This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

TIP PROJECT: U-2579AA

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	U-2579AA	ITS-1

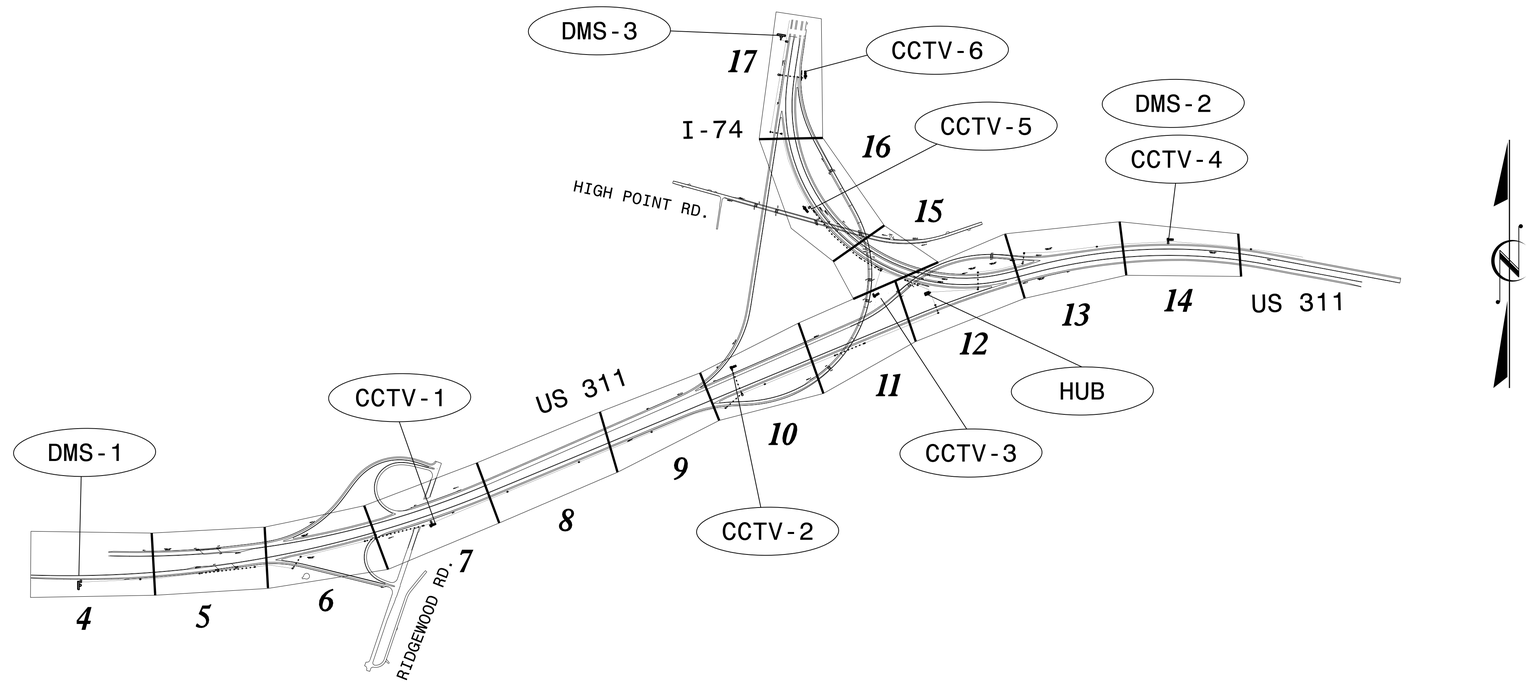
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
34839.3.13	0074226	CONST.
34839.1.7	0074226	PE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: *WINSTON–SALEM NORTHERN BELTWAY*
EASTERN SECTION (FUTURE I–74)
FROM US 311 TO I–40

TYPE OF WORK: *COMMUNICATIONS CABLE AND CONDUIT ROUTING, CCTV CAMERA, DYNAMIC MESSAGE SIGN AND HUB CABINET INSTALLATION*



2018 STANDARD SPECIFICATIONS

PROJECT LENGTH
PROJECT LENGTH = 1.60 MILES

LETTING DATE:
OCTOBER 18, 2022

INDEX OF SHEETS

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" ROADWAY DESIGN UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1700.01	ELECTRICAL SERVICE OPTIONS
1700.02	ELECTRICAL SERVICE GROUNDING
1715.01	UNDERGROUND CONDUIT-TRENCHING
1716.01	JUNCTION BOXES
1720.01	WOOD POLES
1730.01	FIBER OPTIC CABLE

2018 STANDARD SPECIFICATION

NCDOT CONTACT:
TRANSPORTATION MOBILITY AND SAFETY

M. M. MCDIARMID, P.E, CPM
STATE TRANSPORTATION SYSTEMS
MANAGEMENT & OPERATIONS ENGINEER

Prepared in the Offices of:

750 N. Greenfield Pkwy., Garner, NC 27529

ENGLISH

ALL DIMENSIONS IN THESE PLANS ARE IN FEET UNLESS OTHERWISE NOTED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce D2628B8C8B5C4A4... SIGNATURE

06/22/2022 DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-2

1 INSTALL COAX CABLE

2 INSTALL 4–WIRE COPPER FEEDER CONDUCTORS

3 INSTALL 3–WIRE COPPER FEEDER CONDUCTORS

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

20 INSTALL CABLE(S) IN NEW RISER

21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB–OUTS

22 INSTALL NEW CONDUIT INTO 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 EXISTING 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 HUB 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

42 INSTALL WOOD POLE

43 REMOVE EXISTING WOOD POLE

44 INSTALL DMS ASSEMBLY

45 INSTALL DMS PEDESTAL STRUCTURE

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 INSTALL NEW SOLAR ASSEMBLY

57 INSTALL 10KVA SINGLE PHASE TRANSFORMER

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 INSTALL CCTV EXTENSION POLE

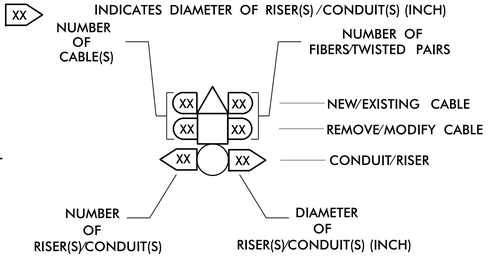
LEGEND

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

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NCDOT Transportation Mobility and Safety Division — Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

CONSTRUCTION NOTES

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE: MARCH 2022 REVIEWED BY: A. J. SKUCE

PREPARED BY: J. WALDEN

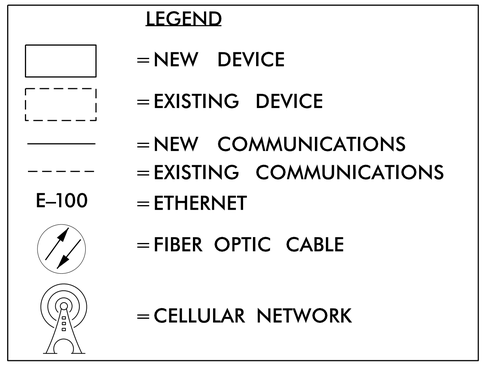
REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce D262B88C8B5C464... 03/31/2022 DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-3



NOTES

1. DEVICE NUMBERING IS FOR THE PURPOSES OF THIS PROJECT ONLY.
2. INSTALL DEPARTMENT SUPPLIED CELL MODEMS IN DMS CABINETS FOR BACKUP COMMUNICATIONS. ALLOW 8 WEEK LEAD TIME AFTER REQUESTING THE MODEMS FROM THE DEPARTMENT.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Integrated Mobility Division

750 N. Greenfield Pkwy., Garner, NC 27529

DEVICE CONNECTION DIAGRAM

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

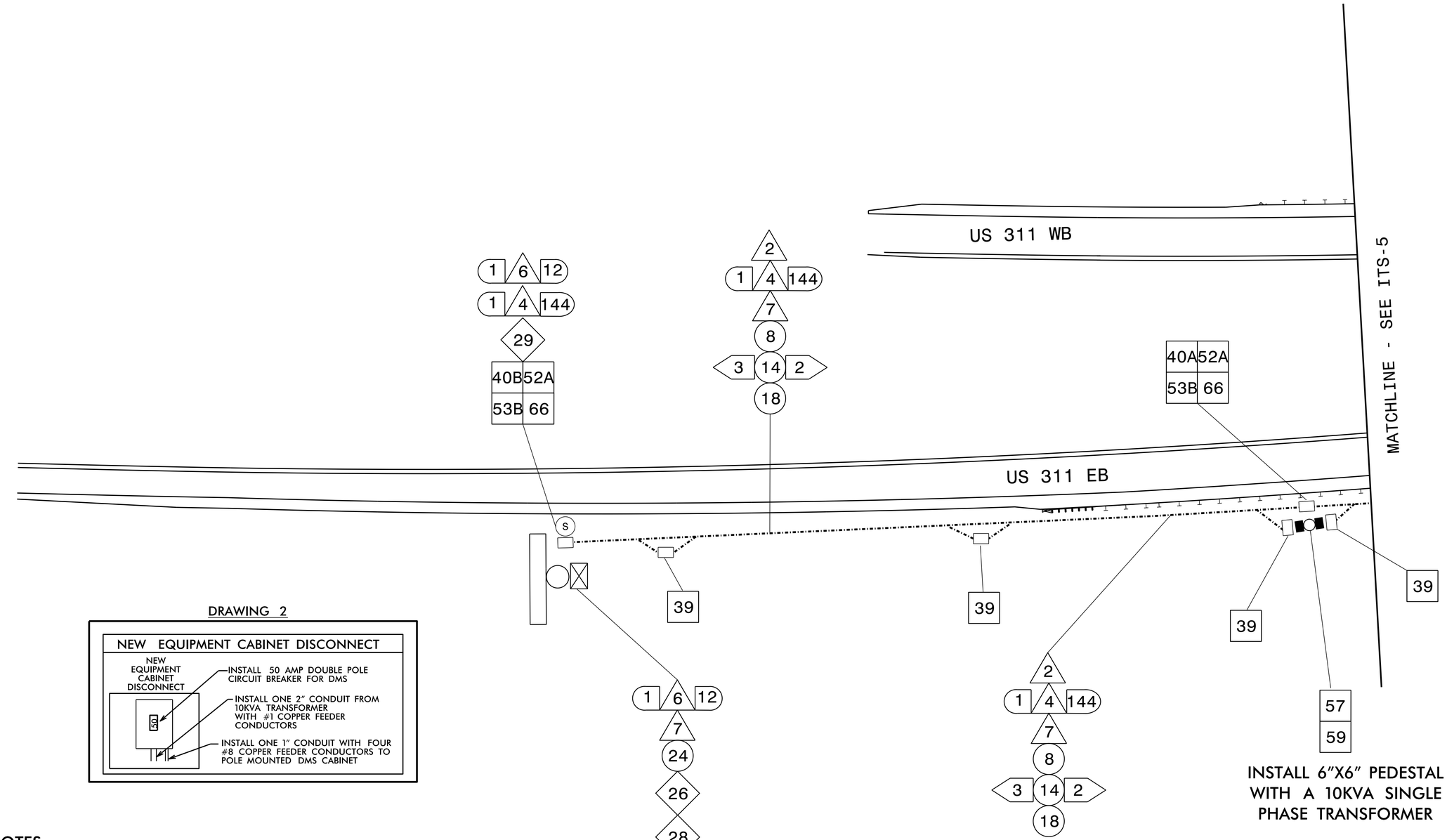
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by:
Andrew J. Skuce
D262B88C8B5C464...

03/31/2022
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-4



DRAWING 2

NOTES

1. OBTAIN FINAL DMS LOCATION APPROVAL FROM THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) BEFORE INITIATING ANY WORK AT THIS LOCATION.
2. CONTACT ENGINEER TO REQUEST NCDOT SUPPLIED MODEM AT LEAST SIX WEEKS PRIOR TO INSTALLATION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE 0 50′ 1" = 50′

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

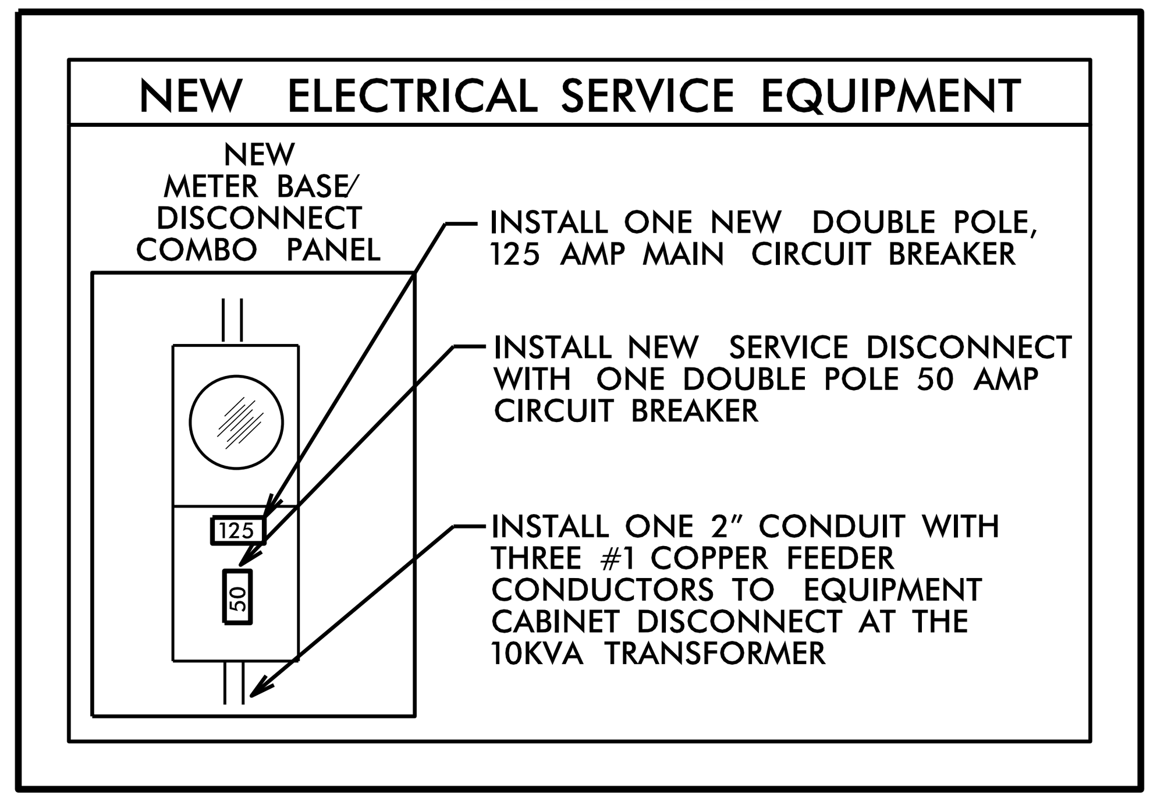
3/31/2022

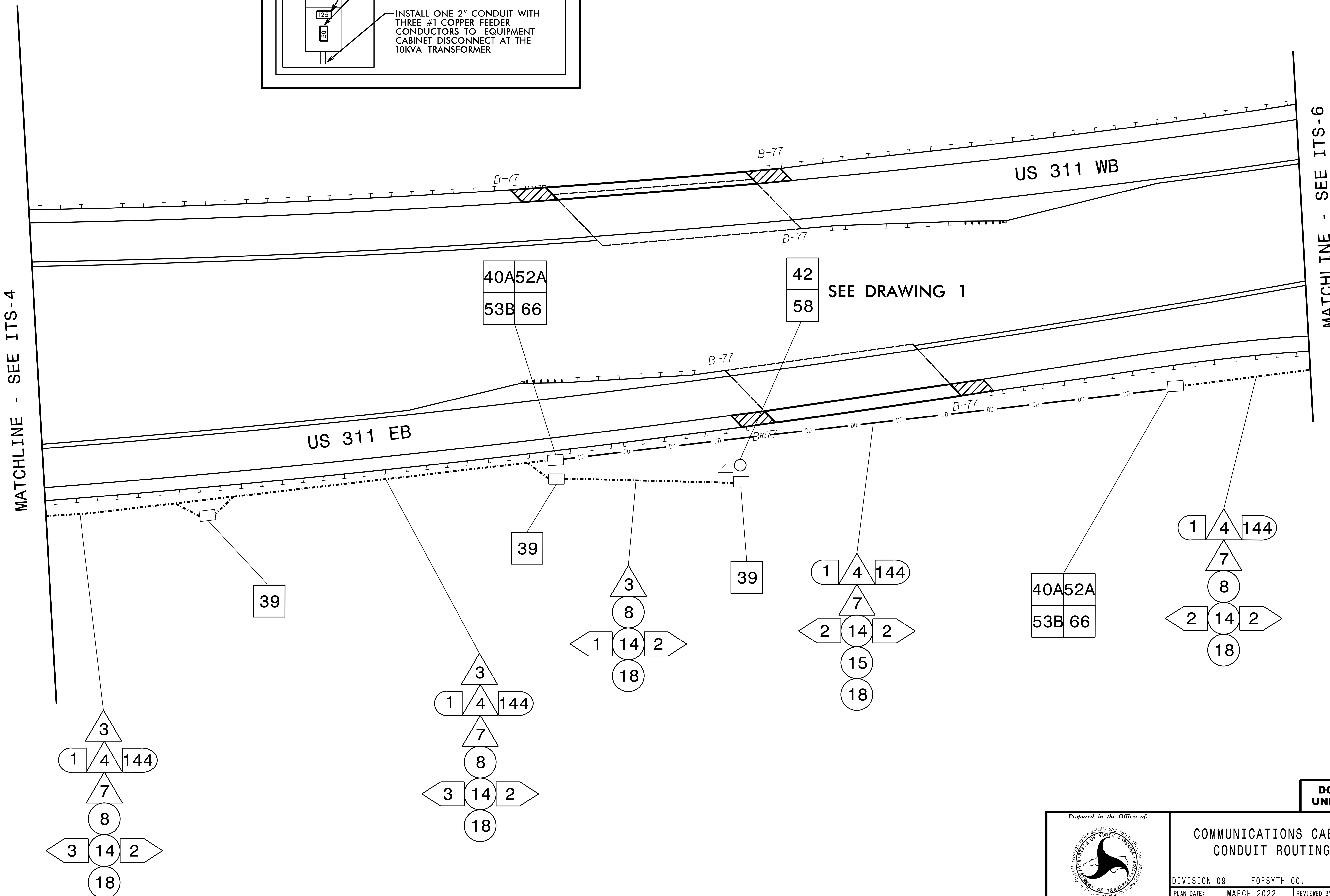
DocuSigned by: Andrew J. Skuce

DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-5

DRAWING 1





DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

N

SCALE 0 50′ 1″ = 50′

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

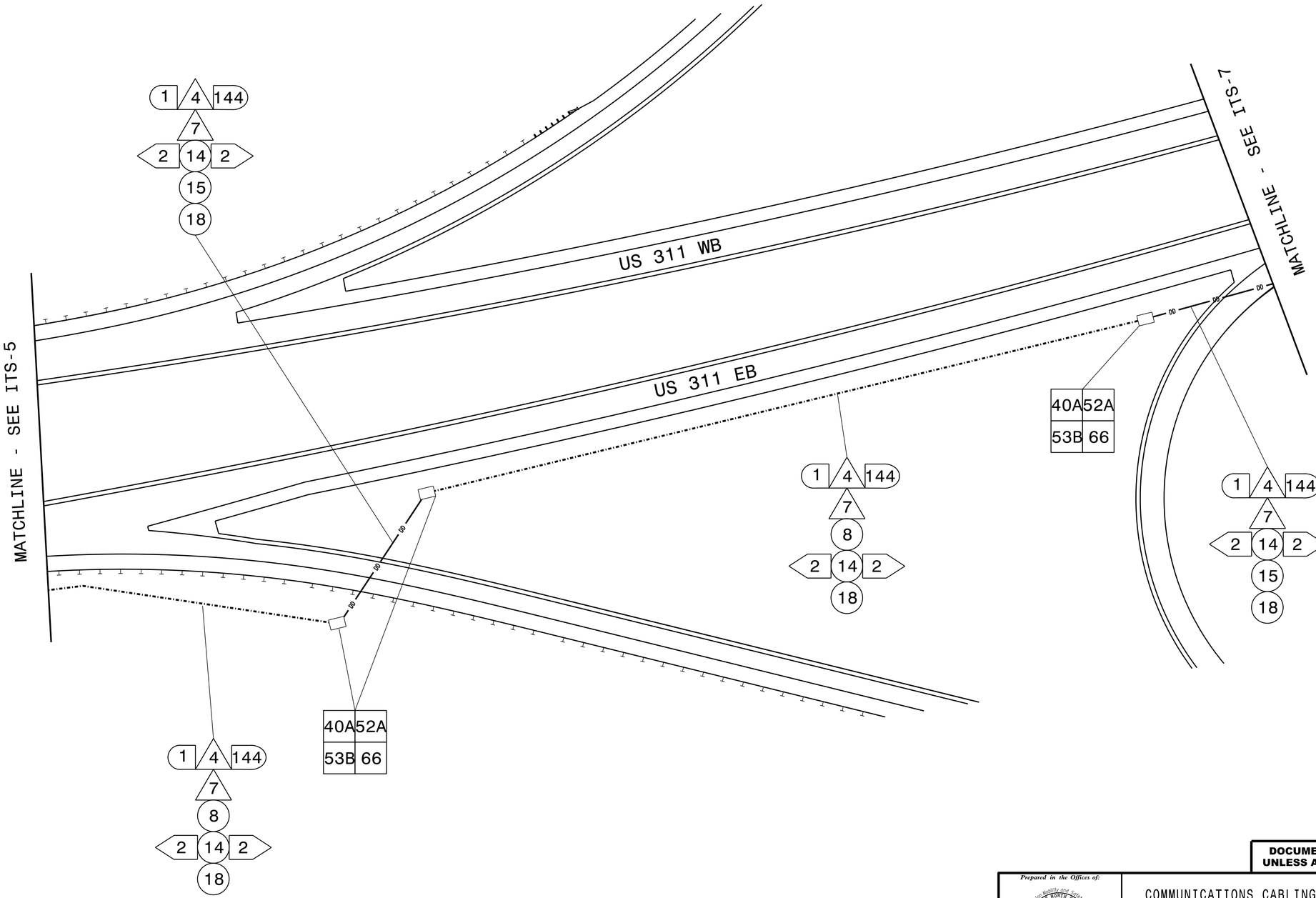
DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE
03/31/2022
DocuSigned by:
Andrew J. Skuce
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-6



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NCDOT Transportation Mobility and Safety Division — Intelligent Transportation Systems Section — STATE OF NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

SCALE 0 50′ 1" = 50′

REVISIONS	INIT.	DATE

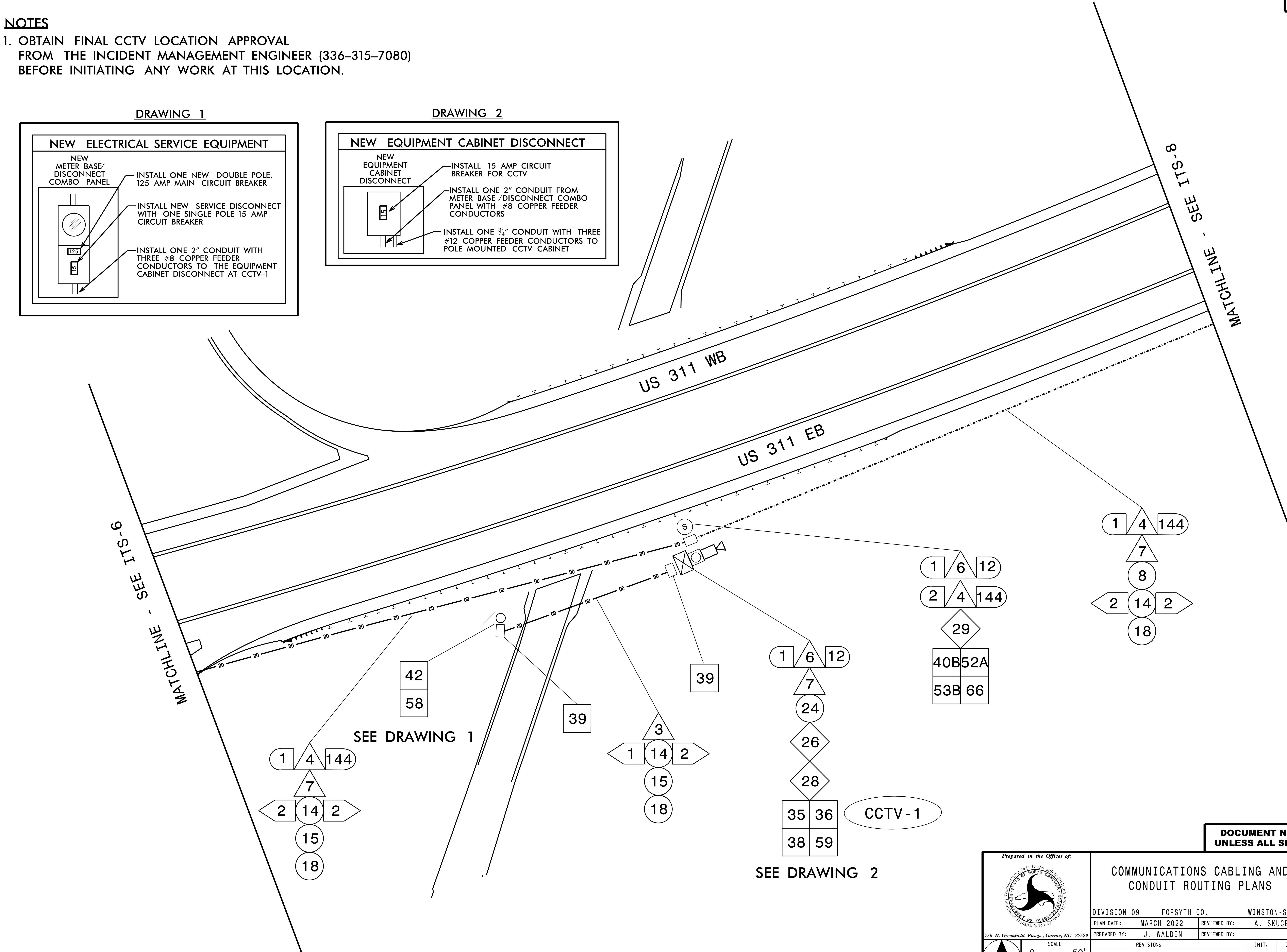
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce D262B8BC8B5C464...

03/31/2022
DATE

NOTES

1. OBTAIN FINAL CCTV LOCATION APPROVAL FROM THE INCIDENT MANAGEMENT ENGINEER (336-315-7080) BEFORE INITIATING ANY WORK AT THIS LOCATION.



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

REVISIONS	INIT.	DATE

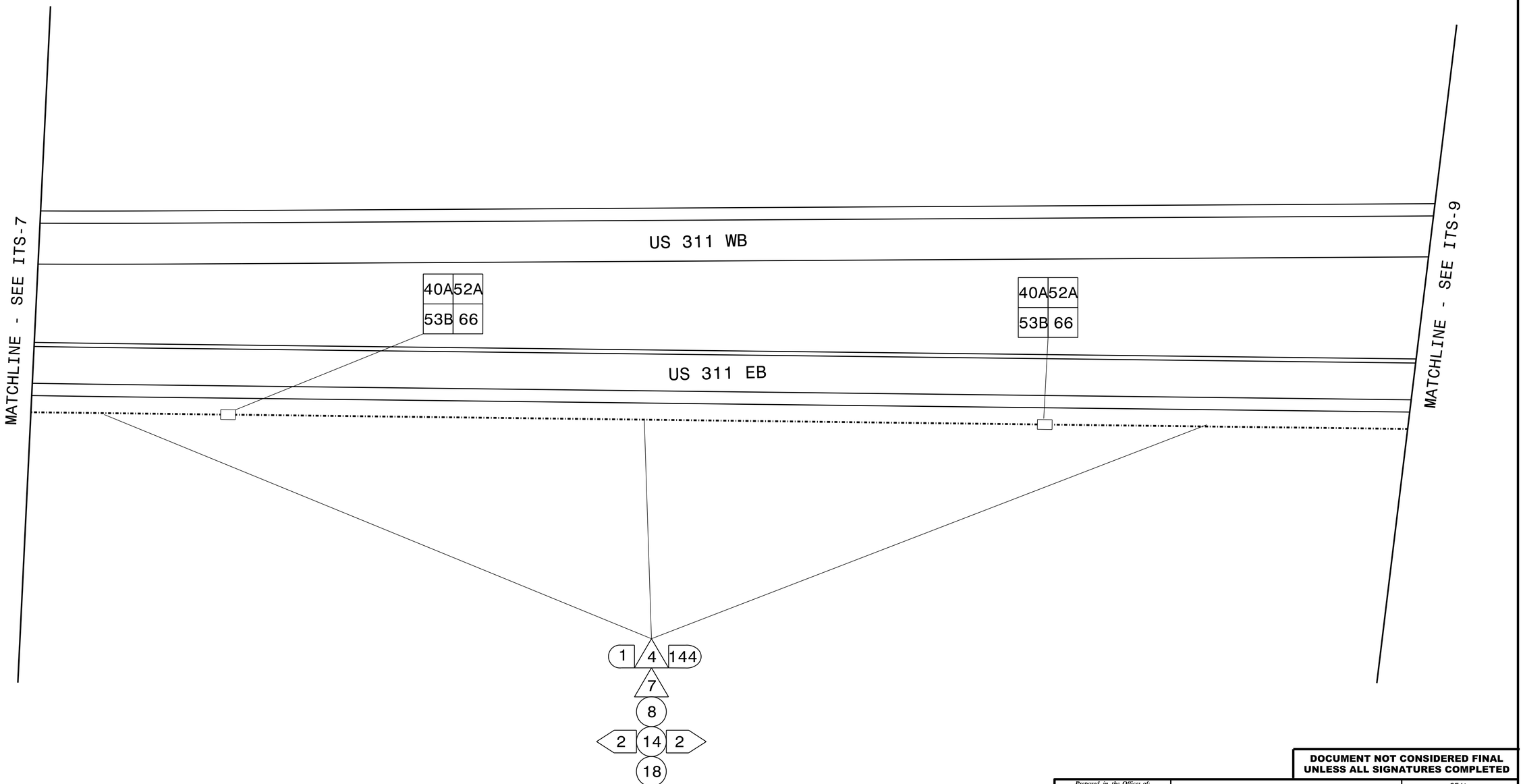
SCALE 0 50' 1" = 50'

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce

03/31/2022 DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-8



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE: MARCH 2022 REVIEWED BY: A. SKUCE

PREPARED BY: J. WALDEN REVIEWED BY:

SCALE 0 50′ 1" = 50′

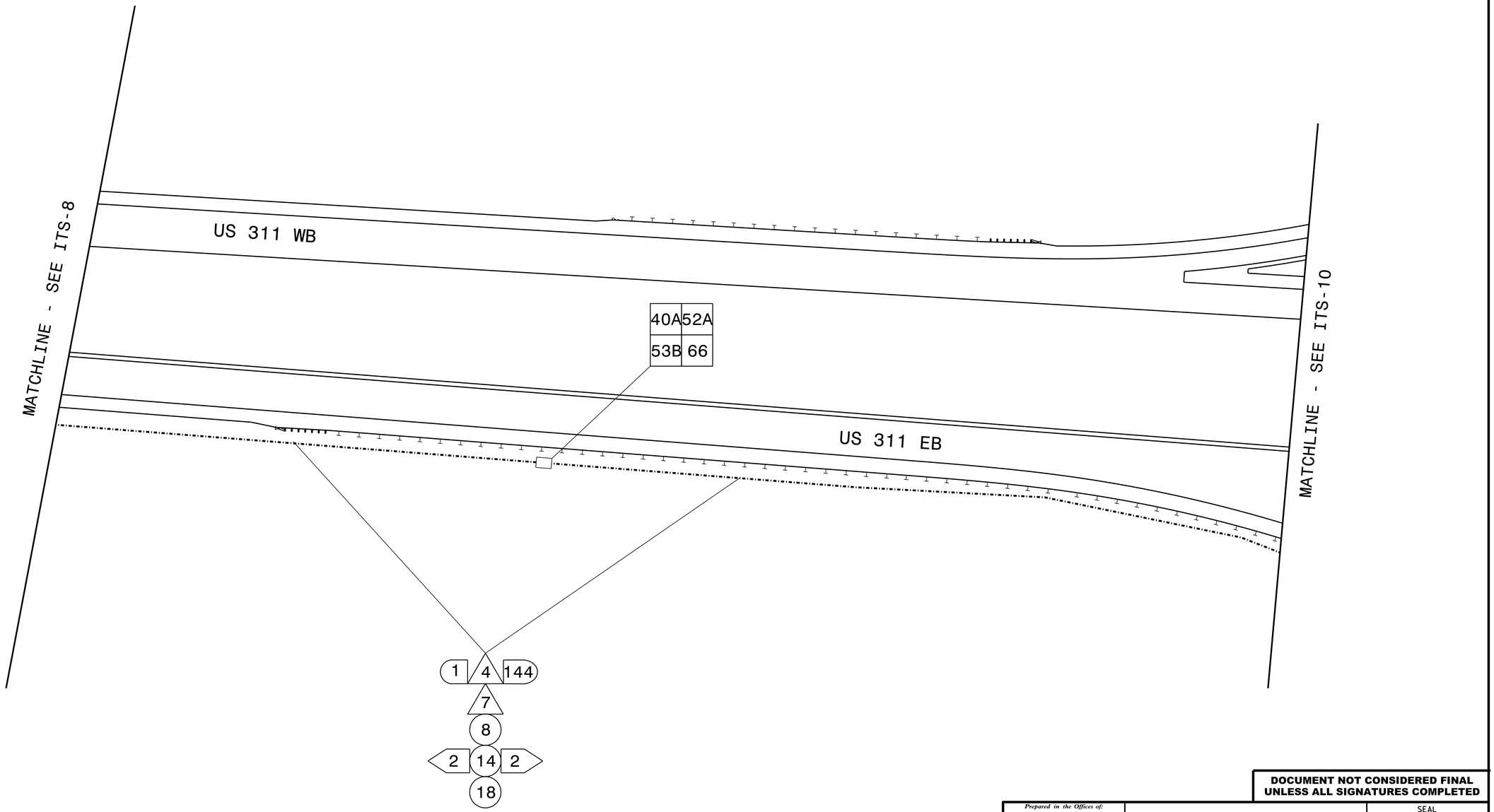
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce C292B8BC8B5E4A4...

5/31/2022
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-9



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

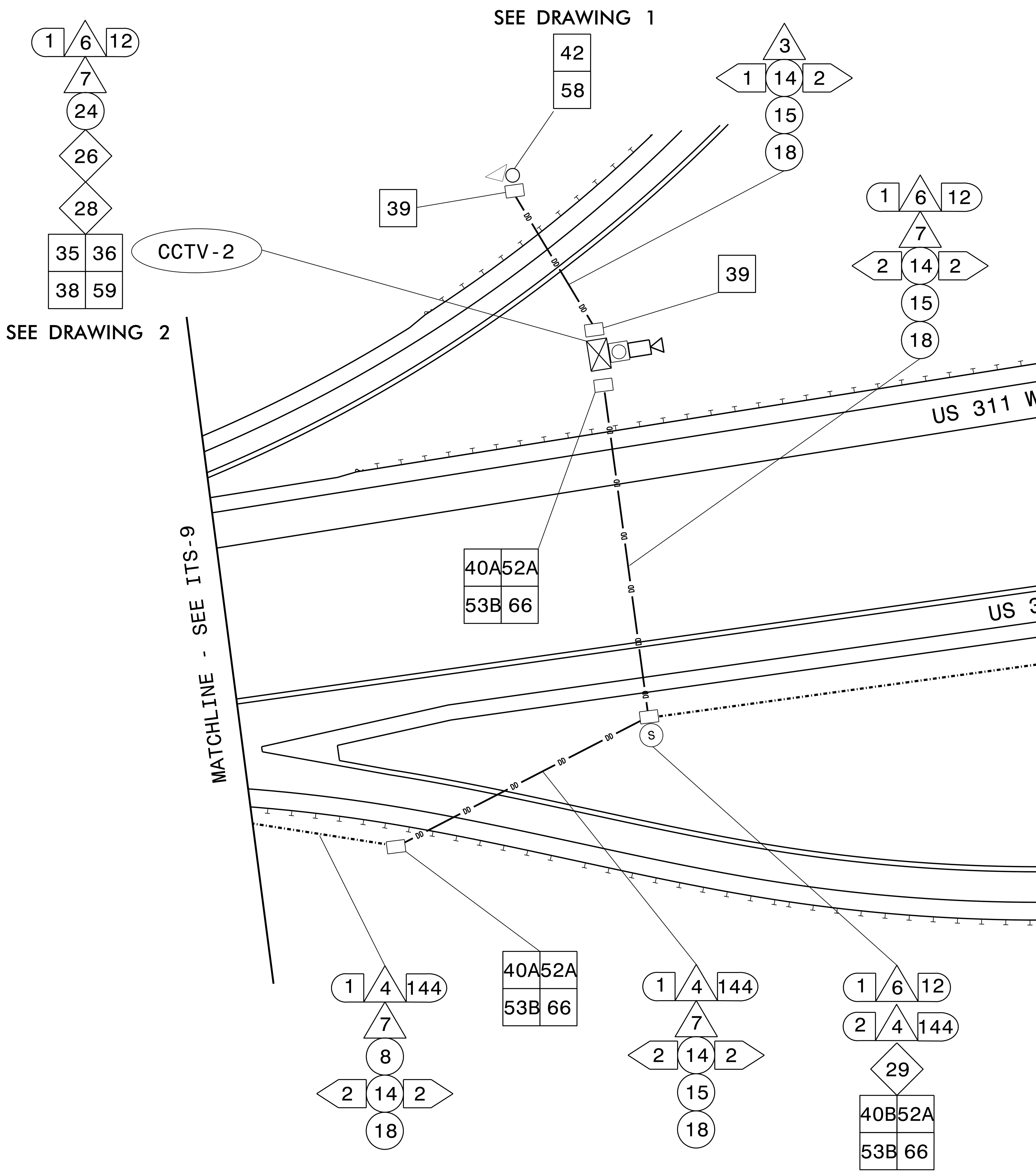
PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

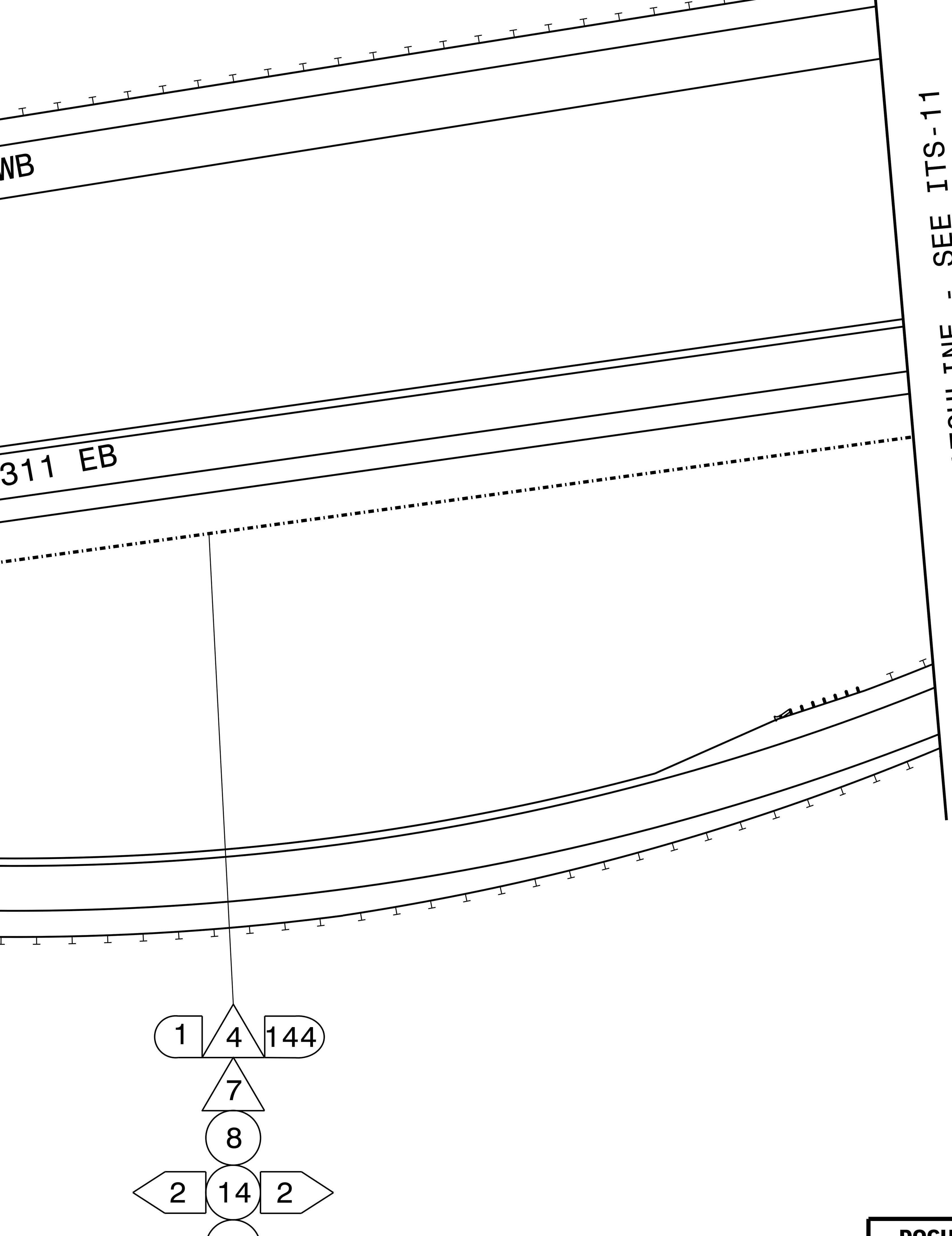
SCALE 0 50′ 1" = 50′

REVISIONS	INIT.	DATE

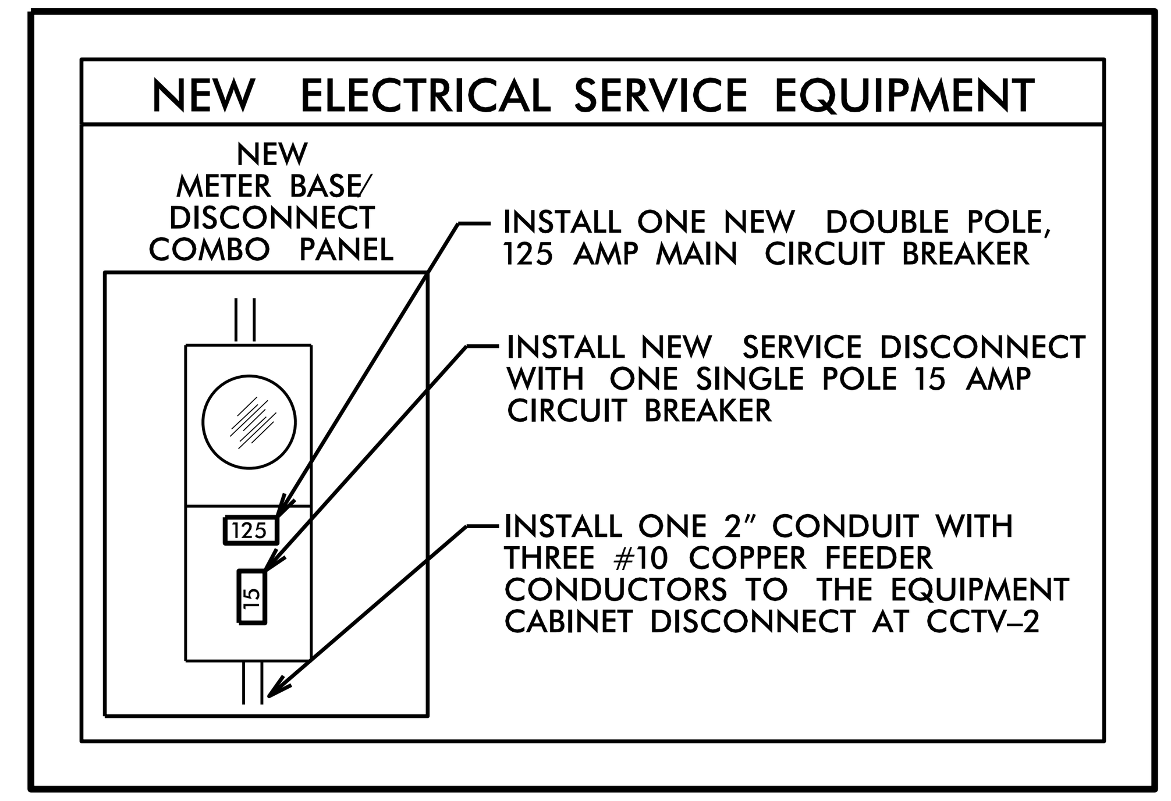
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce 03/31/2022
DATE

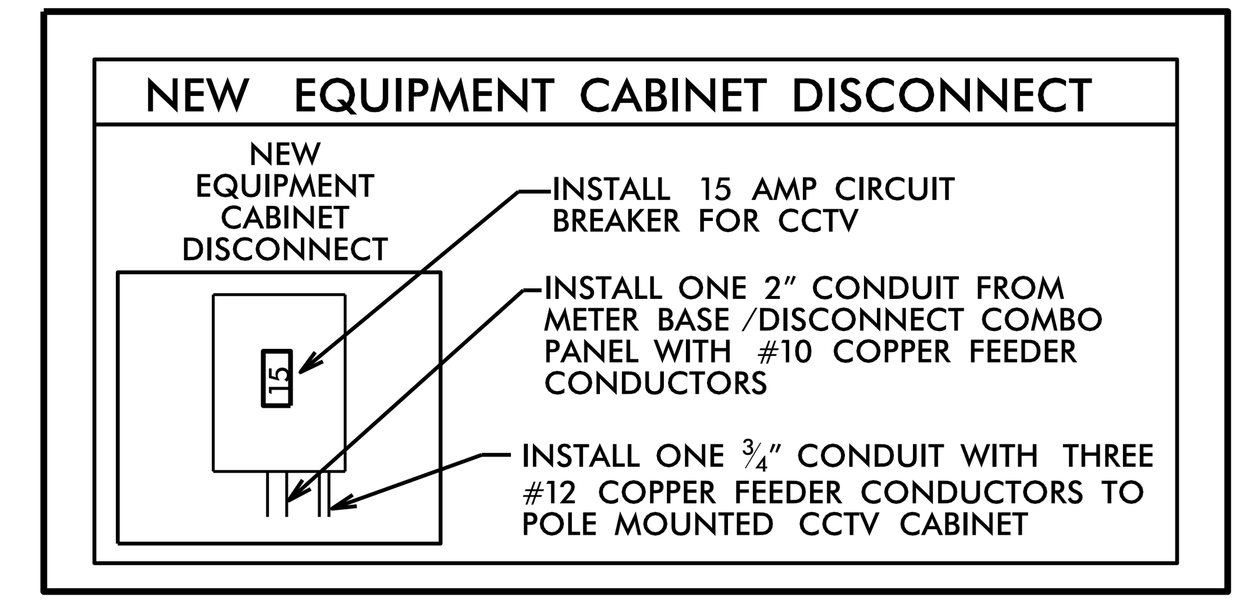




DRAWING 1



DRAWING 2



NOTES

1. OBTAIN FINAL CCTV LOCATION APPROVAL FROM THE INCIDENT MANAGEMENT ENGINEER (336-315-7080) BEFORE INITIATING ANY WORK AT THIS LOCATION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09	FORSYTH CO.		WINSTON-SALEM
PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

N

SCALE 0 50′ 1" = 50′

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce

03/31/2022
DATE

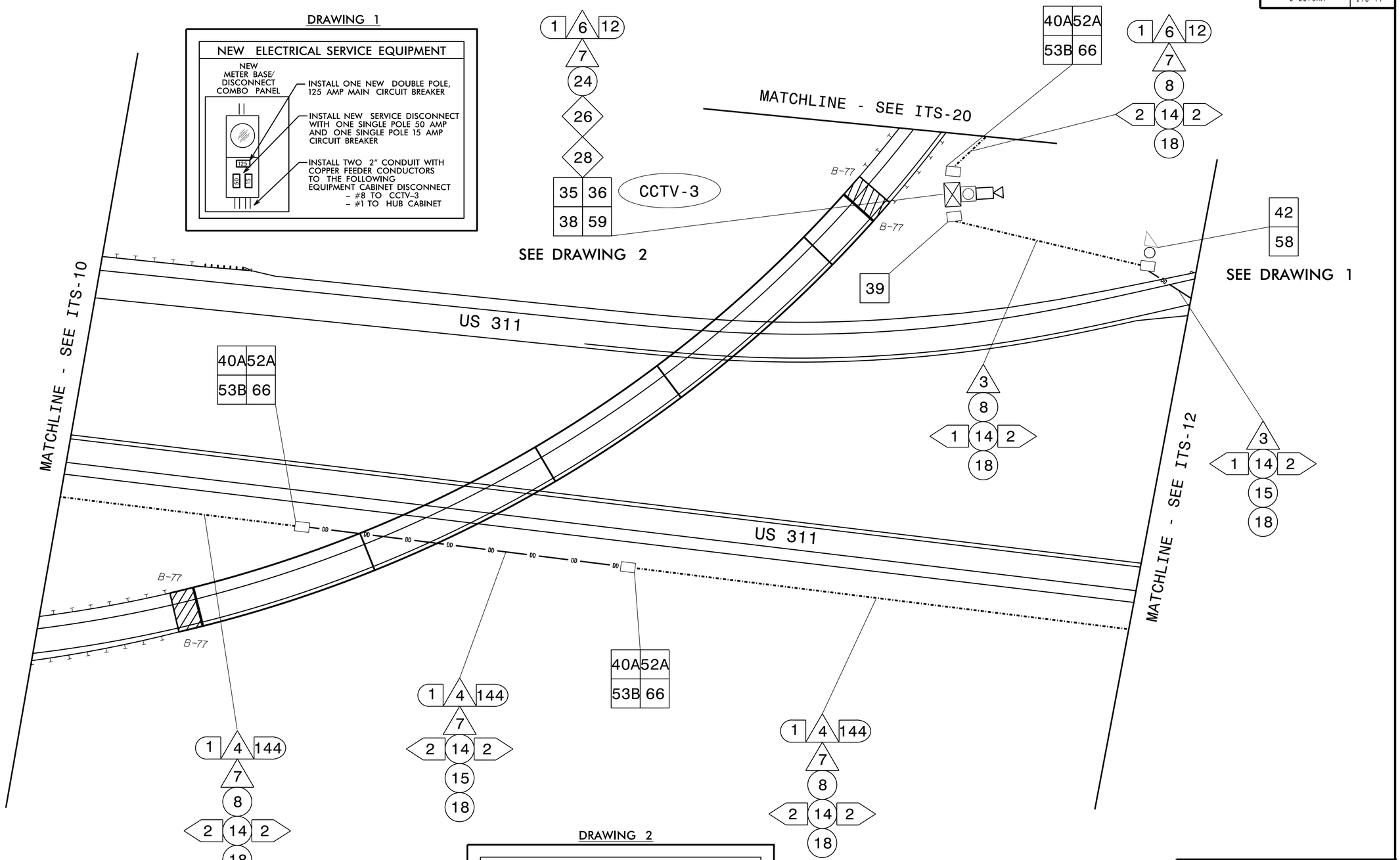
PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-11

DRAWING 1

NEW ELECTRICAL SERVICE EQUIPMENT

NEW METER BASE/ DISCONNECT COMBO PANEL

- INSTALL ONE NEW DOUBLE POLE, 125 AMP MAIN CIRCUIT BREAKER
- INSTALL NEW SERVICE DISCONNECT WITH ONE SINGLE POLE 50 AMP AND ONE SINGLE POLE 15 AMP CIRCUIT BREAKER
- INSTALL TWO 2" CONDUIT WITH COPPER FEEDER CONDUCTORS TO THE FOLLOWING EQUIPMENT CABINET DISCONNECT
  - #8 TO CCTV-3
  - #1 TO HUB CABINET



DRAWING 2

NEW EQUIPMENT CABINET DISCONNECT

NEW EQUIPMENT CABINET DISCONNECT

- INSTALL 15 AMP CIRCUIT BREAKER FOR CCTV
- INSTALL ONE 2" CONDUIT FROM METER BASE /DISCONNECT COMBO PANEL WITH #8 COPPER FEEDER CONDUCTORS
- INSTALL ONE 3/4" CONDUIT WITH THREE #12 COPPER FEEDER CONDUCTORS TO POLE MOUNTED CCTV CABINET

NOTES

1. OBTAIN FINAL CCTV LOCATION APPROVAL FROM THE INCIDENT MANAGEMENT ENGINEER (336-315-7080) BEFORE INITIATING ANY WORK AT THIS LOCATION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Pkwy. , Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

SCALE 0 50' 1" = 50'

REVISIONS	INIT.	DATE

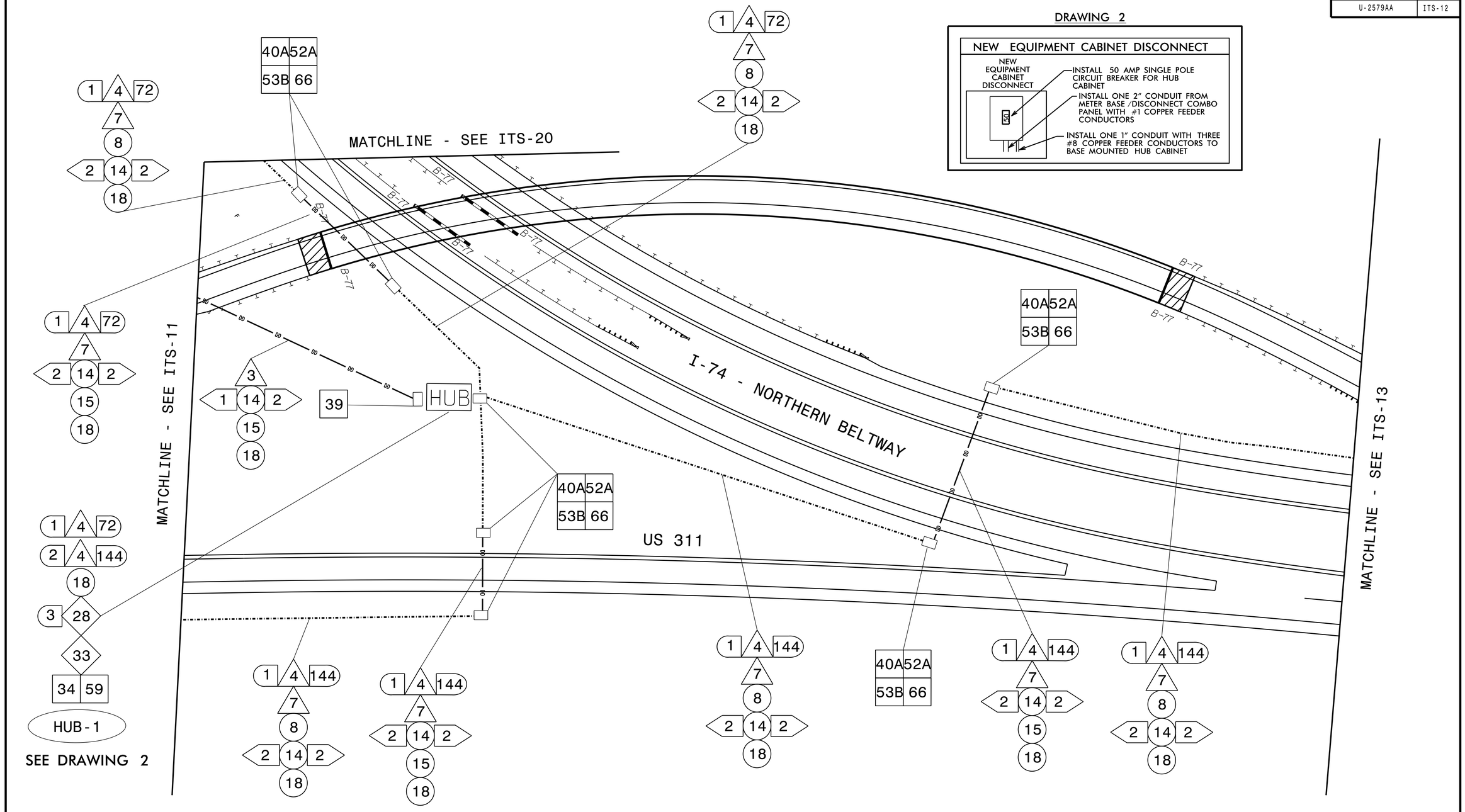
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

03/31/2022

DocuSigned by: Andrew J. Skuce

DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-12



NOTES

1. OBTAIN FINAL HUB CABINET LOCATION APPROVAL FROM THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) BEFORE INITIATING ANY WORK AT THIS LOCATION.
2. INSTALL HUB CABINET A MINIMUM OF 30 FEET OFF THE EDGE OF TRAVEL.
3. DIT TO SUPPLY HUB ETHERNET SWITCH. ALLOW MINIMUM 12 WEEK LEAD TIME AFTER REQUESTING THE HUB ETHERNET SWITCH FROM DIT.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE: MARCH 2022 REVIEWED BY: A. SKUCE

PREPARED BY: J. WALDEN REVIEWED BY:

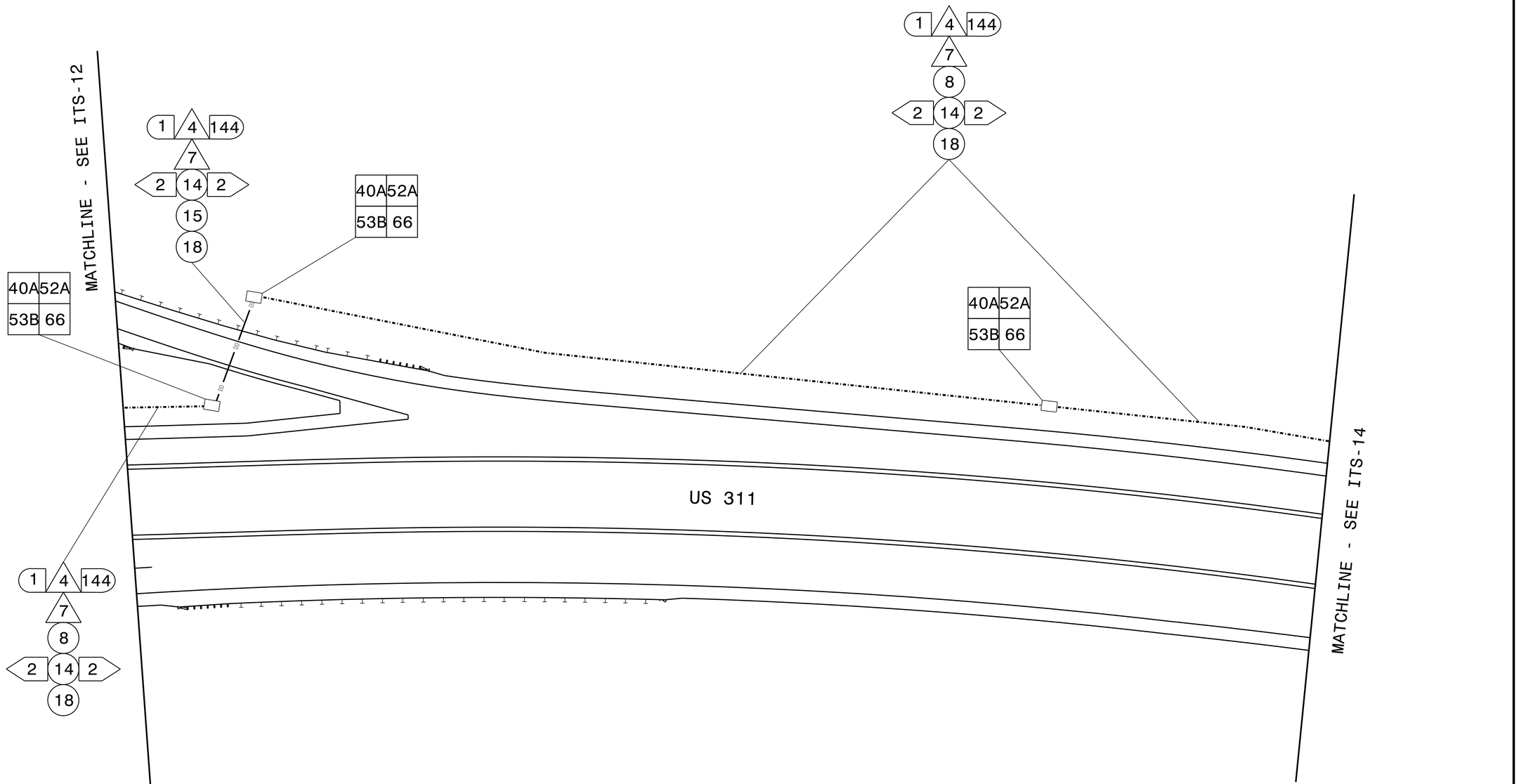
REVISIONS	INIT.	DATE

SCALE 0 50′ 1" = 50′

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce
03/31/2022
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-13



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

SCALE: 0 50′ — 1" = 50′

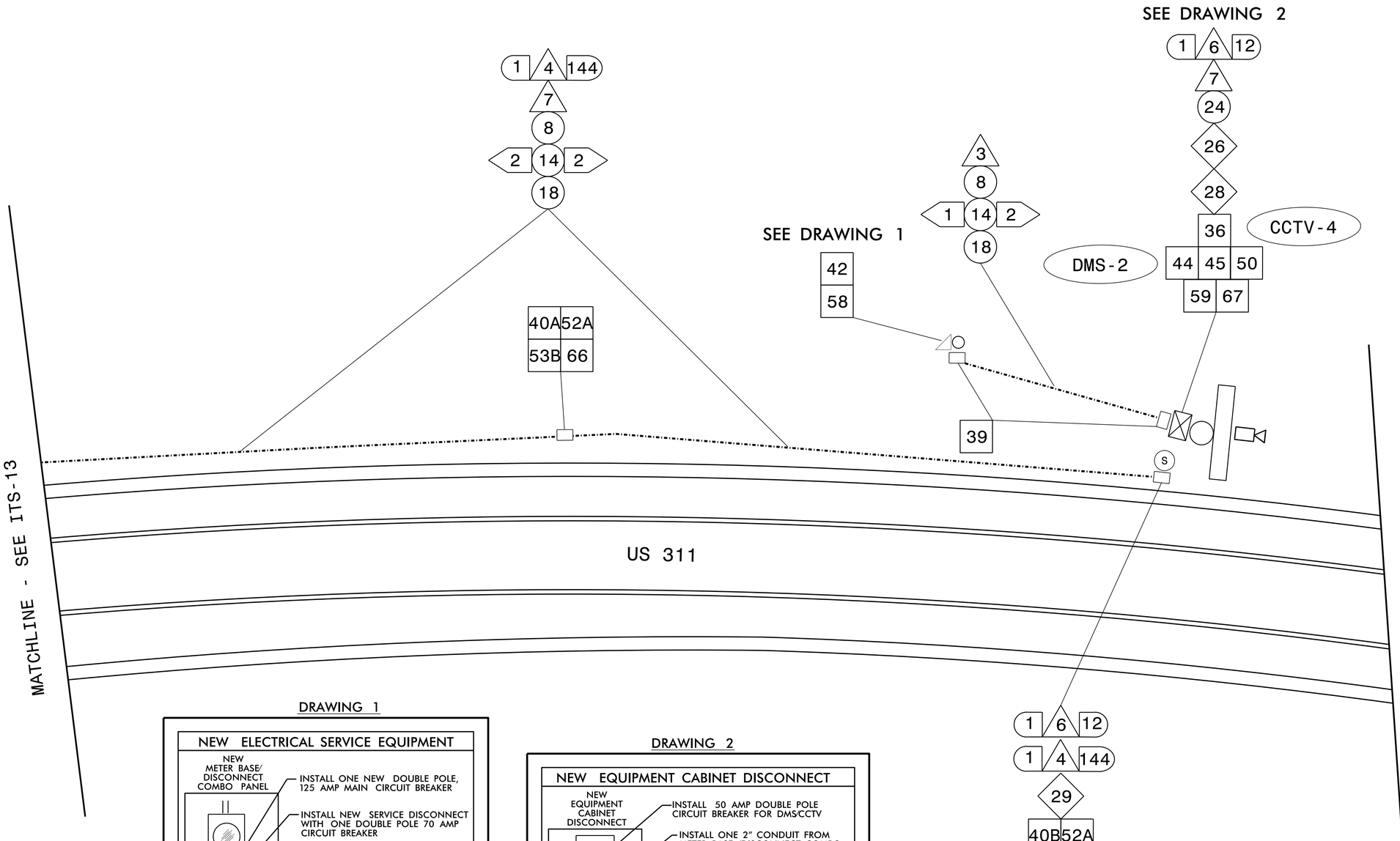
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

03/31/2022
DATE

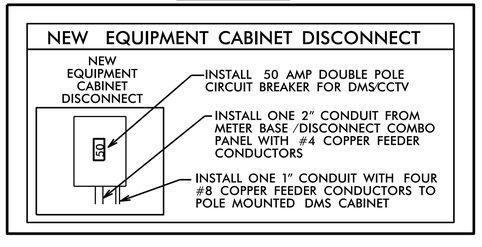
DocuSigned by:
Andrew J. Skuce
D2628B8C885C464...

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-14



DRAWING 1

DRAWING 2



NOTES

1. OBTAIN FINAL DMS AND CCTV LOCATION APPROVAL FROM THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) BEFORE INITIATING ANY WORK AT THIS LOCATION.
2. CONTACT ENGINEER TO REQUEST NCDOT SUPPLIED MODEM AT LEAST SIX WEEKS PRIOR TO INSTALLATION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

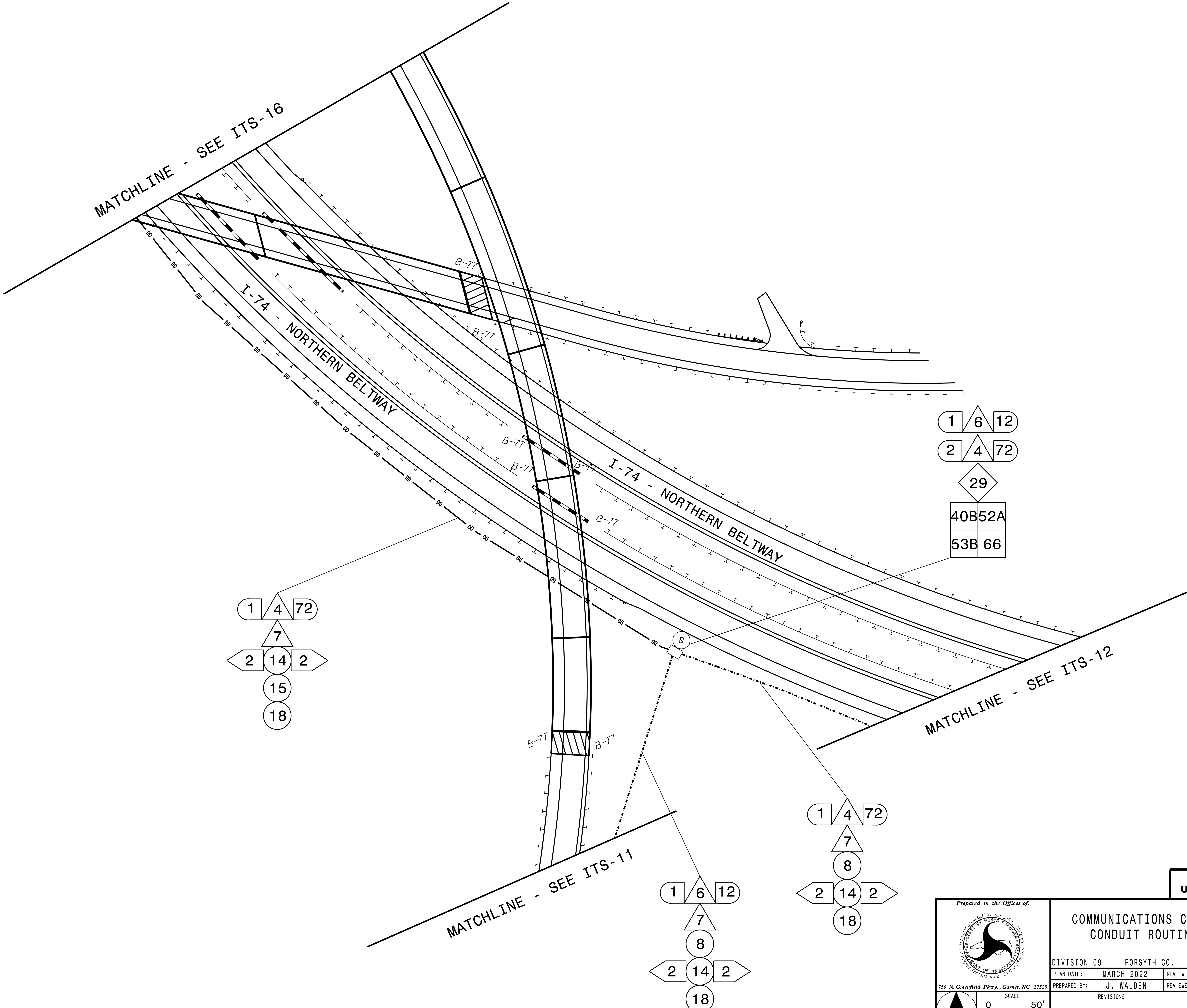
PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE 0 50′ 1" = 50′

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE
05/31/2022
DocuSigned by: Andrew J. Skuce
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-15



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION
Transportation Mobility and Safety Division
Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND
CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

N

SCALE
0 50′
1″ = 50′

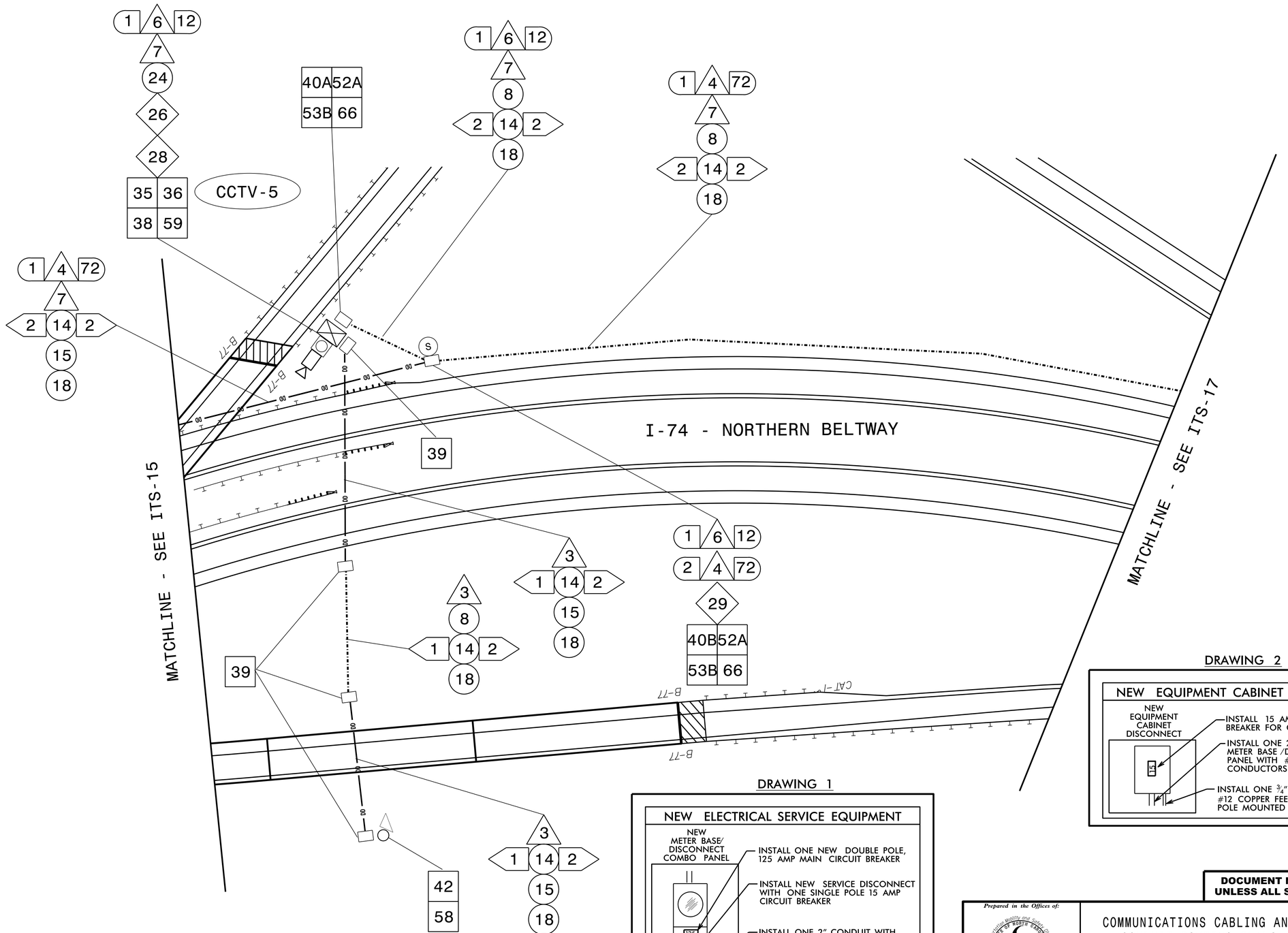
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
050152
ENGINEER
ANDREW J. SKUCE
03/31/2022

DocuSigned by:
Andrew J. Skuce
D262B8BC8B5C464...
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-16

SEE DRAWING 2



SEE DRAWING 1

NOTES

1. OBTAIN FINAL CCTV LOCATION APPROVAL FROM THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) BEFORE INITIATING ANY WORK AT THIS LOCATION.

DRAWING 1

DRAWING 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

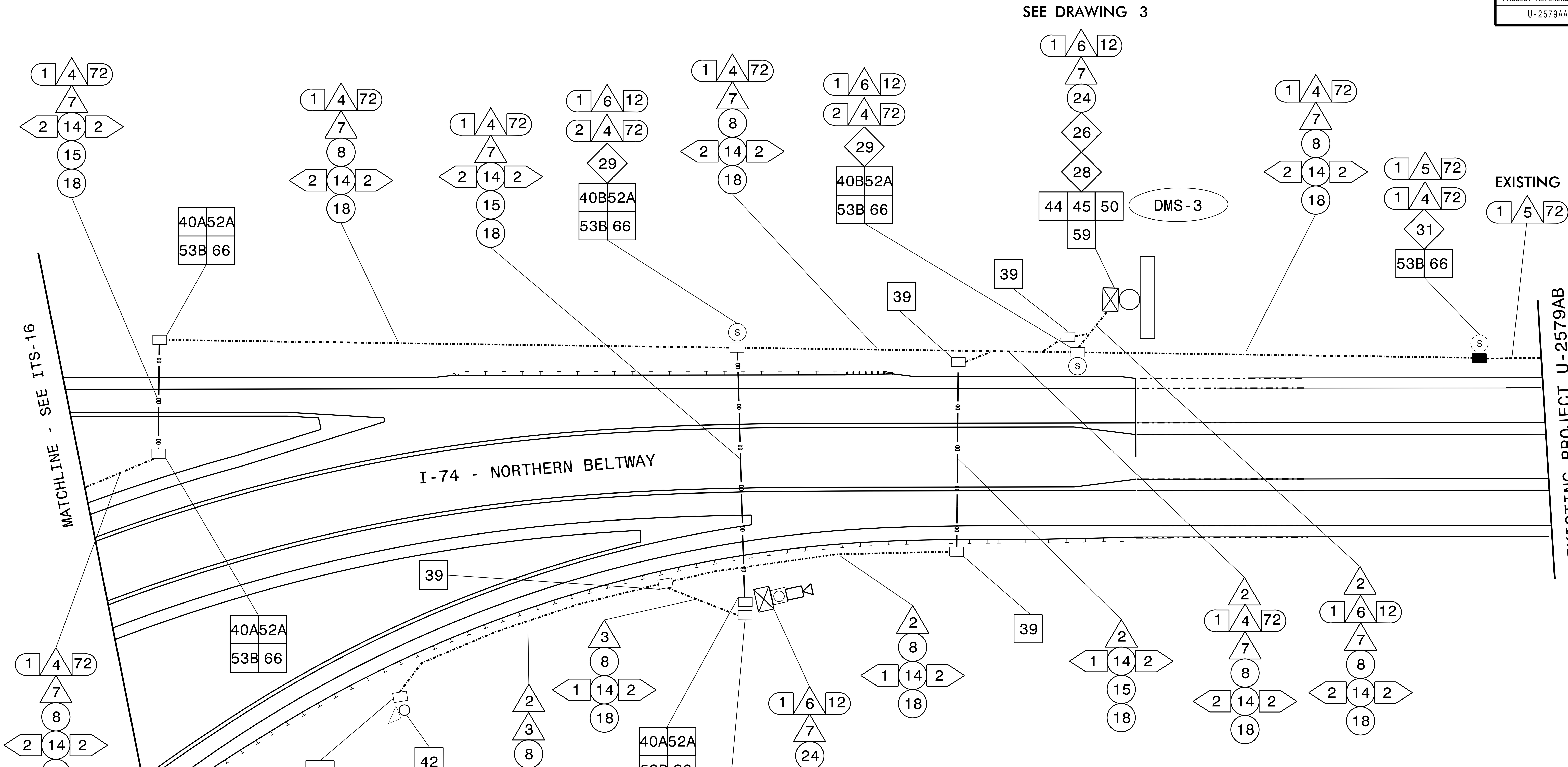
PLAN DATE: MARCH 2022 REVIEWED BY: A. SKUCE

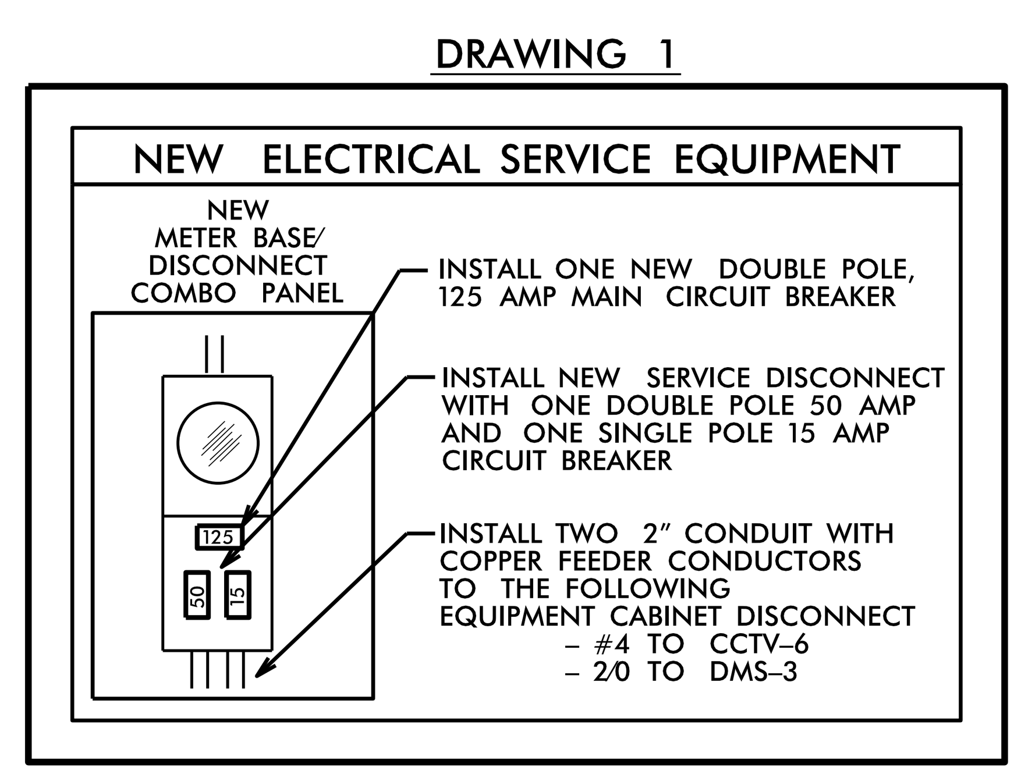
PREPARED BY: J. WALDEN REVIEWED BY:

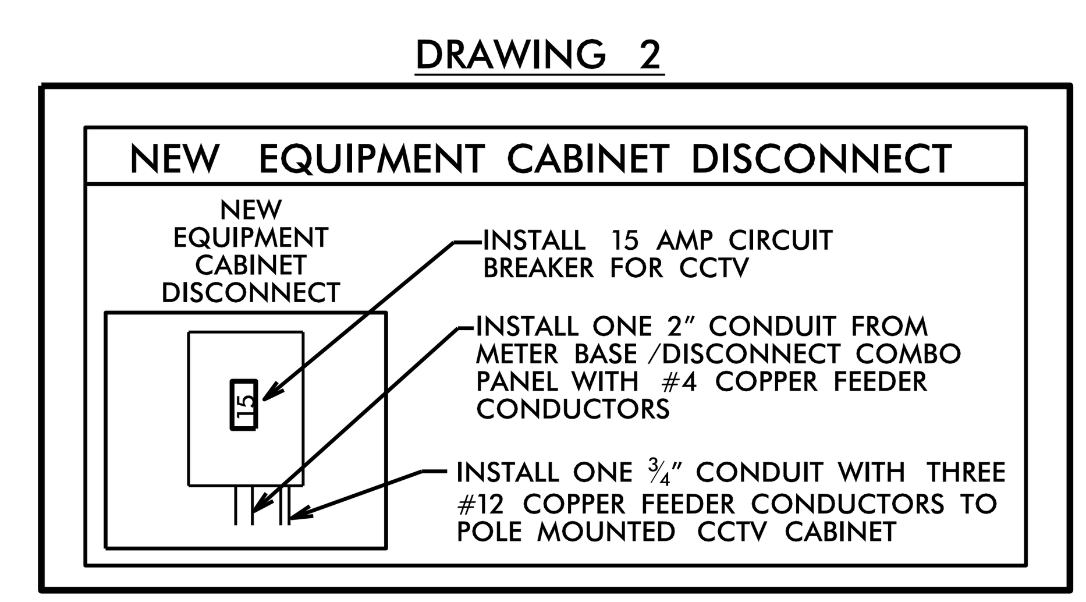
SCALE 0 50′ 1" = 50′

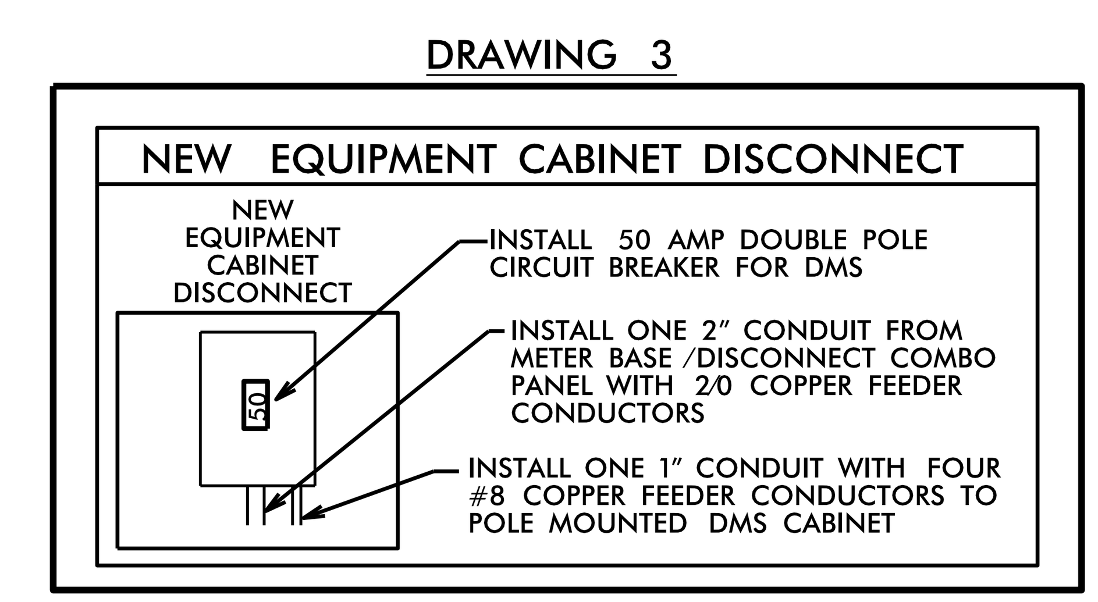
REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE
03/31/2022
DocuSigned by: Andrew J. Skuce
DATE









NOTES

1. OBTAIN FINAL CCTV AND DMS LOCATION APPROVAL FROM THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) BEFORE INITIATING ANY WORK AT THIS LOCATION.
2. CONTACT ENGINEER TO REQUEST NCDOT SUPPLIED MODEM AT LEAST SIX WEEKS PRIOR TO INSTALLATION.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

COMMUNICATIONS CABLING AND CONDUIT ROUTING PLANS

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

SCALE 0 50′ 1" = 50′

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 050152 ANDREW J. SKUCE
03/31/2022
DocuSigned by: Andrew J. Skuce
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-18

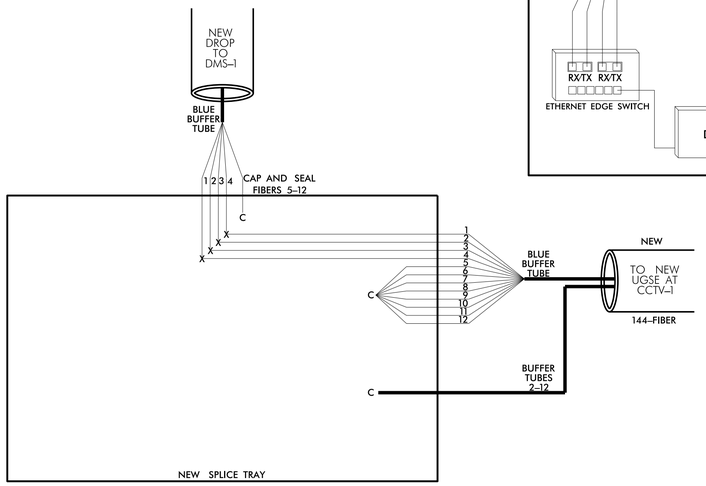
NEW UNDERGROUND
SPLICE ENCLOSURE
DMS–1

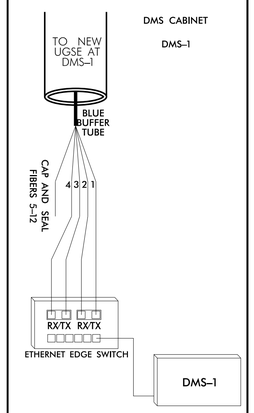
Notes:
Unused fibers left coiled and stored in splice tray.
Unused Buffer Tubes left coiled and stored in splice tray.

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





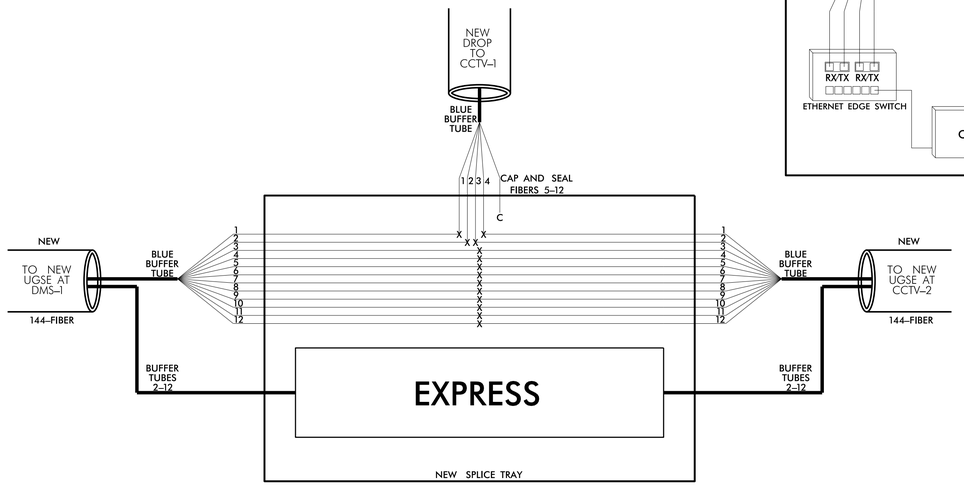
NEW UNDERGROUND
SPLICE ENCLOSURE
CCTV–1

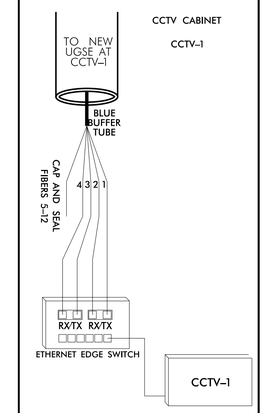
Notes:
Unused fibers left coiled and stored in splice tray.
Unused Buffer Tubes left coiled and stored in splice tray.

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





1) FIVE (5) DAYS PRIOR TO BEGINNING WORK CONTACT THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) TO ARRANGE FOR PROGRAMING OF 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 THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SYSTEM IS OPERATIONAL

2) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.

3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
REFERENCE 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.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SPLICE DETAIL

DIVISION 09 FORSYTH CO.

PLAN DATE: MARCH 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE
DocuSigned by: Andrew J. Skuce 03/31/2022 DATE
D262B88C8B5C464...

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-19

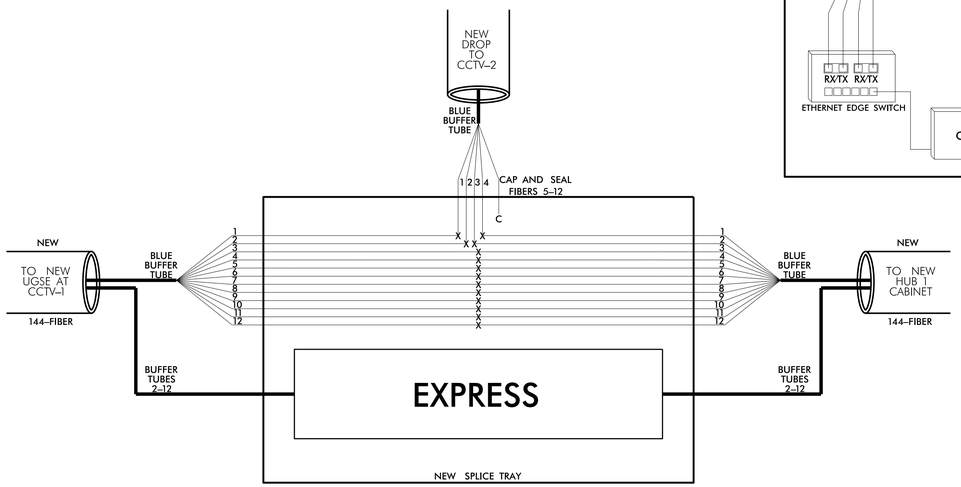
NEW UNDERGROUND SPLICE ENCLOSURE CCTV–2

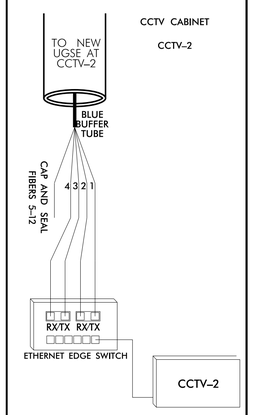
Notes:
Unused fibers left coiled and stored in splice tray.
Unused Buffer Tubes left coiled and stored in splice tray.

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





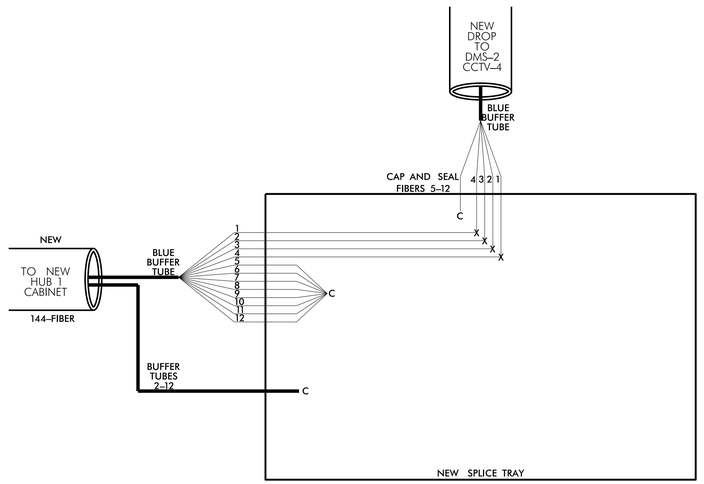
NEW UNDERGROUND SPLICE ENCLOSURE DMS–2/CCTV–4

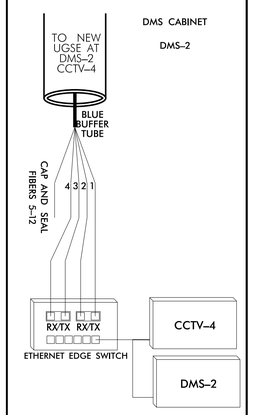
Notes:
Unused fibers left coiled and stored in splice tray.
Unused Buffer Tubes left coiled and stored in splice tray.

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





1) FIVE (5) DAYS PRIOR TO BEGINNING WORK CONTACT THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) TO ARRANGE FOR PROGRAMING OF 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 THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SYSTEM IS OPERATIONAL

2) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.

3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
REFERENCE 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.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SPLICE DETAIL

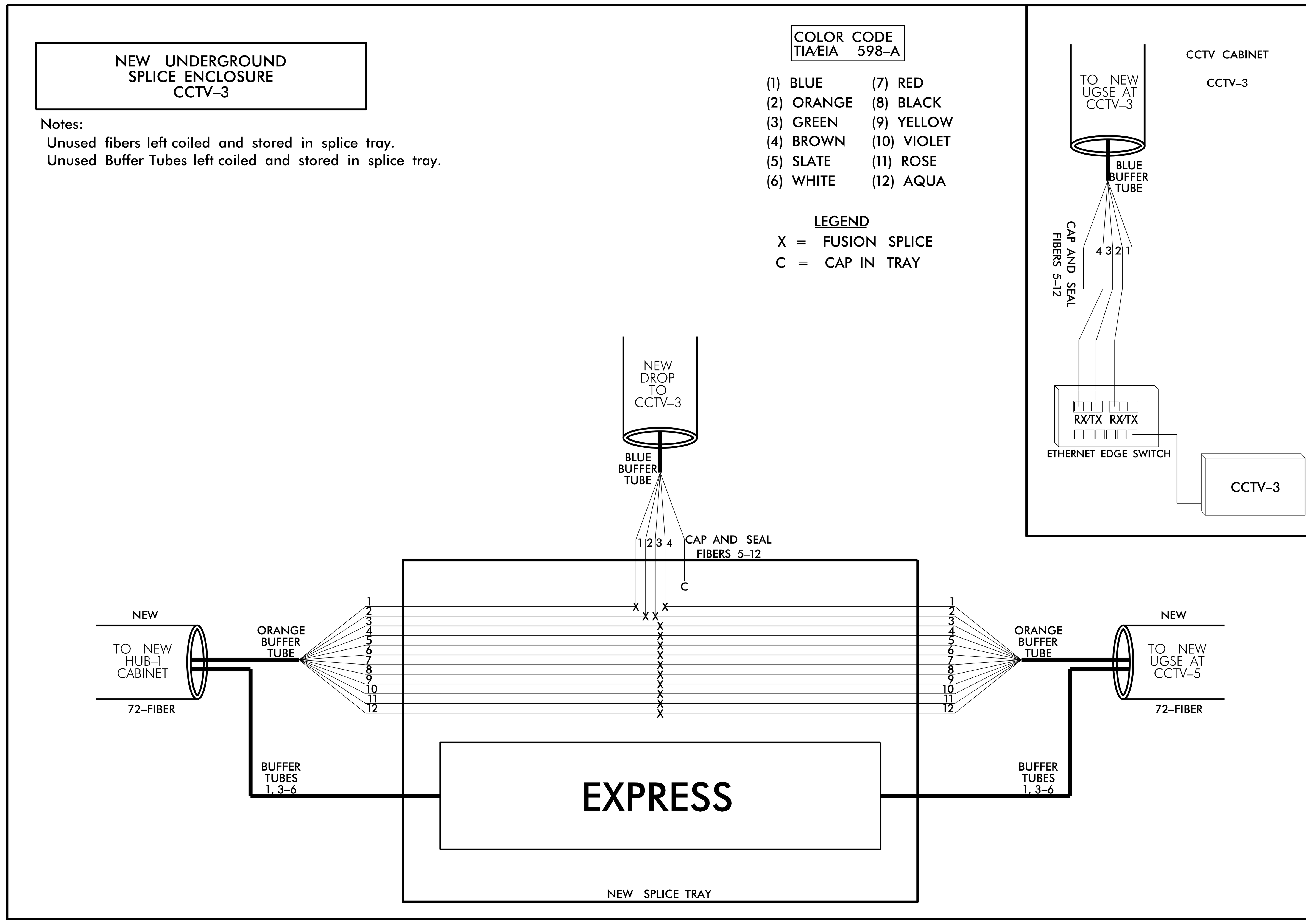
DIVISION 09 FORSYTH CO.

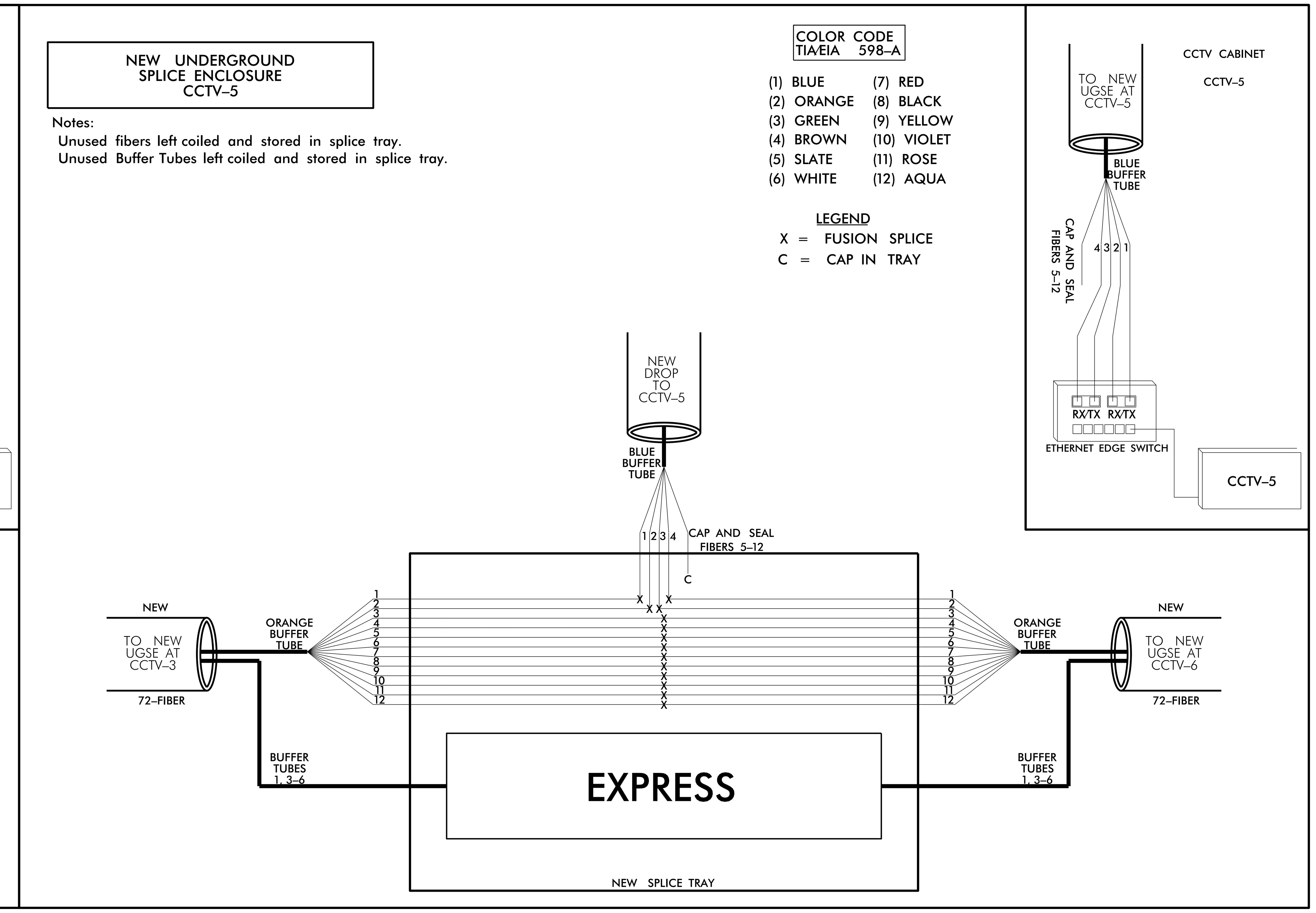
PLAN DATE: MARCH 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE
03/31/2022
DATE
DocuSigned by:
Andrew J. Skuce
D262B88C885C464...

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-20





1) FIVE (5) DAYS PRIOR TO BEGINNING WORK CONTACT THE INCIDENT MANAGEMENT ENGINEER (336-315-7080) TO ARRANGE FOR PROGRAMING OF 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 THE INCIDENT MANAGEMENT ENGINEER (336-315-7080) AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SYSTEM IS OPERATIONAL

2) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.

3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE 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.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SPLICE DETAIL

DIVISION 09 FORSYTH CO.

PLAN DATE: MARCH 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE
DocuSigned by: Andrew J. Skuce
D262B8BC8B5C464...
03/31/2022
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-21

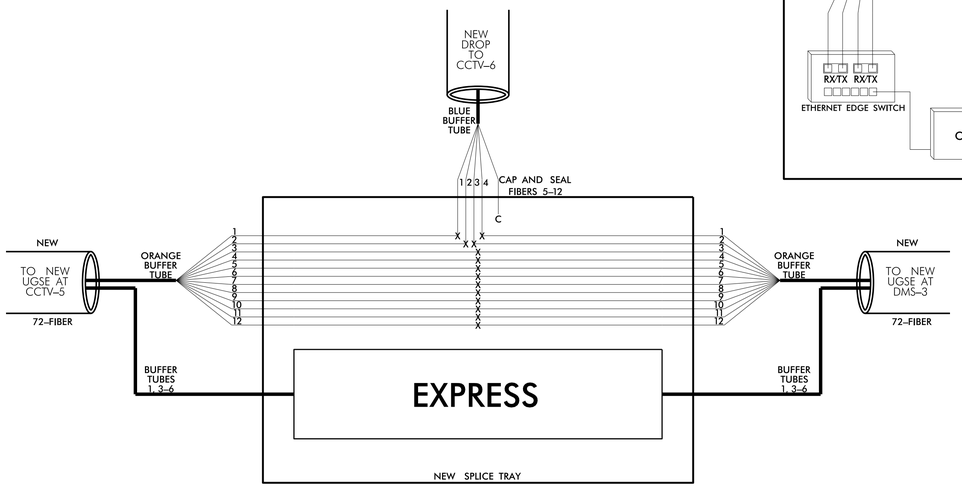
NEW UNDERGROUND SPLICE ENCLOSURE CCTV–6

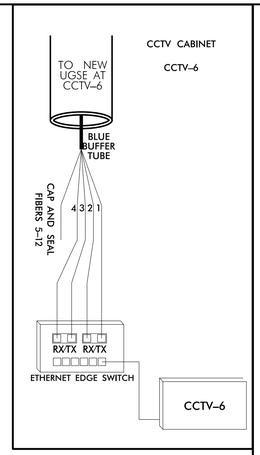
Notes:
Unused fibers left coiled and stored in splice tray.
Unused Buffer Tubes left coiled and stored in splice tray.

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





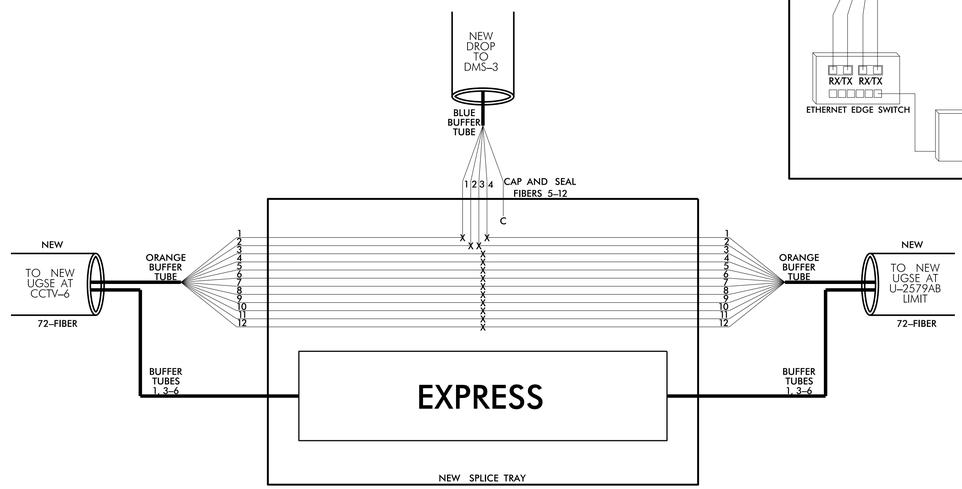
NEW UNDERGROUND SPLICE ENCLOSURE DMS–3

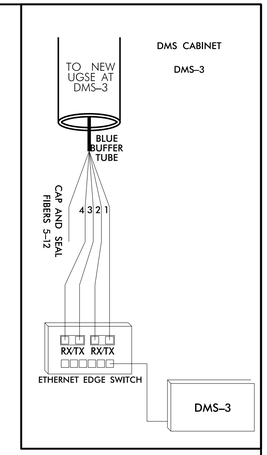
Notes:
Unused fibers left coiled and stored in splice tray.
Unused Buffer Tubes left coiled and stored in splice tray.

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





1) FIVE (5) DAYS PRIOR TO BEGINNING WORK CONTACT THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) TO ARRANGE FOR PROGRAMING OF 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 THE INCIDENT MANAGEMENT ENGINEER (336–315–7080) AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SYSTEM IS OPERATIONAL

2) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.

3) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE 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.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SPLICE DETAIL

DIVISION 09 FORSYTH CO.

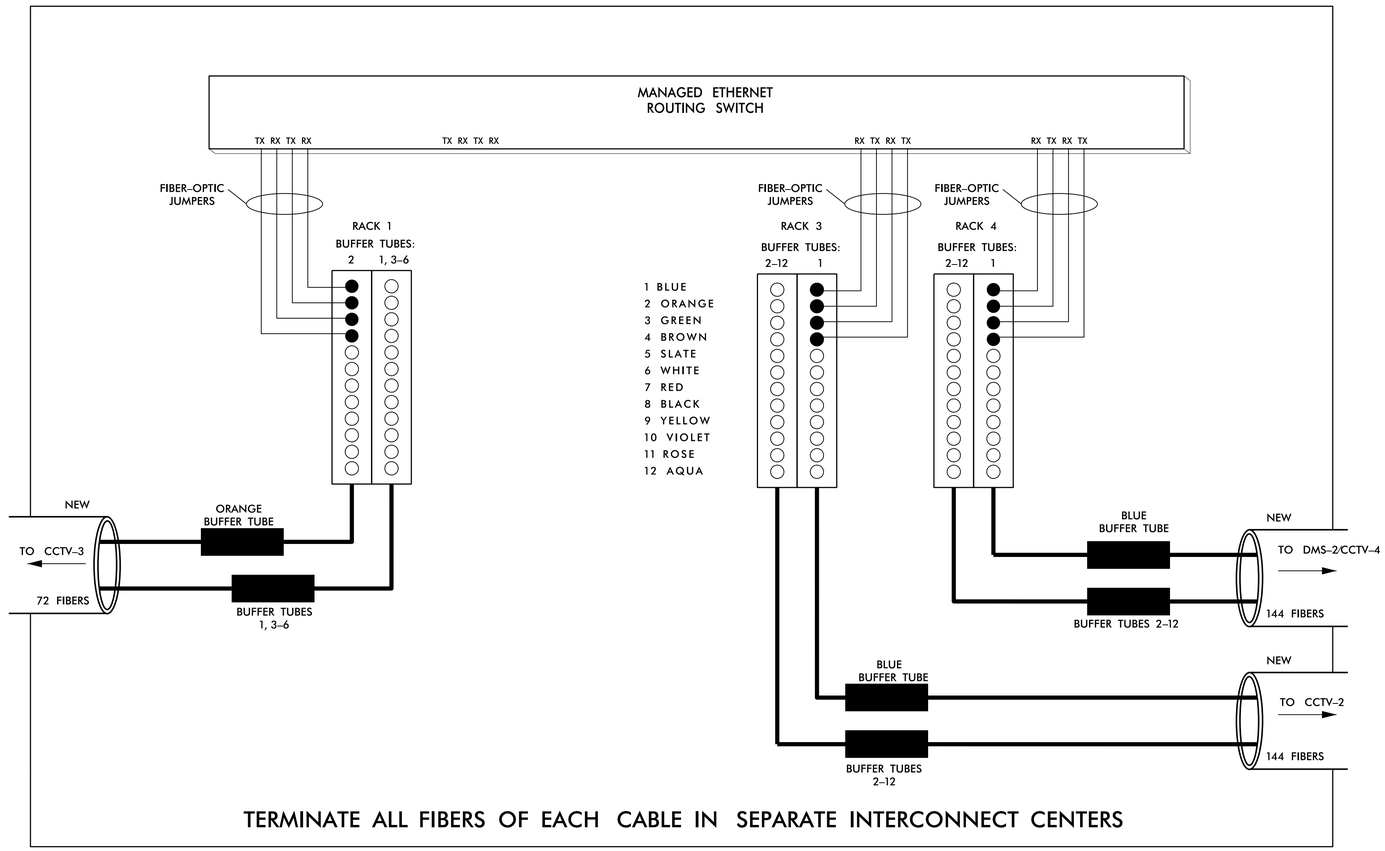
PLAN DATE: MARCH 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE
03/31/2022
DocuSigned by: Andrew J. Skuce
DATE
D262B8BC8B5C464...

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-22

NEW HUB CABINET
HUB–1
US 311 AT NORTHERN BELTWAY



1) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.

2) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
REFERENCE 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.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Pkwy., Garner, NC 27529

SPLICE DETAIL

DIVISION 09 FORSYTH CO.

PLAN DATE: MARCH 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA
PROFESSIONAL
SEAL
050152
ENGINEER
ANDREW J. SKUCE

DocuSigned by:
Andrew J. Skuce
D262B88CB85C464...
03/31/2022
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-23

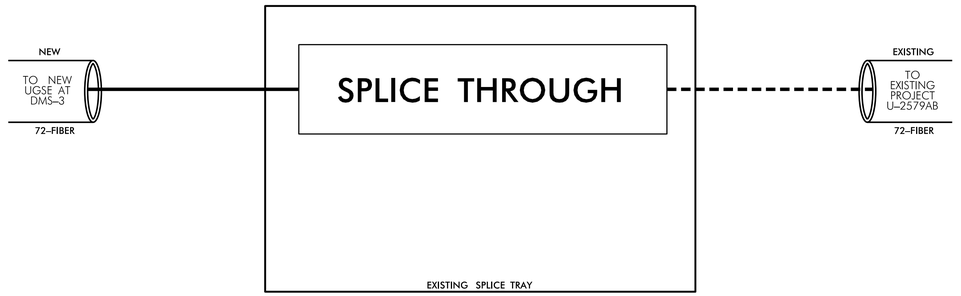
EXISTING UNDERGROUND
SPLICE ENCLOSURE
AT PROJECT LIMITS OF U-2579AB

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



1) ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING \ ENSURING PROPER TERMINATIONS.

2) INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
REFERENCE 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.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SPLICE DETAIL

DIVISION 09 FORSYTH CO.

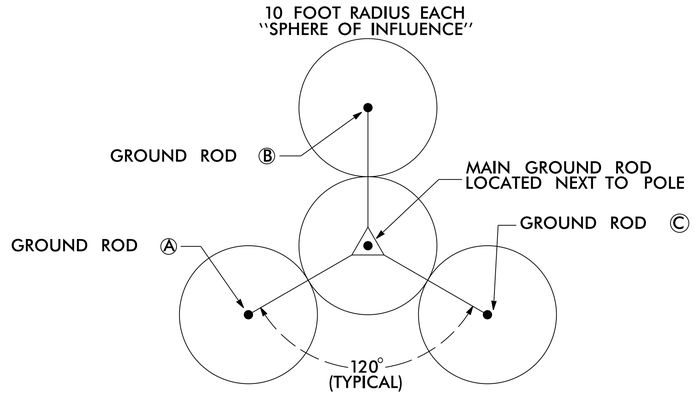
PLAN DATE: MARCH 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

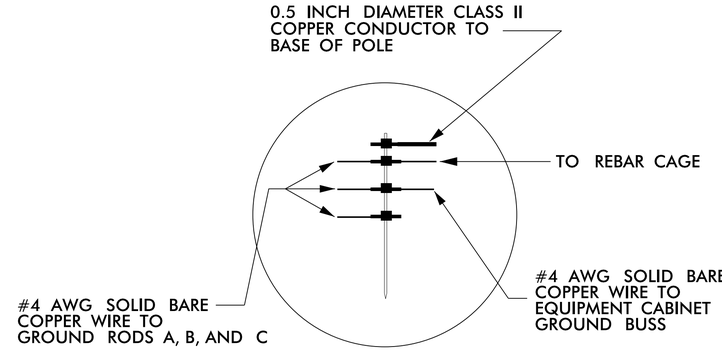
DocuSigned by:
Andrew J. Skuce
D262B88C8B5C464...
03/31/2022
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-24

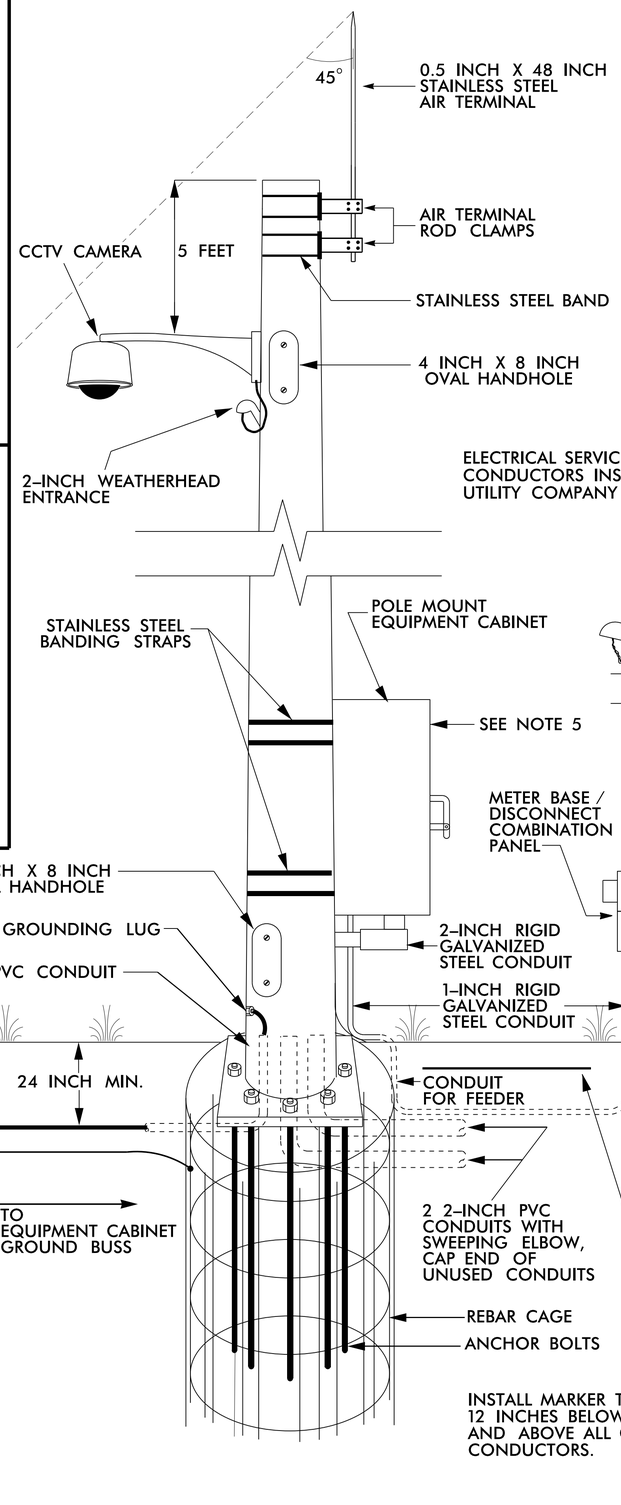


GROUND ROD PLACEMENT DETAIL

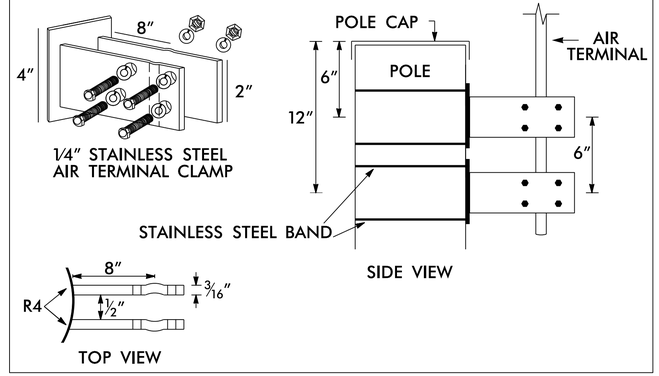
(TYPICAL EACH POLE)



INSET `A'

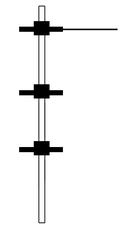


AIR TERMINAL ROD CLAMP DETAIL



ALTERNATE GROUNDING METHOD

IF SPACE IS NOT AVAILABLE TO DRIVE MULTIPLE RODS, DRIVE SECTIONAL GROUND RODS A MINIMUM OF 30 FEET.



JOIN SECTIONAL GROUND RODS BY IRREVERSIBLE COMPRESSION COUPLER

NOTES

1. BOND 0.5 INCH DIAMETER, 28 STRAND (MINIMUM) CLASS II COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN IRREVERSIBLE MECHANICAL CRIMP METHOD.
2. ALL CONNECTIONS TO GROUND RODS SHOULD BE MADE WITH AN IRREVERSIBLE MECHANICAL CRIMP METHOD.
3. BOND #4 AWG SOLID BARE COPPER WIRE TO REBAR CAGE AND THE MAIN GROUND ROD BY AN IRREVERSIBLE MECHANICAL CRIMP.
4. ENSURE CAMERA HOUSING, CAMERA, AND PAN –TILT UNIT ARE BONDED TO POLE.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUSS AND NEUTRAL BUSS.
6. REFER TO STANDARD DRAWING 1700–2 FOR ALTERNATE GROUND ROD INSTALLATION METHOD AS APPROVED BY THE ENGINEER.
7. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Pkwy., Garner, NC 27529

CCTV CAMERA INSTALLATION FOR METAL POLE WITH AERIAL ELECTRICAL SERVICE TYPICAL DETAIL

DIVISION 09 FORSYTH CO.

PLAN DATE:	FEBRUARY 2022	REVIEWED BY:	A.J. SKUCE, PE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

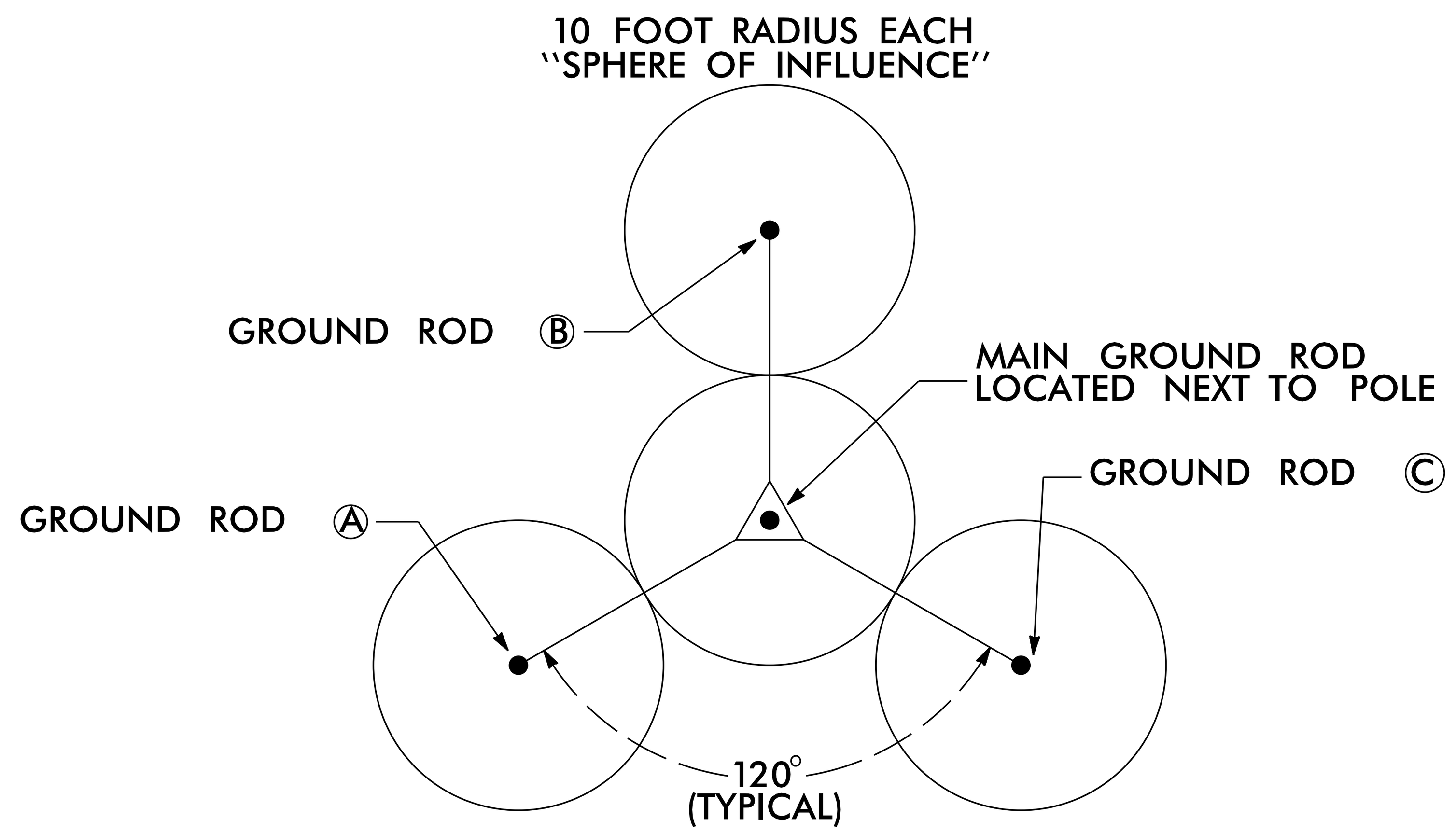
03/31/2022

DocuSigned by: Andrew J. Skuce

DATE

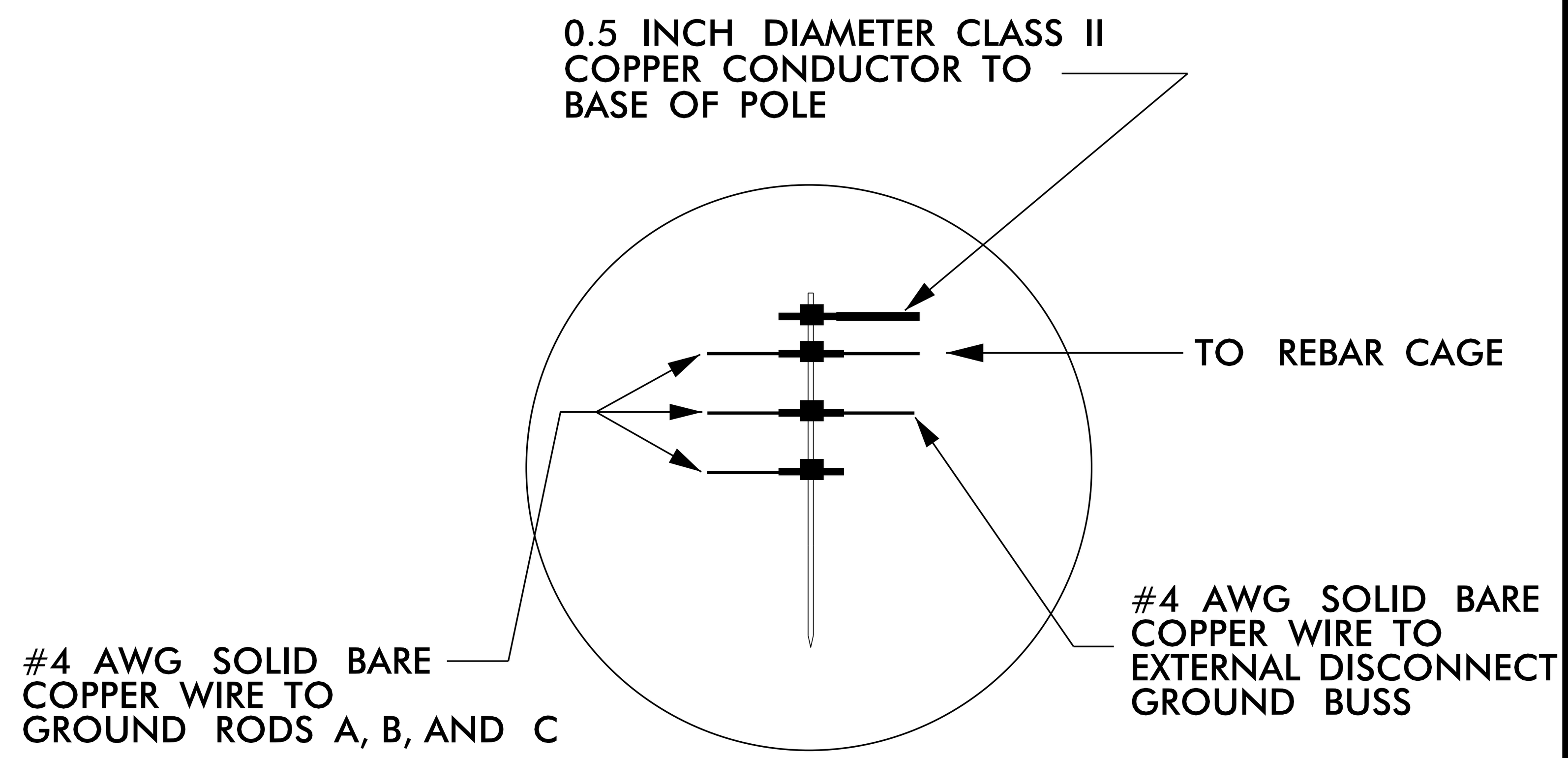
D2629B8C8B5C464...

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-25

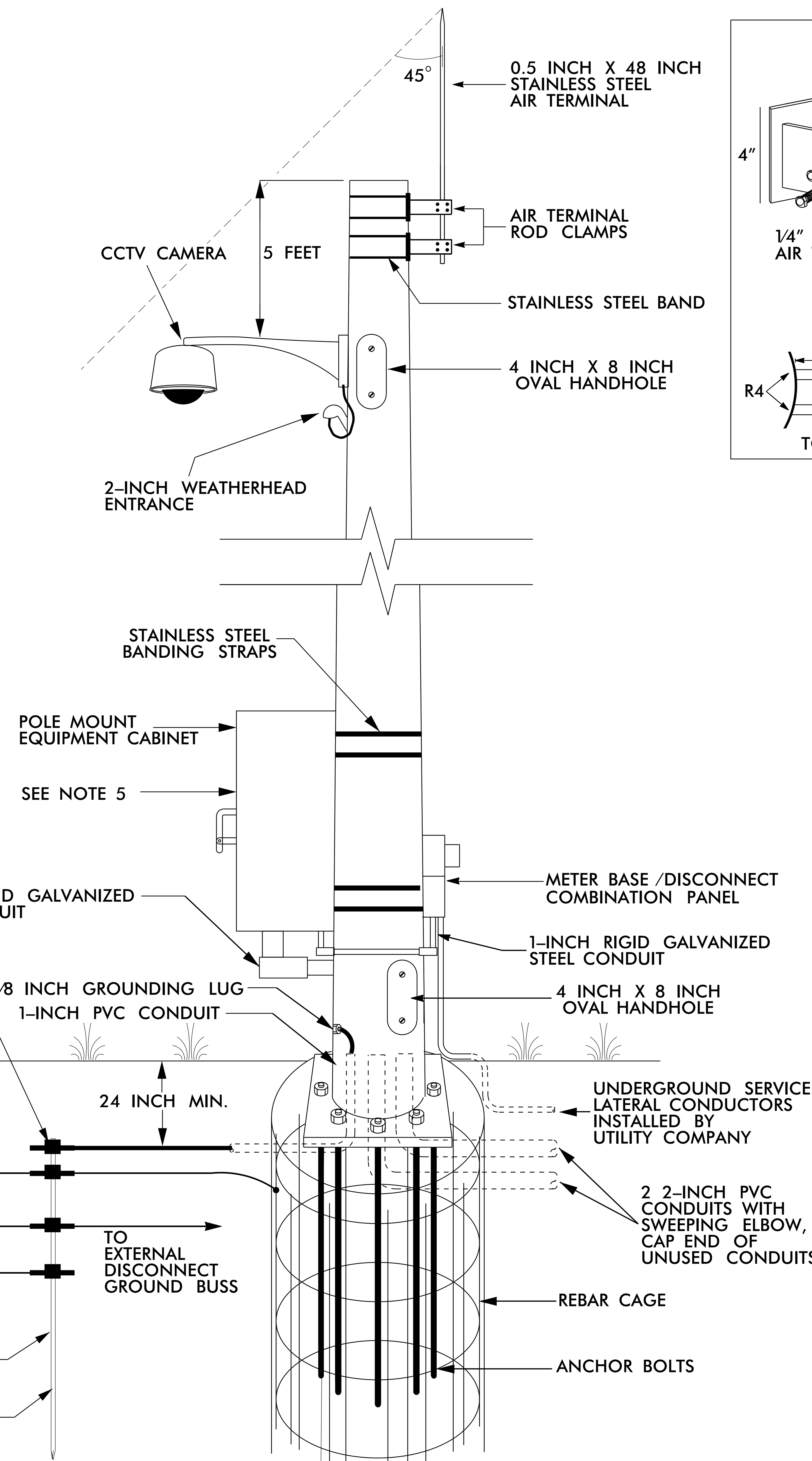


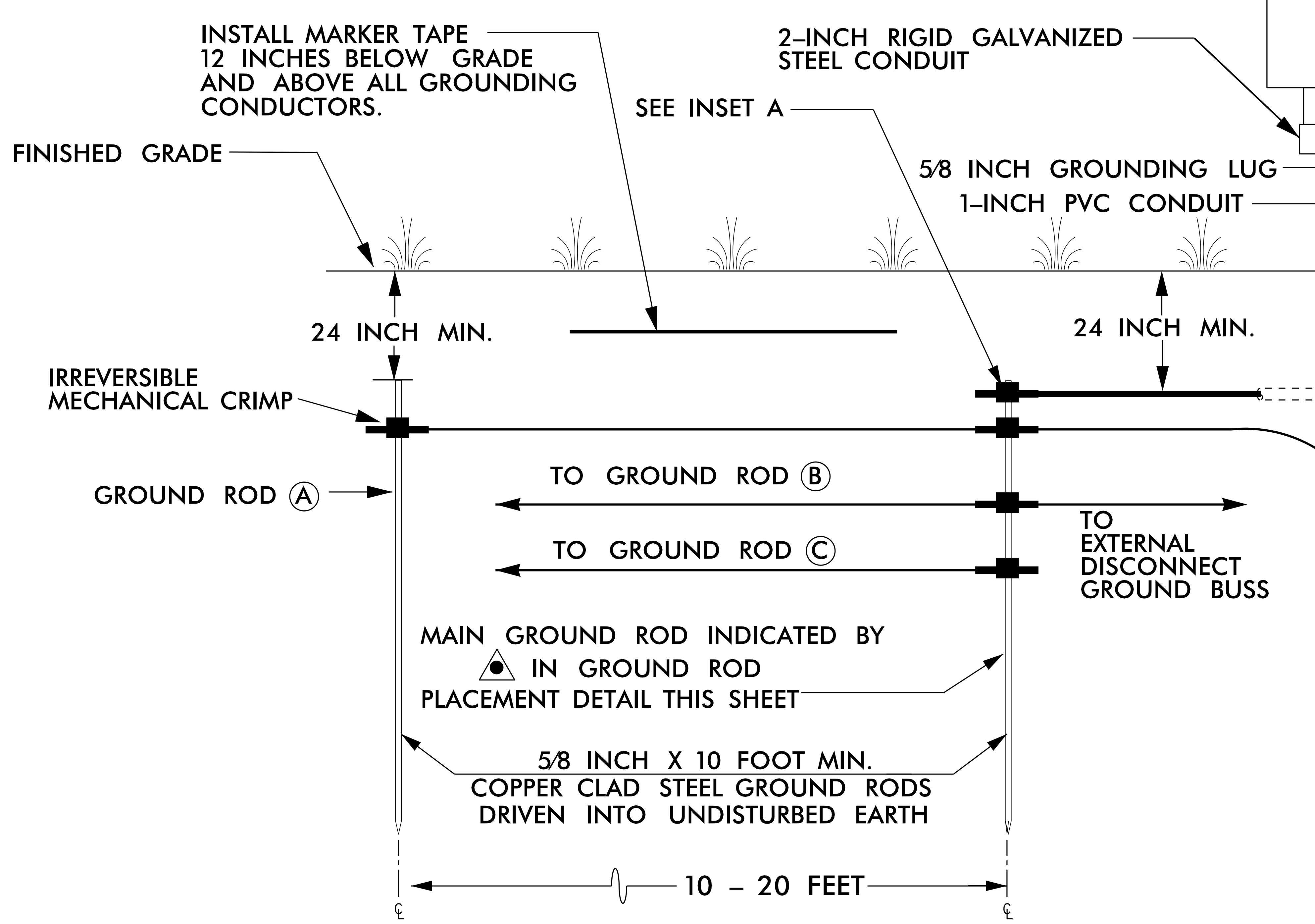
GROUND ROD PLACEMENT DETAIL

(TYPICAL EACH POLE)

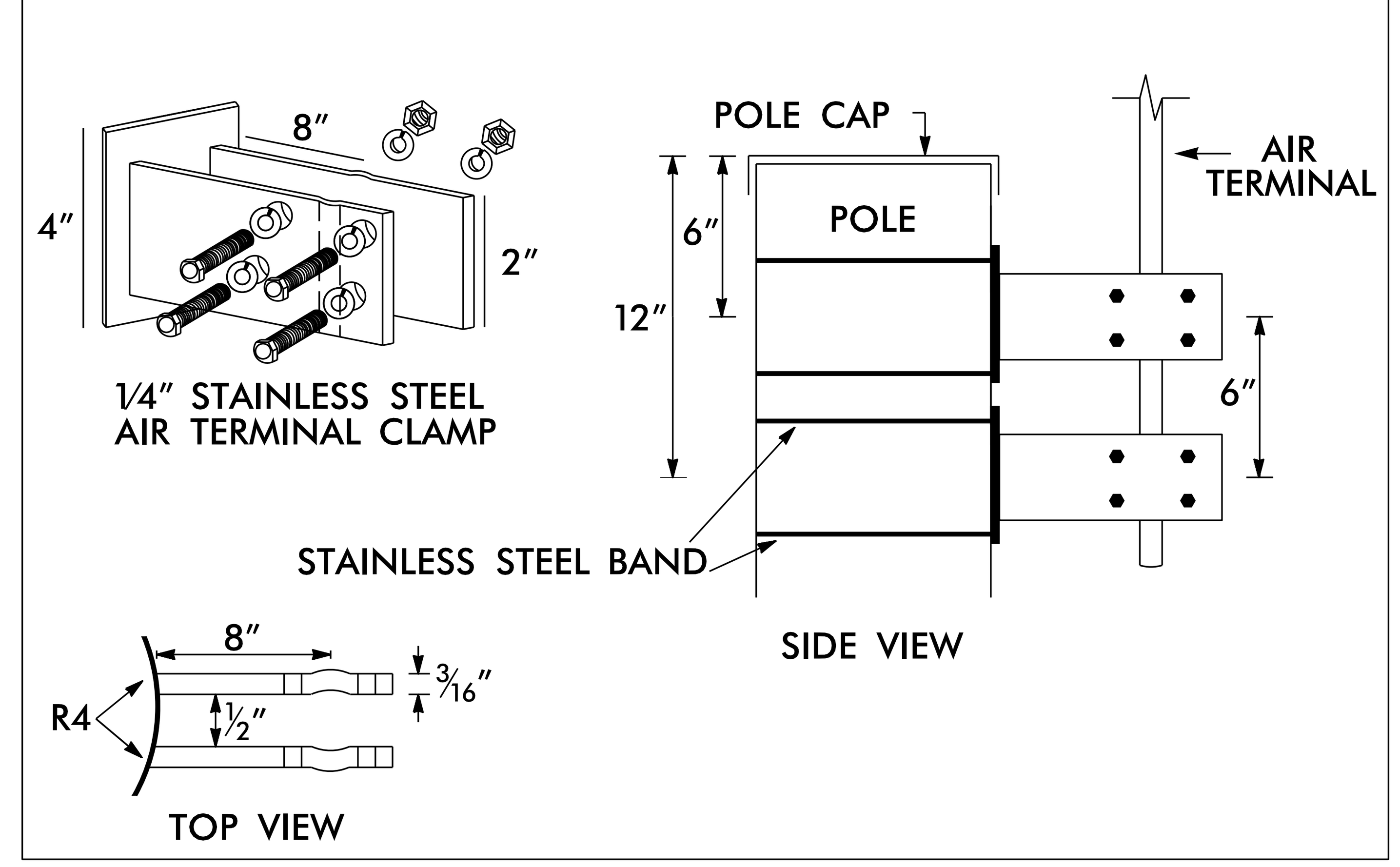


INSET `A'



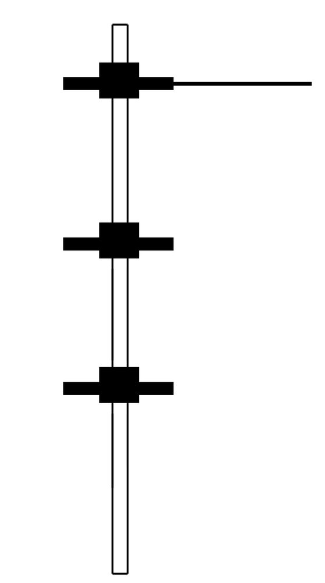


AIR TERMINAL ROD CLAMP DETAIL



ALTERNATE GROUNDING METHOD

IF SPACE IS NOT AVAILABLE TO DRIVE MULTIPLE RODS, DRIVE SECTIONAL GROUND RODS A MINIMUM OF 30 FEET.



JOIN SECTIONAL GROUND RODS BY IRREVERSIBLE COMPRESSION COUPLER

NOTES

1. BOND 0.5 INCH DIAMETER, 28 STRAND (MINIMUM) CLASS II COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN IRREVERSIBLE MECHANICAL CRIMP METHOD.
2. ALL CONNECTIONS TO GROUND RODS SHOULD BE MADE WITH AN IRREVERSIBLE MECHANICAL CRIMP METHOD.
3. BOND #4 AWG SOLID BARE COPPER WIRE TO REBAR CAGE AND THE MAIN GROUND ROD BY AN IRREVERSIBLE MECHANICAL CRIMP.
4. ENSURE CAMERA HOUSING, CAMERA, AND PAN –TILT UNIT ARE BONDED TO POLE.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUSS AND NEUTRAL BUSS.
6. REFER TO STANDARD DRAWING 1700–2 FOR ALTERNATE GROUND ROD INSTALLATION METHOD AS APPROVED BY THE ENGINEER.
7. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

CCTV CAMERA INSTALLATION
FOR METAL POLE WITH
UNDERGROUND ELECTRICAL SERVICE
TYPICAL DETAIL

DIVISION 09 FORSYTH CO.

PLAN DATE: FEBRUARY 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL

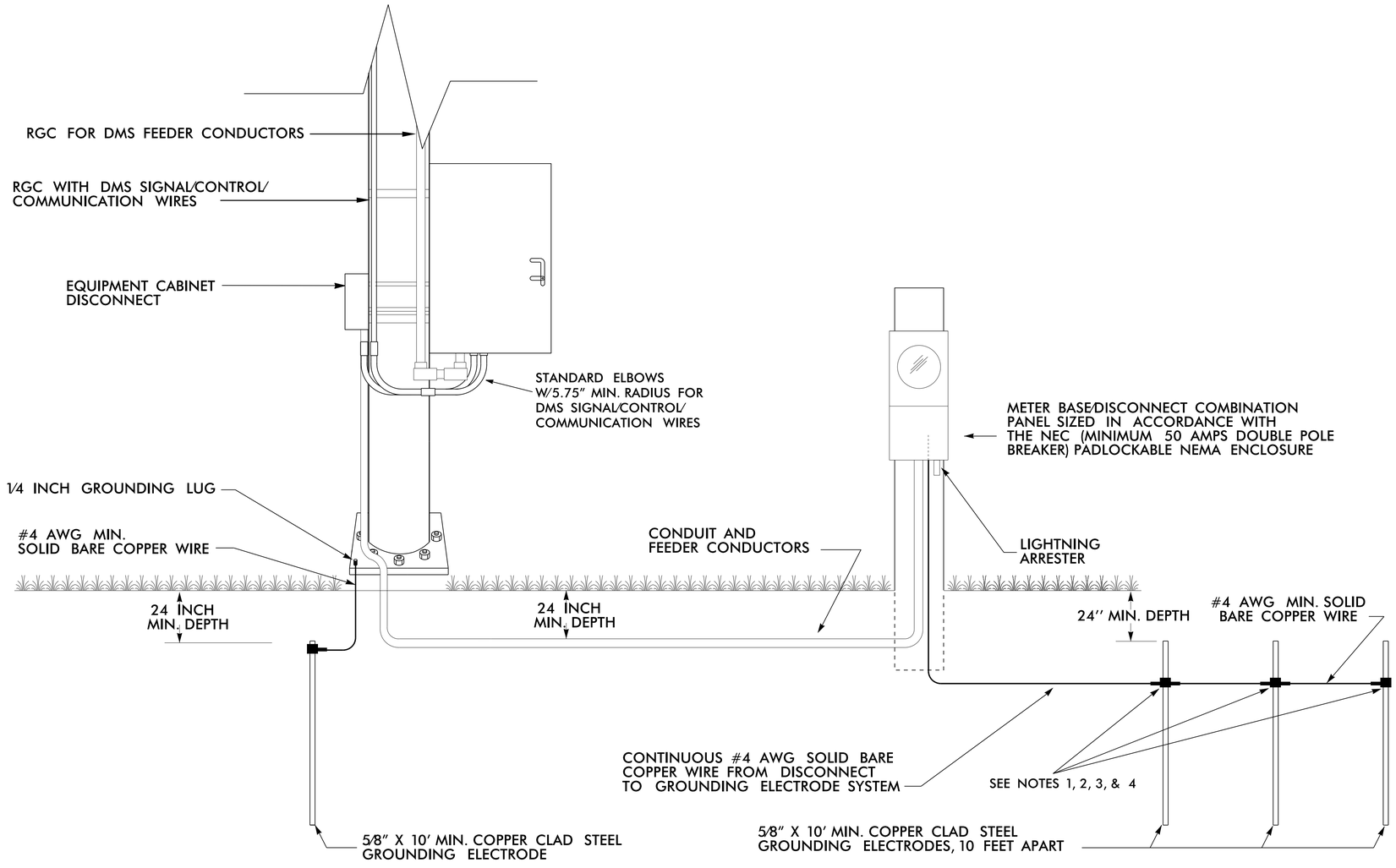
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

03/31/2022

DocuSigned by:
Andrew J. Skuce
D262B8BC8B5C464...

DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-26



NOTES

1. INSTALL A MINIMUM OF THREE (3) GROUNDING ELECTRODES SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHOULD MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. MECHANICALLY CRIMP ALL CONNECTIONS TO GROUND RODS USING AN IRREVERSIBLE COMPRESSION TOOL.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
5. REMOVE BONDING JUMPER IN EQUIPMENT CABINET IF INSTALLED BETWEEN AC NEUTRAL AND EQUIPMENT GROUND.
6. BOND ALL RIGID GALVANIZED STEEL CONDUITS ENTERING THE CABINET TO "EQUIPMENT GROUND".
7. INSTALL CONDUIT BETWEEN DISCONNECT AND CABINET.
8. ENSURE EQUIPMENT GROUND IS ELECTRICALLY BONDED TO CABINET.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

Transportation Mobility and Safety Division
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

DYNAMIC MESSAGE SIGN WITH UNDERGROUND ELECTRICAL SERVICE TYPICAL DETAIL

DIVISION 09 FORSYTH CO.

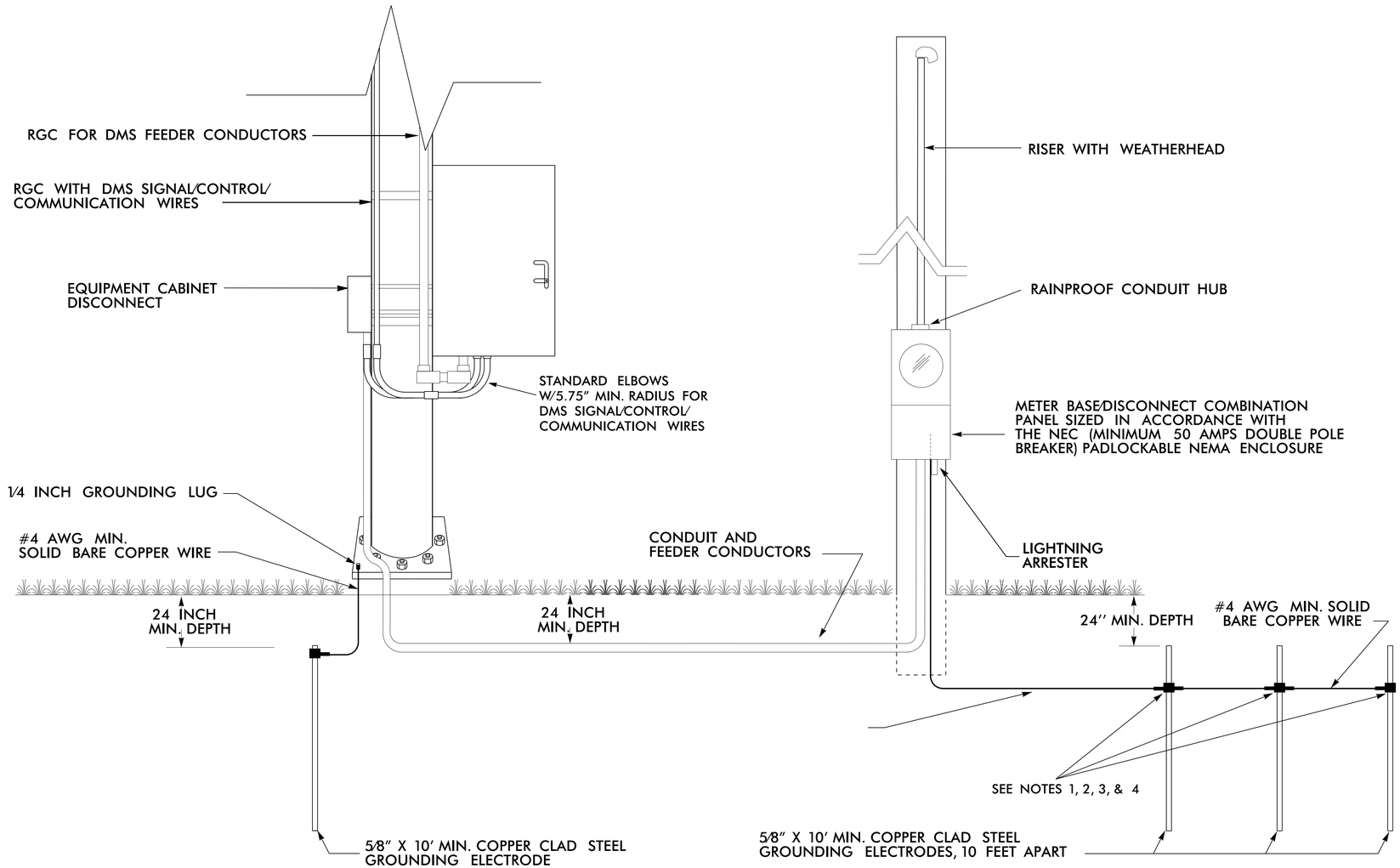
PLAN DATE: FEBRUARY 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce
D262B88C8B5C464...
03/31/2022
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-27



NOTES

1. INSTALL A MINIMUM OF THREE (3) GROUNDING ELECTRODES SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHOULD MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. MECHANICALLY CRIMP ALL CONNECTIONS TO GROUND RODS USING AN IRREVERSIBLE COMPRESSION TOOL.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
5. REMOVE BONDING JUMPER IN EQUIPMENT CABINET IF INSTALLED BETWEEN AC NEUTRAL AND EQUIPMENT GROUND.
6. BOND ALL RIGID GALVANIZED STEEL CONDUITS ENTERING THE CABINET TO "EQUIPMENT GROUND".
7. INSTALL CONDUIT BETWEEN DISCONNECT AND CABINET.
8. ENSURE EQUIPMENT GROUND IS ELECTRICALLY BONDED TO CABINET.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DYNAMIC MESSAGE SIGN
WITH AERIAL ELECTRICAL SERVICE
TYPICAL DETAIL

DIVISION 09 FORSYTH CO.

PLAN DATE: FEBRUARY 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

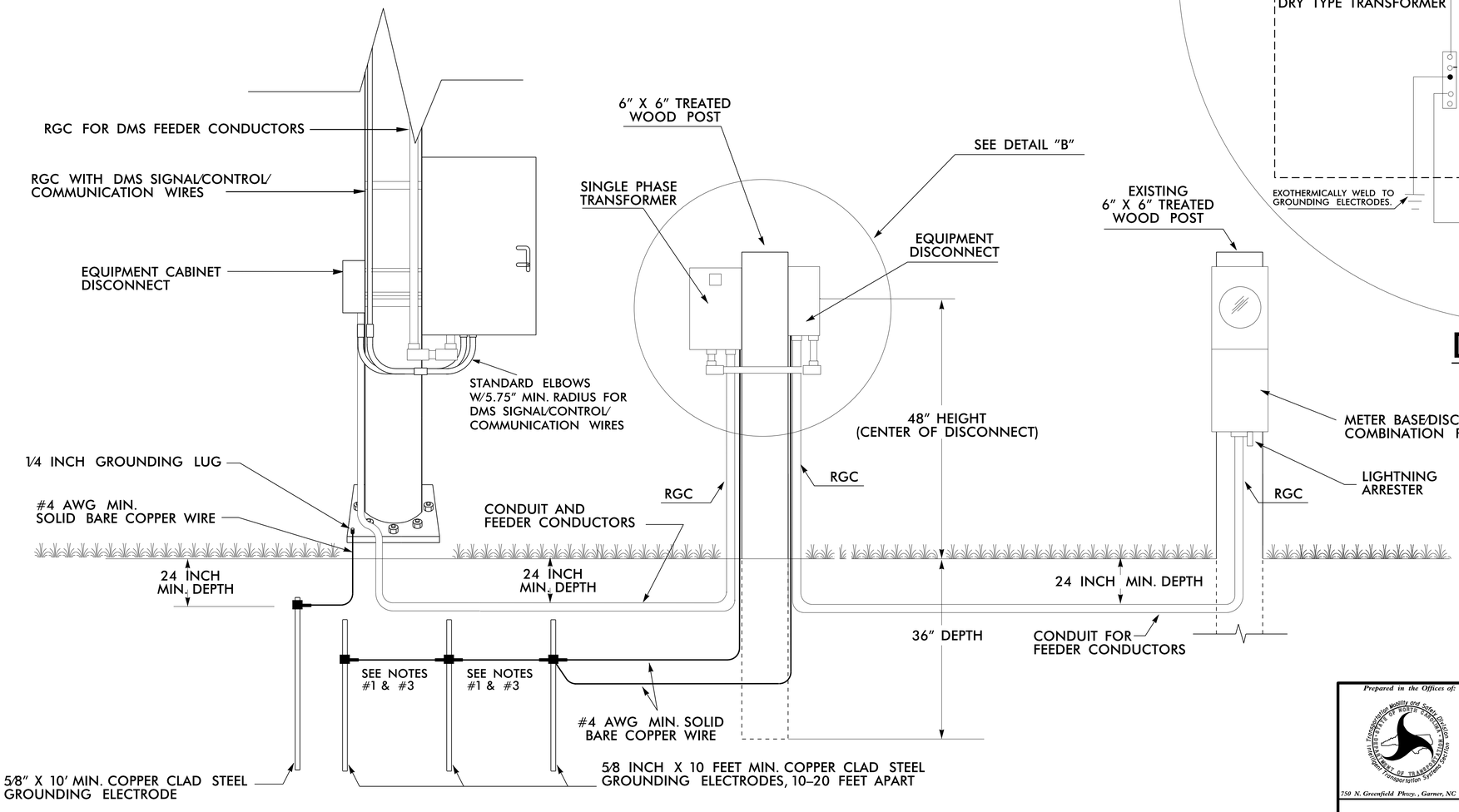
REVISIONS	INIT.	DATE

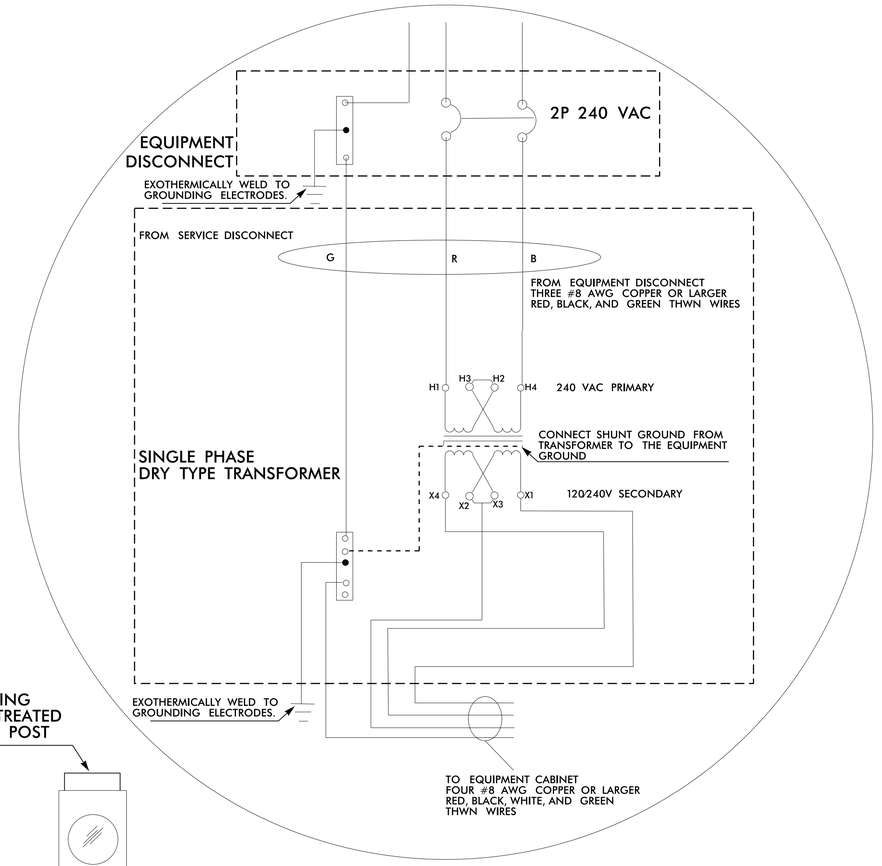
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 050152 ANDREW J. SKUCE
03/31/2022
DocuSigned by: Andrew J. Skuce
D262B6BC885C464...
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-28

NOTES

1. INSTALL A MINIMUM OF THREE GROUND RODS SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHALL MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUND RODS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
5. REMOVE BONDING JUMPER BETWEEN EQUIPMENT GROUND AND AC NEUTRAL IN THE EQUIPMENT CABINET.
6. BOND ALL RIGID GALVANIZED STEEL CONDUITS (RGC) ENTERING THE CABINET TO EQUIPMENT GROUND.
7. ALL ABOVE GROUND CONDUITS MUST BE RIGID GALVANIZED STEEL. PVC CONDUITS ARE ALLOWED FOR UNDERGROUND INSTALLATIONS.
8. ENSURE EQUIPMENT GROUND BUSS IS ELECTRICALLY BONDED TO EQUIPMENT CABINET.





DETAIL "B"

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

Transportation Mobility and Safety Division
Intelligent Transportation Systems Section
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Pkwy., Garner, NC 27529

DYNAMIC MESSAGE SIGN
ELECTRICAL SERVICE
WITH ISOLATION TRANSFORMER

DIVISION 09 FORSYTH CO.

PLAN DATE: MARCH 2022	REVIEWED BY: A.J. SKUCE, PE
PREPARED BY: J. WALDEN	REVIEWED BY:

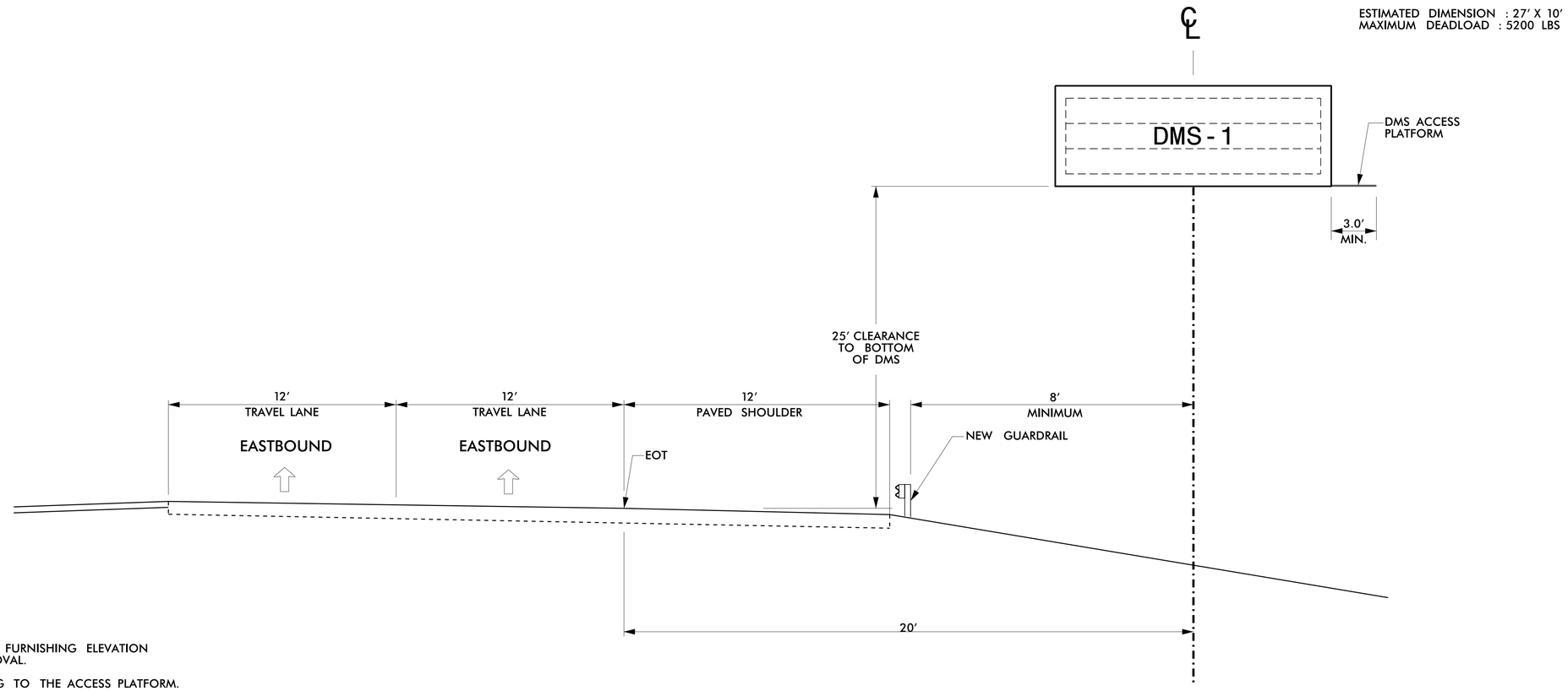
REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce
03/31/2022
DATE

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-29



NOTES

1. CONTRACTOR IS RESPONSIBLE FOR FURNISHING ELEVATION DRAWINGS FOR ENGINEER'S APPROVAL.
2. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORM.
3. EQUIP THE LADDER WITH A SECURITY COVER (LADDER GUARD). START THE FIRST LADDER RUNG NO MORE THAN 18 INCHES ABOVE A CONCRETE LANDING PAD. DESIGN RUNGS ON 12 INCH CENTER–TO–CENTER TYPICAL SPACING.
4. INSTALL A CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.
5. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
6. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
7. ENSURE THAT THE TOP OF THE FOOTING EXTENDS AT LEAST 6 INCHES AND NOT MORE THAN 24 INCHES ABOVE THE HIGHEST POINT OF THE GROUND SURFACE AT THE FOOTING.
8. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.
9. DESIGN THE STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 90 MPH.
10. SEE ROADWAY PLANS FOR GUARDRAIL DETAILS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Transportation Mobility and Safety Division

750 N. Greenfield Pkwy., Garner, NC 27529

ELEVATION DETAIL

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE: MARCH 2022 REVIEWED BY: A. SKUCE

PREPARED BY: J. WALDEN REVIEWED BY:

SCALE 0 N/A

REVISIONS	INIT.	DATE

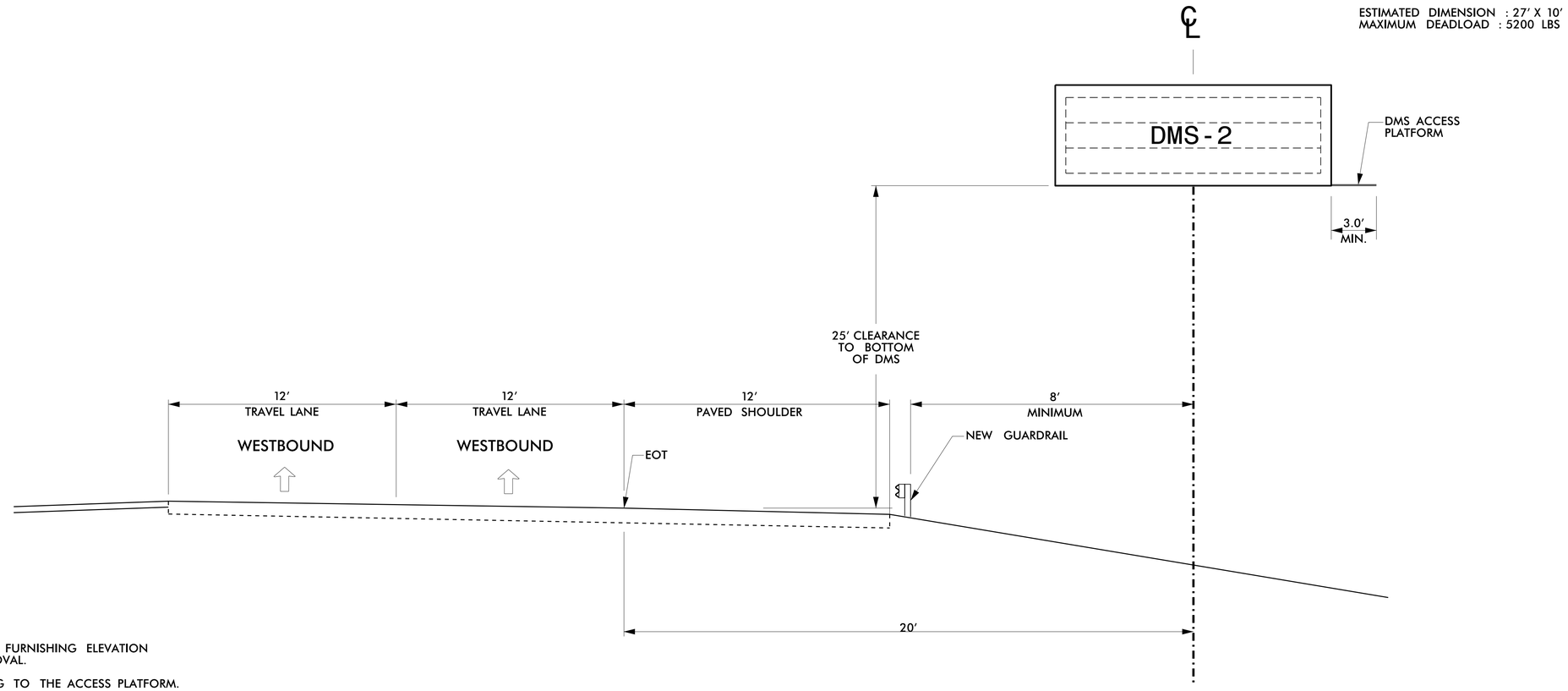
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

03/31/2022 DATE

DocuSigned by: Andrew J. Skuce

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-30



NOTES

1. CONTRACTOR IS RESPONSIBLE FOR FURNISHING ELEVATION DRAWINGS FOR ENGINEER'S APPROVAL.
2. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORM.
3. EQUIP THE LADDER WITH A SECURITY COVER (LADDER GUARD). START THE FIRST LADDER RUNG NO MORE THAN 18 INCHES ABOVE A CONCRETE LANDING PAD. DESIGN RUNGS ON 12 INCH CENTER–TO–CENTER TYPICAL SPACING.
4. INSTALL A CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.
5. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
6. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
7. ENSURE THAT THE TOP OF THE FOOTING EXTENDS AT LEAST 6 INCHES AND NOT MORE THAN 24 INCHES ABOVE THE HIGHEST POINT OF THE GROUND SURFACE AT THE FOOTING.
8. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.
9. DESIGN THE STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 90 MPH.
10. SEE ROADWAY PLANS FOR GUARDRAIL DETAILS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — Work Zone Traffic Control Section

750 N. Greenfield Pkwy., Garner, NC 27529

ELEVATION DETAIL

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE:	MARCH 2022	REVIEWED BY:	A. SKUCE
PREPARED BY:	J. WALDEN	REVIEWED BY:	

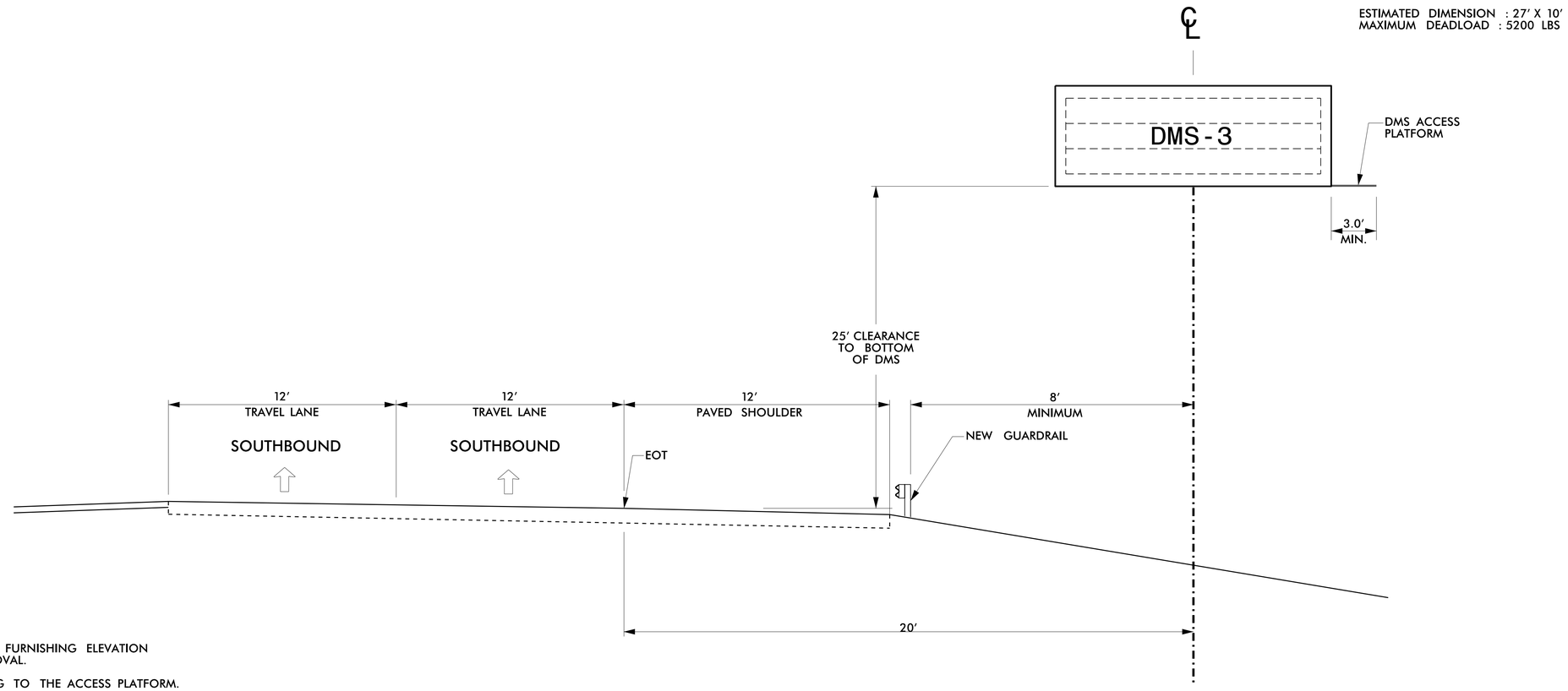
SCALE 0 N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 050152 ANDREW J. SKUCE
03/31/2022
DATE

DocuSigned by:
Andrew J. Skuce
D2628ABBC8B5C464...

PROJECT REFERENCE NO.	SHEET NO.
U-2579AA	ITS-31



NOTES

1. CONTRACTOR IS RESPONSIBLE FOR FURNISHING ELEVATION DRAWINGS FOR ENGINEER'S APPROVAL.
2. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORM.
3. EQUIP THE LADDER WITH A SECURITY COVER (LADDER GUARD). START THE FIRST LADDER RUNG NO MORE THAN 18 INCHES ABOVE A CONCRETE LANDING PAD. DESIGN RUNGS ON 12 INCH CENTER–TO–CENTER TYPICAL SPACING.
4. INSTALL A CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.
5. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
6. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
7. ENSURE THAT THE TOP OF THE FOOTING EXTENDS AT LEAST 6 INCHES AND NOT MORE THAN 24 INCHES ABOVE THE HIGHEST POINT OF THE GROUND SURFACE AT THE FOOTING.
8. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.
9. DESIGN THE STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 90 MPH.
10. SEE ROADWAY PLANS FOR GUARDRAIL DETAILS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:

750 N. Greenfield Pkwy., Garner, NC 27529

ELEVATION DETAIL

DIVISION 09 FORSYTH CO. WINSTON-SALEM

PLAN DATE: MARCH 2022 REVIEWED BY: A. SKUCE

PREPARED BY: J. WALDEN REVIEWED BY:

SCALE 0 N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

5/31/2022
DATE

DocuSigned by: Andrew J. Skuce