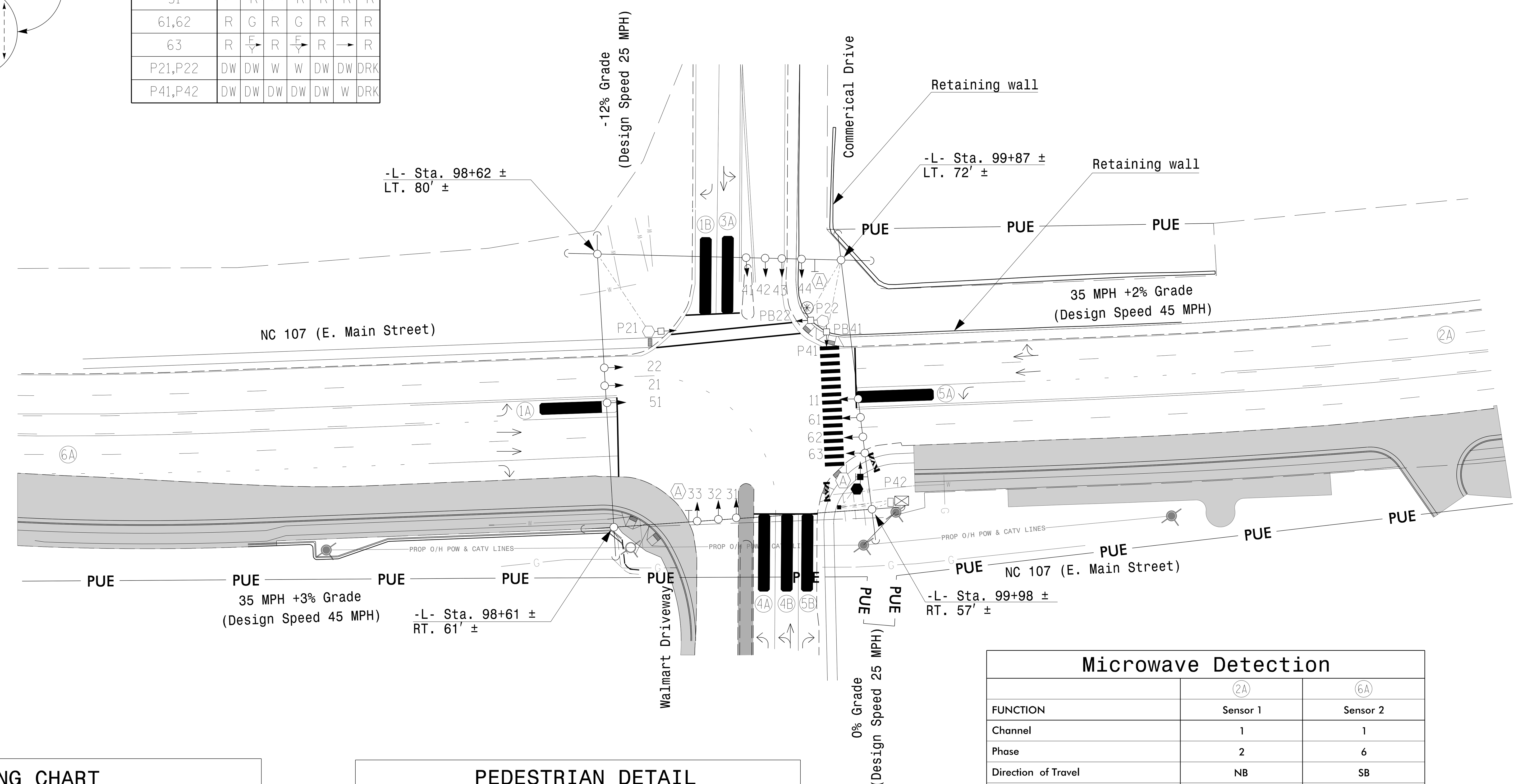
DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	3.0	-	X	-	X	-	*
1B	*	0	*	X	1	15.0	-	X	-	X	-	*
3A	*	0	*	X	3	-	-	X	-	X	-	*
4A	*	0	*	X	4	-	-	X	-	X	-	*
4B	*	0	*	X	4	-	-	X	-	X	-	*
5A	*	0	*	X	5	3.0	-	X	-	X	-	*
5B	*	0	*	X	5	15.0	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone

6 Phase Fully Actuated (Time Based Coordination)

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. The order of phase 3 and phase 4 may be reversed.
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. 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. To provide a leading pedestrian interval on phase 4, program FYA head numbered 44 to delay for 7 seconds after the start of the phase 4 walk interval. See Electrical Details for programming.
10. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
11. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
DD	Directional Drill	N/A
	Type II Signal Pedestal	
	Temporary Pedestrian Post with Ped Push Button & Sign	
PUE	Permanent Utility Easement	N/A
N/A	Guardrail	
N/A	Gas Line	
N/A	U/G Sanitary Sewer	
N/A	U/G Water Line	
N/A	O/H Pwr. & Utl. Lines	
N/A	Utility Pole	
	Construction Zone	N/A
N/A	Barricade	
Ⓐ	"RIGHT TURN SIGNAL" Sign (R10-10)	Ⓐ

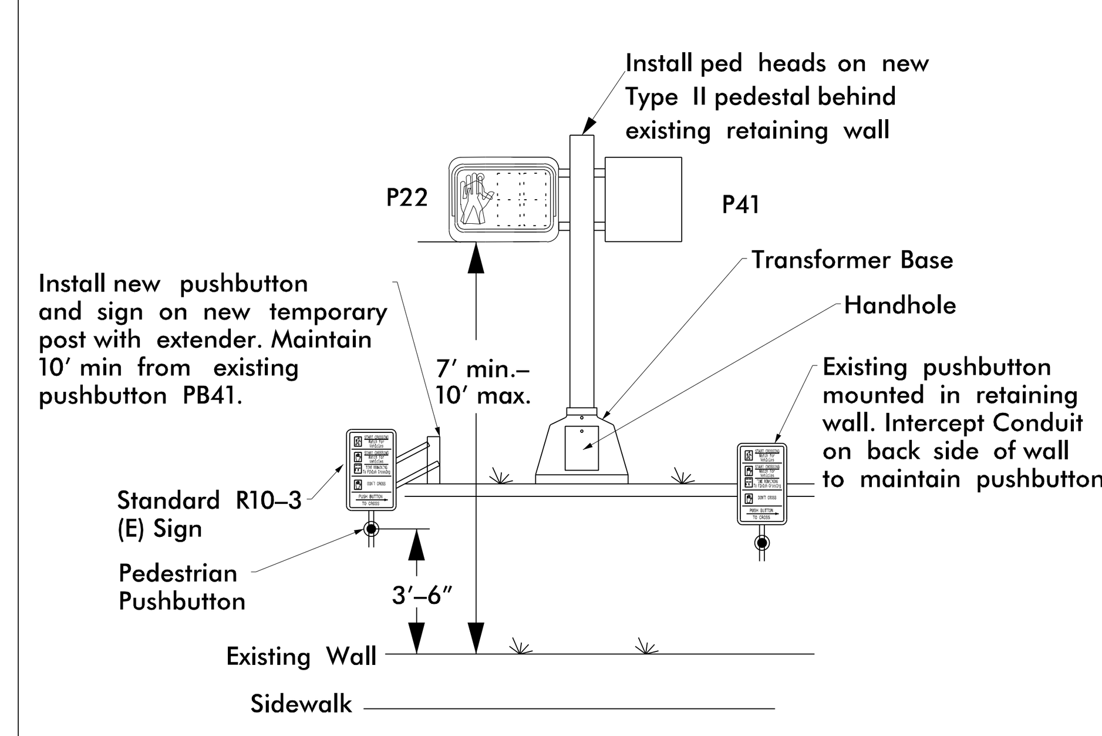
MAXTIME TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6
Walk *	–	14	–	14	–	–
Ped Clear	–	19	–	16	–	–
Min Green *	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	20	30	20	45
Yellow Change	3.0	4.3	4.0	3.2	3.0	4.3
Red Clear	2.9	2.2	2.4	2.9	2.6	2.2
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	–	**	–	–
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

* 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.
** See note 9

PEDESTRIAN DETAIL

Detail for installation of P22 & P41 heads and pushbuttons



Microwave Detection

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

Signal Upgrade
Temporary Design 1 - TMP Ph1, S2, Part 1

NC 107 (E. Main Street)
at
Walmart Driveway /
Commercial Driveway

Division 14 | Jackson County | Sylva

PLAN DATE: August 2025 | REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones | REVIEWED BY: BN Groome

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

Plans Prepared By: DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SCALE 0 40
1"=40'

REVISIONS | INIT. | DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

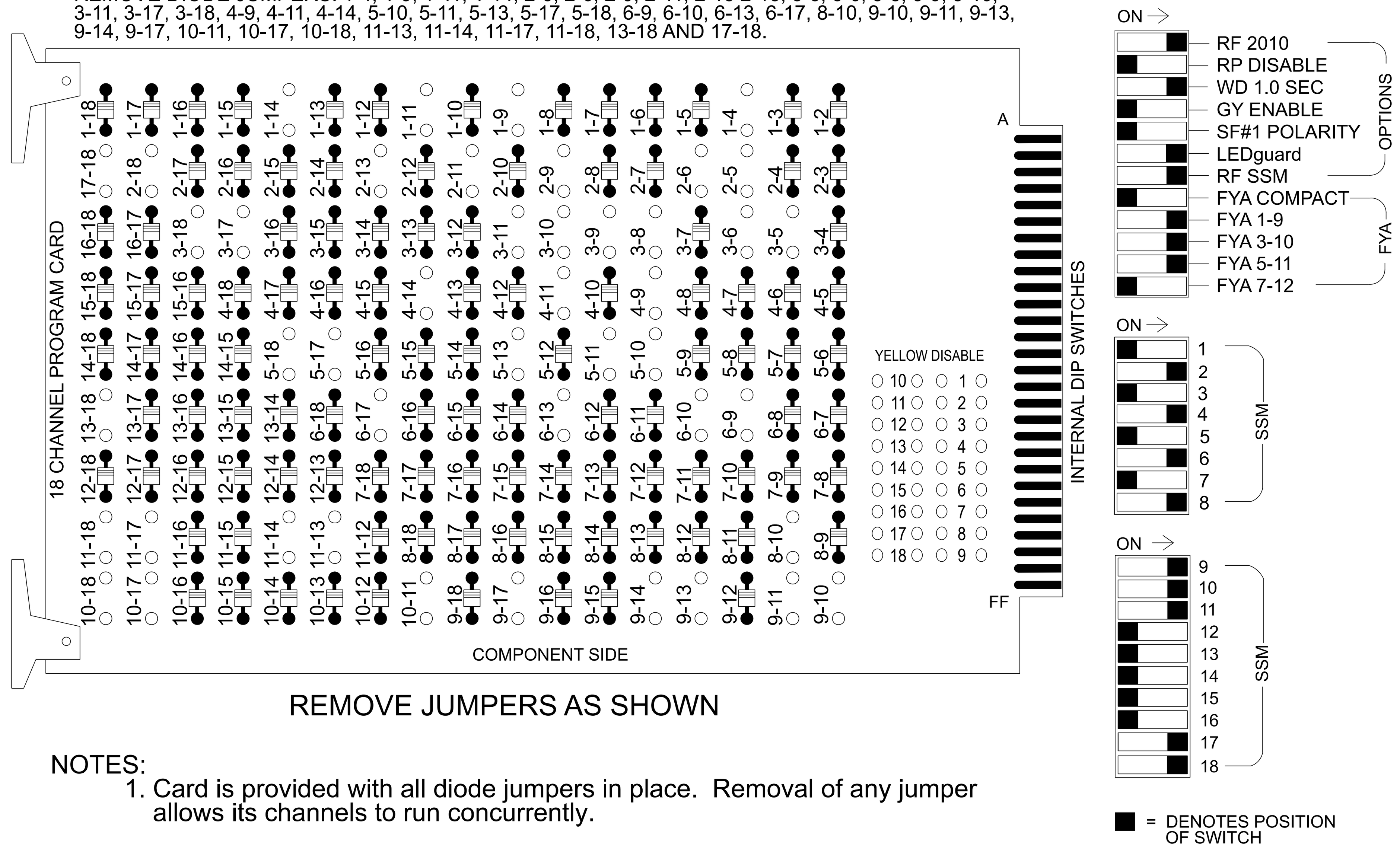
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N. GROOME
Signed by: Brittany Groome 8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS: 1-4, 1-9, 1-11, 1-14, 2-5, 2-6, 2-9, 2-11, 2-13 2-18, 3-5, 3-6, 3-8, 3-9, 3-10, 3-11, 3-17, 3-18, 4-9, 4-11, 4-14, 5-10, 5-11, 5-13, 5-17, 5-18, 6-9, 6-10, 6-13, 6-17, 8-10, 9-10, 9-11, 9-13, 9-14, 9-17, 10-11, 10-17, 10-18, 11-13, 11-14, 11-17, 11-18, 13-18 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 the 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 controller to start up in phase 2 Green No Walk 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 NC 107 Time Based System.

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	OL8	4			4 PED	OL9	6	6 PED	7	3		8 PED	OL1	OL2	1	OL3	OL4	5
SIGNAL HEAD NO.	63★	21,22	P21 P22	33★	41	42	43	P41 P42	44★	61,62	NU	NU	31	32	NU	63★	33★	11	44★	NU	51
RED		128				101	101			134			107	107		A121	A124		A114		
YELLOW	*	129		*		102	102		*	135			108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101													A111			A104
YELLOW ARROW					102											A122	A125	A112	A115		A105
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	103	103			133				109					A113			A106
(Don't Walk hand)			113					104													
(Walk person)			115					106													

NU = Not Used NC = Not Connected

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

★ See pictorial of head wiring in detail this sheet.

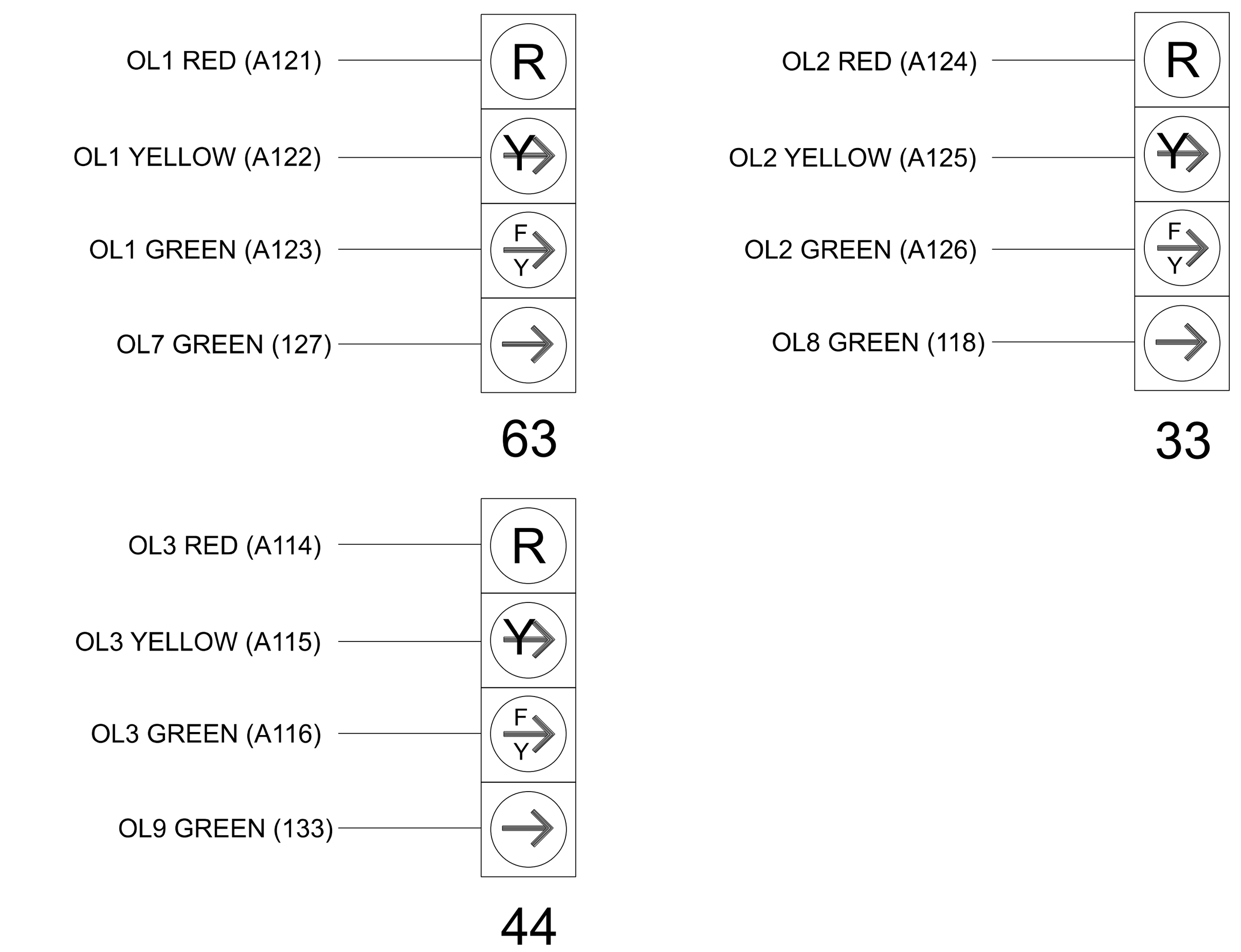
EQUIPMENT INFORMATION

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, S3, S4, S5, S6, S7, S8, S11, AUXS1, AUXS2, AUXS3, AUXS4, AUXS6
Phases Used..1, 2, 2PED, 3, 4, 4PED, 5, 6
Overlap "1"..*
Overlap "2"..*
Overlap "3"..*
Overlap "4"..NOT USED
Overlap "5"..NOT USED
Overlap "6"..NOT USED
Overlap "7"..*
Overlap "8"..*
Overlap "9"..*

*See overlap programming detail on sheet 2

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅2 PED DC ISOLATOR	SLOT EMPTY	FS DC ISOLATOR
	L												∅4 PED DC ISOLATOR		ST DC ISOLATOR
"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							NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOT I12.					
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						

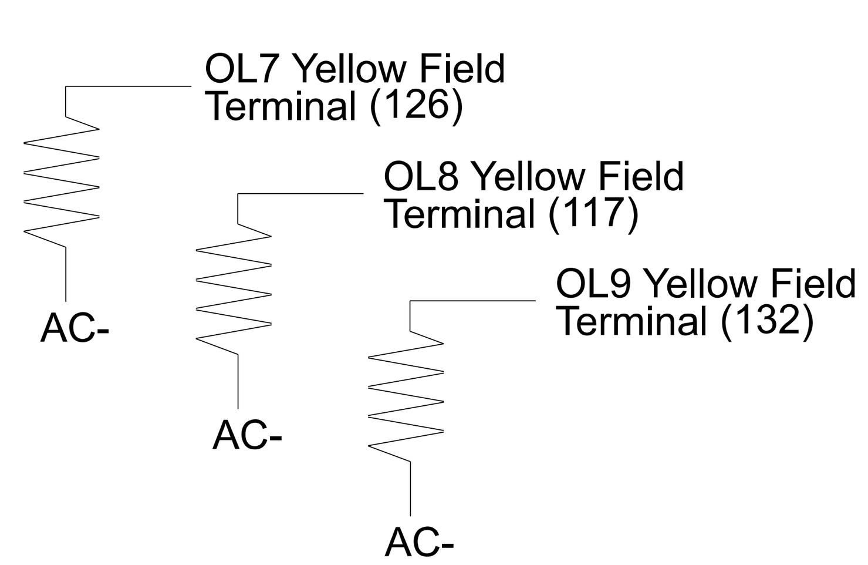
INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 1 - TMP Ph1,S2, Part 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway /
Commercial Driveway

Division 14 Jackson County Sylva

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-19.2

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	7	8	9
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	Normal
Included Phases	6	-	4	4	1,3	5
Modifier Phases	4	1,3	5	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	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
FYA Ped Delay	0.0	0.0	7.0	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 STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OUTPUT CHANNEL CONFIGURATION

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

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

Channel Configuration

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	Overlap	8		X	X	3
4	Phase Vehicle	4		X		4
5	Overlap	9		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	3		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	Phase Vehicle	1		X		17
18	Phase Vehicle	5		X	X	18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1
NOTICE OVERLAP 8 ASSIGNED TO CHANNEL 3
NOTICE OVERLAP 9 ASSIGNED TO CHANNEL 5
NOTICE PHASE VEHICLE 3 ASSIGNED TO CHANNEL 8
NOTICE PHASE VEHICLE 1 ASSIGNED TO CHANNEL 17
NOTICE PHASE VEHICLE 5 ASSIGNED TO CHANNEL 18

NOTICE FLASHING RED

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 1 - TMP Ph1, S2, Part 1

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
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Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

ITS & Signals Management Section — Transportation Mobility and Safety Division — State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
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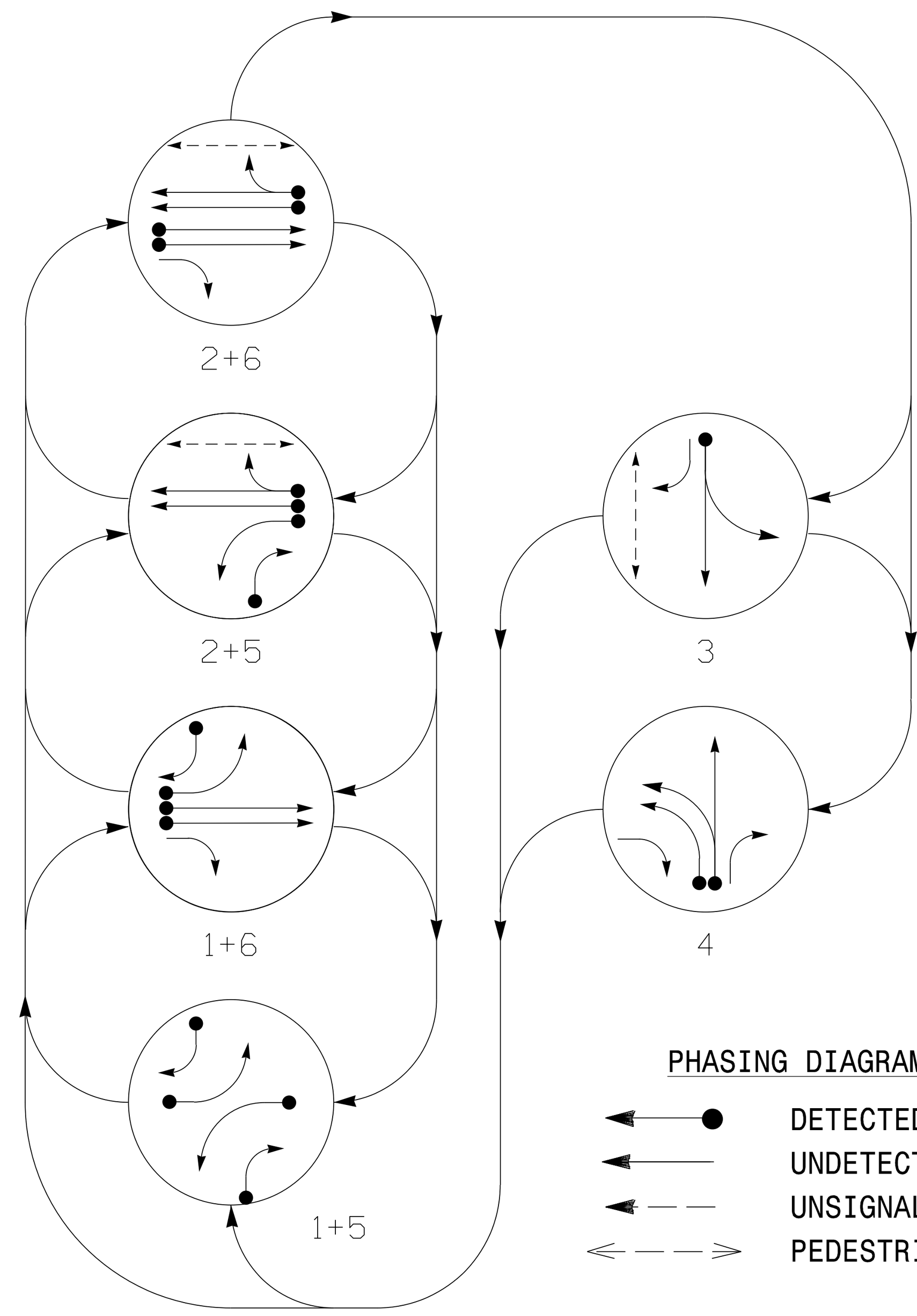
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 052936
BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-20.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

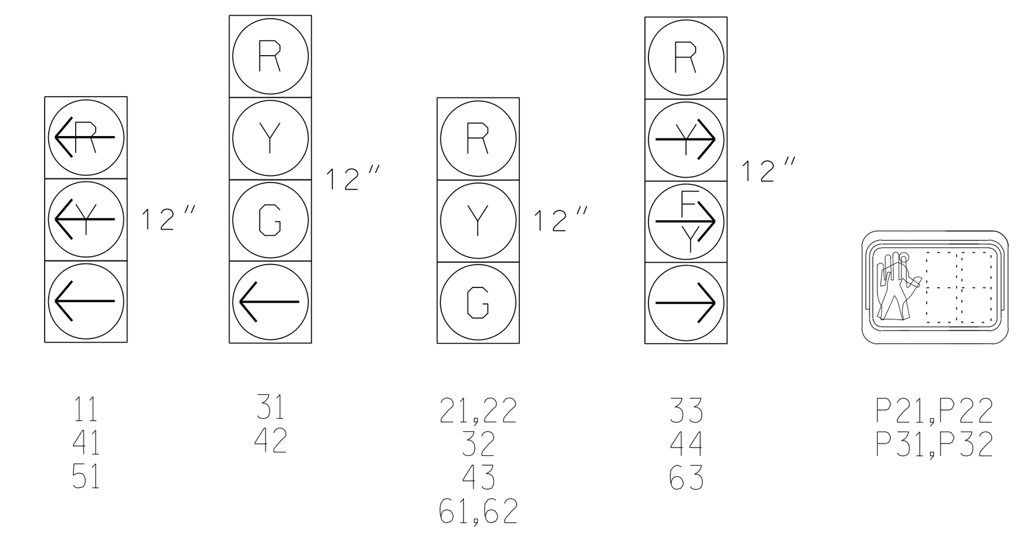
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3	4	FLASH
11	←	←	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	R
31	R	R	R	R	G←	R	R
32	R	R	R	R	G	R	R
33	→	→	R	R	F/Y→	R	R
41	←R	←R	←R	←R	←R	←	←R
42	R	R	R	R	R	G←	R
43	R	R	R	R	R	G	R
44	→	R	→	R	R	→	R
51	←	←R	←	←R	←R	←R	←R
61,62	R	G	R	G	R	R	R
63	R	F/Y→	R	F/Y→	R	→	R
P21,P22	DW	DW	W	W	DW	DW	DRK
P31,P32	DW	DW	DW	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

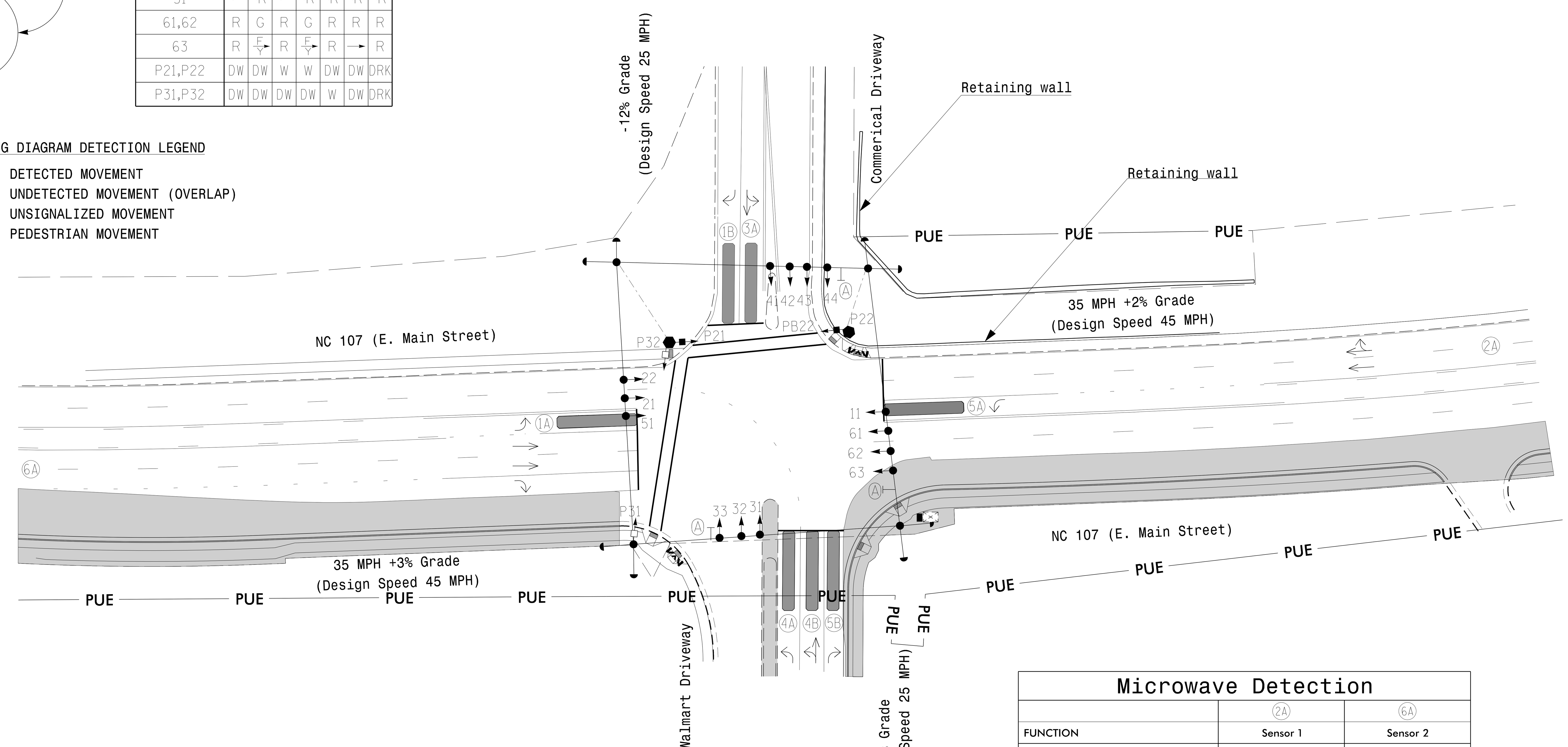
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
	DETECTOR				PROGRAMMING							
1A	*	0	*	-	1	3.0	-	X	-	X	-	*
1B	*	0	*	-	1	15.0	-	X	-	X	-	*
3A	*	0	*	-	3	-	-	X	-	X	-	*
4A	*	0	*	-	4	-	-	X	-	X	-	*
4B	*	0	*	-	4	-	-	X	-	X	-	*
5A	*	0	*	-	5	3.0	-	X	-	X	-	*
5B	*	0	*	-	5	15.0	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone

6 Phase Fully Actuated (Time Based Coordination)

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. The order of phase 3 and phase 4 may be reversed.
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. To provide a leading pedestrian interval on phase 3 program FYA head numbered 33 to delay for 7 seconds after the start of the phase 3 walk interval. See Electrical Details for programming.
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 With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
	Directional Drill	N/A
	Type II Signal Pedestal	
	Temporary Pedestrian Post with Ped Push Button & Sign	
PUE	Permanent Utility Easement	N/A
	Construction Zone	N/A
Ⓐ	"RIGHT TURN SIGNAL" Sign (R10-10)	Ⓐ

Microwave Detection

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

MAXTIME TIMING CHART

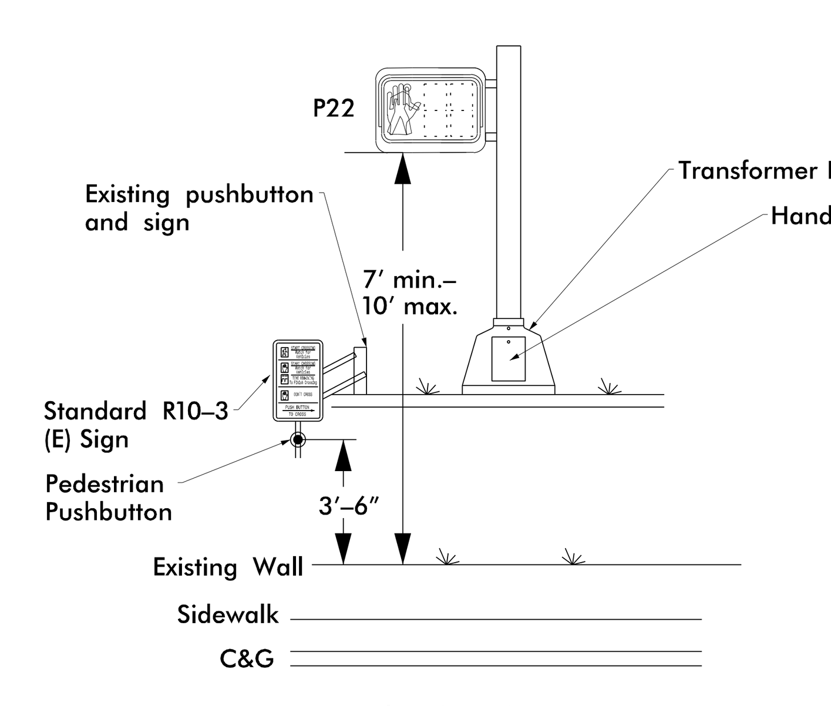
FEATURE	PHASE 1	2	3	4	5	6
Walk *	–	14	14	–	–	–
Ped Clear	–	19	22	–	–	–
Min Green *	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	40	20	20	45
Yellow Change	3.0	4.3	4.0	3.2	3.0	4.3
Red Clear	2.8	2.1	2.4	3.1	2.6	2.1
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	**	–	–	–
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

* 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.

** See note 8

PEDESTRIAN DETAIL

Detail for P22 head and pushbutton



Elevation View

Signal Upgrade

Temporary Design 2 - TMP Ph1, S2, Part 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for: Transportation Mobility and Safety Division, Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street) at Walmart Driveway / Commercial Driveway

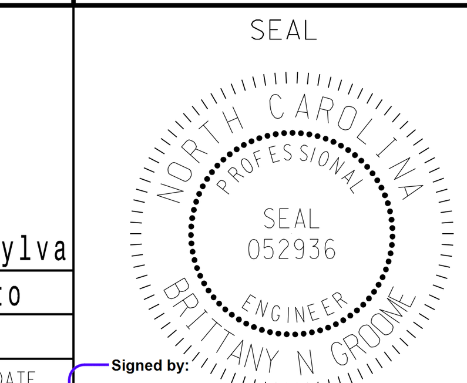
Division 14 | Jackson County | Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS | INIT. | DATE

SCALE 0 40 1"=40'

SEAL



Signed by: Brittany Groome 8/26/2025

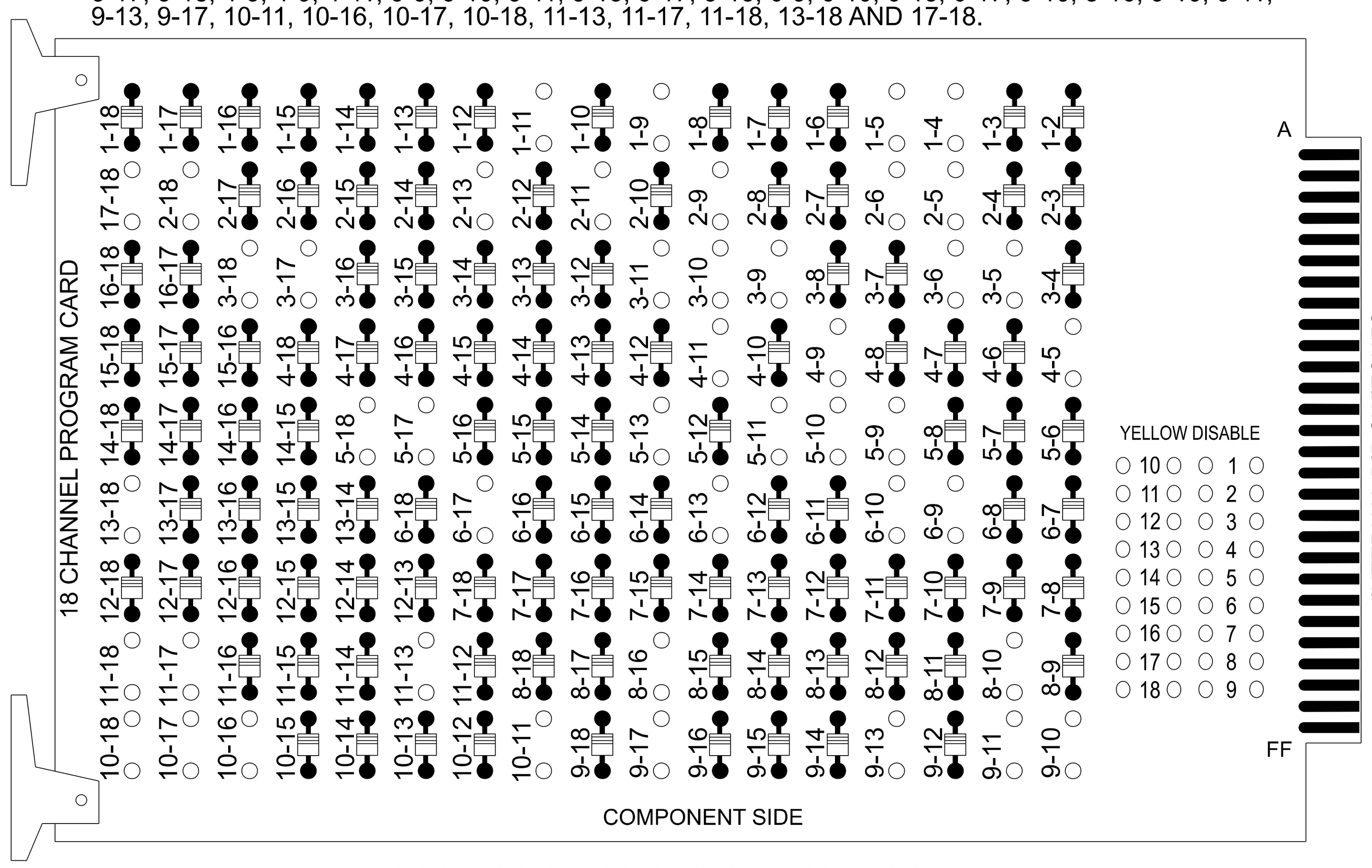
DATE

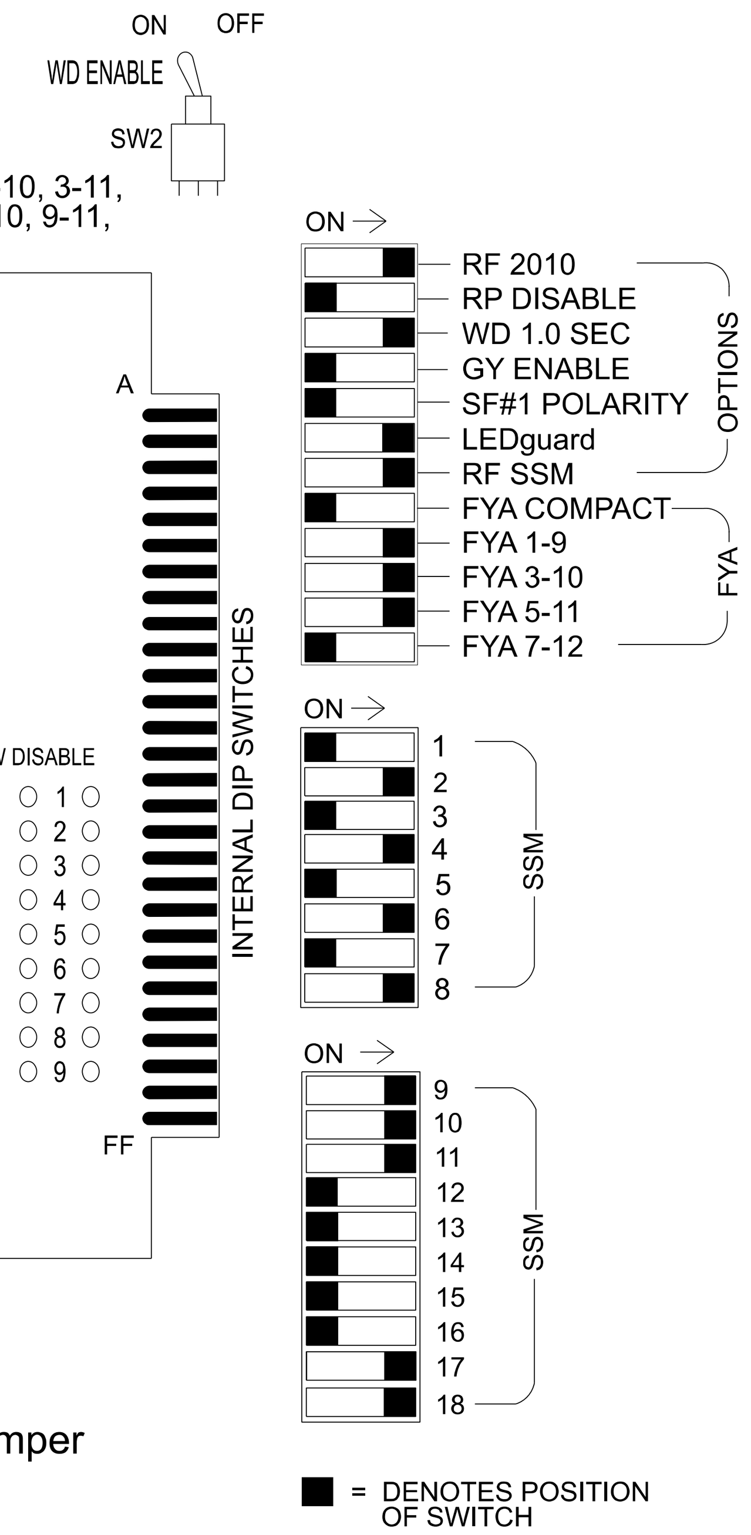
SIG. INVENTORY NO. 14-1022T2

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS: 1-4, 1-5, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 2-13, 2-18, 3-5, 3-6, 3-9, 3-10, 3-11, 3-17, 3-18, 4-5, 4-9, 4-11, 5-9, 5-10, 5-11, 5-13, 5-17, 5-18, 6-9, 6-10, 6-13, 6-17, 8-10, 8-16, 9-10, 9-11, 9-13, 9-17, 10-11, 10-16, 10-17, 10-18, 11-13, 11-17, 11-18, 13-18 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 the 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 controller to start up in phase 2 Green No Walk 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 NC 107 Time Based System.

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	OL8	4			4 PED	OL9	6	6 PED	7	3		3 PED	OL1	OL2	1	OL3	OL4	5
SIGNAL HEAD NO.	63★	21,22	P21 P22	33★	41	42	43	NC	44★	61,62	NU	NU	31	32	P31 P32	63★	33★	11	44★	NU	51
RED		128				101	101			134			107	107		A121	A124		A114		
YELLOW	*	129		*		102	102		*	135			108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101													A111			A104
YELLOW ARROW					102											A122	A125	A112	A115		A105
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	103	103			133				109					A113			A106
(Don't Walk)			113												110						
(Walk)			115												112						

NU = Not Used NC = Not Connected

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

★ See pictorial of head wiring in detail this sheet.

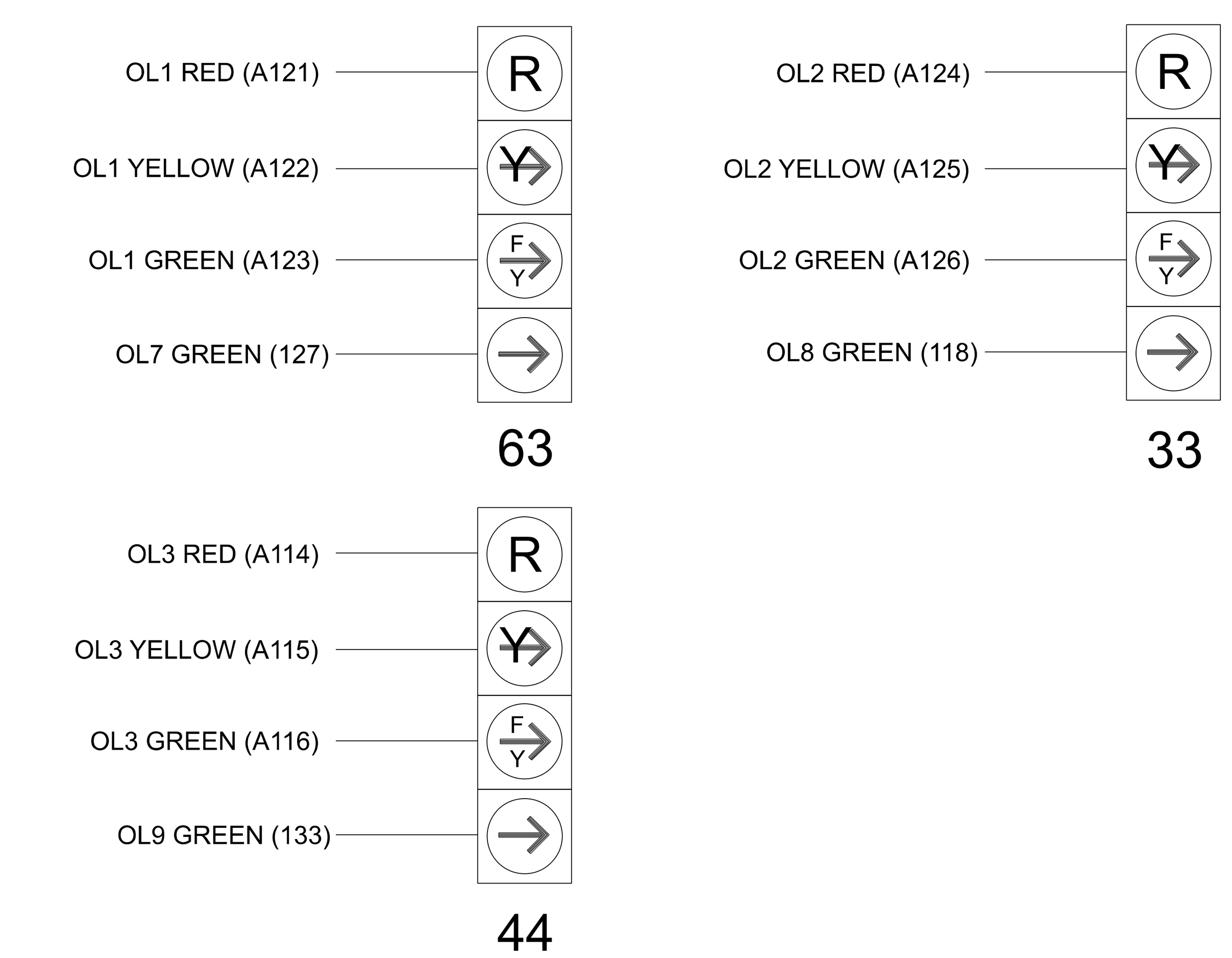
EQUIPMENT INFORMATION

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, S3, S4, S5, S7, S8, S11, S12, AUXS1, AUXS2, AUXS3, AUXS4, AUXS6
Phases Used.......................................1, 2, 2PED, 3, 3PED, 4, 5, 6
Overlap "1"..*
Overlap "2"..*
Overlap "3"..*
Overlap "4"..NOT USED
Overlap "5"..NOT USED
Overlap "6"..NOT USED
Overlap "7"..*
Overlap "8"..*
Overlap "9"..*

*See overlap programming detail on sheet 2

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅ 2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
"I"	L												NOT USED	∅ 3 PED DC ISOLATOR	ST DC ISOLATOR
"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
"J"	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						
P31,P32	TB8-8,9	I13L	70	36	8	PED 3						

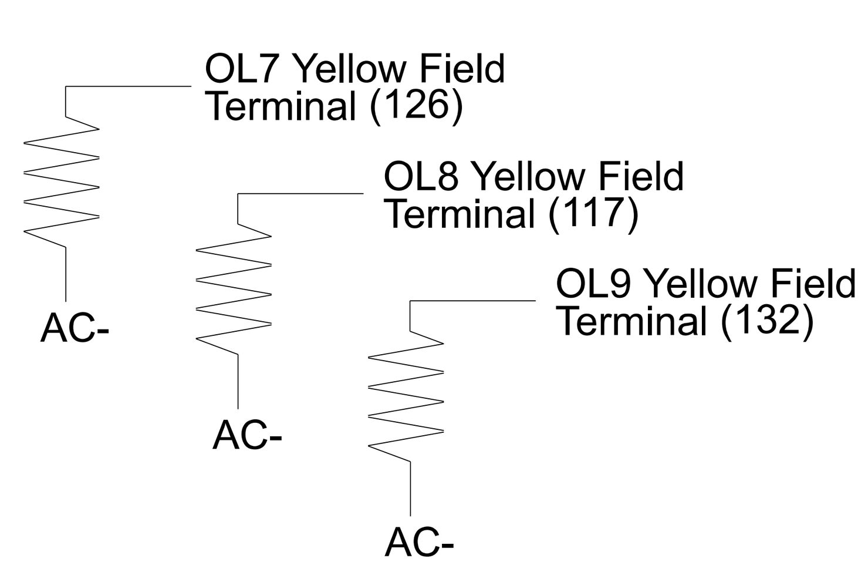
NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
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DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
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Electrical Detail - Sheet 1 of 2
Temporary Design 2 - TMP Ph1, S2, Part 2

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Transportation Mobility and Safety Division — ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE: August 2025	REVIEWED BY: ZM Espostio
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 1E09340E1094484... 8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T2

PED 3 PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED →

OUTPUT CHANNEL CONFIGURATION

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

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

Channel Configuration

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	Overlap	8		X	X	3
4	Phase Vehicle	4		X		4
5	Overlap	9		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	3		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	3				16
17	Phase Vehicle	1		X		17
18	Phase Vehicle	5		X	X	18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1 →
NOTICE OVERLAP 8 ASSIGNED TO CHANNEL 3 →
NOTICE OVERLAP 9 ASSIGNED TO CHANNEL 5 →
NOTICE PHASE VEHICLE 3 ASSIGNED TO CHANNEL 8 →
NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16 →
NOTICE PHASE VEHICLE 1 ASSIGNED TO CHANNEL 17 →
NOTICE PHASE VEHICLE 5 ASSIGNED TO CHANNEL 18 →

↑ NOTICE FLASHING RED

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	7	8	9
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	Normal
Included Phases	6	3	-	4	1	4,5
Modifier Phases	4	1	4,5	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	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
FYA Ped Delay	0.0	7.0	0.0	0.0	0.0	0.0

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 2 - TMP Ph1,S2, Part 2

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

NC 107 (E. Main St)
at
Walmart Driveway /
Commercial Driveway

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Espostio
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

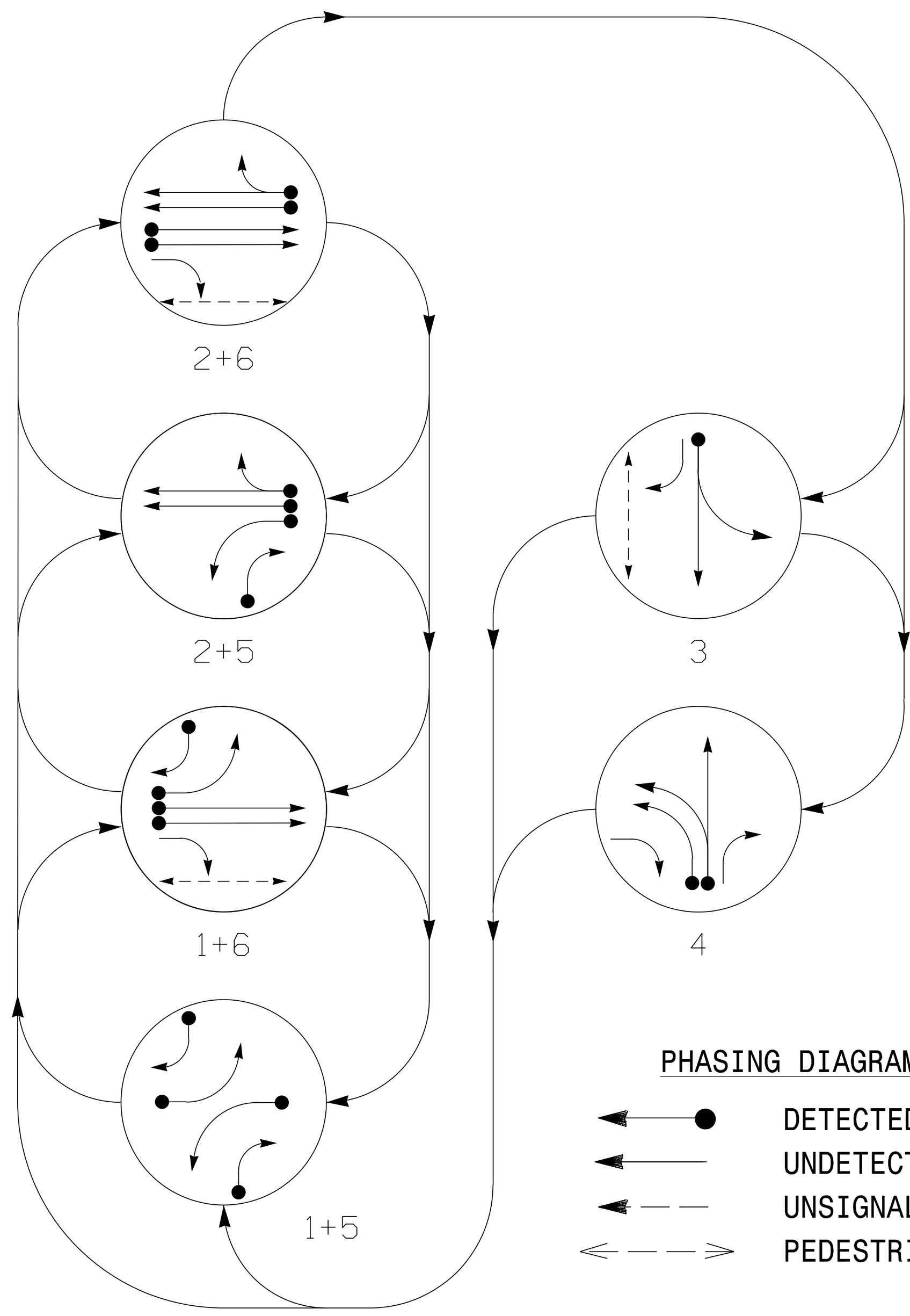
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME
Signed by: Brittany Groome 1E09340E1094484... 8/26/2025 DATE

SIG. INVENTORY NO. 14-1022T2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-21.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

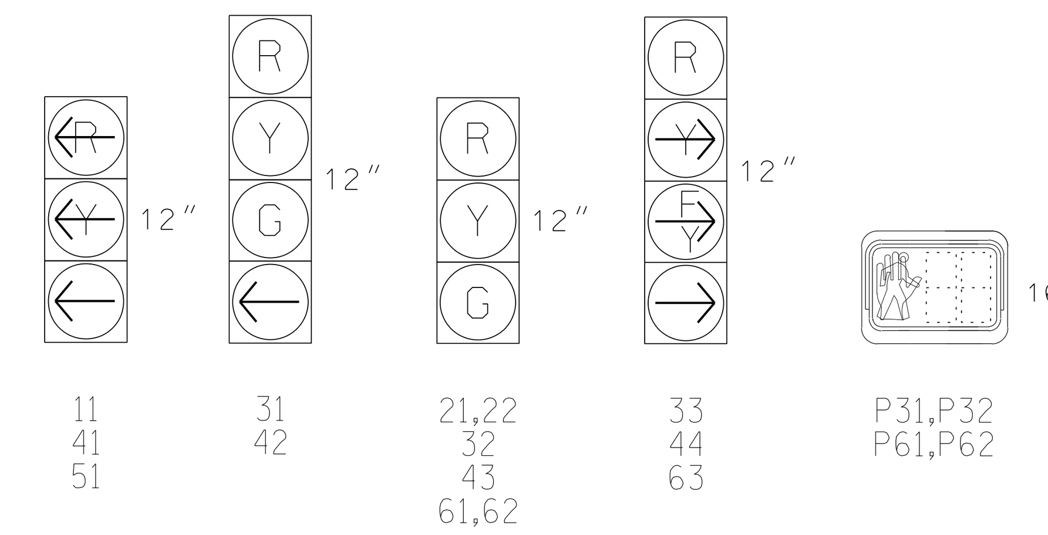
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3	4	FLASH
11	←	←	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	R
31	R	R	R	R	G ←	R	R
32	R	R	R	R	G	R	R
33	→	→	R	R	FY→	R	R
41	←R	←R	←R	←R	←R	←	←R
42	R	R	R	R	R	G ←	R
43	R	R	R	R	R	G	R
44	→	R	→	R	R	→	R
51	←	←R	←	←R	←R	←R	←R
61,62	R	G	R	G	R	R	R
63	R	FY→	R	FY→	R	→	R
P31,P32	DW	DW	DW	DW	W	DW	DRK
P61,P62	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

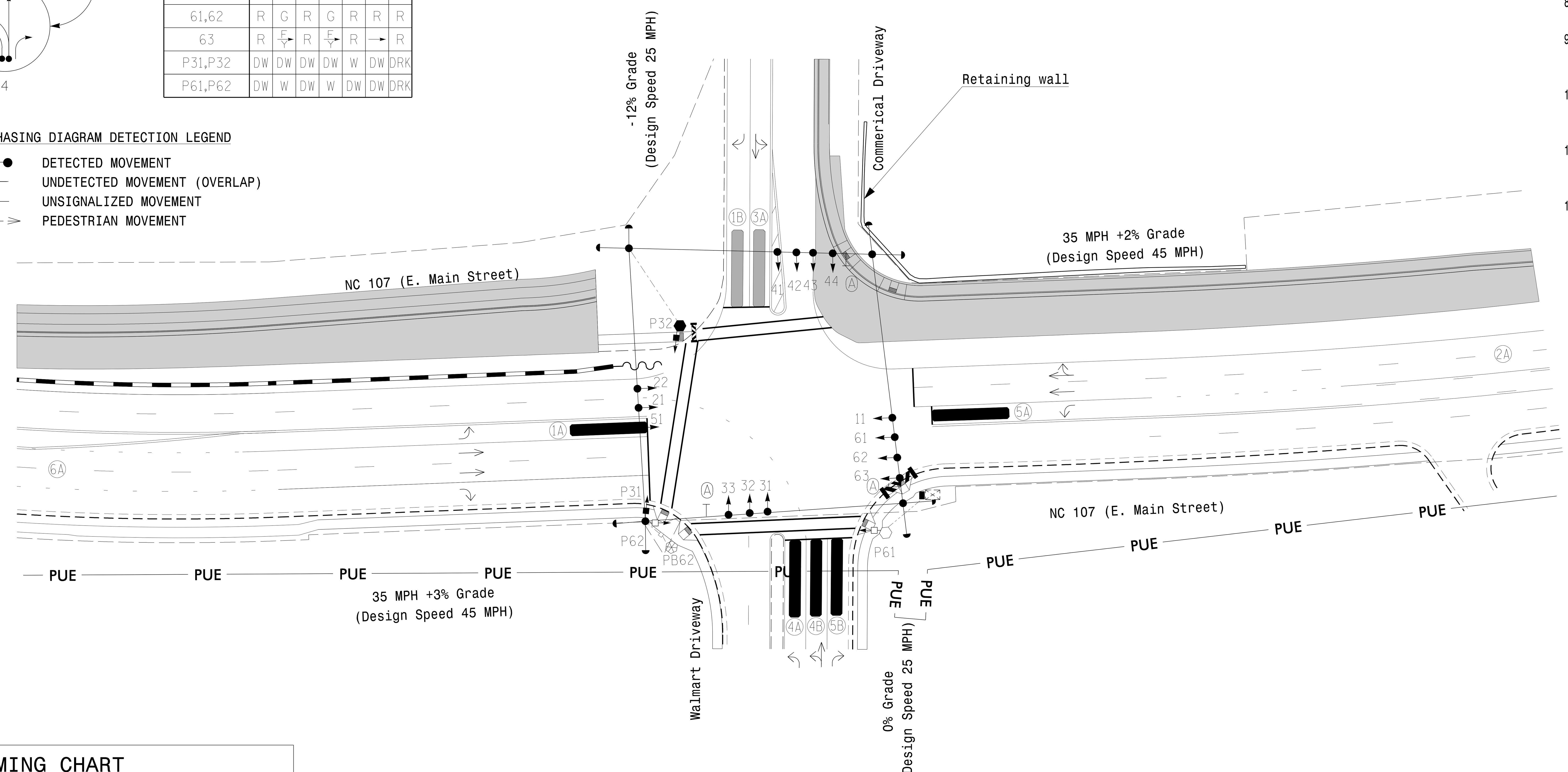
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	3.0	-	X	-	X	-	*
1B	*	0	*	-	1	15.0	-	X	-	X	-	*
3A	*	0	*	-	3	3.0	-	X	-	X	-	*
4A	*	0	*	X	4	-	-	X	-	X	-	*
4B	*	0	*	X	4	-	-	X	-	X	-	*
5A	*	0	*	X	5	3.0	-	X	-	X	-	*
5B	*	0	*	X	5	15.0	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone

6 Phase
Fully Actuated
(Time Based Coordination)

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. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Reposition existing signal heads numbered 11, 21, 22, 51, 61, 62 and 63.
8. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
9. To provide a leading pedestrian interval on phase 3 program FYA head numbered 33 to delay for 7 seconds after the start of the phase 3 walk interval. See Electrical Details for programming.
10. To provide a leading pedestrian interval on phase 6 program FYA head numbered 63 to delay for 7 seconds after the start of the phase 6 walk interval. See Electrical Details for programming.
11. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
	Directional Drill	N/A
	Type I Pushbutton Post	
	Type II Signal Pedestal	
PUE	Permanent Utility Easement	N/A
	Construction Zone	N/A
	Barricade	
N/A	Portable Concrete Barrier	
A	"RIGHT TURN SIGNAL" Sign (R10-10)	A
B	"RIGHT TURN YIELD TO U-TURN" Sign	B

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Walk *	–	–	14	–	–	14
Ped Clear	–	–	22	–	–	23
Min Green *	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	40	20	20	45
Yellow Change	3.0	4.3	4.0	3.2	3.0	4.3
Red Clear	2.6	2.4	3.0	3.1	3.3	2.4
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	–	**	–	–	***
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

* 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.
** See note 9
*** See note 10

Microwave Detection

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

Signal Upgrade
Temporary Design 3 - TMP Ph2, S1, Part 1

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

NC 107 (E. Main Street) at Walmart Driveway / Commercial Driveway

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Espostio
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

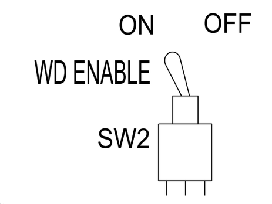
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T3

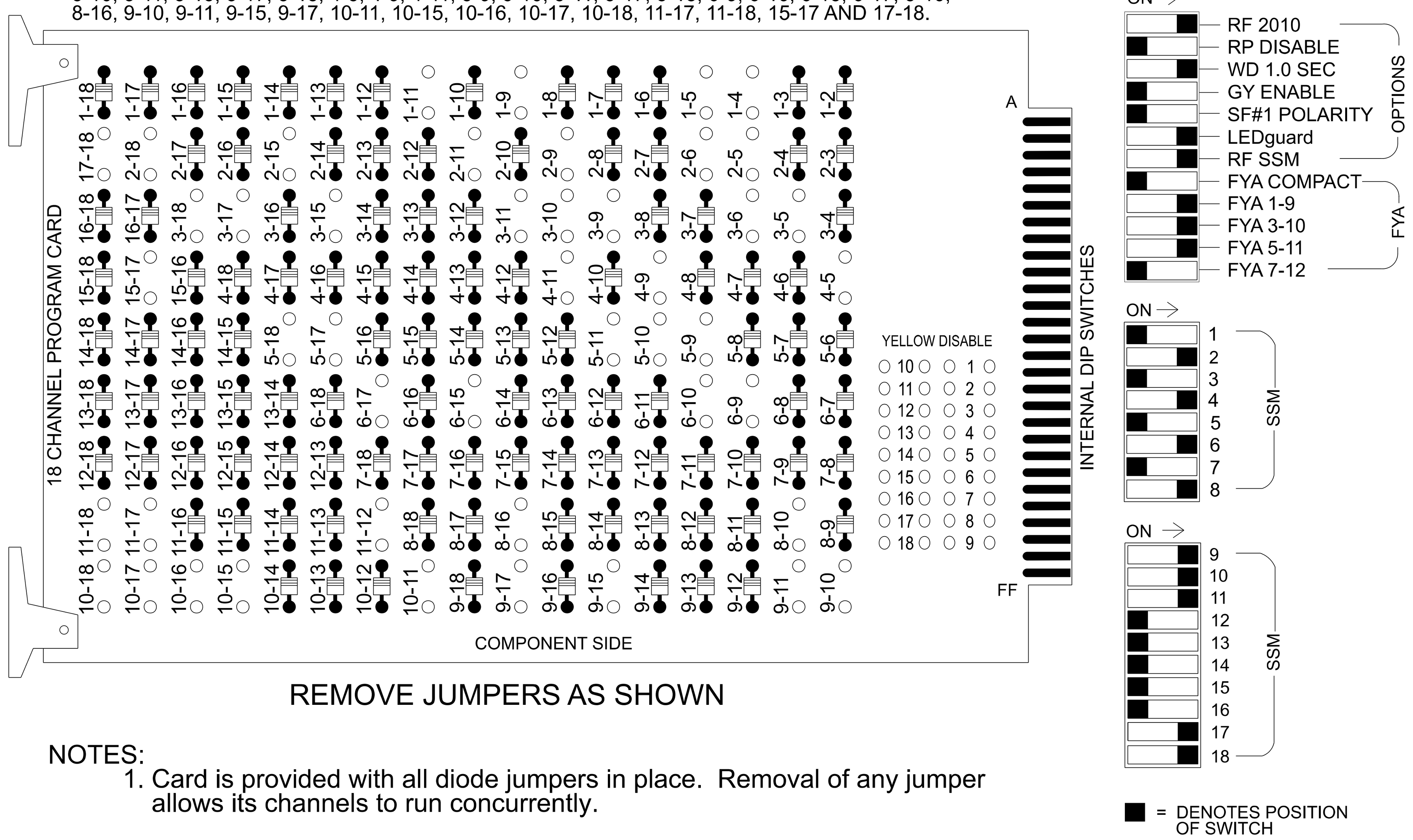
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-21.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS:1-4, 1-5, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 2-15, 2-18, 3-5, 3-6, 3-9, 3-10, 3-11, 3-15, 3-17, 3-18, 4-5, 4-9, 4-11, 5-9, 5-10, 5-11, 5-17, 5-18, 6-9, 6-10, 6-15, 6-17, 8-10, 8-16, 9-10, 9-11, 9-15, 9-17, 10-11, 10-15, 10-16, 10-17, 10-18, 11-17, 11-18, 15-17 AND 17-18.



REMOVE JUMPERS AS SHOWN

■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that the 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 controller to start up in phase 2 Green No Walk 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 NC 107 Time Based 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, S2, S4, S5, S7, S8, S9 S11, S12, AUXS1, AUXS2, AUXS3, AUXS4, AUXS6
Phases Used...1, 2, 3, 3PED 4, 5 6, 6PED
Overlap "1"..*
Overlap "2"..*
Overlap "3"..*
Overlap "4"..NOT USED
Overlap "5"..NOT USED
Overlap "6"..NOT USED
Overlap "7"..*
Overlap "8"..*
Overlap "9"..*

*See overlap programming detail on sheet 2

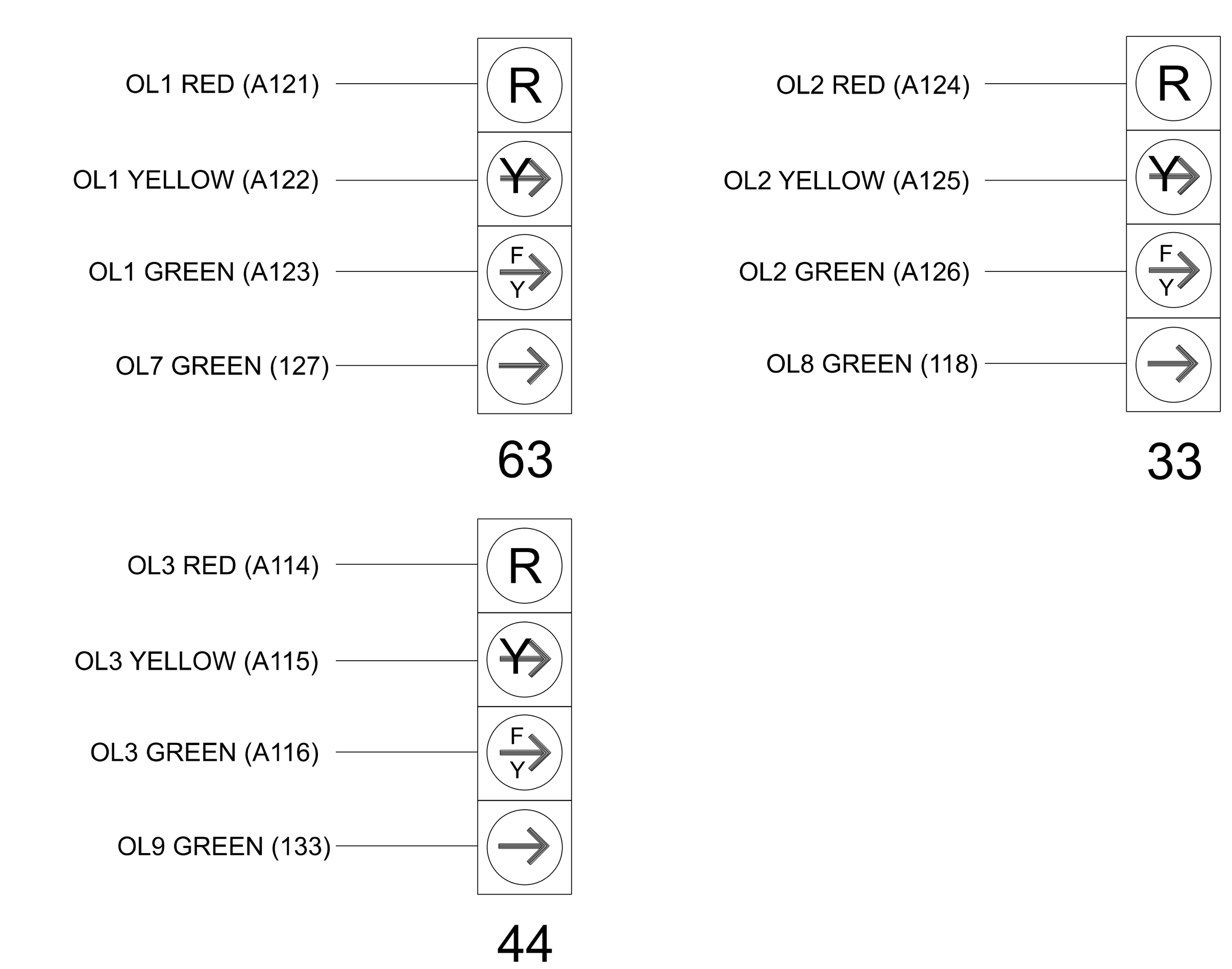
SIGNAL HEAD HOOK-UP CHART

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	OL8	4			4 PED	OL9	6	6 PED	7	3		3 PED	OL1	OL2	1	OL3	OL4	5
SIGNAL HEAD NO.	63★	21,22	NC	33★	41	42	43	NU	44★	61,62	P61 P62	NU	31	32	P31, P32	63★	33★	11	44★	NU	51
RED		128				101	101			134			107	107		A121	A124		A114		
YELLOW	*	129		*		102	102		*	135			108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101													A111			A104
YELLOW ARROW					102											A122	A125	A112	A115		A105
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	103	103			133				109					A113			A106
(Don't Walk)											119				110						
(Walk)											121				112						

NU = Not Used NC = Not Connected
* 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	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅6 PED DC ISOLATOR	FS DC ISOLATOR
	L													∅3 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												
P31,P32	TB8-8,9	I13L	70	36	8	PED 3						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

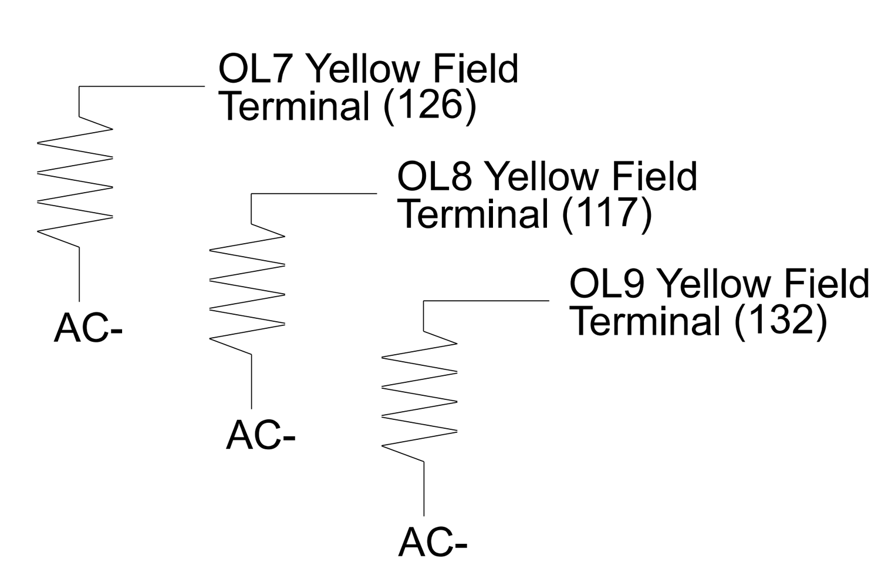
NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOT I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 3 - TMP Ph2, S1, Part 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway /
Commerical Driveway

Division 14 Jackson County Sylva

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T3

PED 3 PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED →

OUTPUT CHANNEL CONFIGURATION

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

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

Channel Configuration

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	Overlap	8		X	X	3
4	Phase Vehicle	4		X		4
5	Overlap	9		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	3		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	3				16
17	Phase Vehicle	1		X		17
18	Phase Vehicle	5		X	X	18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1 →
NOTICE OVERLAP 8 ASSIGNED TO CHANNEL 3 →
NOTICE OVERLAP 9 ASSIGNED TO CHANNEL 5 →
NOTICE PHASE VEHICLE 3 ASSIGNED TO CHANNEL 8 →
NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16 →
NOTICE PHASE VEHICLE 1 ASSIGNED TO CHANNEL 17 →
NOTICE PHASE VEHICLE 5 ASSIGNED TO CHANNEL 18 →

↑ NOTICE FLASHING RED

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	7	8	9
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	Normal
Included Phases	6	3	-	4	1	4,5
Modifier Phases	4	1	4,5	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	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
FYA Ped Delay	7.0	7.0	0.0	0.0	0.0	0.0

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 3 - TMP Ph2, S1, Part 1

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway /
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Division 14 Jackson County Sylva

Plans Prepared By:
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Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

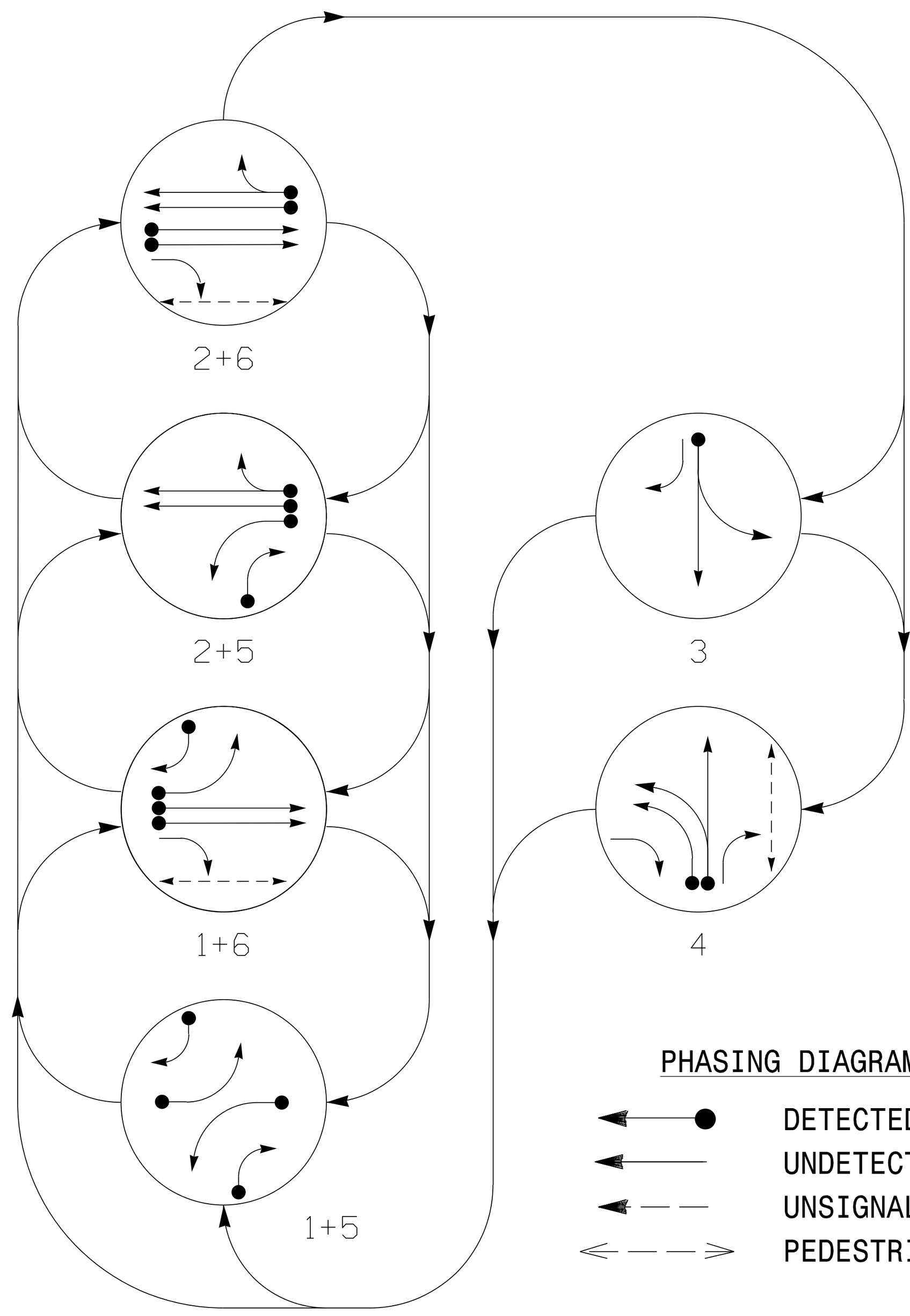
PLAN DATE: August 2025 | REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones | REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME
Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T3

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

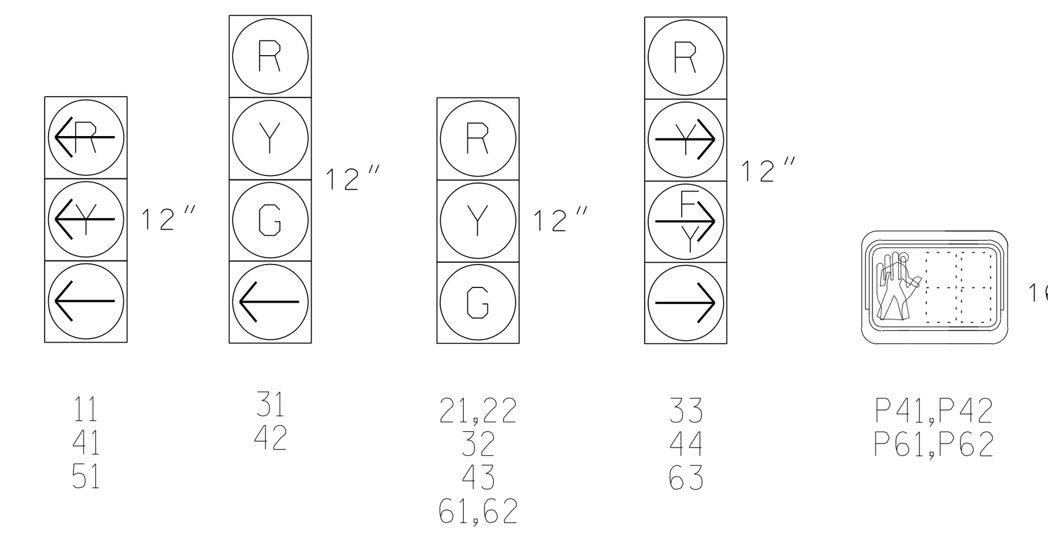
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3	4	FLASH
11	←	←	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	R
31	R	R	R	R	G ←	R	R
32	R	R	R	R	G	R	R
33	→	→	R	R	→	R	R
41	←R	←R	←R	←R	←R	←	←R
42	R	R	R	R	R	G ←	R
43	R	R	R	R	R	G	R
44	→	R	→	R	R	F/Y →	R
51	←	←R	←	←R	←R	←R	←R
61,62	R	G	R	G	R	R	R
63	R	F/Y →	R	F/Y →	R	→	R
P41,P42	DW	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

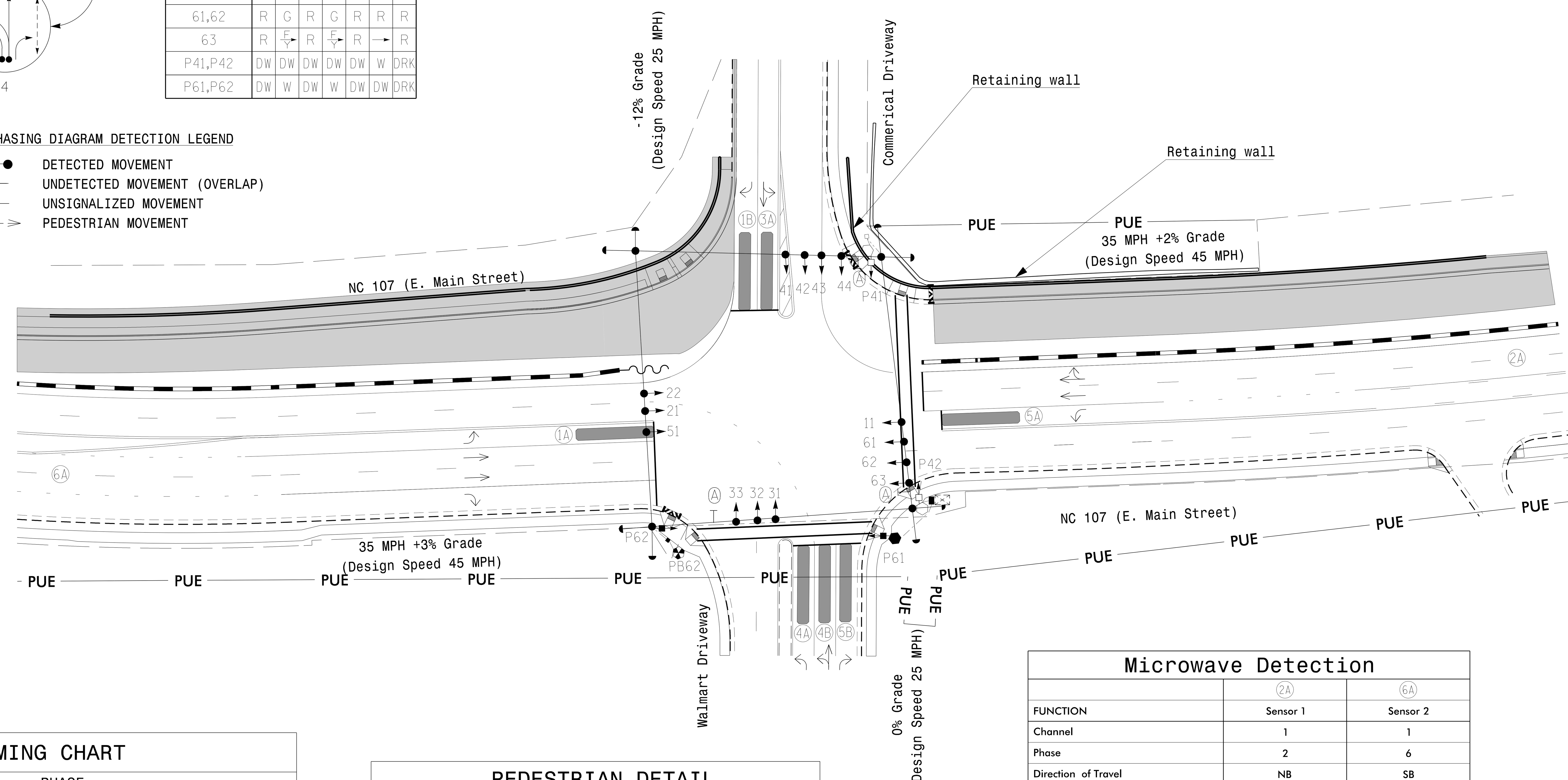
DETECTOR					PROGRAMMING								
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	-	1	3.0	-	X	-	X	-	*
1B	*	0	*	-	1	15.0	-	X	-	X	-	*
3A	*	0	*	-	3	3.0	-	X	-	X	-	*
4A	*	0	*	-	4	-	-	X	-	X	-	*
4B	*	0	*	-	4	-	-	X	-	X	-	*
5A	*	0	*	-	5	3.0	-	X	-	X	-	*
5B	*	0	*	-	5	15.0	-	X	-	X	-	*

* Multi-zone Microwave Detection Zone

6 Phase
Fully Actuated
(Time Based Coordination)

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. The order of phase 3 and phase 4 may be reversed.
5. Cover and disconnect existing pedestrian head and pushbutton P31.
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. To provide a leading pedestrian interval on phase 4 program FYA head numbered 44 to delay for 7 seconds after the start of phase 4 walk interval. See Electrical Details for programming.
10. To provide a leading pedestrian interval on phase 6 program FYA head numbered 63 to delay for 7 seconds after the start of the phase 6 walk interval. See Electrical Details for programming.
11. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
	Directional Drill	N/A
	Type I Pushbutton Post	
	Type II Signal Pedestal	
N/A	Permanent Utility Easement	PUE
	Construction Zone	N/A
N/A	Barricade	
N/A	Portable Concrete Barrier	
Ⓐ	"RIGHT TURN SIGNAL" Sign (R10-10)	Ⓐ

MAXTIME TIMING CHART

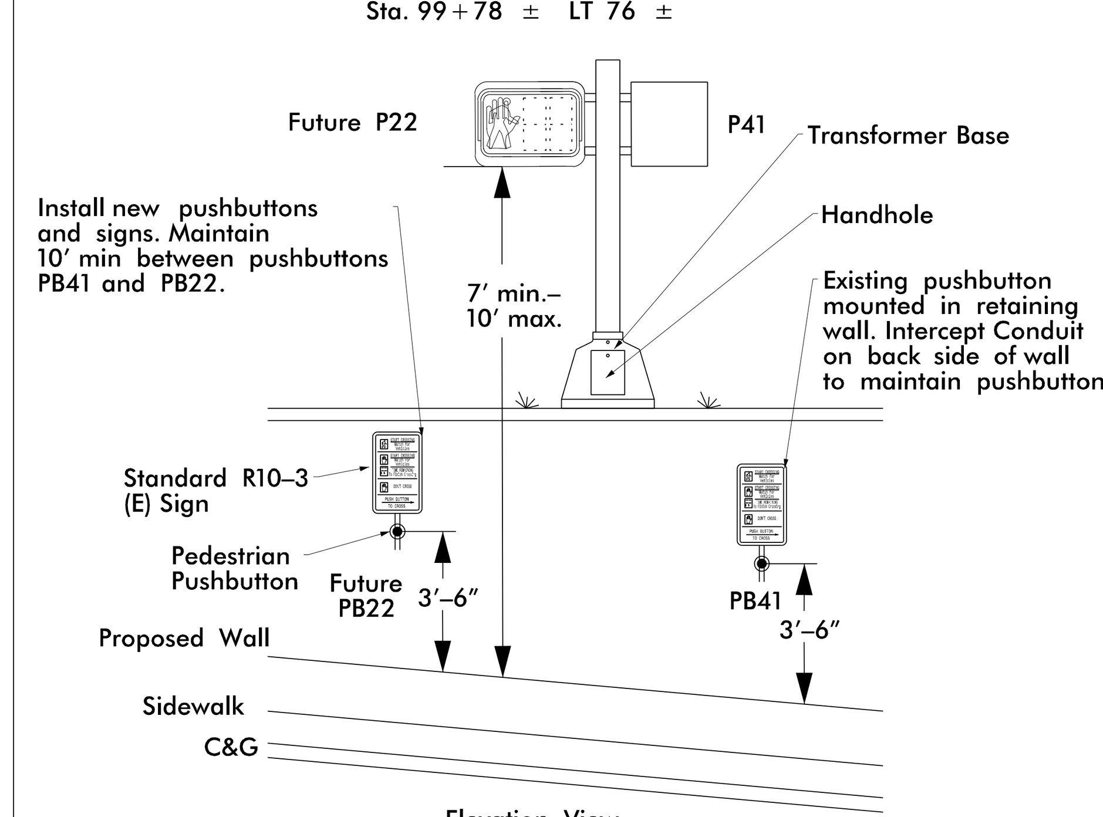
FEATURE	PHASE 1	2	3	4	5	6
Walk *	–	–	–	14	–	14
Ped Clear	–	–	–	25	–	23
Min Green *	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	20	40	20	45
Yellow Change	3.0	4.3	4.0	3.2	3.0	4.3
Red Clear	2.6	2.5	3.0	3.0	3.3	2.5
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	–	–	**	–	***
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

* 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.
** See note 9
*** See note 10

PEDESTRIAN DETAIL

Detail for installation of P22 & P41 heads and pushbuttons

Install ped heads on new Type II pedestal at -L- Sta. 99+78 ± LT 76 ±



Elevation View

–Locate pushbuttons adjacent to truncated domes
–See additional information in –WALL 15–details

Microwave Detection

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

Signal Upgrade
Temporary Design 4 - TMP Ph2, S1, Part 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

NC 107 (E. Main Street)
at
Walmart Driveway /
Commerical Driveway

Division 14 | Jackson County | Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS | INIT. | DATE

SCALE 0 40
1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

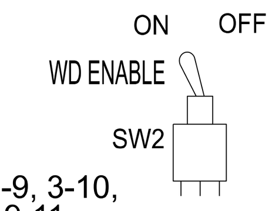
Signed by: Brittany Groome 8/26/2025 DATE

SIG. INVENTORY NO. 14-102214

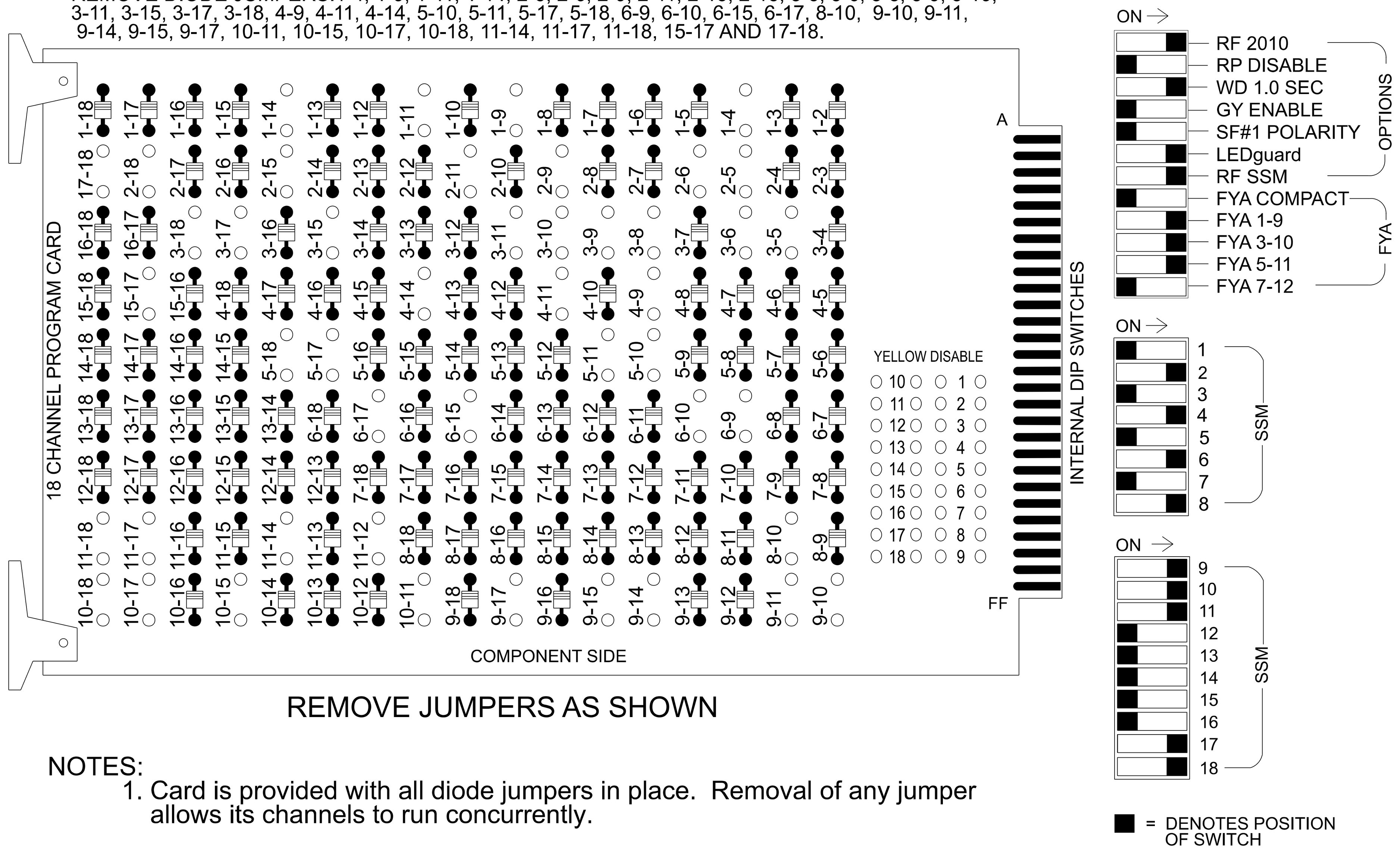
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-22.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS:1-4, 1-9, 1-11, 1-14, 2-5, 2-6, 2-9, 2-11, 2-15, 2-18, 3-5, 3-6, 3-8, 3-9, 3-10, 3-11, 3-15, 3-17, 3-18, 4-9, 4-11, 4-14, 5-10, 5-11, 5-17, 5-18, 6-9, 6-10, 6-15, 6-17, 8-10, 9-10, 9-11, 9-14, 9-15, 9-17, 10-11, 10-15, 10-17, 10-18, 11-14, 11-17, 11-18, 15-17 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 the 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 controller to start up in phase 2 Green No Walk 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 NC 107 Time Based 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, S2, S4, S5, S6, S7, S8, S9, S11, AUXS1, AUXS2, AUXS3, AUXS4, AUXS6
Phases Used.......................................1, 2, 3, 4, 4PED, 5, 6, 6PED
Overlap "1"..*
Overlap "2"..*
Overlap "3"..*
Overlap "4"..NOT USED
Overlap "5"..NOT USED
Overlap "6"..NOT USED
Overlap "7"..*
Overlap "8"..*
Overlap "9"..*

*See overlap programming detail on sheet 2

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	OL8	4			4 PED	OL9	6	6 PED	7	3		3 PED	OL1	OL2	1	OL3	OL4	5
SIGNAL HEAD NO.	63★	21,22	NU	33★	41	42	43	P41 P42	44★	61,62	P61 P62	NU	31	32	NC	63★	33★	11	44★	NU	51
RED		128				101	101			134			107	107		A121	A124		A114		
YELLOW	*	129		*		102	102		*	135			108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101													A111			A104
YELLOW ARROW					102											A122	A125	A112	A115		A105
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	103	103			133				109					A113			A106
(Don't Walk)								104			119										
(Walk)								106			121										

NU = Not Used NC = Not Connected
* 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)

FILE		1	2	3	4	5	6	7	8	9	1O	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	NOT USED	∅6 PED DC ISOLATOR	FS DC ISOLATOR
	L												∅4 PED DC ISOLATOR	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

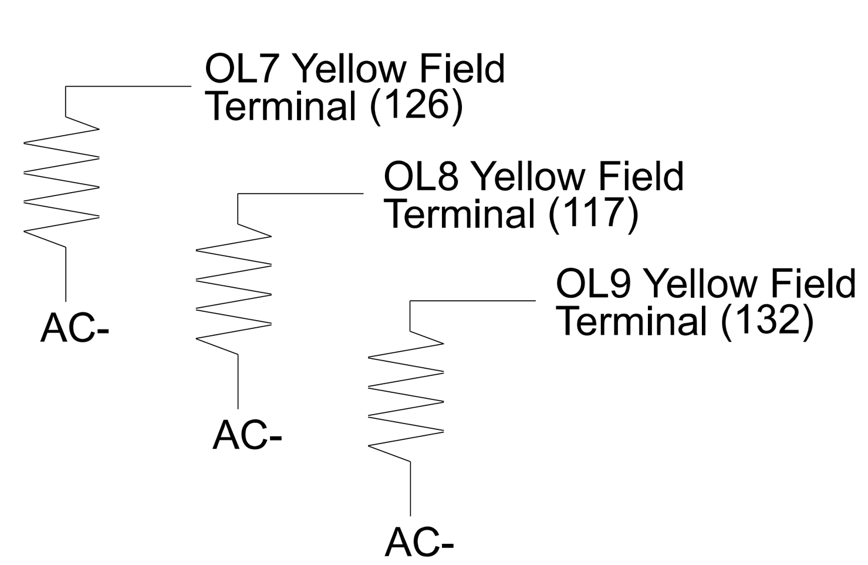
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
PED PUSH BUTTONS							NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.					
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T4
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 4 - TMP Ph2, S1, Part 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway / Commercial Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones REVIEWED BY: BN Groome

REVISIONS INIT. DATE

750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025

SIG. INVENTORY NO. 14-1022T4

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-22.2

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

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	7	8	9
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	Normal
Included Phases	6	-	4	4	1,3	5
Modifier Phases	4	1,3	5	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	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
FYA Ped Delay	7.0	0.0	7.0	0.0	0.0	0.0

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

OUTPUT CHANNEL CONFIGURATION

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

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

Channel Configuration

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	Overlap	8		X	X	3
4	Phase Vehicle	4		X		4
5	Overlap	9		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	3		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	3				16
17	Phase Vehicle	1		X		17
18	Phase Vehicle	5		X	X	18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1
NOTICE OVERLAP 8 ASSIGNED TO CHANNEL 3
NOTICE OVERLAP 9 ASSIGNED TO CHANNEL 5
NOTICE PHASE VEHICLE 3 ASSIGNED TO CHANNEL 8
NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16
NOTICE PHASE VEHICLE 1 ASSIGNED TO CHANNEL 17
NOTICE PHASE VEHICLE 5 ASSIGNED TO CHANNEL 18
NOTICE FLASHING RED

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T4
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 4 - TMP Ph2, S1, Part 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway /
Commercial Driveway

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

Plans Prepared By:
DRMP
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8210 UNIVERSITY EXECUTIVE PARK DR.
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NC LICENSE NO. F-1524 (704) 549-4260

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

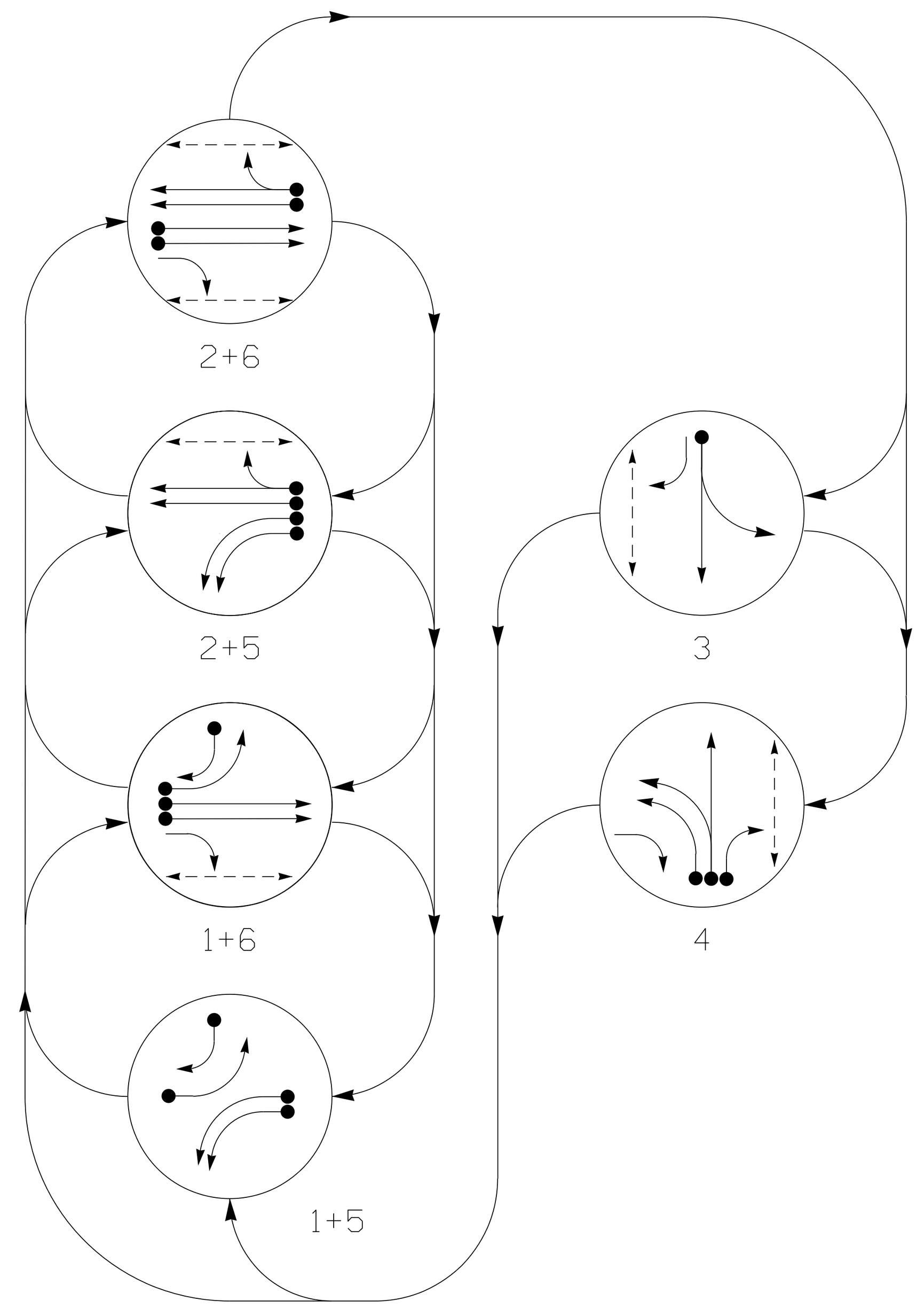
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
1E09340E1094484...
DATE

SIG. INVENTORY NO. 14-1022T4

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

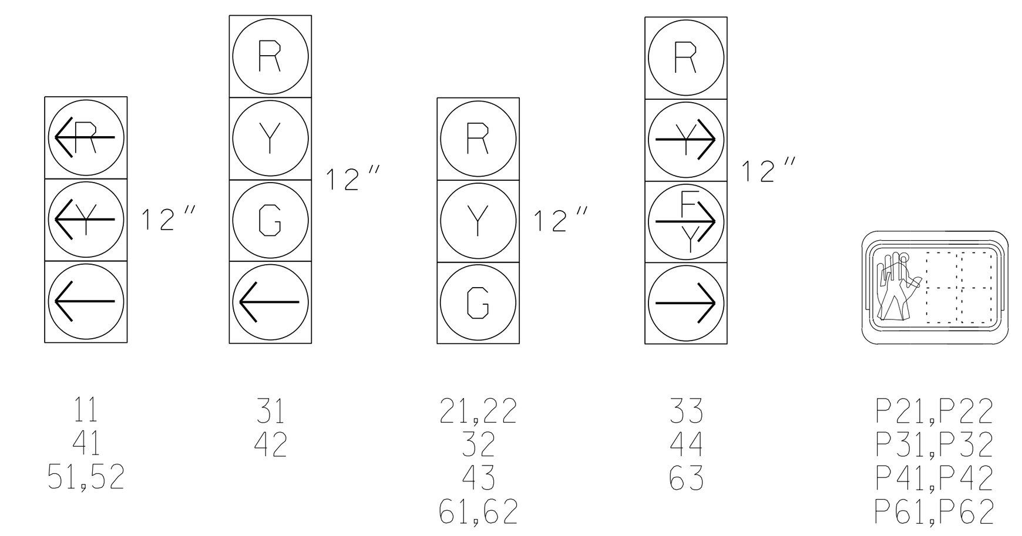
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3	4	FLASH
11	←	←	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	R
31	R	R	R	R	G←	R	R
32	R	R	R	R	G	R	R
33	→	→	R	R	FY→	R	R
41	←R	←R	←R	←R	←R	←	←R
42	R	R	R	R	R	G←	R
43	R	R	R	R	R	G	R
44	R	R	R	R	R	FY→	R
51,52	←	←R	←	←R	←R	←R	←R
61,62	R	G	R	G	R	R	R
63	R	FY→	R	FY→	R	→	R
P21,P22	DW	DW	W	W	DW	DW	DRK
P31,P32	DW	DW	DW	DW	W	DW	DRK
P41,P42	DW	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

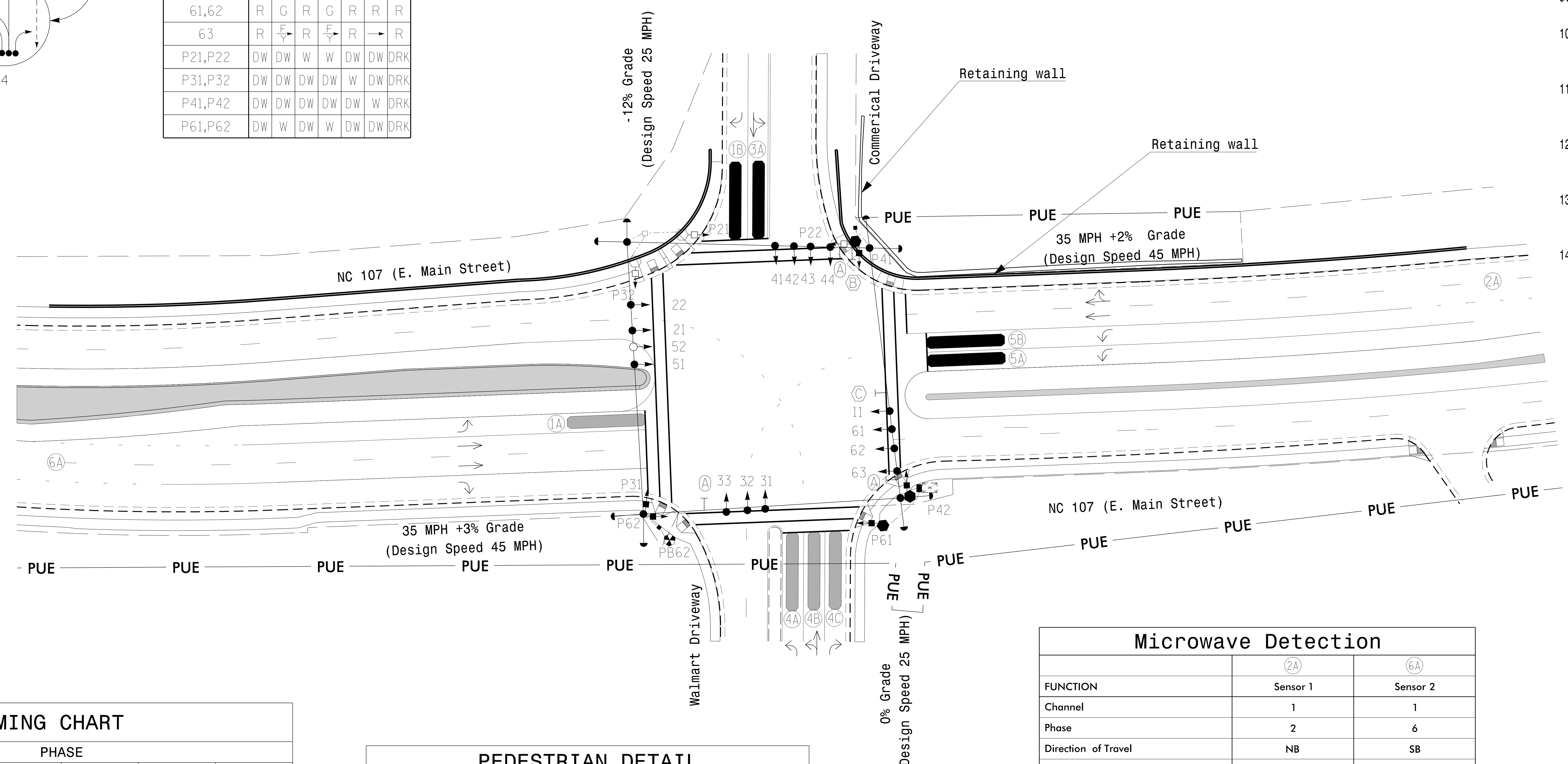
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	-	1	-	-	X	-	X	-	*
1B	*	0	*	X	1	15.0	-	X	-	X	-	*
3A	*	0	*	X	3	3.0	-	X	-	X	-	*
4A	*	0	*	-	4	-	-	X	-	X	-	*
4B	*	0	*	-	4	-	-	X	-	X	-	*
4C	*	0	*	-	4	15.0	-	X	-	X	-	*
5A	*	0	*	X	5	-	-	X	-	X	-	*
5B	*	0	*	X	5	-	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone

6 Phase
Fully Actuated
(Time Based Coordination)

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. The order of phase 3 and phase 4 may be reversed.
5. Uncover and reconnect existing pedestrian head P31.
6. Reposition existing signal heads numbered 21, 22 and 51.
7. Set all detectors units to presence mode.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. To provide a leading pedestrian interval on phase 3, program FYA head numbered 33 to delay for 7 seconds after the start of the phase 3 walk interval. See Electrical Details for programming.
11. To provide a leading pedestrian interval on phase 4, program FYA head numbered 44 to delay for 6 seconds after the start of the phase 4 walk interval. See Electrical Details for programming.
12. To provide a leading pedestrian interval on phase 6, program FYA head numbered 63 to delay for 7 seconds after the start of the phase 7 walk interval. See Electrical Details for programming.
13. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
14. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
DD	Directional Drill	N/A
	Type I Pushbutton Post	
	Type II Signal Pedestal	
N/A	Permanent Utility Easement	PUE
	Construction Zone	N/A
A	"RIGHT TURN SIGNAL" Sign (R10-10)	A
B	"RIGHT TURN ON RED YIELD TO U-TURN" Sign (R10-30)	B
C	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	C

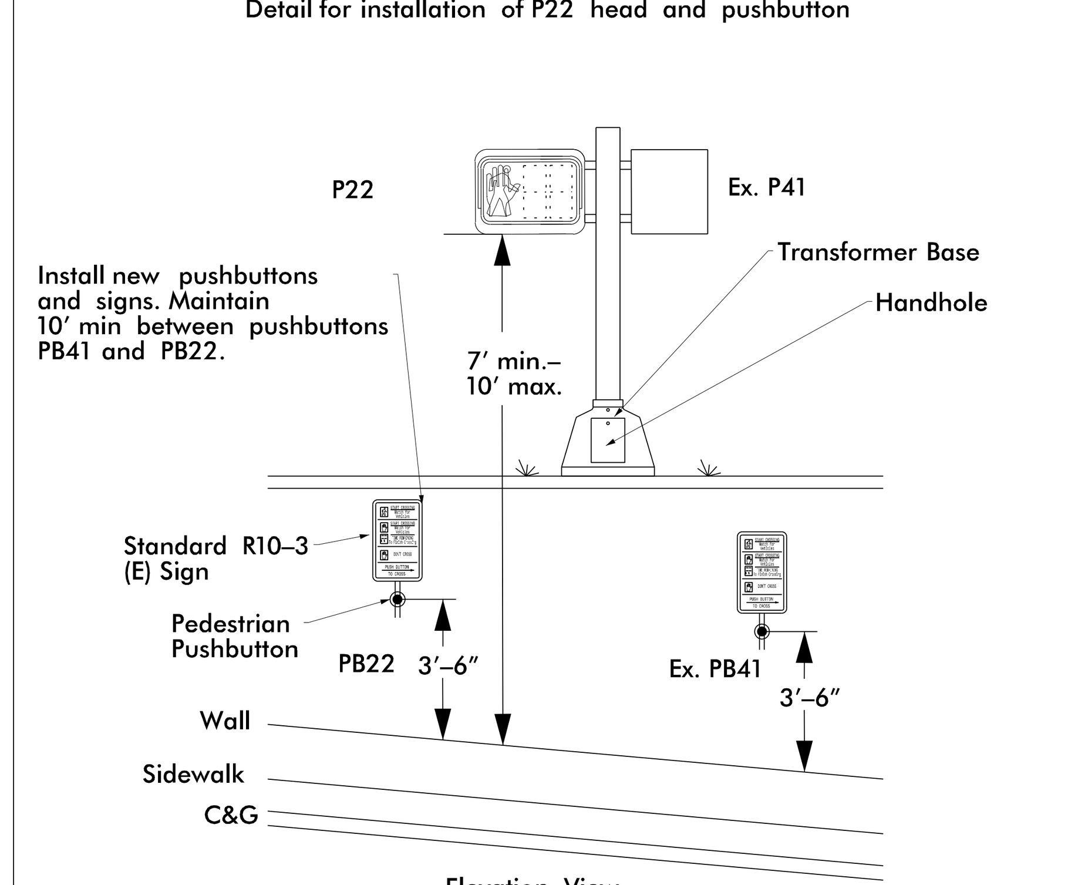
MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Walk *	–	14	14	13	–	14
Ped Clear	–	21	31	26	–	23
Min Green *	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	45	40	20	45
Yellow Change	3.0	4.3	4.0	3.2	3.0	4.3
Red Clear	3.4	2.5	3.5	3.7	3.9	2.5
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	**	***	–	****
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

* 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.
** See note 10
*** See note 11
**** See note 12

PEDESTRIAN DETAIL

Detail for installation of P22 head and pushbutton



–Locate pushbuttons adjacent to truncated domes
–See additional information in –WALL 15–details

Microwave Detection

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

Signal Upgrade
Temporary Design 5 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

NC 107 (E. Main Street)
at
Walmart Driveway /
Commercial Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

SCALE 0 40
1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 8/26/2025
1E09340E1094484...
DATE

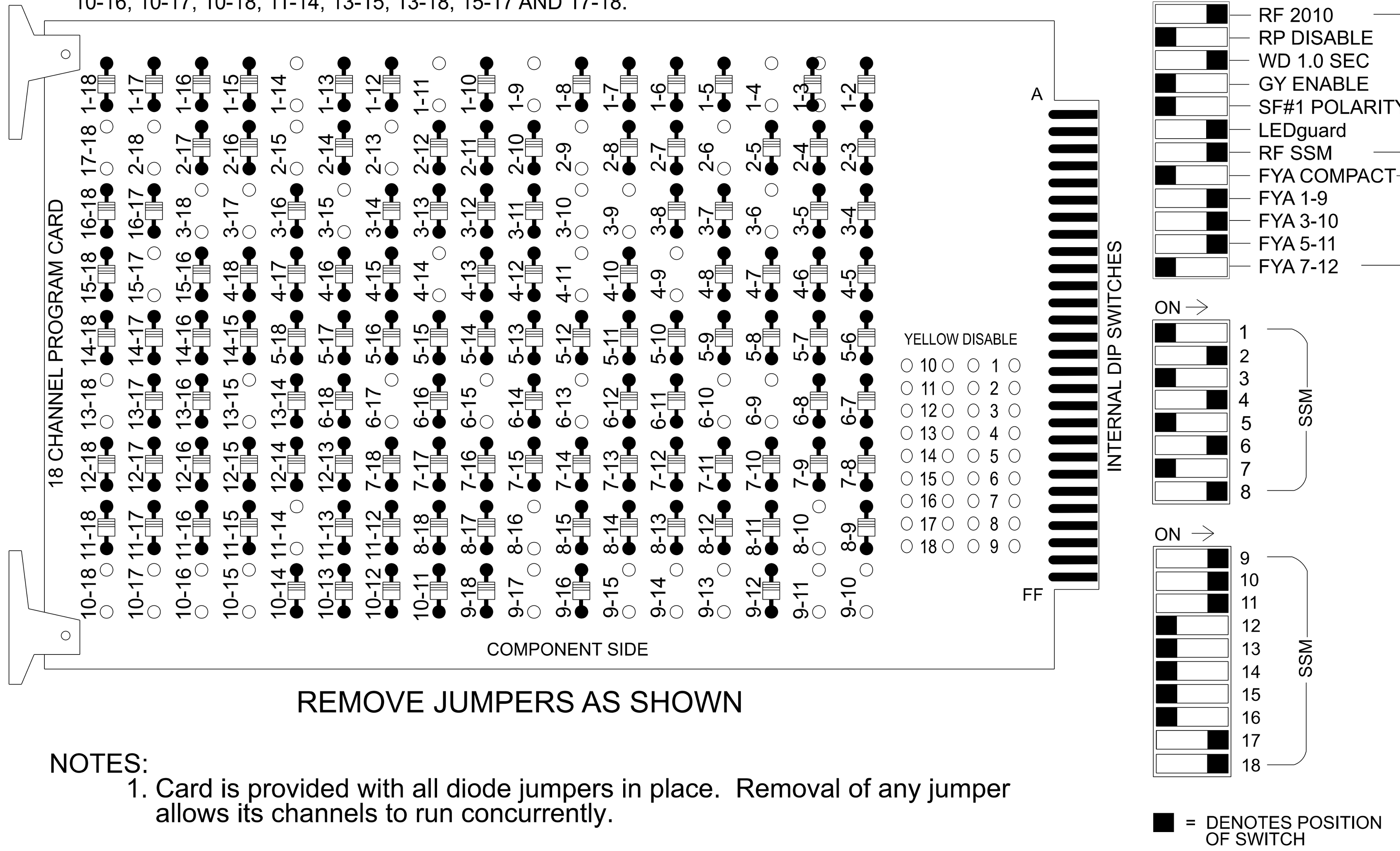
SIG. INVENTORY NO. 14-1022T5

21-AUG-2025 16:08
pw://pwhdruseas01:HDR_US_East_01/Documents/NCDOT/NCDOT_Western_Div_On-Call_M_/NCDOT_6170_R5600_NC170_US23BUS/6.0_CAD_BIM/6.2_Work_In_Progress/R-5600 NCDOT File Structure/Traffic/Signals/Design/Signal Design/14-1022/141022T5_sig_dsn_2025mods.dgn
kjones AT CHA-KJONES

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS:1-4, 1-9, 1-11, 1-14, 2-6, 2-9, 2-13, 2-15, 2-18, 3-6, 3-9, 3-10, 3-15, 3-17, 3-18, 4-9, 4-11, 4-14, 6-9, 6-10, 6-13, 6-15, 6-17, 8-10, 8-16, 9-10, 9-11, 9-13, 9-14, 9-15, 9-17, 10-15, 10-16, 10-17, 10-18, 11-14, 13-15, 13-18, 15-17 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 the 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 controller to start up in phase 2 Green No Walk 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 NC 107 Time Based System.

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	OL8	4			4 PED	OL9	6	6 PED	7	3		3 PED	OL1	OL2	1	OL3	OL4	5
SIGNAL HEAD NO.	63★	21,22	P21 P22	33★	41	42	43	P41 P42	44★	61,62	P61 P62	NU	31	32	P31 P32	63★	33★	11	44★	NU	51,52
RED		128				101	101			134			107	107		A121	A124		A114		
YELLOW	*	129		*		102	102		*	135			108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101													A111			A104
YELLOW ARROW					102											A122	A125	A112	A115		A105
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	103	103			133				109					A113			A106
(Don't Walk hand)			113					104			119				110						
(Walk person)			115					106			121				112						

NU = Not Used NC = Not Connected

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

★ See pictorial of head wiring in detail this sheet.

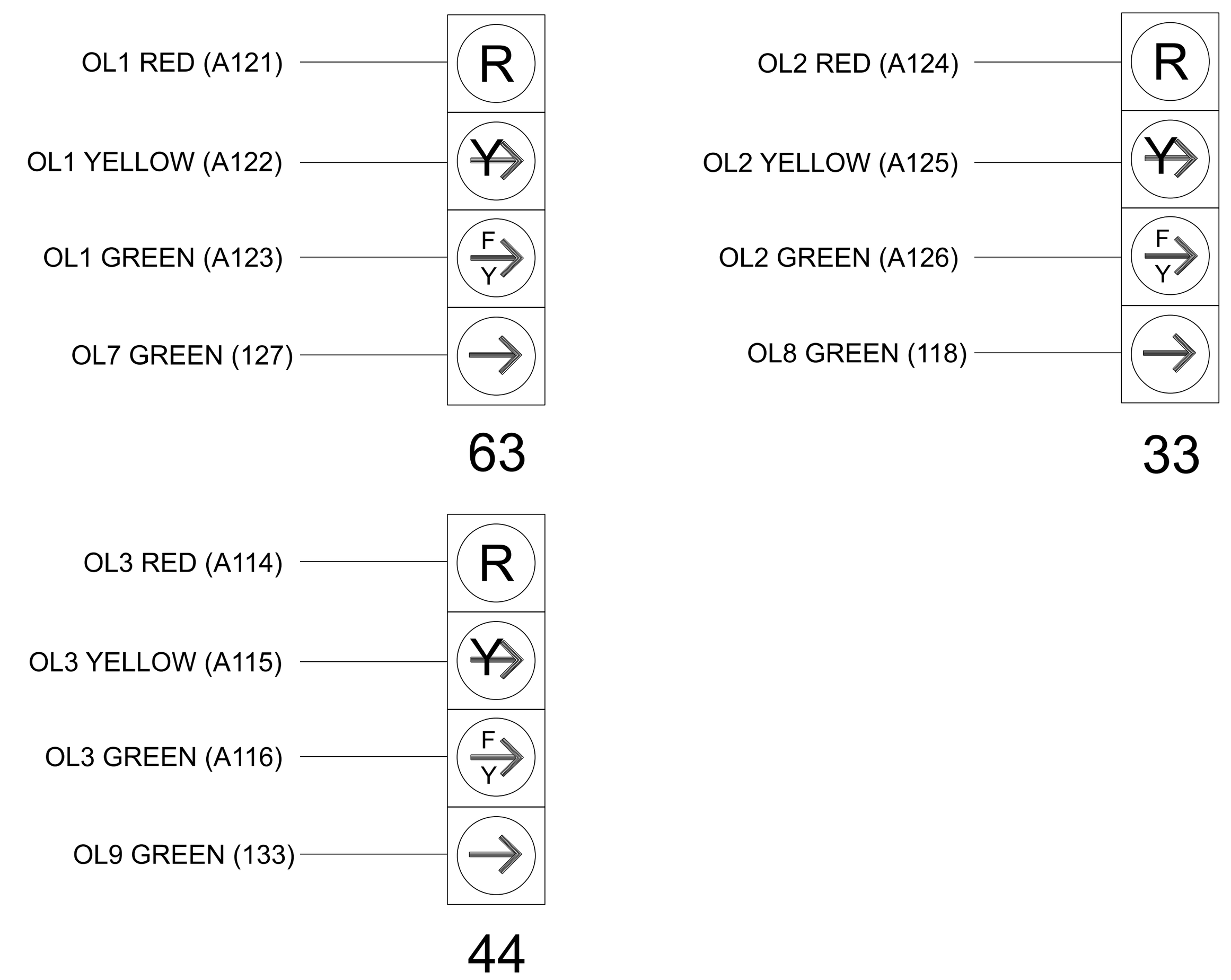
EQUIPMENT INFORMATION

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, S3, S4, S5, S6, S7, S8, S9, S11,S12, AUXS1, AUXS2, AUXS3, AUXS4, AUXS6
Phases Used...1, 2, 2PED, 3, 3PED, 4, 4PED, 5 6, 6PED
Overlap "1"...*
Overlap "2"...*
Overlap "3"...*
Overlap "4"...NOT USED
Overlap "5"...NOT USED
Overlap "6"...NOT USED
Overlap "7"...*
Overlap "8"...*
Overlap "9"...*

*See overlap programming detail on sheet 2

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	∅2 PED DC ISOLATOR	∅6 PED DC ISOLATOR	FS DC ISOLATOR
	L												∅4 PED DC ISOLATOR	∅3 PED DC ISOLATOR	ST DC ISOLATOR
"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						
P31,P32	TB8-8,9	I13L	70	36	8	PED 3						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

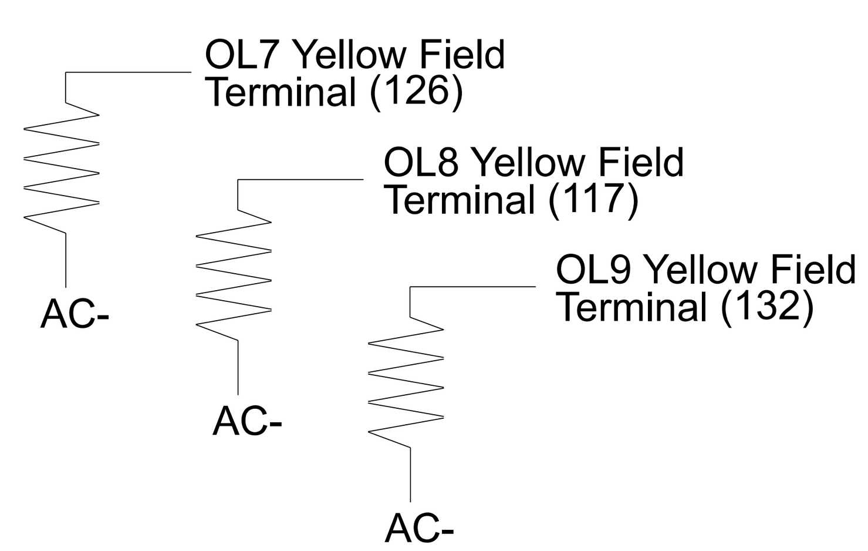
NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T5
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 5 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway /
Commerical Driveway

Division 14 Jackson County Sylva

750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T5

PED 3 PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED →

OUTPUT CHANNEL CONFIGURATION

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

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

Channel Configuration

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	Overlap	8		X	X	3
4	Phase Vehicle	4		X		4
5	Overlap	9		X		5
6	Phase Vehicle	6		X	X	6
7	Phase Vehicle	7		X		7
8	Phase Vehicle	3		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	3				16
17	Phase Vehicle	1		X		17
18	Phase Vehicle	5		X	X	18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1 →
NOTICE OVERLAP 8 ASSIGNED TO CHANNEL 3 →
NOTICE OVERLAP 9 ASSIGNED TO CHANNEL 5 →
NOTICE PHASE VEHICLE 3 ASSIGNED TO CHANNEL 8 →
NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16 →
NOTICE PHASE VEHICLE 1 ASSIGNED TO CHANNEL 17 →
NOTICE PHASE VEHICLE 5 ASSIGNED TO CHANNEL 18 →

↑ NOTICE FLASHING RED

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	7	8	9
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	OFF
Included Phases	6	3	4	4	1	-
Modifier Phases	4	1	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	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
FYA Ped Delay	7.0	7.0	6.0	0.0	0.0	0.0

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022T5
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 5 - TMP Ph3, S1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway /
Commerical Driveway

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

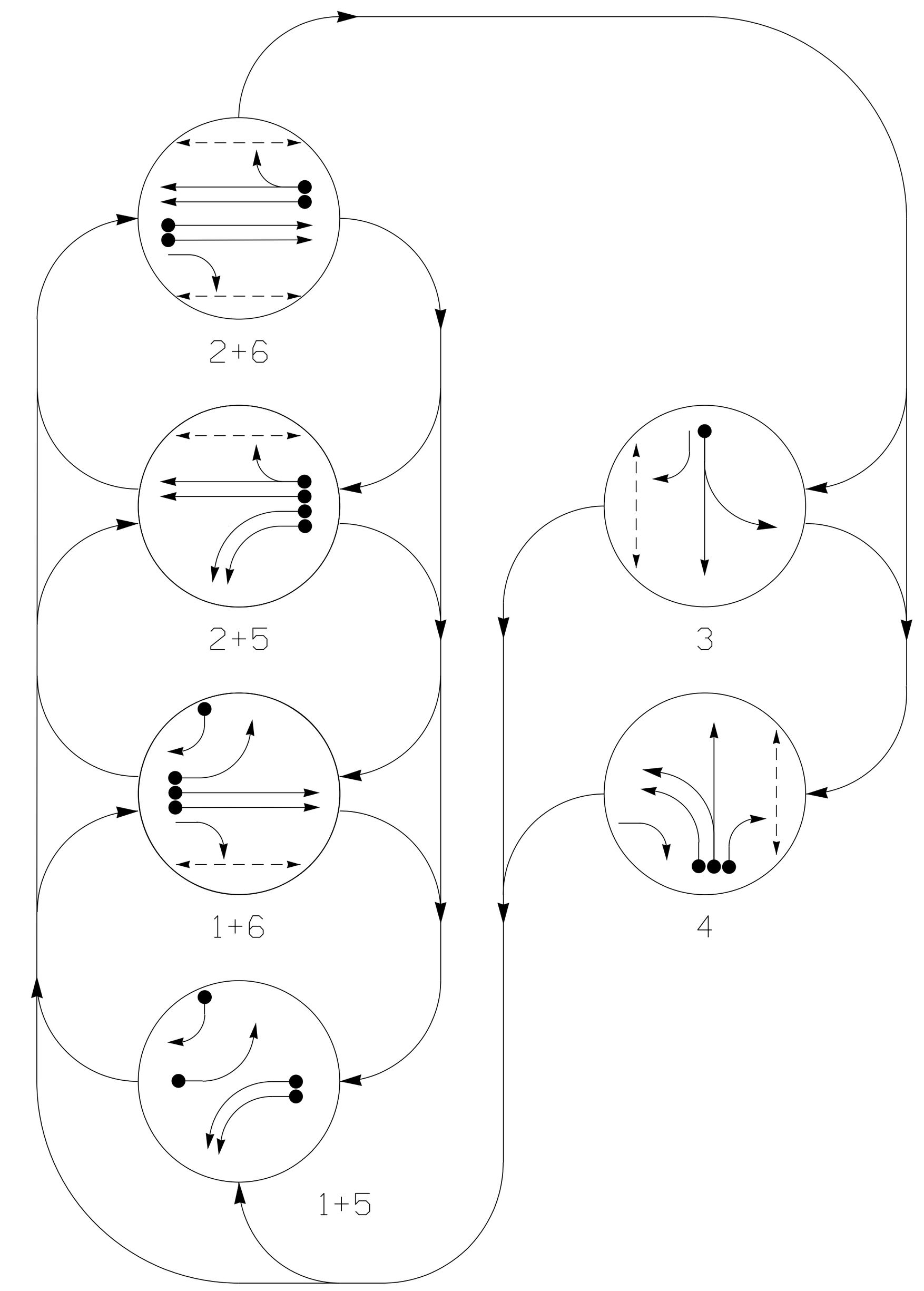
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022T5

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-24.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

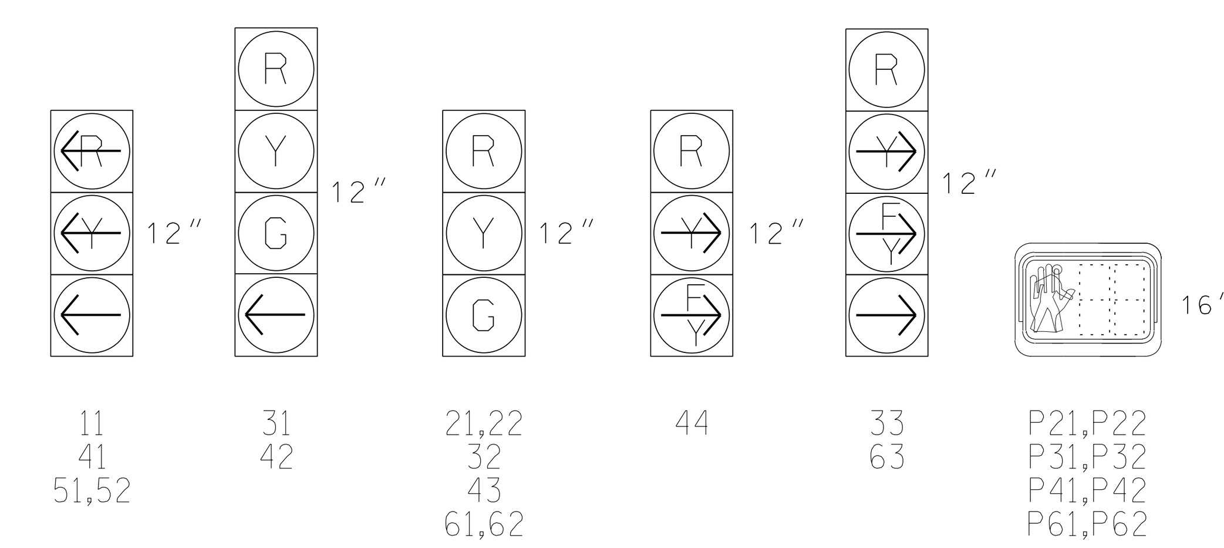
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	3	4	FLASH
11	←	←	←R	←R	←R	←R	←R
21,22	R	R	G	G	R	R	R
31	R	R	R	R	G←	R	R
32	R	R	R	R	G	R	R
33	→	→	R	R	FY→	R	R
41	←R	←R	←R	←R	←R	←	←R
42	R	R	R	R	R	G←	R
43	R	R	R	R	R	G	R
44	R	R	R	R	R	FY→	R
51,52	←	←R	←	←R	←R	←R	←R
61,62	R	G	R	G	R	R	R
63	R	FY→	R	FY→	R	→	R
P21,P22	DW	DW	W	W	DW	DW	DRK
P31,P32	DW	DW	DW	DW	W	DW	DRK
P41,P42	DW	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

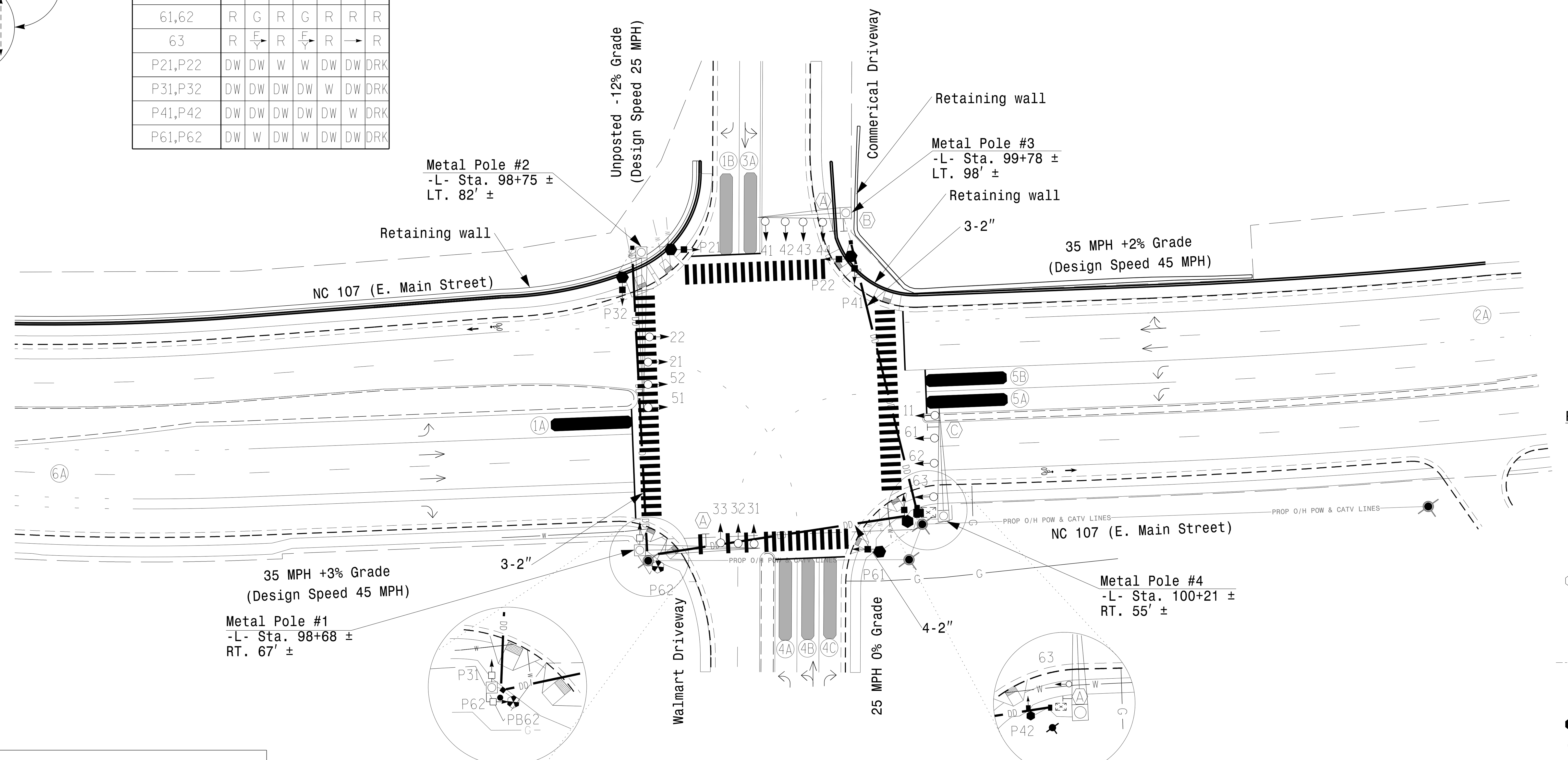
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	-	-	X	-	X	-	*
1B	*	0	*	-	1	15.0	-	X	-	X	-	*
3A	*	0	*	-	3	3.0	-	X	-	X	-	*
4A	*	0	*	-	4	-	-	X	-	X	-	*
4B	*	0	*	-	4	-	-	X	-	X	-	*
4C	*	0	*	-	4	15.0	-	X	-	X	-	*
5A	*	0	*	X	5	-	-	X	-	X	-	*
5B	*	0	*	X	5	-	-	X	-	X	-	*

* Multi-Zone Microwave Detection Zone

6 Phase
Fully Actuated
(NC 107-D14-14)

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. The order of phase 3 and phase 4 may be reversed.
5. Set all detectors 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. To provide a leading pedestrian interval on phase 3, program FYA head numbered 33 to delay for 7 seconds after the start of the phase 3 walk interval. See Electrical Details for programming.
9. To provide a leading pedestrian interval on phase 4, program FYA head numbered 44 to delay for 7 seconds after the start of the phase 4 walk interval. See Electrical Details for programming.
10. To provide a leading pedestrian interval on phase 6, program FYA head numbered 63 to delay for 7 seconds after the start of the phase 7 walk interval. See Electrical Details for programming.
11. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
	Directional Drill	N/A
	Metal Pole with Mastarm	
	Type I Pushbutton Post	
	Type II Signal Pedestal	
N/A	Utility Pole	
N/A	Gas Line	
N/A	U/G Water Line	
N/A	O/H Pwr. & Utl. Lines	
(A)	"RIGHT TURN SIGNAL" Sign (R10-10)	(A)
(B)	"RIGHT TURN ON RED YIELD TO U-TURN" Sign (R10-30)	(B)
(C)	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	(C)

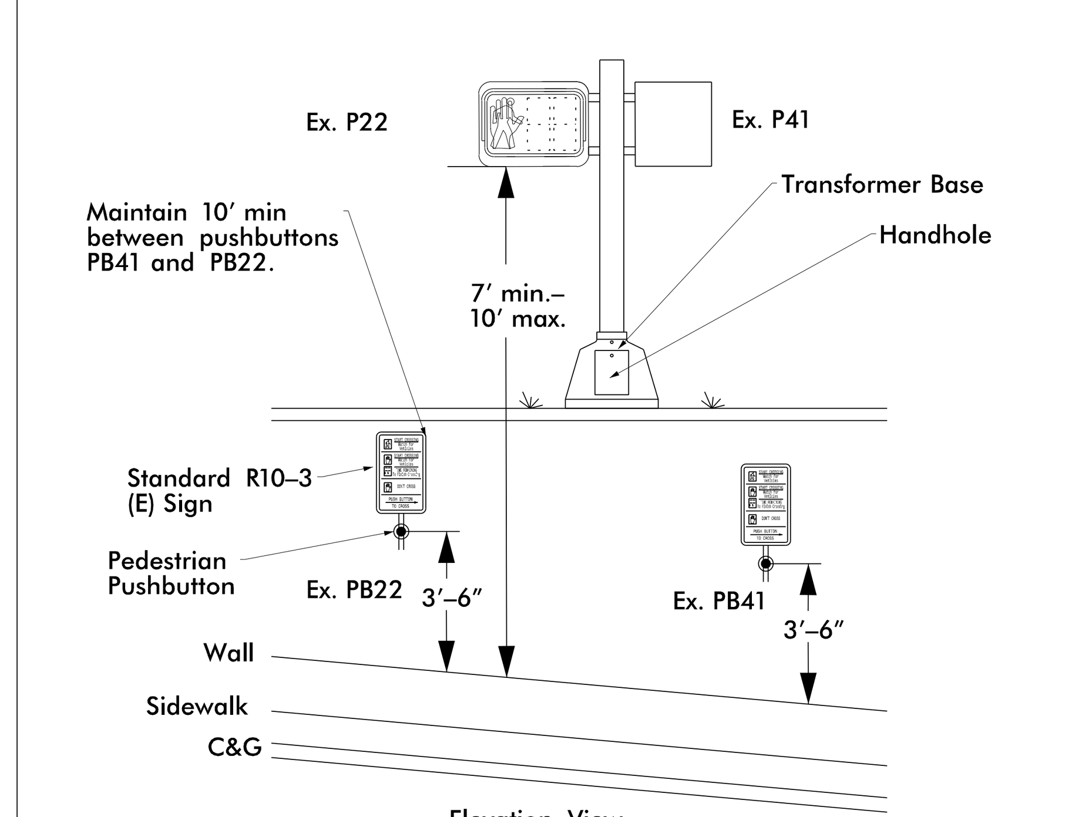
MAXTIME TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Walk *	–	14	14	14	–	14
Ped Clear	–	21	31	26	–	23
Min Green *	7	12	7	7	7	12
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	45	40	20	45
Yellow Change	3.0	4.3	4.0	3.2	3.0	4.3
Red Clear	3.3	2.5	3.5	3.7	3.7	2.5
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	**	***	–	****
Non Lock Detector	X	–	X	X	X	–
Vehicle Recall	–	MIN RECALL	–	–	–	MIN RECALL
Dual Entry	–	–	–	–	–	–

* 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.
** See note 8
*** See note 9
**** See note 10

PEDESTRIAN DETAIL

Detail for existing of P22 & P41 heads and pushbuttons



–Locate pushbuttons adjacent to truncated domes
–See additional information in –WALL 15–details

Microwave Detection

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

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Signal Upgrade - Final Design

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

NC 107 (E. Main Street) at Walmart Driveway / Commerical Driveway

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

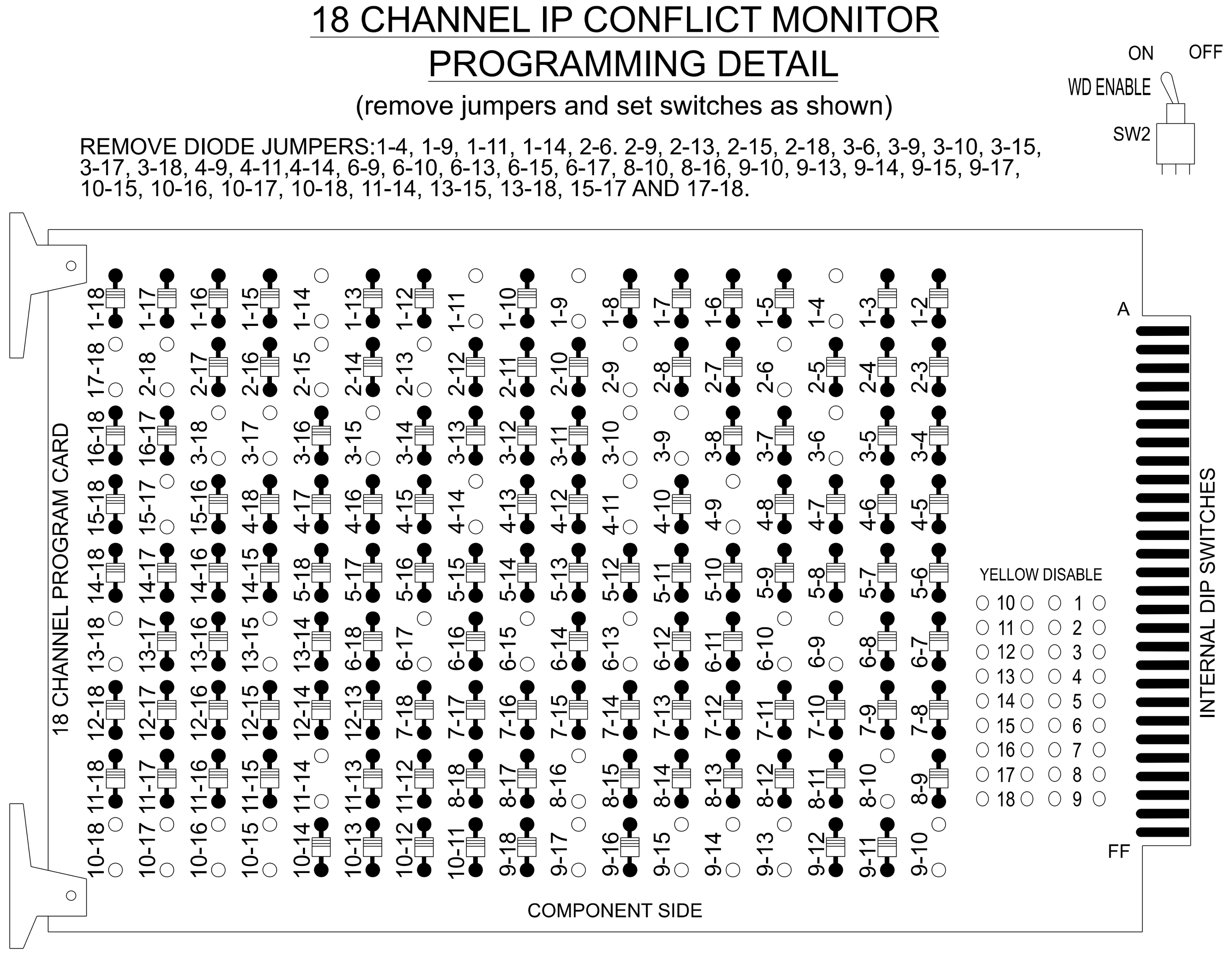
SIG. INVENTORY NO. 14-1022

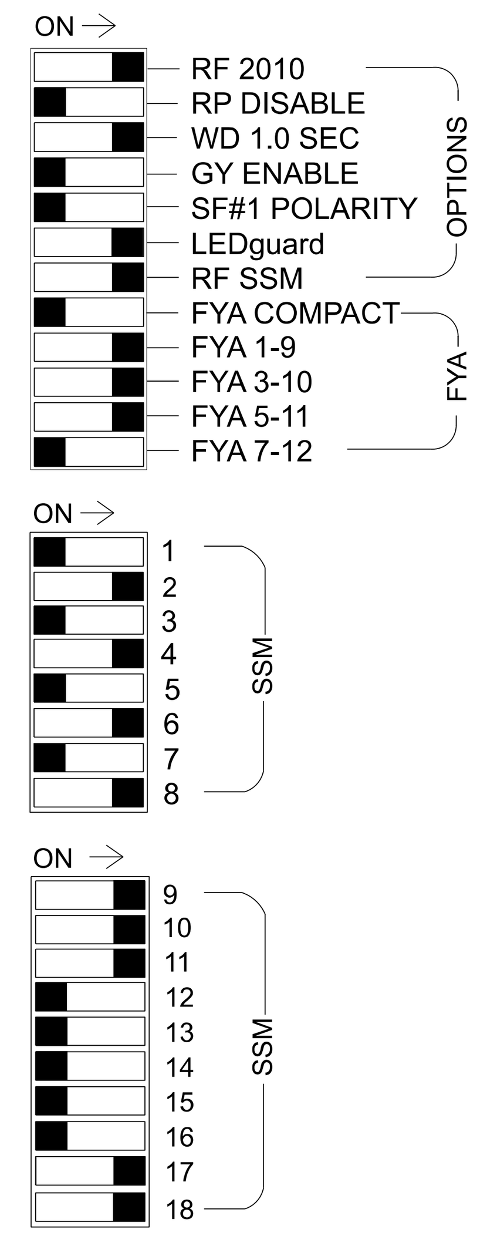
21-AUG-2025 16:09
pw://pwhdruseas01:HDR_US_East_01/Documents/NCDOT/NCDOT_Western_Div_On-Call_M_/NCDOT_6170_R5600_NC170_US23BUS/6.0_CAD_BIM/6.2_Work_In_Progress/R-5600 NCDOT File Structure/Traffic/Signals/Design/Signal Design/14-1022/141022_sig_dsn_2024mmds.dgn
kjones AT CHA-KJONES

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS:1-4, 1-9, 1-11, 1-14, 2-6. 2-9, 2-13, 2-15, 2-18, 3-6, 3-9, 3-10, 3-15, 3-17, 3-18, 4-9, 4-11,4-14, 6-9, 6-10, 6-13, 6-15, 6-17, 8-10, 8-16, 9-10, 9-13, 9-14, 9-15, 9-17, 10-15, 10-16, 10-17, 10-18, 11-14, 13-15, 13-18, 15-17 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 the 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 controller to start up in phase 2 Green No Walk 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 NC 107 D14-14 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, S2, S3, S4, S5, S6, S8, S9, S11,S12, AUXS1, AUXS2, AUXS3, AUXS4, AUXS6
Phases Used.......................................1, 2, 3, 4, 4PED, 5, 6, 6PED

Overlap "1"..*
Overlap "2"..*
Overlap "3"..*
Overlap "4"..NOT USED
Overlap "5"..NOT USED
Overlap "6"..NOT USED
Overlap "7"..*
Overlap "8"..*
Overlap "9"..NOT USED

*Overlap programming detail on sheet 2

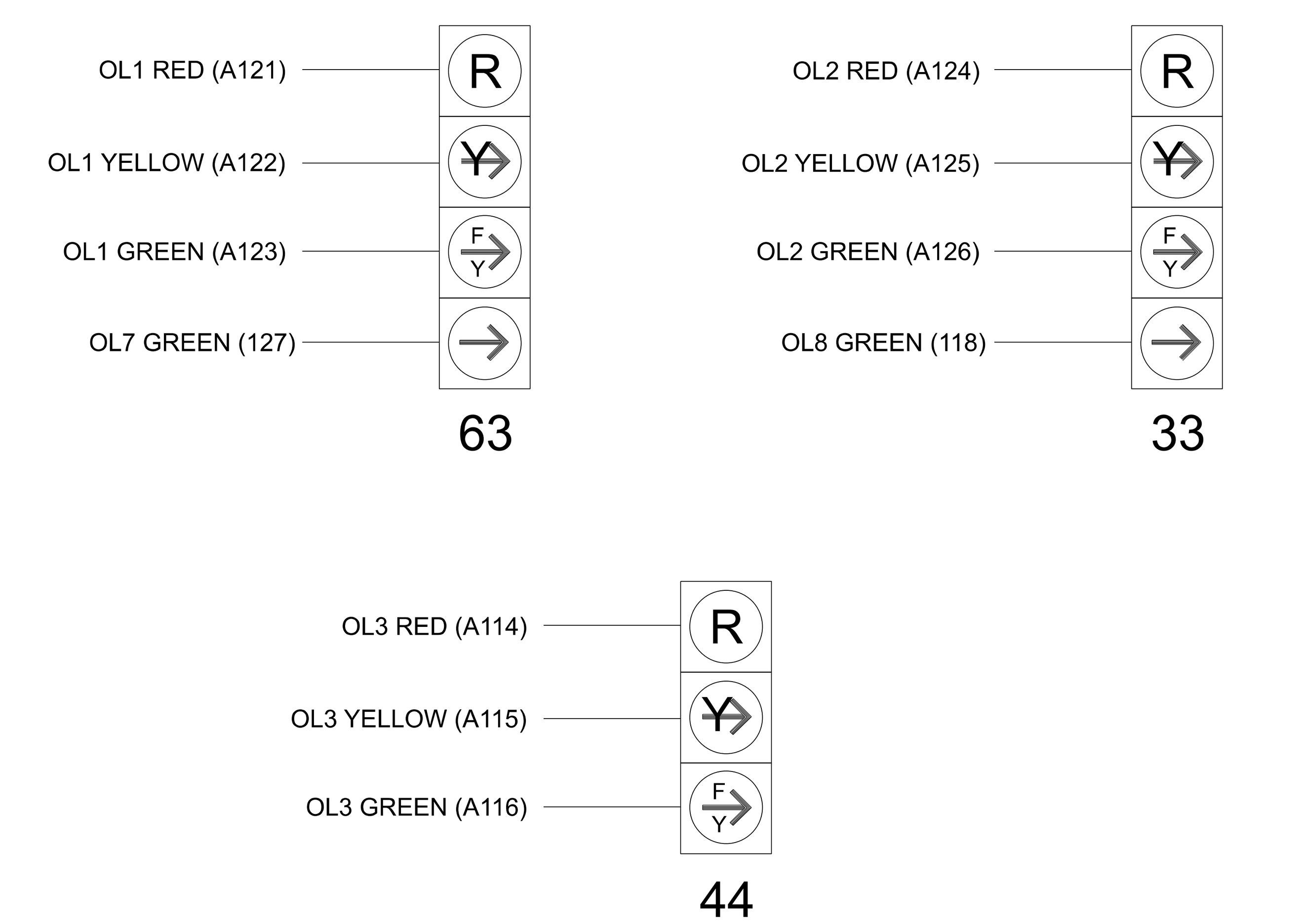
SIGNAL HEAD HOOK-UP CHART

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	OL8	4			4 PED	5	6	6 PED	7	3		3 PED	OL1	OL2	1	OL3	OL4	5
SIGNAL HEAD NO.	63★	21,22	P21 P22	33★	41	42	43	P41 P42	NC	61,62	P61 P62	NU	31	32	P31 P32	63★	33★	11	44★	NU	51,52
RED		128				101	101			134			107	107		A121	A124		A114		
YELLOW	*	129		*		102	102			135			108	108							
GREEN		130				103	103			136			109	109							
RED ARROW					101													A111			A104
YELLOW ARROW					102											A122	A125	A112	A115		A105
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	103	103							109					A113			A106
(hand)			113					104			119				110						
(walking person)			115					106			121				112						

NU = Not Used NC = Not Connected
* 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)

FILE		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	∅ 2 PED DC ISOLATOR	∅ 6 PED DC ISOLATOR	FS DC ISOLATOR
	L												∅ 4 PED DC ISOLATOR	∅ 3 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						
P31,P32	TB8-8,9	I13L	70	36	8	PED 3						
P41,P42	TB8-5,6	I12L	69	35	4	PED 4						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						

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

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

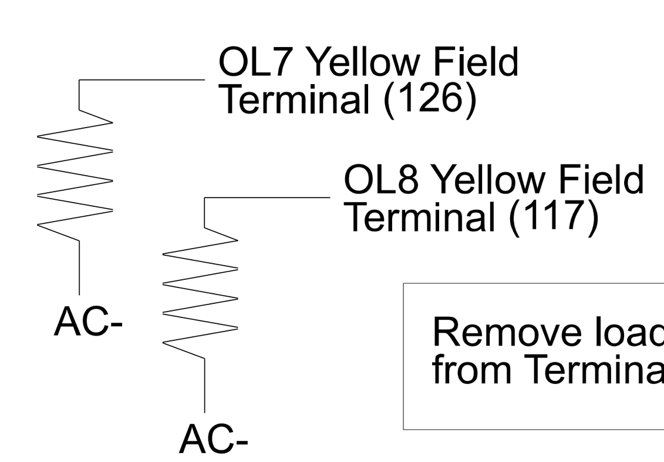
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



Remove load resistor from Terminal (132).

SPECIAL DETECTOR NOTE

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 1 of 2
Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway /
Commerical Driveway

Division 14 Jackson County Sylva

ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	KA Jones	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-24.2

PED 3 PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Detector Configuration >Pedestrian Detector

Plan 1

Detector	Descripton	Call Phase	Call Overlap
2		2	0
4		4	0
6		6	0
8		3	0

NOTICE PHASE 3 PED ASSIGNED TO DETECTOR 8 PED

OUTPUT CHANNEL CONFIGURATION

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

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

Channel Configuration

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	Overlap	8		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	3		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	3				16
17	Phase Vehicle	1		X		17
18	Phase Vehicle	5		X	X	18

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 1
NOTICE OVERLAP 8 ASSIGNED TO CHANNEL 3
NOTICE PHASE VEHICLE 5 ASSIGNED TO CHANNEL 5
NOTICE PHASE VEHICLE 3 ASSIGNED TO CHANNEL 8
NOTICE PHASE 3 PED ASSIGNED TO CHANNEL 16
NOTICE PHASE VEHICLE 1 ASSIGNED TO CHANNEL 17
NOTICE PHASE VEHICLE 5 ASSIGNED TO CHANNEL 18

NOTICE FLASHING RED

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	7	8	9
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal	OFF
Included Phases	6	3	4	4	1	-
Modifier Phases	4	1	-	-	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	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
FYA Ped Delay	7.0	7.0	7.0	0.0	0.0	0.0

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1022
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Final Design

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main St)
at
Walmart Driveway /
Commercial Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito
PREPARED BY: KA Jones REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

Plans Prepared By:
DRMP
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8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

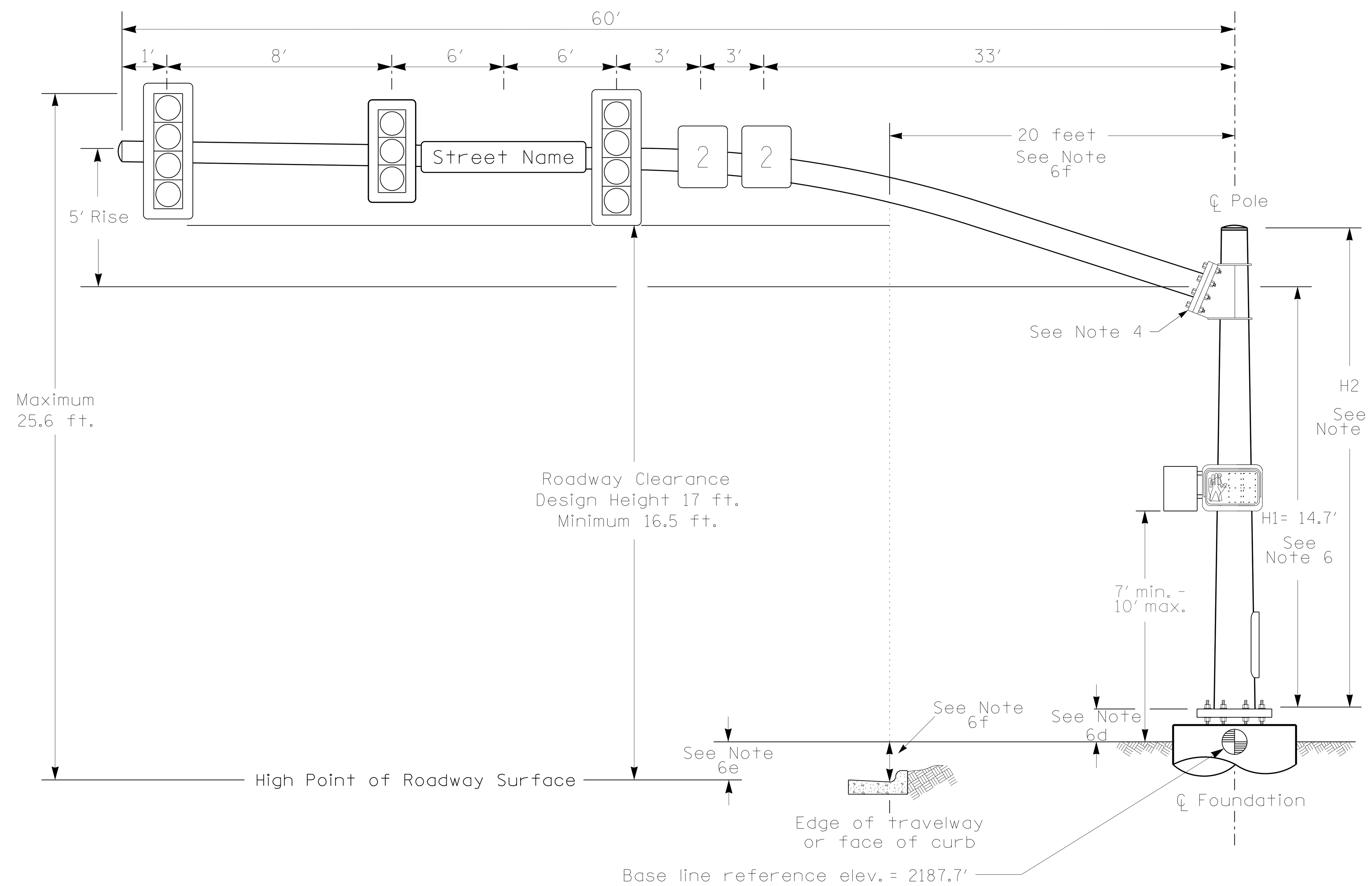
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME
Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1022

METAL POLE No. 1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-24.3

Design Loading for METAL POLE NO. 1



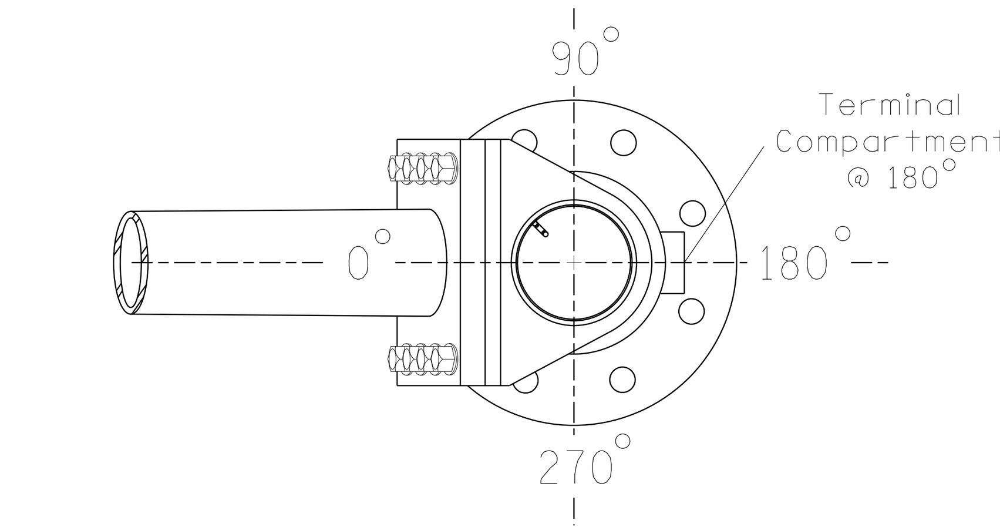
Elevation View

SPECIAL NOTE

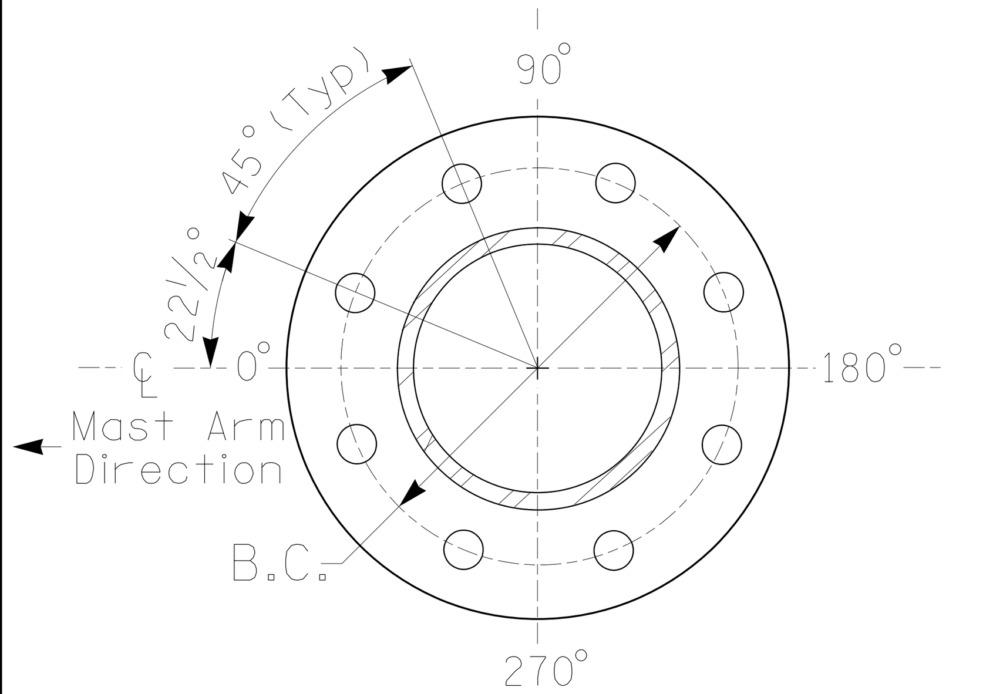
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1	
Baseline reference point at ℄ Foundation @ ground level	2187.7 ft.	
Elevation difference at High point of roadway surface	+0.7 ft.	
Elevation difference at Edge of travelway or face of curb	+1.2 ft.	

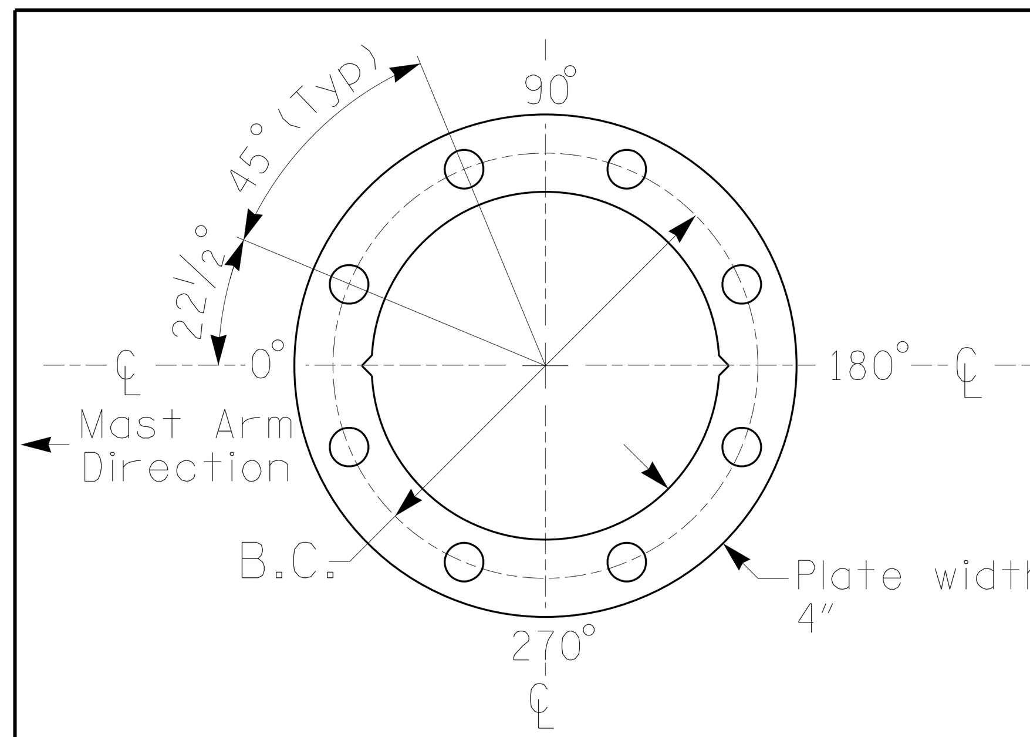


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5"W X 66.0"L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5"W X 52.5"L	60 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0"W X 36.0"L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0"W X 96.0"L	36 LBS
	PEDESTRIAN SIGNAL HEAD WITH MOUNTING HARDWARE	2.2 S.F.	18.5"W X 17.0"L	21 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2024 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using force ratios that do not exceed 0.9.
4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
6. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
   f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

NCDOT Wind Zone 5 (110 mph)

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section

750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 N/A

N/A

NC 107 (E. Main Street) at Walmart Driveway/ Commercial Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: DJ White	REVIEWED BY: BN Groome

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025

DATE

SIG. INVENTORY NO. 14-1022

Plans Prepared By:

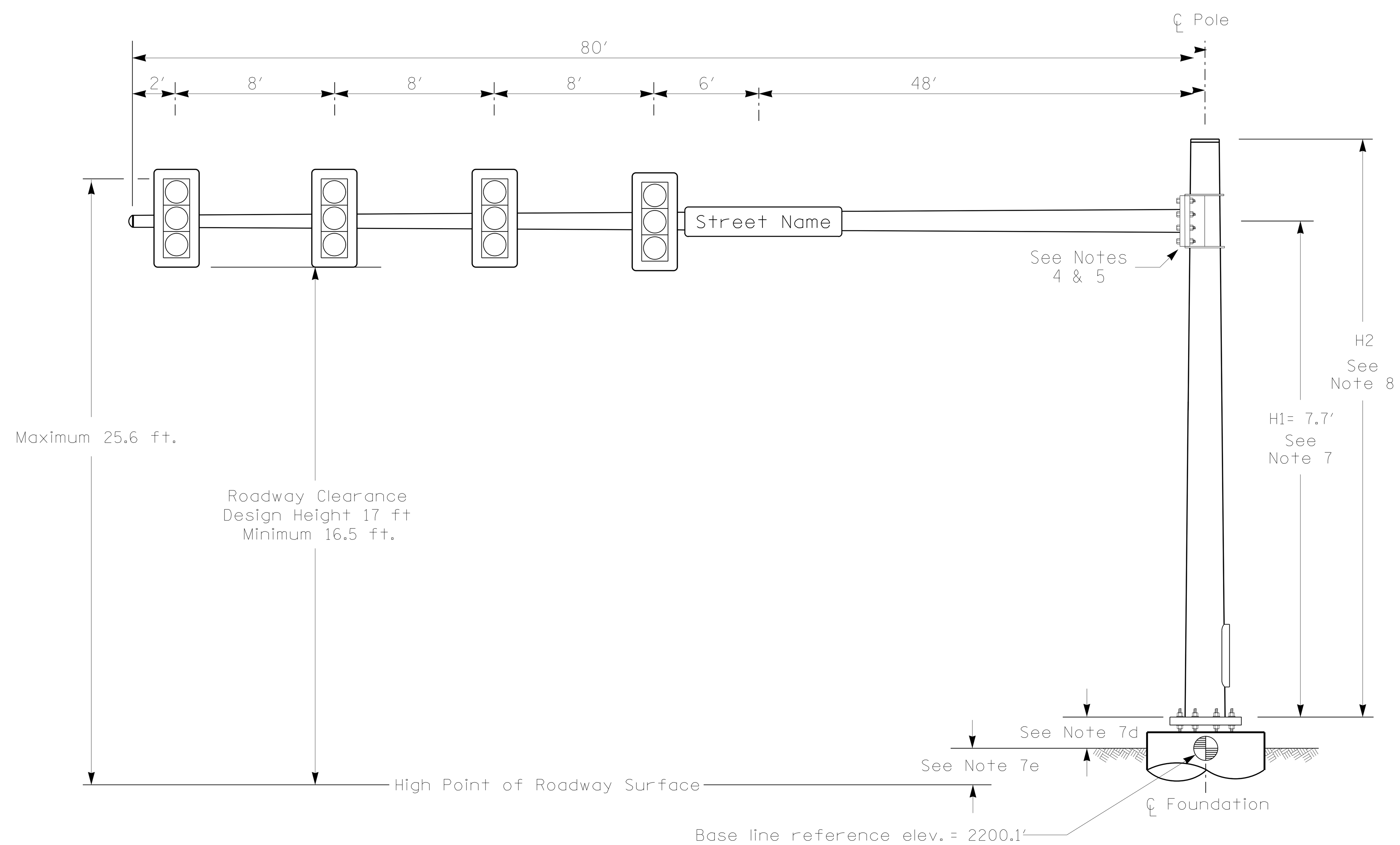
DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

METAL POLE No. 2

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-24.4

Design Loading for METAL POLE NO. 2



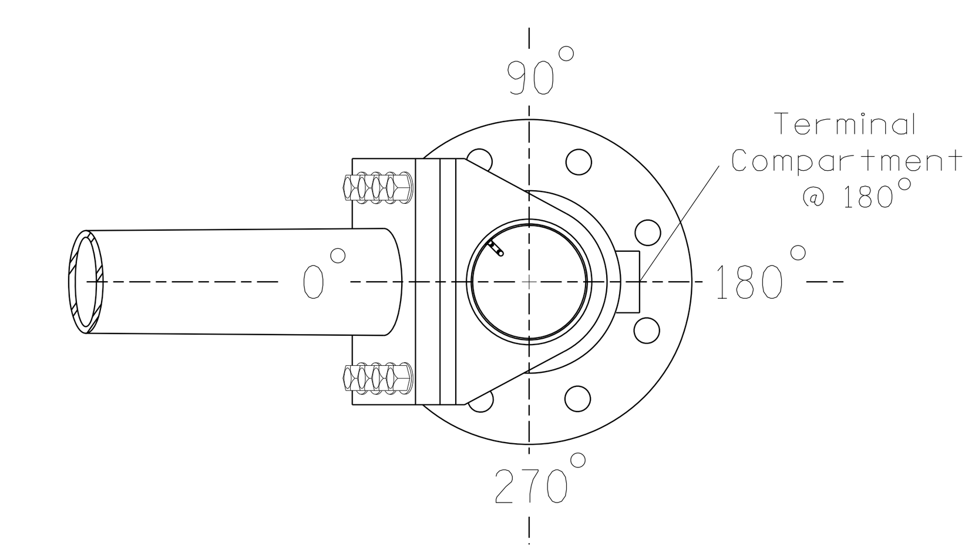
Elevation View

SPECIAL NOTE

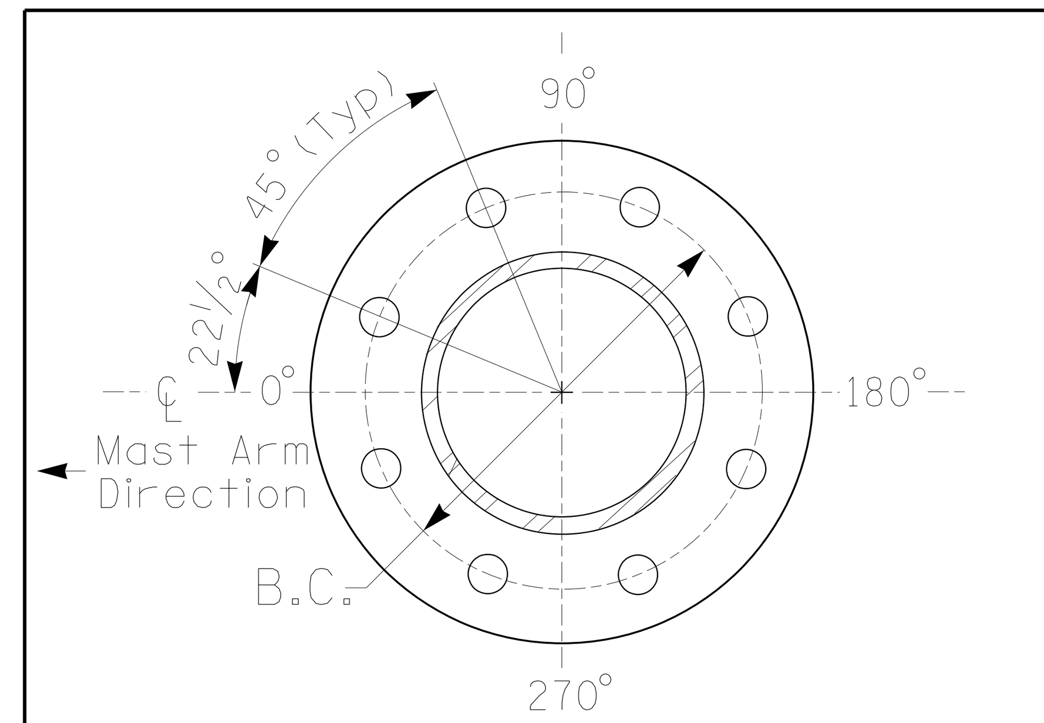
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 2
Baseline reference point at ℄ Foundation @ ground level	2200.1 ft.
Elevation difference at High point of roadway surface	-10.8 ft.
Elevation difference at Edge of travelway or face of curb	-11.1 ft.

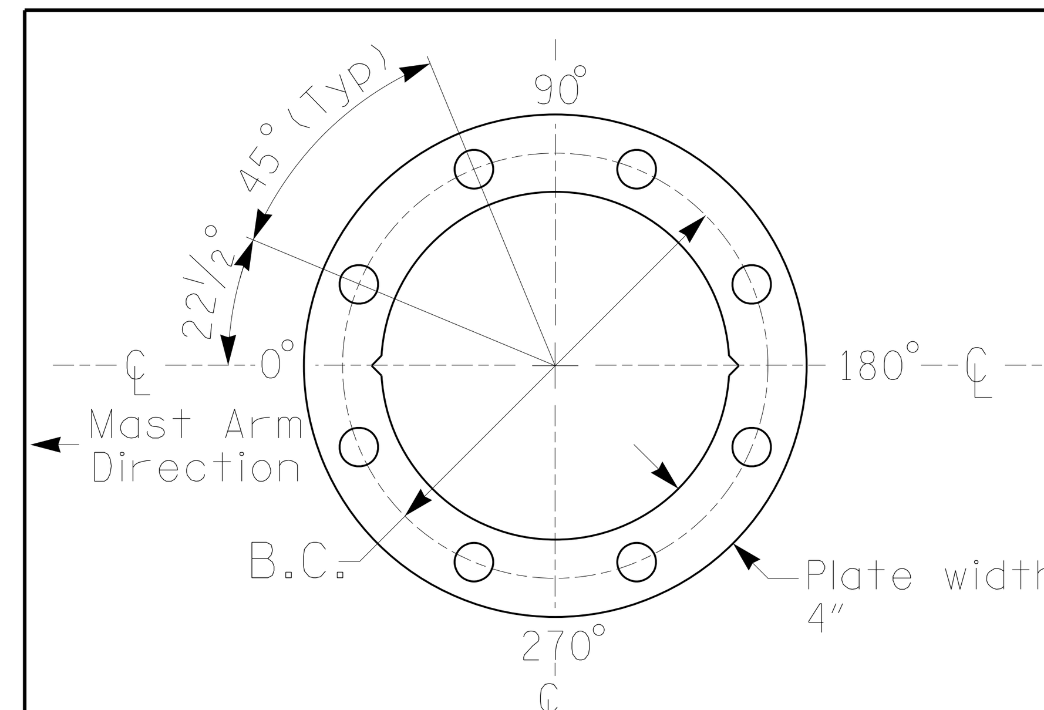


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 6



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

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

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
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   - The traffic signal project plans and special provisions.
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DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using force ratios that do not exceed 0.9.
4. The camber design for the mast arm deflection should provide an appearance of a low pitched arch where the tip or the free end of the mast arm does not deflect below horizontal when fully loaded.
5. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
6. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
7. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Mast arm slope and deflection are not considered in determining the arm attachment height as they are assumed to offset each other.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
8. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
9. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
10. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
11. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

NCDOT Wind Zone 5 (110 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for the Offices of: Transportation Mobility and Safety Division, Signal Design Section

750 N.Greenfield Pkwy, Garner, NC 27529

NC 107 (E. Main Street) at Walmart Driveway/ Commercial Driveway

Division 14 | Jackson County | Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE 0 N/A

N/A

REVISIONS | INIT. | DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025

DATE

SIG. INVENTORY NO. 14-1022

Plans Prepared By:

DRMP

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

26-AUG-2025 13:58
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Fernando.Vazquez AT CHA-FVAZQUEZ

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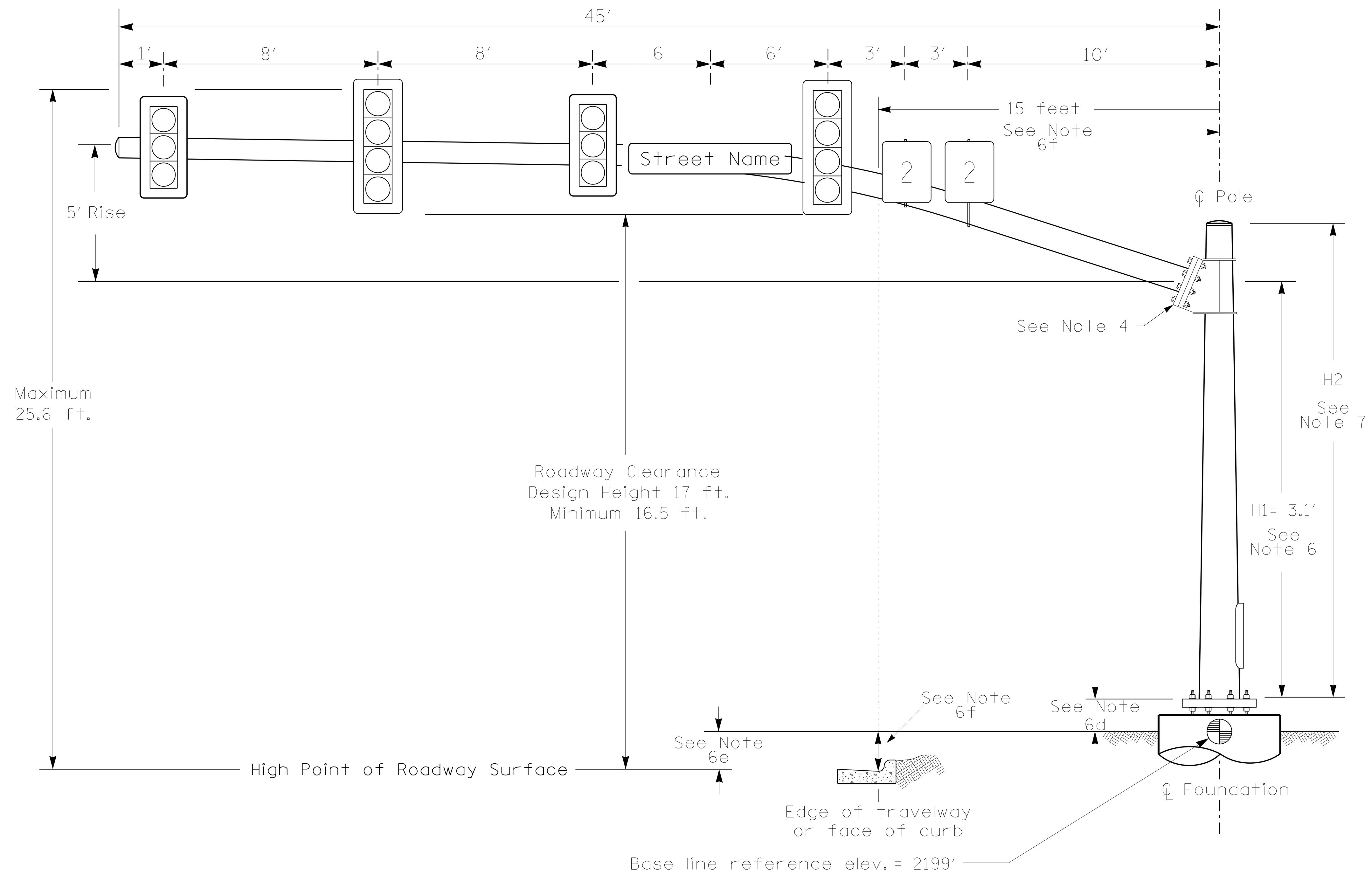
METAL POLE No. 3 and 4

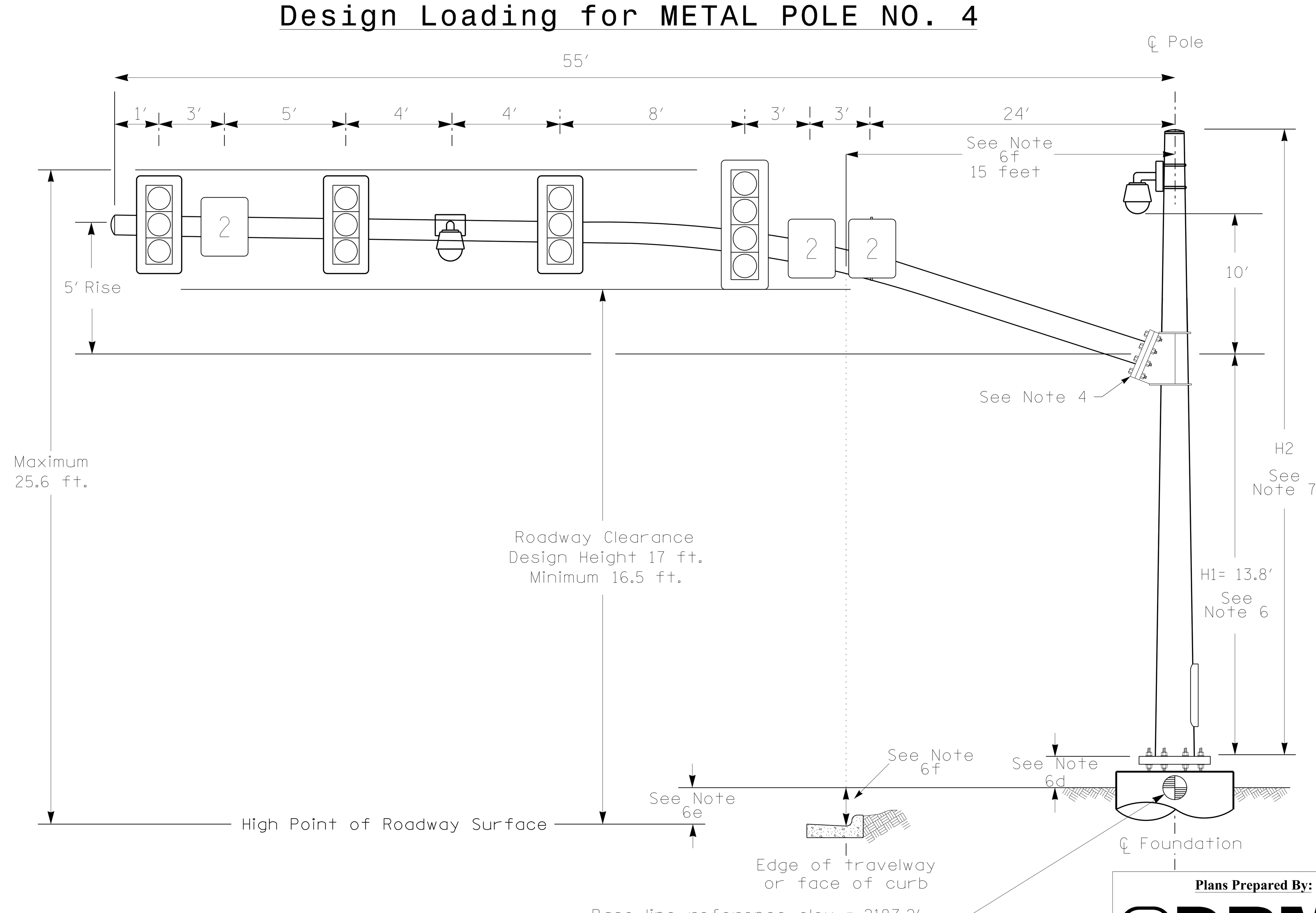
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-24.5

Design Loading for METAL POLE NO. 3



Elevation View

Design Loading for METAL POLE NO. 4



Elevation View

Plans Prepared By:

DRMP

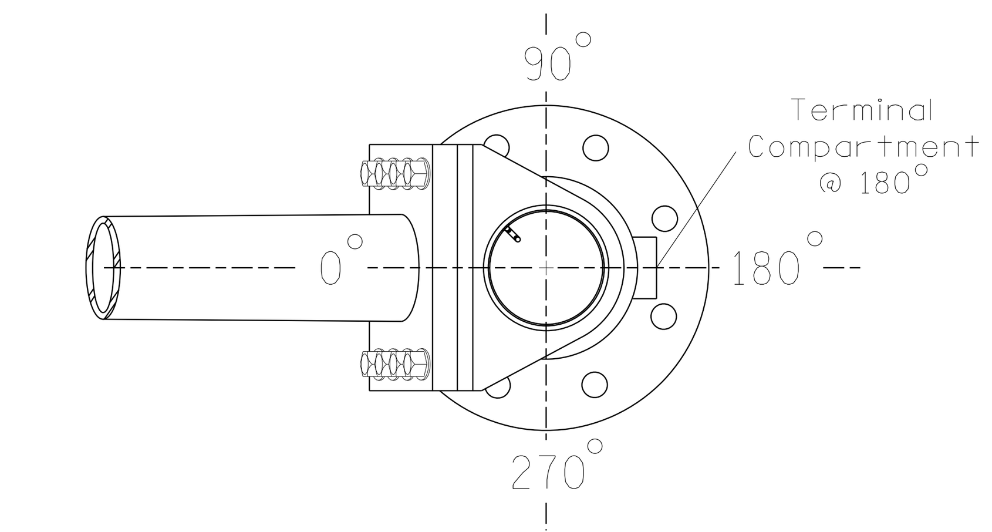
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR. SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

SPECIAL NOTE

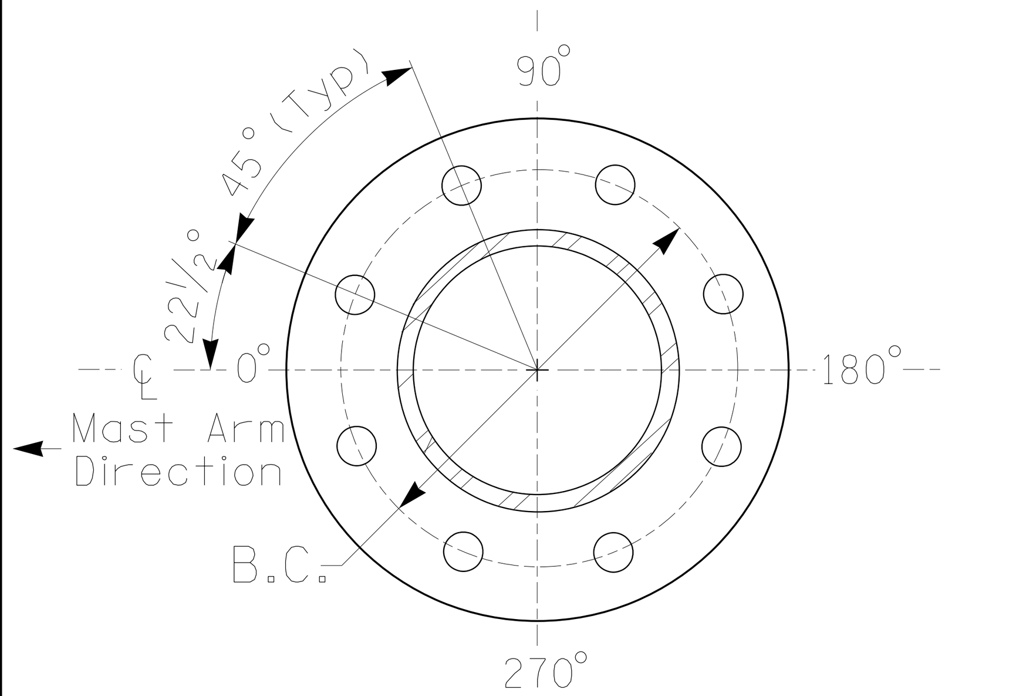
The contractor is responsible for verifying that the mast arm attachment height (H1) willprovide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 3	Pole 4
Baseline reference point at ℄ Foundation @ ground level	2199.0 ft.	2187.2 ft.
Elevation difference at High point of roadway surface	-10.9 ft.	-0.2 ft.
Elevation difference at Edge of travelway or face of curb	-10.3 ft.	-1.0 ft.

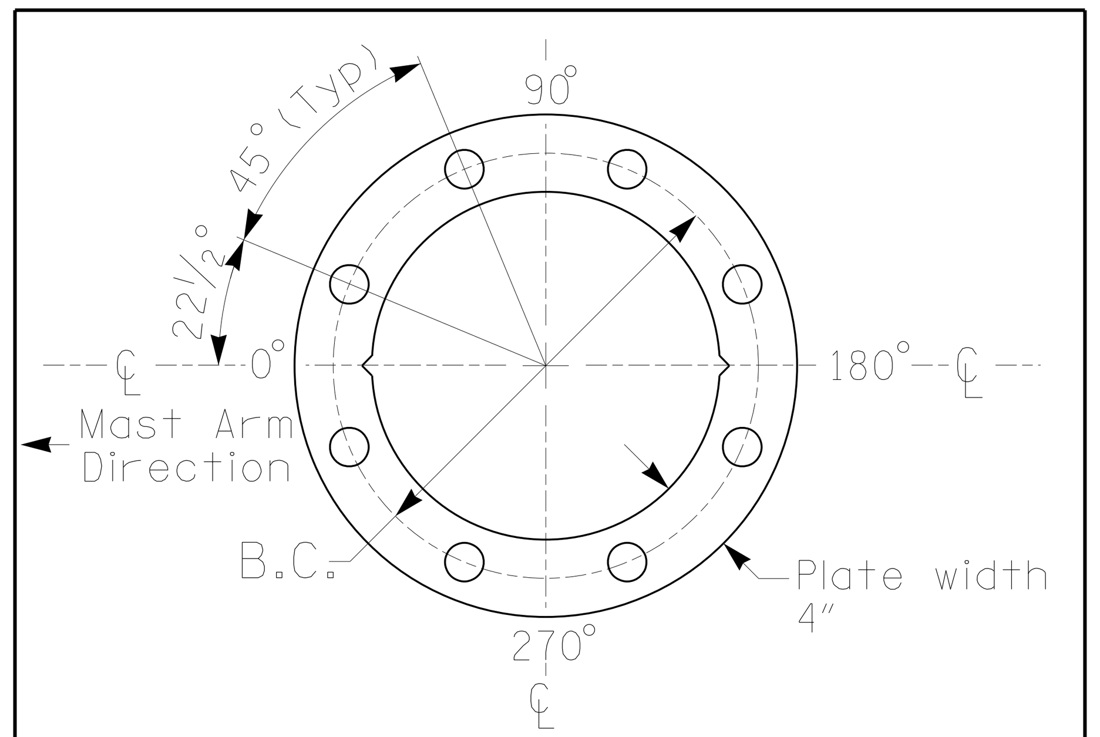


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL
For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	RIGID MOUNTED SIGNAL HEAD 12"-4 SECTION-WITH BACKPLATE	11.5 S.F.	25.5"W x 66.0"L	74 LBS
	RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-WITH BACKPLATE	9.3 S.F.	25.5"W x 52.5"L	60 LBS
2	SIGN RIGID MOUNTED	7.5 S.F.	30.0"W x 36.0"L	14 LBS
Street Name	STREET NAME SIGN RIGID MOUNTED	16.0 S.F.	24.0"W x 96.0"L	36 LBS
	CCTV CAMERA ARM-MOUNTED	1.0 S.F.	11.0"W x 11.0"L	30 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 1st Edition 2015 AASHTO LRFD "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2024 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2024 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using force ratios that do not exceed 0.9.
4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
6. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
   f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 814-5000.
9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

All metal poles and arms should be black in color as specified in the project special provisions.

NCDOT Wind Zone 5 (110 mph)

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

NC 107 (E. Main Street) at Walmart Driveway/ Commercial Driveway

Division 14 | Jackson County | Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DJ White	REVIEWED BY:	BN Groome

SCALE 0 N/A
N/A

REVISIONS | INIT. | DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

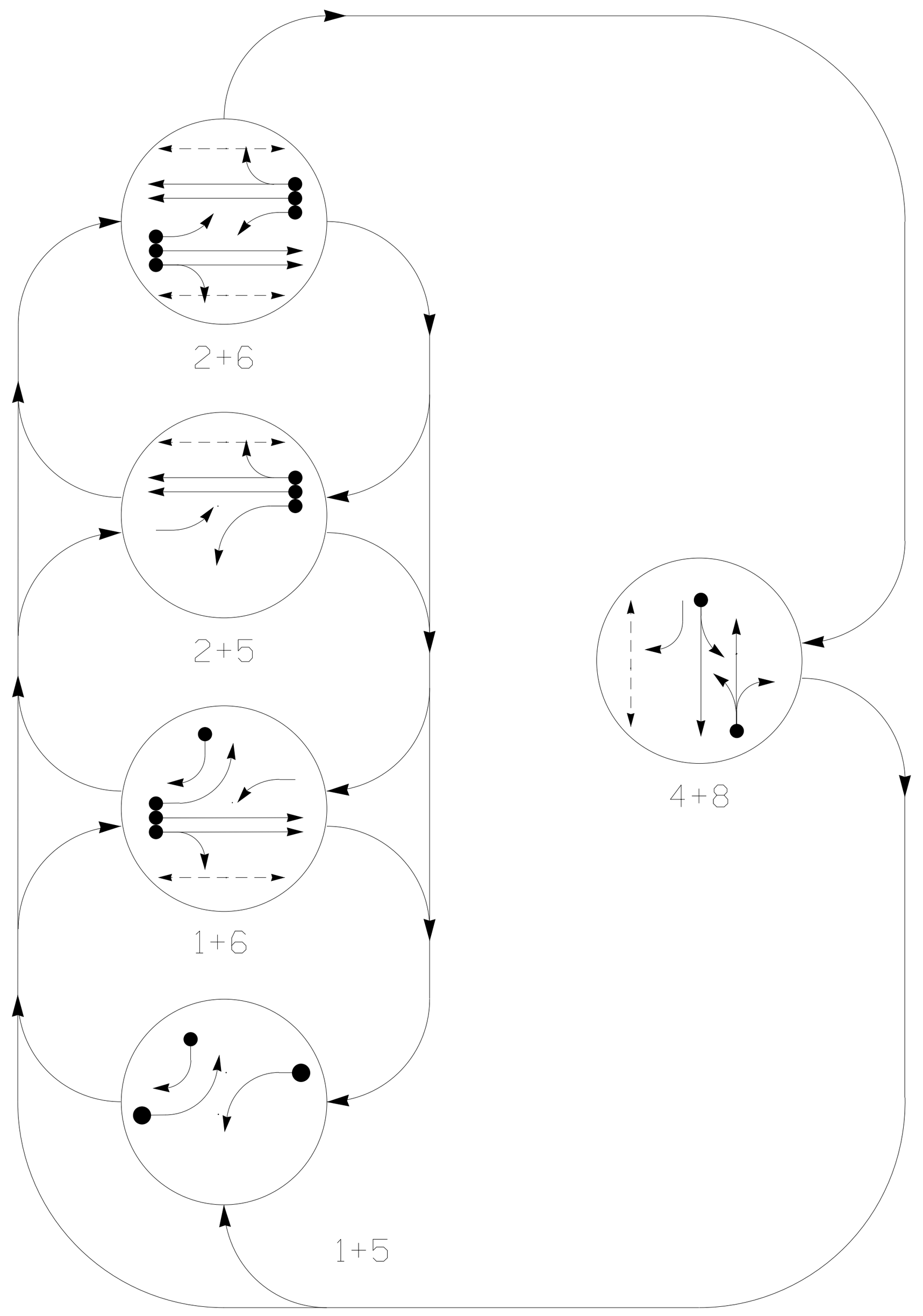
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by: Brittany Groome 8/26/2025
DATE

SIG. INVENTORY NO. 14-1022

26-AUG-2025 13:58
D:\Raleigh\Raleigh_RKA_Projects\2018 Projects\18042 R-5600 - Jackson County NC\TSMO\Signal Design\Metal Poles\141022_sig_MP1&2_2020mmdd.dgn
Fernando.Vazquez AT CHA-FVAZQUEZ

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

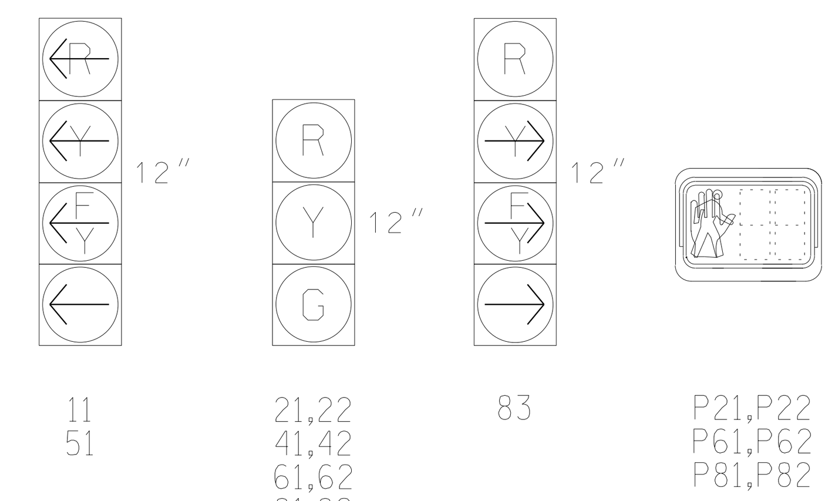
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	4+8	FLASH
11	←	←	← F/Y	← F/Y	← R	← R
21,22	R	R	G	G	R	R
41,42	R	R	R	R	G	R
51	←	← F/Y	←	← F/Y	← R	← R
61,62	R	G	R	G	R	R
81,82	R	R	R	R	G	R
83	→	→	R	R	→ F/Y	R
P21,P22	DW	DW	W	W	DW	DRK
P61,P62	DW	W	DW	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

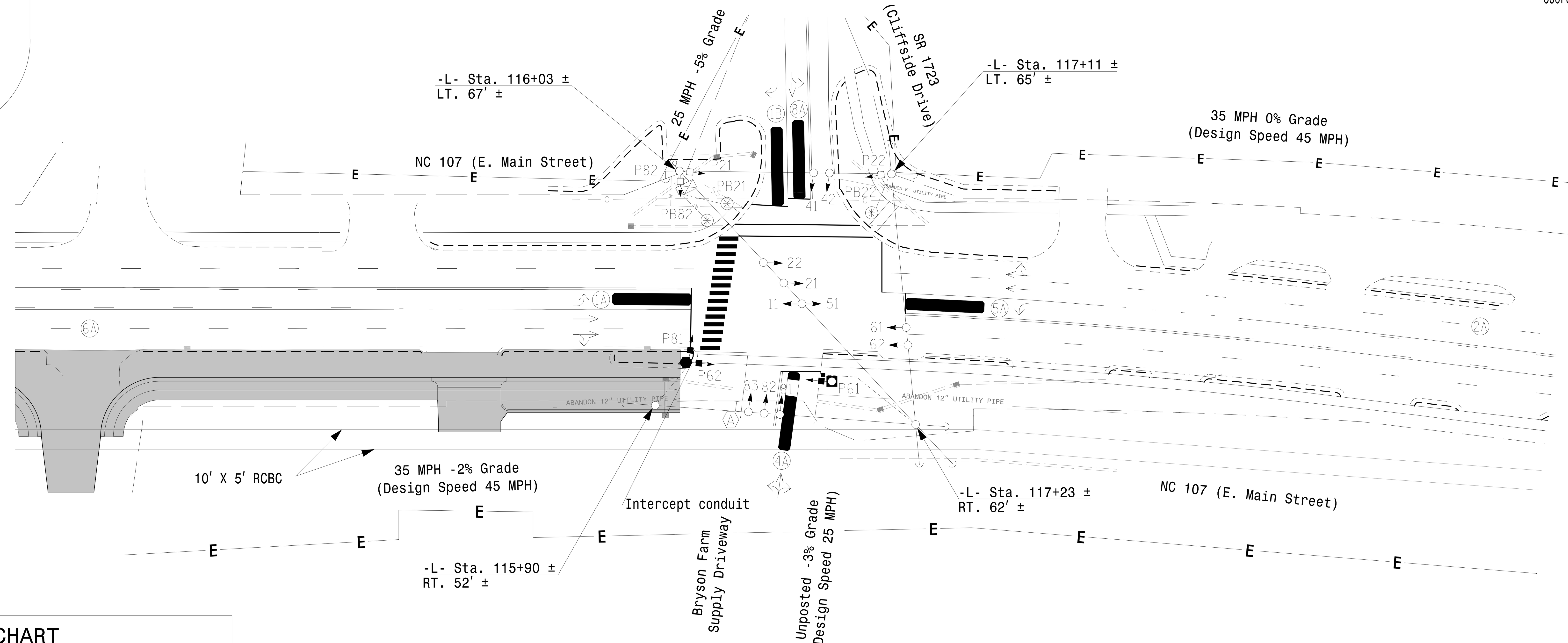
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	15.0	-	X	-	X	-	*
					6	-	-	X	-	X	-	*
1B	*	0	*	X	1	15.0	-	X	-	X	-	*
4A	*	0	*	X	4	3.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0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

* Multi-Zone Microwave Detection Zone

5 Phase
Fully Actuated
(Time Based Coordination)

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. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
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. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
9. 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	
	Non-Intrusive Detection Zone	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Directional Drill	N/A
	Metal Pole with Mastarm	
N/A	Construction Easement	E
N/A	Curb Ramp	
	Type II Signal Pedestal	
	Temporary Pedestrian Post with Ped Push Button & Sign	
	Construction Zone	
N/A	Gas Line	G
N/A	Underground Water Line	W
N/A	Underground Sanitary Sewer	SS
N/A	Abandon 8" Utility Pipe	ABANDON 8" UTILITY PIPE
N/A	Abandon 12" Utility Pipe	ABANDON 12" UTILITY PIPE
Ⓐ	"RIGHT TURN SIGNAL" Sign (R10-10)	Ⓐ

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Walk *	–	14	–	–	13	13
Ped Clear	–	18	–	–	7	14
Min Green *	7	12	7	7	12	7
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	25	20	45	30
Yellow Change	3.0	4.7	3.5	3.0	4.7	3.5
Red Clear	2.6	1.6	2.4	2.4	1.6	2.4
Added Initial *	–	–	–	–	—	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	–	–	6	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.

Microwave Detection

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

Signal Upgrade

Temporary Design 1 - TMP Ph1, S2, Part 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

SCALE 0 40
1"=40'

NC 107 (E. Main Street)
at
SR 1723 (Cliffside Drive) /
Bryson Farm Supply Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025 REVIEWED BY: ZM Esposito
PREPARED BY: DS Griffith REVIEWED BY: BN Groome

REVISIONS INIT. DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome 1E09340E1094484 8/26/2025
DATE

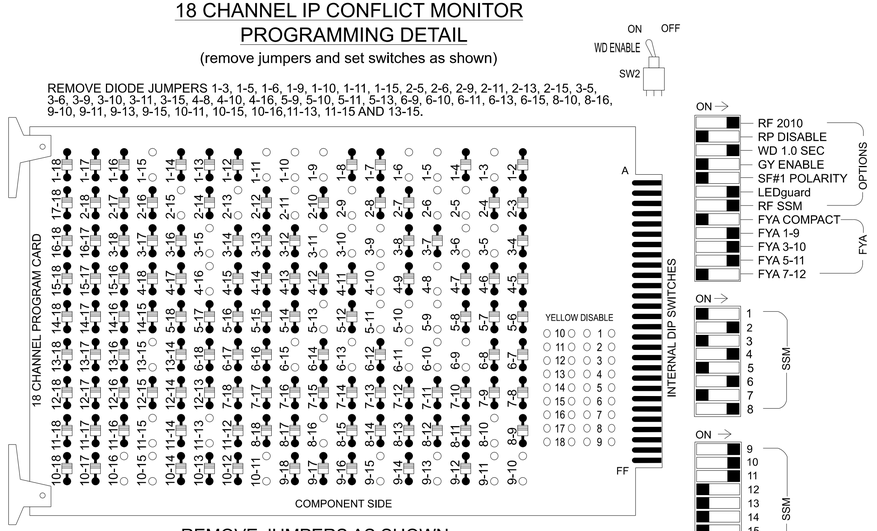
SIG. INVENTORY NO. 14-1200T1

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-25.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-3, 1-5, 1-6, 1-9, 1-10, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-13, 2-15, 3-5, 3-6, 3-9, 3-10, 3-11, 3-15, 4-8, 4-10, 4-16, 5-9, 5-10, 5-11, 5-13, 6-9, 6-10, 6-11, 6-13, 6-15, 8-10, 8-16, 9-10, 9-11, 9-13, 9-15, 10-11, 10-15, 10-16,11-13, 11-15 AND 13-15.



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 the 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 and Simultaneous Start.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
5. The cabinet and controller are part of the NC 107 Time Based 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, S2, S3, S4, S5, S7, S8, S9
S11, S12, AUX S1, AUX S2, AUX S4
Phases Used.....1, 2, 2PED, 4, 5, 6, 6PED, 8, 8PED
Overlap "1".....*
Overlap "2".....*
Overlap "3".....*
Overlap "4".....NOT USED
Overlap "7".....*

*See overlap programming detail on sheet 2.

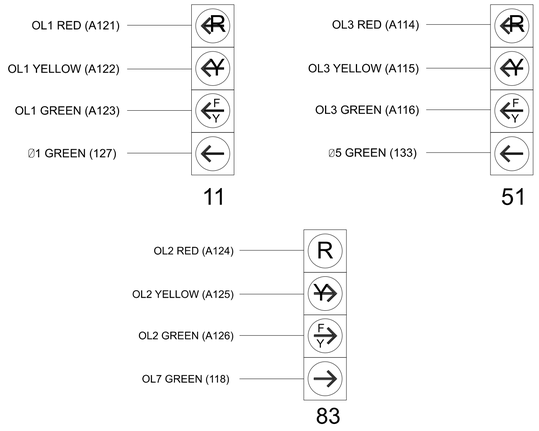
SIGNAL HEAD HOOK-UP CHART

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	OL7	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11 ★	21,22	P21, P22	83 ★	41,42	NU	51 ★	61,62	P61, P62	NU	81,82	P81, P82	11 ★	83 ★	NU	51 ★	NU	NU
RED		128			101			134			107			A124				
YELLOW	*	129		*	102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW	127			118			133											
✋			113						119			110						
🚶			115						121			112						

NU = Not Used NC = Not Connected
* 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	Ø 1 1A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 2 PED DC ISOLATOR	Ø 6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED											NOT USED	Ø 8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	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	NOT USED													

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

FS = FLASH SENSE
ST = STOP TIME

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

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
1A	TB2-1,2	I1U	56	18	1	1	15.0		X		X	
				-	29	6			X		X	
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2			X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						
P61,P62	TB8-7,9	I13U	68	34	6	PED 6						
P81,P82	TB8-8,9	I13L	70	36	8	PED 8						

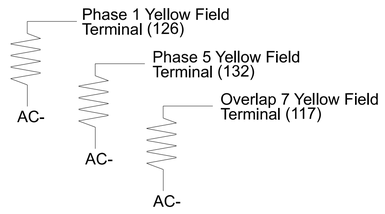
NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For Detection Zones 1A and 5A, the equipement placement is typical for a NCDOT installation.

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.

Plans Prepared By:

DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1200T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 1 of 2
Temporary Design 1 - TMP Ph1, S2, Part 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main Street)
at
SR 1723 (Cliffside Drive) /
Bryson Farm Supply Driveway

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DS Griffith	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME
Signed by: Brittany Groome 1E0934DE1D84454...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1200T1

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

750 N.Greenfield Pkwy,Garner,NC 27529

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-25.2

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

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

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	Overlap	7		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

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 3 →

↑ NOTICE FLASHING RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1200T1
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 1 - TMP Ph1, S2, Part 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

ELECTRICAL AND PROGRAMMING DETAILS FOR:

ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1723 (Cliffside Drive) /
Bryson Farm Supply Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: DS Griffith	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

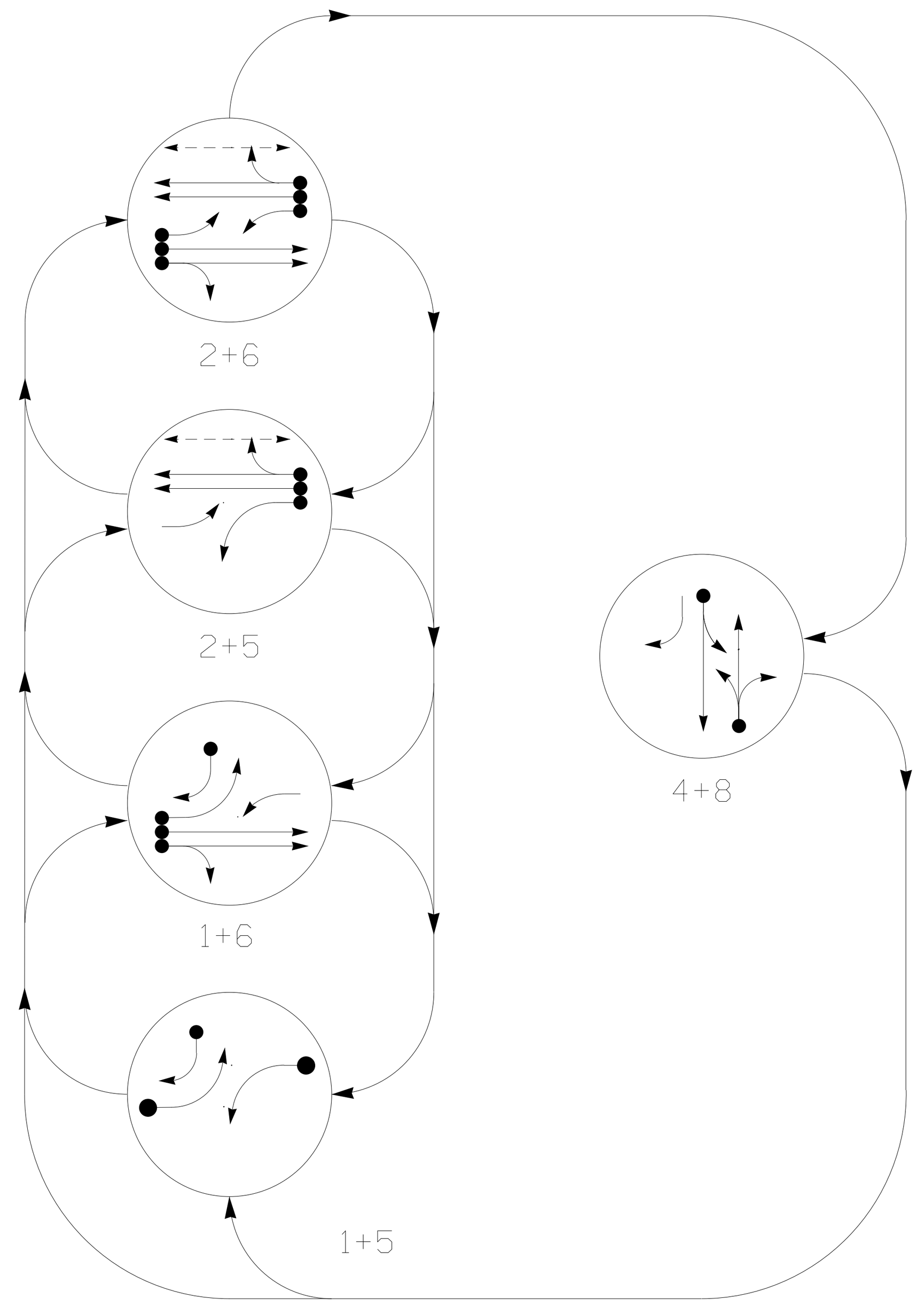
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1200T1

21-AUG-2025 12:40
pw://pwhdruseas01:HDR_US_East_01/Documents/NCDOT/NCDOT_Western_Div_On-Call_M_/NCDOT_6170_R5600_NC170_US23BUS/6.0_CAD_BIM/6.2_Work_In_Progress/R-5600 NCDOT File Structure/Traffic/Signals/Design/Signal Management/14-1200/14-1200T1_sm_ele_2025mmdd.dgn
Fernando.Vazquez AT CHA-FVAZQUEZ

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

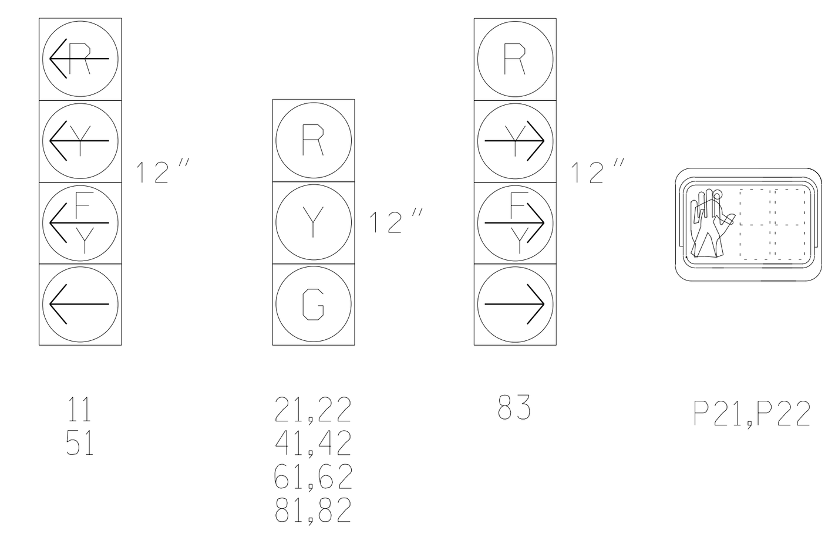
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	1+6	2+5	2+6	4+8	FLASH
11	←	←	F←Y	F←Y	←R	←R
21,22	R	R	G	G	R	R
41,42	R	R	R	R	G	R
51	←	F←Y	←	F←Y	←R	←R
61,62	R	G	R	G	R	R
81,82	R	R	R	R	G	R
83	→	→	R	R	F→Y	R
P21,P22	DW	DW	W	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

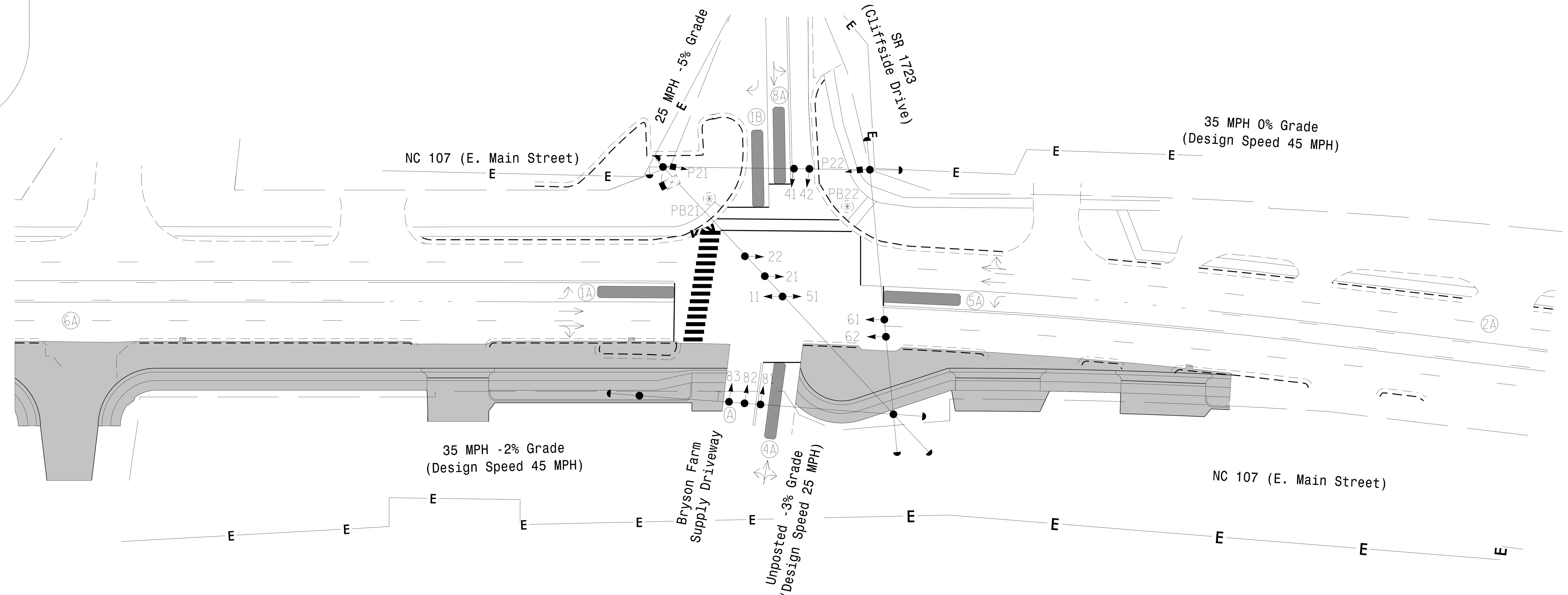
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	15.0	-	X	-	X	-	*
					6	-	-	X	-	X	-	*
1B	*	0	*	X	1	15.0	-	X	-	X	-	*
4A	*	0	*	X	4	3.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0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

* Multi-Zone Microwave Detection Zone

5 Phase
Fully Actuated
(Time Based Coordination)

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. Disconnect and bag existing pedestrian head and pushbutton for P82.
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. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Non-Intrusive Detection Zone	
	Directional Drill	N/A
	Metal Pole with Mastarm	
N/A	Construction Easement	E
N/A	Curb Ramp	
	Temporary Pedestrian Post with Ped Push Button & Sign	
	Construction Zone	N/A
N/A	Pedestrian Barricade	
Ⓐ	"RIGHT TURN SIGNAL" Sign (R10-10)	Ⓐ

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Walk *	–	14	–	–	–	–
Ped Clear	–	18	–	–	–	–
Min Green *	7	12	7	7	12	7
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	25	20	45	25
Yellow Change	3.0	4.7	3.5	3.0	4.7	3.5
Red Clear	2.6	1.6	2.4	2.4	1.6	2.4
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	7	–	–	–	–
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.

Microwave Detection

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

Signal Upgrade
Temporary Design 2 - TMP Ph1, S2, Part 2

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Prepared for:
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State of North Carolina Department of Transportation
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
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Bryson Farm Supply Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: DS Griffith	REVIEWED BY: BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1200T2

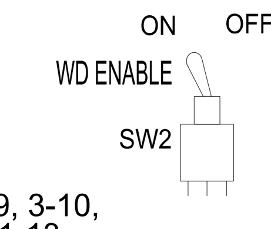
Docusign Envelope ID: C8F16DB8-E22A-4752-95D3-B607B9B7670F

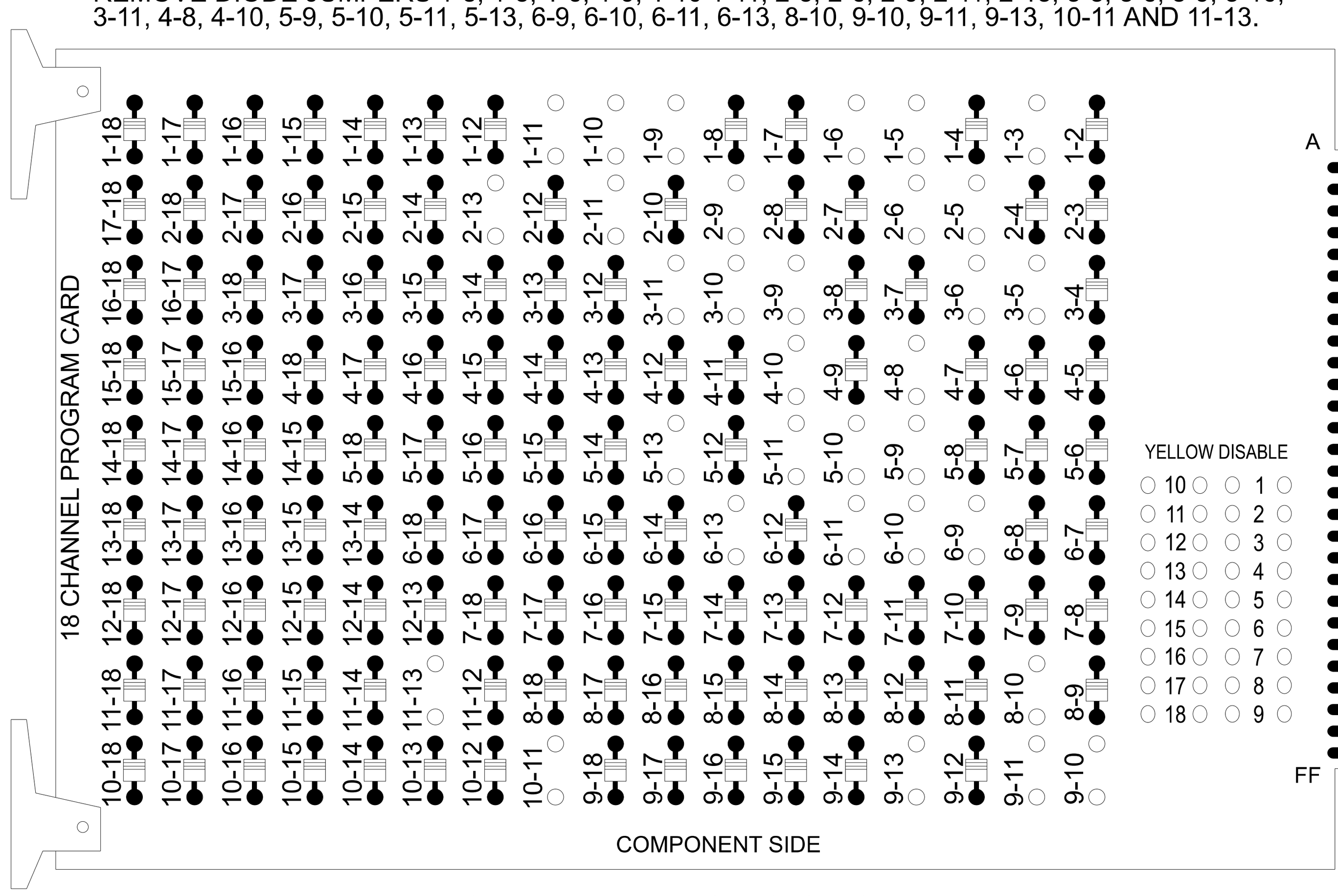
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-26.1

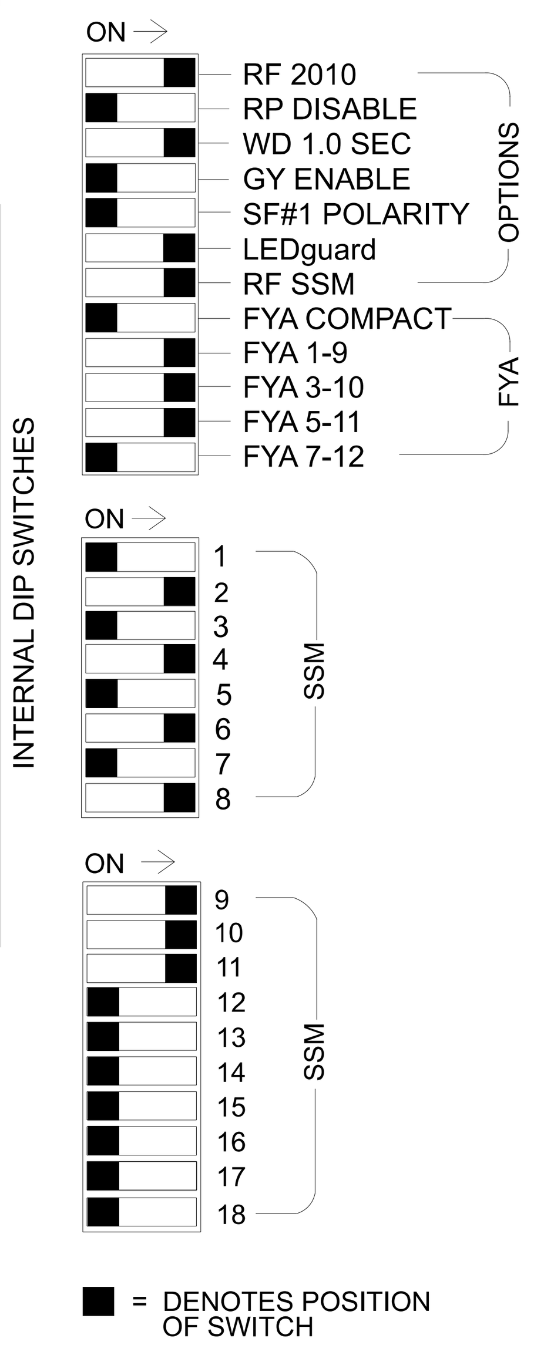
18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-3, 1-5, 1-6, 1-9, 1-10 1-11, 2-5, 2-6, 2-9, 2-11, 2-13, 3-5, 3-6, 3-9, 3-10, 3-11, 4-8, 4-10, 5-9, 5-10, 5-11, 5-13, 6-9, 6-10, 6-11, 6-13, 8-10, 9-10, 9-11, 9-13, 10-11 AND 11-13.







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 the 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. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
5. The cabinet and controller are part of the NC 107 Time Based 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, S2, S3, S4, S5, S7, S8, S11, AUX S1, AUX S2, AUX S4
Phases Used.......................................1, 2, 2PED, 4, 5, 6, 8
Overlap "1"..*
Overlap "2"..*
Overlap "3"..*
Overlap "4"..NOT USED
Overlap "7"..*

*See overlap programming detail on sheet 2.

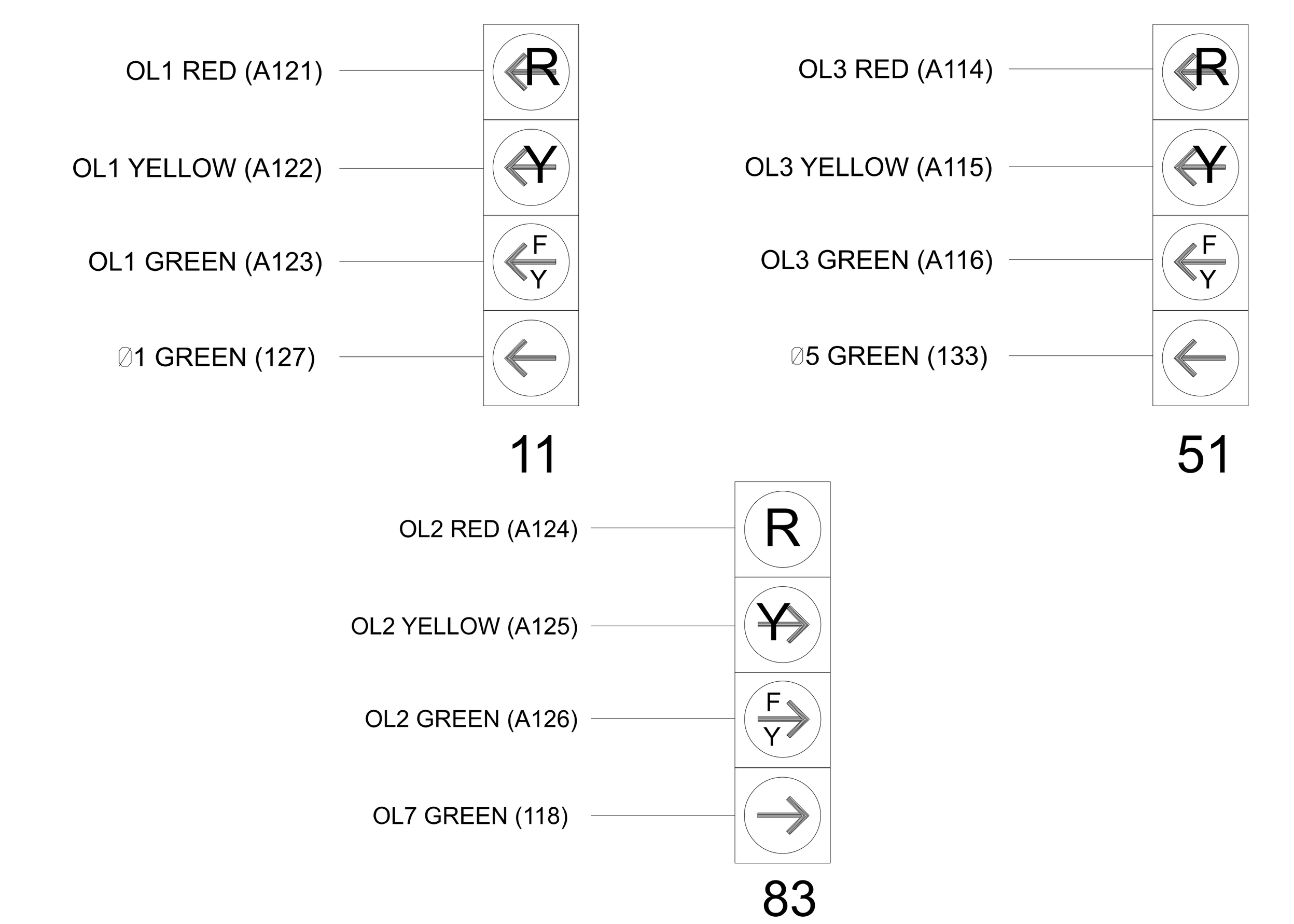
SIGNAL HEAD HOOK-UP CHART

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	OL7	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11★	21,22	P21, P22	83★	41,42	NU	51★	61,62	NC	NU	81,82	NC	11★	83★	NU	51★	NU	NU
RED		128			101			134			107			A124				
YELLOW	*	129		*	102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW	127			118			133											
(Don't Walk)			113															
(Walk)			115															

NU = Not Used NC = Not Connected
* 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)

FILE		1	2	3	4	5	6	7	8	9	1O	11	12	13	14
"I"	U	Ø 1 1A	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	Ø 2 PED DC ISOLATOR	SLOT	FS DC ISOLATOR
"I"	L	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	NOT USED	EMPTY	ST DC ISOLATOR
"J"	U	Ø 5 5A	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT
"J"	L	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY

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

FS = FLASH SENSE
ST = STOP TIME

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

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
1A	TB2-1,2	I1U	56	18	1	1	15.0		X		X	
				-	29	6			X		X	
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2			X		X	
PED PUSH BUTTONS												
P21,P22	TB8-4,6	I12U	67	33	2	PED 2						

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOT I13.

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

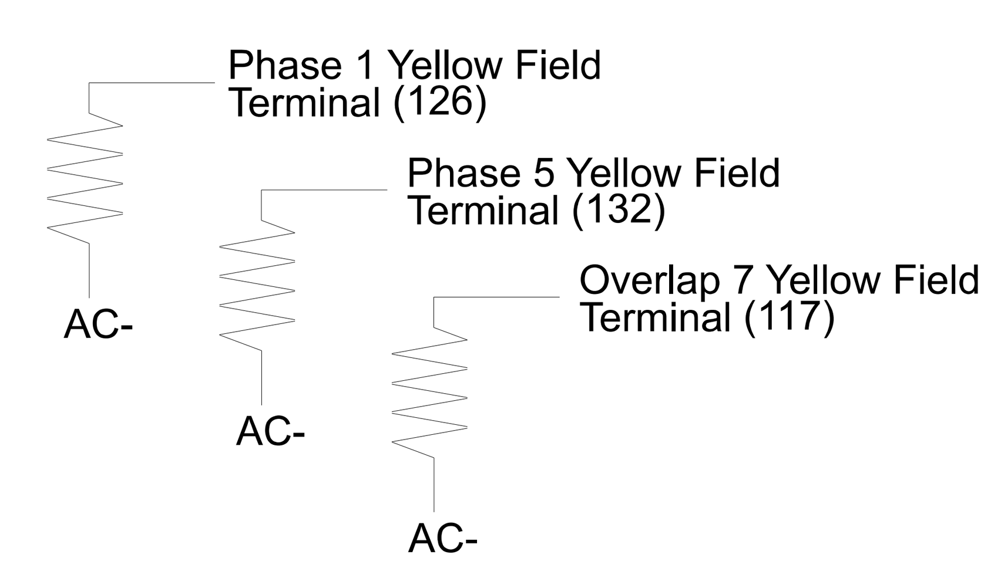
SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For Detection Zones 1A and 5A, the equipement placement is typical for a NCDOT installation.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1200T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 1 of 2
Temporary Design 2 - TMP Ph1, S2, Part 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DS Griffith	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome
1E09340E1094484...
8/26/2025
DATE

SIG. INVENTORY NO. 14-1200T2

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

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

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	Overlap	7		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

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 3

NOTICE FLASHING RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1200T2
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 2 - TMP Ph1, S2, Part 2

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Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DS Griffith	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 052936 ENGINEER BRITTANY N GROOME

Signed by:
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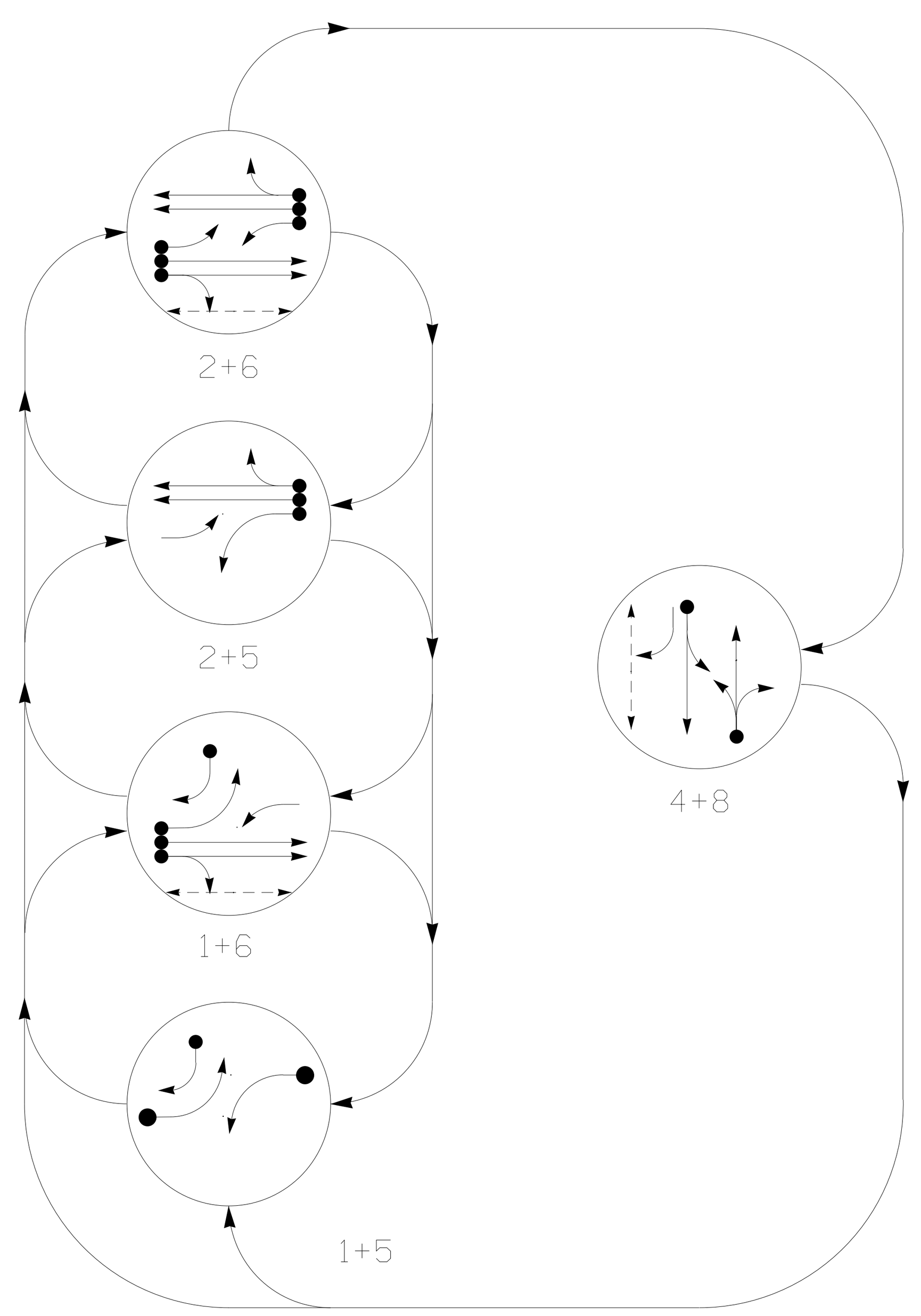
Docusign Envelope ID: C8F16DB8-E22A-4752-95D3-B607B9B7670F

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-27.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

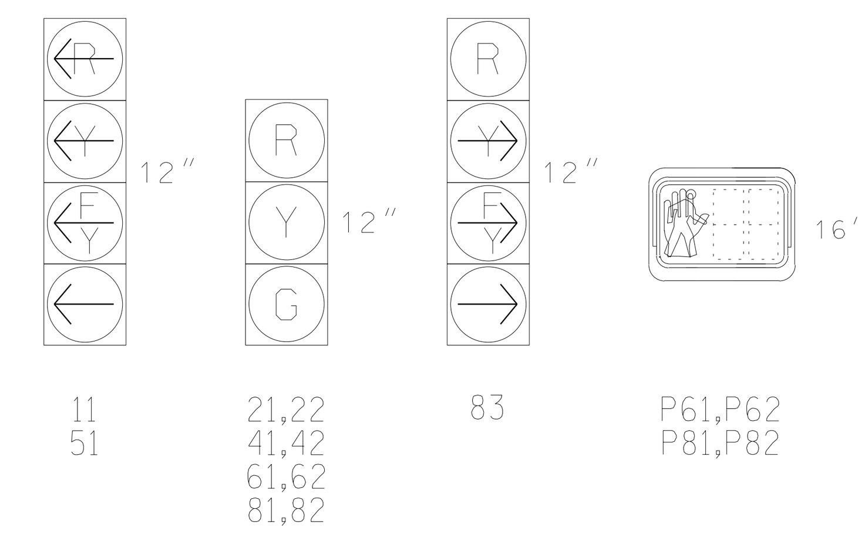
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 4+8	FLASH
11	←	←	F/Y ←	F/Y ←	R ←	R ←
21,22	R	R	G	G	R	R
41,42	R	R	R	R	G	R
51	←	F/Y ←	←	F/Y ←	R ←	R ←
61,62	R	G	R	G	R	R
81,82	R	R	R	R	G	R
83	→	→	R	R	F/Y →	R
P61,P62	DW	W	DW	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

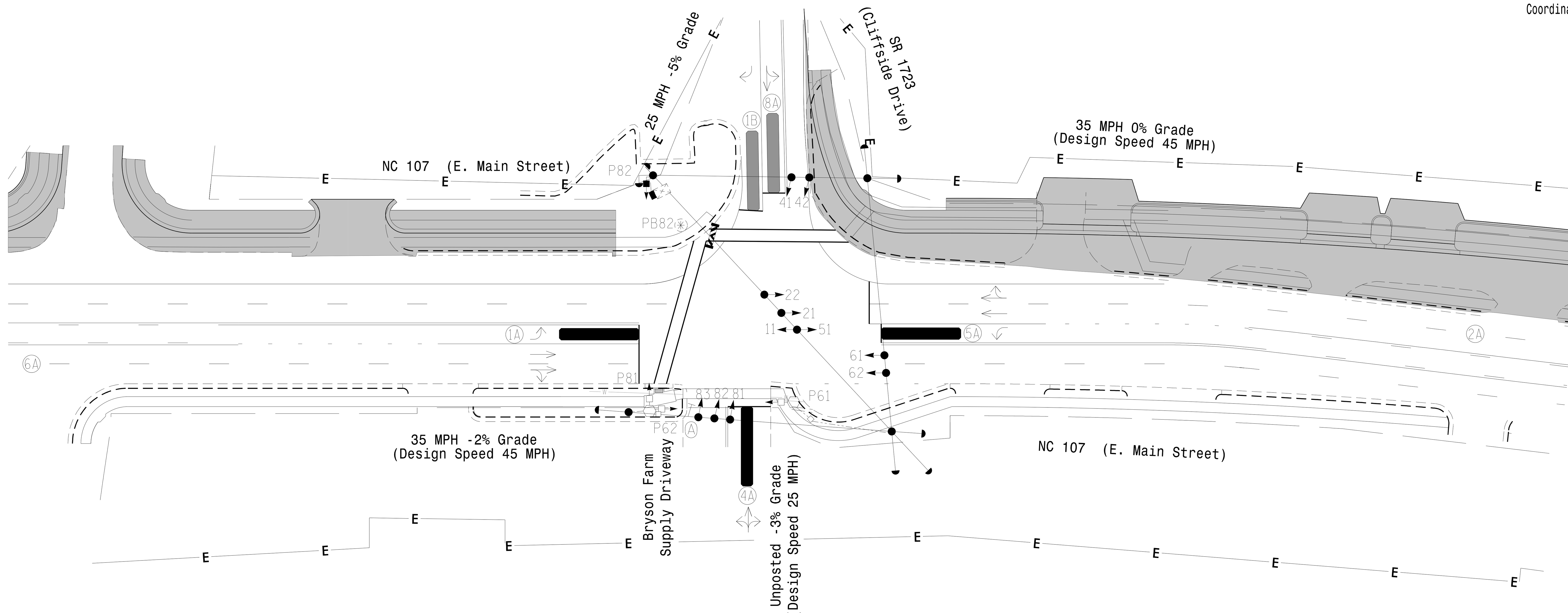
DETECTOR					PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	15.0	-	X	-	X	-	*
					6	-	-	X	-	X	-	*
1B	*	0	*	X	1	15.0	-	X	-	X	-	*
4A	*	0	*	X	4	3.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0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

* Multi-Zone Microwave Detection Zone

5 Phase
Fully Actuated
(Time Based Coordination)

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. Reposition existing signal heads numbered 11, 21, 22, 51, 61, 62, 81 82 and 83.
5. Disconnect and bag existing pedestrian heads P21 and P22 and pushbutton PB21.
6. Unbag and reconnect existing signal head P82 and pushbutton PB82.
7. Set all detectors units to presence mode.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
11. 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	
	Non-Intrusive Detection Zone	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Directional Drill	N/A
	Metal Pole with Mastarm	
N/A	Construction Easement	E
	Construction Zone	N/A
N/A	Curb Ramp	
	Temporary Pedestrian Post with Ped Push Button & Sign	
	Type II Signal Pedestal	
N/A	Underground Water Line	
N/A	Abandon 12" Utility Pipe	ABANDON 12" UTILITY PIPE
N/A	Pedestrian Barricade	
Ⓐ	"RIGHT TURN SIGNAL" Sign (R10-10)	Ⓐ

MAXTIME TIMING CHART

FEATURE	PHASE 1	PHASE 2	PHASE 4	PHASE 5	PHASE 6	PHASE 8
Walk *	–	–	–	–	14	14
Ped Clear	–	–	–	–	9	21
Min Green *	7	12	7	7	12	7
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	25	20	45	35
Yellow Change	3.0	4.7	3.5	3.0	4.7	3.5
Red Clear	2.9	2.1	2.9	2.9	2.1	2.9
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	–	–	–	7	7
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.

Microwave Detection

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

Signal Upgrade
Temporary Design 3 - TMP Ph2, S1, Part 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

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

NC 107 (E. Main Street) at SR 1723 (Cliffside Drive) / Bryson Farm Supply Driveway

Division 14	Jackson County	Sylva
PLAN DATE: August 2025	REVIEWED BY: ZM Esposito	
PREPARED BY: DS Griffith	REVIEWED BY: BN Groome	

REVISIONS | INIT. | DATE

SCALE 0 40 1"=40'

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N. GROOME

Signed by: Brittany Groome 1E09340E1094484... 8/26/2025
DATE

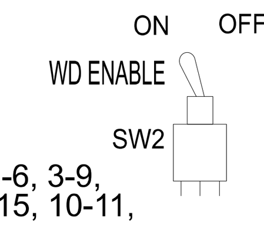
SIG. INVENTORY NO. 14-120013

21-AUG-2025 12:42
pw://pwdrmpusepw01:HDR_US_East_01/Documents/NCDOT/NCDOT_Western_Div_On-Call_M_/NCDOT_6170_R5600_NC170_US23BUS/6.0_CAD_BIM/6.2_Work_In_Progress/R-5600 NCDOT File Structure/Traffic/Signals/Design/Signal Designs/14-1200/14_120013_sig_dsn_2025mods.dgn
Fernando.Vazquez AT CHA-FVAZQUEZ

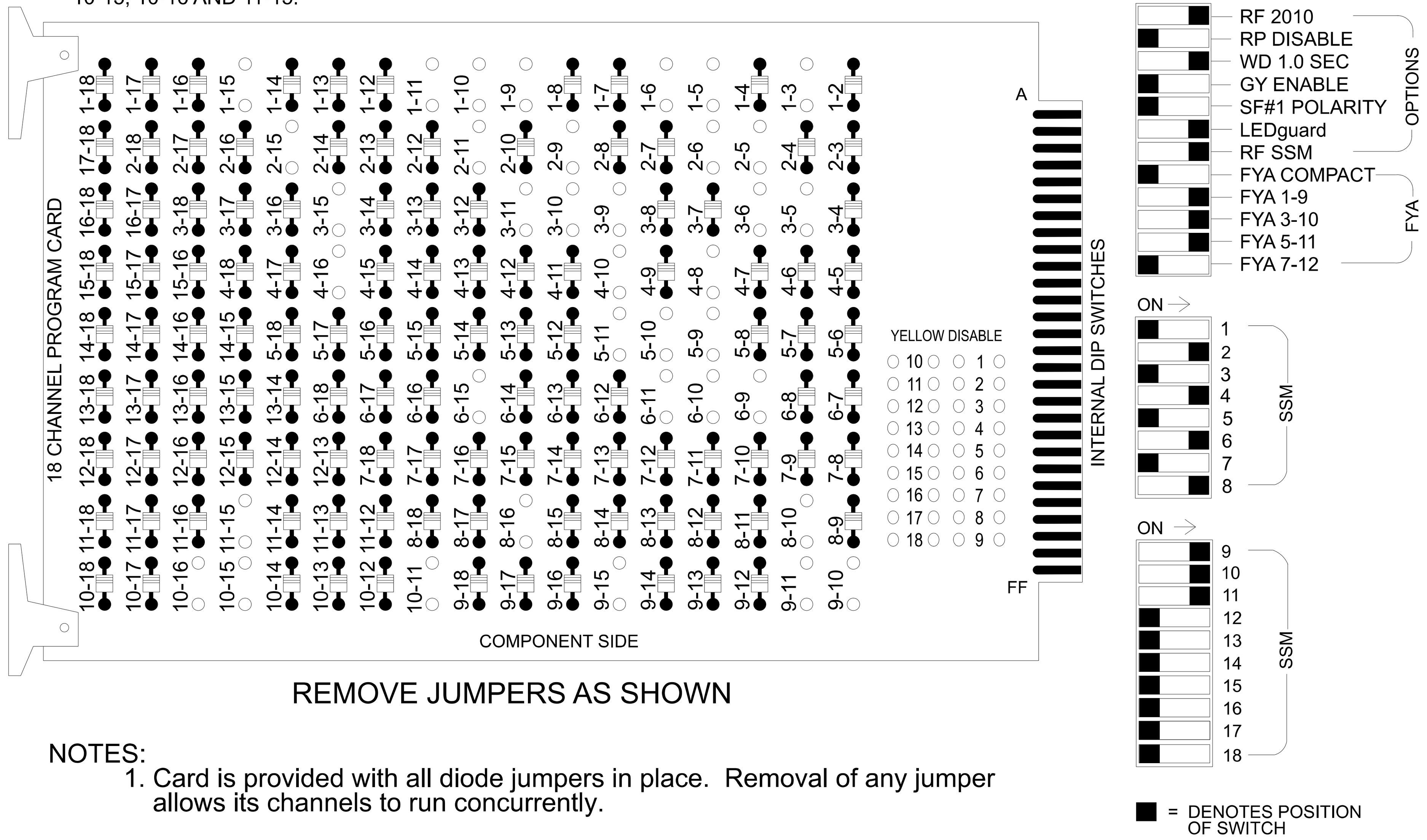
PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-27.1

18 CHANNEL IP CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-3, 1-5, 1-6, 1-9, 1-10, 1-11, 1-15, 2-5, 2-6, 2-9, 2-11, 2-15, 3-5, 3-6, 3-9, 3-10, 3-11, 3-15, 4-8, 4-10, 4-16, 5-9, 5-10, 5-11,6-9, 6-10, 6-11, 6-15, 8-10, 8-16, 9-10, 9-11, 9-15, 10-11, 10-15, 10-16 AND 11-15.



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 the 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 and Simultaneous Start.
3. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
4. Program controller to start up in phase 2 Green No Walk and phase 6 Green No Walk.
5. The cabinet and controller are part of the NC 107 Time Based 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, S2, S4, S5, S7, S8, S9, S11, S12
AUX S1, AUX S2, AUX S4
Phases Used..1, 2, 4, 5, 6, 6PED, 8, 8PED
Overlap "1"...*
Overlap "2"...*
Overlap "3"...*
Overlap "4"...NOT USED
Overlap "7"...*

*See overlap programming detail on sheet 2.

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	OL7	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11★	21,22	NC	83★	41,42	NU	51★	61,62	P61, P62	NU	81,82	P81, P82	11★	83★	NU	51★	NU	NU
RED		128			101			134			107			A124				
YELLOW	*	129		*	102		*	135			108							
GREEN		130			103			136			109							
RED ARROW													A121			A114		
YELLOW ARROW													A122	A125		A115		
FLASHING YELLOW ARROW													A123	A126		A116		
GREEN ARROW	127			118			133											
(Don't Walk hand symbol)									119			110						
(Walk pedestrian symbol)									121			112						

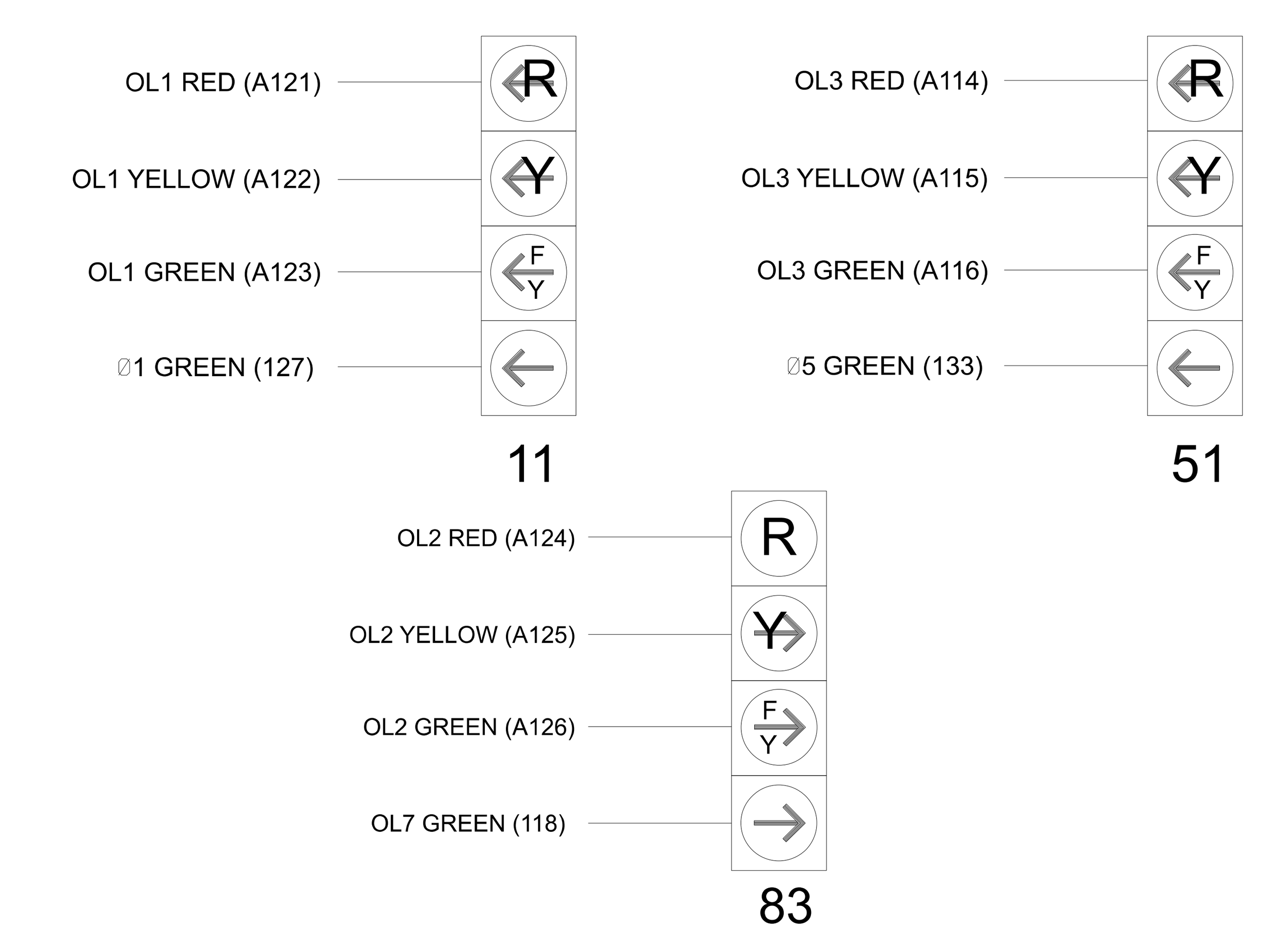
NU = Not Used NC = Not Connected

* 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	1O	11	12	13	14
FILE "I"	U	Ø 1 1A	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT
	L	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY

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

FS = FLASH SENSE
ST = STOP TIME

Note: For Detection Zones 1A and 5A the equipment and slots reserved are typical for a NCDOT installation.

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
1A	TB2-1,2	I1U	56	18	1	1	15.0		X		X	
				-	29	6			X		X	
5A	TB3-1,2	J1U	55	17	15	5	15.0		X		X	
				-	31	2			X		X	
PED PUSH BUTTONS												
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 SLOT I13.

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

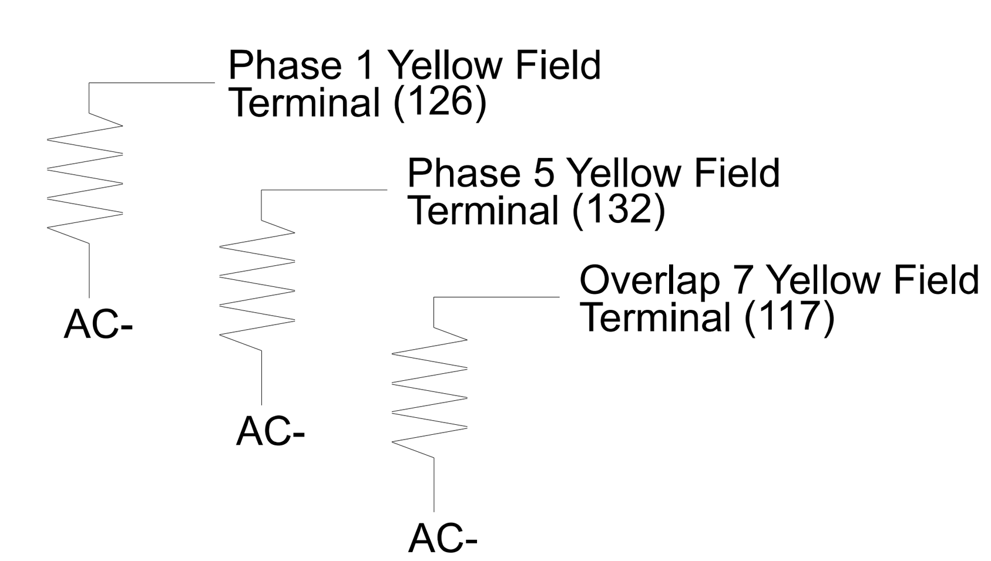
SPECIAL DETECTOR NOTE

1. Install a multi-zone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer -approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2. For Detection Zones 1A and 5A, the equipement placement is typical for a NCDOT installation.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



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.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1200T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Plans Prepared By:
DRMP
DRMP, INC.
8210 UNIVERSITY EXECUTIVE PARK DR.
SUITE 220
CHARLOTTE, NC 28262
NC LICENSE NO. F-1524 (704) 549-4260

Electrical Detail - Sheet 1 of 2
Temporary Design 3 - TMP Ph2, S1, Part 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 107 (E. Main Street)
at
SR 1723 (Cliffside Drive) /
Bryson Farm Supply Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: DS Griffith	REVIEWED BY: BN Groome

REVISIONS	INIT.	DATE

Transportation Mobility and Safety Division
ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome 1E09340E1094484... 8/26/2025 DATE

SIG. INVENTORY NO. 14-1200T3

MAXTIME OVERLAP PROGRAMMING DETAIL

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

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

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

OUTPUT CHANNEL CONFIGURATION

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

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

Channel Configuration

NOTICE OVERLAP 7 ASSIGNED TO CHANNEL 3 →

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	Overlap	7		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

↑ NOTICE FLASHING RED

MAXTIME STARTUP AND SOFTWARE FLASH PROGRAMMING DETAIL

Front Panel
Main Menu>Controller>Unit

Web Interface
Home>Controller>Unit

Start Up Parameters

Startup Clearance Hold
6

Unit Flash Parameters

All Red Flash Exit Time
6

FLASHER CIRCUIT MODIFICATION DETAIL

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

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

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1200T3
DESIGNED: Aug 2025
SEALED: 8/26/2025
REVISED: N/A

Electrical Detail - Sheet 2 of 2
Temporary Design 3 - TMP Ph2, S1, Part 1

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Plans Prepared By:
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NC LICENSE NO. F-1524 (704) 549-4260

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Transportation Mobility and Safety Division — ITS & Signals Management Section — State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

NC 107 (E. Main Street)
at
SR 1723 (Cliffside Drive) /
Bryson Farm Supply Driveway

Division 14 Jackson County Sylva

PLAN DATE:	August 2025	REVIEWED BY:	ZM Esposito
PREPARED BY:	DS Griffith	REVIEWED BY:	BN Groome

REVISIONS	INIT.	DATE

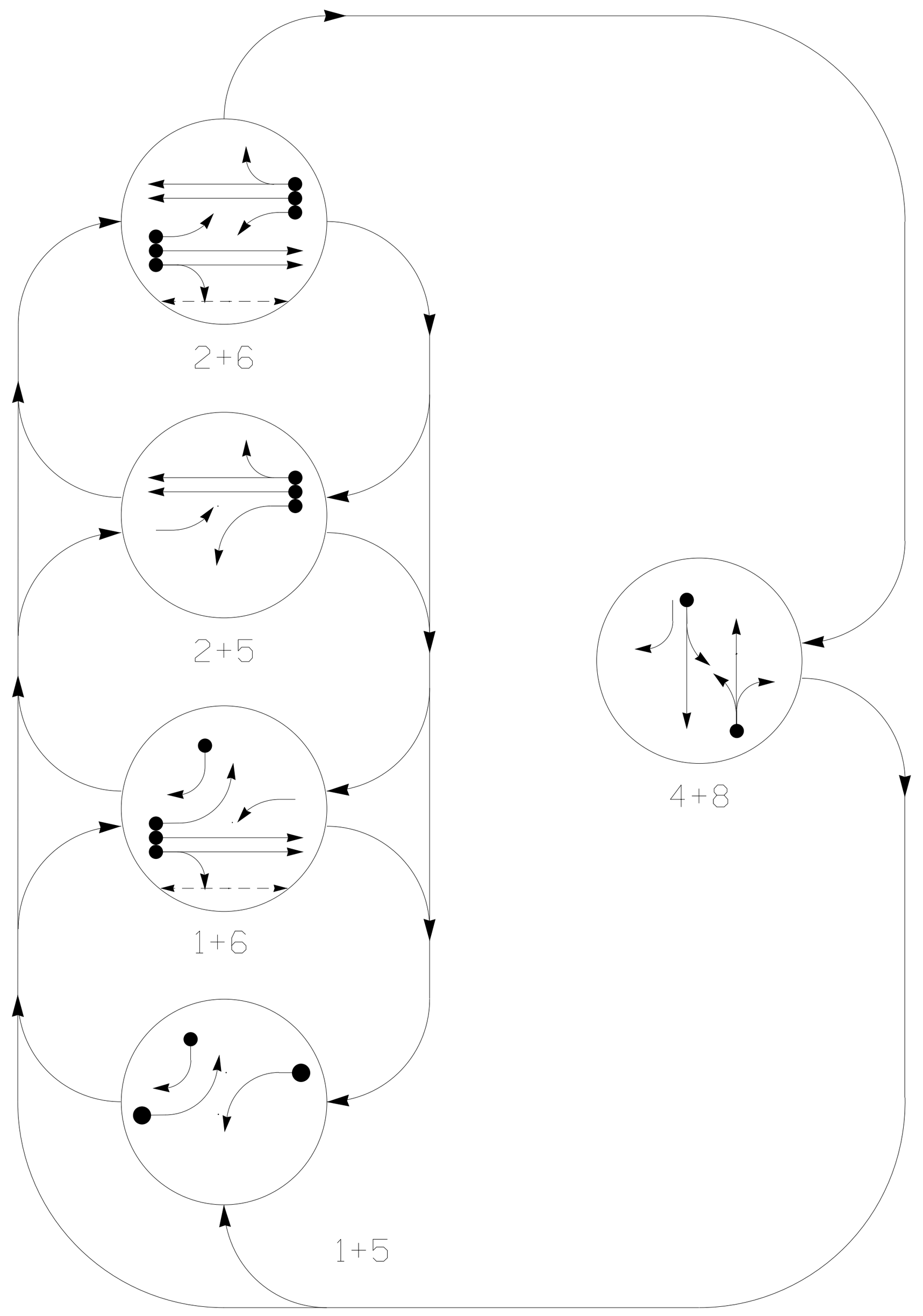
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 052936 BRITTANY N GROOME

Signed by: Brittany Groome 1E09340E1094484... 8/26/2025
DATE

SIG. INVENTORY NO. 14-1200T3

PROJECT REFERENCE NO.	SHEET NO.
R-5600	Sig-28.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

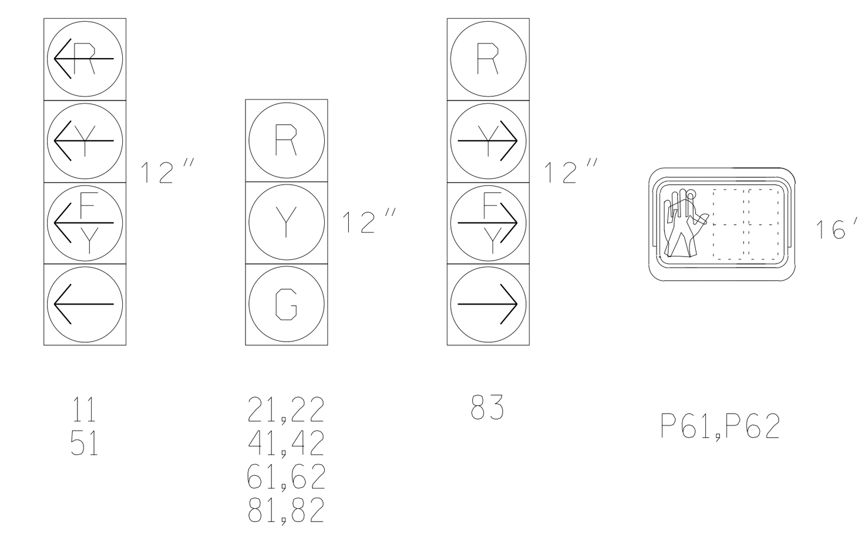
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE 1+5	PHASE 1+6	PHASE 2+5	PHASE 2+6	PHASE 4+8	FLASH
11	←	←	F←Y	F←Y	←R	←R
21,22	R	R	G	G	R	R
41,42	R	R	R	R	G	R
51	←	F←Y	←	F←Y	←R	←R
61,62	R	G	R	G	R	R
81,82	R	R	R	R	G	R
83	→	→	R	R	F→Y	R
P61,P62	DW	W	DW	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



MAXTIME DETECTOR INSTALLATION CHART

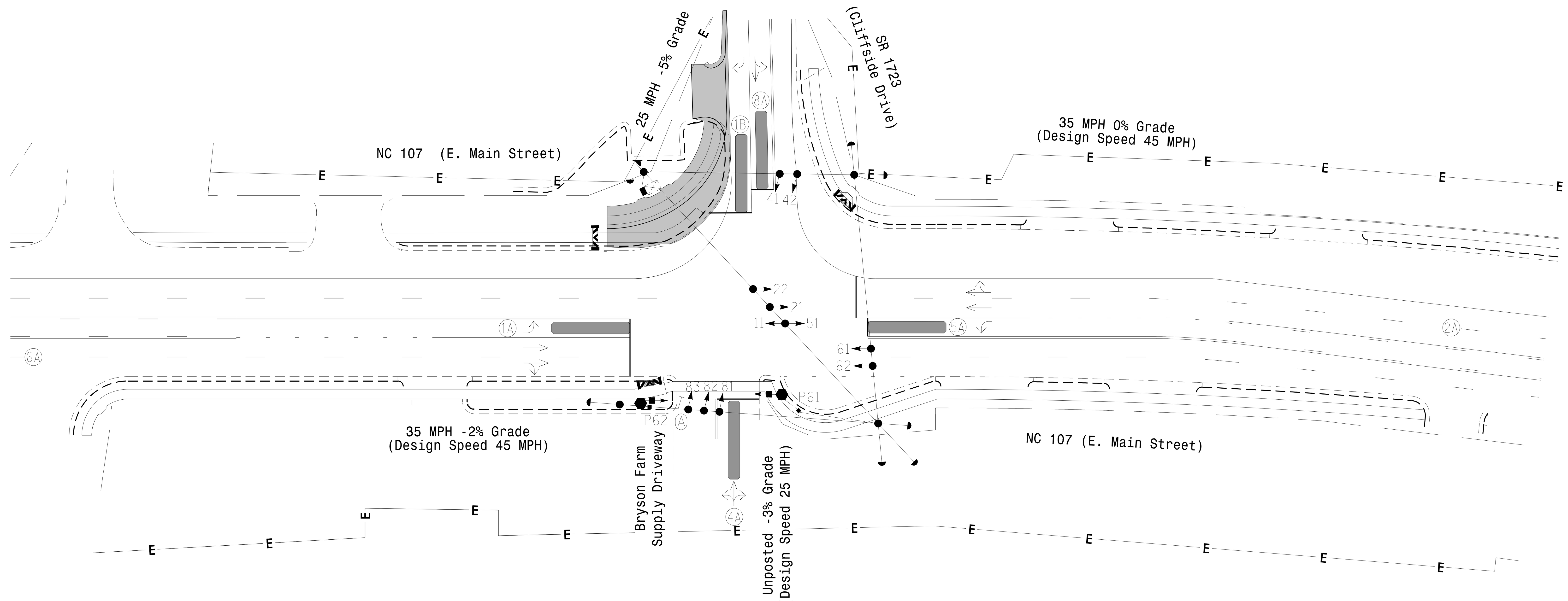
DETECTOR: LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PROGRAMMING: CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN	NEW CARD
1A	*	0	*	X	1	15.0	-	X	-	X	-	*
					6	-	-	X	-	X	-	*
1B	*	0	*	X	1	15.0	-	X	-	X	-	*
4A	*	0	*	X	4	3.0	-	X	-	X	-	*
5A	*	0	*	X	5	15.0	-	X	-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

* Multi-Zone Microwave Detection Zone

5 Phase
Fully Actuated
(Time Based Coordination)

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. Disconnect and bag existing pedestrian heads P81 and P82.
5. Set all detectors 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. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
9. 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	
	Non-Intrusive Detection Zone	
	Controller & Cabinet	
	Junction Box	
	Oversized Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Directional Drill	N/A
	Metal Pole with Mastarm	
N/A	Construction Easement	E
N/A	Curb Ramp	
	Temporary Pedestrian Post with Ped Push Button & Sign	
	Construction Zone	N/A
	Type II Signal Pedestal	
N/A	Pedestrian Barricade	
Ⓐ	"RIGHT TURN SIGNAL" Sign (R10-10)	Ⓐ

MAXTIME TIMING CHART

FEATURE	PHASE 1	2	4	5	6	8
Walk *	–	–	–	–	14	–
Ped Clear	–	–	–	–	9	–
Min Green *	7	12	7	7	12	7
Passage *	2.0	2.0	2.0	2.0	2.0	2.0
Max 1 *	20	45	25	20	45	25
Yellow Change	3.0	4.7	3.5	3.0	4.7	3.5
Red Clear	2.9	2.1	2.9	2.9	2.1	2.9
Added Initial *	–	–	–	–	–	–
Maximum Initial *	–	–	–	–	–	–
Time Before Reduction *	–	–	–	–	–	–
Time To Reduce *	–	–	–	–	–	–
Minimum Gap	–	–	–	–	–	–
Advance Walk	–	–	–	–	7	–
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.

Microwave Detection

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

Signal Upgrade
Temporary Design 4 - TMP Ph2, S1, Part 2

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Plans Prepared By:

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

NC 107 (E. Main Street) at SR 1723 (Cliffside Drive) / Bryson Farm Supply Driveway

Division 14 Jackson County Sylva

PLAN DATE: August 2025	REVIEWED BY: ZM Esposito
PREPARED BY: DS Griffith	REVIEWED BY: BN Groome

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

SEAL: North Carolina Professional Engineer, Seal 052936, Brittany N Groome

Signed by: Brittany Groome 1E09340E1094484... 8/26/2025 DATE

SIG. INVENTORY NO. 14-1200T4

21-AUG-2025 12:44
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Fernando.Vazquez AT CHA-FVAZQUEZ