PROJECT REFERENCE NO.	SHEET NO.
U-5738	Sig 10.0

8 Phase
Fully Actuated
with Emergency Vehicle Preemption
(Salisbury Signal System)

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP/ ZONE	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	✳	✳	1	Y	Y	-	-	@15	-	✳
					6#	Y	Y	Y	-	3	-	✳
2A/S16	6X6	355	EXIST	-	2	Y	Y	-	-	-	Y	-
2B/S17	6X6	355	EXIST	-	2	Y	Y	-	-	-	Y	-
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	3	-	-
4A	6X40	0	✳	✳	4	Y	Y	-	-	-	-	✳
5A	6X40	0	2-4-2	-	5	Y	Y	-	-	3	-	-
5B	6X40	0	✳	✳	5	Y	Y	-	-	15	-	✳
6A/S18	6X6	355	✳	✳	6	Y	Y	-	-	-	Y	✳
6B/S19	6X6	355	✳	✳	6	Y	Y	-	-	-	Y	✳
7A	6X40	0	✳	✳	7	Y	Y	-	-	3	-	✳
7B	6X40	0	✳	✳	7	Y	Y	-	-	-	-	✳
8A	6X40	0	2-4-2	-	8	Y	Y	-	-	10	-	-

@ Disable Delay during Alternate Phasing Operation.
# Disable Phase Call for Loop during Alternate Phasing Operation.
✳ Video Detection Zone

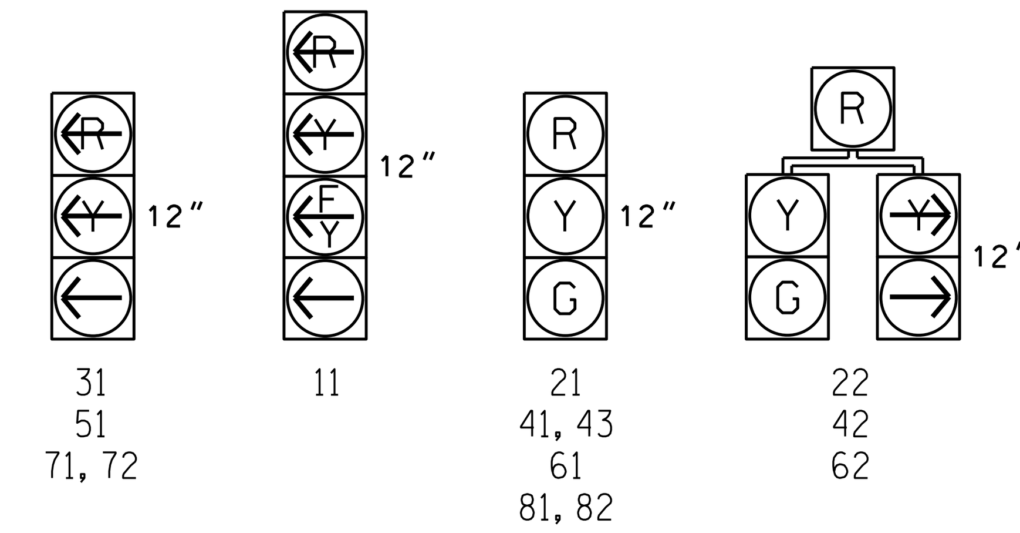
OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Interval 1 – Dwell Green	255	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*	0.0*
Interval 5 – Exit Green	1	1	1	1
Interval 5 – Yellow	0.0	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0	0.0
Exit Phase(s)	2+6	2+6	4+8	4+8
Priority	MED	MED	MED	MED
Delay Time	0.0	0.0	0.0	0.0
Min Green Before Pre	1	1	1	1
Ped Clear Before Pre	0	0	0	0
Yellow Clear Before Pre	0.0*	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*	0.0*
Dwell Min Time	7	7	7	7
Dwell Max Time (Minutes)	2	2	2	2
Enable Backup Protection	N	N	N	N
Ped Clear Through Yellow	N	N	N	N
Omit Overlaps	-	-	-	-
Preempt Extend**	2	2	2	2

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

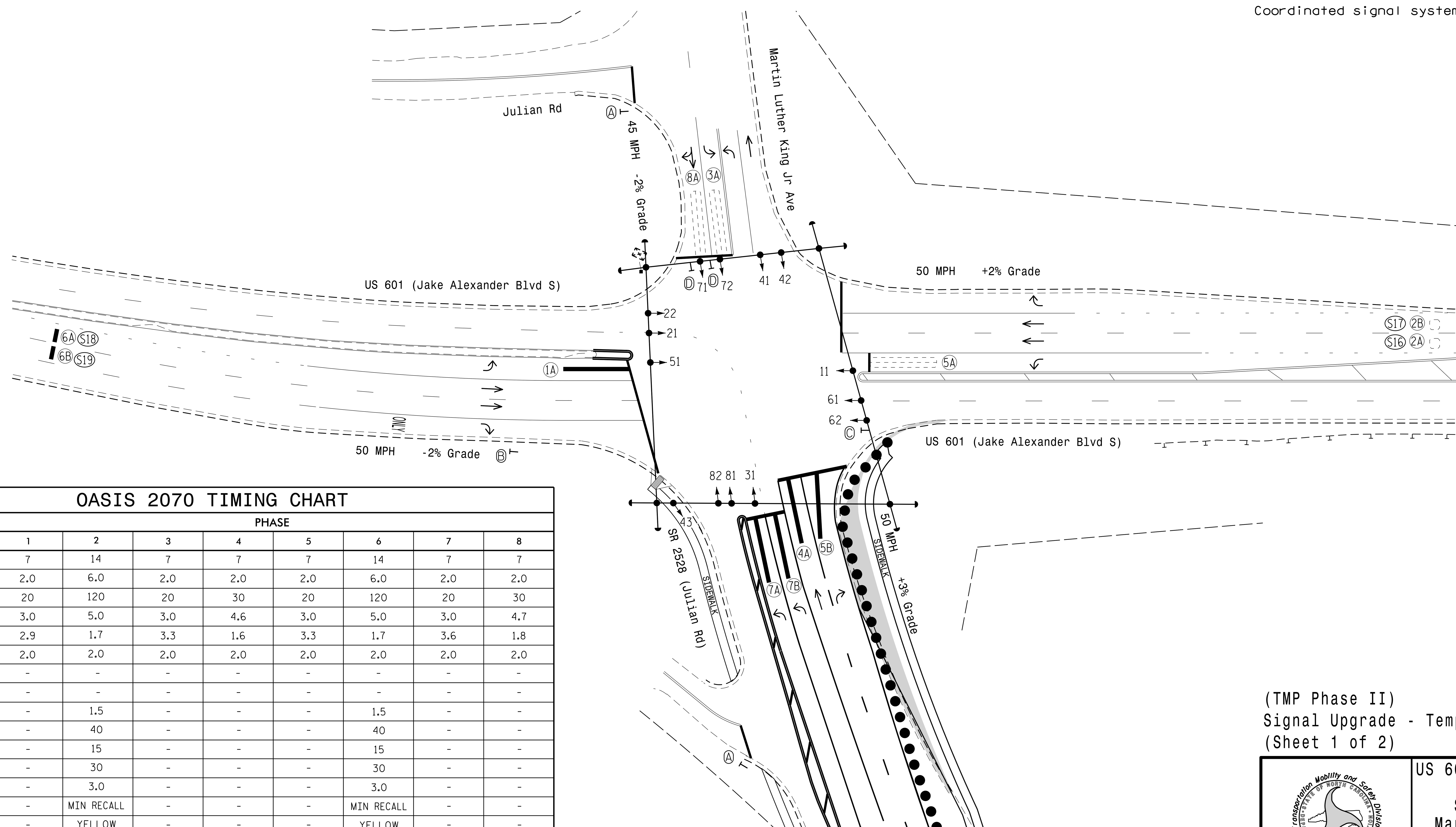
SIGNAL FACE I.D.

All Heads L.E.D.



NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Reposition existing signal heads numbered 41, 42, 71, 72 and signs D.
6. Adjust the video imaging loop emulator detection system to maintain vehicle detection during construction and obtain optimum detection zones as shown.
7. Set all detector units to presence mode.
8. This intersection features a GPS Emergency Vehicle Preemption system.
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	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
	Construction Zone Drums	
	Construction Zone	
	Video Detection Area	
N/A	Curb Ramp	
N/A	Guardrail	
Ⓐ	"STOP" Sign (R1-1)	Ⓐ
Ⓑ	"RIGHT LANE MUST TURN RIGHT" Sign (R3-7R)	Ⓑ
Ⓒ	Right Arrow "ONLY" Sign (R3-5R)	Ⓒ
Ⓓ	Left Arrow "ONLY" Sign (R3-5L)	Ⓓ

OASIS 2070 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	14	7	7	7	14	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max Green 1 *	20	120	20	30	20	120	20	30
Yellow Clearance	3.0	5.0	3.0	4.6	3.0	5.0	3.0	4.7
Red Clearance	2.9	1.7	3.3	1.6	3.3	1.7	3.6	1.8
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	40	-	-	-	40	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

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

(TMP Phase II)
Signal Upgrade - Temporary Design 2
(Sheet 1 of 2)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

US 601 (Jake Alexander Blvd. S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr. Ave.

Division 9 Rowan County Salisbury

PLAN DATE: January 2022	REVIEWED BY:
PREPARED BY: I.O. Umozurike	REVIEWED BY:

SCALE 0 40 — 1" = 40'

REVISIONS	INIT.	DATE

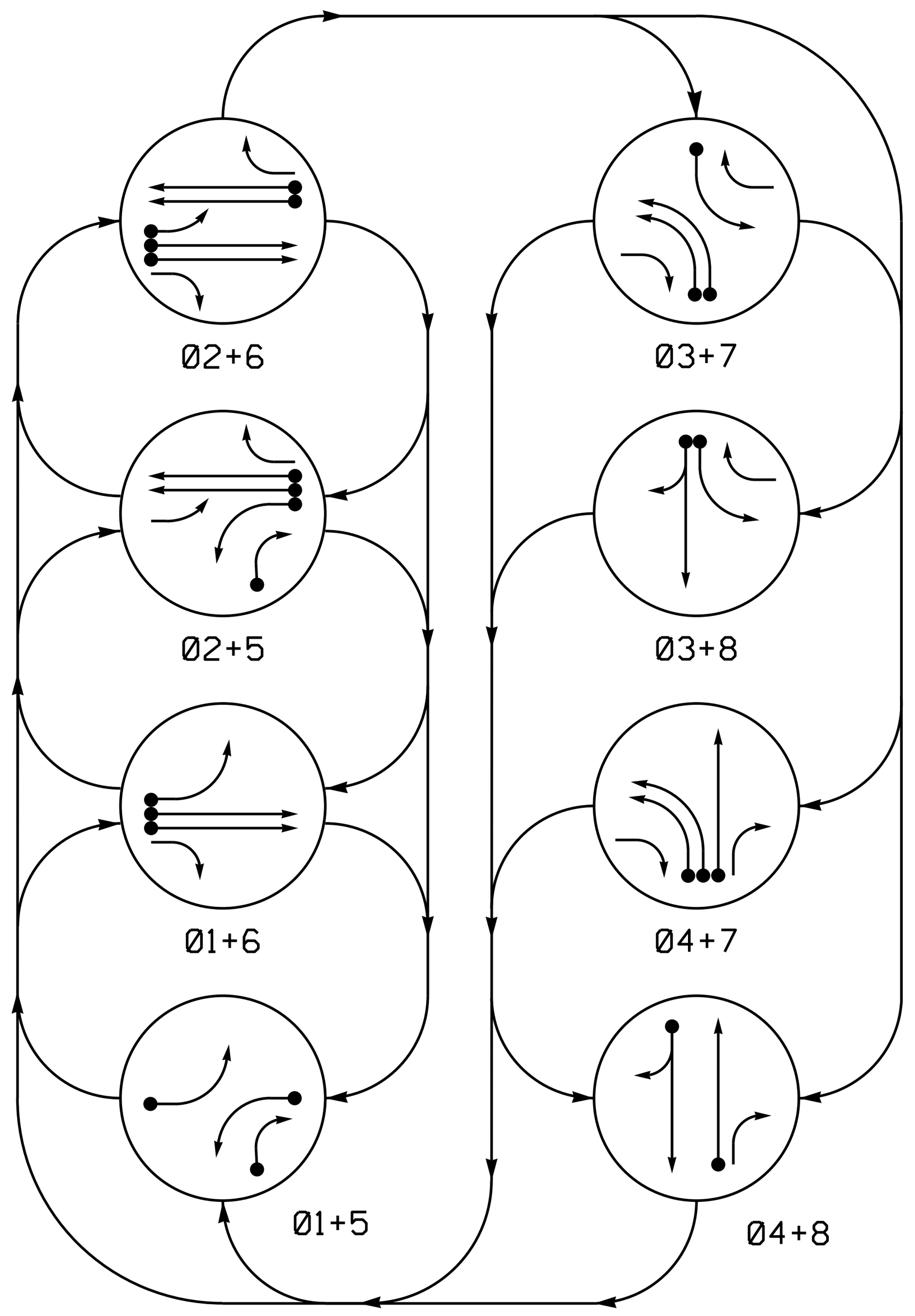
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA
DocuSigned by:
1B9B4B66274A494...
SIGNATURE 01/27/2022 DATE

SIG. INVENTORY NO. 09-0640T2

27-JAN-2022 17:17
S:*ITS&SU*ITS Signals*Signal Design Section*Central Region*Div 9*U-5738*090640T2_sig_dsn_20220127.dgn
ioumozurike

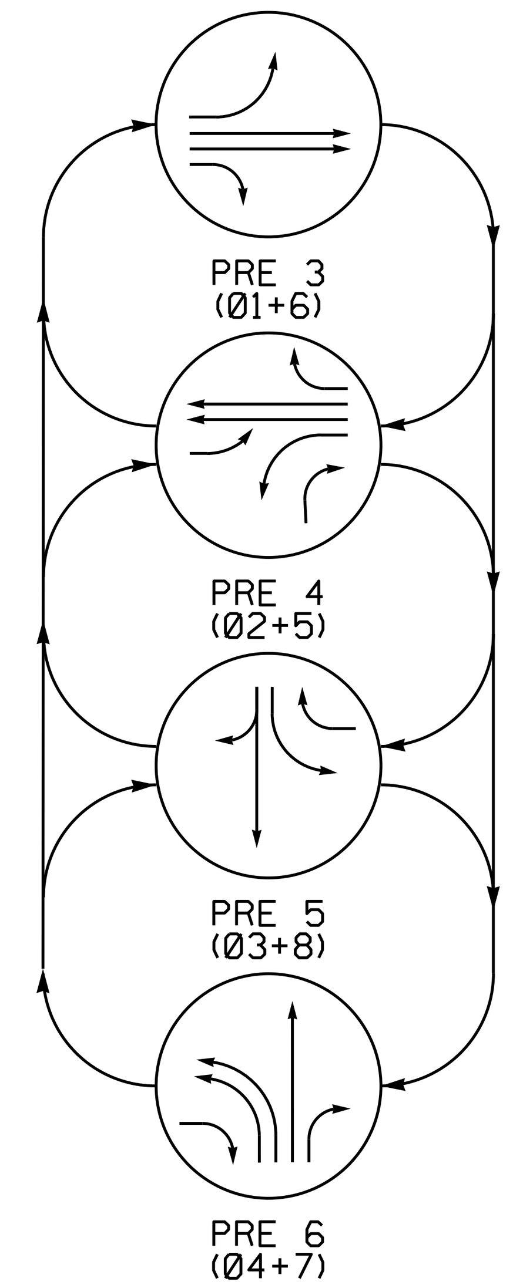
8 Phase
Fully Actuated
with Emergency Vehicle Preemption
(Salisbury Signal System)

DEFAULT PHASING DIAGRAM



DEFAULT PHASING EV PREEMPT PHASES

(Medium Priority)



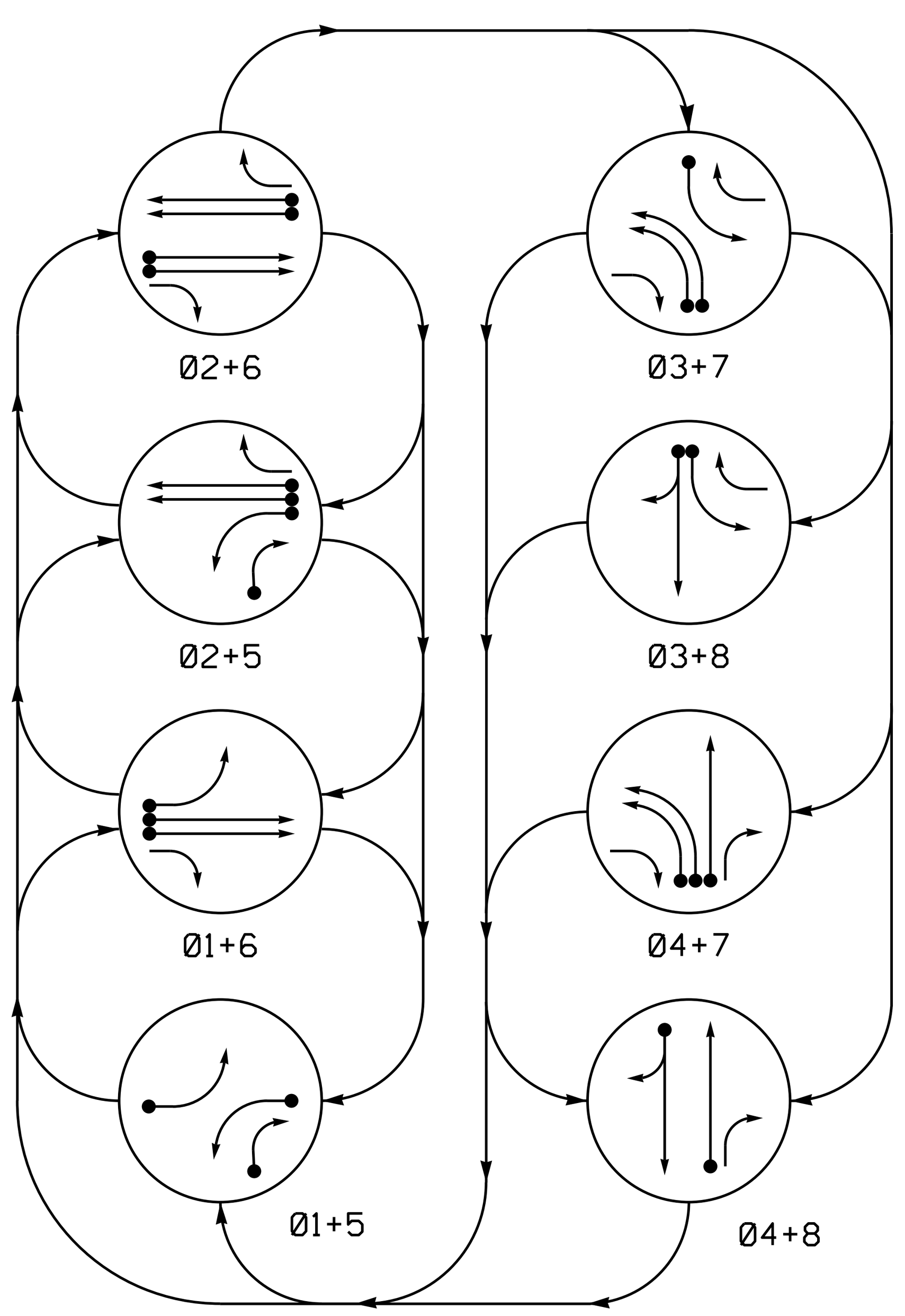
DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE												
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	PRE 3	PRE 4	PRE 5	PRE 6	FLASH
11	←	←	←F/Y	←F/Y	←R	←R	←R	←R	←	←F/Y	←R	←R	←Y
21	R	R	G	G	R	R	R	R	R	G	R	R	Y
22	R	R	G	G	R/→	R/→	R	R	R	G	R/→	R	Y
31	←R	←R	←R	←R	←	←	←R	←R	←R	←R	←	←R	←R
41, 43	R	R	R	R	R	R	G	G	R	R	R	G	R
42	R/→	R	R/→	R	R	R	G	G	R	R/→	R	G	R
51	←	←R	←	←R	←R	←R	←R	←R	←R	←	←R	←R	←R
61	R	G	R	G	R	R	R	R	G	R	R	R	Y
62	R	G	R	G	R/→	R	R/→	R	G	R	R	R/→	Y
71, 72	←R	←R	←R	←R	←	←R	←	←R	←R	←R	←R	←	←R
81, 82	R	R	R	R	R	G	R	G	R	R	G	R	R

NOTES

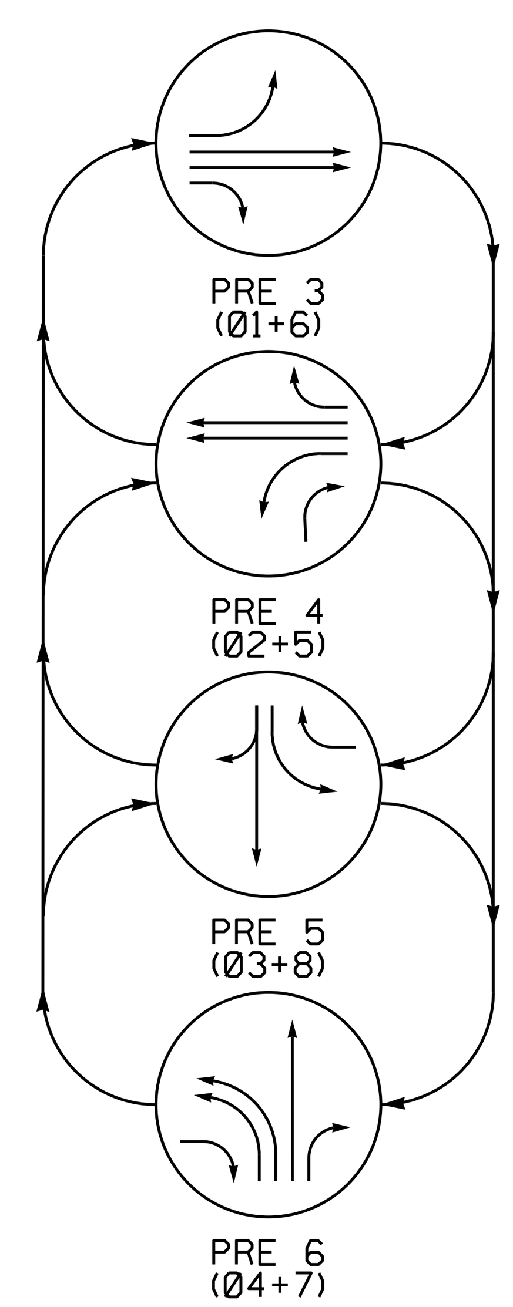
1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Reposition existing signal heads numbered 71, 72, 81, 82 and signs D.
6. Adjust the video imaging loop emulator detection system to maintain vehicle detection during construction and obtain optimum detection zones as shown.
7. Set all detector units to presence mode.
8. This intersection features a GPS Emergency Vehicle Preemption system.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

ALTERNATE PHASING DIAGRAM



ALTERNATE PHASING EV PREEMPT PHASES

(Medium Priority)

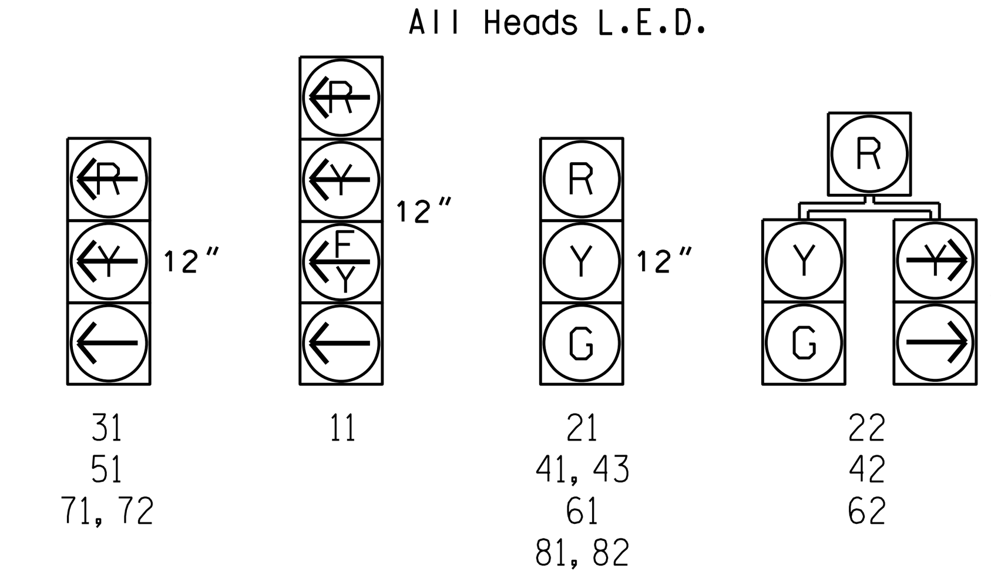


ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE												
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	PRE 3	PRE 4	PRE 5	PRE 6	FLASH
11	←	←	←R	←R	←R	←R	←R	←R	←	←R	←R	←R	←Y
21	R	R	G	G	R	R	R	R	R	G	R	R	Y
22	R	R	G	G	R/→	R/→	R	R	R	G	R/→	R	Y
31	←R	←R	←R	←R	←	←	←R	←R	←R	←R	←	←R	←R
41, 43	R	R	R	R	R	R	G	G	R	R	R	G	R
42	R/→	R	R/→	R	R	R	G	G	R	R/→	R	G	R
51	←	←R	←	←R	←R	←R	←R	←R	←R	←	←R	←R	←R
61	R	G	R	G	R	R	R	R	G	R	R	R	Y
62	R	G	R	G	R/→	R	R/→	R	G	R	R	R/→	Y
71, 72	←R	←R	←R	←R	←	←R	←	←R	←R	←R	←R	←	←R
81, 82	R	R	R	R	R	G	R	G	R	R	G	R	R

SIGNAL FACE I.D.

All Heads L.E.D.



PHASING DIAGRAM DETECTION LEGEND

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

(TMP Phase II)
Signal Upgrade - Temporary Design 2
(Sheet 2 of 2)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

US 601 (Jake Alexander Blvd S)
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Martin Luther King Jr Ave

Division 9 | Rowan County | Salisbury

PLAN DATE: January 2022	REVIEWED BY:
PREPARED BY: I.O. Umozurike	REVIEWED BY:

SCALE 0 40 1" = 40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

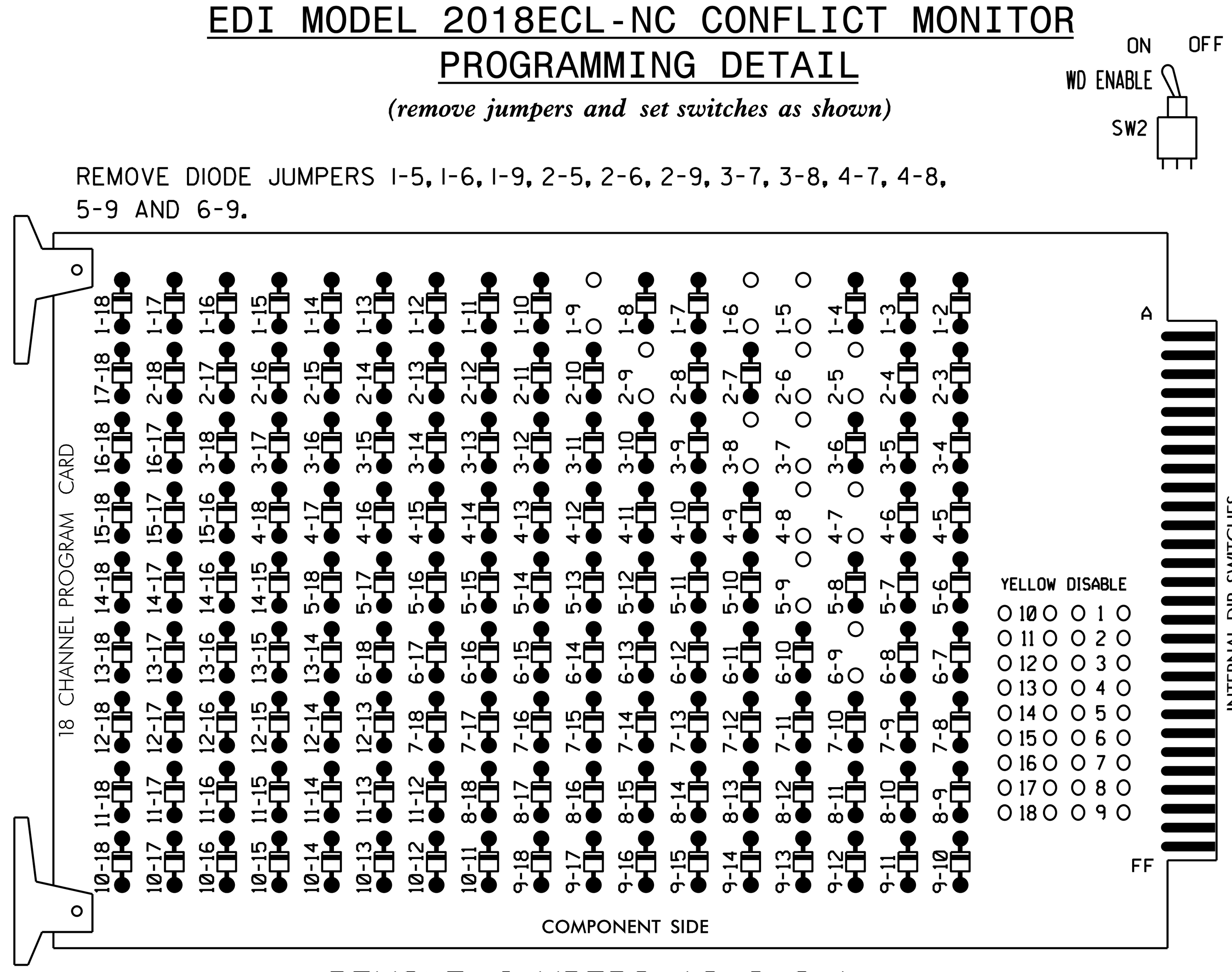
DocuSigned by:
SIGNATURE 01/27/2022 DATE

SIG. INVENTORY NO. 09-0640T2

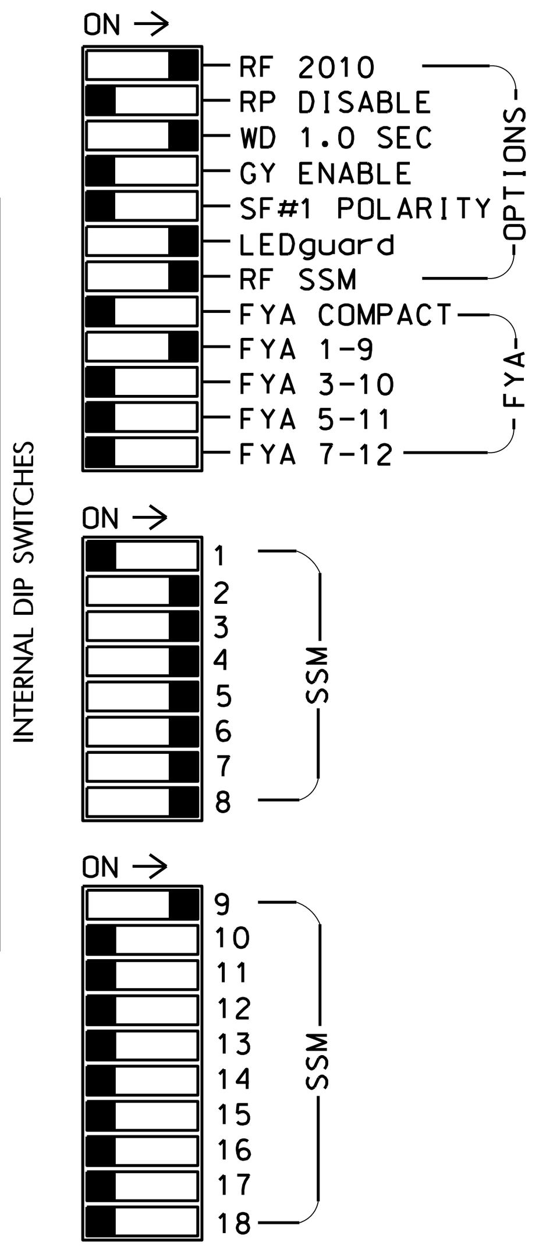
EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 2-5, 2-6, 2-9, 3-7, 3-8, 4-7, 4-8, 5-9 AND 6-9.



REMOVE JUMPERS AS SHOWN



■ = DENOTES POSITION OF SWITCH

NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all Phases.
3. Program phases 2 and 6 for Variable Initial and Gap Reduction.
4. Program phases 2 and 6 for Startup In Green.
5. Program phases 2 and 6 for Yellow Flash, and overlap 1 as Wag Overlap.
6. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
7. The cabinet and controller are part of the Salisbury Signal System.

EQUIPMENT INFORMATION

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

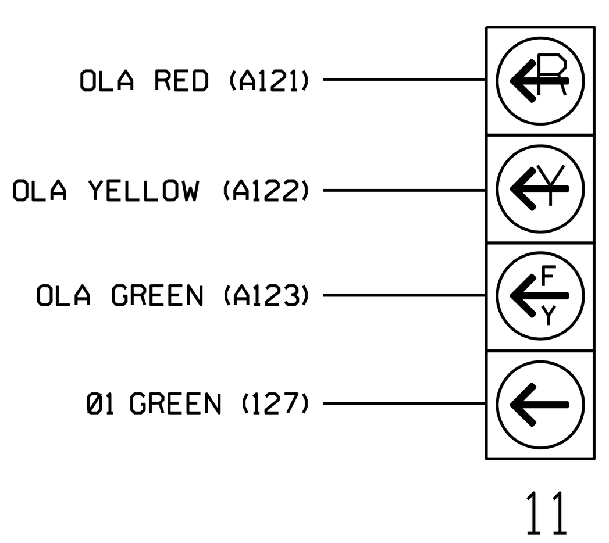
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4		S5	S6	S7		S8	S9	S10		S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3		4	14	5		6	15	7		8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3		4	4 PED	5		6	6 PED	7		8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22	NU	22	31	41,42 43	NU	42	51	61,62	NU	62	71,72	81,82	NU	11★	NU	NU	NU	NU	NU
RED		128				101				134				107							
YELLOW	✳	129				102				135				108							
GREEN		130				103				136				109							
RED ARROW					116				131				122			A121					
YELLOW ARROW				117	117			132	132			123	123			A122					
FLASHING YELLOW ARROW																A123					
GREEN ARROW	127			118	118			133	133			124	124								

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

FYA SIGNAL WIRING DETAIL

(wire signal head as shown)



NOTE

The sequence display for signal head 11 requires special logic programming. See sheet 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø2/SYS 2A/S16	SLOT EMPTY	SLOT EMPTY	Ø 3 3A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø2/SYS 2B/S17			NOT USED									ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	SLOT EMPTY	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	NOT USED	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	* GPS EVP	SLOT EMPTY
	L	NOT USED					Ø 8 8A							

EX.: 1A, 2A, ETC. = LOOP NO.'S
•See GPS Preemption Installation Note Below
⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

GPS PREEMPTION INSTALLATION NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10 ★	26	6	Y	Y	Y		3
	-	I1U	56	18 ★	51	1	Y	Y			
2A/S16	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S17	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			3
8A	TB5-11,12	J6L	46	8	18	8	Y	Y			10

[1] Add jumper from I1-W to J4-W, on rear of input file.
★ See Input Page Assignment programming details on sheet 3.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

DETECTOR NOTES

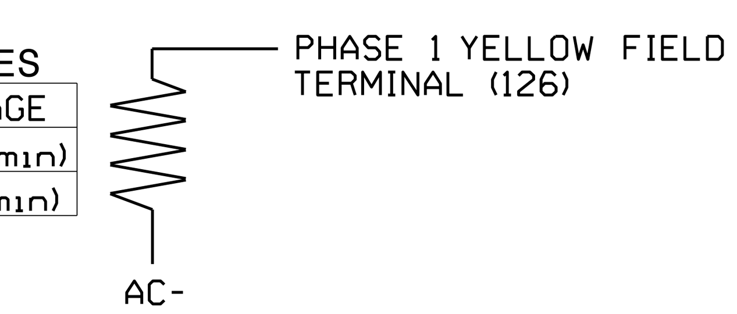
1) Install a video detection system for detection zones 1A, 4A, 5B, 6A/S18, 6B/S19, 7A and 7B. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.
2) For detection area 1A detector card placement and slots reserved for wired inputs are typical for a NCDOT installation. Inputs associated with these slots are compatible with time of day instructions located on sheet 3 of this electrical detail.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

ACCEPTABLE VALUES

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



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640T2
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED:

Electrical Detail - Temp 2 - Sheet 1 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S) at SR 2528 (Julian Rd) and Martin Luther King Jr Ave

Division 9 Rowan County Salisbury

PLAN DATE: January 2022 | REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland | REVIEWED BY:

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE
DocuSigned by: D. Todd Joyce 01/28/2022
A90CADEDBD4241D...
DATE

SIG. INVENTORY NO. 09-0640T2

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

(program controller as shown below)

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

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

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

SCROLL DOWN

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

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

PRESS '+'

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

SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #52 OFF
```

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

PRESS '+'

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

SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #51 ON
```

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

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

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

OVERLAP PROGRAMMING DETAIL
FOR DEFAULT PHASING

(program controller as shown below)

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

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

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

OVERLAP PROGRAMMING DETAIL
FOR ALTERNATE PHASING

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS). PRESS 'NEXT' TO ADVANCE TO PAGE 2.

NOTICE PAGE 2

```
 PAGE 2: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS: |X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED   _ YELLOW  _ GREEN
FLASH COLORS:  _ RED   _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640T2
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED:

Electrical Detail - Temp 2 - Sheet 2 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 | Rowan County | Salisbury

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

PLAN DATE: January 2022	REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland	REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 01/28/2022
A90CADEDBD4241D...
DATE

SIG. INVENTORY NO. 09-0640T2

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 1A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #10 (DETECTOR 26) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 6 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 51 TO INPUT #18 SO THAT THE DELAY ON LOOP 1A CAN BE REDUCED FROM 15 SECONDS TO 0 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 10 IS REACHED.

```
PAGE: 2 C1 PIN:48  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................10
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............26
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

→ ENTER A 'Y' FOR NOT ENABLED →

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 1A - PHASE 6)

```
PAGE: 2 C1 PIN:48  NOT ENABLED
INPUT ASSIGNMENT #..................10
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64)............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 18

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................18
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............1
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

→ ENTER '51' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT →

(LOOP 1A - PHASE 1)

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #..................18
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............51
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 1A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #51.

```
VEHICLE DETECTOR #51  SETTINGS (+-,1-64)
SETTING:                           (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          |12345678910111213141516
PHASES ASSIGNED |
SWITCH/DUPLICATE|
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

→ ENTER 'Y' FOR ENABLE DETECTOR →

ENTER '1' FOR PHASES ASSIGNED →

ENSURE DELAY IS '0' →

```
VEHICLE DETECTOR #51  SETTINGS (+-,1-64)
SETTING:                           (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          |12345678910111213141516
PHASES ASSIGNED |X
SWITCH/DUPLICATE|
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 09-0640T2
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED:

Electrical Detail - Temp 2 - Sheet 3 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 | Rowan County | Salisbury

PLAN DATE: January 2022 | REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland | REVIEWED BY:

REVISIONS | INIT. | DATE

750 N.Greenfield Pkwy,Garner,NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER J. TODD JOYCE

DocuSigned by: D. Todd Joyce 01/28/2022

DATE

SIG. INVENTORY NO. 09-0640T2

28-JAN-2022 08:24
cestrickland

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4, 5 and 6.

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

PRESS 'NEXT' ONCE

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

PRESS 'NEXT' ONCE

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

PRESS 'NEXT' ONCE

```
   PREEMPTION  #6  SETTINGS (NEXT:1-10)
 INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED   |12345678910111213141516
1 255  0.0  0.0  |   X  X
2   0  0.0  0.0  |
3   0  0.0  0.0  |
4   0  0.0  0.0  |
5   1  0.0  0.0  |   X   X
EXIT CALLS       |
                OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....2
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......N
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:              |ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW |
OMIT OVERLAPS:         |
```

PROGRAMMING COMPLETE

Program extend time on detector unit for 2.0 seconds.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 09-0640T2
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED:

Electrical Detail - Temp 2 - Sheet 4 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
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Division 9 | Rowan County | Salisbury

PLAN DATE: January 2022 | REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland | REVIEWED BY:

REVISIONS	INIT.	DATE

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 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 01/28/2022
DATE

SIG. INVENTORY NO. 09-0640T2

PROJECT REFERENCE NO.	SHEET NO.
U-5738	Sig 10.6

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING COORDINATION - SELECT ALL PAGE CHANGES (AS SHOWN BELOW) WITHIN COORDINATION PLAN PROGRAMMING.

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM PAGE CHANGES (SHOWN BELOW) IN SEPARATE TIME OF DAY EVENTS. IF PAGE 1 IS USED, NO EVENT PROGRAMMING IS NECESSARY FOR THAT PARTICULAR PAGE.

PHASING	INPUTS PAGE	OVERLAPS PAGE
ACTIVE PAGES REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PAGES REQUIRED TO RUN ALTERNATE PHASING	2	2

NOTE: PAGES NOT SHOWN (i.e. sequence, phase control, etc.) SHOULD REMAIN AS '1', OR AS DEFINED BY TIMING ENGINEER.

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY PAGE CHANGE EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN PAGE CHANGE EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN THESE OVERLAP/INPUT PAGE CHANGES ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAPS PAGE 2: Modifies overlap parent phases for heads 11 to run protected turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640T2
DESIGNED: January 2022
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Electrical Detail - Temp 2 - Sheet 5 of 5

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce
A90CADEDBD4241D...
01/28/2022
DATE

SIG. INVENTORY NO. 09-0640T2

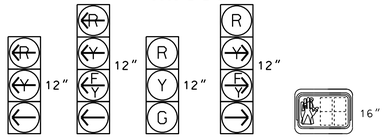
28-JAN-2022 08:25
.*090640_sm_ele_xxx-t2.dgn
cestrickland

PROJECT REFERENCE NO.	SHEET NO.
U-5738	Sig 11.0

8 Phase
Fully Actuated
with Emergency Vehicle Preemption
(Salisbury Signal System)

SIGNAL FACE I.D.

All Heads L.E.D.



31
51
71, 72

11

21, 22
41, 42, 44
61, 62
81, 82

23
43

P61, P62

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	✳15	-	Y
					#6	Y	Y	Y	-	3	-	Y
2A/S16	6X6	355	6	Y	2	Y	Y	-	-	-	Y	-
2B/S17	6X6	355	6	Y	2	Y	Y	-	-	-	Y	-
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	3	-	-
4A/S15	6X6	300	6	Y	4	-	Y	-	1.9	-	Y	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
★4C	6X6	0	★5	Y	4	Y	Y	-	-	-	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	3	-	Y
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
6A/S18	6X6	355	6	Y	6	Y	Y	-	-	-	Y	Y
6B/S19	6X6	355	6	Y	6	Y	Y	-	-	-	Y	Y
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
7B	6X40	0	2-4-2	Y	7	Y	Y	-	-	-	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	10	-	-

✳ Disable Delay during Alternate Phasing Operation.
Disable Phase Call for Loop during Alternate Phasing Operation.
★ Adjust sensitivity setting for bicycle detection.
See Figure 1 on Sheet 2 for bicycle loop construction details.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5	PRE 6
Interval 1 – Dwell Green	255	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*	0.0*
Interval 5 – Exit Green	1	1	1	1
Interval 5 – Yellow	0.0	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0	0.0
Exit Phase(s)	2+6	2+6	4+8	4+8
Priority	MED	MED	MED	MED
Delay Time	0.0	0.0	0.0	0.0
Min Green Before Pre	1	1	1	1
Ped Clear Before Pre	0*	0*	0*	0*
Yellow Clear Before Pre	0.0*	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*	0.0*
Dwell Min Time	7	7	7	7
Dwell Max Time (Minutes)	2	2	2	2
Enable Backup Protection	N	N	N	N
Ped Clear Through Yellow	Y	Y	Y	Y
Omit Overlaps	-	-	-	-
Preempt Extend**	2	2	2	2

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

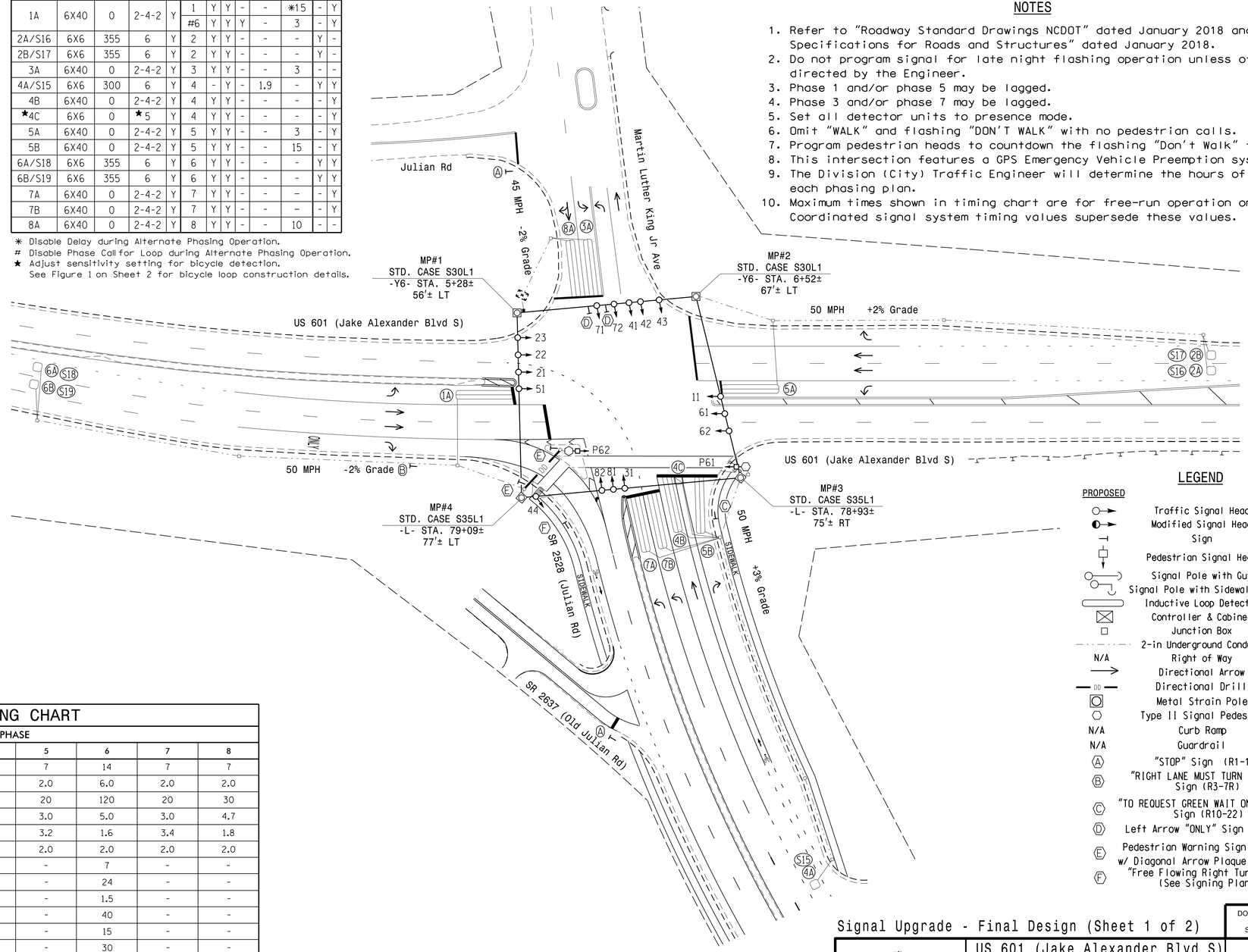
OASIS 2070 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	14	7	7	7	14	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max Green 1 *	20	120	20	30	20	120	20	30
Yellow Clearance	3.0	5.0	3.0	4.6	3.0	5.0	3.0	4.7
Red Clearance	2.9	1.6	3.3	1.5	3.2	1.6	3.4	1.8
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	7	-	-
Don't Walk 1	-	-	-	-	-	24	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	40	-	-	-	40	-	-
Time Before Reduction *	-	15	-	-	-	15	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	-	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

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

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. 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 features a GPS Emergency Vehicle Preemption system.
9. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
DD	Directional Drill	N/A
	Metal Strain Pole	
	Type II Signal Pedestal	
N/A	Curb Ramp	
N/A	Guardrail	
Ⓐ	"STOP" Sign (R1-1)	Ⓐ
Ⓑ	"RIGHT LANE MUST TURN RIGHT" Sign (R3-7R)	Ⓑ
Ⓒ	"TO REQUEST GREEN WAIT ON SYMBOL" Sign (R10-22)	Ⓒ
Ⓓ	Left Arrow "ONLY" Sign (R3-5L)	Ⓓ
Ⓔ	Pedestrian Warning Sign (W11-2) w/ Diagonal Arrow Plaque (W16-7P)	Ⓔ
Ⓕ	"Free Flowing Right Turn" Sign (See Signing Plan)	Ⓕ

Signal Upgrade - Final Design (Sheet 1 of 2)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

US 601 (Jake Alexander Blvd S) at SR 2528 (Julian Rd) and Martin Luther King Jr Ave

Division 9 Rowan County Salisbury

PLAN DATE: January 2022 REVIEWED BY:
PREPARED BY: I.O. Umozurike REVIEWED BY:

SCALE 0 40 1" = 40'

REVISIONS	INIT.	DATE

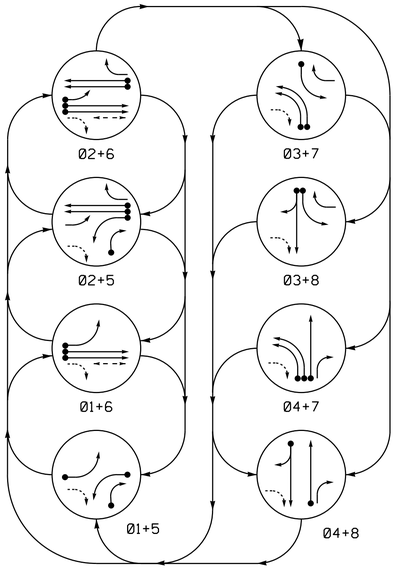
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA
DocuSigned by: 01/27/2022
SIGNATURE DATE
SIG. INVENTORY NO. 09-0640

27-JAN-2022 11:00
S:*ITS\SIG#1\TS Signals\Signal Design Section\Central Region\Div 9\U-5738\090640_sig_dsn_20220127.dgn
lOumozurike

PROJECT REFERENCE NO.	SHEET NO.
U-5738	Sig 11.1

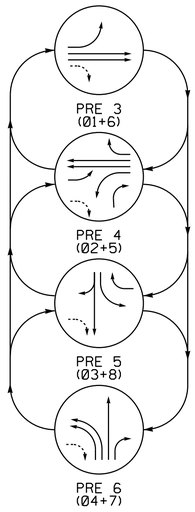
8 Phase
Fully Actuated
with Emergency Vehicle Preemption
(Salisbury Signal System)

DEFAULT PHASING DIAGRAM



DEFAULT PHASING EV PREEMPT PHASES

(Medium Priority)



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE												
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	PRE3	PRE4	PRE5	PRE6	FLASH
11	←-	←-	~~F~~ Y	~~F~~ Y	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~F~~ Y	~~R~~	~~R~~	~~Y~~
21, 22	R	R	G	G	R	R	R	R	R	G	R	R	Y
23	R	R	~~F~~ Y	~~F~~ Y	→-	→-	R	R	R	~~F~~ Y	→-	R	~~Y~~
31	~~R~~	~~R~~	~~R~~	~~R~~	←-	←-	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~	~~R~~
41, 42, 44	R	R	R	R	R	R	G	G	R	R	R	G	R
43	→-	R	→-	R	R	R	~~F~~ Y	~~F~~ Y	R	→-	R	~~F~~ Y	R
51	←-	~~R~~	←-	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~	~~R~~	~~R~~
61, 62	R	G	R	G	R	R	R	R	G	R	R	R	Y
71, 72	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~	←-	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~
81, 82	R	R	R	R	R	G	R	G	R	R	R	G	R
P61, P62	DW	W	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	DRK

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. Phase 3 and/or phase 7 may be lagged.
5. Set all detector units to presence mode.
6. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
7. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
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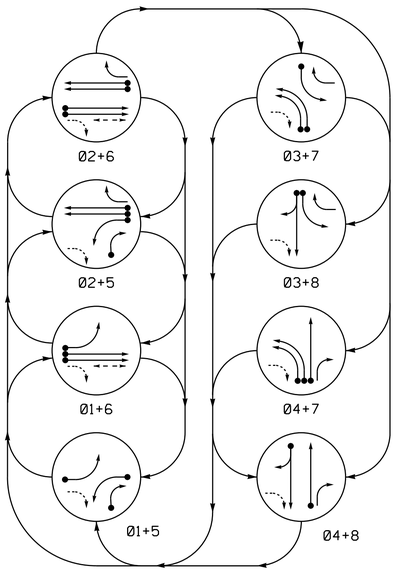
9. The Division (City) Traffic Engineer will determine the hours of use for each phasing plan.
10. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.

ALTERNATE PHASING DIAGRAM

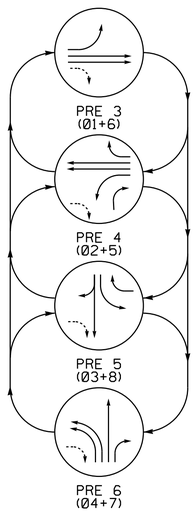


PHASING DIAGRAM DETECTION LEGEND

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

ALTERNATE PHASING EV PREEMPT PHASES

(Medium Priority)

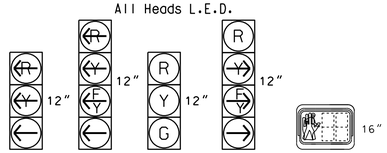


ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE												
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3+7	Ø3+8	Ø4+7	Ø4+8	PRE3	PRE4	PRE5	PRE6	FLASH
11	←-	←-	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~	~~R~~	~~R~~	~~Y~~
21, 22	R	R	G	G	R	R	R	R	R	G	R	R	Y
23	R	R	~~F~~ Y	~~F~~ Y	→-	→-	R	R	R	~~F~~ Y	→-	R	~~Y~~
31	~~R~~	~~R~~	~~R~~	~~R~~	←-	←-	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~	~~R~~
41, 42, 44	R	R	R	R	R	R	G	G	R	R	R	G	R
43	→-	R	→-	R	R	R	~~F~~ Y	~~F~~ Y	R	→-	R	~~F~~ Y	R
51	←-	~~R~~	←-	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~	~~R~~	~~R~~
61, 62	R	G	R	G	R	R	R	R	G	R	R	R	Y
71, 72	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~	←-	~~R~~	~~R~~	~~R~~	~~R~~	←-	~~R~~
81, 82	R	R	R	R	R	G	R	G	R	R	R	G	R
P61, P62	DW	W	DW	W	DW	DW	DW	DW	DW	DW	DW	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



31
51
71, 72

11

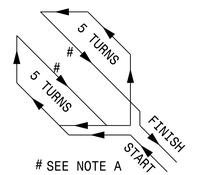
21, 22
41, 42, 44
61, 62
81, 82

23
43

P61, P62

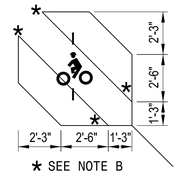
FIGURE 1: BICYCLE LOOP DETECTOR DETAILS

LOOP WINDING DETAIL



SEE NOTE A

SAW CUT DETAIL



★ SEE NOTE B

NOTES:
A. One turn is shown to illustrate the winding method.
   Five turns are required for bicycle detection.
   The two center segments shall be wound in the same direction.
B. Round corners of acute angle saw cuts to prevent damage to conductors.
C. See 2009 MUTCD Figure 9C-7 for bicycle detector pavement marking details.

Signal Upgrade - Final Design (Sheet 2 of 2)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Transportation Mobility and Safety Division
DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 | Rowan County | Salisbury

PLAN DATE: January 2022 | REVIEWED BY:
PREPARED BY: I.O. Umozurike | REVIEWED BY:

SCALE 0 40 1" = 40'

REVISIONS	INIT.	DATE

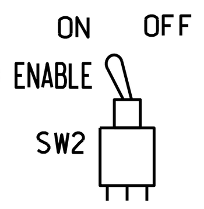
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. TIEMEY
DocuSigned by: Robert J. Tiemey
SIGNATURE 01/27/2022 DATE

SIG. INVENTORY NO. 09-0640

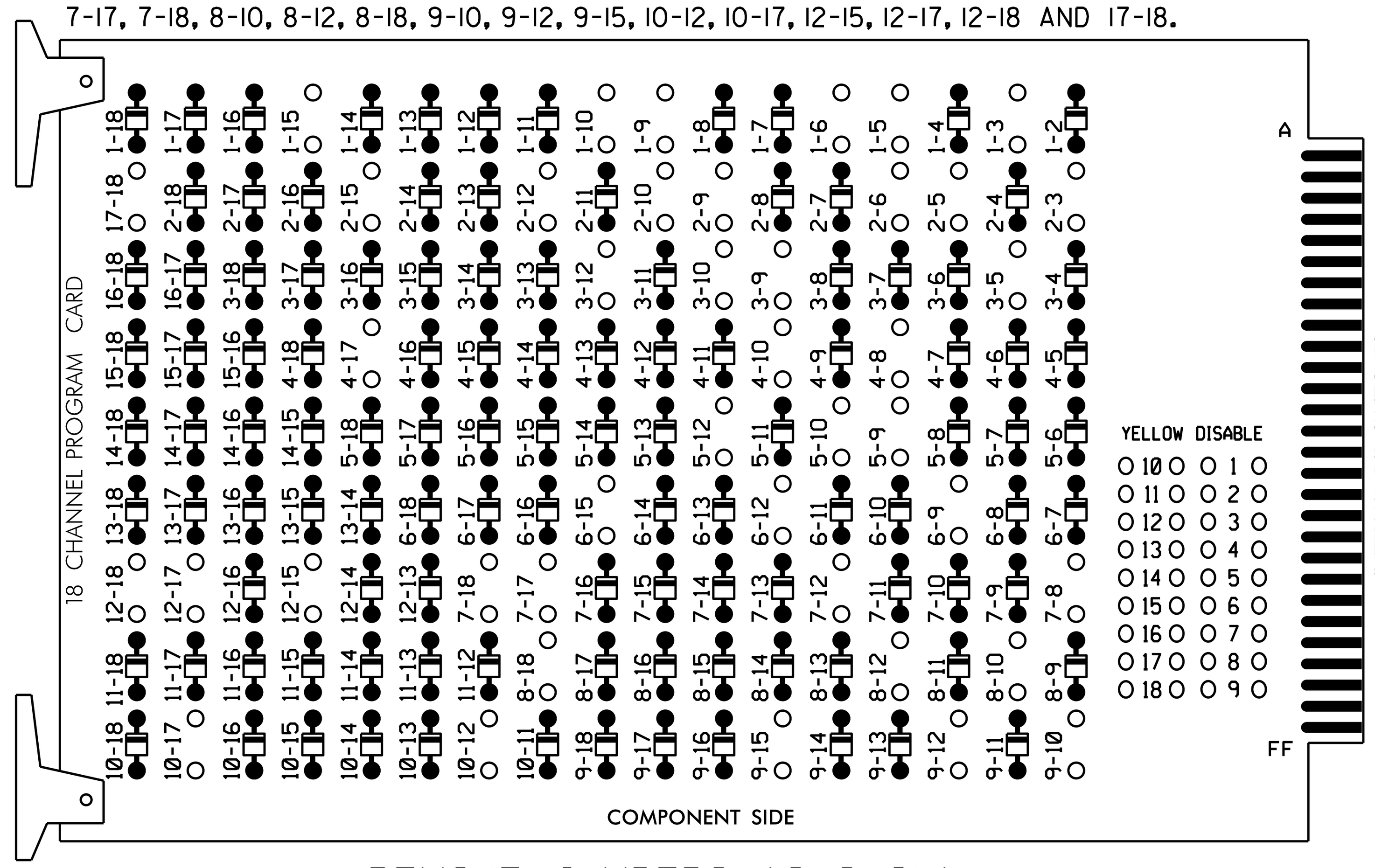
27-JAN-2022 11:01
S:*ITSASUM\TS Signals\Signal Design Section\Central Region\Div 9\U-5738\090640_sig_dsn_20220127.dgn
IOumozurike

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

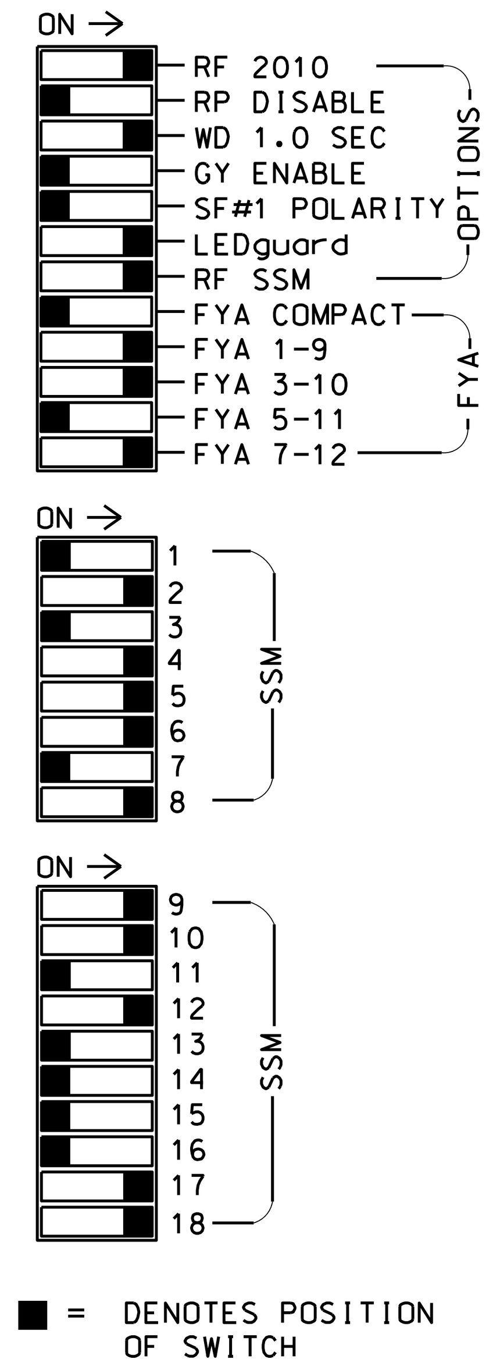
(remove jumpers and set switches as shown)



REMOVE DIODE JUMPERS 1-3, 1-5, 1-6, 1-9, 1-10, 1-15, 2-3, 2-5, 2-6, 2-9, 2-10, 2-12, 2-15, 3-5, 3-9, 3-10, 3-12, 4-8, 4-10, 4-17, 5-9, 5-10, 5-12, 6-9, 6-12, 6-15, 7-8, 7-12, 7-17, 7-18, 8-10, 8-12, 8-18, 9-10, 9-12, 9-15, 10-12, 10-17, 12-15, 12-17, 12-18 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 Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all Phases.
3. Program phases 2 and 6 for Variable Initial and Gap Reduction.
4. Program phases 2 and 6 for Startup In Green and Yellow Flash.
5. Program phase 6 for Startup Ped Call.
6. Program overlaps 1 and 6 as Wag Overlaps.
7. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
8. The cabinet and controller are part of the Salisbury Signal System.

EQUIPMENT INFORMATION

CONTROLLER..............2070
CABINET.................332 W/ AUX
SOFTWARE................ECONOLITE OASIS
CABINET MOUNT...........BASE
OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
LOAD SWITCHES USED......S1,S2,S4,S5,S7,S8,S9,S10,S11
AUX S1,AUX S2,AUX S3,AUX S5,AUX S6
PHASES USED.............1,2,3,4,5,6,6PED,7,8
OVERLAP "A".............1+2
OVERLAP "B".............4+5
OVERLAP "C".............NOT USED
OVERLAP "D".............2+3
OVERLAP "E".............7
OVERLAP "F".............3
OVERLAP "G".............5
OVERLAP "H".............3

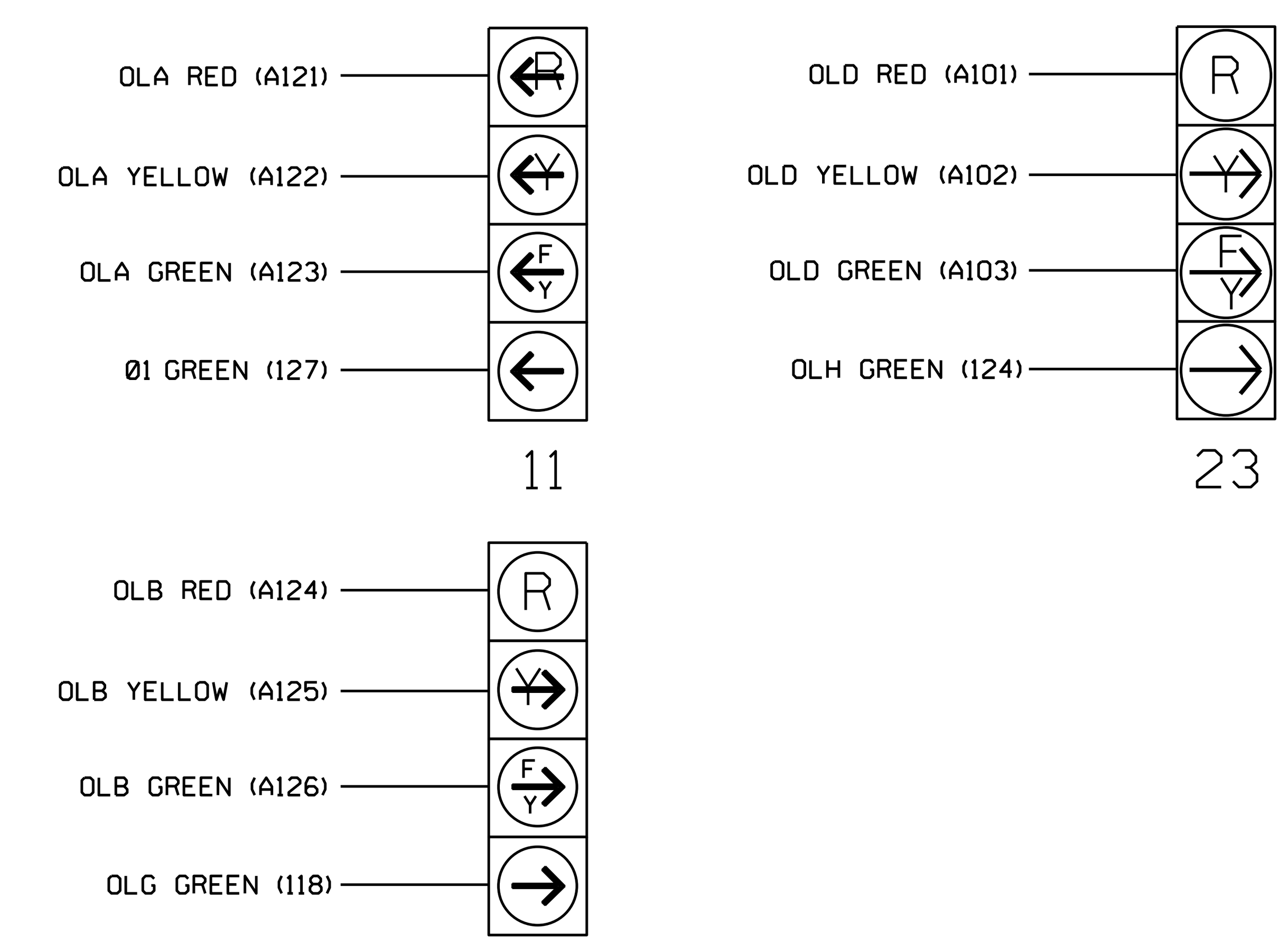
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	OLG	4	4 PED	5	6	6 PED	OLH	8	8 PED	OLA	OLB	OLE	OLC	OLD	OLF
SIGNAL HEAD NO.	11★	21,22	NU	43★	41,42 44	NU	51	61,62	P61 P62	23★	81,82	NU	11★	43★	71,72	NU	23★	31
RED		128			101			134			107			A124			A101	
YELLOW	✳	129		✳	102			135		✳	108							
GREEN		130			103			136			109							
RED ARROW							131						A121		A111			A104
YELLOW ARROW							132						A122	A125	A112		A102	A105
FLASHING YELLOW ARROW													A123	A126			A103	
GREEN ARROW	127			118			133			124					A113			A106
(hand)									119									
(walking 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)



NOTE

The sequence display for signal heads 11, 23 and 43 requires special logic programming. See sheet 5 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø2/SYS 2A/S16	SLOT EMPTY	SLOT EMPTY	Ø 3 3A	Ø4/SYS 4A/S15	Ø 4 4C	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
	L	NOT USED	Ø2/SYS 2B/S17			NOT USED	Ø 4 4B	NOT USED						NOT USED	ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 5 5B	Ø6/SYS 6A/S18	WIRED INPUT ⊗	Ø 7 7A	Ø 7 7B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	✳ GPS EVP		SLOT EMPTY
	L	NOT USED	NOT USED	Ø6/SYS 6B/S19		NOT USED	Ø 8 8A								

EX.: 1A, 2A, ETC. = LOOP NO.'S
•See GPS Preemption Installation Note Below
⊗ Wired Input - Do not populate slot with detector card

FS = FLASH SENSE
ST = STOP TIME

GPS PREEMPTION INSTALLATION NOTE

Install a GPS preemption system. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting location to accomplish the preemption schemes shown on the Signal Design Plans.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A[1]	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10 ★	26	6	Y	Y	Y		3
	-	I1U	56	18 ★	51	1	Y	Y			
2A/S16	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S17	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
4A/S15	TB4-9,10	I6U	41	3	4	4/SYS	-	Y		1.9	
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
✳ 4C	TB6-1,2	I7U	65	27	34	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			3
5B	TB3-5,6	J2U	40	2	6	5	Y	Y			15
6A/S18	TB3-9,10	J3U	64	26	36	6/SYS	Y	Y			
6B/S19	TB3-11,12	J3L	77	39	46	6/SYS	Y	Y			
7A	TB5-5,6	J5U	57	19	7	7	Y	Y			
7B	TB5-9,10	J6U	42	4	8	7	Y	Y			
8A	TB5-11,12	J6L	46	8	18	8	Y	Y			10
PED PUSH BUTTONS											
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					

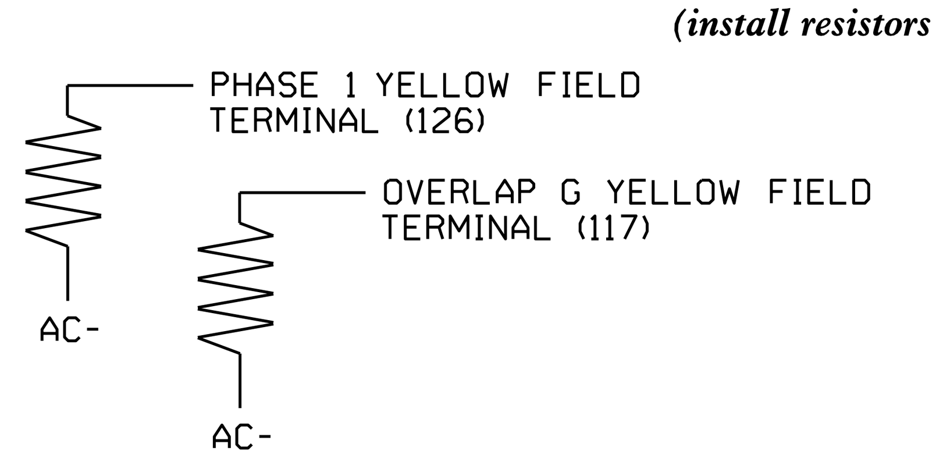
NOTE: INSTALL DC ISOLATOR IN INPUT FILE SLOT I13.

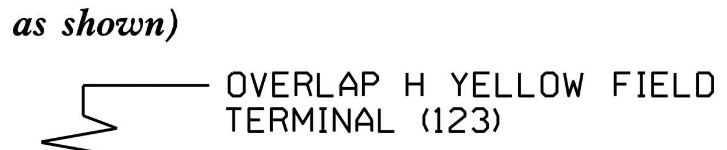
[1] Add jumper from I1-W to J4-W, on rear of input file.
★ See Input Page Assignment programming details on sheets 6 and 7.
✳ Adjust sensitivity setting for bicycle detection.

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)

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 09-0640
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED: N/A

Electrical Detail - Sheet 1 of 7

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 — Rowan County — Salisbury

PLAN DATE: January 2022	REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland	REVIEWED BY:

REVISIONS	INIT.	DATE

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

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE
DocuSigned by: D. Todd Joyce 01/28/2022
A90CADFDBD4241D...
DATE

SIG. INVENTORY NO. 09-0640

27-JAN-2022 15:08
S:*ITS&SU*ITS Signals*Workgroups*Sig Man*Projects From Signal Design*Active Projects*Strickland*090640_sm_ele_xxx.dgn
cestrickland

OUTPUT PHASE ASSIGNMENT FOR LOADSWITCH AUX S3 (OVERLAP E)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT #" POSITION, ENTER "45"

```
PAGE:1  C1 PIN:91   NOT ENABLED
OUTPUT ASSIGNMENT #..................45
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

LOADSWITCH AUX S3 RED

THE NOT ENABLED ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:91   NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (O=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:91   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................45
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

PRESS "+" KEY FOR OUTPUT 46

```
PAGE:1  C1 PIN:93   NOT ENABLED
OUTPUT ASSIGNMENT #..................46
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

LOADSWITCH AUX S3 GREEN

THE NOT ENABLED ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:93   NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (O=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:93   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................46
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

PRESS "+" KEY TO ADVANCE TO OUTPUT 54

```
PAGE:1  C1 PIN:101   CONTROLLER FLASH
OUTPUT ASSIGNMENT #..................54
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................Y
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

LOADSWITCH AUX S3 YELLOW

THE CONTROLLER FLASH ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:101   CONTROLLER FLASH
SELECT VEHICLE OVERLAP (A=1, P=16)...5
SELECT COLOR (O=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:101   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................54
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

OUTPUT PROGRAMMING FOR LOADSWITCH AUX S3 COMPLETE

OUTPUT PHASE ASSIGNMENT FOR LOADSWITCH AUX S6 (OVERLAP F)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT #" POSITION, ENTER "37"

```
PAGE:1  C1 PIN:83   NOT ENABLED
OUTPUT ASSIGNMENT #..................37
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

LOADSWITCH AUX S6 RED

THE NOT ENABLED ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:83   NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...6
SELECT COLOR (O=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:83   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................37
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

PRESS "+" KEY FOR OUTPUT 38

```
PAGE:1  C1 PIN:84   NOT ENABLED
OUTPUT ASSIGNMENT #..................38
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

LOADSWITCH AUX S6 GREEN

THE NOT ENABLED ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:84   NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...6
SELECT COLOR (O=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:84   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................38
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

PRESS "+" KEY TO ADVANCE TO OUTPUT 53

```
PAGE:1  C1 PIN:100   NOT ENABLED
OUTPUT ASSIGNMENT #..................53
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................Y
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

LOADSWITCH AUX S6 YELLOW

THE NOT ENABLED ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:100   NOT ENABLED
SELECT VEHICLE OVERLAP (A=1, P=16)...6
SELECT COLOR (O=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:100   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #..................53
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................-
VEHICLE PHASE.......................-
PEDESTRIAN PHASE....................-
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP..................-
WATCHDOG............................-
DETECTOR RESET......................-
ADVANCE BEACON......................-
OUT OF PHASE FLASHER................-
CONTROLLER FLASH....................-
RUN FREE............................-
RESERVED............................-
PREEMPT.............................-
SOFT PREEMPT........................-
ANY PREEMPT.........................-
COORDINATION PLAN...................-
OFFSET..............................-
PHASE CHECK.........................-
PHASE ON............................-
PHASE NEXT..........................-
```

OUTPUT PROGRAMMING FOR LOADSWITCH AUX S6 COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED: N/A

Electrical Detail - Sheet 2 of 7

ELECTRICAL AND PROGRAMMING DETAILS FOR:

750 N.Greenfield Pkwy,Garner,NC 27529

US 601 (Jake Alexander Blvd S) at SR 2528 (Julian Rd) and Martin Luther King Jr Ave

Division 9 | Rowan County | Salisbury

PLAN DATE: January 2022	REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland	REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 01/28/2022
A90CADEDBD4241D...
DATE

SIG. INVENTORY NO. 09-0640

27-JAN-2022 15:09
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cestrickland

PROJECT REFERENCE NO.	SHEET NO.
U-5738	Sig 11.4

OUTPUT PHASE REASSIGNMENT FOR LOADSWITCH S4
(REASSIGN AS OVERLAP G)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT #" POSITION, ENTER "6"

```
PAGE:1  C1 PIN:7   VEHICLE PHASE
OUTPUT ASSIGNMENT #.................6
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

LOADSWITCH S4 RED

THE VEHICLE PHASE ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:7   VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...7
SELECT COLOR (O=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:7   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................6
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 7

```
PAGE:1  C1 PIN:8   VEHICLE PHASE
OUTPUT ASSIGNMENT #.................7
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

LOADSWITCH S4 YELLOW

THE VEHICLE PHASE ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:8   VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...7
SELECT COLOR (O=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:8   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................7
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 8

```
PAGE:1  C1 PIN:9   VEHICLE PHASE
OUTPUT ASSIGNMENT #.................8
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

LOADSWITCH S4 GREEN

THE VEHICLE PHASE ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:9   VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...7
SELECT COLOR (O=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:9   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................8
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR LOADSWITCH S4 COMPLETE

OUTPUT PHASE REASSIGNMENT FOR LOADSWITCH S10
(REASSIGN AS OVERLAP H)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT #" POSITION, ENTER "22"

```
PAGE:1  C1 PIN:24  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................22
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

LOADSWITCH S10 RED

THE VEHICLE PHASE ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:24  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...8
SELECT COLOR (O=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:24  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................22
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 23

```
PAGE:1  C1 PIN:25  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................23
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

LOADSWITCH S10 YELLOW

THE VEHICLE PHASE ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:25  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...8
SELECT COLOR (O=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:25  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................23
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 24

```
PAGE:1  C1 PIN:26  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................24
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

LOADSWITCH S10 GREEN

THE VEHICLE PHASE ENTRY IS EXISTING BY DEFAULT: ENTER A 'Y' IN THE VEHICLE OVERLAP FIELD.

```
PAGE:1  C1 PIN:26  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...8
SELECT COLOR (O=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW.

```
PAGE:1  C1 PIN:26  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................24
FREQUENCY (O=DEFAULT) (O-25.5 HZ)...0.0
DUTY CYCLE (O=DEFAULT) (O - 100%)...0
MODE (O=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................_
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR LOADSWITCH S10 COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED: N/A

Electrical Detail - Sheet 3 of 7

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 Rowan County Salisbury

PLAN DATE: January 2022 REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS	INIT.	DATE

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 031001 ENGINEER D. TODD JOYCE
DocuSigned by: D. Todd Joyce 01/28/2022
A90CADFDBD4241D...
DATE

SIG. INVENTORY NO. 09-0640

PROJECT REFERENCE NO.	SHEET NO.
U-5738	Sig 11.5

OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

(program controller as shown below)

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

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

NOTICE GREEN FLASH

PRESS '+'

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

NOTICE GREEN FLASH

PRESS '+' TWICE

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

NOTICE GREEN FLASH

PRESS '+'

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

PRESS '+'

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

PRESS '+'

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

PRESS '+'

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

OVERLAP PROGRAMMING COMPLETE

OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS),
THEN '1' (VEHICLE OVERLAP SETTINGS).
PRESS 'NEXT' TO ADVANCE TO PAGE 2.

NOTICE PAGE 2

```
 PAGE 2: VEHICLE OVERLAP 'A' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS: |X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

NOTICE PAGE 2

```
 PAGE 2: VEHICLE OVERLAP 'B' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS: |   XX
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

NOTICE GREEN FLASH

PRESS '+' TWICE

NOTICE PAGE 2

```
 PAGE 2: VEHICLE OVERLAP 'D' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS: | XX
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

NOTICE GREEN FLASH

PRESS '+'

NOTICE PAGE 2

```
 PAGE 2: VEHICLE OVERLAP 'E' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS: |      X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

NOTICE PAGE 2

```
 PAGE 2: VEHICLE OVERLAP 'F' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS: |  X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

NOTICE PAGE 2

```
 PAGE 2: VEHICLE OVERLAP 'G' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS: |    X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

NOTICE PAGE 2

```
 PAGE 2: VEHICLE OVERLAP 'H' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS: |  X
VEH OVL NOT VEH: |
VEH OVL NOT PED: |
VEH OVL GRN EXT: |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 09-0640
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED: N/A

Electrical Detail - Sheet 4 of 7

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 | Rowan County | Salisbury

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: January 2022	REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland	REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 01/28/2022
A90CADFDBD4241D...
DATE

SIG. INVENTORY NO. 09-0640

27-JAN-2022 15:10
*090640_sm_ele_xxx.dgn
cestrickland

LOGICAL I/O PROCESSOR PROGRAMMING DETAIL

TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5, 6, 7, 8 AND 9.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
AND RED CLEAR ON PHASE #1 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #50 ON
SET OUTPUT ASSIGNMENT #51 OFF

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

PRESS '+'

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE PHASE #1 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #52 OFF

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

PRESS '+'

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON PHASE #1 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #51 ON

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

PRESS '+'

LOGICAL I/O COMMAND #4 (+/-COMMAND#)
IF ACTIVE OVERLAP #7 IS ON
AND RED CLEAR ON OVL #7 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #47 ON
SET OUTPUT ASSIGNMENT #48 OFF

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 (HEAD 43).

PRESS '+'

LOGICAL I/O COMMAND #5 (+/-COMMAND#)
IF ACTIVE OVERLAP #7 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #49 OFF

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 43).

PRESS '+'

LOGICAL I/O COMMAND #6 (+/-COMMAND#)
IF YELLOW ON OVERLAP #7 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #48 ON

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 43).

PRESS '+'

LOGICAL I/O COMMAND #7 (+/-COMMAND#)
IF ACTIVE OVERLAP #8 IS ON
AND RED CLEAR ON OVL #8 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #39 ON
SET OUTPUT ASSIGNMENT #40 OFF

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 (HEAD 23).

PRESS '+'

LOGICAL I/O COMMAND #8 (+/-COMMAND#)
IF ACTIVE OVERLAP #8 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #41 OFF

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 23).

PRESS '+'

LOGICAL I/O COMMAND #9 (+/-COMMAND#)
IF YELLOW ON OVERLAP #8 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #40 ON

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 23).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

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.

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE 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 T2-3.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-2.
3. REMOVE FLASHER UNIT 2.

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

OUTPUT REFERENCE SCHEDULE

USE TO INTERPRET LOGIC PROCESSOR

OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green
OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED: N/A

Electrical Detail - Sheet 5 of 7

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 | Rowan County | Salisbury

PLAN DATE: January 2022	REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland	REVIEWED BY:

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

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 01/28/2022
A90CADFDBD4241D...
DATE

SIG. INVENTORY NO. 09-0640

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cestrickland

PROJECT REFERENCE NO.	SHEET NO.
U-5738	Sig 11.7

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 1A

(program controller as shown below)

NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.

2. THE FIRST TASK THIS PROGRAMMING ACCOMPLISHES IS THE DISABLING OF INPUT #10 (DETECTOR 26) SO THAT A VEHICLE CALL WILL NOT BE PLACED TO PHASE 6 DURING ALTERNATE PHASING OPERATION. THE SECOND TASK THIS PROGRAMMING ACCOMPLISHES IS THAT IT REASSIGNS DETECTOR 51 TO INPUT #18 SO THAT THE DELAY ON LOOP 1A CAN BE REDUCED FROM 15 SECONDS TO 0 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 10 IS REACHED.

```
PAGE: 2 C1 PIN:48  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................10
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64).............26
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

ENTER A 'Y' FOR NOT ENABLED →

DEFAULT DETECTOR NUMBER WILL REMAIN UNTIL 'NOT ENABLED' IS ENTERED.

(LOOP 1A - PHASE 6)

```
PAGE: 2 C1 PIN:48  NOT ENABLED
INPUT ASSIGNMENT #.................10
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)...................Y
VEHICLE DETECTOR (1-64)............._
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PRESS '+' TO ADVANCE TO INPUT 18

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................18
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............1
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

ENTER '51' TO REASSIGN THE VEHICLE DETECTOR FOR THIS INPUT →

(LOOP 1A - PHASE 1)

```
PAGE: 2 C1 PIN:56  VEHICLE DETECTOR
INPUT ASSIGNMENT #.................18
DEBOUNCE TIME (0-25.5 SEC)..........0.5
DELAY TIME (0-25.5 SEC).............0.0
HOLD-OVER TIME (0-25.5 SEC).........0.0
ASSIGNMENT SELECTION:
NOT ENABLED (Y/N)..................._
VEHICLE DETECTOR (1-64).............51
PEDESTRIAN DETECTOR (1-16).........._
ALTERNATE PED DETECTOR (1-16)......._
PREEMPT (1-10)......................_
INVERTED PREEMPT (1-10)............._
STOP TIME (Y/N)....................._
FLASH SENSE (Y/N)..................._
DOOR OPEN (Y/N)....................._
MANUAL CONTROL ENABLE (Y/N)........._
MANUAL CONTROL ADVANCE (Y/N)........_
SPECIAL FUNCTION ALARM (1-8)........_
TOD HOUR SYCHRONIZATION (0-23)......_
FORCE OFF RING (1-4)................_
HOLD PHASES (1-16).................._
PLAN (65=FLSH,66=FREE).._  OFFSET#.._
CHANGE PHASE SEQUENCE PAGE (1-12)..._
CHANGE PHASE TIMING PAGE (1-4)......_
CHANGE PHASE CONTROL PAGE (1-4)....._
CHANGE OVERLAP CONTROL PAGE (1-4)..._
CHANGE INPUT PAGE (1-4)............._
CHANGE OUTPUT PAGE (1-4)............_
OVERRIDE PHASE CONTROL FUNCTION (Y)._
```

PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 1A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #51.

```
VEHICLE DETECTOR #51  SETTINGS (+-,1-64)
SETTING:                           (Y/N)
ENABLE DETECTOR.....................N
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

ENTER 'Y' FOR ENABLE DETECTOR →

ENTER '1' FOR PHASES ASSIGNED →

ENSURE DELAY IS '0' →

```
VEHICLE DETECTOR #51  SETTINGS (+-,1-64)
SETTING:                           (Y/N)
ENABLE DETECTOR.....................Y
ENABLE LOGGING......................N
ENABLE DIAGNOSTICS..................N
SPEED TRAP..........................N
CALL DETECTOR.......................Y
EXTENSION DETECTOR..................Y
MODE 2 STOP BAR.....................N
SWITCHING DETECTOR..................N
DUPLICATING DETECTOR................N
ENABLE FULL TIME DELAY..............N
IF FAILED, SET MIN RECALL?..........N
IF FAILED, SET MAX1 RECALL?.........N
IF FAILED, SET MAX2 RECALL?.........N
PHASE#          ¦12345678910111213141516
PHASES ASSIGNED ¦X
SWITCH/DUPLICATE¦
LOOP SIZE (0-255 FT)................6
SPEED TRAP DISTANCE (0-255 FT)......0
STOP BAR TIME (0-255 SEC)...........0
STRETCH (0-25.5 SEC)................0.0
DELAY (0-255 SEC)...................0
MAX CALLS/MIN (0-255)...............255
MIN CALLS/DIAGNOSTIC PERIOD (0-255).0
MAX OCCUPANCY (0-100%)..............100
EXTENSION DISABLE TIME (0-255 SEC)..0
QUEUE MAX OCCUPANCY TIME (0-255)....0
QUEUE GAP RESET TIME (0-25.5).......0.0
PREEMPTION INDEX FOR QUEUE (0-10)...0
```

DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640
DESIGNED: January 2022
SEALED: 1/27/2022
REVISED: N/A

Electrical Detail - Sheet 6 of 7

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 | Rowan County | Salisbury

PLAN DATE: January 2022 | REVIEWED BY: T. Joyce
PREPARED BY: C. Strickland | REVIEWED BY:

REVISIONS	INIT.	DATE

750 N.Greenfield Pkwy,Garner,NC 27529

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce 01/28/2022
A90CADFDBD4241D DATE

SIG. INVENTORY NO. 09-0640

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EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4, 5 and 6.

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

PRESS 'NEXT' ONCE

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

PRESS 'NEXT' ONCE

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

PRESS 'NEXT' ONCE

```
  PREEMPTION  #6  SETTINGS (NEXT:1-10)
INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED  |12345678910111213141516
1 255  0.0  0.0 |   X  X
2   0  0.0  0.0 |
3   0  0.0  0.0 |
4   0  0.0  0.0 |
5   1  0.0  0.0 |   X   X
EXIT CALLS      |
                 OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0*
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....2
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......Y
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                   | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW      |
OMIT OVERLAPS:              |
```

PROGRAMMING COMPLETE

Program extend time on detector unit for 2.0 seconds.

* Time defaults to time used for phase during normal operation.

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING COORDINATION - SELECT ALL PAGE CHANGES (AS SHOWN BELOW) WITHIN COORDINATION PLAN PROGRAMMING.

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM PAGE CHANGES (SHOWN BELOW) IN SEPARATE TIME OF DAY EVENTS. IF PAGE 1 IS USED, NO EVENT PROGRAMMING IS NECESSARY FOR THAT PARTICULAR PAGE.

PHASING	INPUTS PAGE	OVERLAPS PAGE
ACTIVE PAGES REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PAGES REQUIRED TO RUN ALTERNATE PHASING	2	2

NOTE: PAGES NOT SHOWN (i.e. sequence, phase control, etc.) SHOULD REMAIN AS '1', OR AS DEFINED BY TIMING ENGINEER.

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY PAGE CHANGE EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN PAGE CHANGE EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN THESE OVERLAP/INPUT PAGE CHANGES ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAPS PAGE 2: Modifies overlap parent phases for head 11 to run protected turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640
DESIGNED: January 2022
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Electrical Detail - Sheet 7 of 7

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S) at SR 2528 (Julian Rd) and Martin Luther King Jr Ave

Division 9 — Rowan County — Salisbury

PLAN DATE: January 2022 — REVIEWED BY: T. Joyce

PREPARED BY: C. Strickland — REVIEWED BY:

REVISIONS — INIT. — DATE

ITS & Signals Management Unit

Transportation Mobility and Safety Division — Department of Transportation — North Carolina

750 N.Greenfield Pkwy,Garner,NC 27529

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 031001 ENGINEER D. TODD JOYCE

DocuSigned by: D. Todd Joyce — 01/28/2022 — DATE

SIG. INVENTORY NO. 09-0640

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cestrickland

PROJECT REFERENCE NO.	SHEET NO.
U-5738	Sig 11.9

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4, 5 and 6.

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

PRESS 'NEXT' ONCE

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

PRESS 'NEXT' ONCE

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

PRESS 'NEXT' ONCE

```
   PREEMPTION  #6  SETTINGS (NEXT:1-10)
INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED  |12345678910111213141516
1 255  0.0  0.0 |   X  X
2   0  0.0  0.0 |
3   0  0.0  0.0 |
4   0  0.0  0.0 |
5   1  0.0  0.0 |   X   X
EXIT CALLS      |
             OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
MIN GREEN BEFORE PRE (0= DEFAULT)....1
PED CLEAR BEFORE PRE (0= DEFAULT)....0*
YELLOW CLEAR BEFORE PRE (0= DEFAULT).0.0
RED CLEAR BEFORE PRE (0= DEFAULT)....0.0
DWELL MIN TIMER (0-255 SEC) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....2
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
FAST GREEN FLASH DWELL PHASES? ......N
PED CLEARANCE THROUGH YELLOW? .......Y
INHIBIT OVERLAP GREEN EXTENSION? ....N
SERVICE DURING SOFTWARE FLASH? ......N
REST IN RED DURING DWELL INTERVAL? ..N
FLASH DWELL INTERVAL? ...............N
ALLOW PEDS IN DWELL INTERVAL? .......N
RE-TIME DWELL INTERVAL? .............N
OVERLAPS:                   | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW      |
OMIT OVERLAPS:              |
```

PROGRAMMING COMPLETE

Program extend time on detector unit for 2.0 seconds.

* Time defaults to time used for phase during normal operation.

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING COORDINATION - SELECT ALL PAGE CHANGES (AS SHOWN BELOW) WITHIN COORDINATION PLAN PROGRAMMING.

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM PAGE CHANGES (SHOWN BELOW) IN SEPARATE TIME OF DAY EVENTS. IF PAGE 1 IS USED, NO EVENT PROGRAMMING IS NECESSARY FOR THAT PARTICULAR PAGE.

PHASING	INPUTS PAGE	OVERLAPS PAGE
ACTIVE PAGES REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PAGES REQUIRED TO RUN ALTERNATE PHASING	2	2

NOTE: PAGES NOT SHOWN (i.e. sequence, phase control, etc.) SHOULD REMAIN AS '1', OR AS DEFINED BY TIMING ENGINEER.

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY PAGE CHANGE EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN PAGE CHANGE EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN THESE OVERLAP/INPUT PAGE CHANGES ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAPS PAGE 2: Modifies overlap parent phases for heads 11 and 51 to run protected turns only.

INPUTS PAGE 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 0 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 0 seconds.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 09-0640
DESIGNED: NOVEMBER 2021
SEALED: 12/3/2021
REVISED: N/A

PREPARED IN THE OFFICE OF:
Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

Final Design
Electrical Detail - Sheet 8 of 8

ELECTRICAL AND PROGRAMMING DETAILS FOR:

US 601 (Jake Alexander Blvd S)
at
SR 2528 (Julian Rd) and
Martin Luther King Jr Ave

Division 9 Rowan County Salisbury

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

PLAN DATE: November 2021	REVIEWED BY: B. Phillips
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
SEAL 032179
ZHAOLONG TENG

DocuSigned by:
Zhaolong Teng
6B6BA0DE5257455...
SIGNATURE 12/3/2021 DATE

SIG. INVENTORY NO. 09-0640

$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

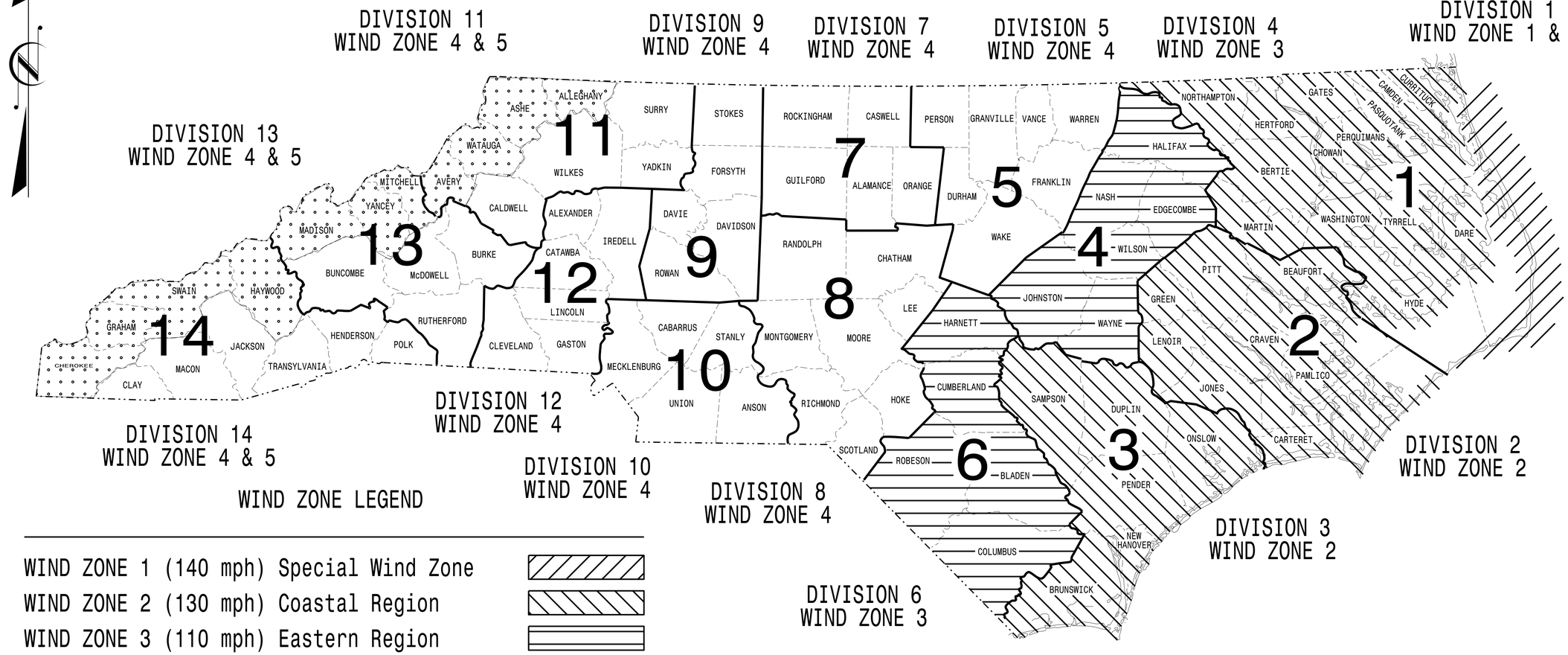
PROJECT I.D. NO.	SHEET NO.
	Sig.M1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANDARD DRAWINGS FOR ALL METAL POLES

POLE STANDARDS

NCDOT METAL P



WIND ZONE LEGEND

WIND ZONE 1 (140 mph) Special Wind Zone	
WIND ZONE 2 (130 mph) Coastal Region	
WIND ZONE 3 (110 mph) Eastern Region	
WIND ZONE 4 (90 mph) Central & Mtn. Region	
WIND ZONE 5 (120 mph) Special Wind Zone	

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

Prepared In the Offices of:

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

750 N.Greenfield Pkwy.
Garner,NC 27529

Designed in conformance with the latest 2015 Interim to the 6th Edition 2013

AASHTO

Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals

INDEX OF PLANS

NCDOT CONTACTS:

MOBILITY AND SAFETY DIVISION – ITS AND SIGNALS UNIT

M.M. MCDIARMID, P.E. – STATE ITS AND SIGNALS ENGINEER

J. P. GALLOWAY, P.E. – STATE SIGNALS ENGINEER

D.C. SARKAR, P.E. – ITS AND SIGNALS SENIOR STRUCTURAL ENGINEER

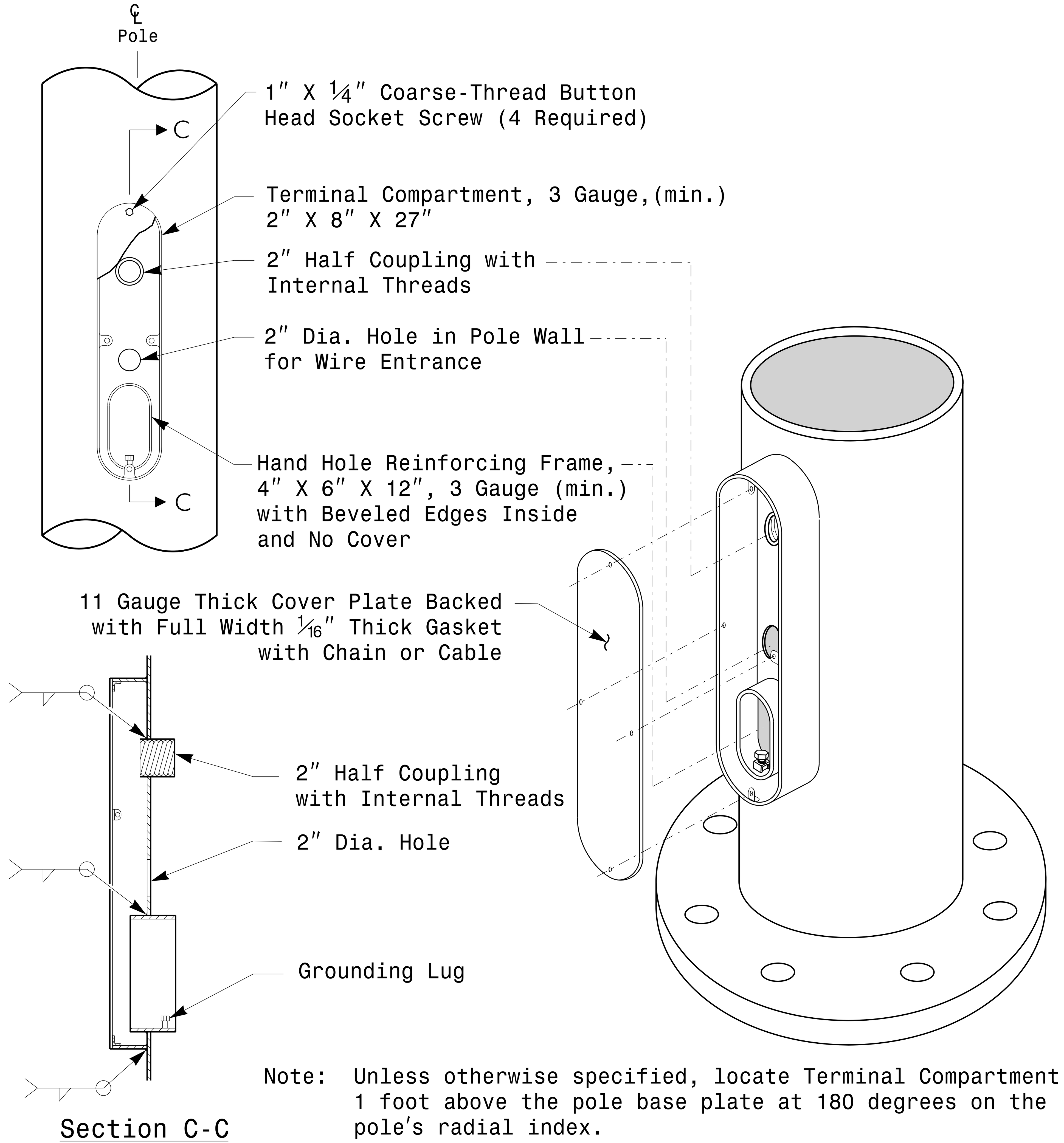
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

DocuSigned by: Debesh C. Sarkar 44E8E3... SIGNATURE

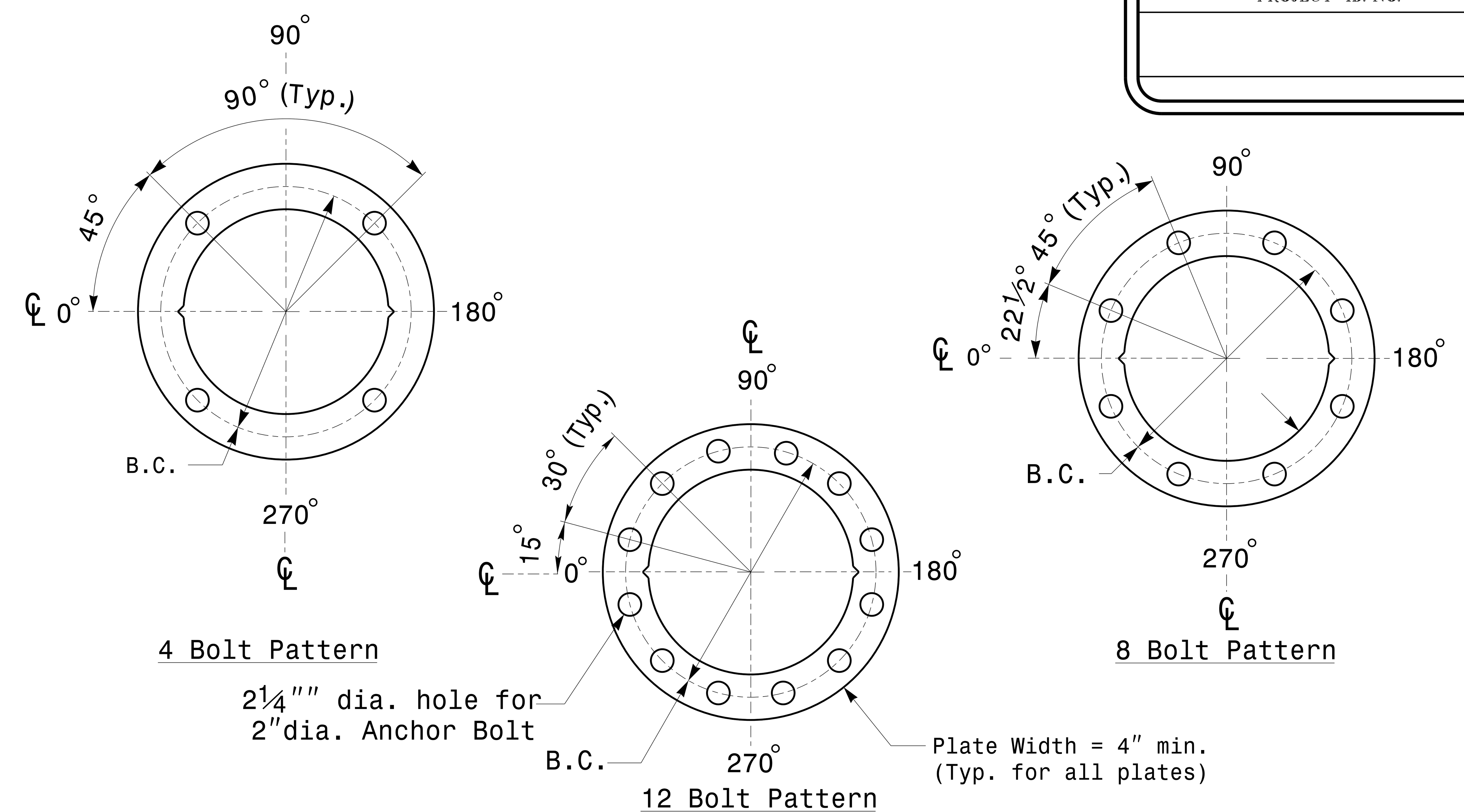
10/11/2017 DATE

Fabrication Details – All Metal Poles



Note: Unless otherwise specified, locate Terminal Compartment 1 foot above the pole base plate at 180 degrees on the pole's radial index.

Terminal Compartment Detail



Construct Templates and Plates from ¼″ min. thick Steel. Galvanizing is not required.

Base Plate Template and Anchor Bolt Lock Plate Details

Shaft I.D. Tag:

MFG ________ MFG. DATE: MM/YY
SHAFT D/T/L/Y ----/----/----/----
ARM-A D/T/L/Y ----/----/----/----
----/----/----/----
ARM-B D/T/L/Y ----/----/----/----
----/----/----/----
A.B. DIA./B.C./L/Y ----/----/----/----
NCDOT SIG. INV. NO. ________
NCDOT POLE NO. ________

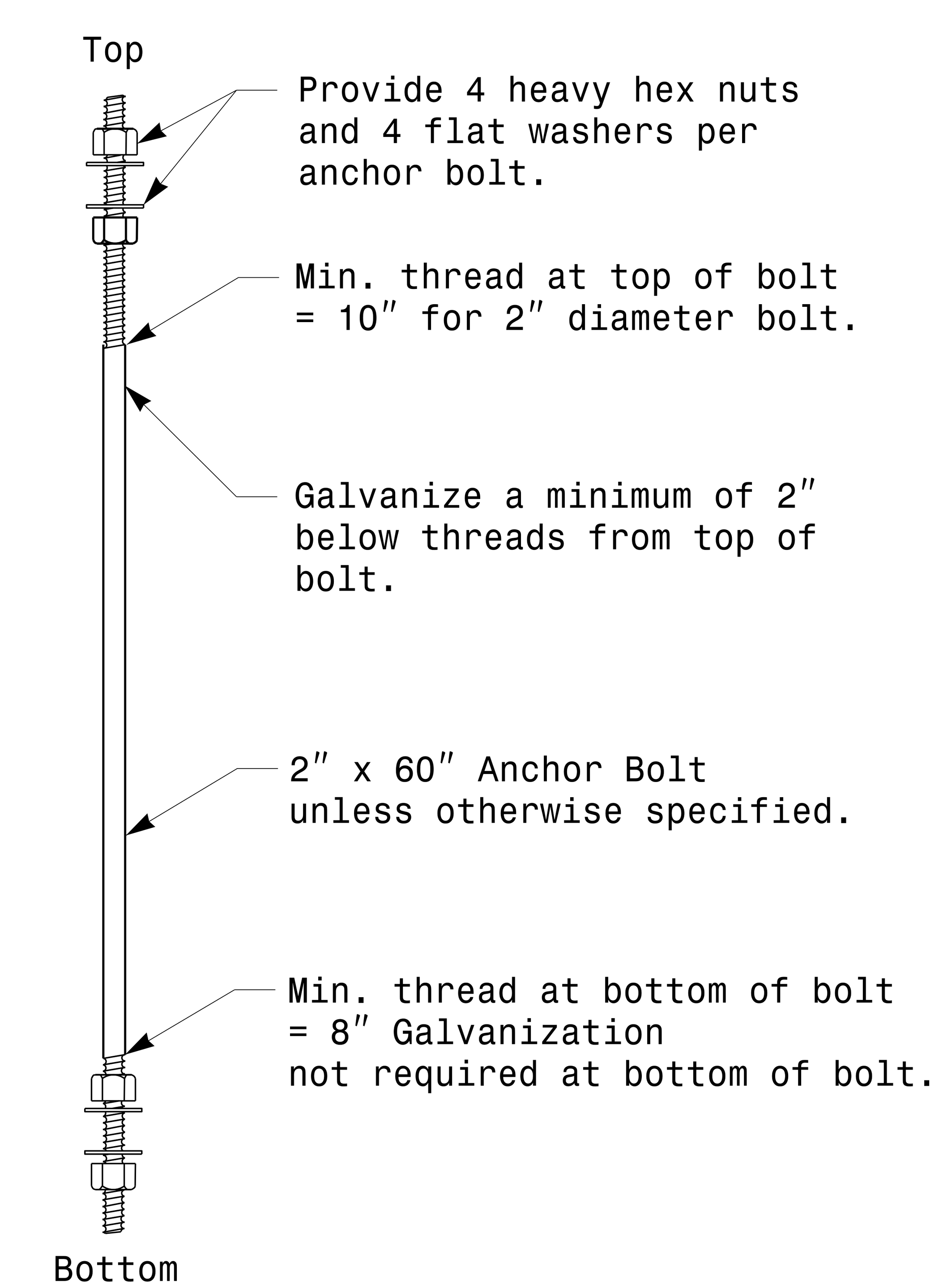
Shaft I.D. Tag
(Provide on Shaft of Strain Poles and Mast Arm Poles Shaft)

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

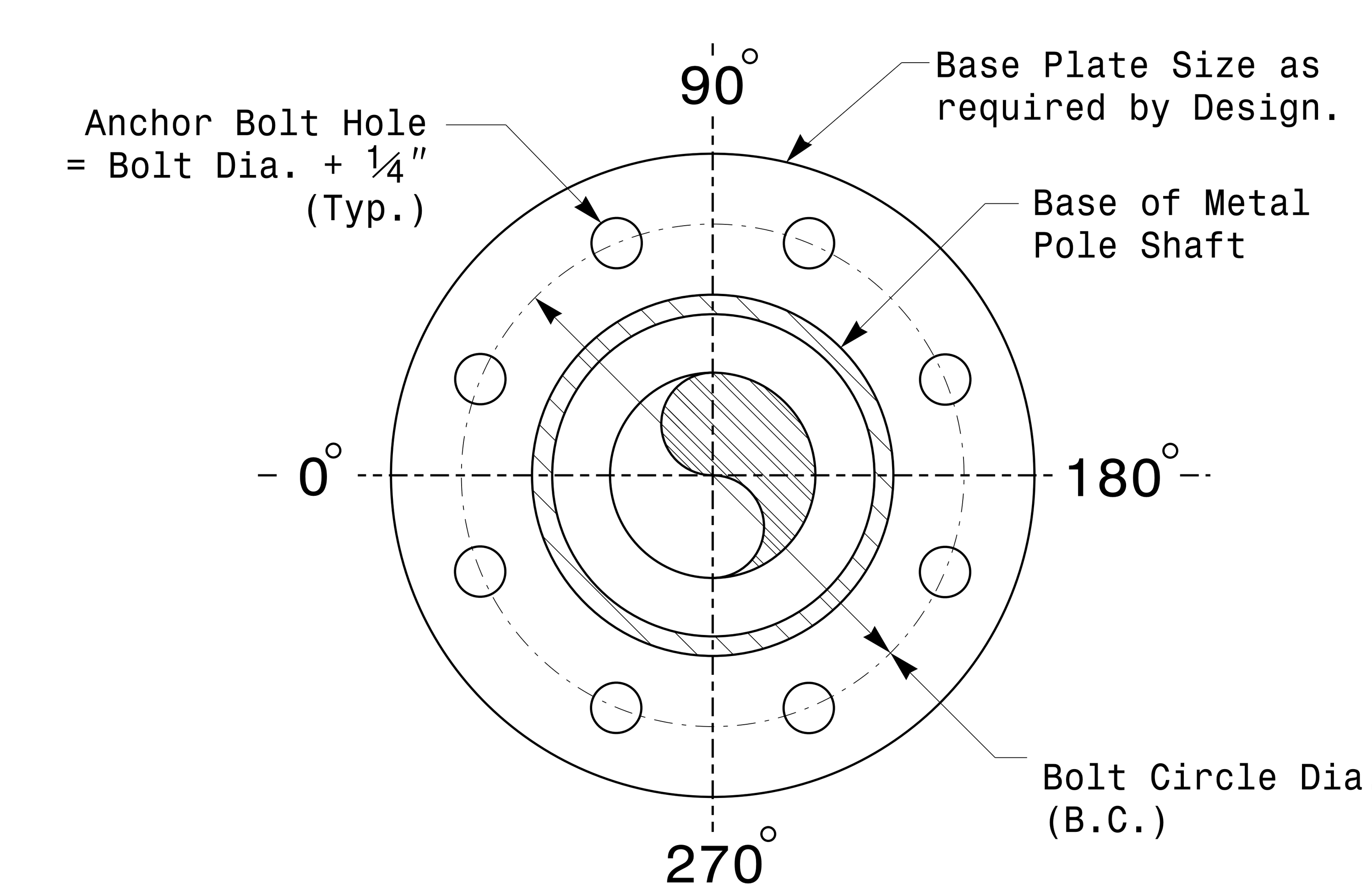
Arm I.D. Tag
(Provide on each section of a multi-section mast arm.)

Notes:
1) D= Diameter, T= Thickness, L= Length, Y= Yield Strength
2) A.B. = Anchor Bolt
3) B.C. = Bolt Circle of Anchor Bolts
4) If Custom Design, use "NCDOT STANDARD" line for Signal Inv. Number and pole I.D. number
5) See drawing M3 and M4 for mounting positions of I.D. tags.

Identification Tag Details



Anchor Bolt Detail



Note: Base plate may be circular,octagonal,square or rectangular in shape.

Typical Base Plate Detail

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

Typical Fabrication Details
For
All Metal Poles

PLAN DATE:	OCTOBER 2017	DESIGNED BY:	C.F.ANDREWS
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

SCALE: 0 NA — NONE

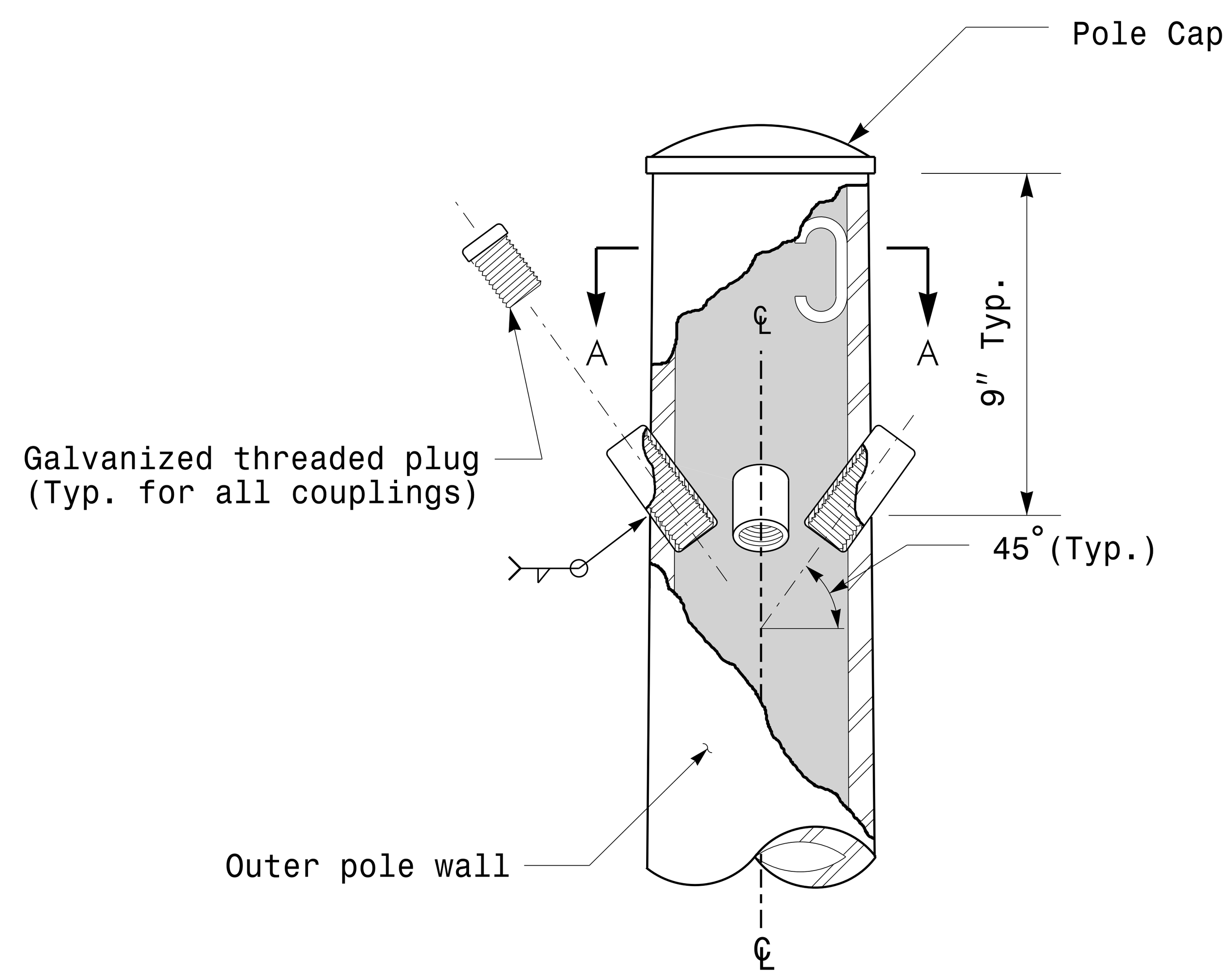
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

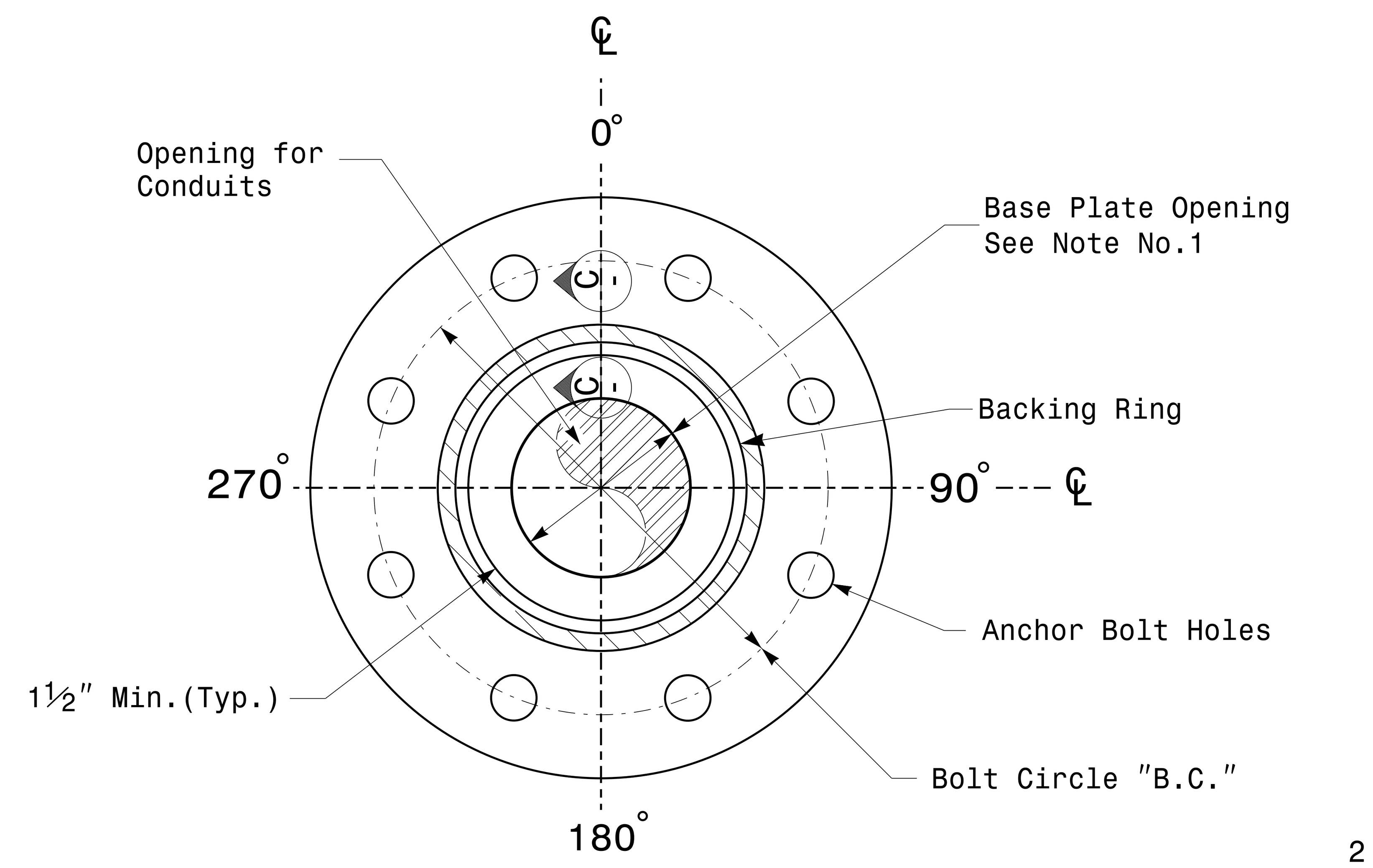
DocuSigned by: Debesh C. Sarkar
SIGNATURE 10/11/2017 DATE

PROJECT ID. NO.	SHEET NO.
	Sig.M3

Note:
1. Opening in pole base plate shall be equal to pole base inside diameter minus $3\frac{1}{2}''$ but shall not be less than $8\frac{1}{2}''$.

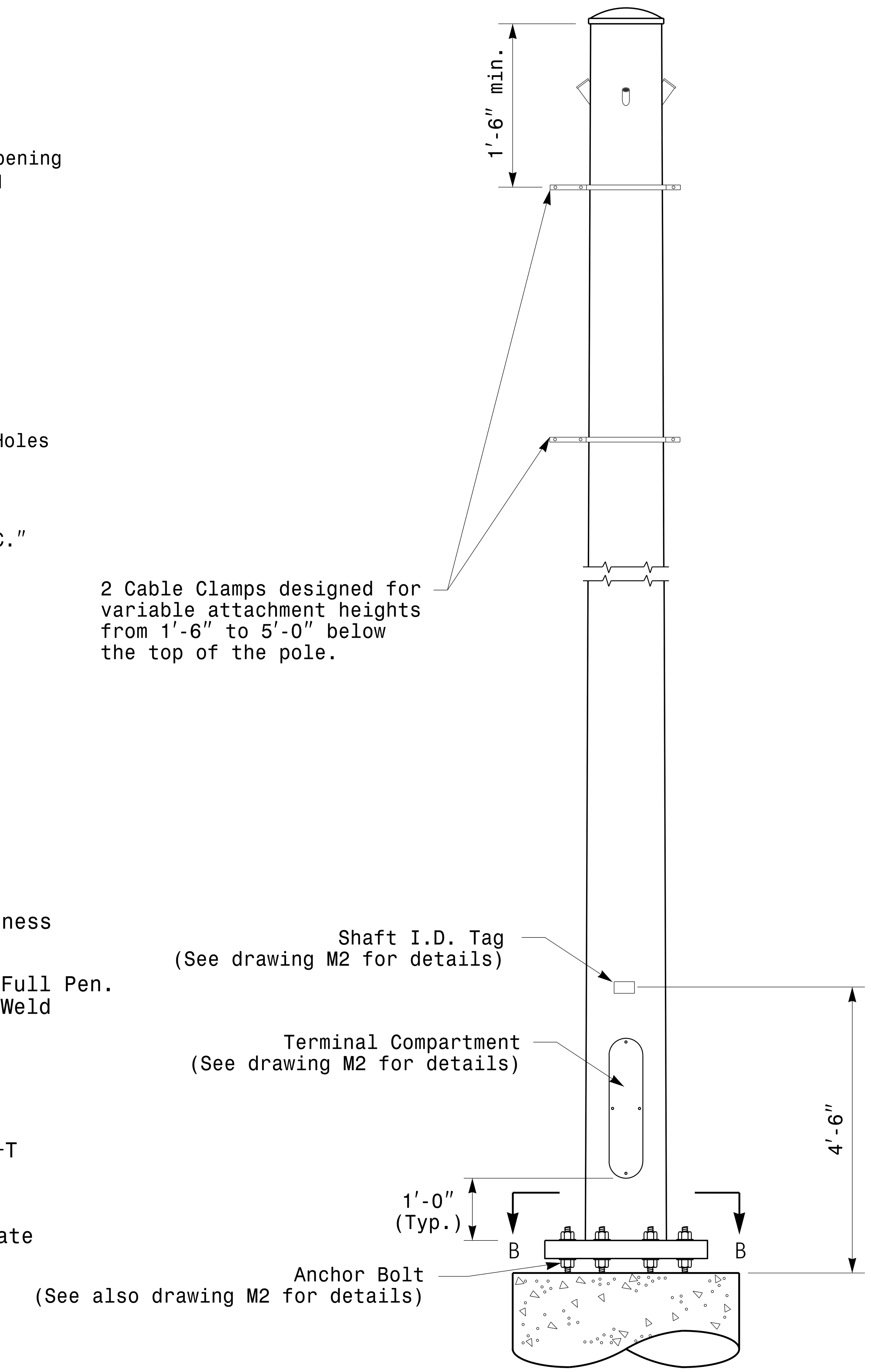


Cable Entrances at Top of Pole

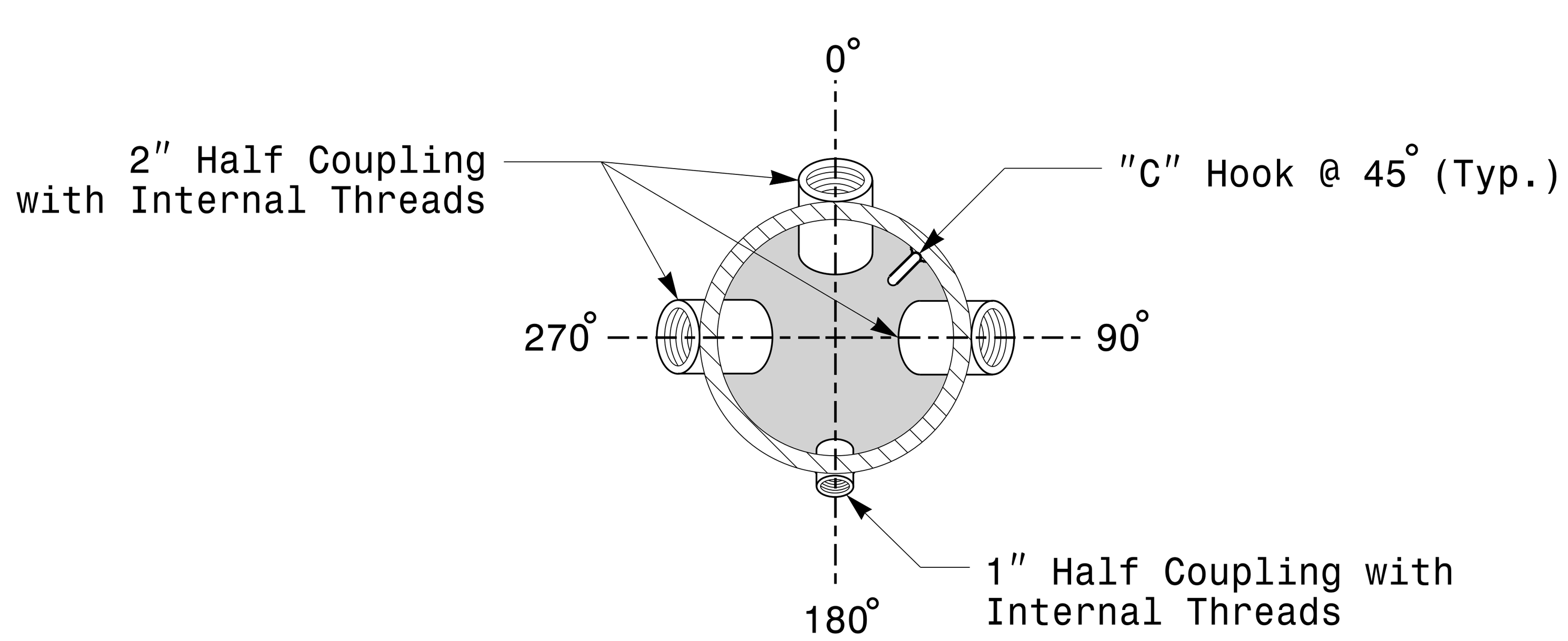


Section B-B

Pole Base Plate Details
(8 and 12 Bolt Pattern)

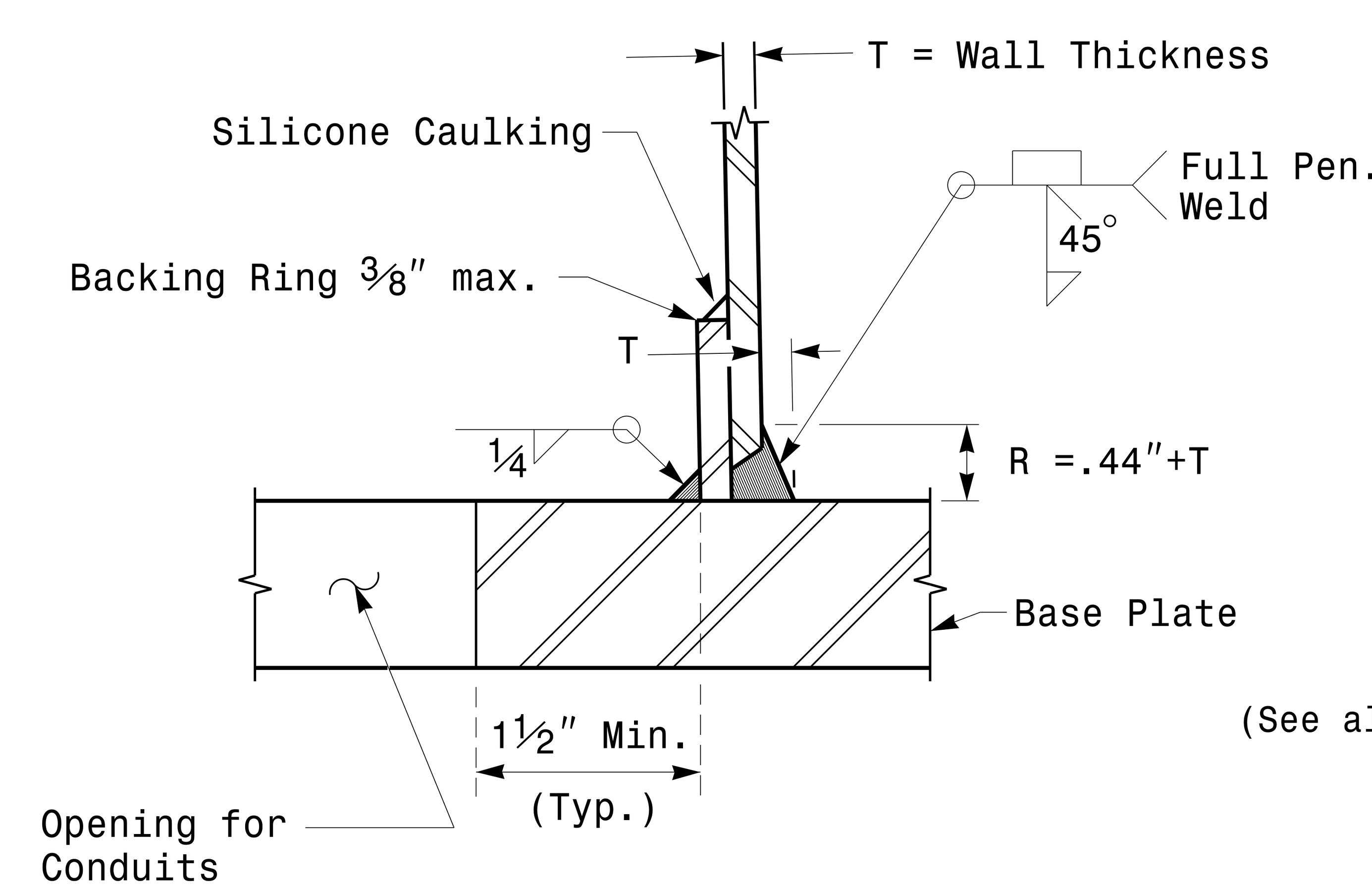


Monotube Strain Pole



Section A-A

Radial Orientation for Factory Installed Accessories at Top of Pole



Section C-C

(Pole Attachment to Base Plate)

Full-Penetration Groove Weld Detail

Fabrication Details – Strain Poles

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

Typical Fabrication Details
For
Strain Poles

PLAN DATE:	OCTOBER 2017	DESIGNED BY:	K.C.DURIGON
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SCALE
0 NA
NONE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

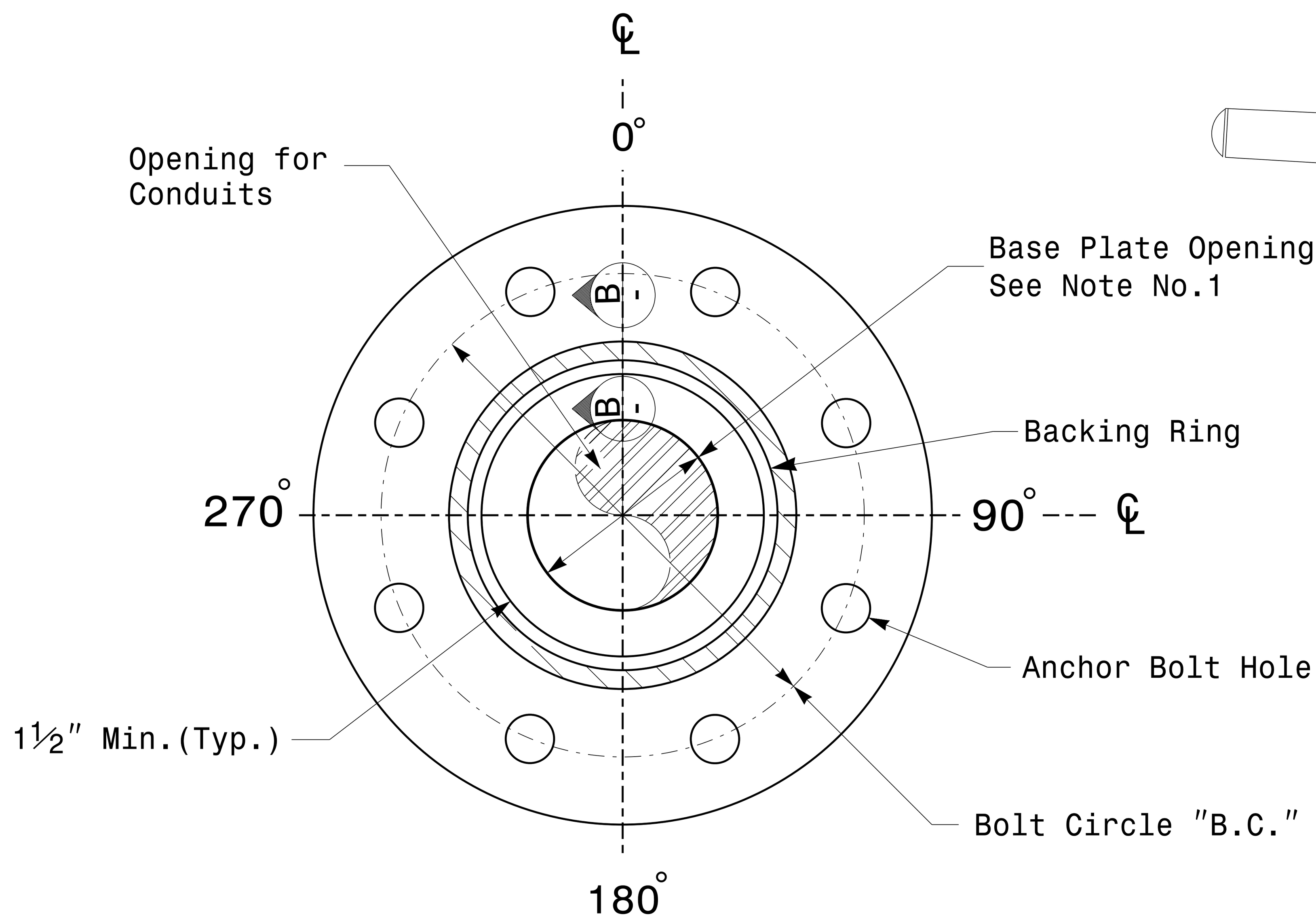
DocuSigned by:
Debesh C. Sarkar
44E8E32E147E4C4...
SIGNATURE
10/11/2017
DATE

11-OCT-2017 08:25
S:*ITS&SU*ITS Signals*Signal Design Section*Eastern Region*M Sheets*2016*2014 Sig.M3 Std. Fabrication Details-Strain Poles.dgn
rnzinser

PROJECT ID. NO.	SHEET NO.
	Sig.M4

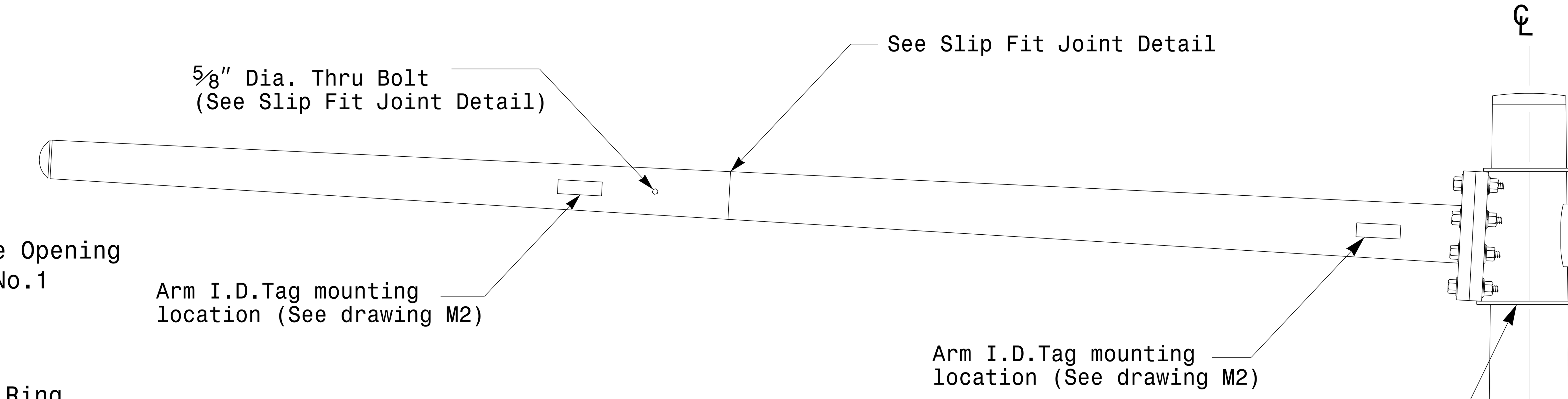
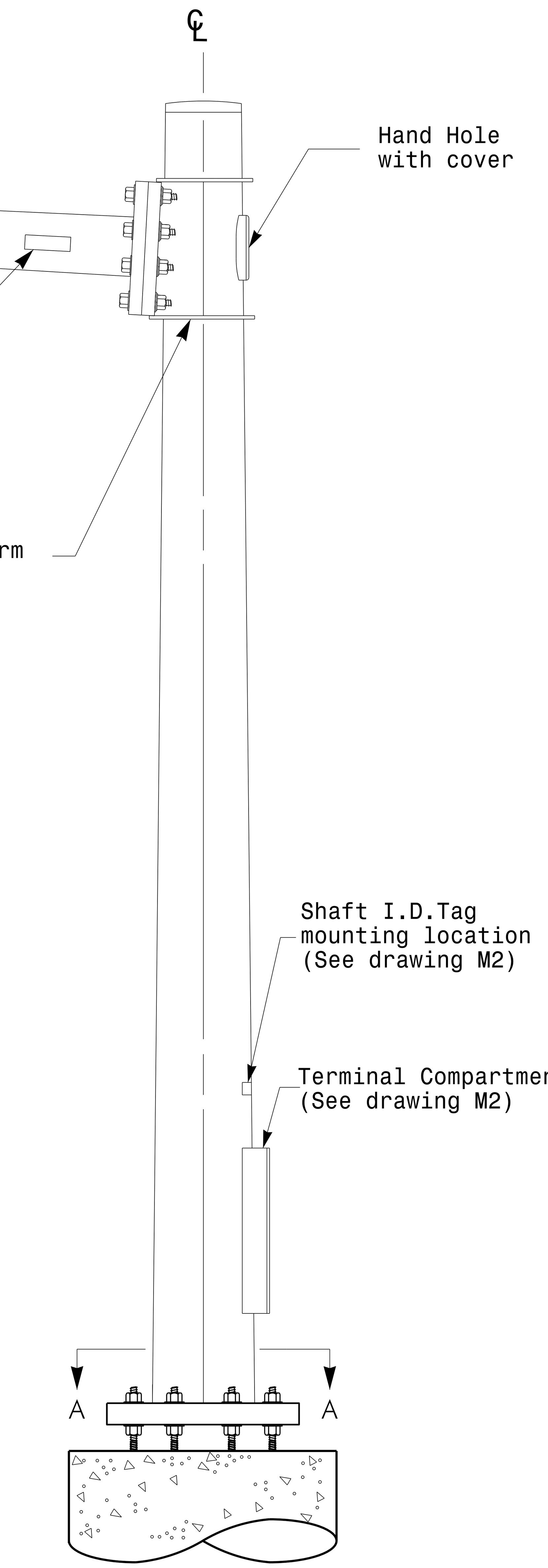
Fabrication Details – Mast Arm Poles

Note:
1. Opening in pole base plate shall be equal to pole base inside diameter minus 3½″ but shall not be less than 8½″.

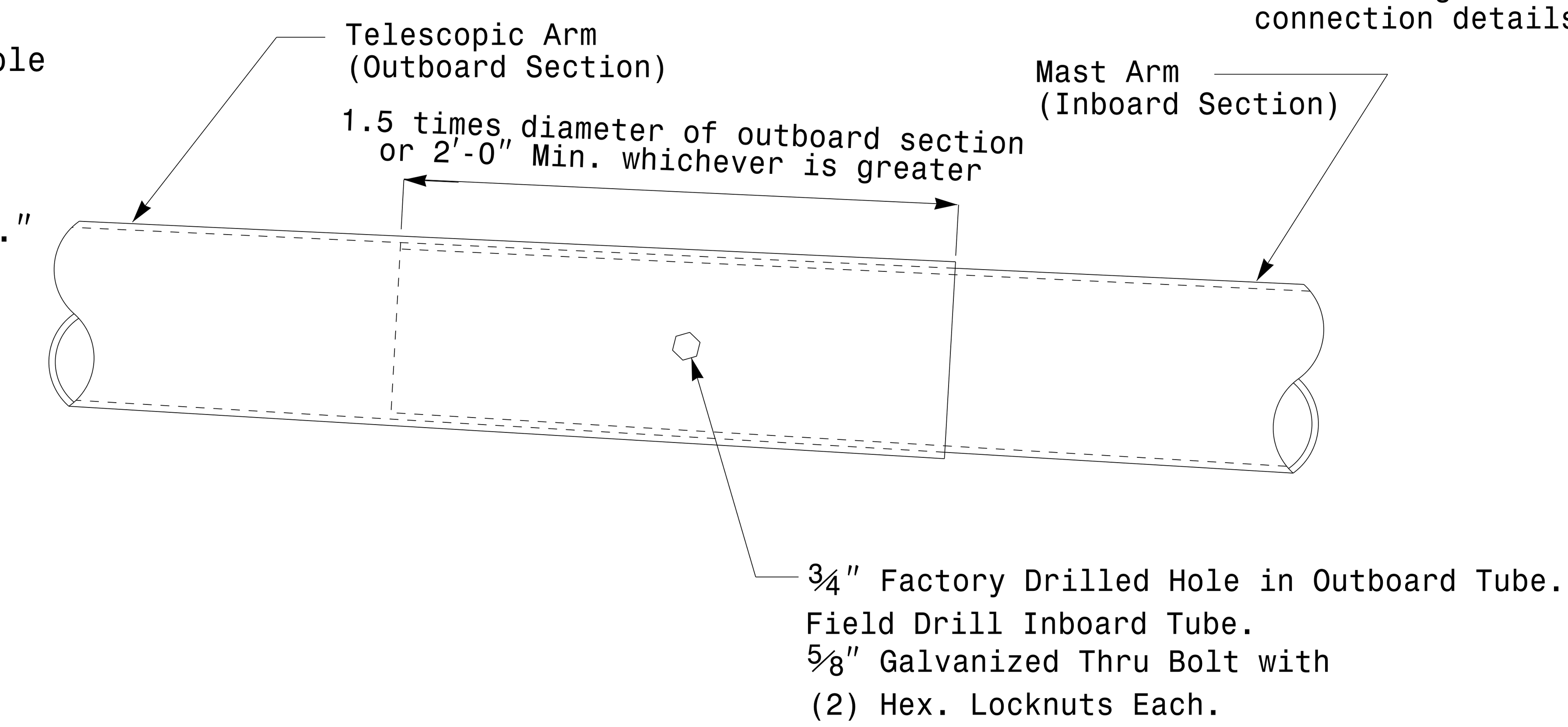


Section A-A

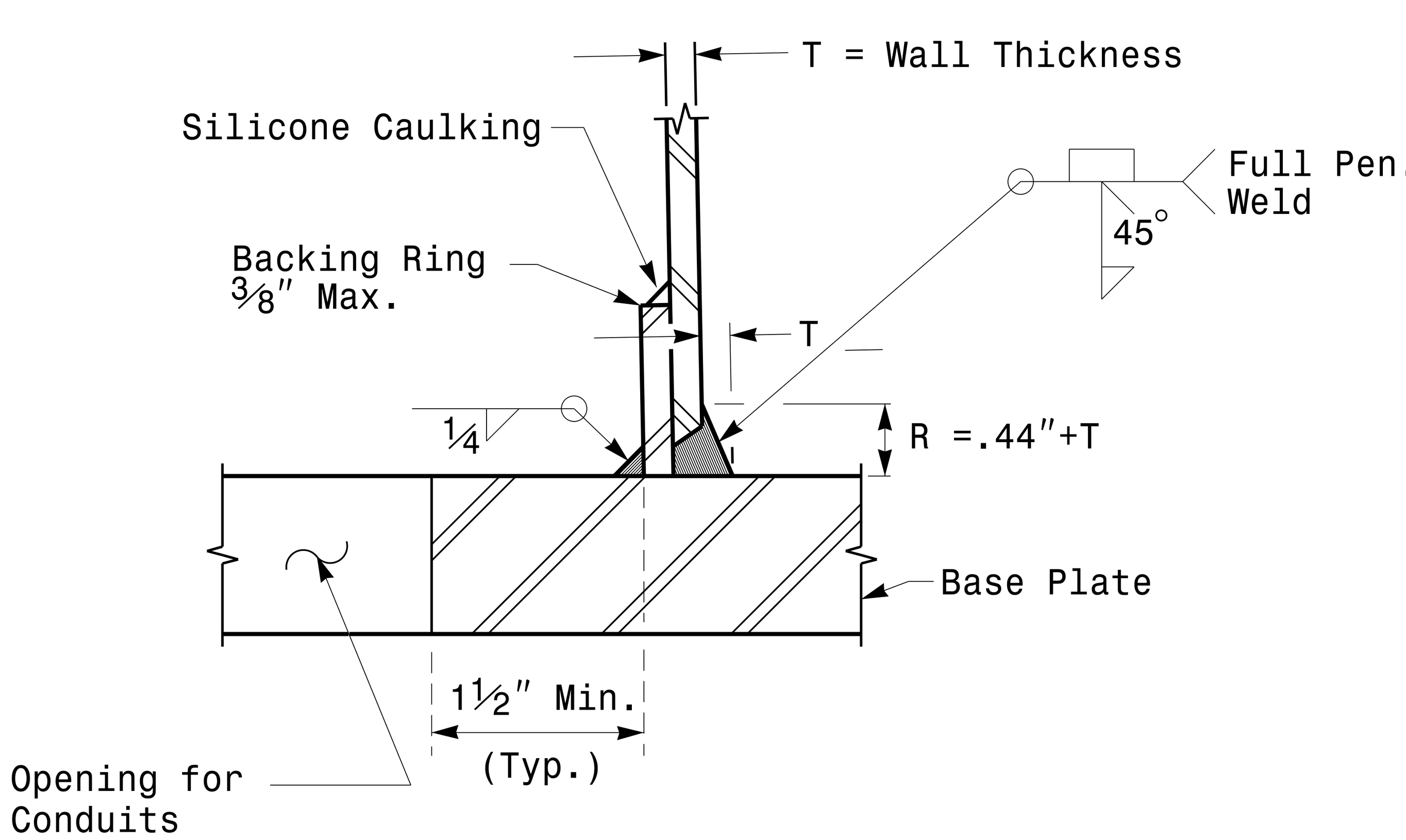
Pole Base Plate Details

Mast Arm Pole



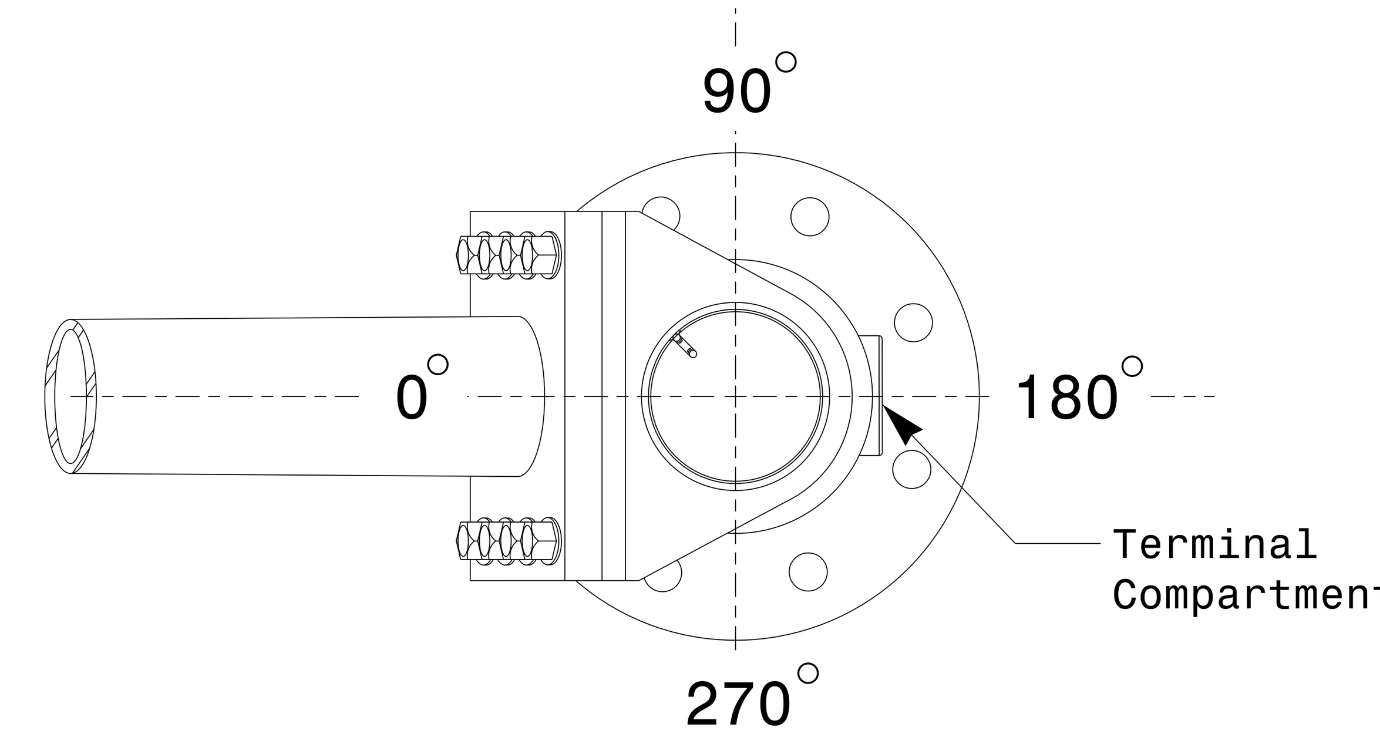
Slip Fit Joint Detail for Mast Arm



Section B-B

(Pole Attachment to Base Plate)

Full-Penetration Groove Weld Detail



Mast Arm Radial Orientation

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

SCALE
0 NA
NONE

Typical Fabrication Details
For
Mast Arm Poles

PLAN DATE:	OCTOBER 2017	DESIGNED BY:	K.C.DURIGON
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

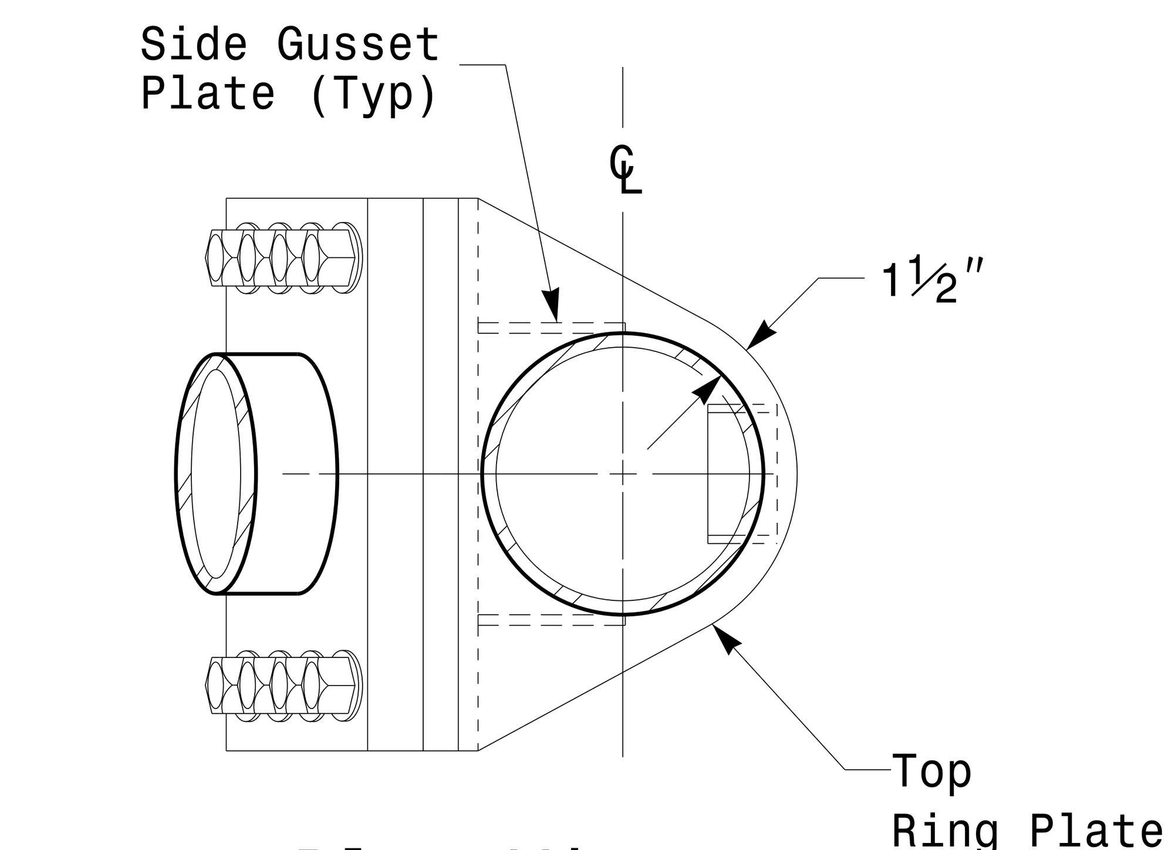
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028094 DEBESH C. SARKAR

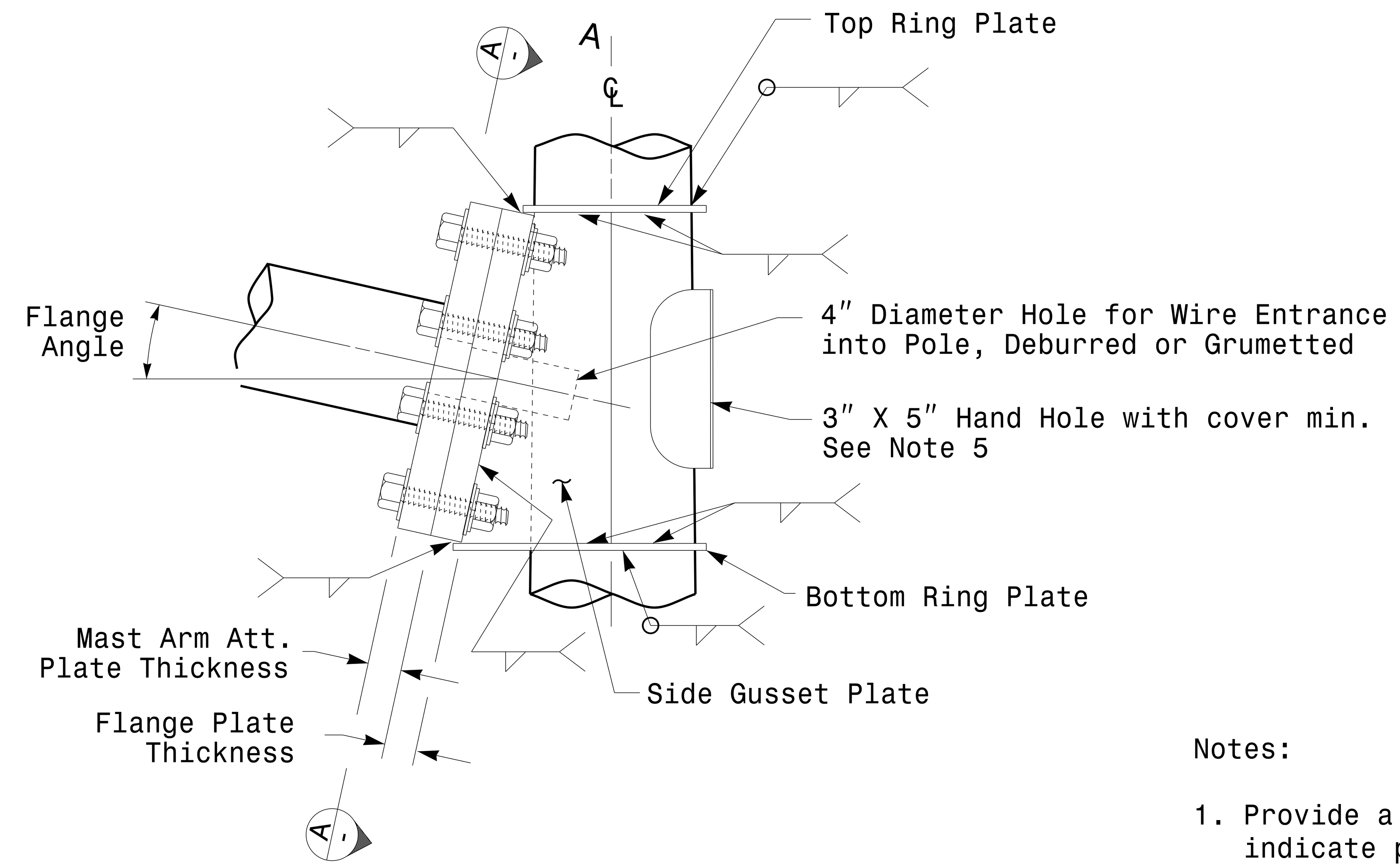
DocuSigned by: Debesh C. Sarkar
SIGNATURE
10/11/2017
DATE

Welded Ring Stiffened Mast Arm Connection

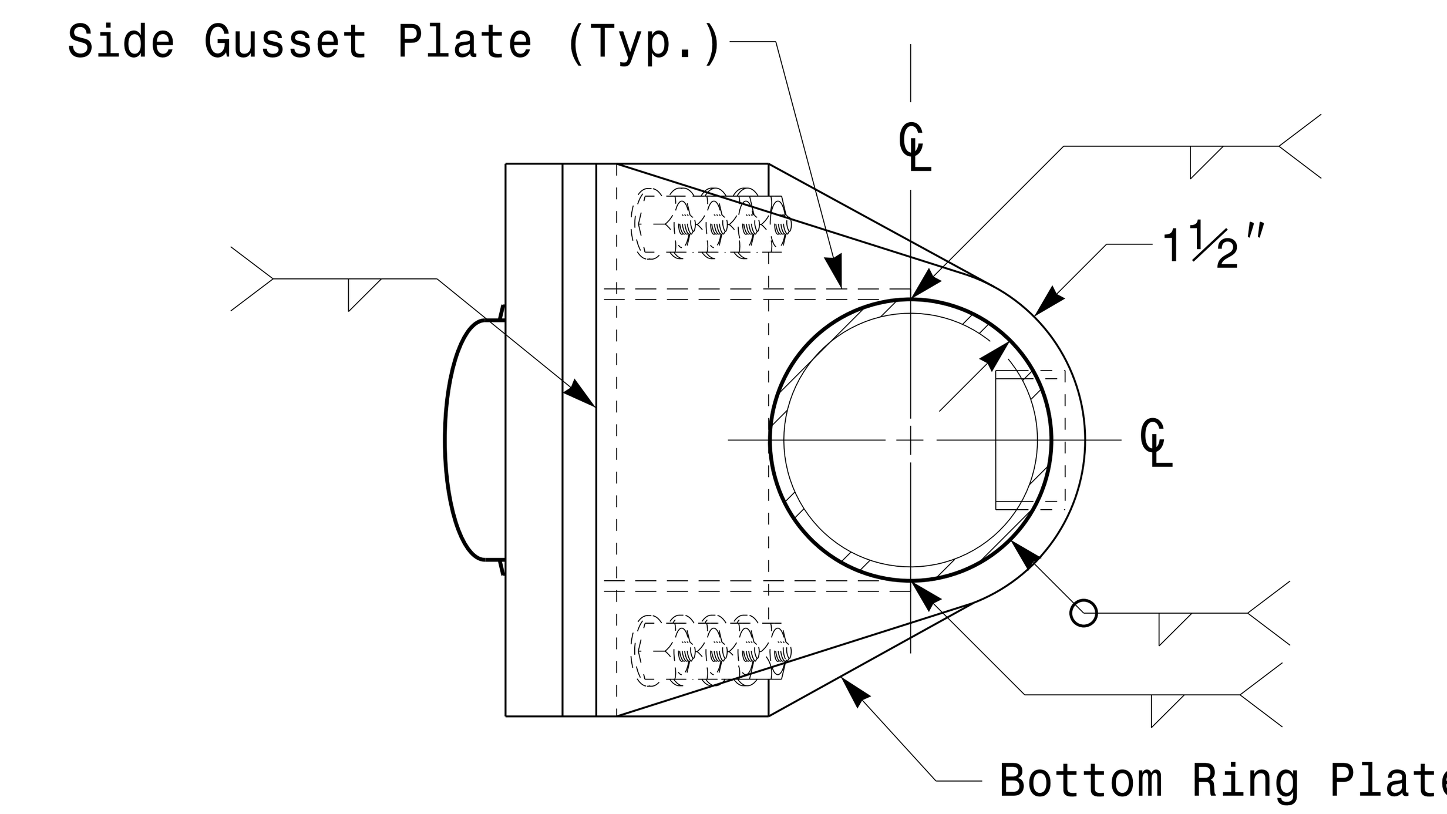
PROJECT ID. NO.	SHEET NO.
	Sig.M5



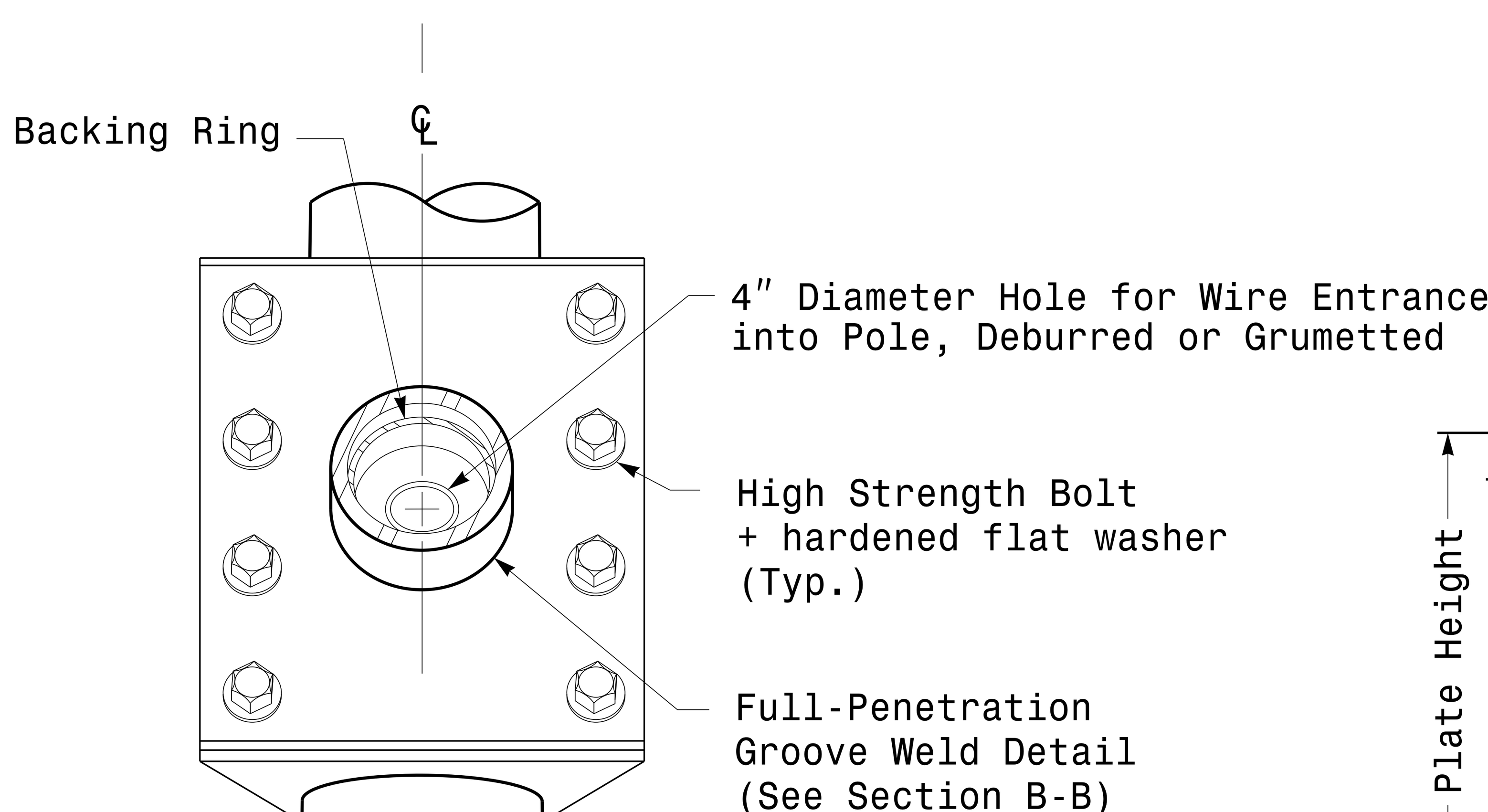
Plan View



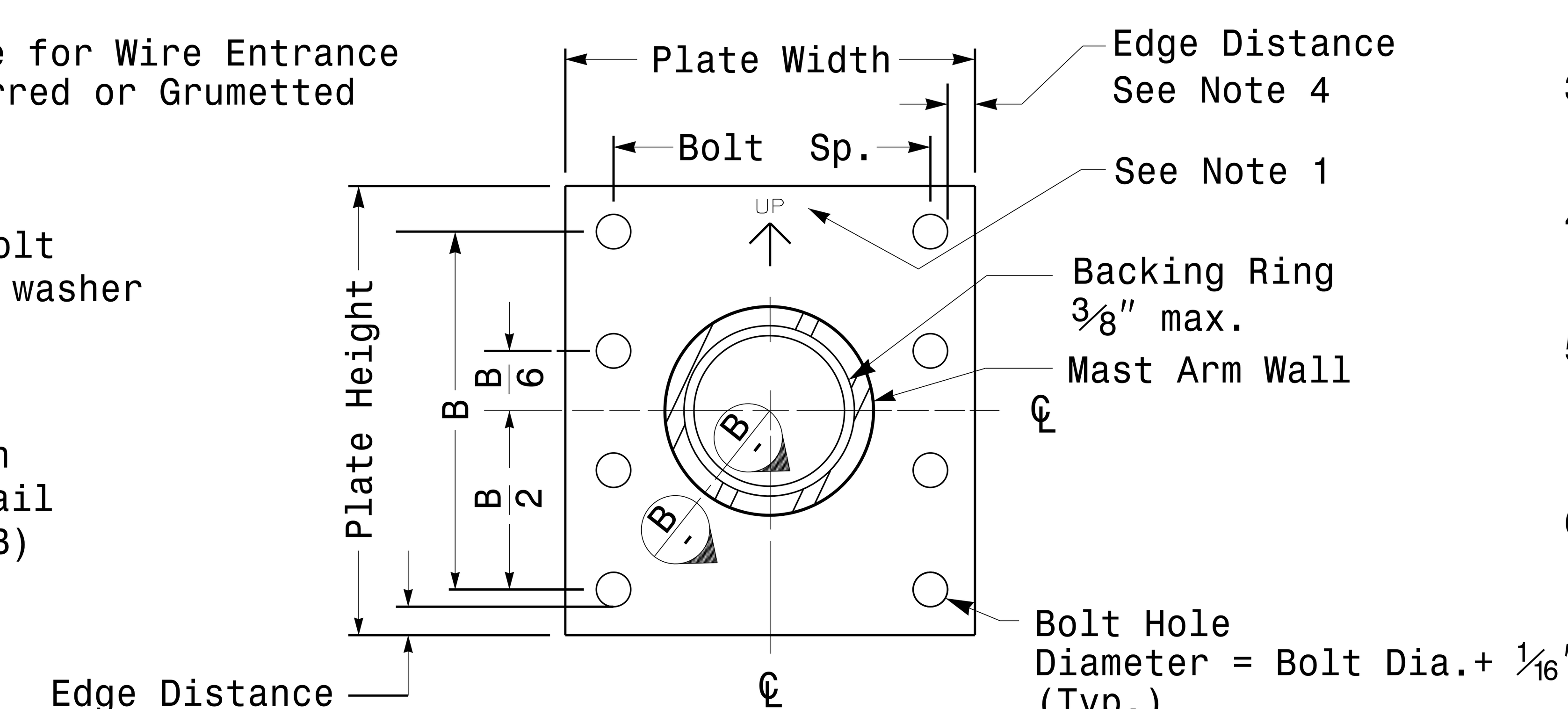
Side Elevation View



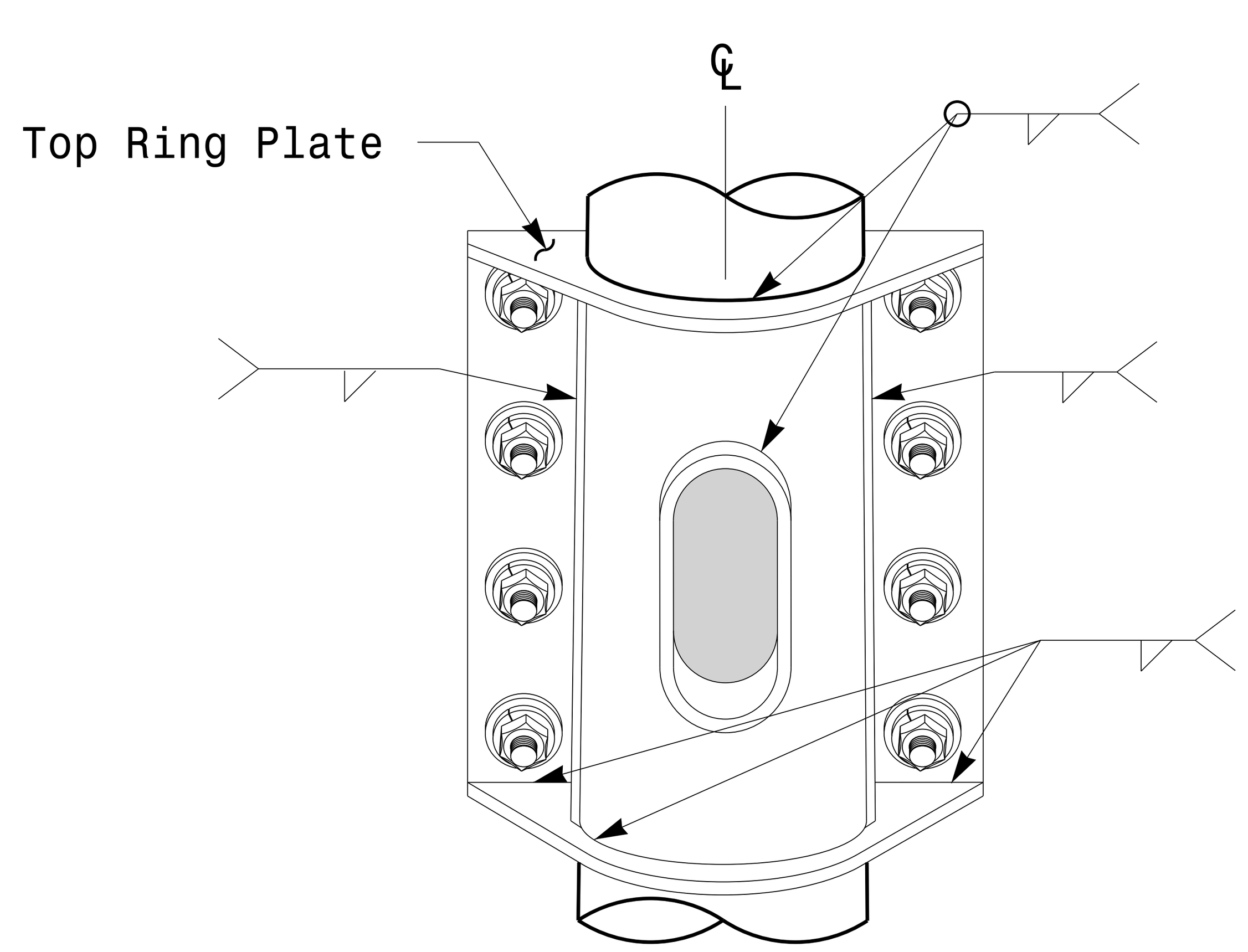
Bottom View



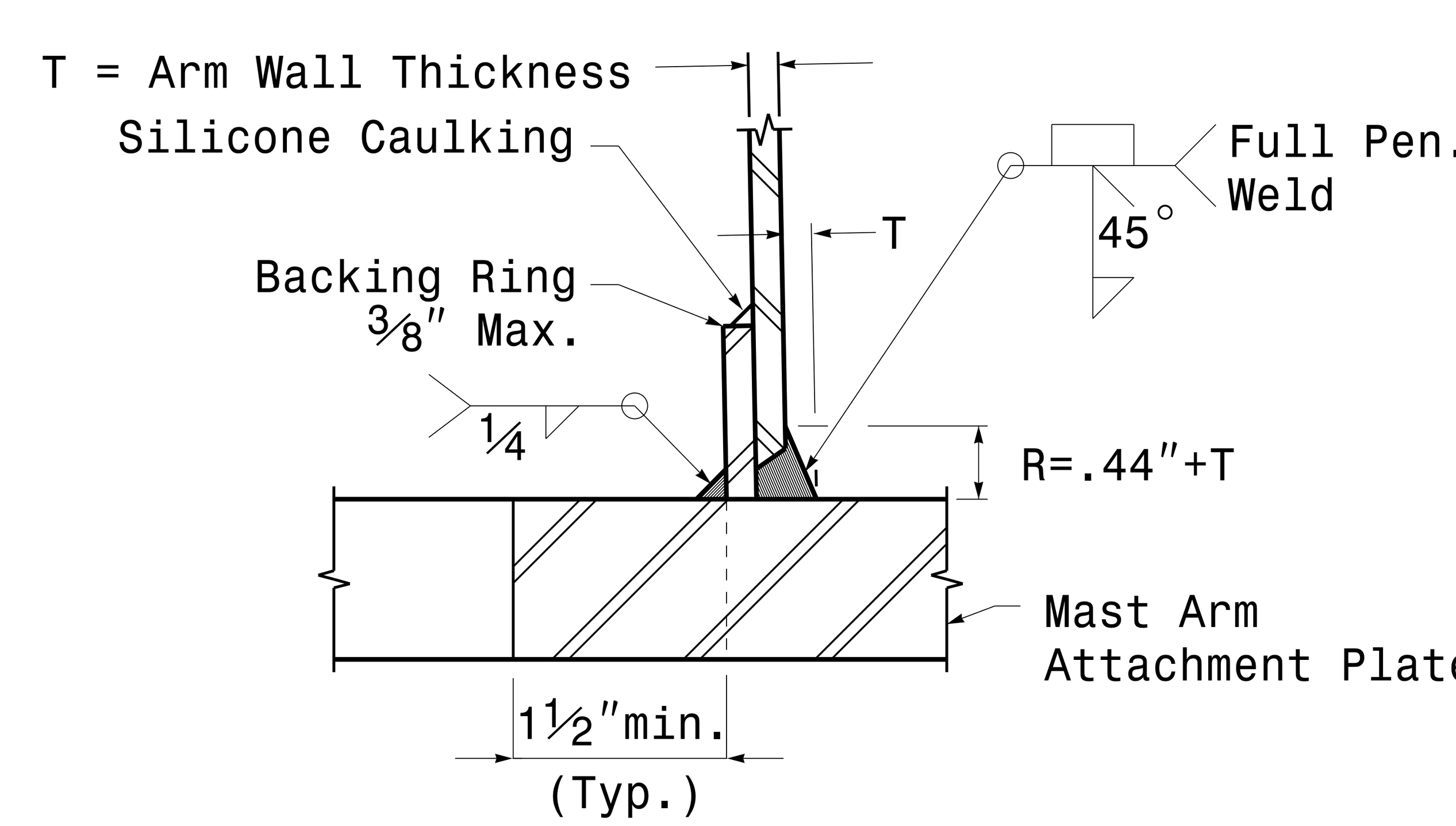
Front Elevation View



Section A-A
Mast Arm Attachment Plate



Back Elevation View



Section B-B
Full-Penetration Groove Weld Detail

Notes:

1. Provide a permanent means of identification above the mast arm to indicate proper attachment orientation of the mast arm.
2. Designer will determine the size of all structural components, plates, fasteners, and welds shown unless they are already specified.
3. Fabricator is responsible for providing appropriate holes at drainage points to drain galvanizing materials.
4. For minimum edge distance follow AISC Table J3.4 and J3.5. For nominal bolt hole size use Table J3.3.
5. Provide upper handhole as necessary when shaft extensions are reguired for luminaire arms or camera. For poles without luminaires/camera, wiring can be done through the top of pole.
6. Allowable range of flange tilt angle will vary from 0° to as required.

Fabrication Details – Mast Arm Connection

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

Typical Fabrication Details For Mast Arm Connection To Pole

PLAN DATE:	OCTOBER 2017	DESIGNED BY:	C.F.ANDREWS
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

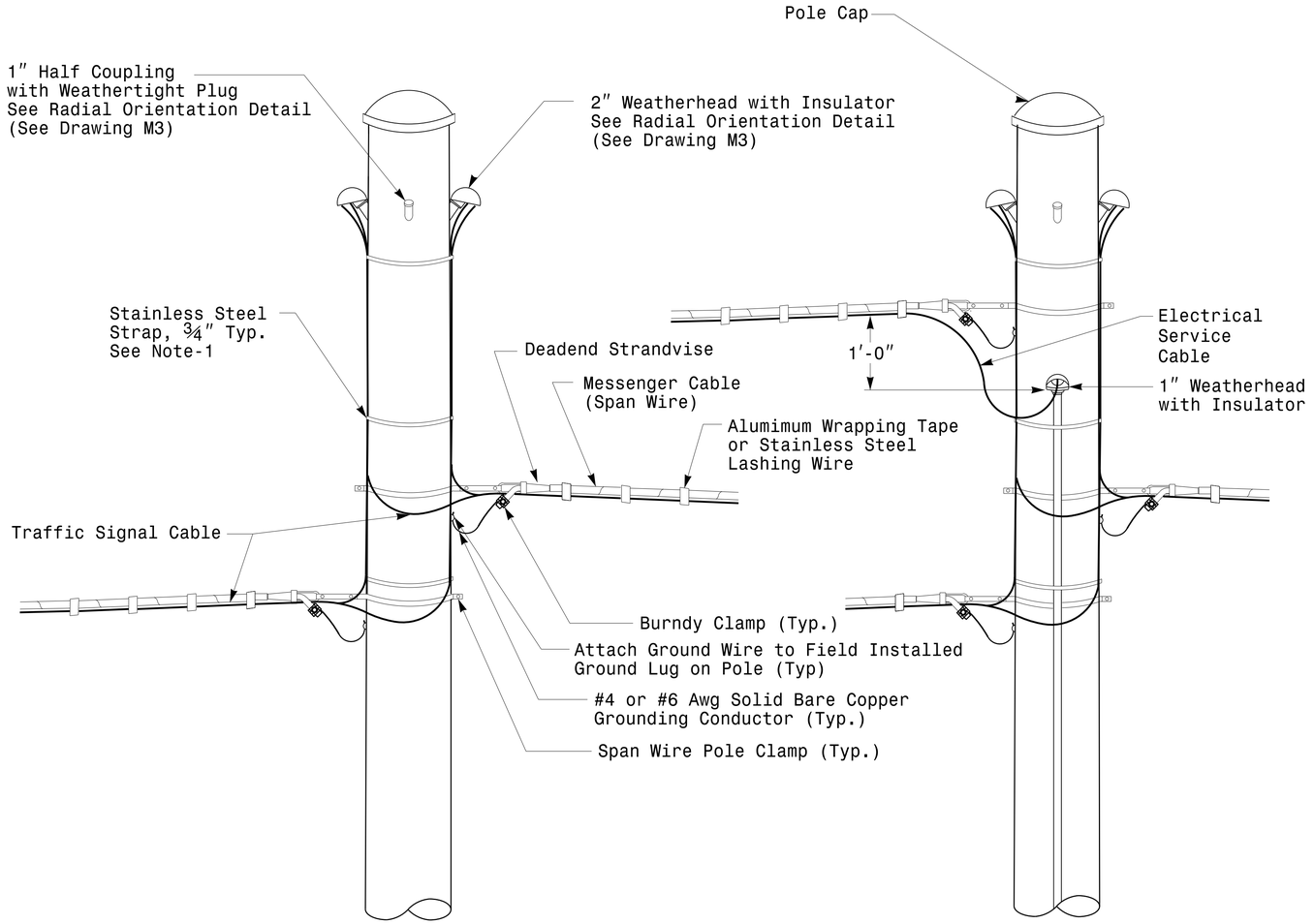
SCALE: 0 NA — NONE

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 028094 DEBESH C. SARKAR

DocuSigned by: Debesh C. Sarkar — SIGNATURE — 10/11/2017 DATE

PROJECT ID. NO.	SHEET NO.
	Sig.M6

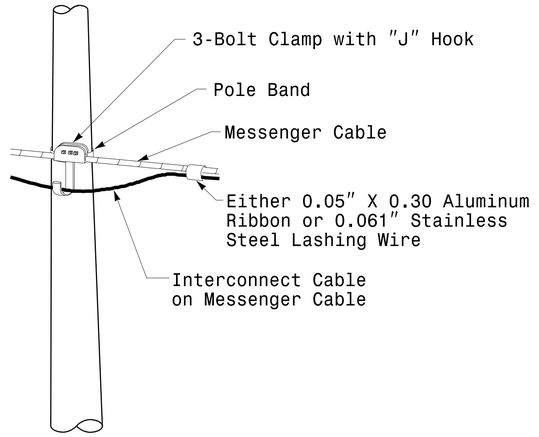
Fabrication Details – Strain Pole Attachments



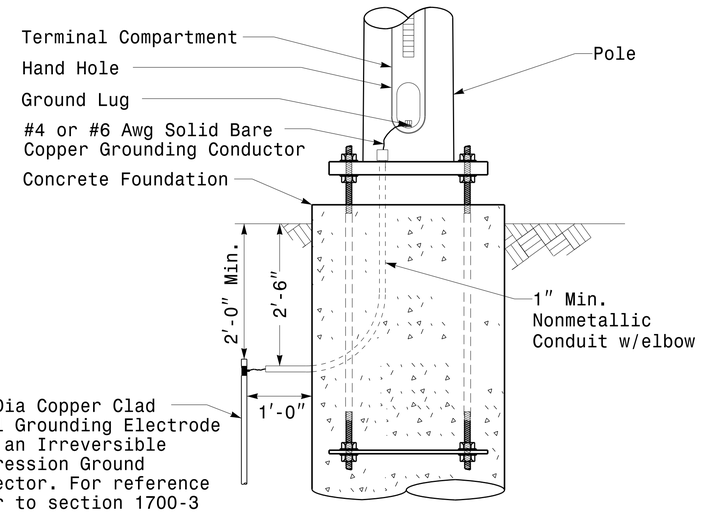
Strain Pole Attachments

NOTE:

1. Strap all signal cables to the side of the pole with ¾″ stainless steel straps when the distance between the spanwire attachment clamp and the weatherheads exceeds 3′-0″.
2. Provide minimum two spanwire pole clamps per pole.
3. It is prohibited to attach two span wires at one pole clamp.
4. For general requirements refer to NCDOT Standard Specifications for Roadway and Structures, January 2018.



Attachment of Cable to Intermediate Metal Pole



Metal Pole Grounding Detail For Strain Pole and Mast Arm

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

SCALE
0 NA
NONE

Typical Fabrication Details
For
Strain Pole Attachments

PLAN DATE:	OCTOBER 2017	DESIGNED BY:	C.F.ANDREWS
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

DocuSigned by: Debesh C. Sarkar
SIGNATURE

10/11/2017
DATE

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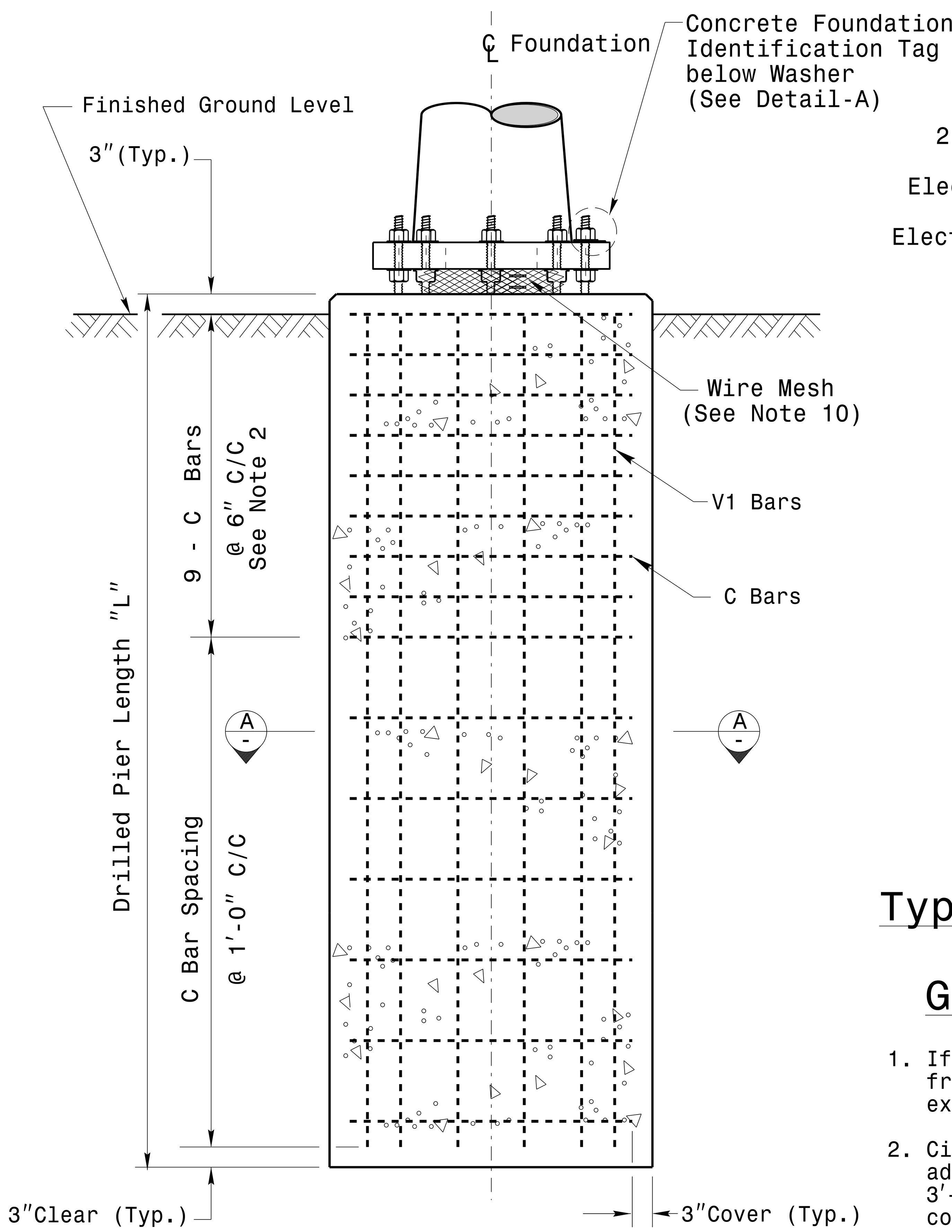
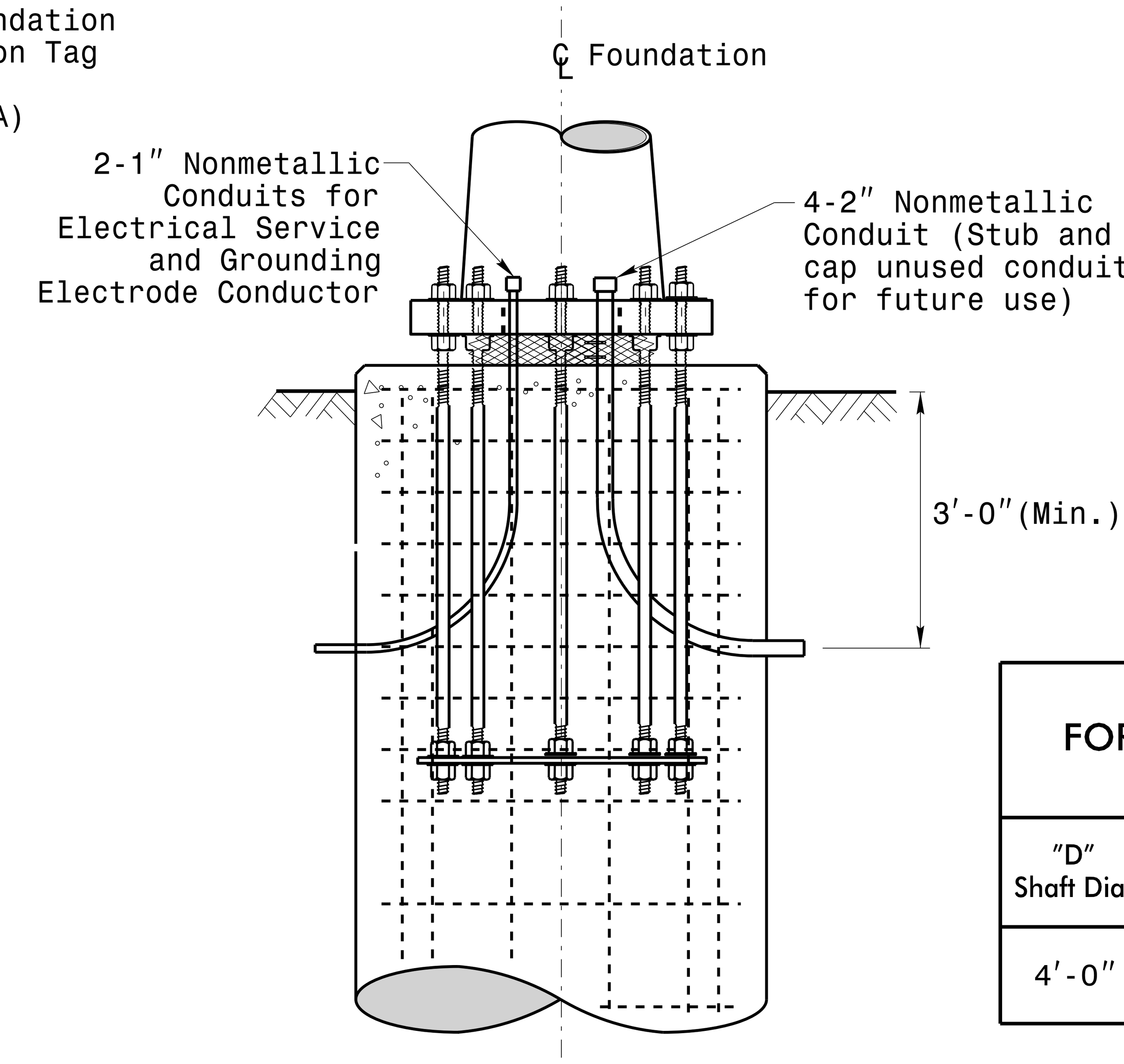


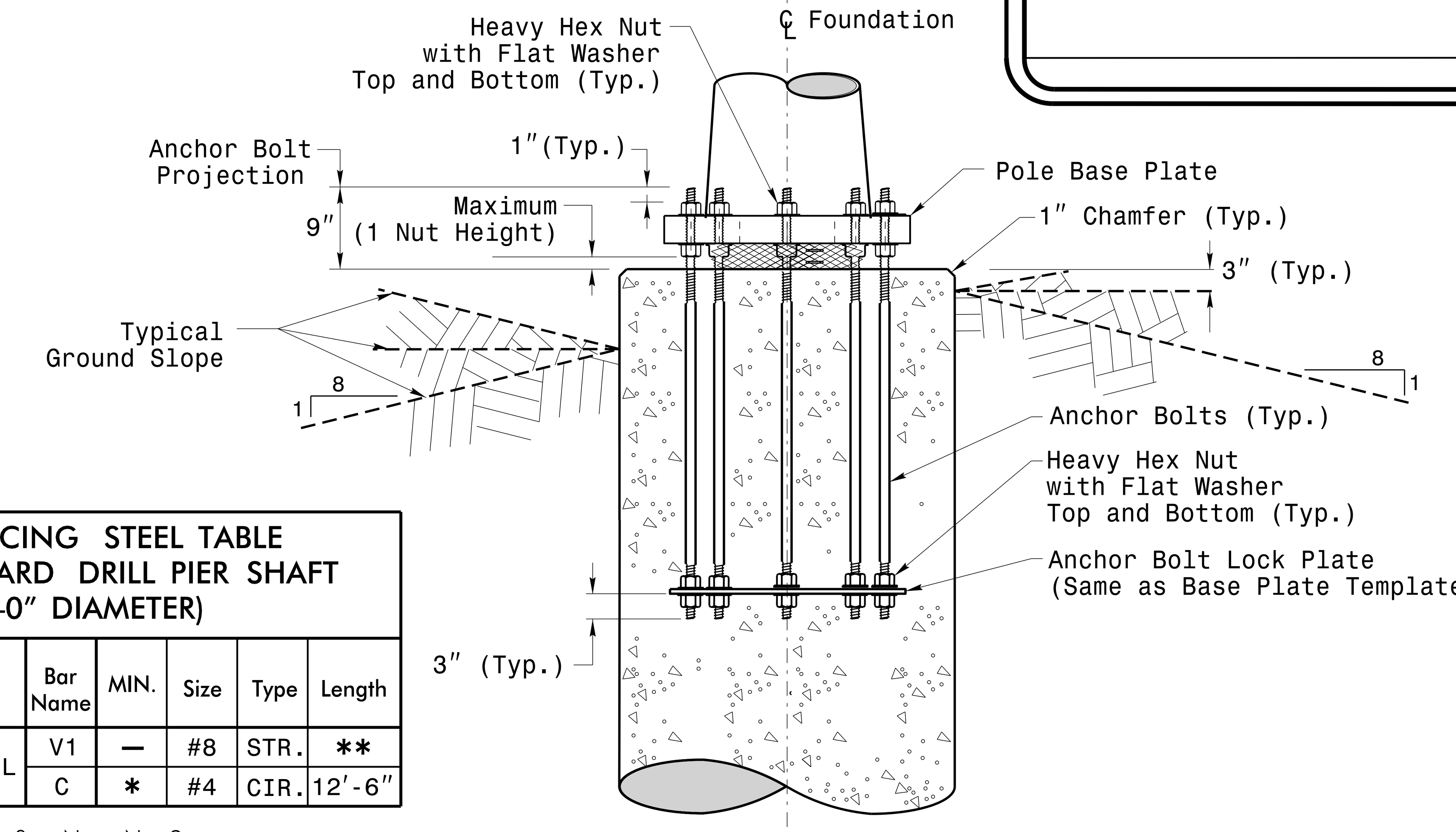
Concrete Shaft Elevation



Typical Foundation Conduit Details

REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (4′-0″ DIAMETER)						
"D" Shaft Dia.	Conc. Volume (cu. yds.)	Bar Name	MIN.	Size	Type	Length
4′-0″	.465 x L	V1	—	#8	STR.	**
		C	*	#4	CIR.	12′-6″

* See Note No. 2
** See Note No. 3



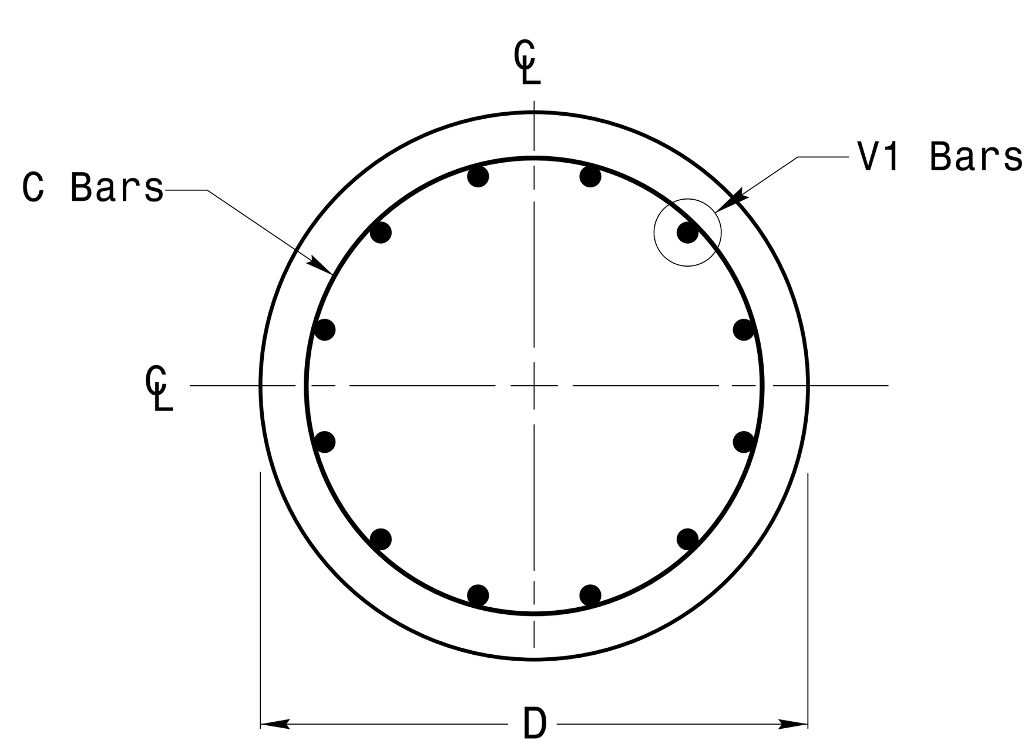
Typical Foundation Anchor Bolt Details

(Reinforcing Cage Not Shown for Clarity)

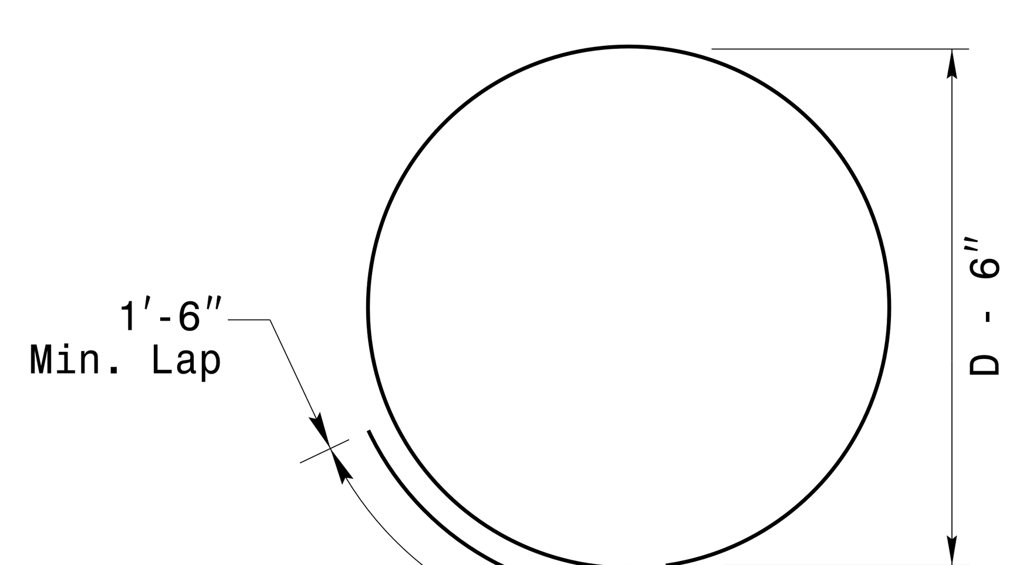
General Notes:

1. If actual subsurface conditions differ significantly from boring data contact the Engineer before excavating or placing concrete.
2. Circular tie reinforcing rings may be vertically adjusted by +/-3″ at a depth between 2′-0″ and 3′-0″ to facilitate the installation of electrical conduit entering in the cage.
3. For standard foundations, see sheet Sig. M8 for details. Vertical reinforcing bars (V1) may be horizontally adjusted by +/-3″ to facilitate the installation of electrical conduit entering into the cage.
4. Provide 2″ to 5″ foundation projection above ground level depending on the ground slope.
5. Unless otherwise shown, foundation designs are based on non-sloping level ground surfaces with slope ratios of 8:1 (H:V) or flatter. If actual ground line slopes are steeper contact the Engineer before excavating or placing concrete.
6. Construct foundations in accordance with NCDOT Standard Provisions SP09 R005- Foundations and Anchor Rod Assemblies for Metal Poles. All applicable 2018 NCDOT Standard Specifications are referenced in this provision. Refer to the NCDOT Resources/Specifications page located on the Connect NCDOT website.

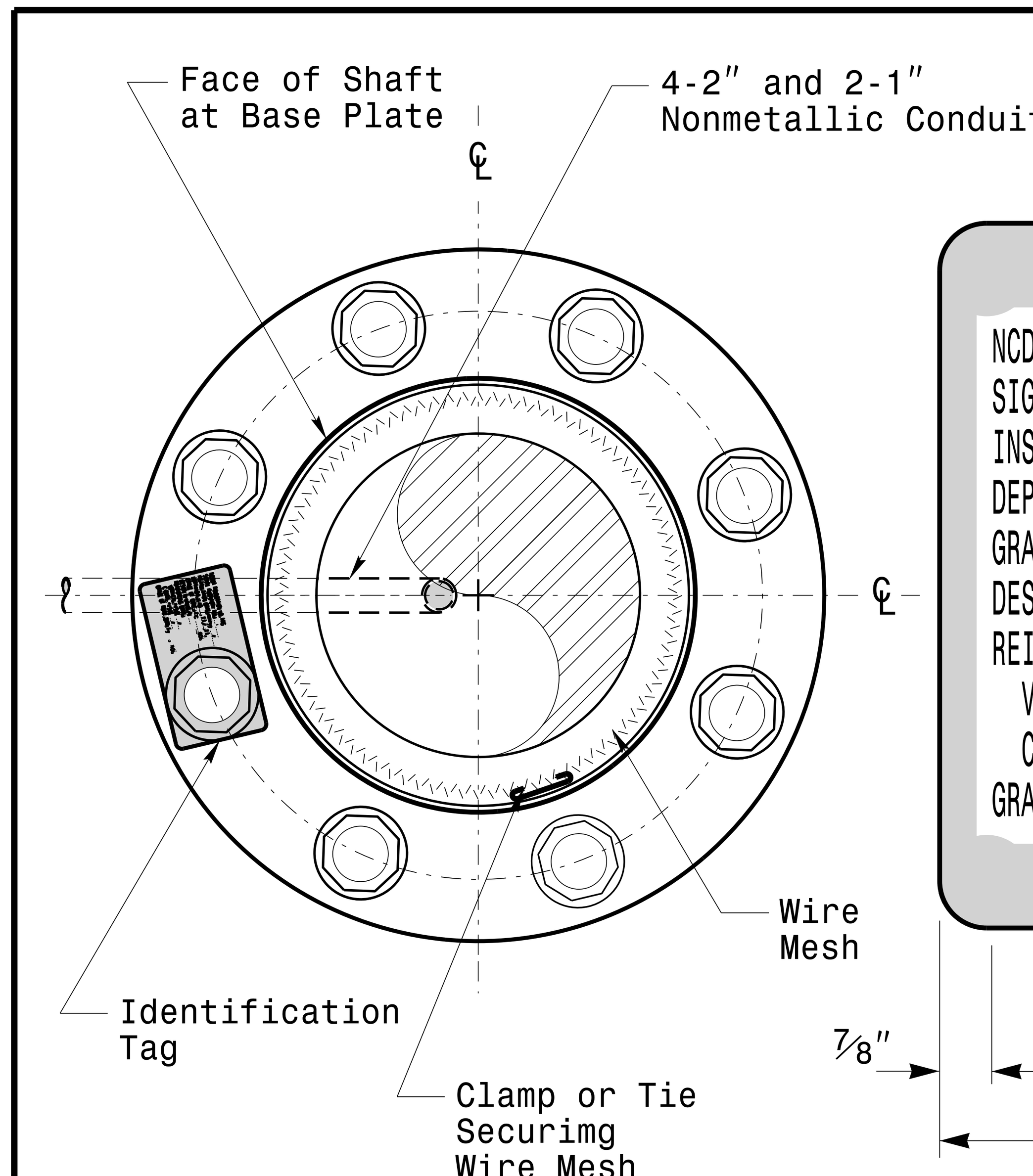
   https://connect.ncdot.gov/resources/Specifications and Special Provisions.aspx
7. Use air entrained AA concrete mix with a compression strength of f′c=4500 psi.(min.) after 28 days.
8. Use ASTM A615 grade 60 deformed bars for all reinforcing steel. Maintain at least 3″ cover on all reinforcement.
9. Locate the Identification Tag on the top of the base plate, directly above the conduit's entry point.
10. Provide two layers of galvanized welded 23 gauge (0.25) 6″ wide 4 mesh wire around pipes under the base plate and secure it with ties if necessary.
11. Preferred location for the I.D. Tag is as shown in Detail-A; directly above the conduit entering the foundation.



Section A-A

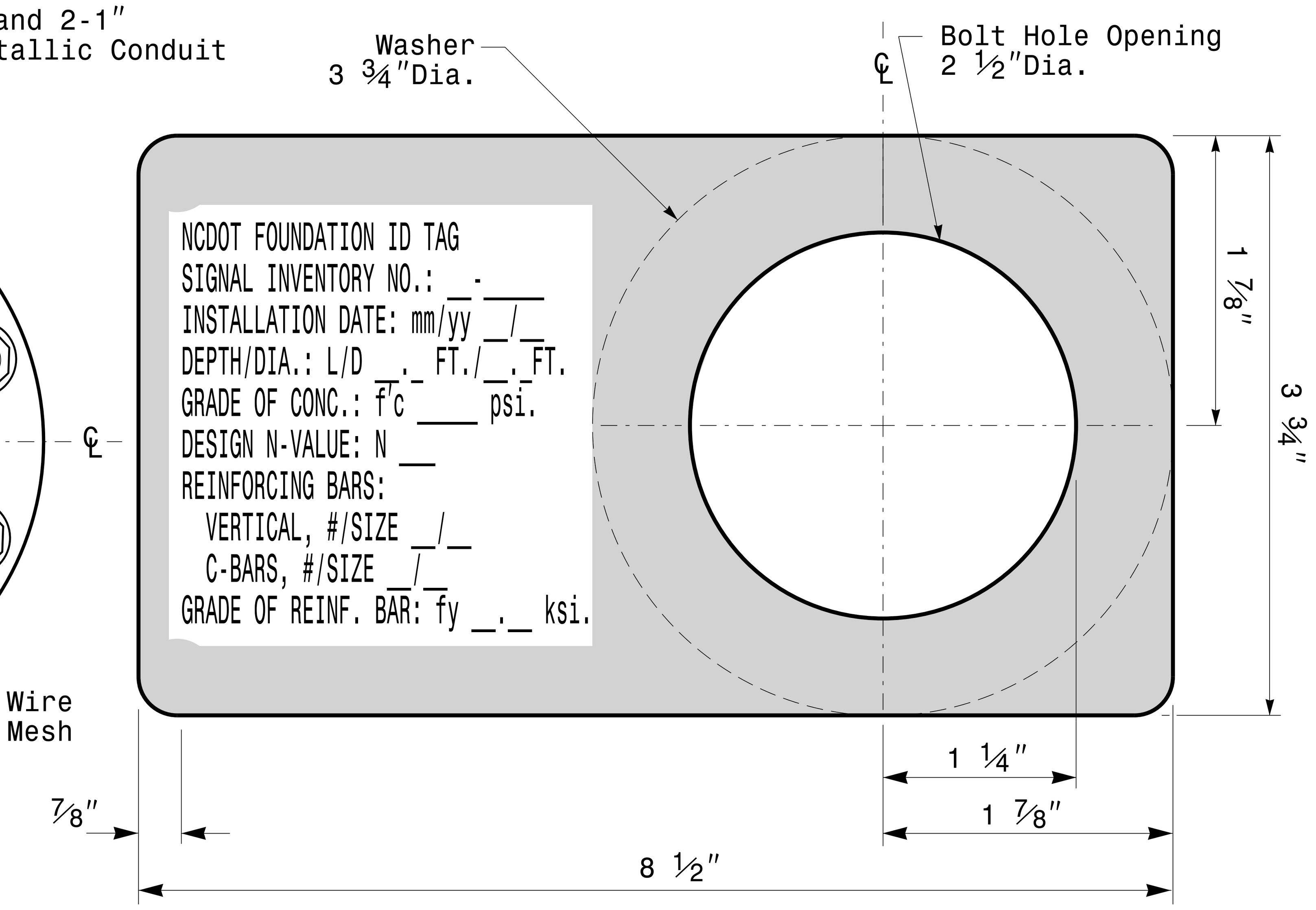


Typical "C" Bar Detail



D = Diameter
L = Length/Depth
mm = Month
yy = Year

Detail-A



Concrete Foundation Identification Tag Details

Construction Details – Foundations

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

Construction Details For Foundations

PLAN DATE:	OCTOBER 2018	DESIGNED BY:	C.B.COGDELL
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REV. NO.	COMMENTS	INIT.	DATE
1	Revised Foundation Tag Details	N.B.	5/11/2015

SCALE: 0 NA — NONE

SEAL: North Carolina Professional Engineer Seal 028094 Debesh C. Sarkar

DocuSigned by: Debesh C. Sarkar — SIGNATURE — 10/11/2017 DATE

SOIL CONDITION

		Case No.	Pole Height (Ft.)	Base Plate BC (In.)	Reactions at the Pole Base: Axial (kip)	Reactions at the Pole Base: Shear (kip)	Reactions at the Pole Base: Moment (ft-kip)	Clay: Medium N-Value 4–8	Clay: Stiff N-Value 9–15	Clay: Very Stiff N-Value 16–30	Clay: Hard N-Value >30	Sand: Loose N-Value 4–10	Sand: Medium N-Value 11–30	Sand: Dense N-Value >30	Reinforcement: Longitudinal Bar Size (#)	Reinforcement: Longitudinal Quantity (ea.)	Reinforcement: Stirrups Bar Size (#)	Reinforcement: Stirrups Spacing (in.)
		STANDARD STRAIN POLES						STANDARD FOUNDATIONS 48″ Diameter Drilled Pier Length (L) – Feet							Reinforcement			
					Reactions at the Pole Base			Clay				Sand			Longitudinal		Stirrups	
WIND ZONE 1	LIGHT	S26L3	26	25	2	11	270	19	13	10	8	17	14.5	12.5	8	12	4	12
		S30L3	30	25	2	11	300	19.5	13.5	10	8	17.5	15	13	8	14	4	12
		S35L3	35	25	3	11	320	20	13.5	10.5	8	17.5	15	13	8	14	4	12
	HEAVY	S30H3	30	29	3	16	450	24.5	16	12	9	21	17.5	15	8	16	4	6
		S35H3	35	29	4	16	515	26	17	12.5	9.5	22	18.5	16	8	16	4	6
WIND ZONE 2	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
		S30L2	30	23	2	10	270	18.5	12.5	10	8	16.5	14	12.5	8	12	4	12
		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6
WIND ZONE 3	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
		S30L2	30	23	2	10	270	18.5	12.5	10	8	16.5	14	12.5	8	12	4	12
		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6
WIND ZONE 4	LIGHT	S26L1	26	22	2	8	190	16	11.5	8.5	8	15	12.5	11	8	12	4	12
		S30L1	30	22	2	8	205	16.5	11.5	9	8	15	13	11.5	8	12	4	12
		S35L1	35	22	3	8	230	17	12	9	8	15.5	13.5	11.5	8	12	4	12
	HEAVY	S30H1	30	25	3	12	320	20.5	13.5	10.5	8	18	15	13.5	8	16	4	6
		S35H1	35	25	4	12	350	21	14	10.5	8.5	18.5	15.5	13.5	8	16	4	6
WIND ZONE 5	LIGHT	S26L2	26	23	2	10	245	18	12.5	9.5	8	16.5	14	12	8	12	4	12
		S30L2	30	23	2	10	270	18.5	12.5	10	8	16.5	14	12.5	8	12	4	12
		S35L2	35	23	3	10	300	19.5	13	10	8	17	14.5	13	8	12	4	12
	HEAVY	S30H2	30	29	3	15	415	23	15.5	11.5	9	20	17	14.5	8	16	4	6
		S35H2	35	29	4	15	475	25	16.5	12	9.5	21	17.5	15.5	8	16	4	6

48″ Dia. Foundations Concrete Volume (cubic yards) = (0.465) x Drilled Pier Length

General Notes:

1. Values shown in the "Reactions at the Pole Base" column represent the minimum acceptable capacity allowed for design using a design CSR of 1.00.
2. Use chairs and spacers to maintain proper clearance.
3. For foundation, always use air-entrain concrete mix.

Foundation Selection:

1. Perform a standard penetration test at each proposed foundation site to determine "N" value.
2. Select the appropriate wind zone from M 1 drawing.
3. Select the soil type (Clay or Sand) that best describes the soil characteristics.
4. Get the appropriate standard pole case number from the plans or from the Engineer.
5. Select the appropriate column under "Standard Foundations" based on soil type and "N" value. Select the appropriate row based on the pole load case.
6. The foundation depth is the value shown in the "Standard Foundations" category where the column and the row intersect.
7. Use Construction Procedures and Design Methods prescribed by FHWA-NHI-10-016 for Reference Drilled Shafts.

PROJECT ID. NO.

SHEET NO. Sig.M8

Standard Strain Pole Foundation–All Soil Condition

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

SCALE 0 NA NONE

Standard Strain Pole Foundation for All Soil Conditions

PLAN DATE: OCTOBER 2017 | DESIGNED BY: C.B. COGDELL
PREPARED BY: N. BITTING | REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE
Changed "Foundation Depth" to "Drilled Pier Length"in Conc. Eqn.	N.B.	7/12/2015

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

DocuSigned by: Debesh C. Sarkar
SIGNATURE

10/11/2017
DATE

11-OCT-2017 08:40
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rtaylor

PROJECT REFERENCE NO.	SHEET NO.
U-5738	SCP 1

1	INSTALL REA, PE – 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
2	INSTALL COAX CABLE
3	INSTALL ETHERNET CABLE
4	INSTALL SMFO CABLE
5	EXISTING SMFO CABLE
6	INSTALL FIBER OPTIC DROP CABLE
7	INSTALL TRACER WIRE
8	TRENCH
9	INSTALL PVC CONDUIT
10	INSTALL RIGID, GALVANIZED STEEL CONDUIT
11	INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
12	INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
13	INSTALL OUTER–DUCT POLYETHYLENE CONDUIT
14	INSTALL POLYETHYLENE CONDUIT
15	DIRECTIONAL DRILL CONDUIT
16	BORE AND JACK CONDUIT
17	INSTALL CABLE(S) IN EXISTING CONDUIT
18	INSTALL CABLE(S) IN NEW CONDUIT
19	INSTALL CABLE(S) IN EXISTING RISER WITH HEAT SHRINK RETROFIT KIT
20	INSTALL CABLE(S) IN NEW RISER
21	INSTALL CABLE(S) IN EXISTING CONDUIT STUB–OUTS
22	INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB–OUTS WHEN AVAILABLE)
23	INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB–OUTS WHEN AVAILABLE)
24	INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
25	INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
26	MODIFY EXISTING INTERCONNECT CENTER /SPLICE ENCLOSURE
27	INSTALL NEW FIBER OPTIC TRANSCEIVER
28	INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPLICE CABLE IN CABINET
29	INSTALL UNDERGROUND SPLICE ENCLOSURE
30	INSTALL AERIAL SPLICE ENCLOSURE
31	INSTALL POLE MOUNTED SPLICE CABINET
32	INSTALL BASE MOUNTED SPLICE CABINET
33	REMOVE EXISTING SPLICE CABINET
34	INSTALL CABINET FOUNDATION
35	INSTALL CCTV CAMERA POLE MOUNTED CABINET
36	INSTALL CCTV CAMERA ASSEMBLY
37	INSTALL CCTV CAMERA WOOD POLE
38	INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
39	INSTALL JUNCTION BOX
40A	INSTALL OVERSIZED JUNCTION BOX
40B	INSTALL SPECIAL OVERSIZED JUNCTION BOX (36" x 24" x 24")
41	REMOVE EXISTING JUNCTION BOX /DELINEATOR MARKER
42	INSTALL WOOD POLE
43	REMOVE EXISTING WOOD POLE
44	INSTALL AERIAL GUY ASSEMBLY
45	INSTALL STANDARD GUY ASSEMBLY
46	INSTALL SIDEWALK GUY ASSEMBLY
47	INSTALL MESSENGER CABLE
48A	REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
48B	REMOVE EXISTING COMMUNICATIONS CABLE
49	BACK PULL EXISTING COMMUNICATIONS CABLE
50	INSTALL TELEPHONE SERVICE
51	INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
52A	INSTALL DELINEATOR MARKER
52B	INSTALL JUNCTION BOX MARKER
53A	STORE 20 FEET OF COMMUNICATIONS CABLE
53B	STORE 50 FEET OF EACH COMMUNICATIONS CABLE
54	LASH CABLE(S) TO EXISTING COMMUNICATIONS CABLE
55	LASH CABLE(S) TO EXISTING MESSENGER CABLE
56	LASH CABLE(S) TO NEW MESSENGER CABLE
57	MODIFY EXISTING ELECTRICAL SERVICE
58	INSTALL NEW ELECTRICAL SERVICE
59	INSTALL NEW ETHERNET EDGE SWITCH
60	BOND TRACER WIRE TO EQUIPMENT GROUND BUS
61	DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUS
62	BOND RISER AND MESSENGER CABLE TO POLE GROUND
63	BOND RISER TO POLE GROUND
64	BOND MESSENGER CABLE TO POLE GROUND
65	INSTALL HEAT SHRINK TUBING RETROFIT KIT
66	INSTALL MOLDABLE DUCT SEAL
67	SLACK SPAN

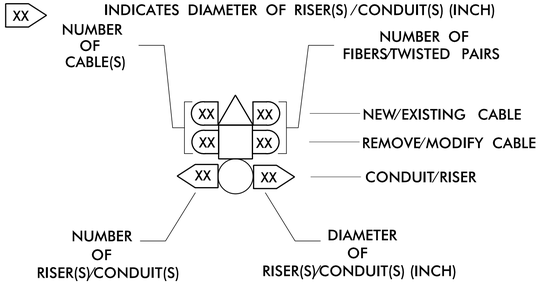
LEGEND

— FO —	NEW FIBER OPTIC COMMUNICATIONS CABLE
— EXI —	EXISTING COMMUNICATIONS CABLE
— REM —	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
—	NEW AERIAL GUY ASSEMBLY
▬ · ▬ · ▬	NEW CONDUIT
▬ ▬ ▬ ▬	EXISTING CONDUIT
— DD —	NEW DIRECTIONAL DRILLED CONDUIT

□	NEW JUNCTION BOX	⊳⊲	NEW CABLE STORAGE RACKS (SNOW SHOES)
■	EXISTING JUNCTION BOX	▶◀	EXISTING CABLE STORAGE RACK (SNOW SHOE)
○	NEW WOOD POLE	⊠	EXISTING CONTROLLER AND CABINET
●	EXISTING WOOD POLE	▶■	NEW CCTV CABINET
Ⓢ	AERIAL SPLICE ENCLOSURE	S	EXISTING SPLICE CABINET
Ⓢ	UNDERGROUND SPLICE ENCLOSURE	S	NEW SPLICE CABINET
◙	NEW METAL POLE	SP	SIGNAL POLE
◙	EXISTING METAL POLE		FLAT PANEL ANTENNA (SINGLE)
▷□	NEW CCTV ASSEMBLY		YAGI ANTENNA (DOUBLE) FOR REPEATER OPERATION
▶■	EXISTING CCTV ASSEMBLY		YAGI ANTENNA (SINGLE)
	NEW STANDARD GUY ASSEMBLY		OMNI ANTENNA
	NEW SIDEWALK GUY ASSEMBLY		
XX–XXXX	SIGNAL INVENTORY NUMBER		

CONSTRUCTION NOTE SYMBOLOGY KEY

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



ATTACHMENT POINT:

XX"/SS YYY	DISTANCE ABOVE (IN)/ATTACHMENT POINT REFERENCE POINT
YYY XX"/SS	REFERENCE POINT DISTANCE BELOW (IN)/ATTACHMENT POINT

"SS" REFERENCE LOCATION
FS = FRONT SIDE OF POLE
BS = BACK SIDE OF POLE

PREPARED IN THE OFFICE OF:

Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
Cary, NC 27511
Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

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

CONSTRUCTION NOTES

Division 9 Rowan County Salisbury

PLAN DATE:	November 2021	REVIEWED BY:	B. Phillips
PREPARED BY:	Z. "Gavin" Teng	REVIEWED BY:	

SCALE
0 N/A
N/A

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
SEAL 032179
ZHAOLONG TENG

DocuSigned by:
Zhaolong Teng
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SIGNATURE
12/3/2021
DATE

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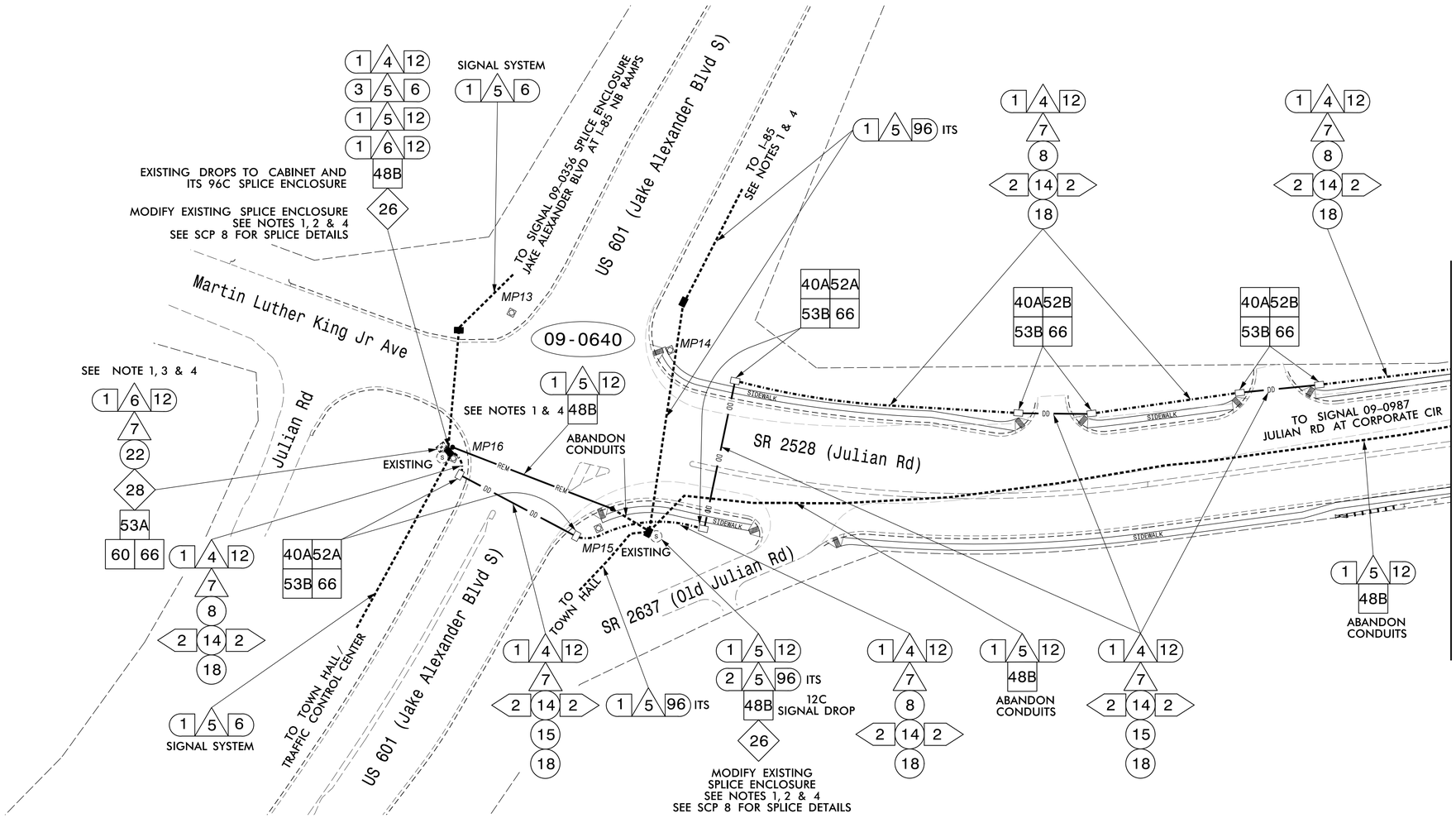

NOTES:

1. SIGNAL 09-0640 CURRENTLY INTERCONNECTS WITH SIGNAL 09-0991 VIA A 12C DROP CABLE AND THE GREEN BUFFER TUBE FIBERS OF THE 96C ITS FIBER OPTIC CABLE WHICH RUNS ALONG JAKE ALEXANDER BLVD AND KLUMAC RD / I-85. SEPARATELY VIA THE 6C SIGNAL SYSTEM FIBER OPTIC CABLE ALONG JAKE ALEXANDER BLVD, SIGNAL 09-0640 ALSO CONNECTS WITH SIGNAL 09-0356 AND THE TRAFFIC CONTROL CENTER / TOWN HALL. THE CONTRACTOR SHALL MAINTAIN THE EXISTING SIGNAL AND ITS SYSTEM COMMUNICATIONS UNTILL THE NEW FIBER OPTIC CABLES ARE INSTALLED AND READY FOR CUTOVER (SEE ICT).

2. THE EXISTING COMMUNICATIONS CABLE ROUTING AND SPLICE LOCATIONS SHALL BE FIELD VERIFIED. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.

3. REUSE EXISTING FIELD ETHERNET SWITCH.

4. AFTER THE PROPOSED FIBER OPTIC SIGNAL COMMUNICATIONS SYSTEM IS INSTALLED, DISCONNECT THE EXISTING COMMUNICATIONS CABLES INSIDE THE SIGNAL CABINETS AT SIGNALS 09-0640, 09-0991, 09-0992, 09-1212 AND PROMPTLY SWITCH TO THE NEW FIBERS. DISCONNECT AND REMOVE THE SIGNAL DROP CABLES FROM THE 96C ITS FIBERS FOR SIGNAL 09-0640 AND 09-0991. RESTORE THE ITS FIBERS IN THE GREEN BUFFER TUBE TO THEIR DEFAULT CONFIGURATION (BUTT SPLICING).

5. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336-747-7800, REGIONAL ITS ENGINEER AT 336-315-7080, AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704-638-5200 TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS AND ITS FIBER OPTIC CABLES. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER, REGIONAL ITS ENGINEER AND THE CITY'S TRAFFIC ENGINEERING COORDINATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND THE ITS SYSTEM ARE BOTH BACK UP AND OPERATIONAL (SEE ICT).

PREPARED IN THE OFFICE OF:

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NC License No. P-1442

ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE
0 50
1" = 50'

Signal Communications Plan

Division 9 Rowan County Salisbury

PLAN DATE: November 2021	REVIEWED BY: B. Phillips
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
SEAL 032179
ZHAOLONG TENG

DocuSigned by:
Zhaolong Teng
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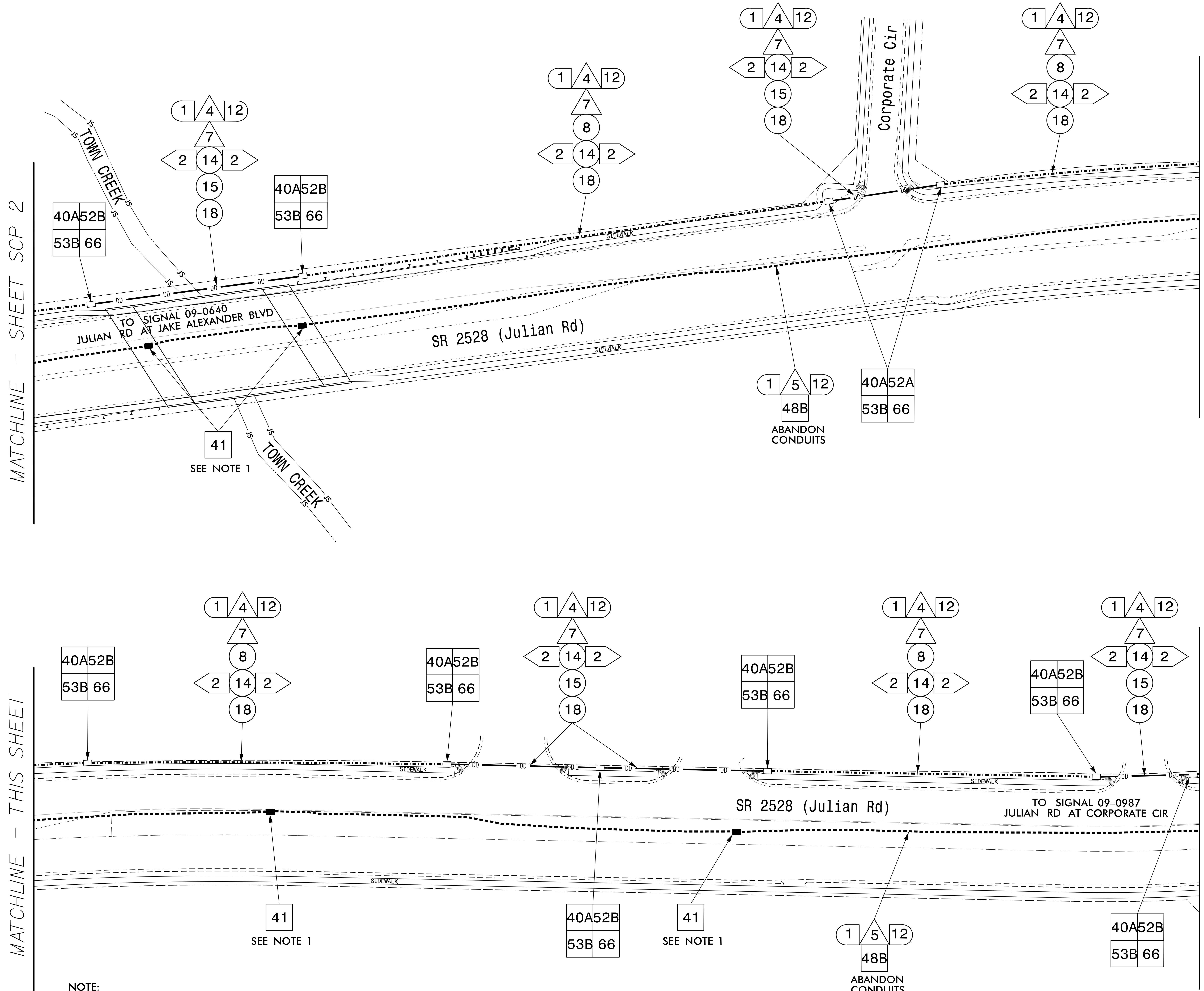
SIGNATURE 12/3/2021 DATE

CADD Filename:

PROJECT REFERENCE NO.	SHEET NO.
U-5738	SCP 3



NOTE:

1. REMOVE EXISTING JUNCTION BOXES AND BACKFILL WITH AN APPROVED MATERIAL.

PREPARED IN THE OFFICE OF:
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ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

Signal Communications Plan

Division 9 Rowan County Salisbury

PLAN DATE: November 2021 REVIEWED BY: B. Phillips
PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE 0 50
1" = 50'

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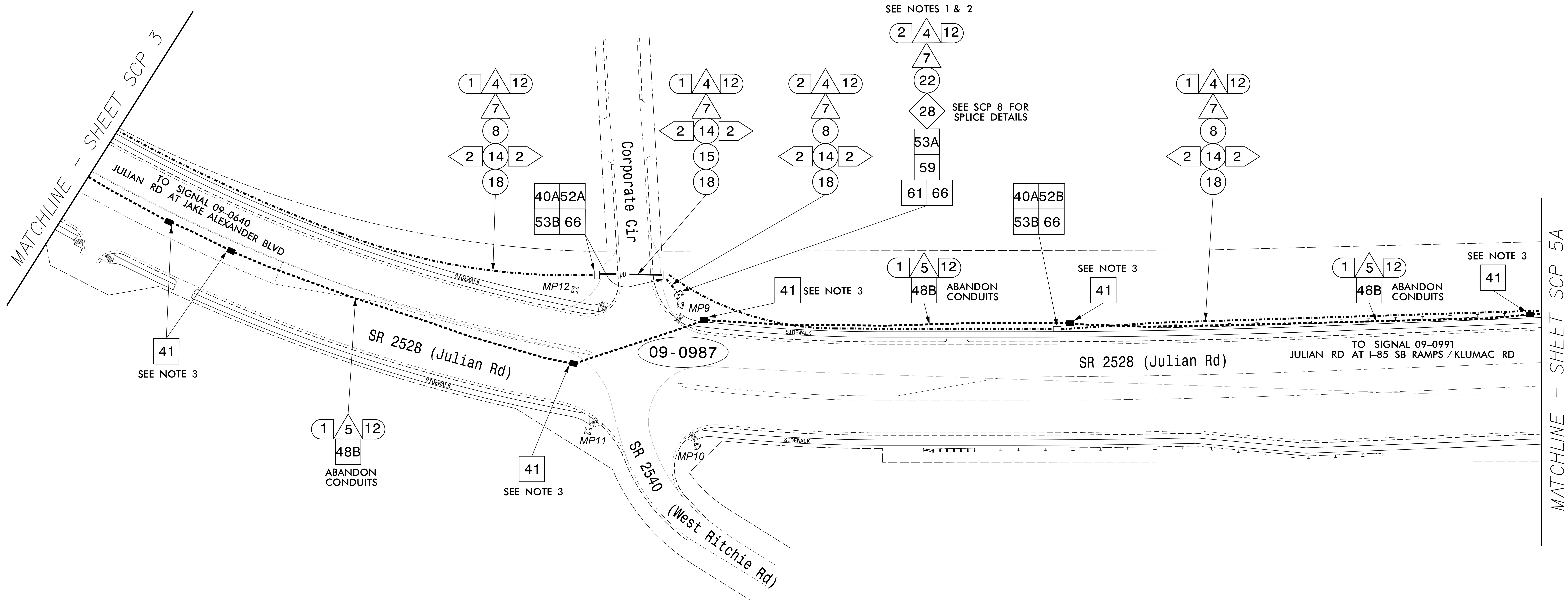
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 032179 ENGINEER ZHAOLONG TENG

12/3/2021
DATE

CADD Filename:

PROJECT REFERENCE NO.	SHEET NO.
U-5738	SCP 4



NOTES:

1. TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336-747-7800 AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704-638-5200 TO REQUEST ASSISTANCE IN PROGRAMMING THE NEW ETHERNET EDGE SWITCH WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION.

2. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336-747-7800, REGIONAL ITS ENGINEER AT 336-315-7080, AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704-638-5200 TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS AND ITS FIBER OPTIC CABLES. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER, REGIONAL ITS ENGINEER AND THE CITY'S TRAFFIC ENGINEERING COORDINATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND THE ITS SYSTEM ARE BOTH BACK UP AND OPERATIONAL (SEE ICT).

3. REMOVE EXISTING JUNCTION BOXES AND BACKFILL WITH AN APPROVED MATERIAL.

PREPARED IN THE OFFICE OF:
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Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 50 1" = 50'

Signal Communications Plan

Division 9 Rowan County Salisbury

PLAN DATE: November 2021 REVIEWED BY: B. Phillips

PREPARED BY: Z. "Gavin" Teng REVIEWED BY:

REVISIONS INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032179 ENGINEER ZHAOLONG TENG

12/3/2021

SIGNATURE DATE

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PROJECT REFERENCE NO.	SHEET NO.
U-5738	SCP 5A

SEE SCP 5B FOR PROJECT CONSTRUCTION NOTES REFERENCED ON THIS SHEET.

PREPARED IN THE OFFICE OF:

Accelerate Engineering, PLLC
875 Walnut Street, Suite 316
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Tel: 919.263.5678 Fax: 919.263.5687
NC License No. P-1442

750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 50 1" = 50'

Signal Communications Plan

Division 9 Rowan County Salisbury

PLAN DATE:	November 2021	REVIEWED BY:	B. Phillips
PREPARED BY:	Z. "Gavin" Teng	REVIEWED BY:	

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

SEAL 032179 ZHAOLONG TENG

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Zhaolong Teng
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SIGNATURE 12/3/2021 DATE

CADD Filename:

PROJECT REFERENCE NO.	SHEET NO.
U-5738	SCP 5B

PROJECT CONSTRUCTION NOTES FOR SHEET SCP 5A:

1. SIGNAL 09–0991 CURRENTLY INTERCONNECTS WITH SIGNAL 09–0640 VIA DROP CABLES (12C AND 6C) AND THE GREEN BUFFER TUBE FIBERS OF THE 96C ITS FIBER OPTIC CABLE WHICH RUNS ALONG KLUMAC RD / I–85 AND JAKE ALEXANDER BLVD.
   THE EXISTING DROP CABLES (12C AND 6C) FOR SIGNAL 09–0991 MAY BE SPLICED IN BOTH THE EXISTING AERIAL SPLICE ENCLOSURE AND THE EXISTING UNDERGROUND I–85 ITS FIBER SPLICE ENCLOSURE 14.
   THE EXISTING 12C FIBER CROSSING I–85 UNDERNEATH THE BRIDGE CONNECTS THE TWO I–85 RAMP SIGNALS 09–0991 AND 09–0992, AND ALSO SERVES AS A DROP CABLE FOR CCTV 6 FROM THE 96C I–85 ITS FIBER TRUNK LINE.
   THE CONTRACTOR SHALL MAINTAIN THE EXISTING SIGNAL AND ITS SYSTEM COMMUNICATIONS UNTILL THE NEW FIBER OPTIC CABLES ARE INSTALLED AND READY FOR CUTOVER (SEE ICT).

2. THIS PROJECT WILL SEPARATE THE SIGNAL COMMUNICATIONS SYSTEM FROM THE I–85 ITS COMMUNICATIONS SYSTEM BY INSTALLING SEPARATE ITS SPLICE ENCLOSURES AND DEDICATED COMMUNICATION CABLES.
   THE NEW SIGNAL SYSTEM AND ITS FIBERS SHALL BE INSTALLED IN SEPARATE CONDUITS.

3. REMOVE THE EXISTING JUNCTION BOXES AND INSTALL NEW OVERSIZED JUNCTION BOXES, JB 1 NEXT TO THE 09–0991 CONTROLLER AND JB 2 NEAR THE I–85 SB ON–RAMP.
   INSTALL A NEW 96C FIBER ITS CABLE FROM JB 1 TO JB 2 INSIDE THE NEW CONDUITS AS SHOWN.
   DISCONNECT THE EXISTING ITS FIBERS INSIDE THE EXISTING UNDERGROUND SPLICE ENCLOSURE (UGSE) 14 IN JB 1 AND CUT THE EXISTING ITS FIBERS IN JB 2.
   SPLICE THE NEW AND EXISTING ITS FIBERS INSIDE THE NEW REPLACEMENT UGSE 14 IN JB 1 ACCORDING TO THE SUPPLIED SPLICE DETAILS, AND
   BUTT SPLICE THE NEW AND EXISTING ITS FIBERS INSIDE A NEW SPLICE ENCLOSURE IN JB 2 TO RESTORE ORIGINAL FIBER CONNECTIONS.
   STORE SLACK ITS FIBER IN JB 1 AND JB 2. REMOVE THE EXISTING 96C ITS FIBERS BETWEEN JB 1 AND JB 2 AND ABANDON THE EXISTING CONDUITS.
   SEE NOTES 1, 6 AND 7 ON WORK NOTIFICATION AND SYSTEM OPERATIONS REQUIREMENTS.

4. THE EXISTING COMMUNICATIONS CABLE ROUTING AND SPLICE LOCATIONS SHALL BE FIELD VERIFIED. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS.
   IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS–BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.

5. REUSE EXISTING FIELD ETHERNET SWITCH.

6. AFTER THE PROPOSED FIBER OPTIC SIGNAL COMMUNICATIONS SYSTEM IS INSTALLED, DISCONNECT THE EXISTING COMMUNICATIONS CABLES INSIDE THE SIGNAL CABINETS AT SIGNALS 09–0640, 09–0991, 09–0992, 09–1212,
   DISCONNECT THE EXISTING CCTV 6 DROP CABLE INSIDE THE POLE MOUNTED EQUIPMENT CABINET AND THE EXISTING UGSE 14 INSIDE JB 1, AND PROMPTLY SWITCH TO THE NEW FIBERS.
   DISCONNECT THE SIGNAL DROP CABLES FROM THE 96C ITS FIBERS FOR SIGNAL 09–0640 AND 09–0991, AND RESTORE THE ITS FIBERS IN THE GREEN BUFFER TUBE TO THEIR DEFAULT CONFIGURATION (BUTT SPLICING).
   REMOVE THE EXISTING SIGNAL AND ITS COMMUNICATIONS CABLES AS SHOWN.

7. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336–747–7800, REGIONAL ITS ENGINEER AT 336–315–7080, AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704–638–5200
   TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS AND ITS FIBER OPTIC CABLES. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER, REGIONAL ITS ENGINEER AND THE CITY'S TRAFFIC ENGINEERING COORDINATOR
   AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND THE ITS SYSTEM ARE BOTH BACK UP AND OPERATIONAL (SEE ICT).

8. REMOVE EXISTING JUNCTION BOXES AND BACKFILL WITH AN APPROVED MATERIAL.

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

SCALE
0 NA
NA

Signal Communications Plan

Division 9 Rowan County Salisbury

PLAN DATE: November 2021	REVIEWED BY: B. Phillips		
PREPARED BY: Z. "Gavin" Teng	REVIEWED BY:		
REVISIONS		INIT.	DATE

DOCUMENT NOT CONSIDERED
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SIGNATURES COMPLETED

SEAL
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ZHAOLONG TENG

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12/3/2021
DATE

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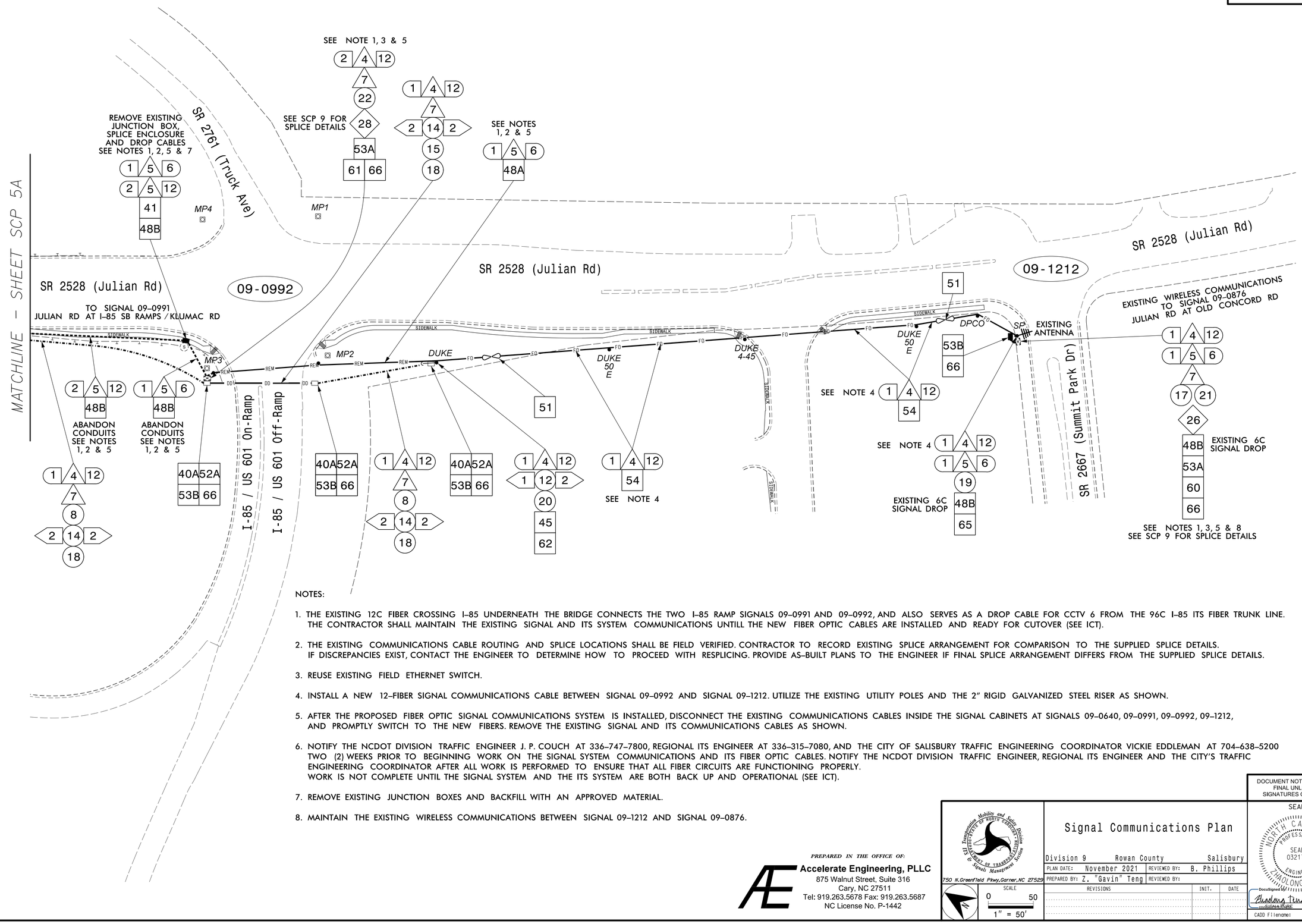

NOTES:

1. THE EXISTING 12C FIBER CROSSING I-85 UNDERNEATH THE BRIDGE CONNECTS THE TWO I-85 RAMP SIGNALS 09-0991 AND 09-0992, AND ALSO SERVES AS A DROP CABLE FOR CCTV 6 FROM THE 96C I-85 ITS FIBER TRUNK LINE. THE CONTRACTOR SHALL MAINTAIN THE EXISTING SIGNAL AND ITS SYSTEM COMMUNICATIONS UNTILL THE NEW FIBER OPTIC CABLES ARE INSTALLED AND READY FOR CUTOVER (SEE ICT).

2. THE EXISTING COMMUNICATIONS CABLE ROUTING AND SPLICE LOCATIONS SHALL BE FIELD VERIFIED. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.

3. REUSE EXISTING FIELD ETHERNET SWITCH.

4. INSTALL A NEW 12-FIBER SIGNAL COMMUNICATIONS CABLE BETWEEN SIGNAL 09-0992 AND SIGNAL 09-1212. UTILIZE THE EXISTING UTILITY POLES AND THE 2" RIGID GALVANIZED STEEL RISER AS SHOWN.

5. AFTER THE PROPOSED FIBER OPTIC SIGNAL COMMUNICATIONS SYSTEM IS INSTALLED, DISCONNECT THE EXISTING COMMUNICATIONS CABLES INSIDE THE SIGNAL CABINETS AT SIGNALS 09-0640, 09-0991, 09-0992, 09-1212, AND PROMPTLY SWITCH TO THE NEW FIBERS. REMOVE THE EXISTING SIGNAL AND ITS COMMUNICATIONS CABLES AS SHOWN.

6. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336-747-7800, REGIONAL ITS ENGINEER AT 336-315-7080, AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704-638-5200 TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS AND ITS FIBER OPTIC CABLES. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER, REGIONAL ITS ENGINEER AND THE CITY'S TRAFFIC ENGINEERING COORDINATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND THE ITS SYSTEM ARE BOTH BACK UP AND OPERATIONAL (SEE ICT).

7. REMOVE EXISTING JUNCTION BOXES AND BACKFILL WITH AN APPROVED MATERIAL.

8. MAINTAIN THE EXISTING WIRELESS COMMUNICATIONS BETWEEN SIGNAL 09-1212 AND SIGNAL 09-0876.

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750 N.Greenfield Pkwy,Garner,NC 27529

SCALE
0 50
1" = 50'

Signal Communications Plan

Division 9 Rowan County Salisbury

PLAN DATE: November 2021		REVIEWED BY: B. Phillips	
PREPARED BY: Z. "Gavin" Teng		REVIEWED BY:	

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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ZHAOLONG TENG

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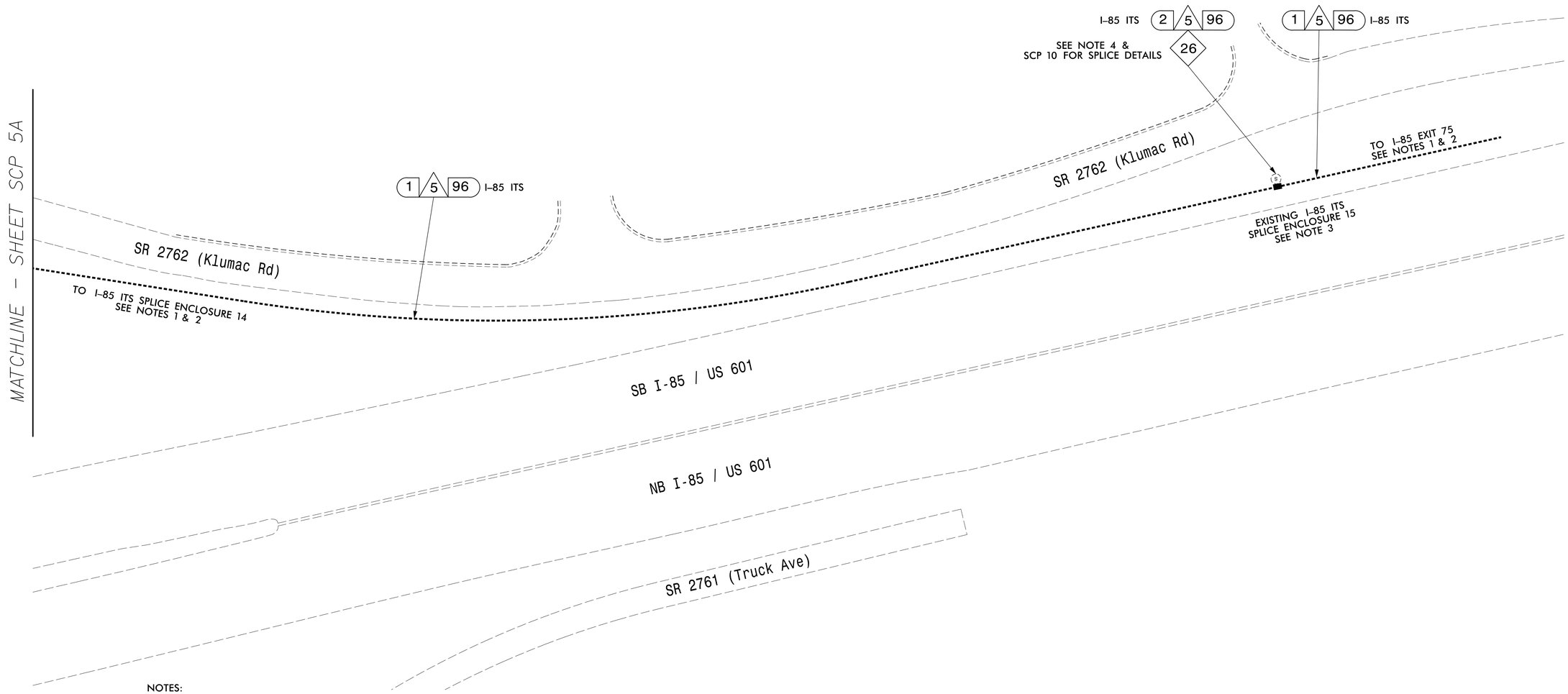
12/3/2021
DATE

CADD Filename:

PROJECT REFERENCE NO.	SHEET NO.
U-5738	SCP 7



NOTES:

1. SIGNAL 09-0991 CURRENTLY INTERCONNECTS WITH SIGNAL 09-0640 VIA DROP CABLES AND THE GREEN BUFFER TUBE FIBERS OF THE 96C ITS FIBER OPTIC CABLE WHICH RUNS ALONG KLUMAC RD / I-85 AND JAKE ALEXANDER BLVD. THE CONTRACTOR SHALL MAINTAIN THE EXISTING SIGNAL AND ITS SYSTEM COMMUNICATIONS UNTILL THE NEW FIBER OPTIC CABLES ARE INSTALLED AND READY FOR CUTOVER (SEE ICT).

2. THIS PROJECT WILL SEPARATE THE SIGNAL COMMUNICATIONS SYSTEM FROM THE I-85 ITS COMMUNICATIONS SYSTEM BY INSTALLING SEPARATE ITS SPLICE ENCLOSURES AND DEDICATED COMMUNICATION CABLES.

3. THE EXISTING COMMUNICATIONS CABLE ROUTING AND SPLICE LOCATIONS SHALL BE FIELD VERIFIED. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.

4. AFTER THE PROPOSED FIBER OPTIC SIGNAL COMMUNICATIONS SYSTEM IS INSTALLED, DISCONNECT THE EXISTING COMMUNICATIONS CABLES AND PROMPTLY SWITCH TO THE NEW FIBERS. FIELD LOCATE EXISTING SPLICE ENCLOSURE 15 FOR THE 96C I-85 ITS FIBER OPTIC CABLE. MODIFY SPLICES AS NEEDED TO RESTORE THE FIBERS IN THE GREEN AND BROWN BUFFER TUBES TO THEIR DEFAULT CONFIGURATION (MATCH LIKE COLORS).

5. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336-747-7800, REGIONAL ITS ENGINEER AT 336-315-7080, AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704-638-5200 TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS AND ITS FIBER OPTIC CABLES. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER, REGIONAL ITS ENGINEER AND THE CITY'S TRAFFIC ENGINEERING COORDINATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND THE ITS SYSTEM ARE BOTH BACK UP AND OPERATIONAL (SEE ICT).

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750 N.Greenfield Pkwy,Garner,NC 27529

SCALE
0 50
1" = 50'

Signal Communications Plan

Division 9 Rowan County Salisbury

PLAN DATE:	November 2021	REVIEWED BY:	B. Phillips
PREPARED BY:	Z. "Gavin" Teng	REVIEWED BY:	

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL

SEAL 032179
ZHAOLONG TENG

DocuSigned by:
Zhaolong Teng
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SIGNATURE

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DATE

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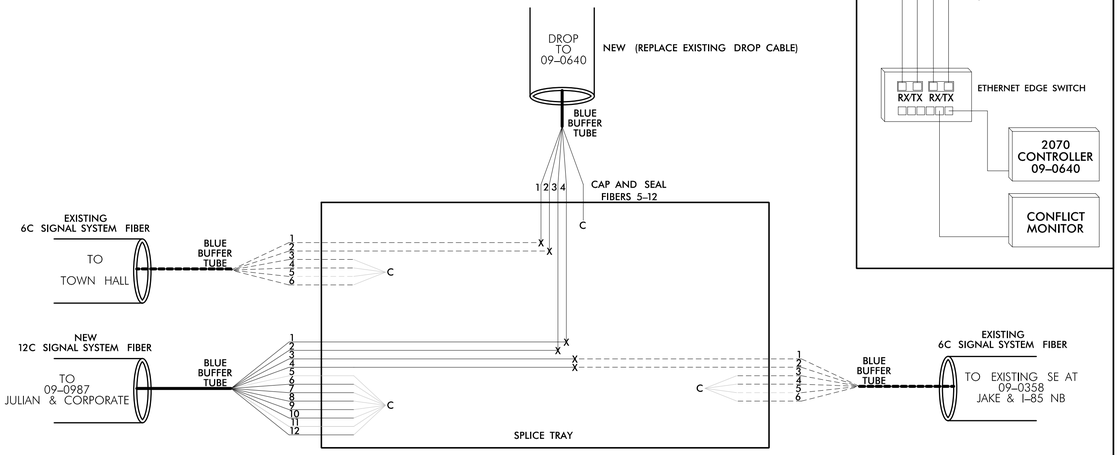

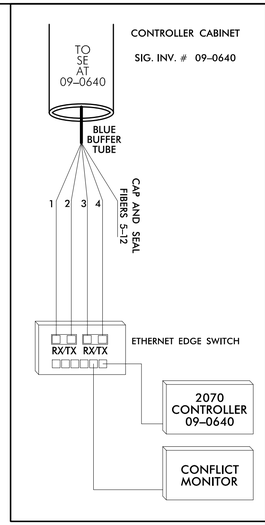

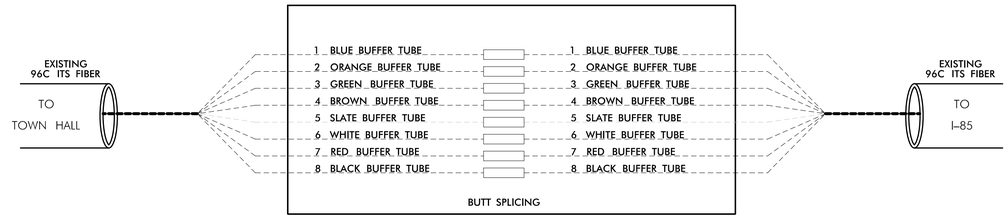

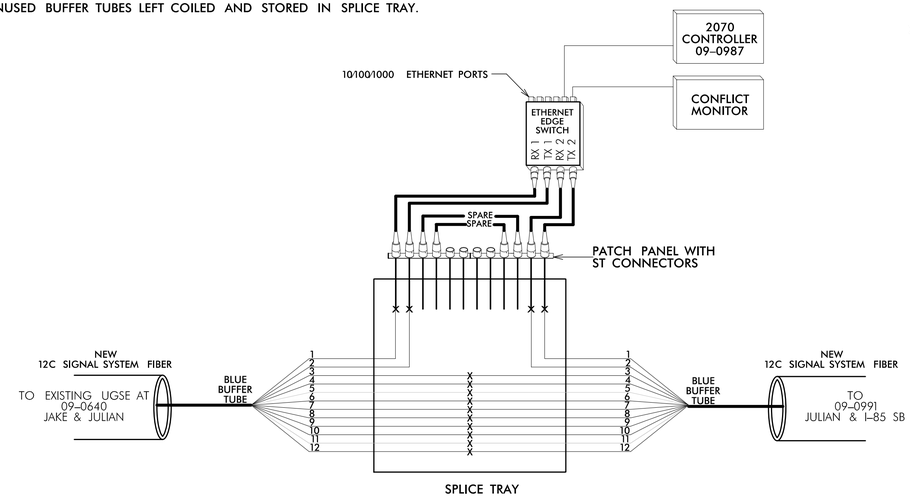

PROJECT REFERENCE NO.	SHEET NO.
U-5738	SCP 8

EXISTING UNDERGROUND SPLICE ENCLOSURE
US 601 (JAKE ALEXANDER BLVD S) AT
SR 2528 (JULIAN RD) AND
MARTIN LUTHER KING JR AVE
NW QUADRANT
SIG. INV. # 09–0640

NOTES:
UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.

COLOR CODE
TIA/EIA 598–A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND
X = FUSION SPLICE
C = CAP IN TRAY

EXISTING UNDERGROUND ITS SPLICE ENCLOSURE
US 601 (JAKE ALEXANDER BLVD S) AT
SR 2528 (JULIAN RD) AND
MARTIN LUTHER KING JR AVE
SW QUADRANT

COLOR CODE
TIA/EIA 598–A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND
▭ SPLICE THROUGH

NOTES:

DISCONNECT AND REMOVE THE EXISTING SIGNAL DROP CABLE FROM THE 96C ITS FIBERS AS SHOWN ON SHEET SCP 2. RESTORE THE ITS FIBERS IN THE GREEN BUFFER TUBE TO THEIR DEFAULT CONFIGURATION (BUTT SPLICING).

CONTROLLER CABINET
SR 2528 (JULIAN RD) AT
CORPORATE CIR AND
SR 2540 (W. RITCHIE RD)
SIG. INV. # 09–0987

NOTES:
UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.

COLOR CODE
TIA/EIA 598–A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND
X = FUSION SPLICE

NOTES:

1. THE CONTRACTOR SHALL MAINTAIN THE EXISTING SIGNAL AND ITS SYSTEM COMMUNICATIONS UNTIL THE NEW FIBER OPTIC CABLES ARE INSTALLED AND READY FOR CUTOVER (SEE ICT).

2. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336–747–7800, REGIONAL ITS ENGINEER AT 336–315–7080, AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704–638–5200 TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS AND ITS FIBER OPTIC CABLES. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER, REGIONAL ITS ENGINEER AND THE CITY'S TRAFFIC ENGINEERING COORDINATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY.
WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND THE ITS SYSTEM ARE BOTH BACK UP AND OPERATIONAL (SEE ICT).

3. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS–BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.

4. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING & ENSURING PROPER TERMINATIONS.

5. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
REFERENCE NCDOT 2018 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"

1) SPLICE LOCATION
2) DATE
3) COMPANY NAME
4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1–4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

PREPARED IN THE OFFICE OF:

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750 N.Greenfield Pkwy,Garner,NC 27529

SCALE
0 N/A
N/A

SPLICE DETAILS

Division 9 Rowan County Salisbury

PLAN DATE:	November 2021	REVIEWED BY:	B. Phillips
PREPARED BY:	Z. "Gavin" Teng	REVIEWED BY:	

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
SEAL 032179
ZHAOLONG TENG

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Zhaolong Teng
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12/3/2021
DATE

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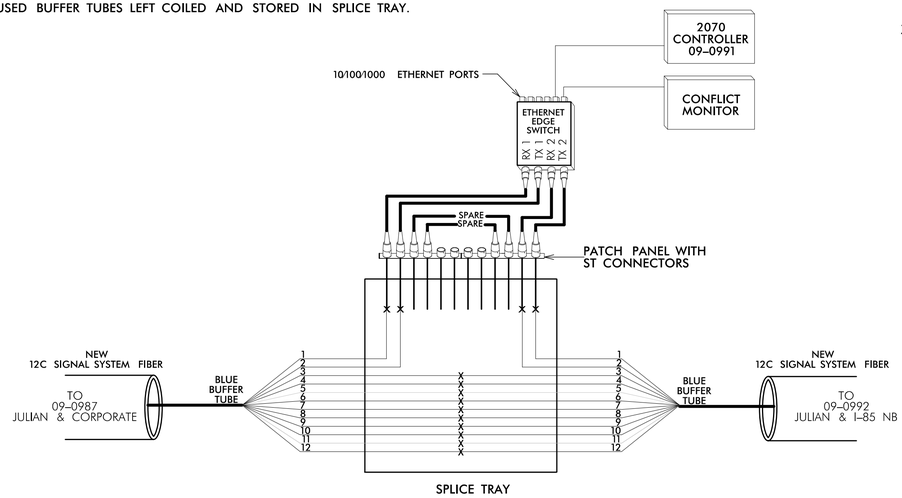
CONTROLLER CABINET
SR 2528 (JULIAN RD) AT
I-85 / US 601 SB RAMPS AND
SR 2762 (KLUMAC RD)
SIG. INV. # 09-0991

NOTES:
UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.

COLOR CODE
TIA/EIA 598-A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND
X = FUSION SPLICE



CONTROLLER CABINET
SR 2528 (JULIAN RD) AT
I-85 / US 601 NB RAMPS AND
SR 2761 (TRUCK AVE)
SIG. INV. # 09-0992

NOTES:
UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.

COLOR CODE
TIA/EIA 598-A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
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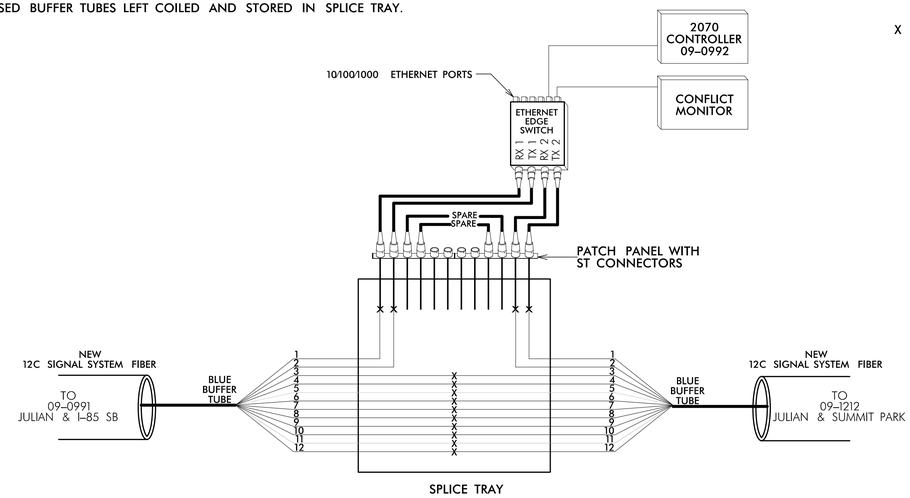
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND
X = FUSION SPLICE



CONTROLLER CABINET

SR 2528 (JULIAN RD) AT
SR 2667 (SUMMIT PARK DR)

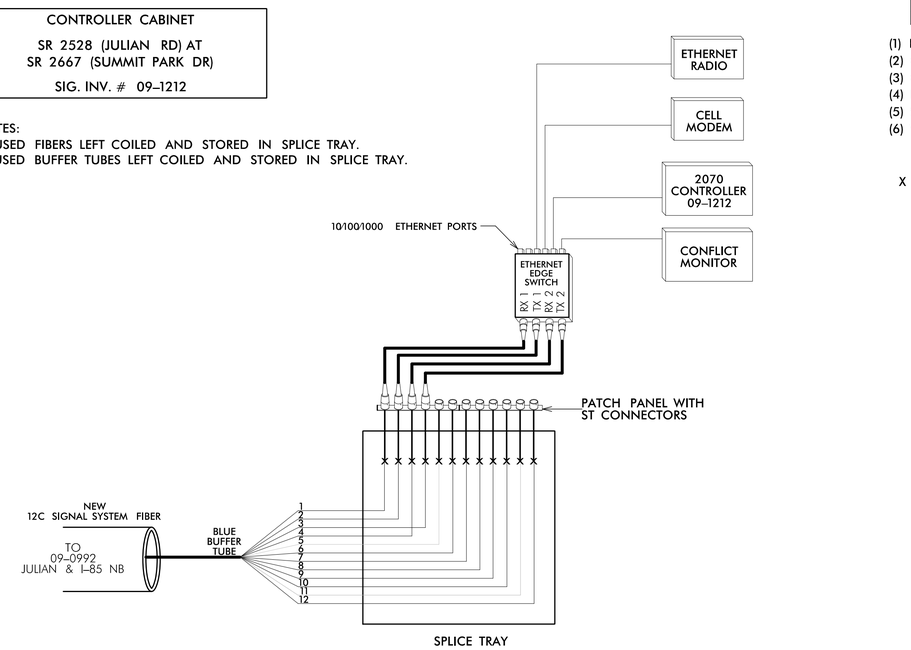
SIG. INV. # 09-1212

NOTES:
UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.

COLOR CODE
TIA/EIA 598-A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND
X = FUSION SPLICE



NOTES:

1. THE CONTRACTOR SHALL MAINTAIN THE EXISTING SIGNAL AND ITS SYSTEM COMMUNICATIONS UNTIL THE NEW FIBER OPTIC CABLES ARE INSTALLED AND READY FOR CUTOVER (SEE ICT).

2. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336-747-7800, REGIONAL ITS ENGINEER AT 336-315-7080, AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704-638-5200 TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS AND ITS FIBER OPTIC CABLES. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER, REGIONAL ITS ENGINEER AND THE CITY'S TRAFFIC ENGINEERING COORDINATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY.
WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND THE ITS SYSTEM ARE BOTH BACK UP AND OPERATIONAL (SEE ICT).

3. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS-BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.

4. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING & ENSURING PROPER TERMINATIONS.

5. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
REFERENCE NCDOT 2018 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"

   1) SPLICE LOCATION
   2) DATE
   3) COMPANY NAME
   4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

   PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

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ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SPLICE DETAILS

Division 9 Rowan County Salisbury

PLAN DATE:	November 2021	REVIEWED BY:	B. Phillips
PREPARED BY:	Z. "Gavin" Teng	REVIEWED BY:	

SCALE
0 N/A
N/A

REVISIONS	INIT.	DATE

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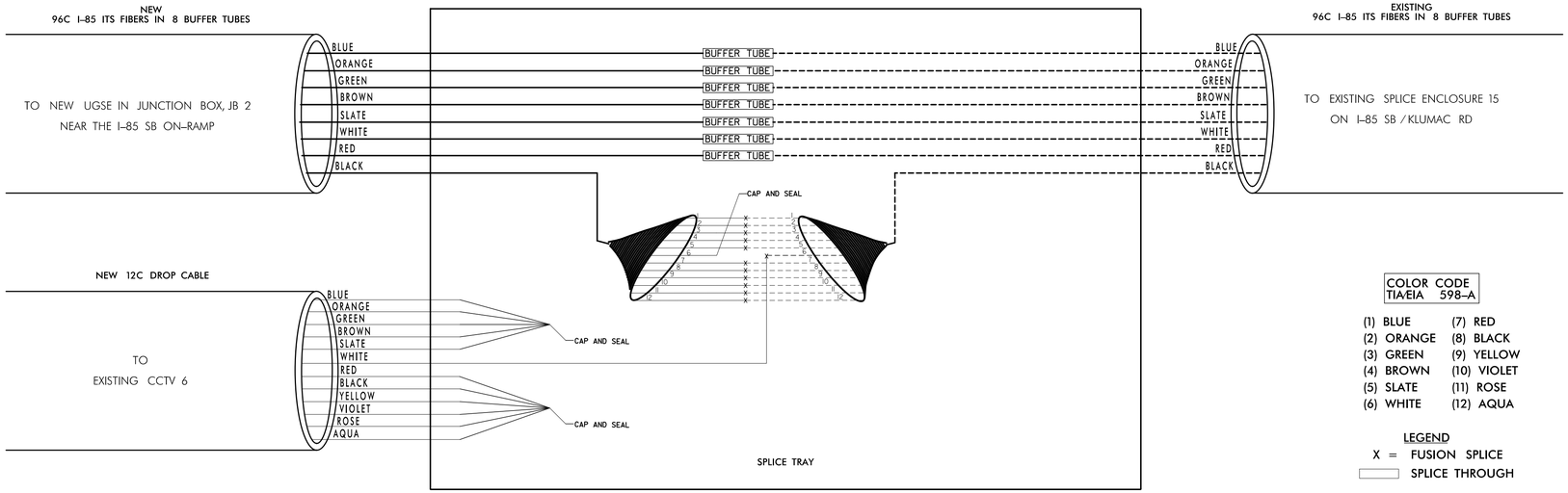

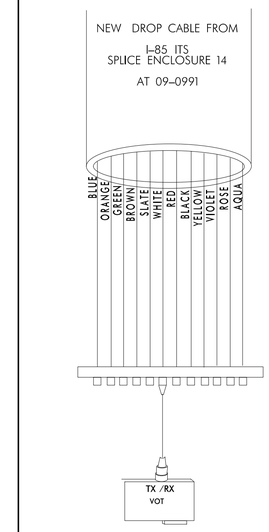

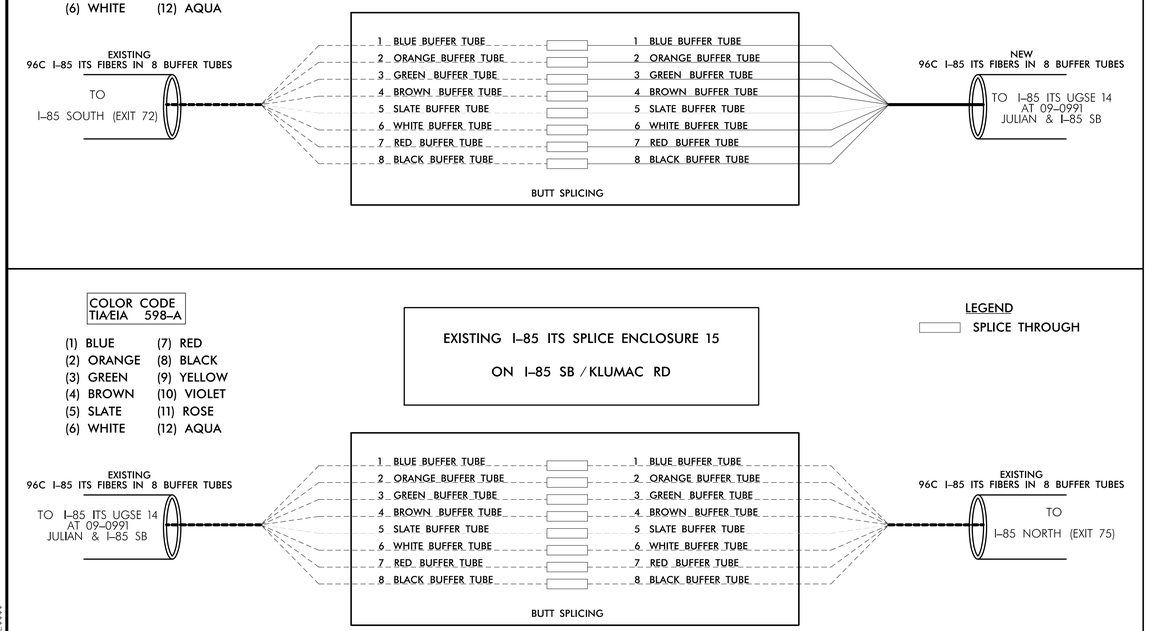

PROJECT REFERENCE NO.	SHEET NO.
U-5738	SCP 10

NEW (REPLACEMENT) I–85 ITS UNDERGROUND SPLICE ENCLOSURE 14
SR 2528 (JULIAN RD) AT
I–85 / US 601 SB RAMPS AND
SR 2762 (KLUMAC RD)
IN JUNCTION BOX, JB 1, NEAR 09–0991 CONTROLLER

COLOR CODE
TIA/EIA 598–A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND
X = FUSION SPLICE
▭ SPLICE THROUGH

CCTV 6

COLOR CODE
TIA/EIA 598–A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

NEW UNDERGROUND I–85 ITS SPLICE ENCLOSURE
SR 2528 (JULIAN RD) AT
I–85 / US 601 SB RAMPS AND
SR 2762 (KLUMAC RD)
IN JUNCTION BOX, JB 2, NEAR I–85 SB ON–RAMP

LEGEND
▭ SPLICE THROUGH

COLOR CODE
TIA/EIA 598–A

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

EXISTING I–85 ITS SPLICE ENCLOSURE 15

ON I–85 SB / KLUMAC RD

LEGEND
▭ SPLICE THROUGH

NOTES:

1. THE CONTRACTOR SHALL MAINTAIN THE EXISTING SIGNAL AND ITS SYSTEM COMMUNICATIONS UNTILL THE NEW FIBER OPTIC CABLES ARE INSTALLED AND READY FOR CUTOVER (SEE ICT).

2. REPLACE EXISTING SPLICE ENCLOSURE 14 AND COMMUNICATIONS CABLES AS SHOWN ON SCP 5A AND SCP 5B.

3. AFTER THE PROPOSED FIBER OPTIC SIGNAL COMMUNICATIONS SYSTEM IS INSTALLED AND ACTIVATED, FIELD LOCATE EXISTING SPLICE ENCLOSURE 15 FOR THE 96C I–85 ITS FIBER OPTIC CABLE. MODIFY SPLICES AS NEEDED TO RESTORE THE FIBERS IN THE GREEN AND BROWN BUFFER TUBES TO THE DEFAULT CONFIGURATION (MATCH LIKE COLORS).

4. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER J. P. COUCH AT 336–747–7800, REGIONAL ITS ENGINEER AT 336–315–7080, AND THE CITY OF SALISBURY TRAFFIC ENGINEERING COORDINATOR VICKIE EDDLEMAN AT 704–638–5200 TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM COMMUNICATIONS AND ITS FIBER OPTIC CABLES. NOTIFY THE NCDOT DIVISION TRAFFIC ENGINEER, REGIONAL ITS ENGINEER AND THE CITY'S TRAFFIC ENGINEERING COORDINATOR AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY.
   WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM AND THE ITS SYSTEM ARE BOTH BACK UP AND OPERATIONAL (SEE ICT).

5. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARISON TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS–BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.

6. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING AND ENSURING PROPER TERMINATIONS.

7. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
   REFERENCE NCDOT 2018 STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"

   1) SPLICE LOCATION
   2) DATE
   3) COMPANY NAME
   4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

   PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1–4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

8. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

PREPARED IN THE OFFICE OF:

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NC License No. P-1442

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

SCALE
0 N/A
N/A

SPLICE DETAILS

Division 9 Rowan County Salisbury

PLAN DATE:	November 2021	REVIEWED BY:	B. Phillips
PREPARED BY:	Z. "Gavin" Teng	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL
SEAL 032179
ZHAOLONG TENG

DocuSigned by:
Zhaolong Teng
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SIGNATURE 12/3/2021
DATE

CADD Filename:

$$$$SYSTIME$$$$
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$$$$USERNAME$$$$