

- 1 INSTALL 3-WIRE COPPER FEEDER CONDUCTORS
- 2 INSTALL ETHERNET CABLE
- 3 EXISTING ETHERNET (OR COAX) CABLE
- 4 INSTALL SMFO CABLE
- 5 EXISTING SMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE ASSEMBLY
- 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
- 13A INSTALL HEAT SHRINK TUBING RETROFIT KIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO POLE MOUNTED CABINET
- 26 INSTALL NEW ETHERNET EDGE SWITCH
- 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 MODIFY EXISTING INTERCONNECT CENTER /SPLICE ENCLOSURE
- 32 INSTALL POLE MOUNTED SPLICE CABINET
- 33 INSTALL BASE MOUNTED 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 STANDARD (ELECTRICAL) JUNCTION BOX
- 40A INSTALL OVERSIZED JUNCTION BOX
- 40B INSTALL SPECIAL OVERSIZED JUNCTION BOX (36" x 24" x 24")
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48A REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 48B REMOVE EXISTING COMMUNICATIONS CABLE
- 49 BACK PULL EXISTING COMMUNICATIONS CABLE
- 50 INSTALL CELL MODEM AND ANTENNA
- 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 EQUIPMENT CABINET DISCONNECT
- 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
- 68 REMOVE TEMPORARY YAGI ANTENNA
- 69 ABANDON EXISTING CONDUIT

LEGEND

	NEW FIBER OPTIC COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
	NEW AERIAL GUY ASSEMBLY
	NEW CONDUIT
	EXISTING CONDUIT
	NEW DIRECTIONAL DRILLED CONDUIT

NEW		EXISTING
	OVERSIZED JUNCTION BOX	
	WOOD POLE	
	AERIAL SPLICE ENCLOSURE	
	UNDERGROUND SPLICE ENCLOSURE	
	METAL POLE	
	CCTV ASSEMBLY	
	STANDARD GUY ASSEMBLY	
	SIDEWALK GUY ASSEMBLY	
	CABLE STORAGE RACKS (SNOW SHOES)	
	SIGNAL/EQUIPMENT CABINET	
	SPLICE CABINET	
	FLAT PANEL ANTENNA (SINGLE)	
	YAGI ANTENNA (DOUBLE) FOR REPEATER OPERATION	
	YAGI ANTENNA (SINGLE)	
	OMNI ANTENNA	
	SIGNAL POLE	
	SIGNAL INVENTORY NUMBER	

ATTACHMENT POINT:

DISTANCE ABOVE (IN)/ATTACHMENT POINT REFERENCE POINT

REFERENCE POINT DISTANCE BELOW (IN)/ATTACHMENT POINT

"SS" REFERENCE LOCATION

FS = FRONT SIDE OF POLE
BS = BACK SIDE OF POLE

CONSTRUCTION NOTE SYMBOLOGY KEY

INDICATES NUMBER OF CABLES, LOOPS, ETC.

INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.

INDICATES NUMBER OF RISER(S)/CONDUIT(S)

INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)

NUMBER OF CABLE(S) — NUMBER OF FIBERS/TWISTED PAIRS

— NEW/EXISTING CABLE

— REMOVE/MODIFY CABLE

— CONDUIT/RISER

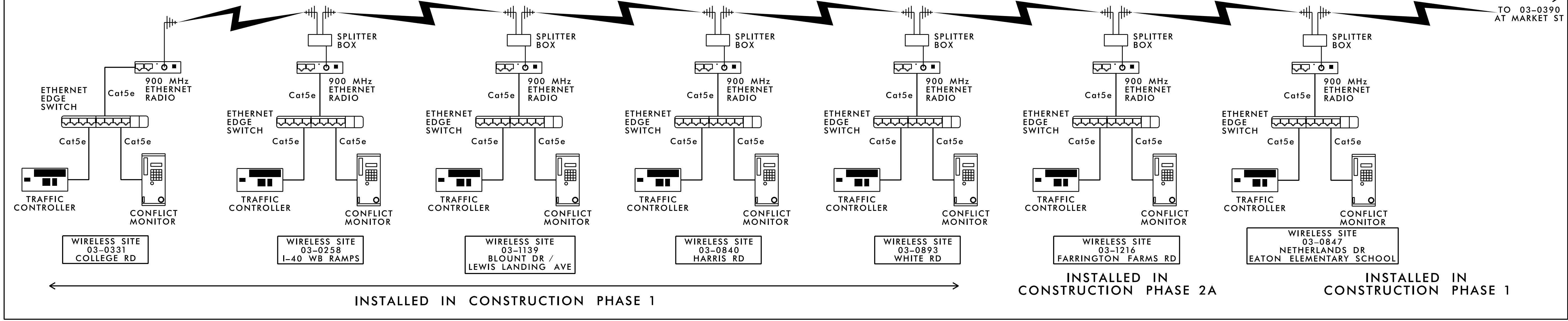
NUMBER OF RISER(S)/CONDUIT(S) — DIAMETER OF RISER(S)/CONDUIT(S) (INCH)

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Raleigh, North Carolina 27609
NC License No: C-1554
(919) 546-8997

 Plans Prepared for: 250 N. Greenfield Place, Garner, NC 27529	LEGEND AND CONSTRUCTION NOTES		SEAL J. ASHA R. SIMMONS ENGINEER SEAL 031464
	Division 3 New Hanover County Wilmington PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons	REVISIONS INIT. DATE	

WIRELESS BLOCK DIAGRAM
TEMPORARY COMMUNICATIONS

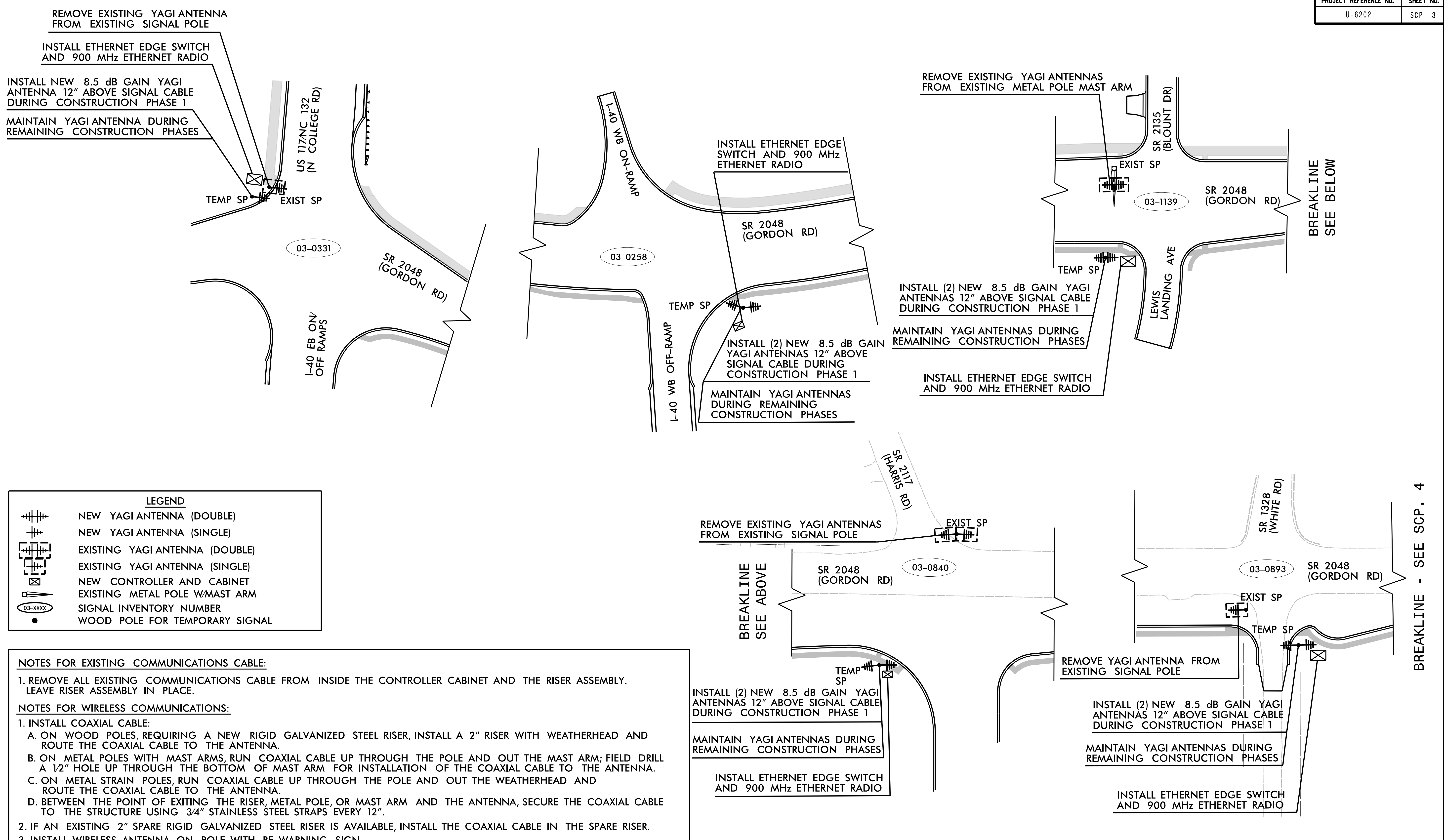


Temp Phases 1 and 2A

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	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington		
Plans Prepared for:	PLAN DATE: July 2023	REVIEWED BY: J.A. Wagner	DocuSigned by: Natasha R. Simmons 5/17/2024 PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons
250 N. Greenfield Place, Garner, NC 27529	SCALE: N/A	REVISIONS:	
CADD File name: U6202_SCP-02.dgn			SEAL NORTH CAROLINA PROFESSIONAL ENGINEER NATASHA R. SIMMONS



LEGEND

- NEW YAGI ANTENNA (DOUBLE)
- NEW YAGI ANTENNA (SINGLE)
- EXISTING YAGI ANTENNA (DOUBLE)
- EXISTING YAGI ANTENNA (SINGLE)
- NEW CONTROLLER AND CABINET
- EXISTING METAL POLE W/MAST ARM
- SIGNAL INVENTORY NUMBER
- WOOD POLE FOR TEMPORARY SIGNAL

- NOTES FOR EXISTING COMMUNICATIONS CABLE:**
- REMOVE ALL EXISTING COMMUNICATIONS CABLE FROM INSIDE THE CONTROLLER CABINET AND THE RISER ASSEMBLY. LEAVE RISER ASSEMBLY IN PLACE.
- NOTES FOR WIRELESS COMMUNICATIONS:**
- INSTALL COAXIAL CABLE:
 - ON WOOD POLES, REQUIRING A NEW RIGID GALVANIZED STEEL RISER, INSTALL A 2" RISER WITH WEATHERHEAD AND ROUTE THE COAXIAL CABLE TO THE ANTENNA.
 - ON METAL POLES WITH MAST ARMS, RUN COAXIAL CABLE UP THROUGH THE POLE AND OUT THE MAST ARM; FIELD DRILL A 1/2" HOLE UP THROUGH THE BOTTOM OF MAST ARM FOR INSTALLATION OF THE COAXIAL CABLE TO THE ANTENNA.
 - ON METAL STRAIN POLES, RUN COAXIAL CABLE UP THROUGH THE POLE AND OUT THE WEATHERHEAD AND ROUTE THE COAXIAL CABLE TO THE ANTENNA.
 - BETWEEN THE POINT OF EXITING THE RISER, METAL POLE, OR MAST ARM AND THE ANTENNA, SECURE THE COAXIAL CABLE TO THE STRUCTURE USING 3/4" STAINLESS STEEL STRAPS EVERY 12".
 - IF AN EXISTING 2" SPARE RIGID GALVANIZED STEEL RISER IS AVAILABLE, INSTALL THE COAXIAL CABLE IN THE SPARE RISER.
 - INSTALL WIRELESS ANTENNA ON POLE WITH RF WARNING SIGN. (NOTE: RF WARNING SIGN NOT REQUIRED WHEN ANTENNA IS INSTALLED ON AN NCDOT-OWNED POLE.)
 - MAINTAIN PROPER CLEARANCE FROM ALL UTILITIES PER THE NATIONAL ELECTRICAL SAFETY CODE.
 - REFERENCE "WIRELESS RADIO ANTENNA TYPICAL DETAILS" IN THE 2024 NCDOT ROADWAY STANDARD DRAWINGS.
 - RETURN EXISTING WIRELESS RADIO EQUIPMENT TO THE NCDOT DIVISION 3 SIGNAL SHOP. THE DIVISION 3 OFFICE CAN BE REACHED AT (910) 341-2200.
 - TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF WILMINGTON SIGNAL SYSTEMS MANAGEMENT ENGINEER AT (910) 341-4676 TO ARRANGE FOR THE CITY TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SIGNAL SYSTEMS MANAGEMENT ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND FUNCTIONAL.

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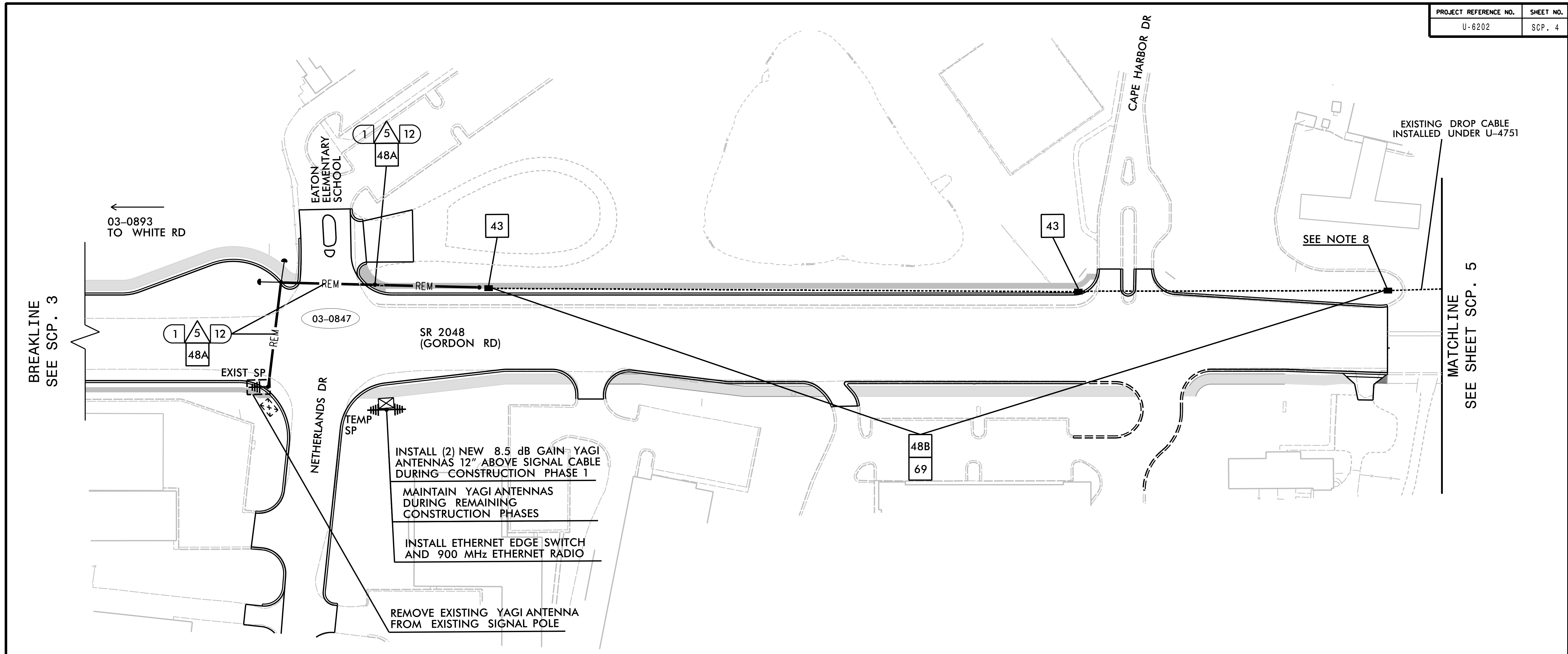
Temp Phase 1

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS								
	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023		REVIEWED BY: J.A. Wagner					
250 N. Greenfield Place, Garner, NC 27529	SCALE: N/A	PREPARED BY: G.D. Berry	REVIEWED BY: N.R. Simmons						
<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		REVISIONS	INIT.	DATE				DocuSigned by: Natasha R. Simmons 5/17/2024 PREPARED SIGNATURE DATE CADD Filename: U6202_SCP-03.dgn	
REVISIONS	INIT.	DATE							

BREAKLINE - SEE SCP. 4

BREAKLINE SEE BELOW



- NOTES FOR EXISTING COMMUNICATIONS CABLE:**
- REMOVE THE EXISTING COMMUNICATIONS CABLE TO 03-0847 (NETHERLANDS DR) FROM THE SPLICE ENCLOSURE AND RISER AT THE SIGNAL CABINET AT 03-0390. MAINTAIN THE AERIAL EXISTING COMMUNICATIONS CABLE ALONG WITH THE MESSENGER CABLE BETWEEN 03-0390 AND THE LAST POLE FOR FUTURE LASHING PURPOSES ONLY. UTILIZE WIRELESS COMMUNICATIONS UNTIL THE FINAL FIBER INSTALLATION. MAINTAIN THE CONNECTIONS TO 03-0390 AND THE CCTV.
- NOTES FOR WIRELESS COMMUNICATIONS:**
- INSTALL COAXIAL CABLE:
 - ON WOOD POLES, REQUIRING A NEW RIGID GALVANIZED STEEL RISER, INSTALL A 2" RISER WITH WEATHERHEAD AND ROUTE THE COAXIAL CABLE TO THE ANTENNA.
 - ON METAL POLES WITH MAST ARMS, RUN COAXIAL CABLE UP THROUGH THE POLE AND OUT THE MAST ARM; FIELD DRILL A 1/2" HOLE UP THROUGH THE BOTTOM OF MAST ARM FOR INSTALLATION OF THE COAXIAL CABLE TO THE ANTENNA.
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 - INSTALL WIRELESS ANTENNA ON POLE WITH RF WARNING SIGN. (NOTE: RF WARNING SIGN NOT REQUIRED WHEN ANTENNA IS INSTALLED ON AN NCDOT-OWNED POLE.)
 - MAINTAIN PROPER CLEARANCE FROM ALL UTILITIES PER THE NATIONAL ELECTRICAL SAFETY CODE.
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 - CUT EXISTING 12-FIBER AT THE EXISTING JUNCTION BOX. ENSURE 50' STORAGE REMAINS. REMOVE EXISTING 12-FIBER CABLE AND JUNCTION BOXES WEST OF THIS JUNCTION BOX. FILL HOLES WITH APPROVED MATERIAL. ABANDON EXISTING CONDUITS.

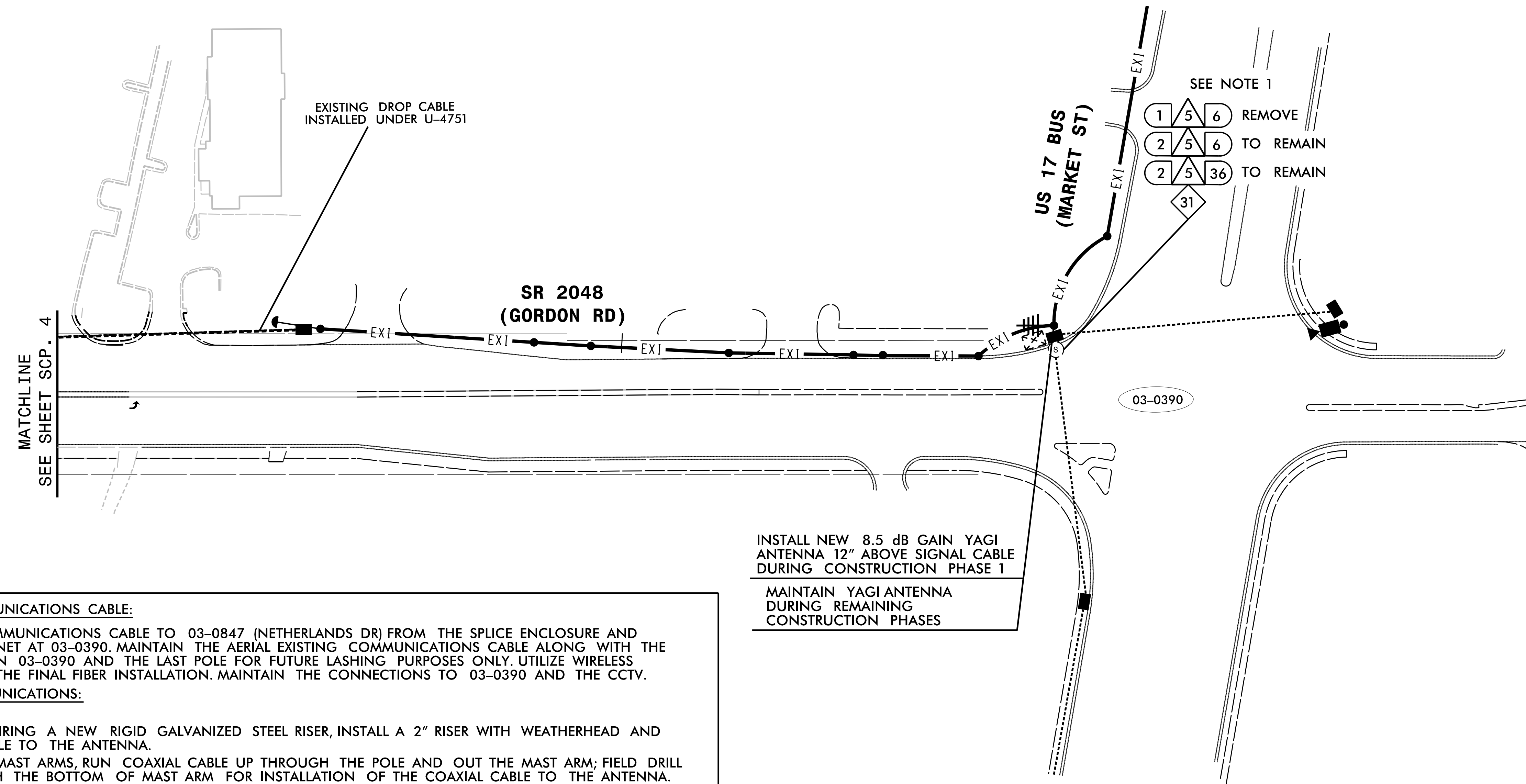
LEGEND	
	NEW YAGI ANTENNA (DOUBLE)
	NEW YAGI ANTENNA (SINGLE)
	EXISTING YAGI ANTENNA (DOUBLE)
	EXISTING YAGI ANTENNA (SINGLE)
	NEW CONTROLLER AND CABINET
	EXISTING METAL POLE W/MAST ARM
	SIGNAL INVENTORY NUMBER
	WOOD POLE FOR TEMPORARY SIGNAL

Temp Phase 1

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	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington		
PLAN DATE: July 2023 PREPARED BY: G.D. Berry	REVIEWED BY: J.A. Wagner REVIEWED BY: N.R. Simmons	DocuSigned by: Natasha R. Simmons 5/17/2024 PREPARED BY: SIGNATURE DATE CADD File name: U6202 SCP-04.dgn	

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- NOTES FOR EXISTING COMMUNICATIONS CABLE:**
- REMOVE THE EXISTING COMMUNICATIONS CABLE TO 03-0847 (NETHERLANDS DR) FROM THE SPLICE ENCLOSURE AND RISER AT THE SIGNAL CABINET AT 03-0390. MAINTAIN THE AERIAL EXISTING COMMUNICATIONS CABLE ALONG WITH THE MESSENGER CABLE BETWEEN 03-0390 AND THE LAST POLE FOR FUTURE LASHING PURPOSES ONLY. UTILIZE WIRELESS COMMUNICATIONS UNTIL THE FINAL FIBER INSTALLATION. MAINTAIN THE CONNECTIONS TO 03-0390 AND THE CCTV.
- NOTES FOR WIRELESS COMMUNICATIONS:**
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 - MAINTAIN PROPER CLEARANCE FROM ALL UTILITIES PER THE NATIONAL ELECTRICAL SAFETY CODE.
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INSTALL NEW 8.5 dB GAIN YAGI ANTENNA 12" ABOVE SIGNAL CABLE DURING CONSTRUCTION PHASE 1

MAINTAIN YAGI ANTENNA DURING REMAINING CONSTRUCTION PHASES

Temp Phase 1

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	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023	
PREPARED BY: G.D. Berry	REVIEWED BY: N.R. Simmons	REVISIONS	INIT. DATE
SCALE: N/A	SIGNATURE: <i>Natasha R. Simmons</i>	DATE: 5/17/2024	DATE

CADD Filename: U6202_SCP-05.dgn

03-0390
SR 2048 (GORDON RD)
AT
US 17 BUS (MARKET ST)

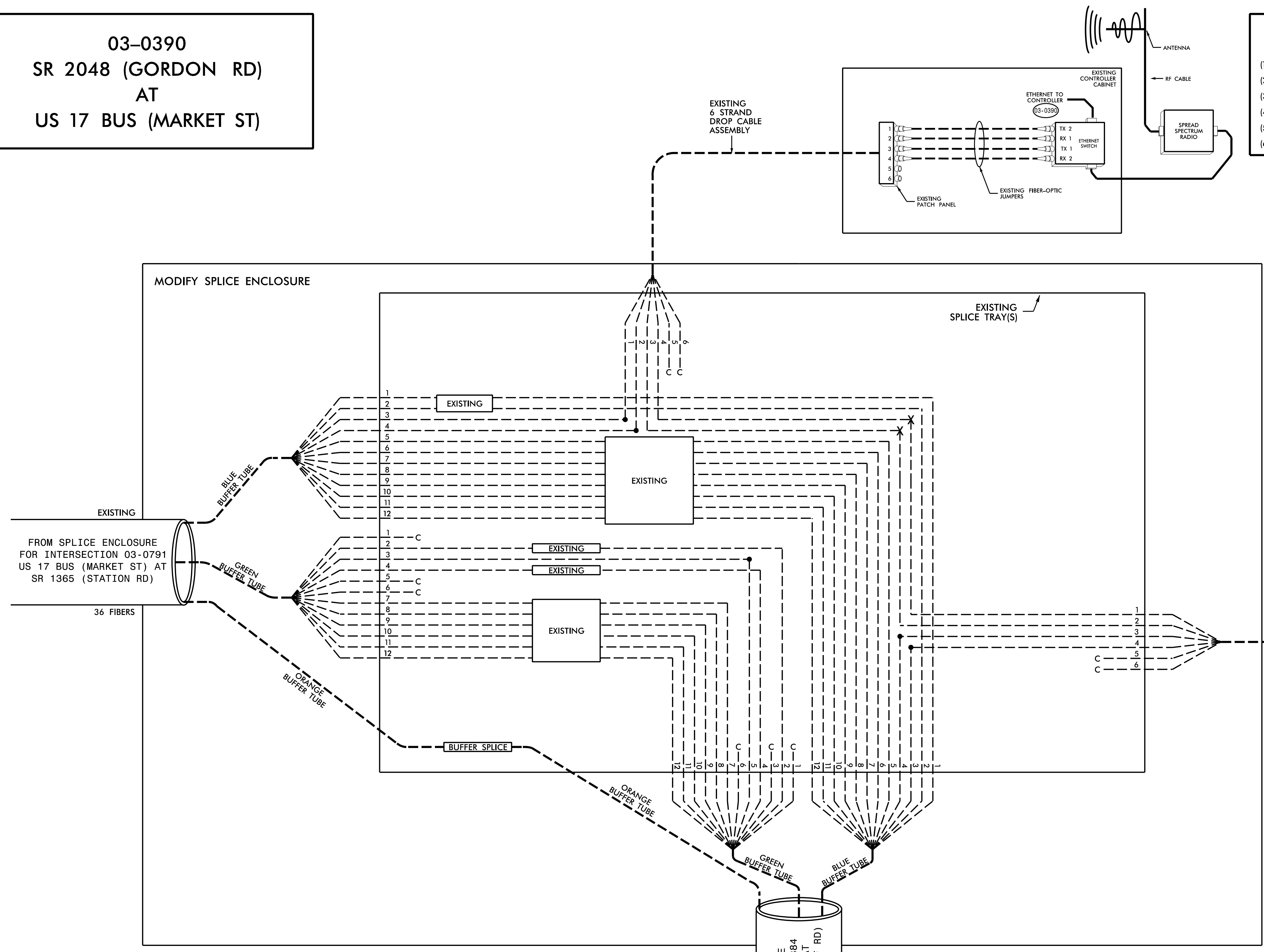
COLOR CODE TIA/EIA 598-C

(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 = NEW FUSION SPlice INDIVIDUAL FIBER
 ● = EXISTING FUSION SPlice
 C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE THROUGH WITHOUT CUTTING
BUFFER SPlice = SPlice ALL FIBERS IN BUFFER TUBE COLOR TO COLOR



NOTES:

1. UNUSED FIBERS LEFT COILED AND STORED IN SPlice TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPlice TRAY.
3. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
4. INCLUDE ON THE COVER OF EACH SPlice TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPlice ENCLOSURE"

- (1) SPlice
- (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.

EXISTING
FROM SPlice ENCLOSURE FOR INTERSECTION 03-0884 SR 2048 (GORDON RD) AT SR 1409 (MILITARY CUTOFF RD)
36 FIBERS

Temp Phase 1

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Plans Prepared for:
 CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS

Division 3 New Hanover County Wilmington

PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner
 PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons

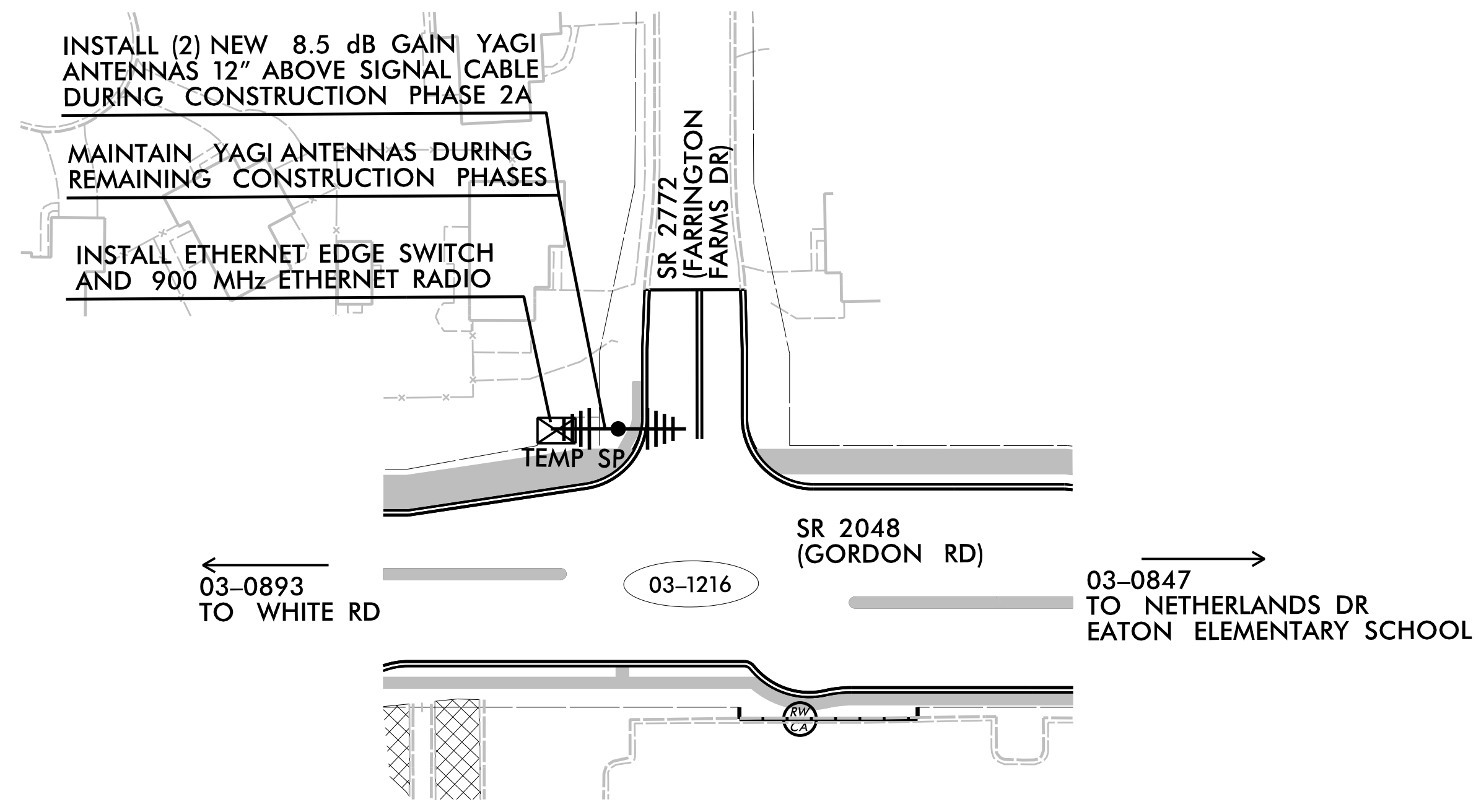
SCALE: N/A

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 SEAL 031464
 NATASHA R. SIMMONS
 5/17/2024

DocuSigned by:
 Natasha R. Simmons
 PREPARED BY: NATASHA R. SIMMONS
 SIGNATURE DATE

CADD File name: U6202_SCP-06.dgn

LEGEND	
	NEW YAGI ANTENNA (DOUBLE)
	NEW YAGI ANTENNA (SINGLE)
	EXISTING YAGI ANTENNA (DOUBLE)
	EXISTING YAGI ANTENNA (SINGLE)
	NEW CONTROLLER AND CABINET
	EXISTING METAL POLE W/MAST ARM
	SIGNAL INVENTORY NUMBER
	WOOD POLE FOR TEMPORARY SIGNAL



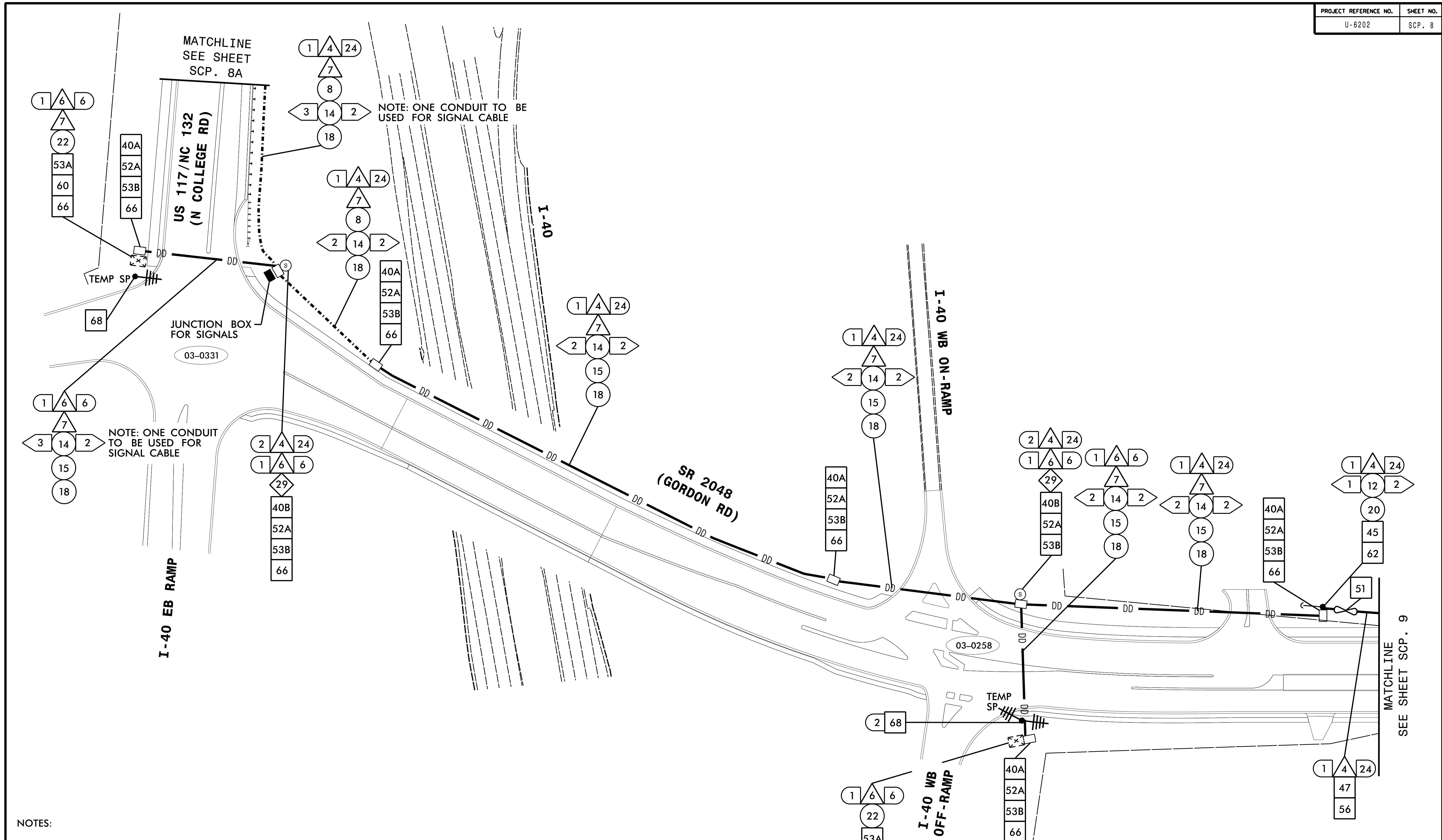
NOTES FOR WIRELESS COMMUNICATIONS:

- INSTALL COAXIAL CABLE:
 - ON WOOD POLES, REQUIRING A NEW RIGID GALVANIZED STEEL RISER, INSTALL A 2" RISER WITH WEATHERHEAD AND ROUTE THE COAXIAL CABLE TO THE ANTENNA.
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Temp Phase 2A

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Plans Prepared for: CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS	Division 3 New Hanover County Wilmington PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons								
250 N. Greenfield Place - Garner, NC 27529 SCALE N/A	 SEAL NORTH CAROLINA PROFESSIONAL ENGINEER 031464 NATASHA R. SIMMONS								
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DocuSigned by: Natasha R. Simmons 5/17/2024 PREPARED BY: SIGNATURE DATE CADD File name: U6202_SCP-07.dgn									



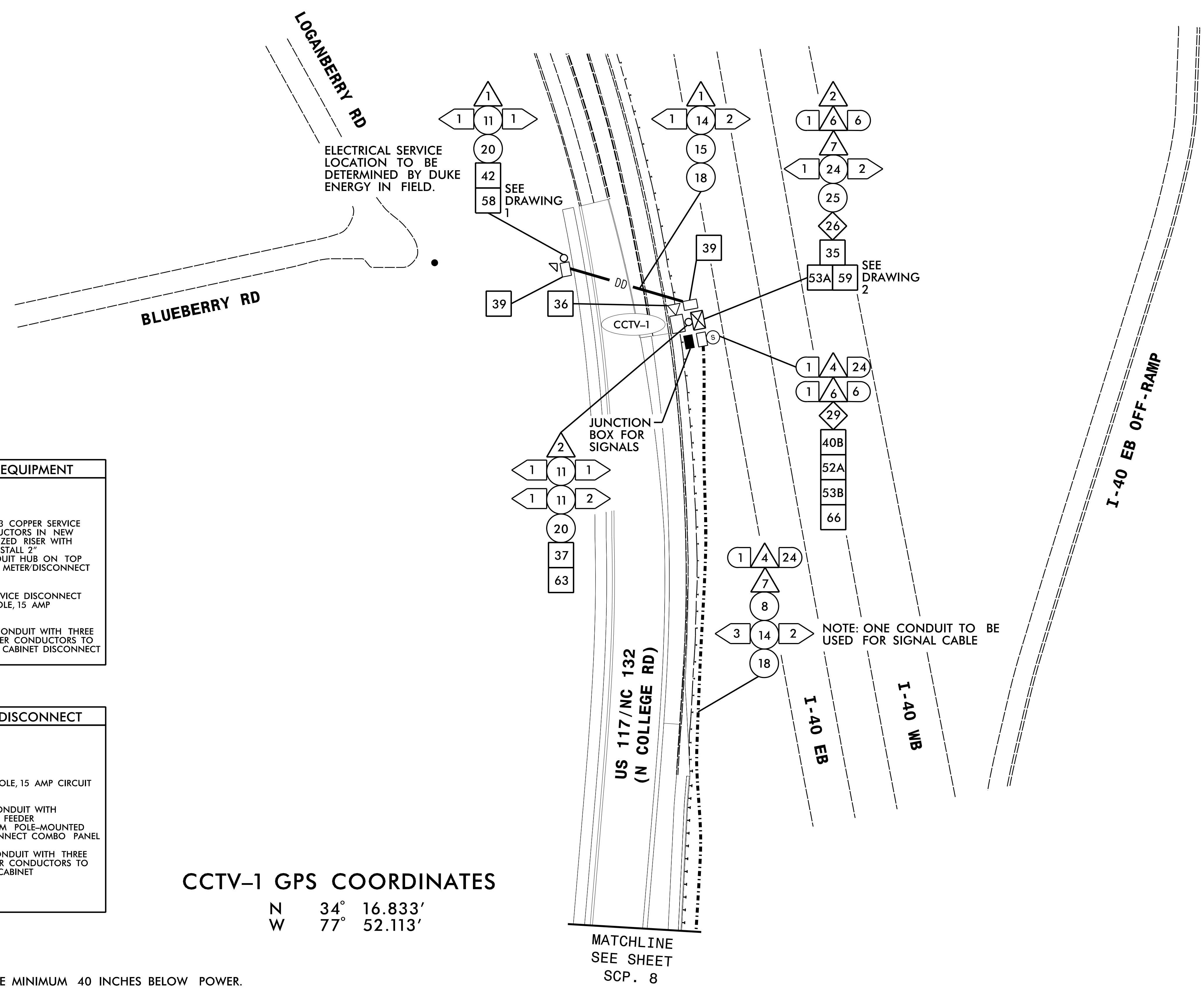
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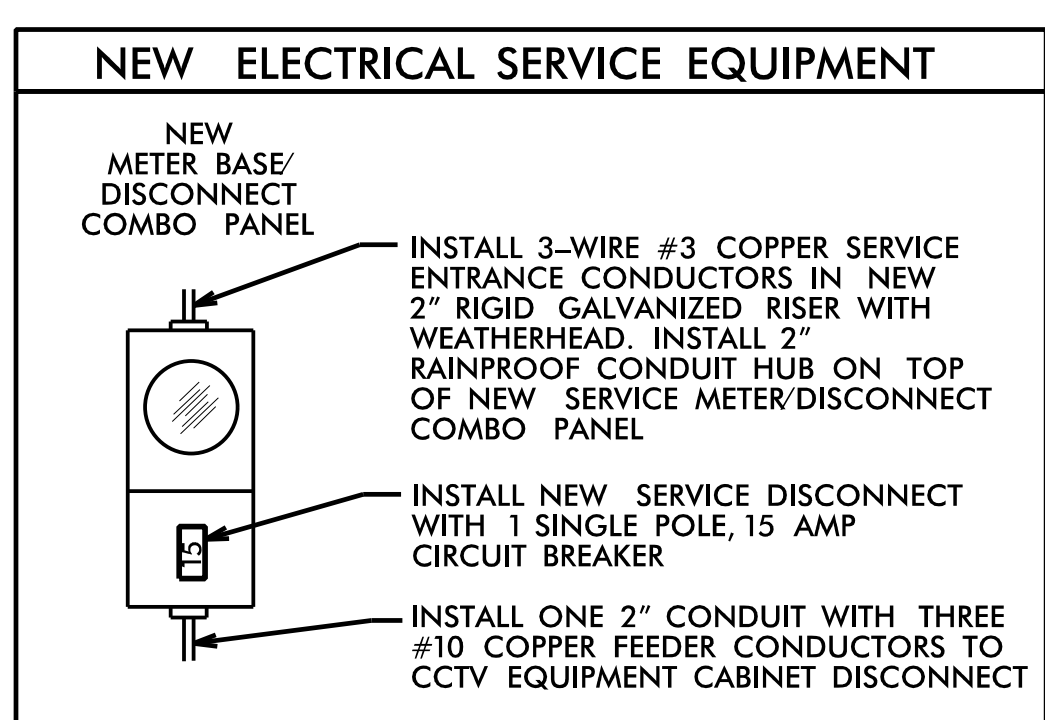
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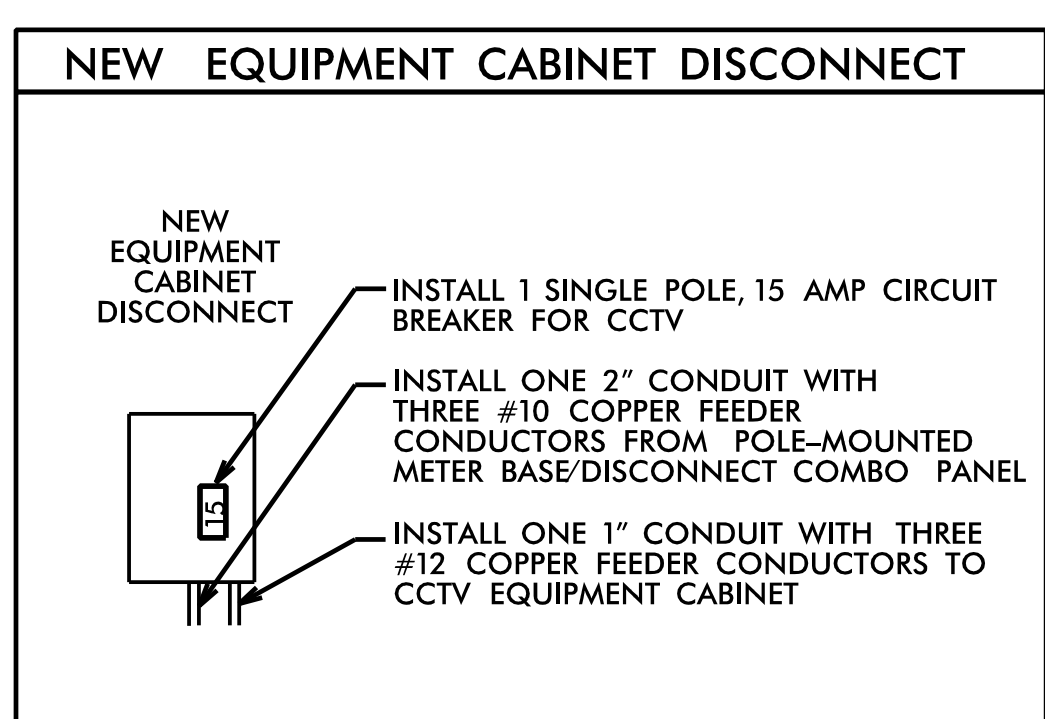
	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington		
PLAN DATE: July 2023	REVIEWED BY: J.A. Wagner		DocuSigned by: <i>Natasha R. Simmons</i> 5/17/2024 PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons
PREPARED BY: G.D. Berry	REVIEWED BY: N.R. Simmons		
SCALE: N/A	REVISIONS:	INIT. DATE	DATE
CADD File name: U6202_SCP-08.dgn			



DRAWING 1



DRAWING 2



CCTV-1 GPS COORDINATES

N 34° 16.833'
W 77° 52.113'

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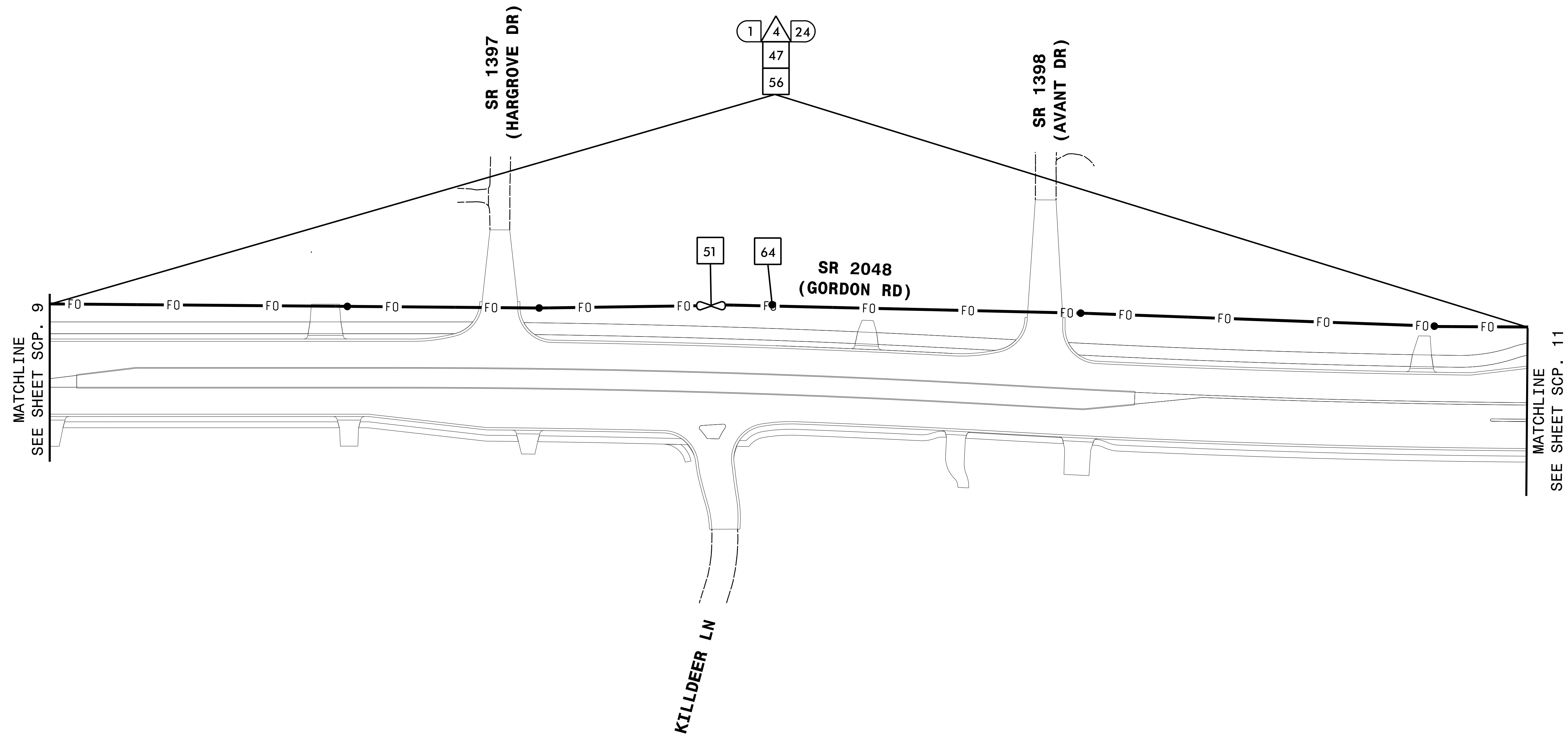
MATCHLINE
SEE SHEET
SCP. 8

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	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023	
PREPARED BY: G.D. Berry	REVISIONS	REVIEWED BY: N.R. Simmons	DocuSigned by: <i>Natasha R. Simmons</i> 5/17/2024 PREPARED SIGNATURE DATE CADD Filename: U6202_SCP-08A.dgn

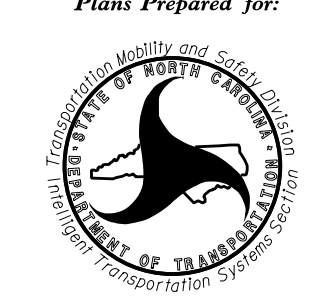
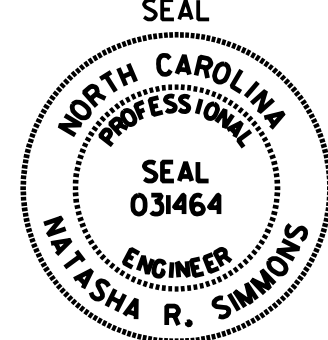



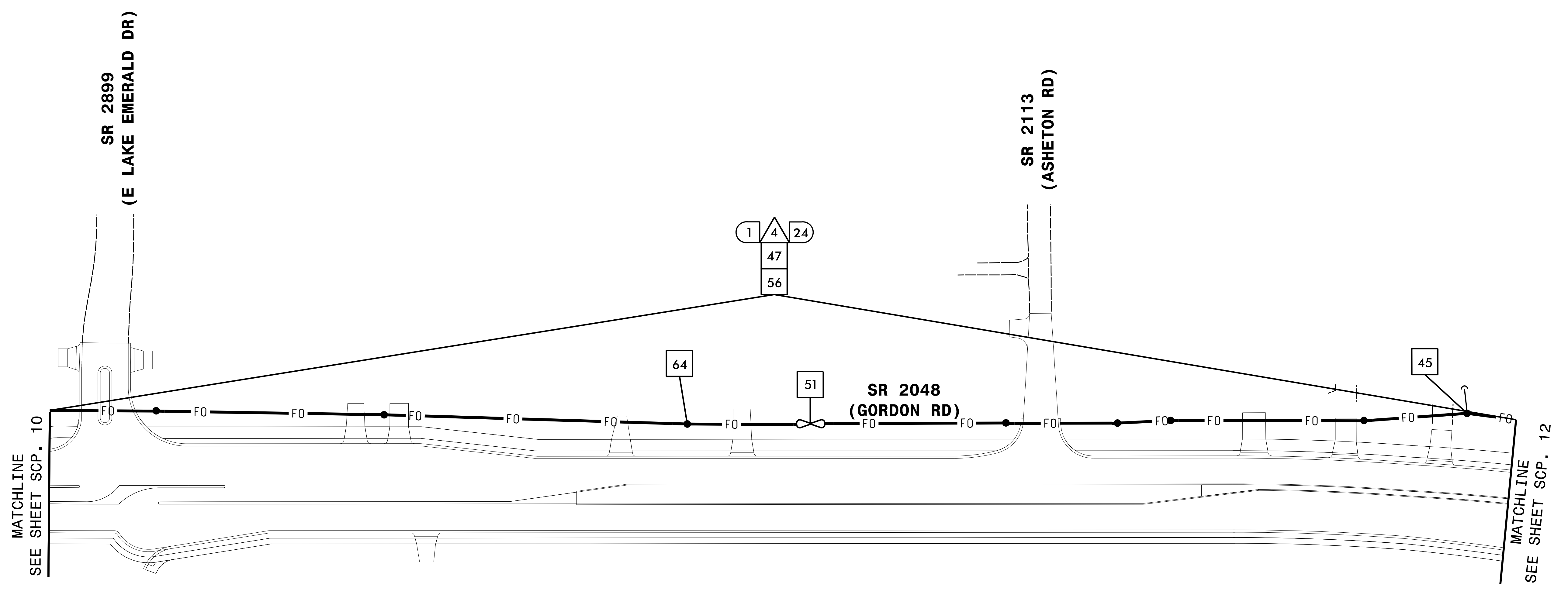
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Final Phase

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 <small>Plans Prepared for:</small> <small>250 N. Greenfield Place - Garner, NC 27529</small>	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS Division 3 New Hanover County Wilmington PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons	 <small>DocuSigned by:</small> <small>5/17/2024</small> <small>PREPARED BY: Natasha R. Simmons</small> <small>SIGNATURE</small> DATE <small>CADD File name: U6202_SCP-10.dgn</small>						
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Final Phase

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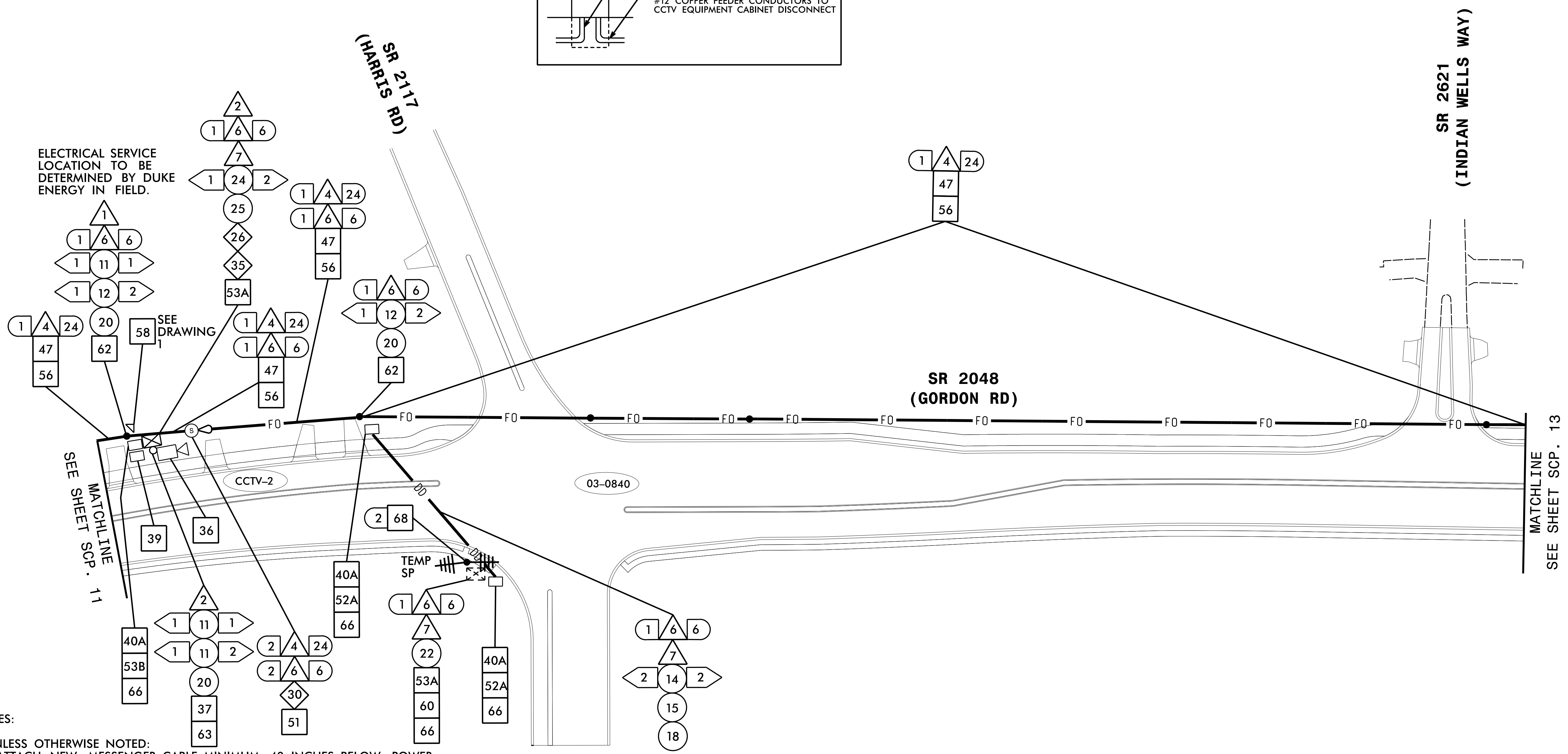
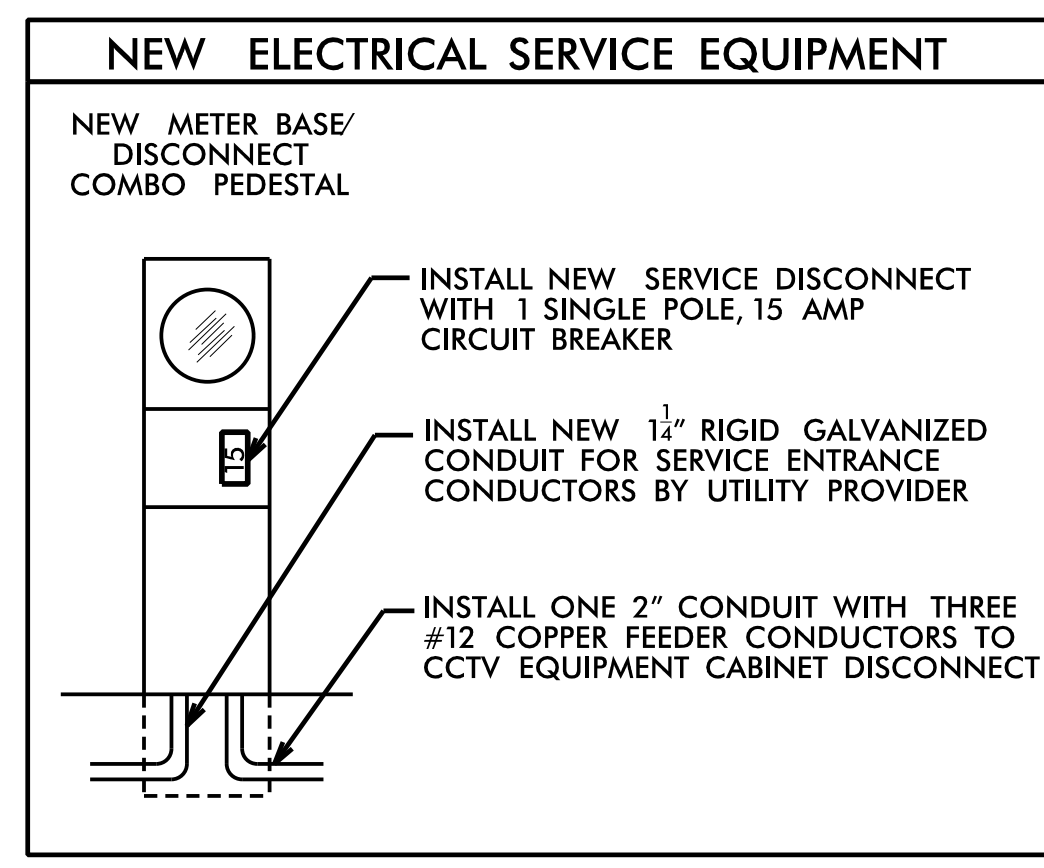
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	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023	
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CCTV-2 GPS COORDINATES

N 34° 16.450'
W 77° 51.195'

DRAWING 1



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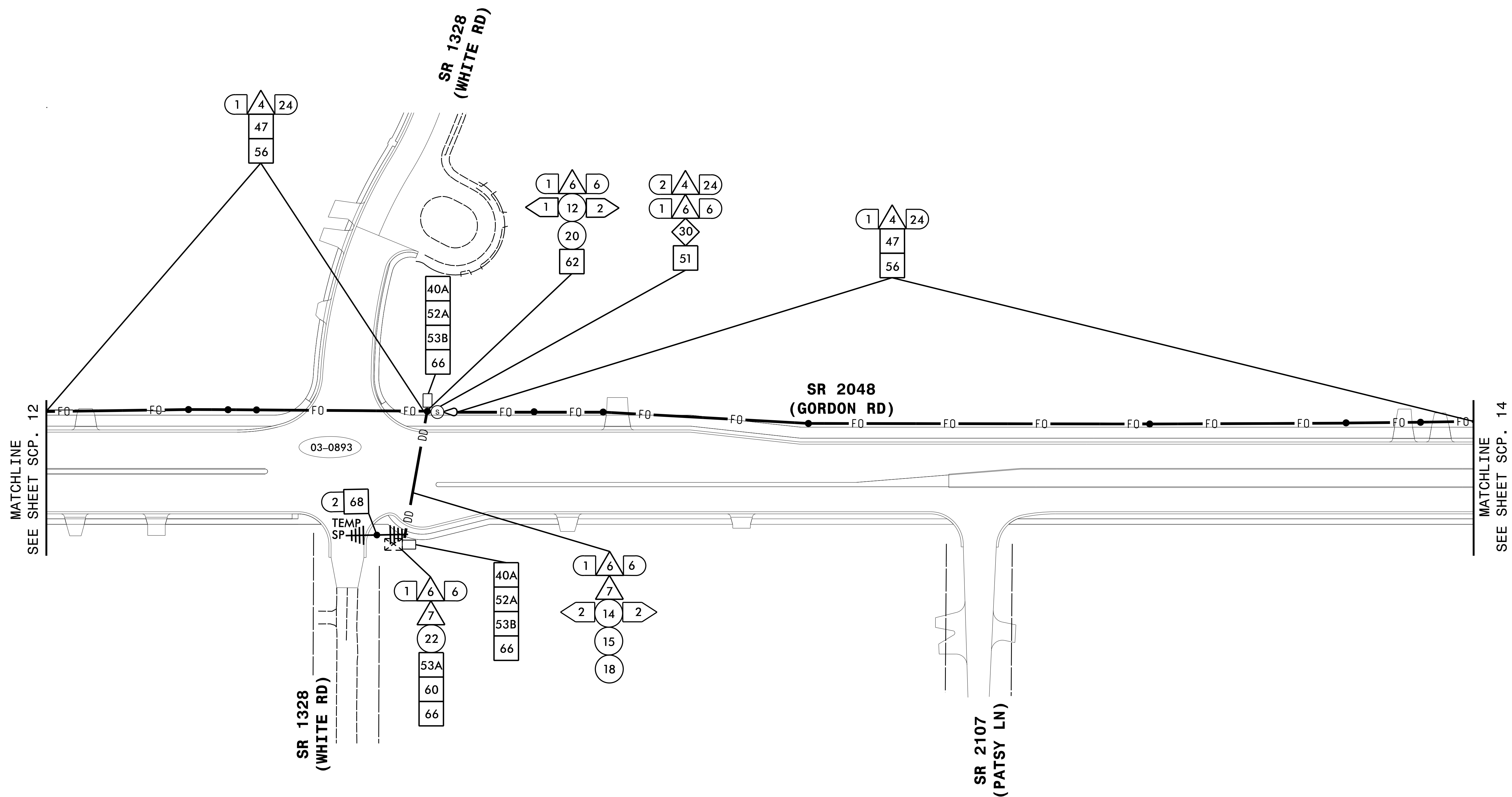
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PREPARED BY:	G.D. Berry	REVIEWED BY:	N.R. Simmons
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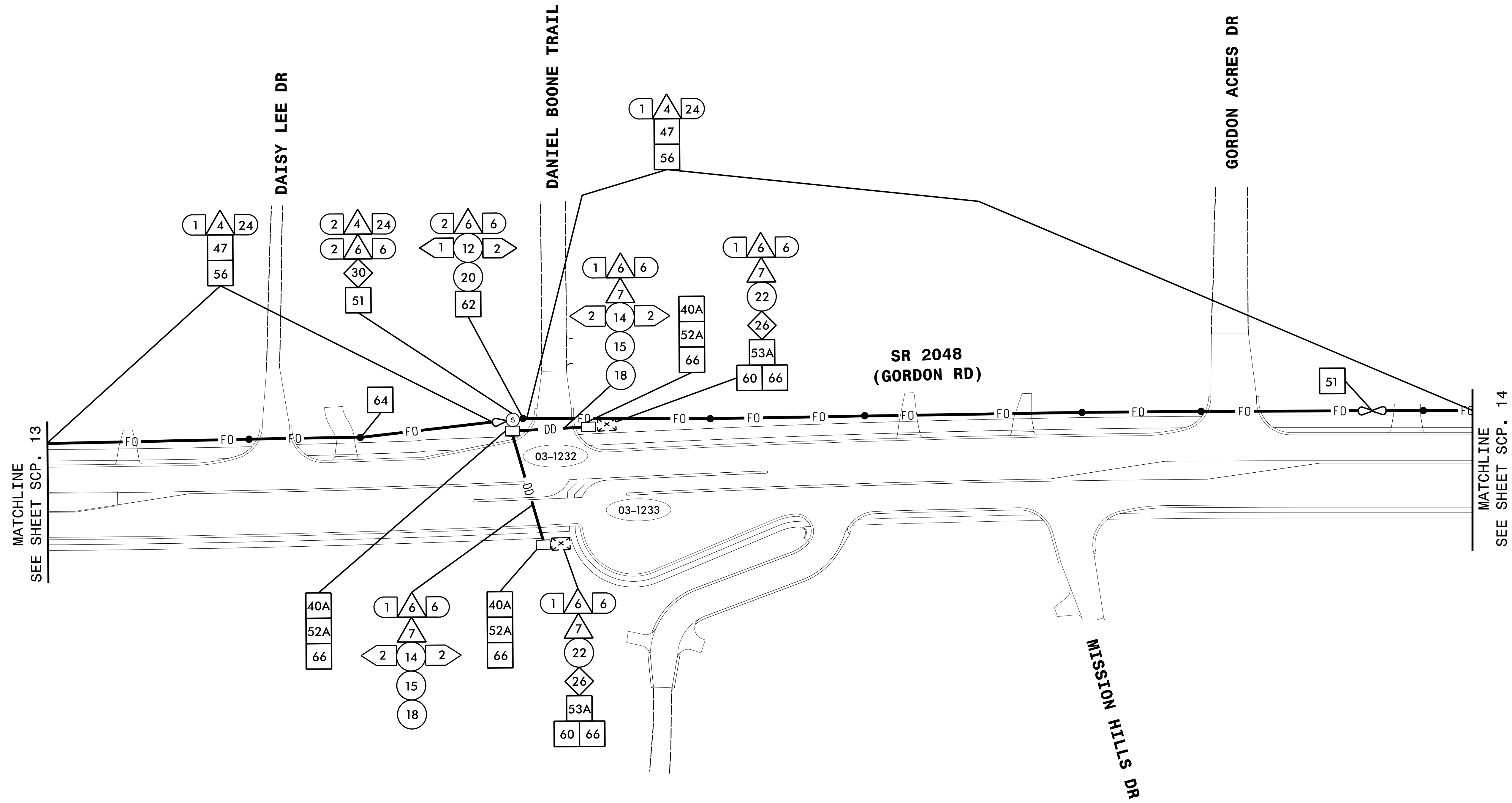
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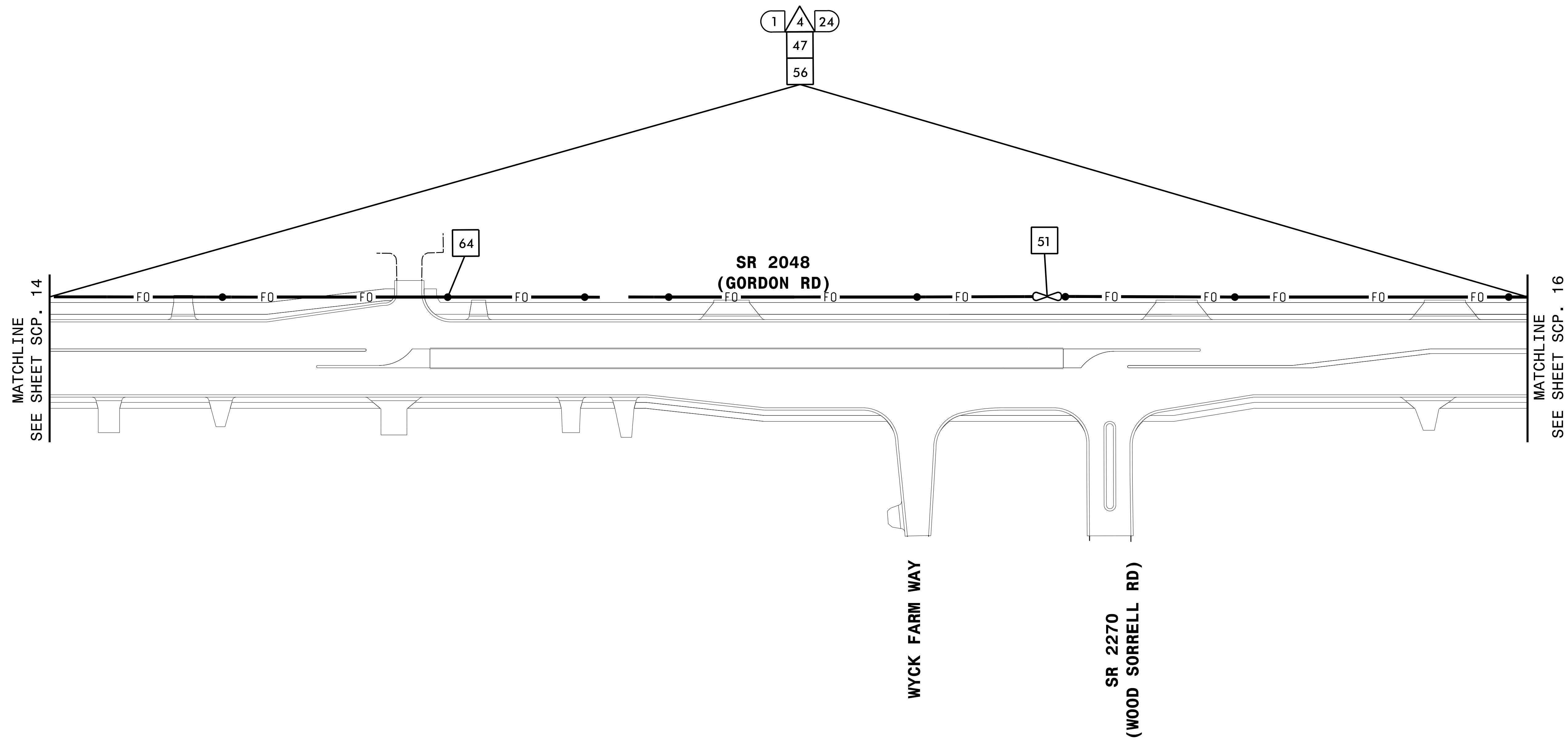
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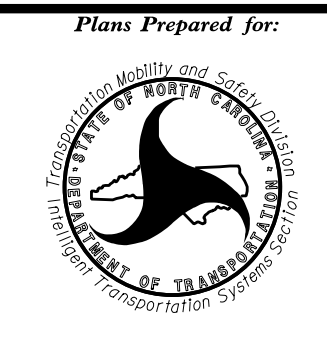




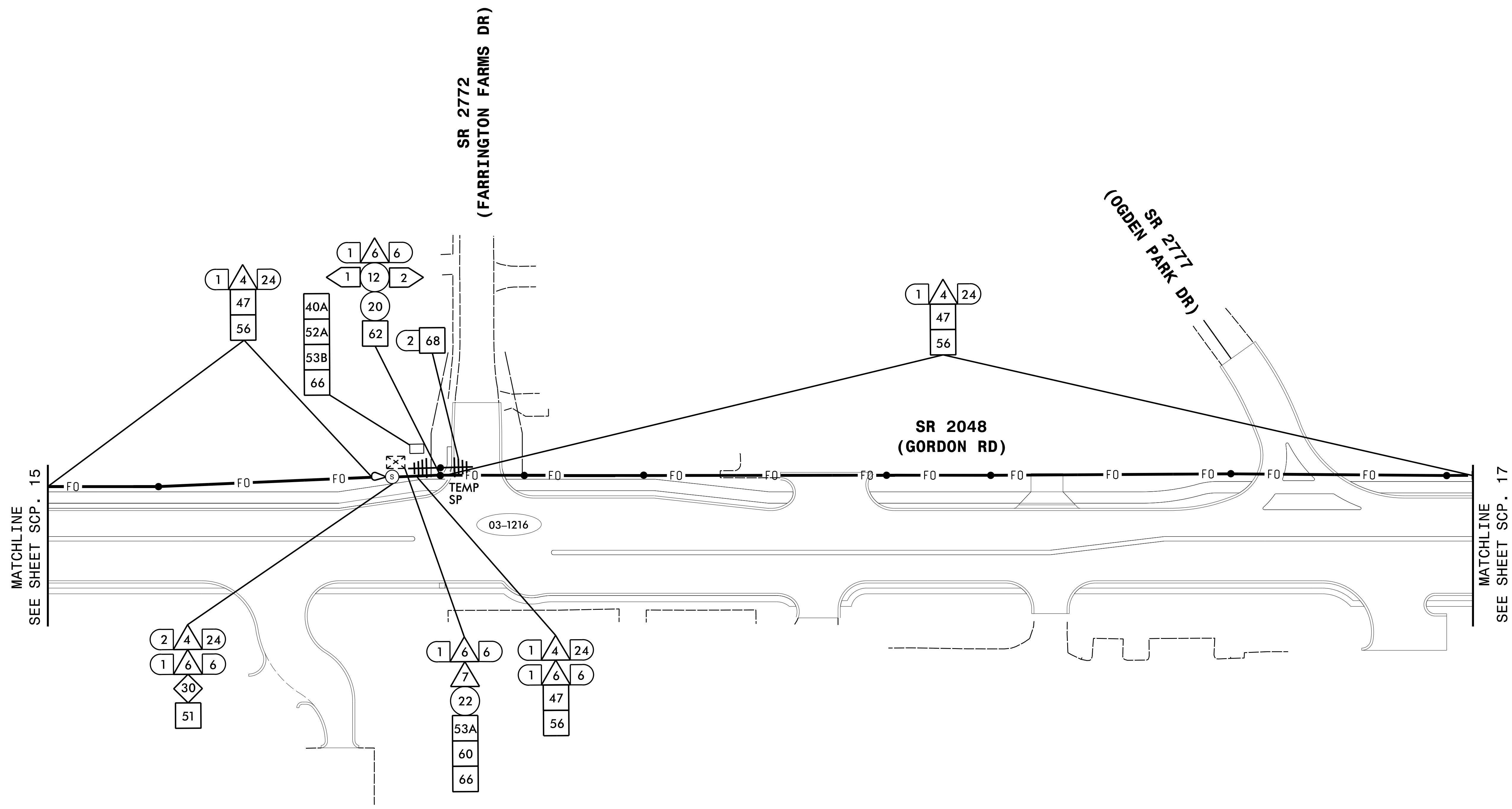
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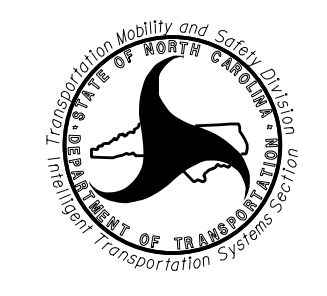

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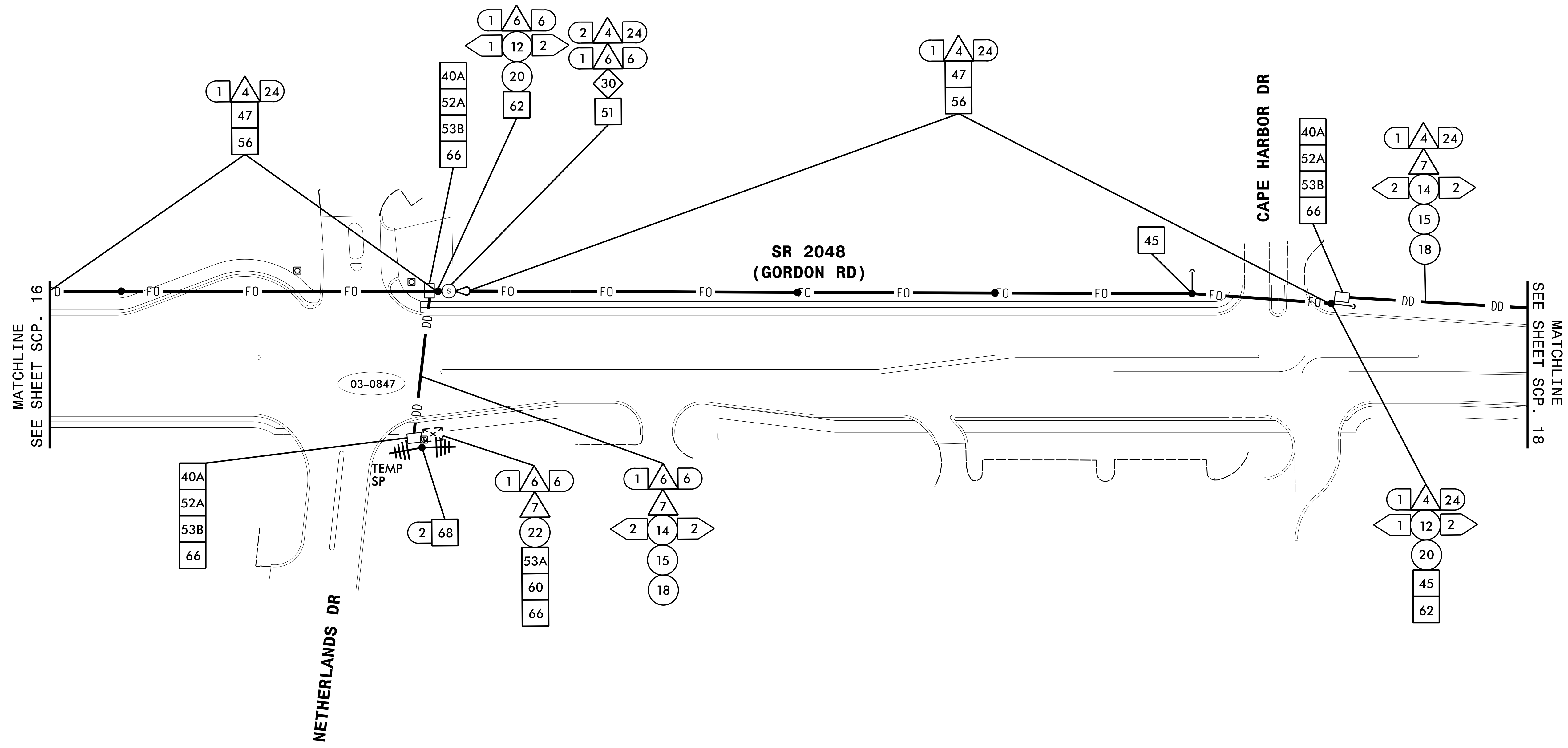
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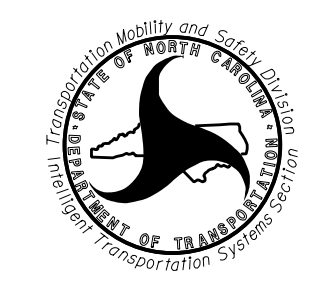

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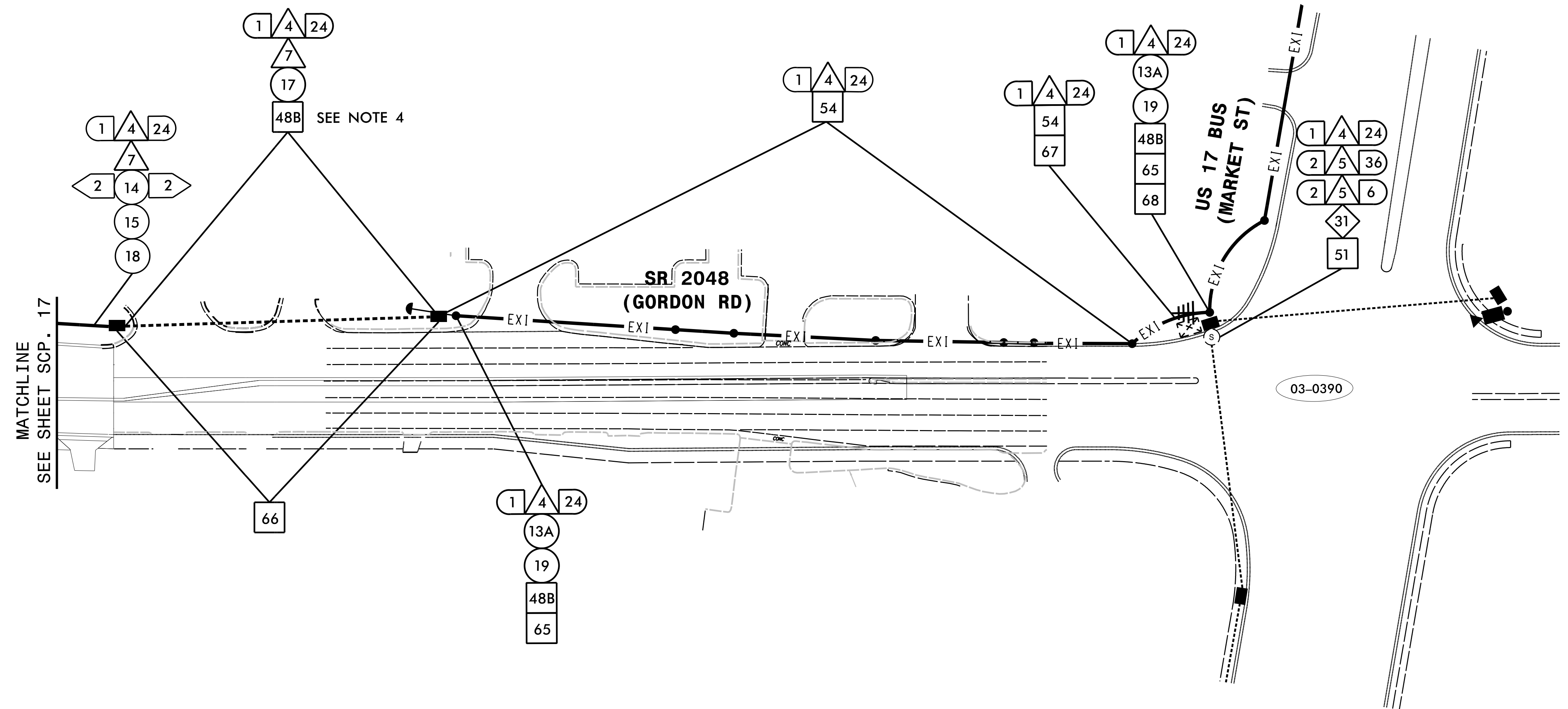
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- RETURN EXISTING WIRELESS RADIO EQUIPMENT TO THE NCDOT DIVISION 3 SIGNAL SHOP. THE DIVISION 3 OFFICE CAN BE REACHED AT (910) 341-2200.
- USING THE EXISTING 12-FIBER AS A PULL CORD, INSTALL THE PROPOSED 24-FIBER IN THE EXISTING CONDUIT.

Final Phase

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HNTB
 HNTB NORTH CAROLINA, P.C.
 343 E. Six Forks Road, Suite 200
 Raleigh, North Carolina 27609
 NC License No: C-1554
 (919) 546-8997



 <small>Plans Prepared for:</small> CITY OF WILMINGTON 250 N. Greenfield Place, Garner, NC 27529	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		 SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031464 NATASHA R. SIMMONS
	Division 3 New Hanover County Wilmington PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons		
SCALE N/A	REVISIONS INIT. DATE	REVISIONS INIT. DATE	DocuSigned by: Natasha R. Simmons 5/17/2024 SIGNATURE DATE CADD File name: U6202_SCP-17.dgn



NOTES:

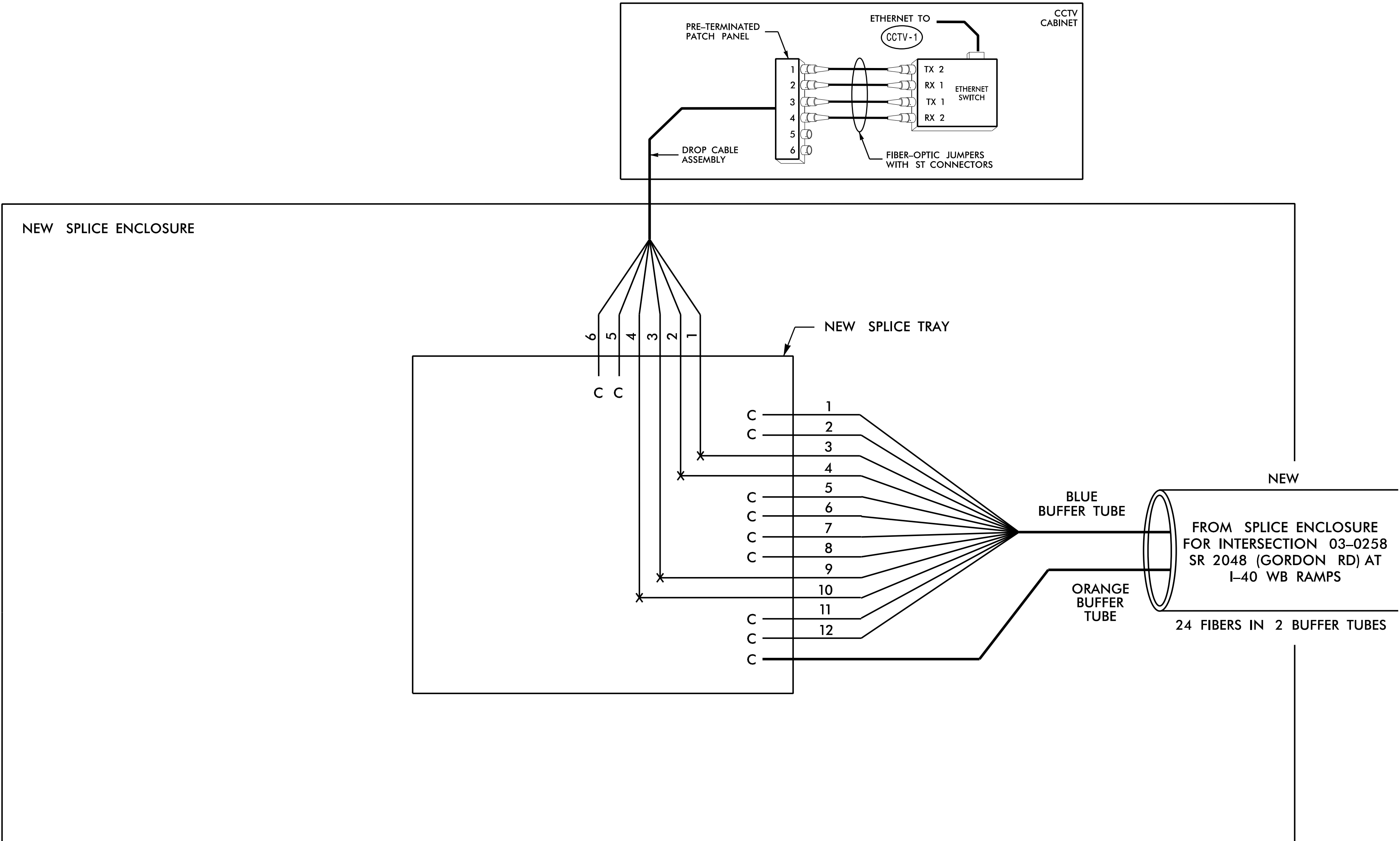
- UNLESS OTHERWISE NOTED:
 -ATTACH NEW MESSENGER CABLE MINIMUM 40 INCHES BELOW POWER.
 -ATTACH ON FRONT SIDE (FS) OF POLE.
- TWO (2) WEEKS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE CITY OF WILMINGTON SIGNAL SYSTEMS MANAGEMENT ENGINEER AT (910) 341-4676 TO ARRANGE FOR THE CITY TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY, SUBNET MASK AND VLAN ID INFORMATION. NOTIFY THE SIGNAL SYSTEMS MANAGEMENT ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND FUNCTIONAL.
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- USING THE EXISTING 12-FIBER AS A PULL CORD, INSTALL THE PROPOSED 24-FIBER IN THE EXISTING CONDUIT.

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 Raleigh, North Carolina 27609
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 (919) 546-8997

Final Phase		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 Plans Prepared for: CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS	Division 3 New Hanover County Wilmington		
	PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner	PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons	
SCALE N/A	DocuSigned by: <i>Natasha R. Simmons</i> 5/17/2024 SIGNATURE DATE		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER NATASHA R. SIMMONS
CADD File name: U6202_SCP-18.dgn			

CCTV-1
NC 132 (N COLLEGE RD)

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X =	NEW FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	● =	EXISTING FUSION SPLICE
(3) GREEN	(9) YELLOW	C =	CAP AND SEAL
(4) BROWN	(10) VIOLET	EXPRESS	EXPRESS ENTIRE BUFFER TUBE THROUGH WITHOUT CUTTING
(5) SLATE	(11) ROSE	BUFFER SPLICE	SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR
(6) WHITE	(12) AQUA		



NOTES:

- UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
- UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.
- ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
- INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"

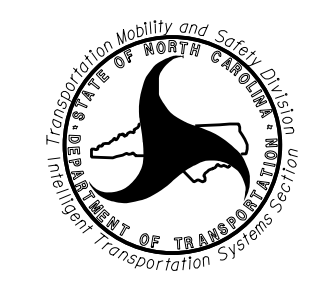
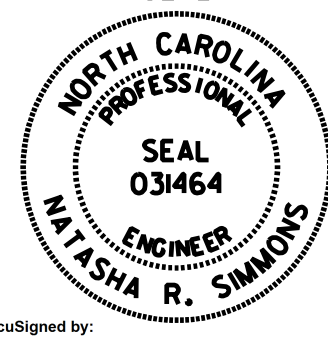
- SPLICE
- DATE
- COMPANY NAME
- NAME OF INDIVIDUAL PERFORMING THE SPLICING

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.

HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
(919) 546-8997

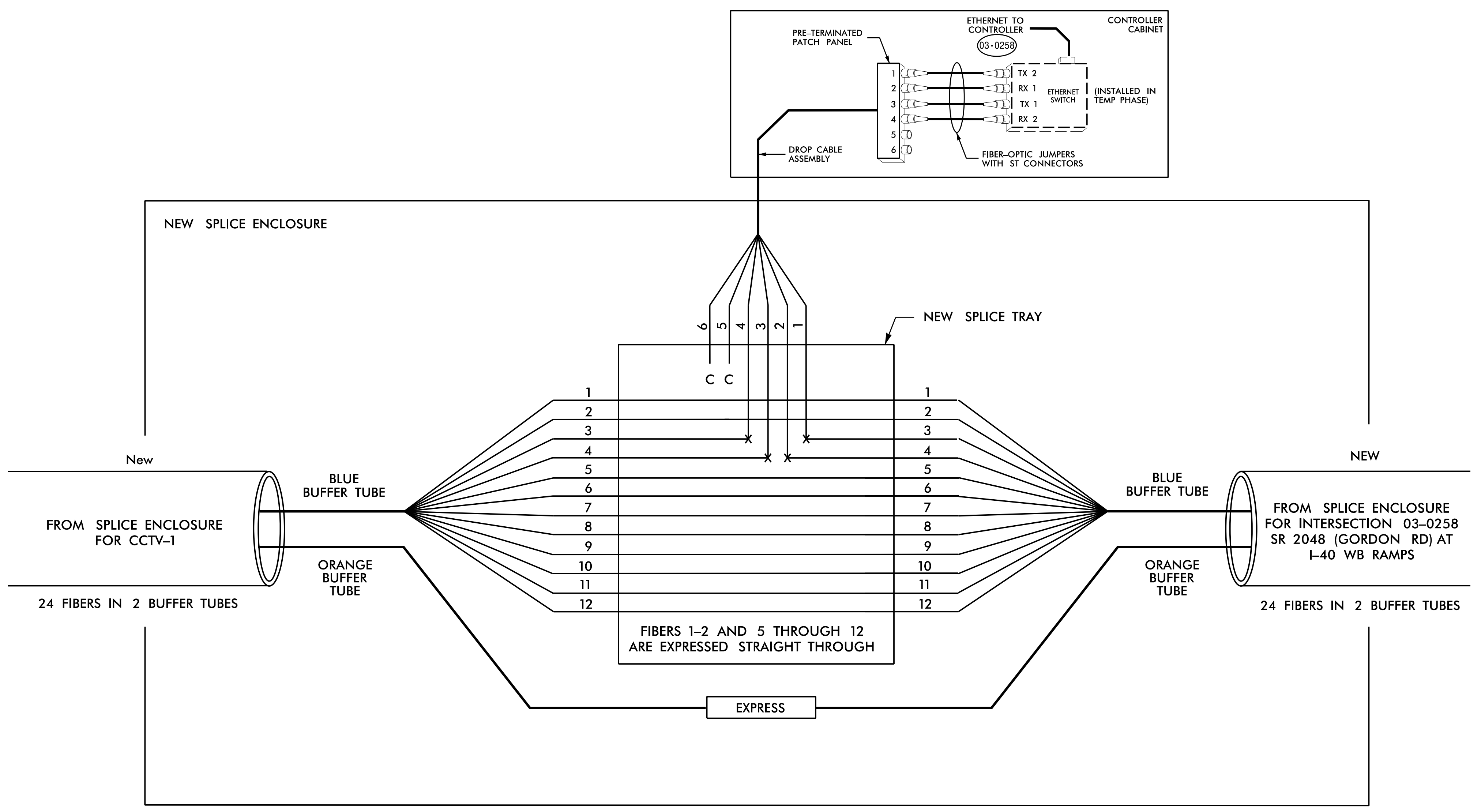
Final Phase

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

 <small>250 N. Greenfield Place, Garner, NC 27529</small>	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS Division 3 New Hanover County Wilmington		
	PLAN DATE: July 2023 PREPARED BY: G.D. Berry	REVIEWED BY: J.A. Wagner REVIEWED BY: N.R. Simmons	

03-0331
 SR 2048 (GORDON RD)
 AT
 US 117/NC 132 (N COLLEGE
 RD)/I-40 EB RAMPS

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X = NEW FUSION SPLICE INDIVIDUAL FIBER	
(2) ORANGE	(8) BLACK	● = EXISTING FUSION SPLICE	
(3) GREEN	(9) YELLOW	C = CAP AND SEAL	
(4) BROWN	(10) VIOLET	EXPRESS = EXPRESS ENTIRE BUFFER TUBE THROUGH WITHOUT CUTTING	
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(6) WHITE	(12) AQUA		



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- (1) SPLICE
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Final Phase

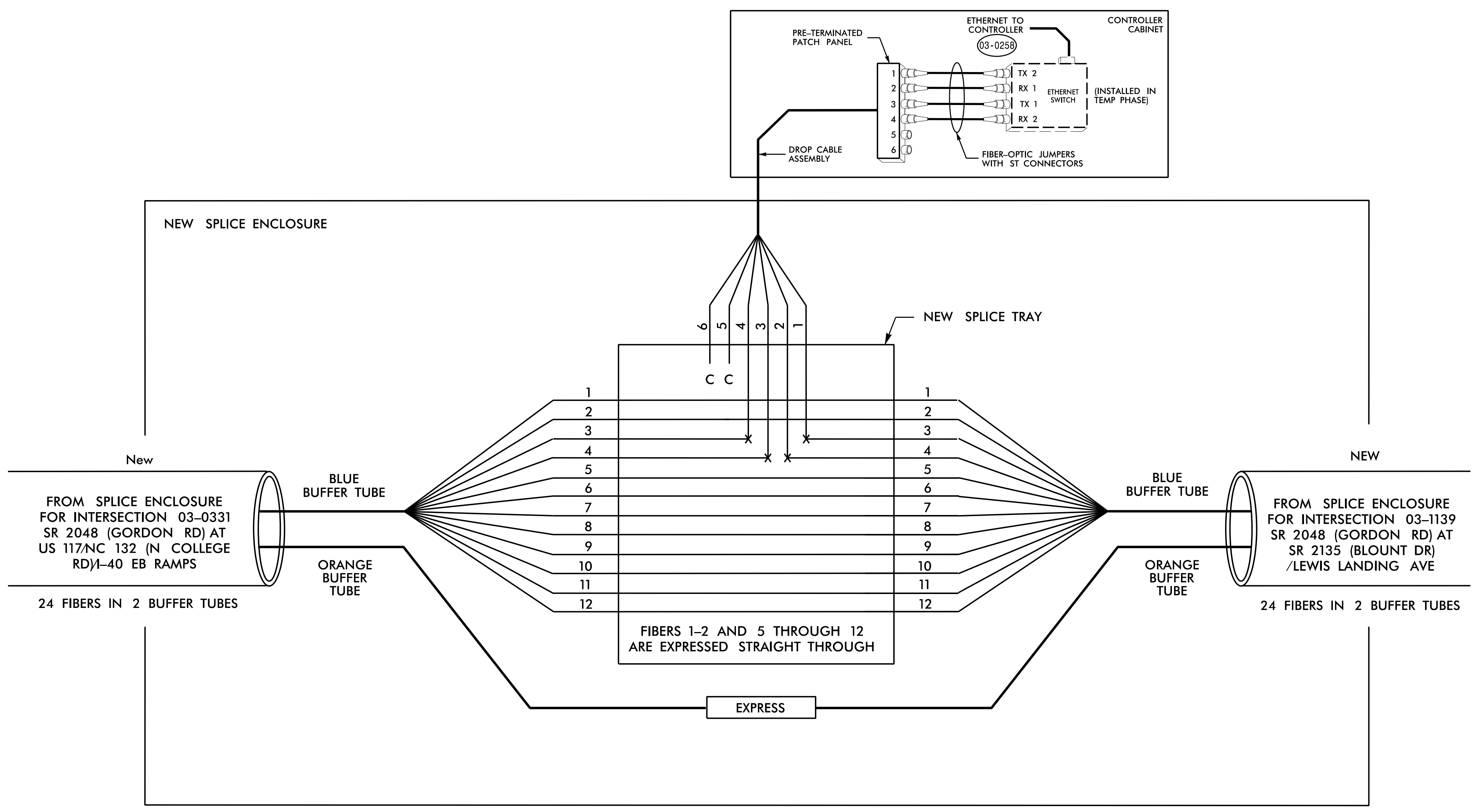
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 343 E. Six Forks Road, Suite 200
 Raleigh, North Carolina 27609
 NC License No: C-1554
 (919) 546-8997

 Plans Prepared for: CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS	Division 3 New Hanover County Wilmington PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons	 SEAL NORTH CAROLINA PROFESSIONAL ENGINEER NATASHA R. SIMMONS
	SCALE: N/A REVISIONS: _____ INITI. DATE: _____ DocuSigned by: Natasha R. Simmons 5/17/2024 PREPARED BY: _____ DATE: _____ CADD File name: U6202_SCP-20.dgn	

03-0258
SR 2048 (GORDON RD)
AT
I-40 WB RAMPS

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X =	NEW FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	● =	EXISTING FUSION SPLICE
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Final Phase

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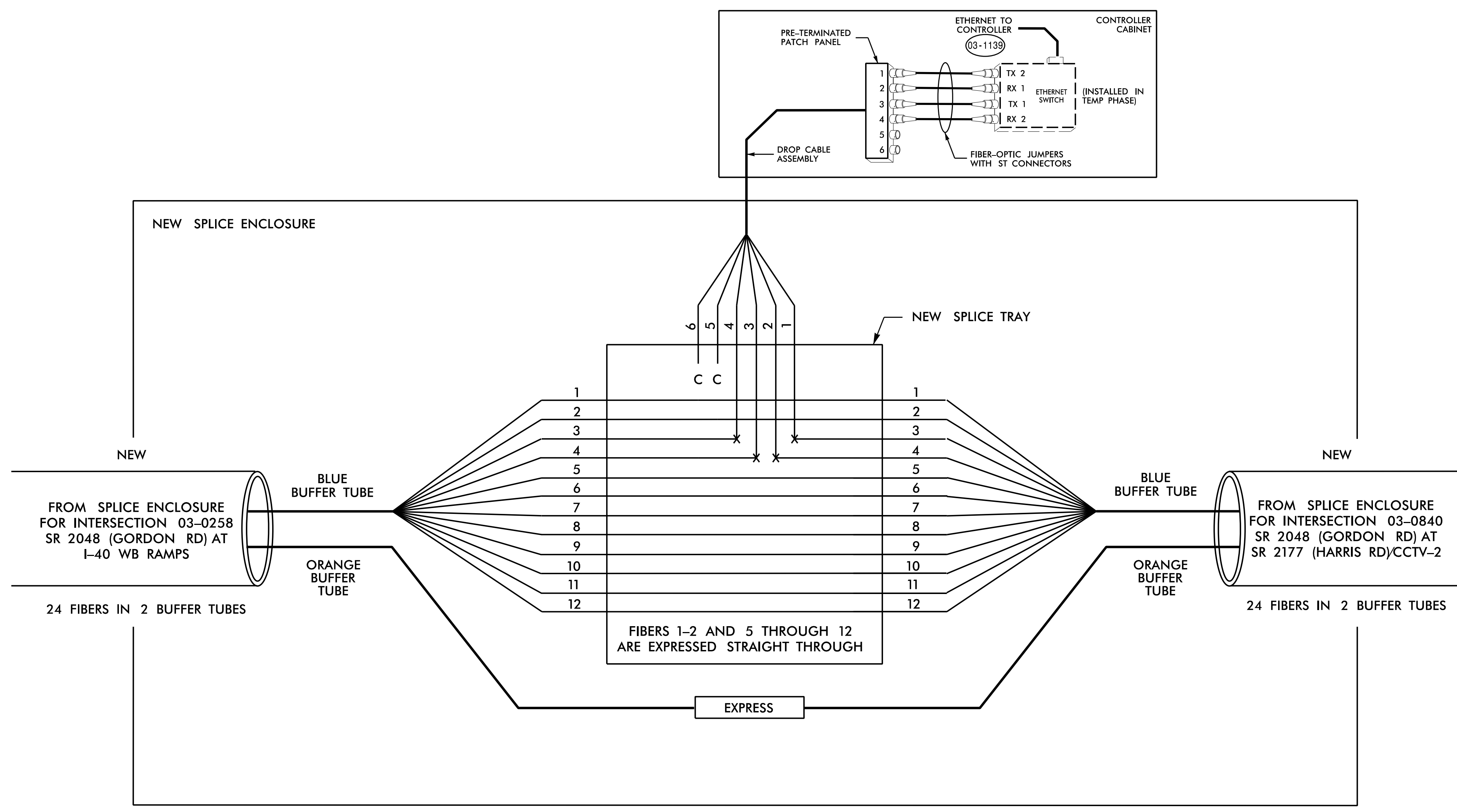
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
(919) 546-8997

	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023	
PREPARED BY: G.D. Berry	REVIEWED BY: N.R. Simmons	REVISIONS	INIT. DATE
SCALE: N/A	REVISIONS	INIT. DATE	DATE

DocuSigned by: *Natasha R. Simmons* 5/17/2024
CADD File name: U6202_SCP-21.dgn

03-1139
 SR 2048 (GORDON RD)
 AT
 SR 2135 (BLOUNT DR)/
 LEWIS LANDING AVE

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X = NEW FUSION SPLICE INDIVIDUAL FIBER	
(2) ORANGE	(8) BLACK	● = EXISTING FUSION SPLICE	
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HNTB HNTB NORTH CAROLINA, P.C.
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 Raleigh, North Carolina 27609
 NC License No: C-1554
 (919) 546-8997

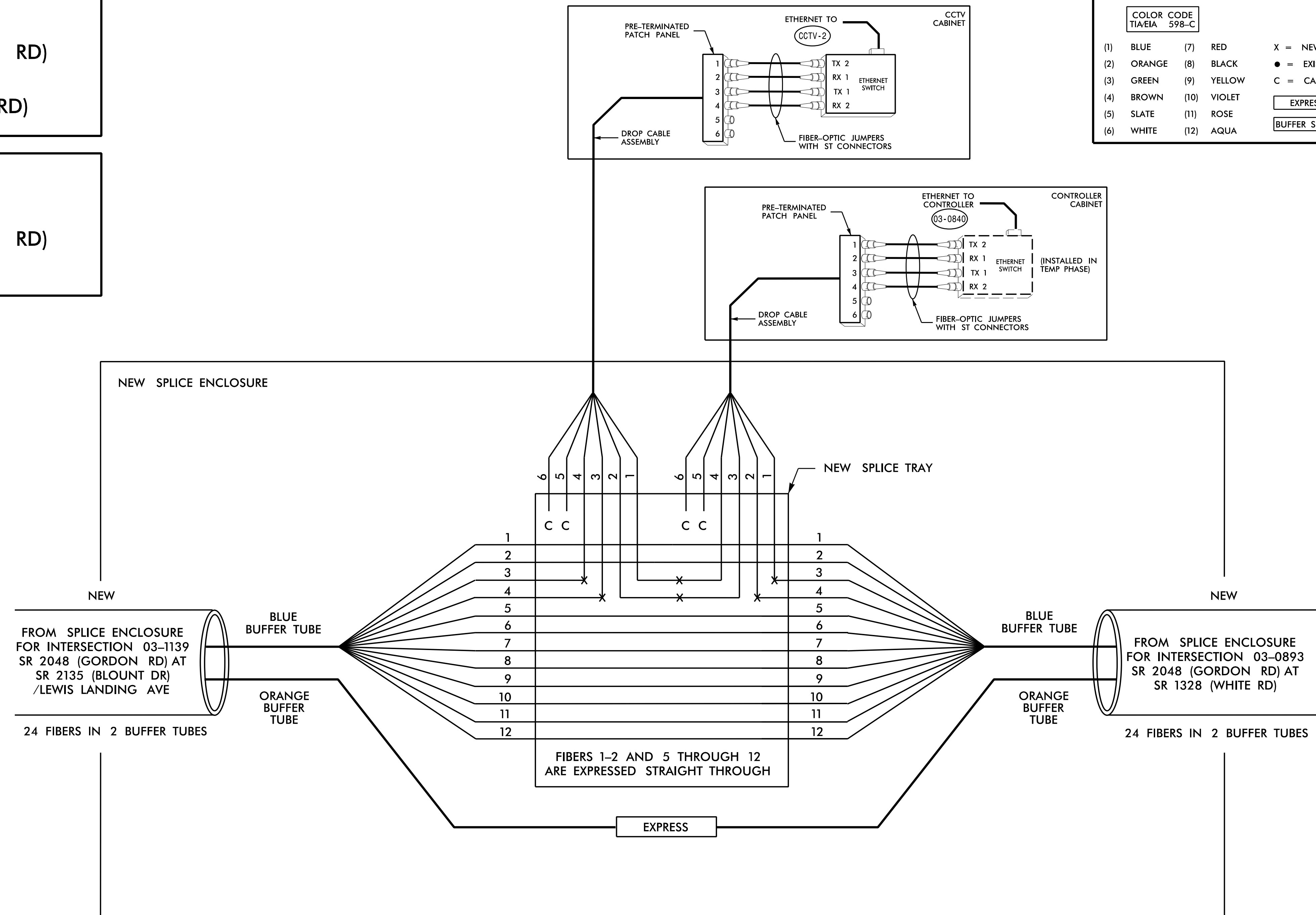
	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023	
PREPARED BY: G.D. Berry	REVIEWED BY: N.R. Simmons	REVISIONS	INIT. DATE
SCALE: N/A	REVISIONS	INIT. DATE	DATE

DocuSigned by: *Natasha R. Simmons* 5/17/2024
 CADD File name: U6202_SCP-22.dgn

03-0840
SR 2048 (GORDON RD)
AT
SR 2117 (HARRIS RD)

CCTV-2
SR 2048 (GORDON RD)

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X = NEW FUSION SPlice INDIVIDUAL FIBER	
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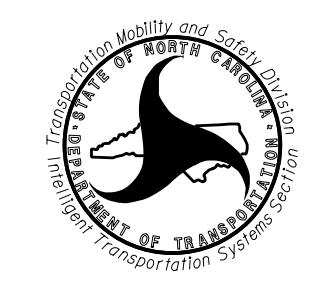

- (1) SPlice
- (2) DATE
- (3) COMPANY NAME
- (4) NAME OF INDIVIDUAL PERFORMING THE SPlicing

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.

Final Phase

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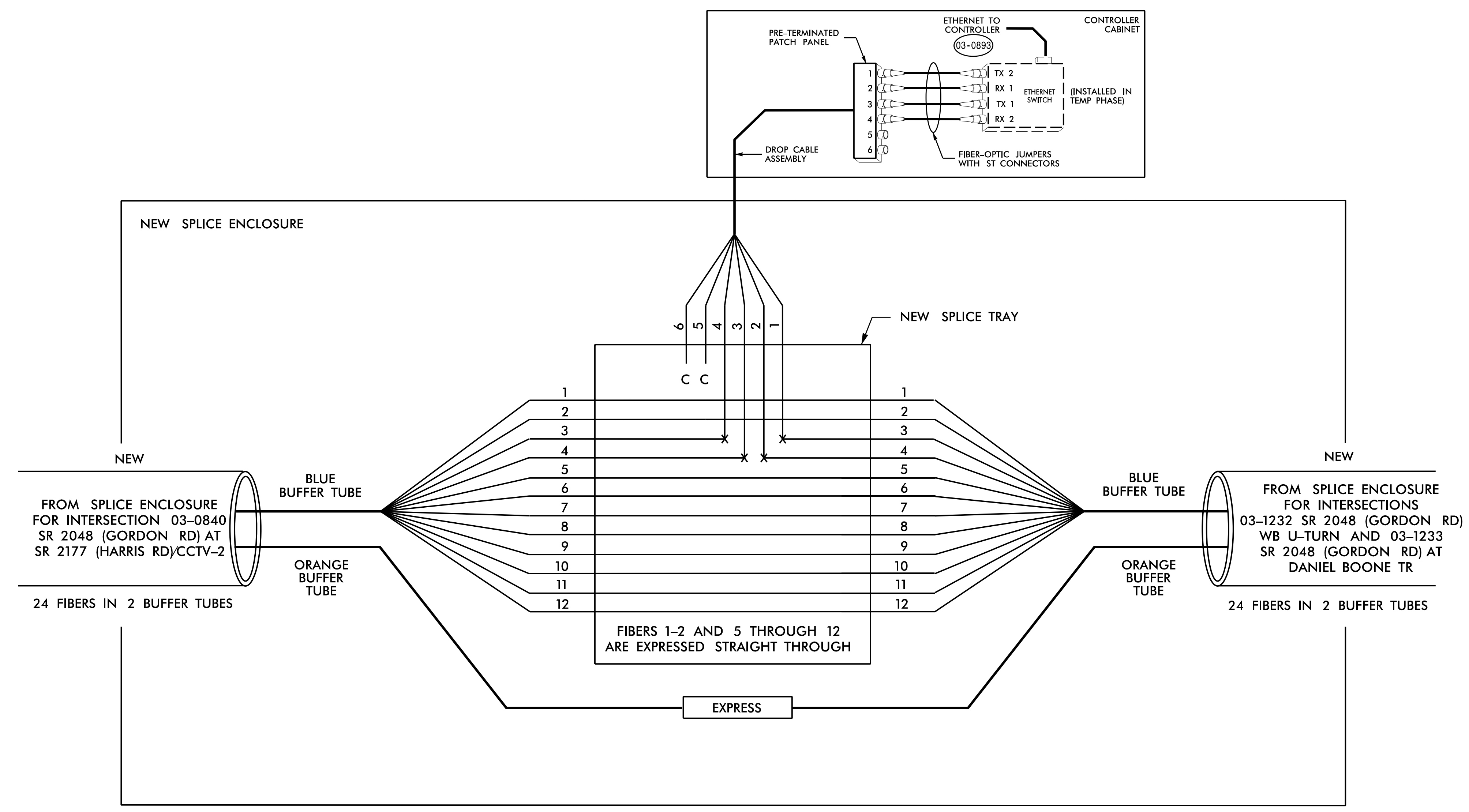
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
(919) 546-8997

 <small>250 N. Greenfield Place, Garner, NC 27529</small>	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS Division 3 New Hanover County Wilmington		 <small>DocuSigned by: Natasha R. Simmons 5/17/2024</small>
	PLAN DATE: July 2023 PREPARED BY: G.D. Berry	REVIEWED BY: J.A. Wagner REVIEWED BY: N.R. Simmons	
SCALE N/A	PREPARED BY: G.D. Berry REVIEWED BY: J.A. Wagner REVIEWED BY: N.R. Simmons		DATE DATE

CADD Filename: U6202_SCP-23.dgn

03-0893
 SR 2048 (GORDON RD)
 AT
 SR 1328 (WHITE RD)

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X =	NEW FUSION SPLICE INDIVIDUAL FIBER
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Final Phase

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 343 E. Six Forks Road, Suite 200
 Raleigh, North Carolina 27609
 NC License No: C-1554
 (919) 546-8997

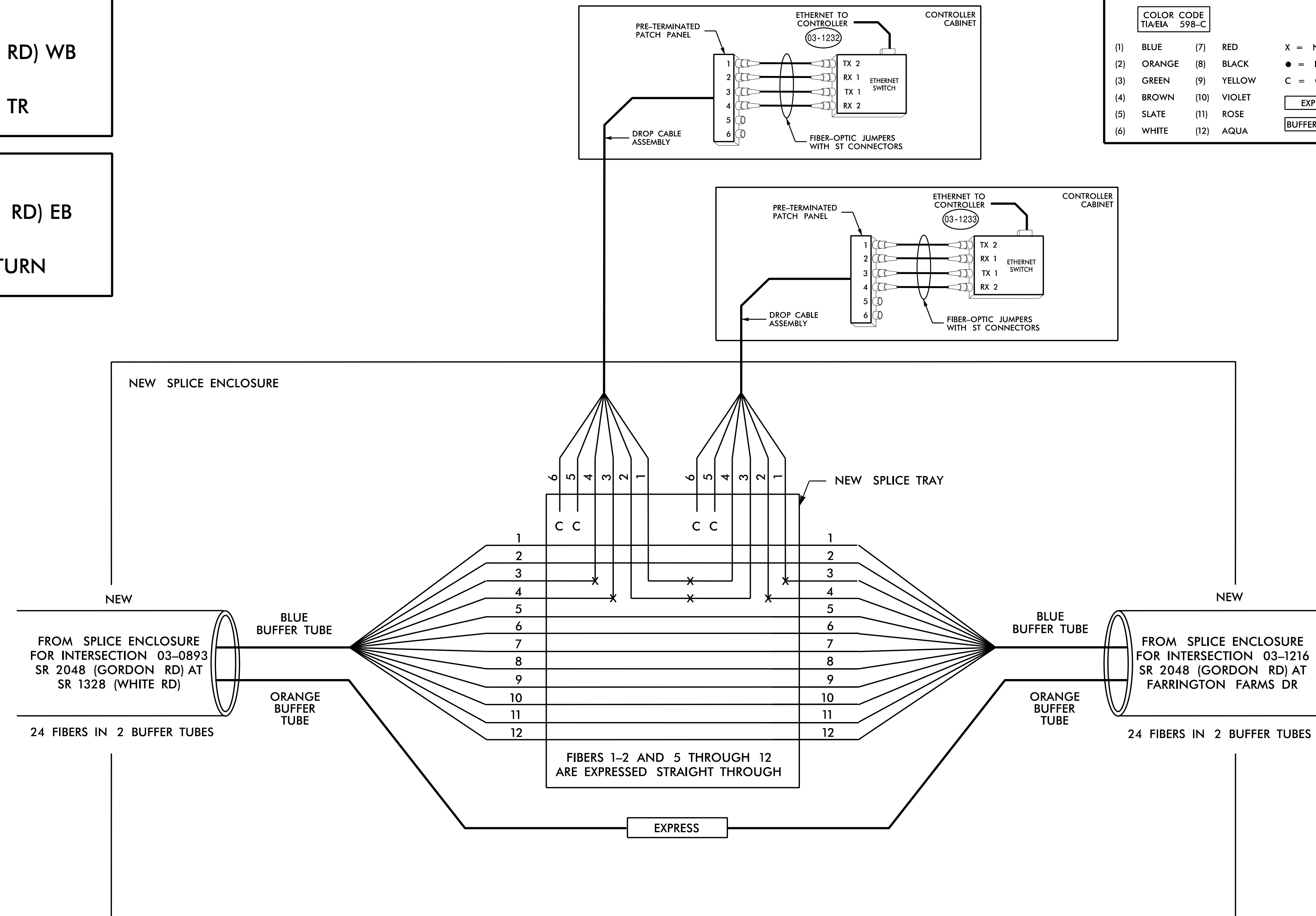
	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023	
PREPARED BY: G.D. Berry	REVIEWED BY: N.R. Simmons	REVISIONS	INIT. DATE
SCALE N/A	REVISIONS	INIT. DATE	DATE

DocuSigned by: *Natasha R. Simmons* 5/17/2024
 CADD File name: U6202_SCP-24.dgn

03-1232
SR 2048 (GORDON RD) WB
AT
DANIEL BOONE TR

03-1233
SR 2048 (GORDON RD) EB
AT
WESTBOUND U-TURN

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X =	NEW FUSION SPLICE INDIVIDUAL FIBER
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Final Phase

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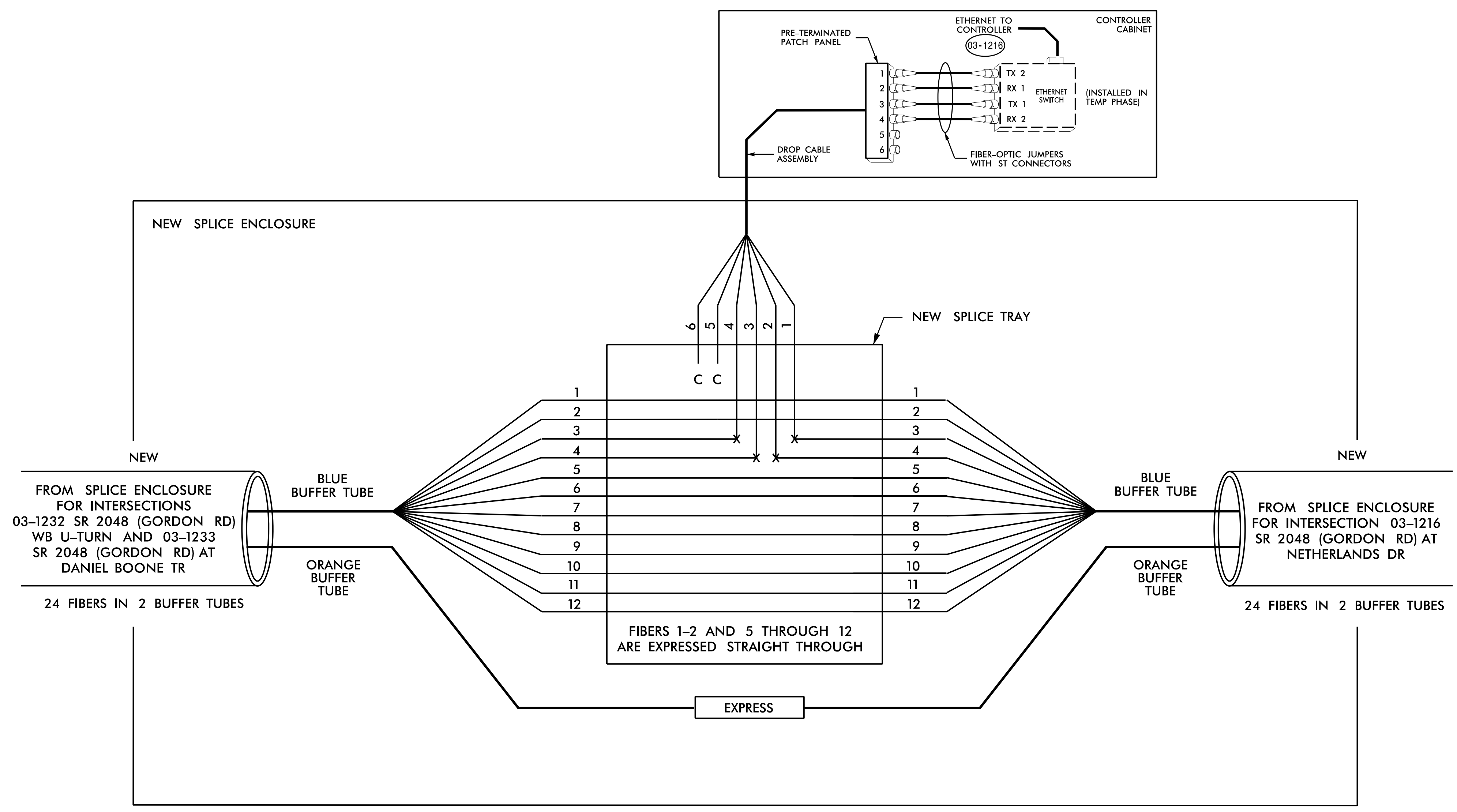
HNTB HNTB NORTH CAROLINA, P.C.
343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
(919) 546-8997

	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023	
PREPARED BY: G.D. Berry	REVIEWED BY: N.R. Simmons	REVISIONS	INIT. DATE
SCALE N/A	REVISIONS	INIT. DATE	DATE

DocuSigned by: *Natasha R. Simmons* 5/17/2024
CADD File name: U6202_SCP-25.dgn

03-1216
SR 2048 (GORDON RD)
AT
FARRINGTON FARMS DR

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X =	NEW FUSION SPLICE INDIVIDUAL FIBER
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Final Phase

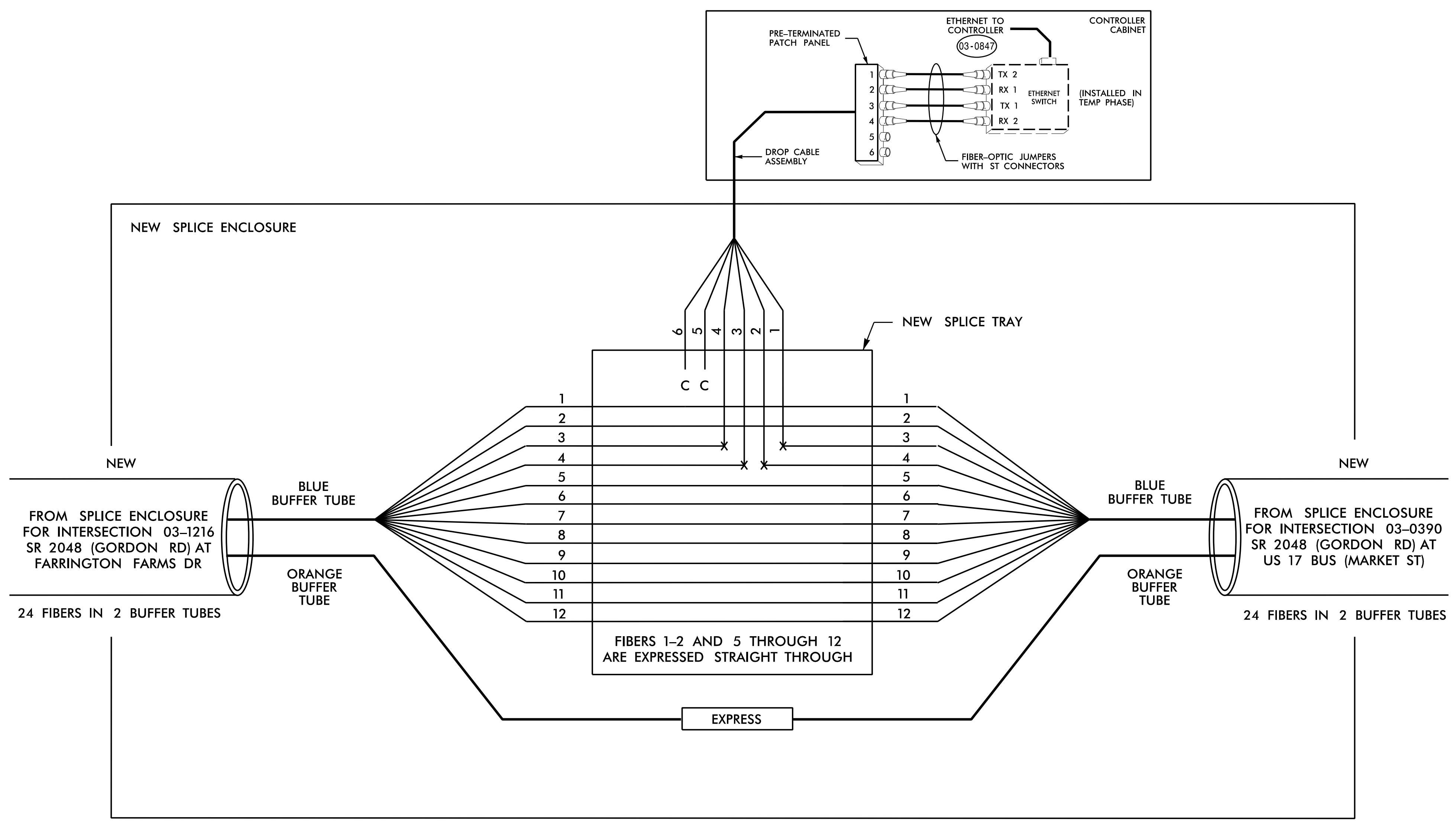
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(919) 546-8997

	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS	
	Division 3 New Hanover County Wilmington PLAN DATE: July 2023 PREPARED BY: G.D. Berry	REVIEWED BY: J.A. Wagner REVIEWED BY: N.R. Simmons
SCALE N/A	REVISIONS INIT. DATE	SEAL DATE 5/17/2024 CADD File name: U6202_SCP-26.dgn

03-0847
SR 2048 (GORDON RD)
AT
NETHERLANDS DR

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X =	NEW FUSION SPLICE INDIVIDUAL FIBER
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PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

Final Phase

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

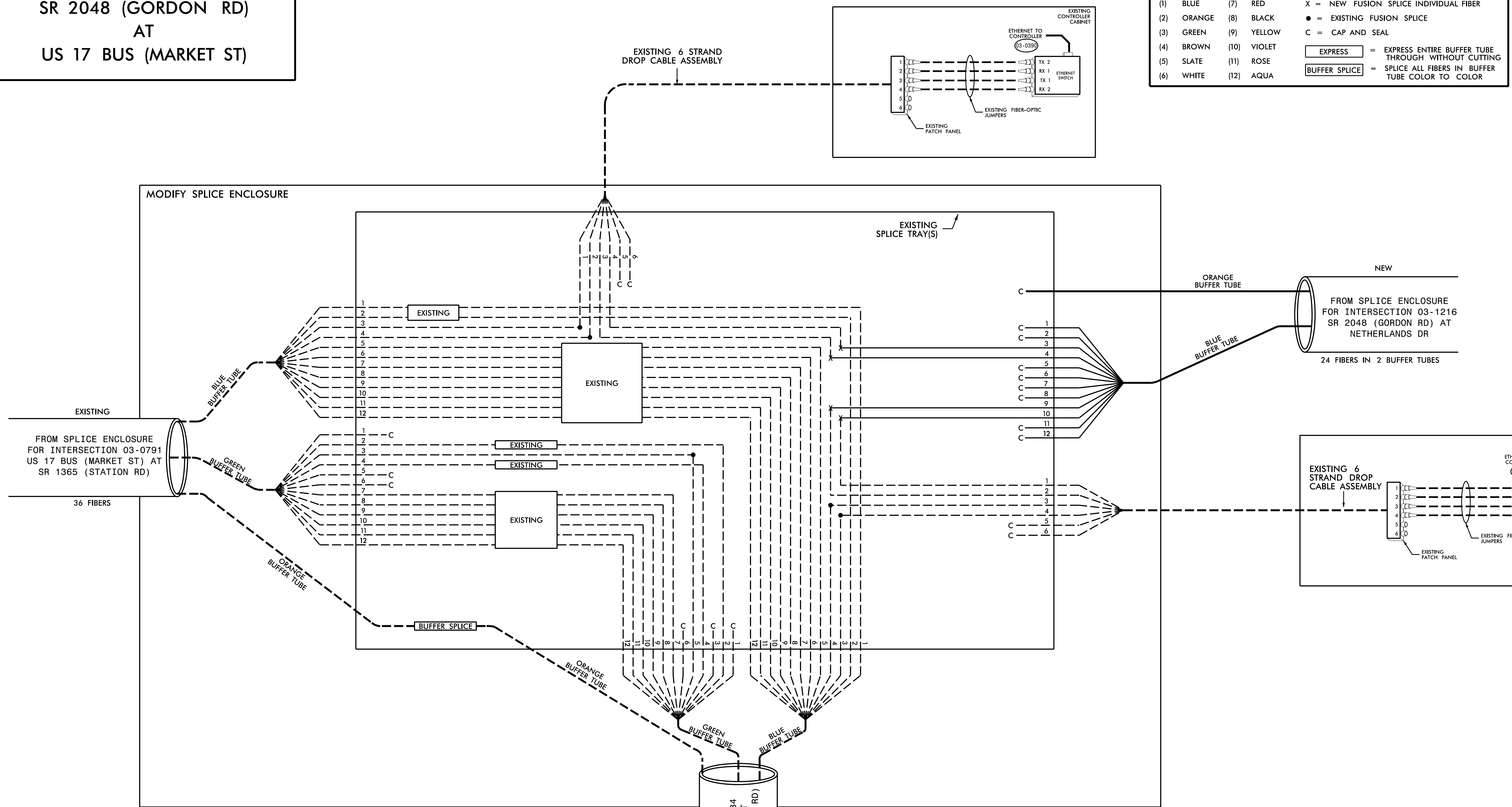
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343 E. Six Forks Road, Suite 200
Raleigh, North Carolina 27609
NC License No: C-1554
(919) 546-8997

	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS		
	Division 3 New Hanover County Wilmington	PLAN DATE: July 2023	
PREPARED BY: G.D. Berry	REVIEWED BY: N.R. Simmons	REVISIONS	INIT. DATE
SCALE: N/A	REVISIONS	INIT. DATE	DATE

DocuSigned by: *Natasha R. Simmons* 5/17/2024
CADD Filename: U6202_SCP-27.dgn

03-0390
SR 2048 (GORDON RD)
AT
US 17 BUS (MARKET ST)

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X = NEW FUSION SPlice INDIVIDUAL FIBER	
(2) ORANGE	(8) BLACK	● = EXISTING FUSION SPlice	
(3) GREEN	(9) YELLOW	C = CAP AND SEAL	
(4) BROWN	(10) VIOLET	EXPRESS = EXPRESS ENTIRE BUFFER TUBE THROUGH WITHOUT CUTTING	
(5) SLATE	(11) ROSE	BUFFER SPlice = SPlice ALL FIBERS IN BUFFER TUBE COLOR TO COLOR	
(6) WHITE	(12) AQUA		



NOTES:

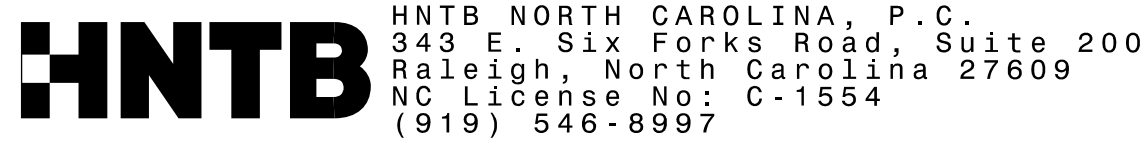
1. UNUSED FIBERS LEFT COILED AND STORED IN SPlice TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPlice TRAY.
3. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
4. INCLUDE ON THE COVER OF EACH SPlice TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPlice ENCLOSURE"

- (1) SPlice
- (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.

Final Phase

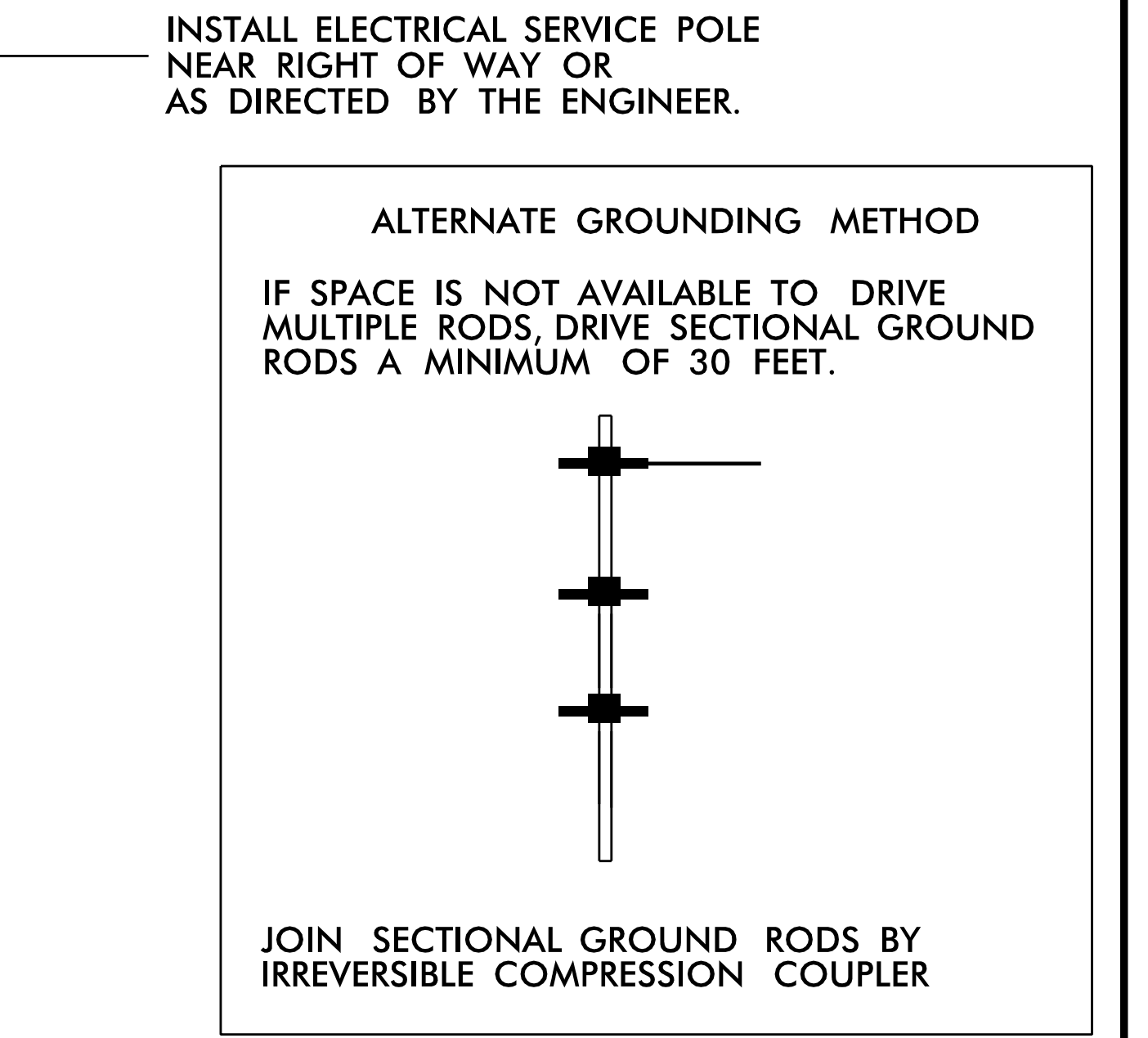
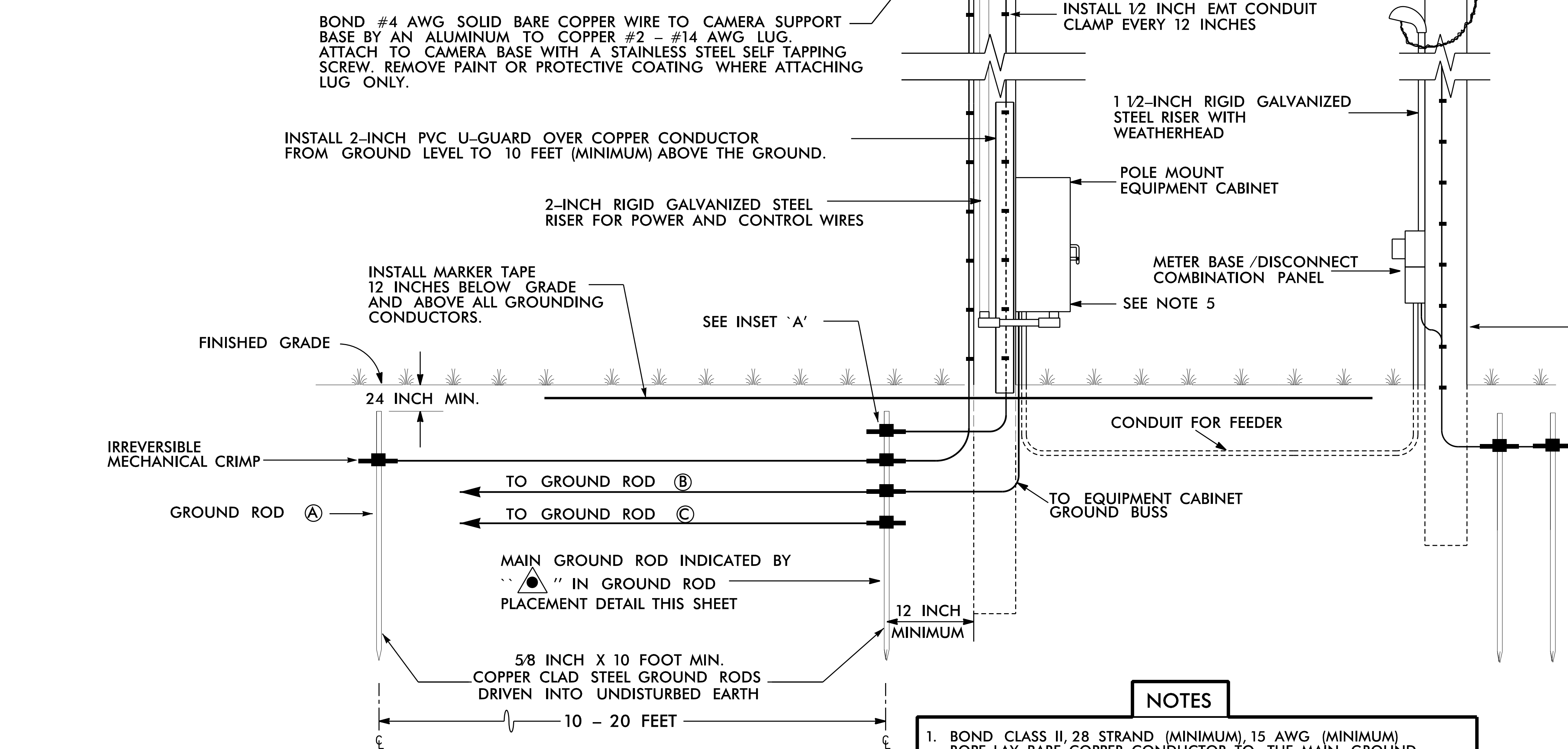
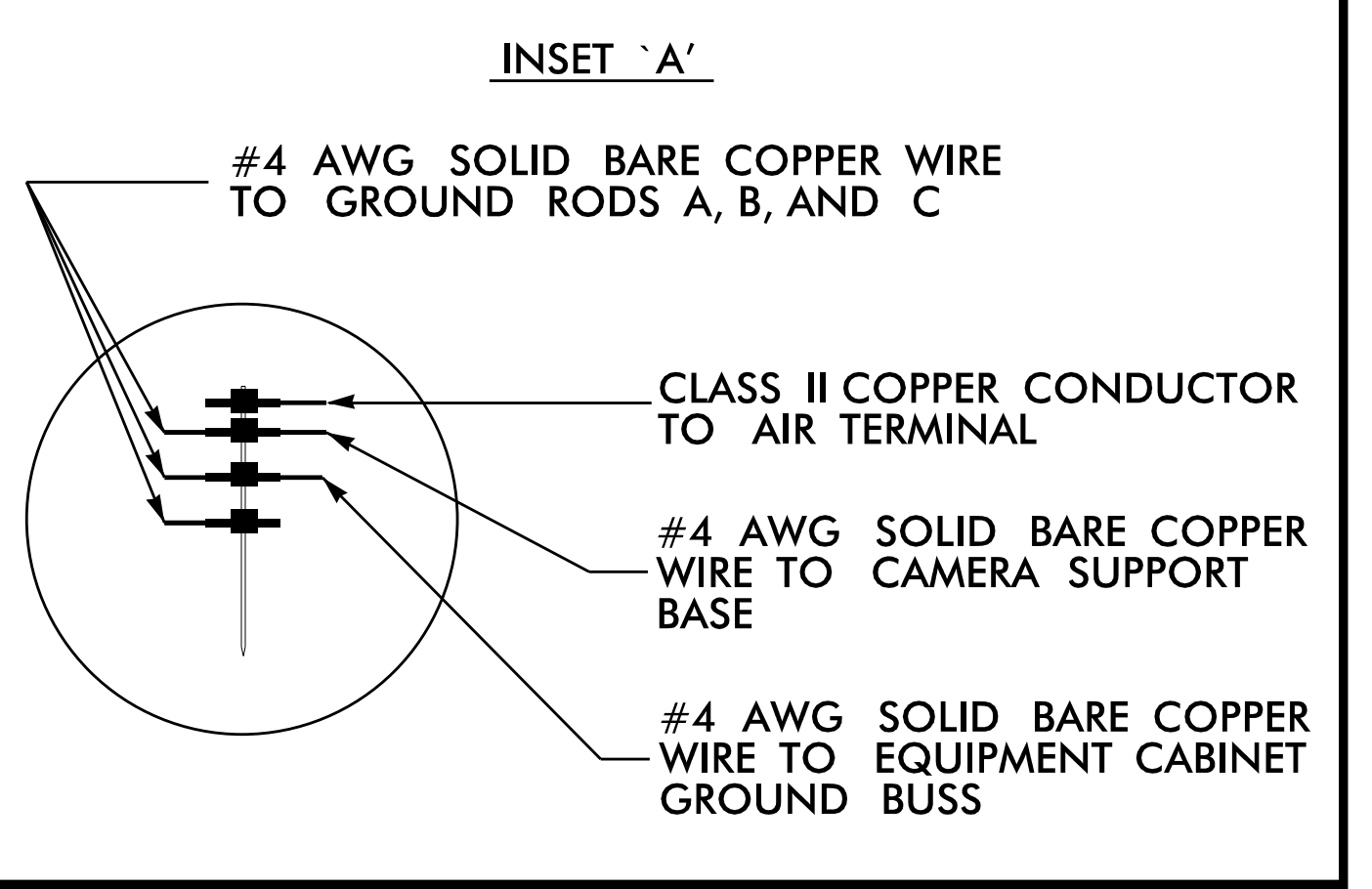
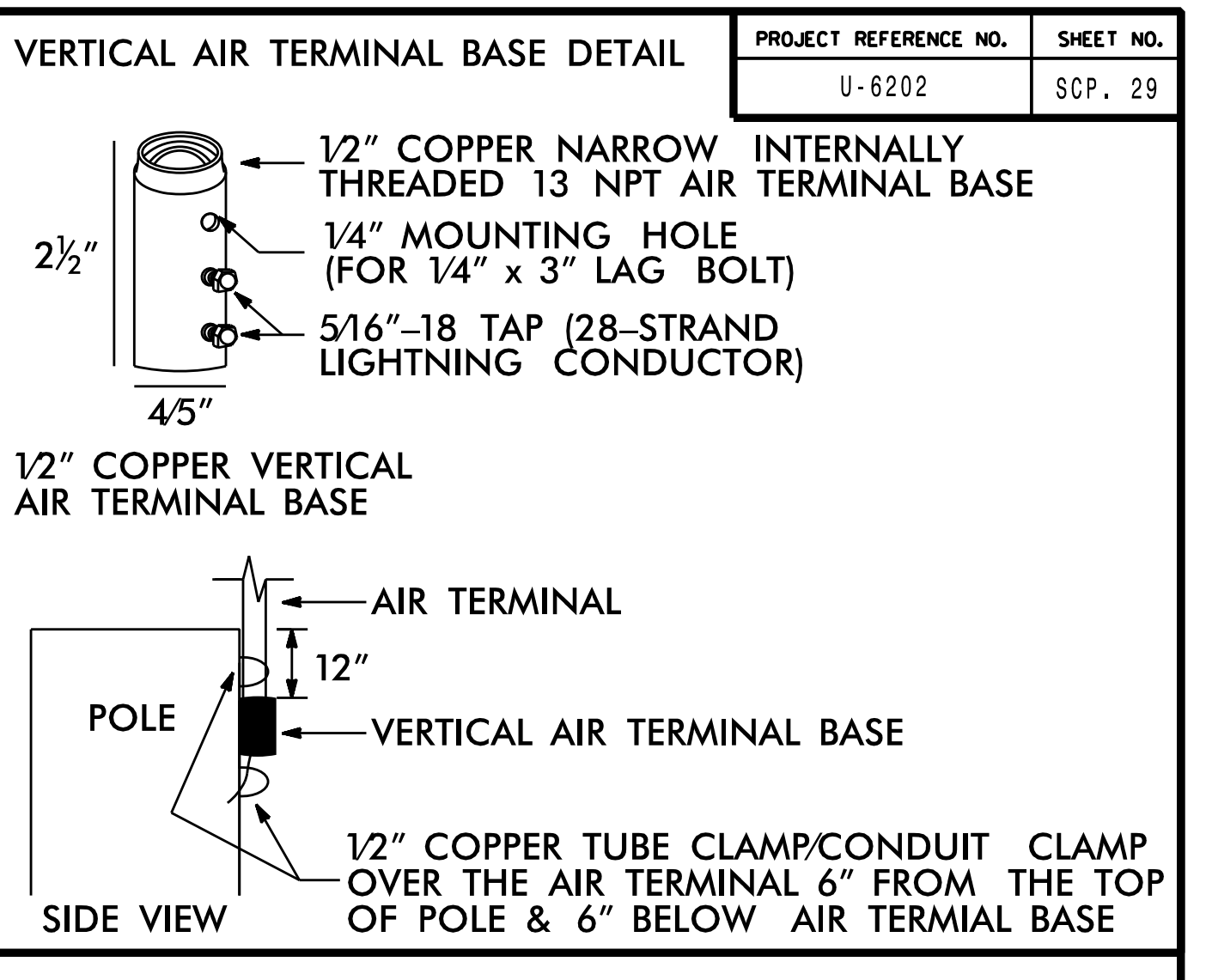
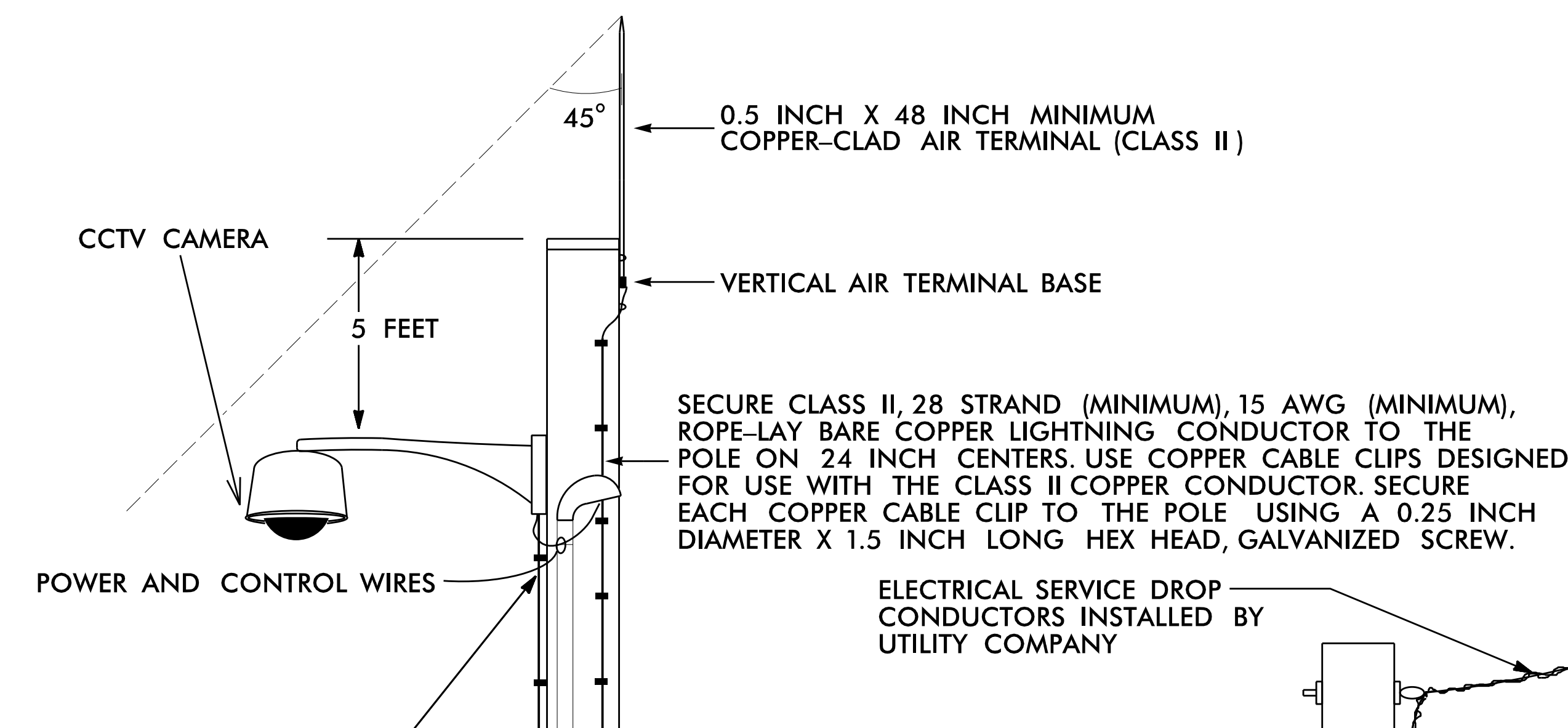
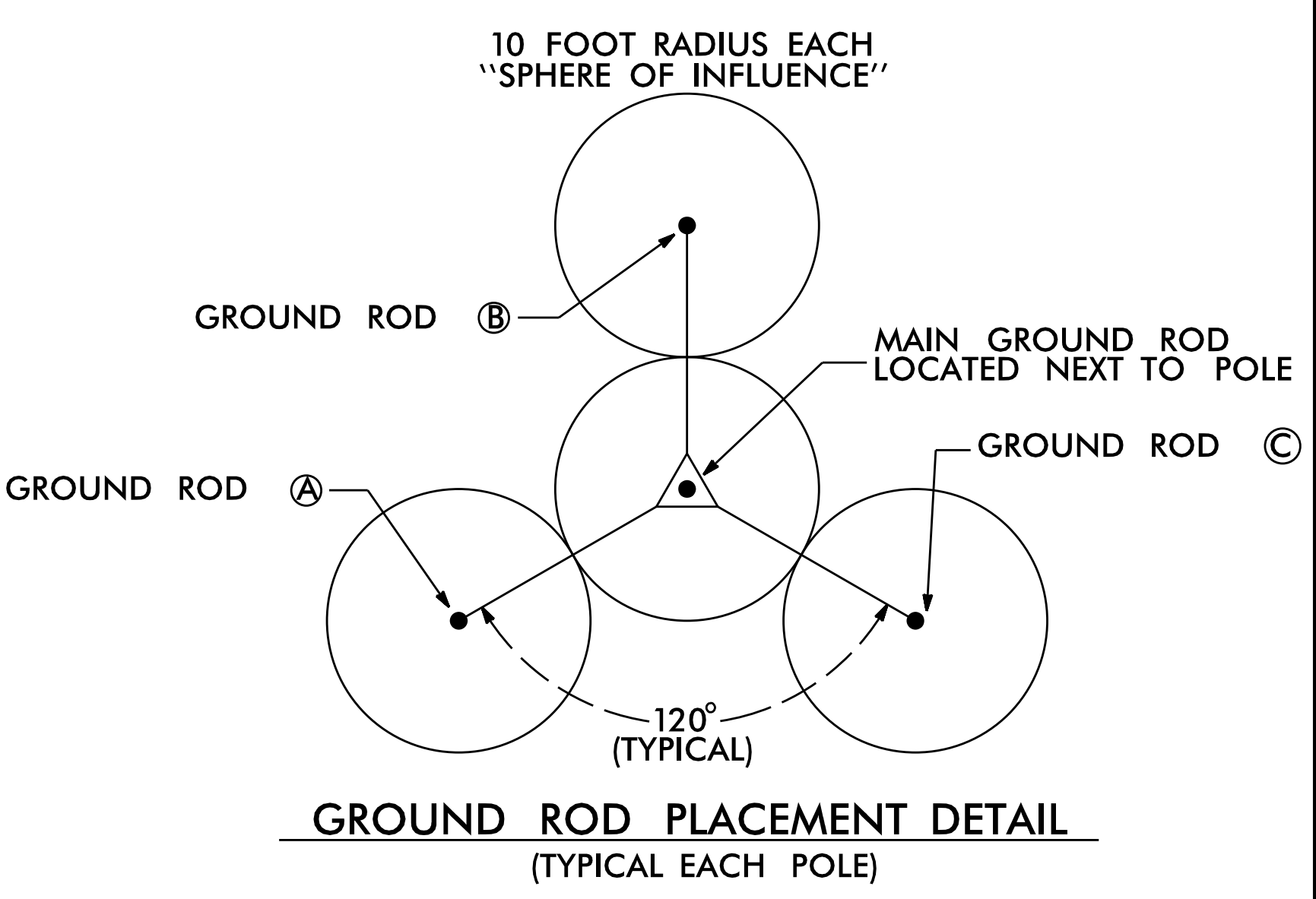
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	CITY OF WILMINGTON SIGNAL SYSTEM COMMUNICATIONS CABLE AND CONDUIT ROUTING PLANS	
	Division 3 New Hanover County Wilmington PLAN DATE: July 2023 PREPARED BY: G.D. Berry	REVIEWED BY: J.A. Wagner REVIEWED BY: N.R. Simmons
SCALE N/A	REVISIONS INIT. DATE	SEAL NORTH CAROLINA PROFESSIONAL ENGINEER NATASHA R. SIMMONS 031464 DocuSigned by: Natasha R. Simmons 5/17/2024 PREPARED BY: SIGNATURE DATE CADD Filename: U6202_SCP-28.dgn

250 N. Greenfield Place, Garner, NC 27529

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Raleigh, North Carolina 27609
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NOTES

1. BOND CLASS II, 28 STRAND (MINIMUM), 15 AWG (MINIMUM) ROPE-LAY BARE COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN IRREVERSIBLE MECHANICAL CRIMP. MAINTAIN MAXIMUM HORIZONTAL SEPARATION BETWEEN COPPER CONDUCTOR AND RISER.
2. ALL CONNECTIONS TO GROUND RODS SHOULD BE MADE WITH AN IRREVERSIBLE MECHANICAL CRIMP METHOD.
3. REFER TO STANDARD DRAWING 1700-2 FOR ALTERNATE GROUND ROD INSTALLATION METHOD AS APPROVED BY THE ENGINEER.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUSS AND NEUTRAL BUSS.

Plans Prepared for:

CCTV CAMERA INSTALLATION FOR WOOD POLES WITH AERIAL ELECTRICAL SERVICE TYPICAL DETAIL

Division 3 New Hanover County Wilmington

PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner

PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons

SCALE: N/A

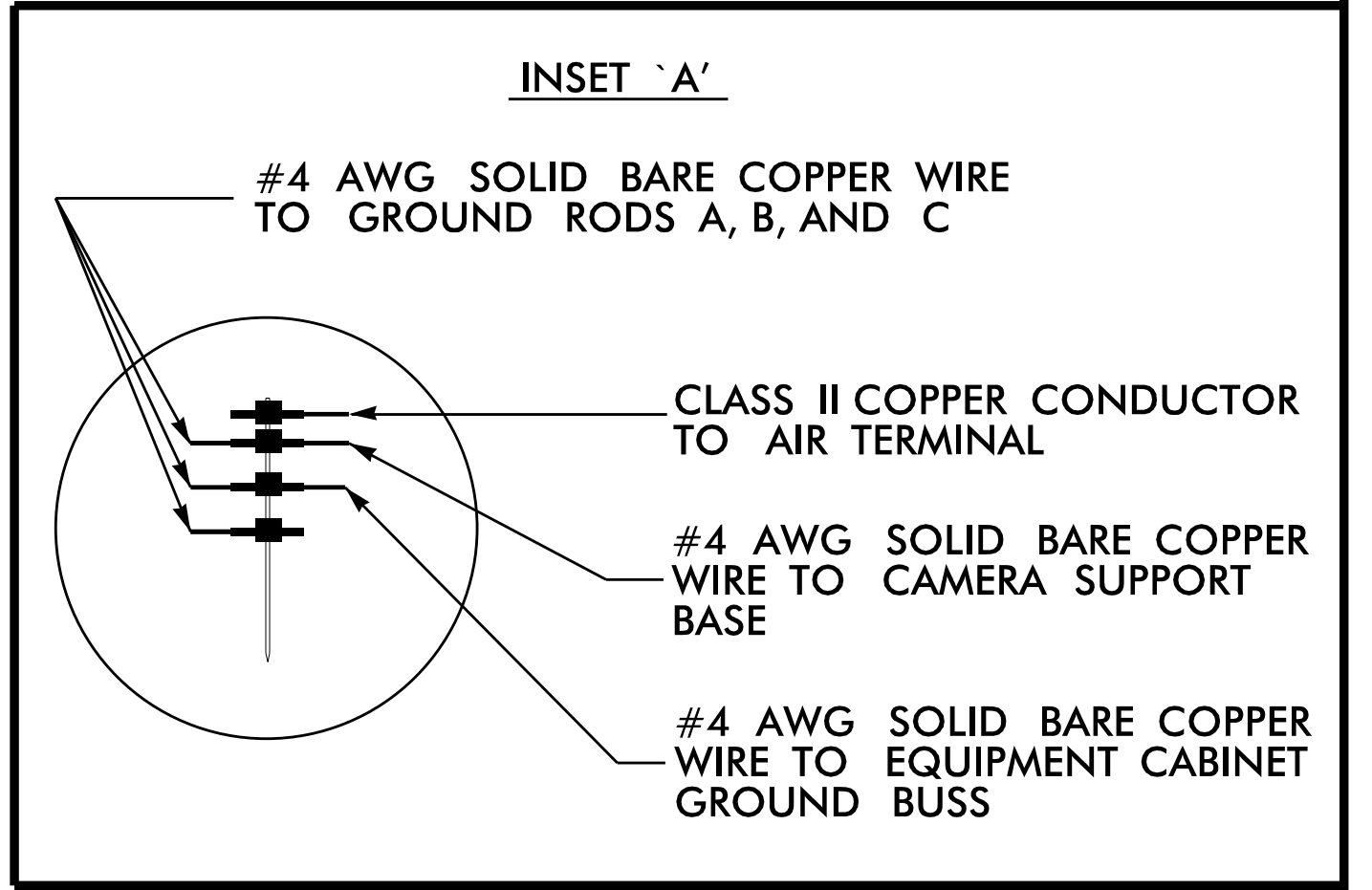
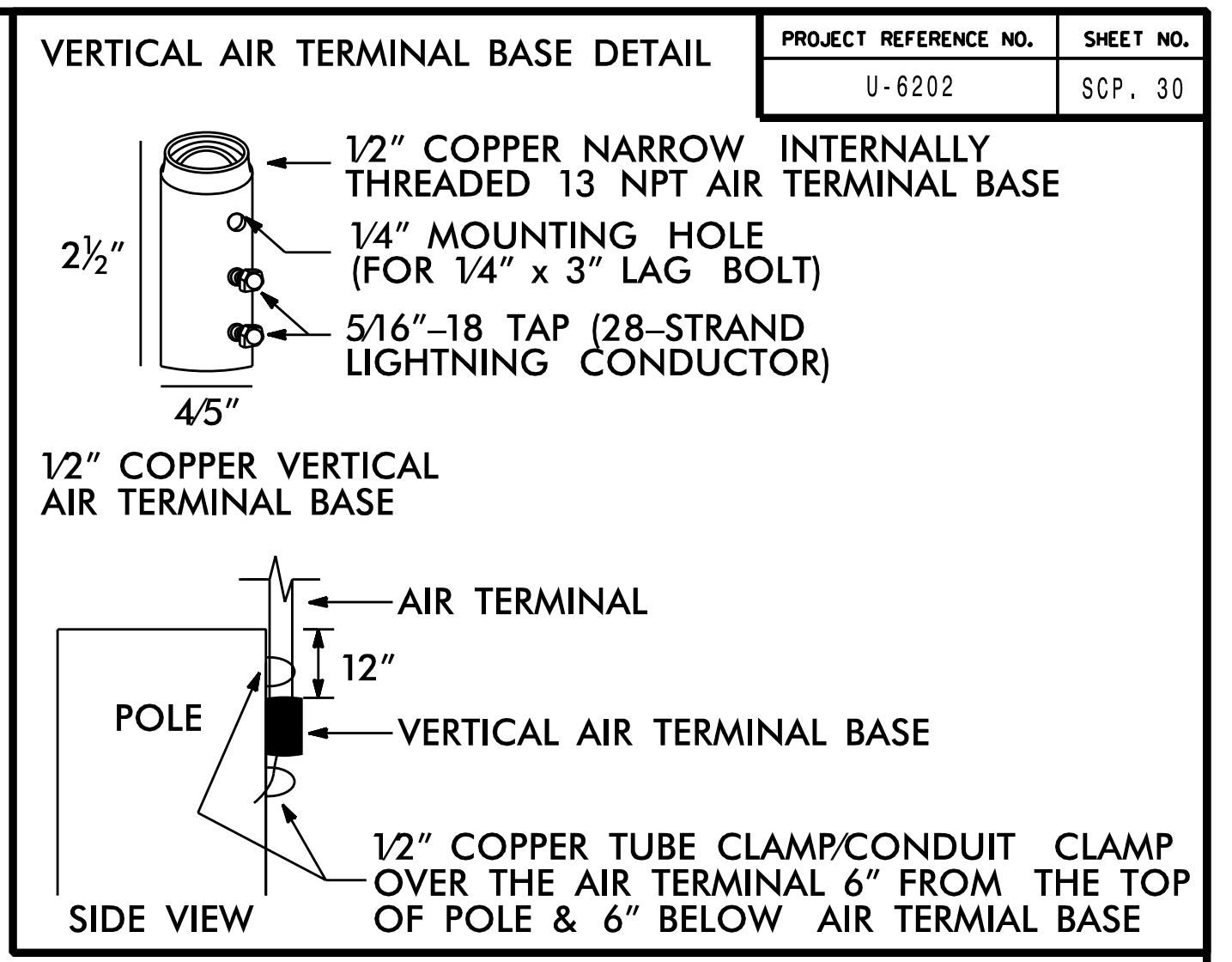
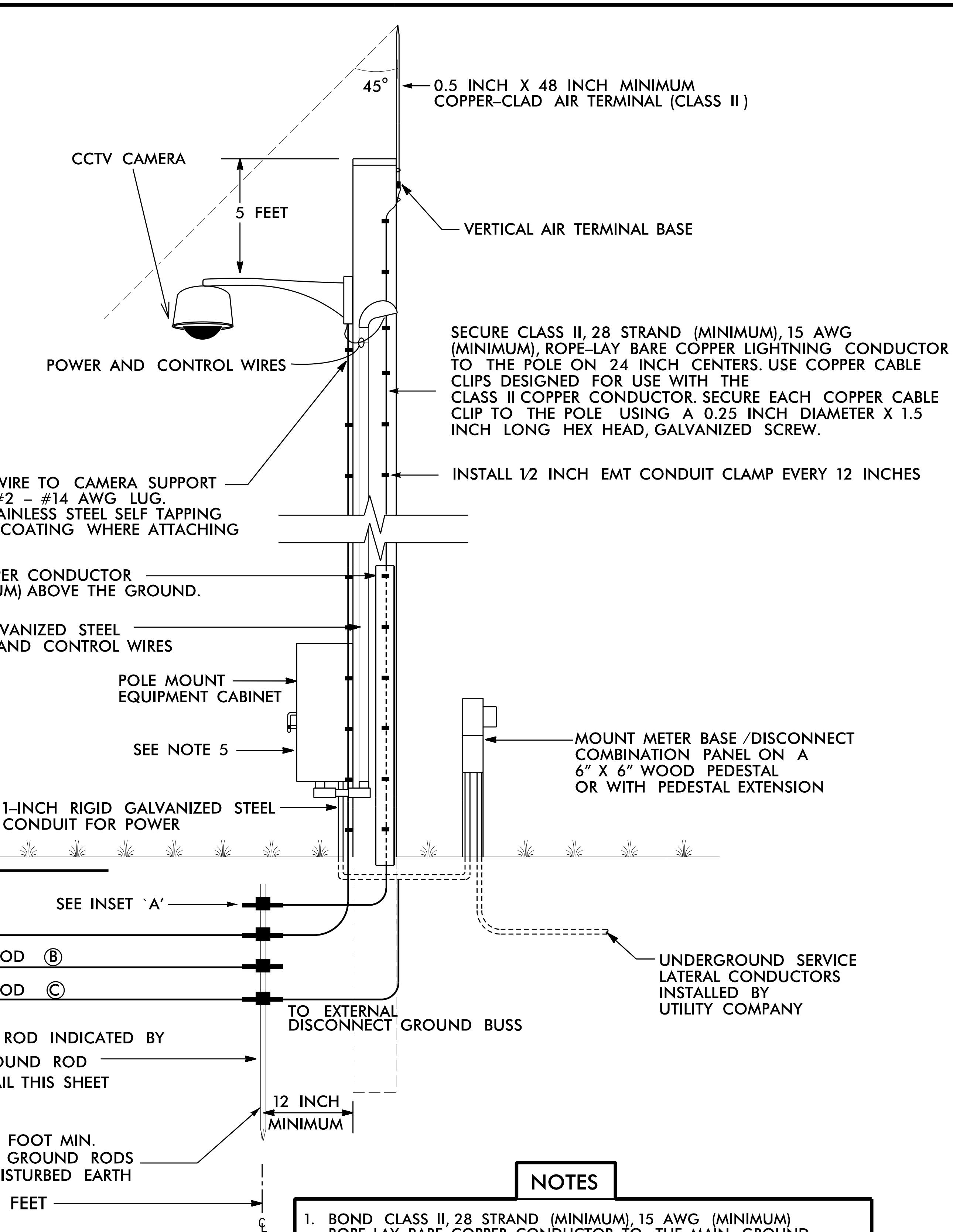
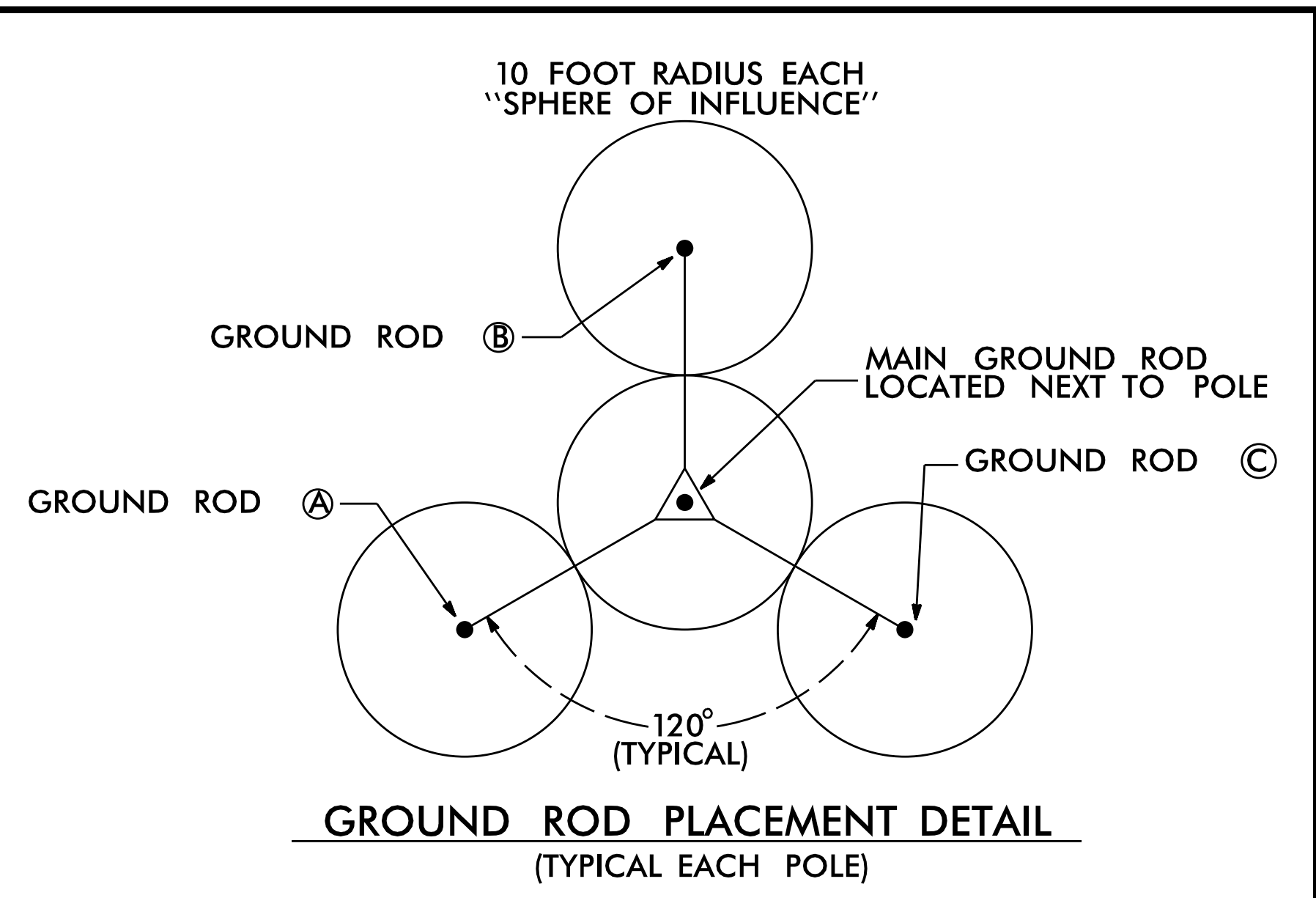
REVISIONS: INIT. DATE

DocuSigned by: *Natasha R. Simmons* 5/17/2024

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031464 JAYASHA R. SIMMONS

CADD File name: U6202_SCP-29.dgn

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BOND #4 AWG SOLID BARE COPPER WIRE TO CAMERA SUPPORT BASE BY AN ALUMINUM TO COPPER #2 - #14 AWG LUG. ATTACH TO CAMERA BASE WITH A STAINLESS STEEL SELF TAPPING SCREW. REMOVE PAINT OR PROTECTIVE COATING WHERE ATTACHING LUG ONLY.

INSTALL 2-INCH PVC U-GUARD OVER COPPER CONDUCTOR FROM GROUND LEVEL TO 10 FEET (MINIMUM) ABOVE THE GROUND.

2-INCH RIGID GALVANIZED STEEL RISER FOR POWER AND CONTROL WIRES

INSTALL MARKER TAPE 12 INCHES BELOW GRADE AND ABOVE ALL GROUNDING CONDUCTORS.

FINISHED GRADE

24 INCH MIN.

IRREVERSIBLE MECHANICAL CRIMP

GROUND ROD A

TO GROUND ROD B

TO GROUND ROD C

TO EXTERNAL DISCONNECT GROUND BUSS

MAIN GROUND ROD INDICATED BY "▲" IN GROUND ROD PLACEMENT DETAIL THIS SHEET

5/8 INCH X 10 FOOT MIN. COPPER CLAD STEEL GROUND RODS DRIVEN INTO UNDISTURBED EARTH

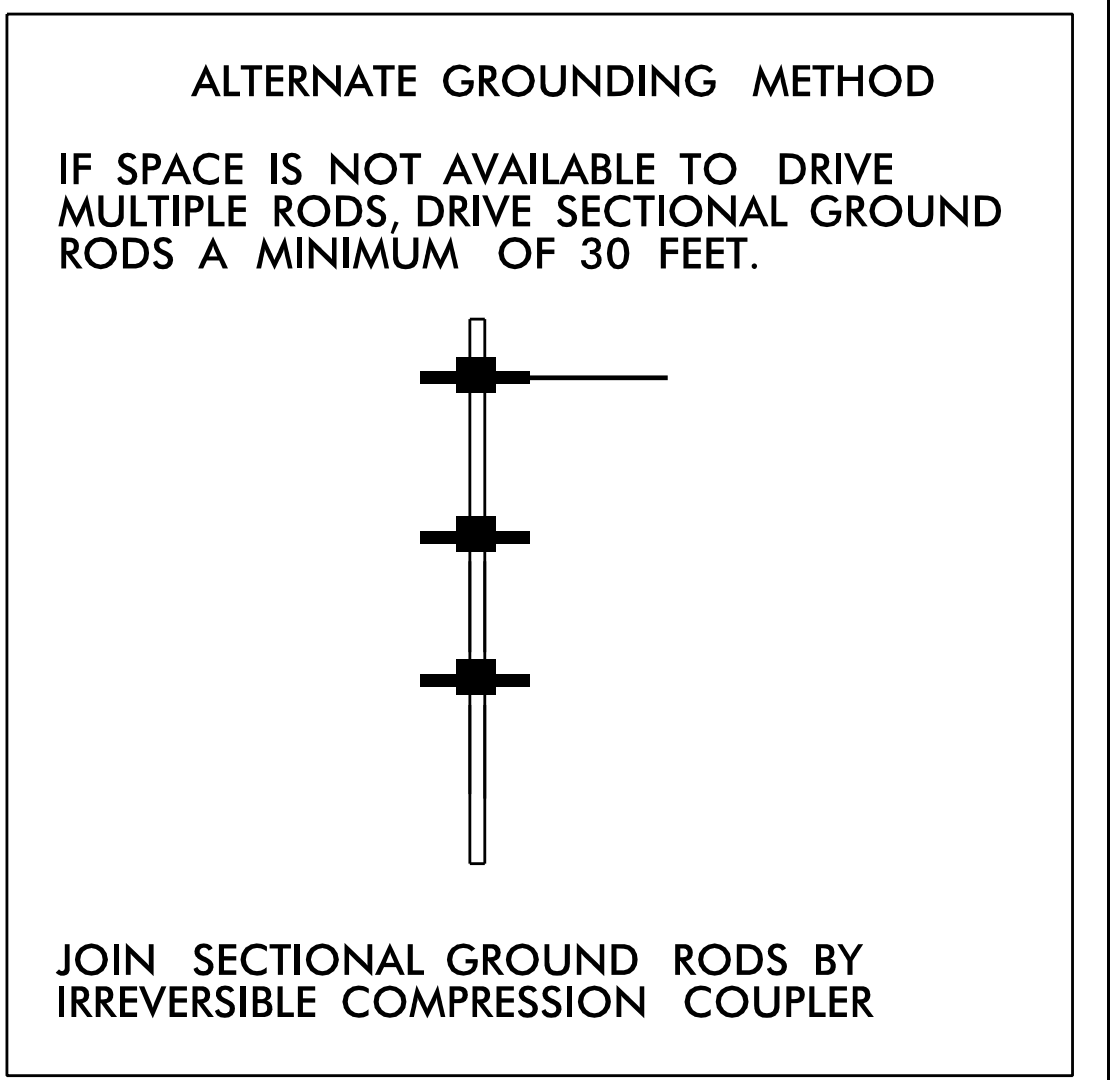
10 - 20 FEET

12 INCH MINIMUM

INSTALL 1/2 INCH EMT CONDUIT CLAMP EVERY 12 INCHES

MOUNT METER BASE /DISCONNECT COMBINATION PANEL ON A 6" X 6" WOOD PEDESTAL OR WITH PEDESTAL EXTENSION

UNDERGROUND SERVICE LATERAL CONDUCTORS INSTALLED BY UTILITY COMPANY



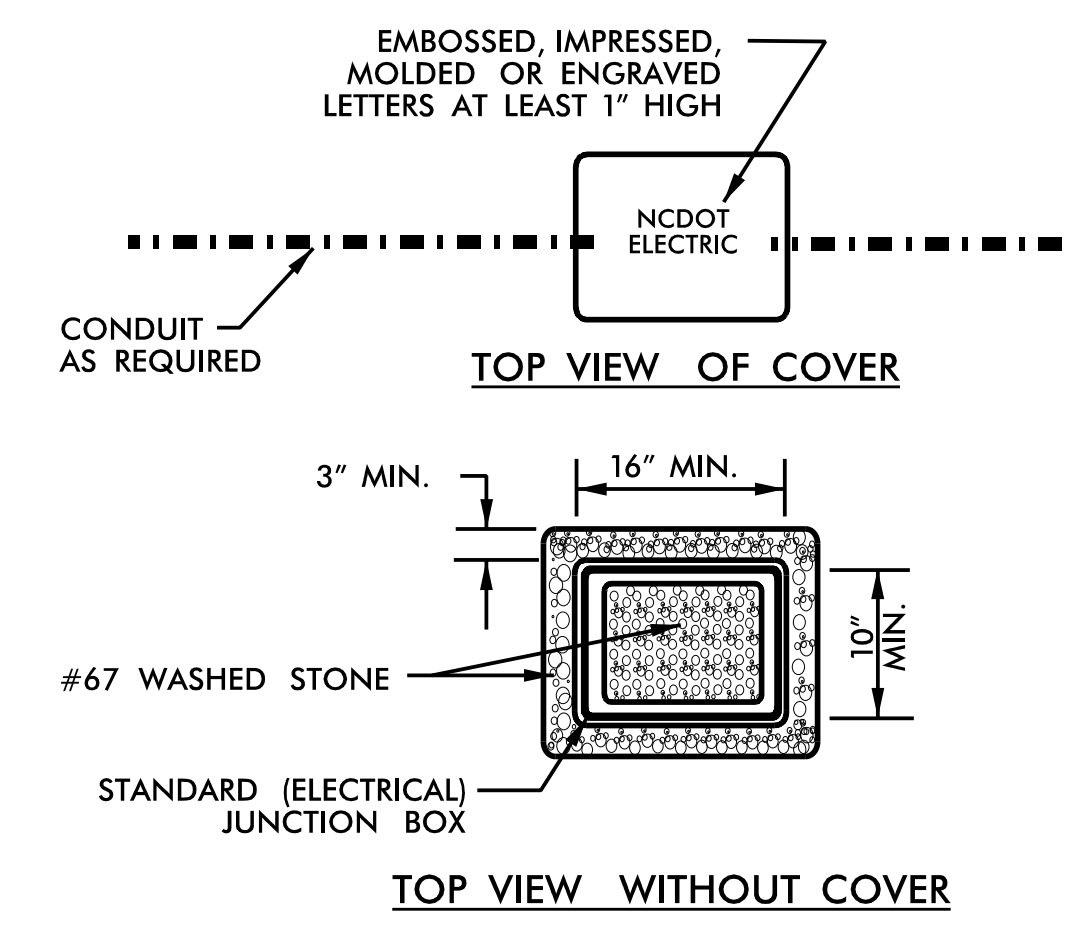
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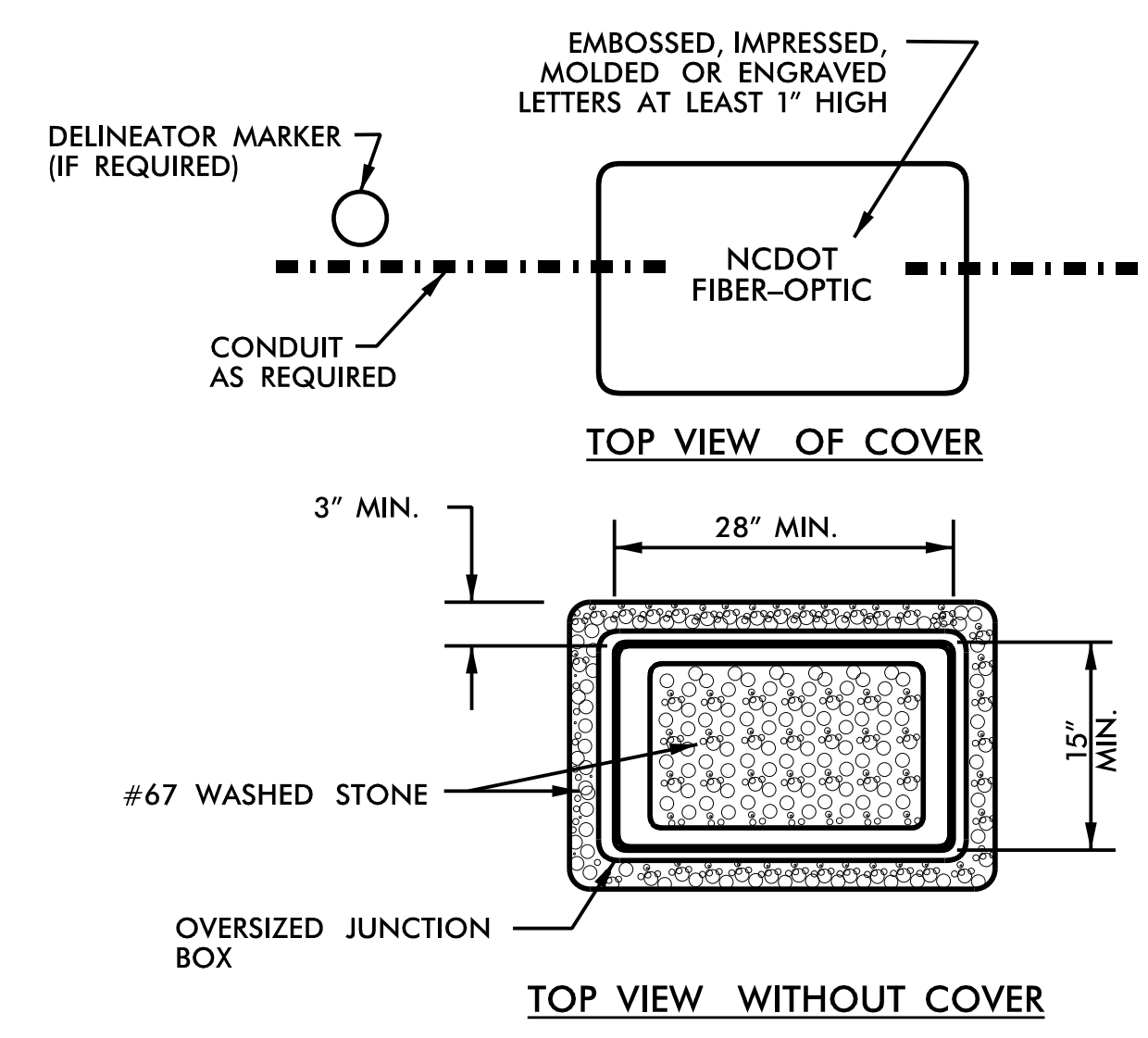
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<p>Plans Prepared for:</p> <p>250 N. Greenfield Place, Garner, NC 27529</p>	<p>CCTV CAMERA INSTALLATION FOR WOOD POLES WITH UNDERGROUND ELECTRICAL SERVICE TYPICAL DETAIL</p>		<p>SEAL</p> <p>SEAL 031464 NATASHA R. SIMMONS ENGINEER</p>
	<p>Division 3 New Hanover County Wilmington</p> <p>PLAN DATE: July 2023 REVIEWED BY: J.A. Wagner</p> <p>PREPARED BY: G.D. Berry REVIEWED BY: N.R. Simmons</p>	<p>SCALE</p> <p>N/A</p>	

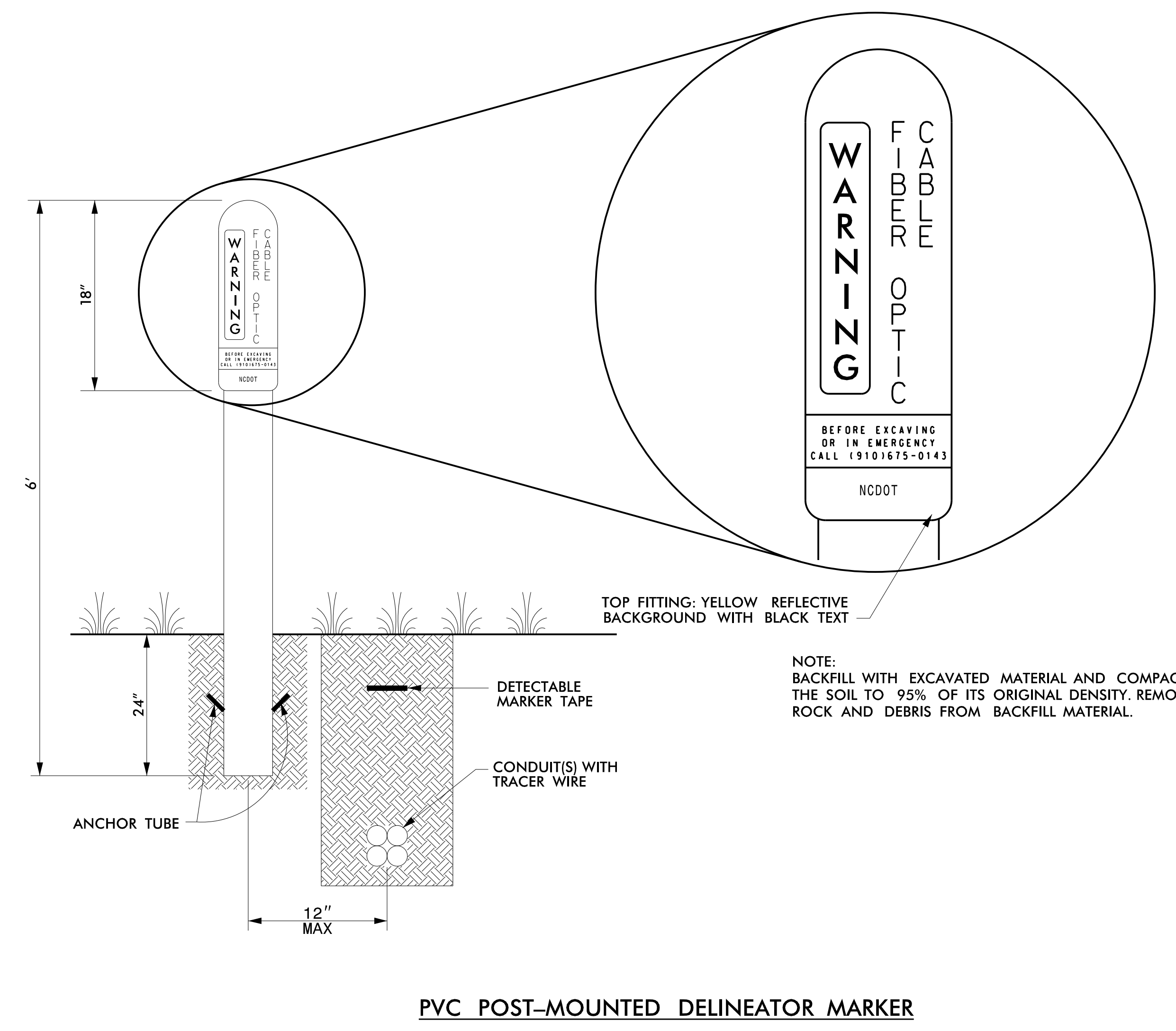
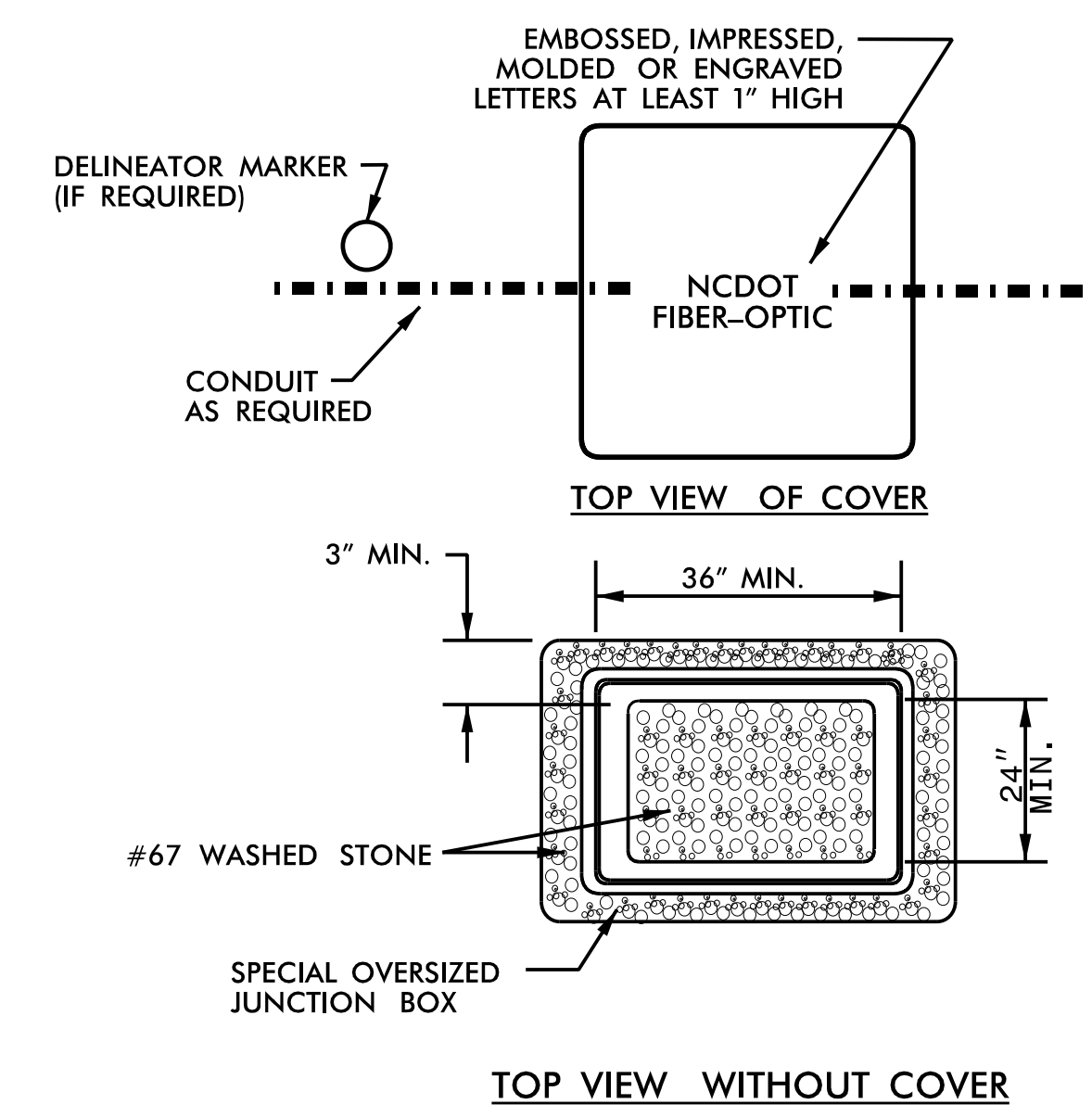
**STANDARD (ELECTRICAL)
JUNCTION BOX**



**OVERSIZED HEAVY DUTY
JUNCTION BOX**



**SPECIAL OVERSIZED HEAVY DUTY
JUNCTION BOX**



PVC POST-MOUNTED DELINEATOR MARKER

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<p>Plans Prepared for:</p>	TYPICAL DETAILS		<p>SEAL</p>
	<p>Division 3 New Hanover County Wilmington</p> <p>PLAN DATE: July 2023</p> <p>PREPARED BY: G.D. Berry</p> <p>SCALE: N/A</p>	<p>REVIEWED BY: J.A. Wagner</p> <p>REVIEWED BY: N.R. Simmons</p>	