

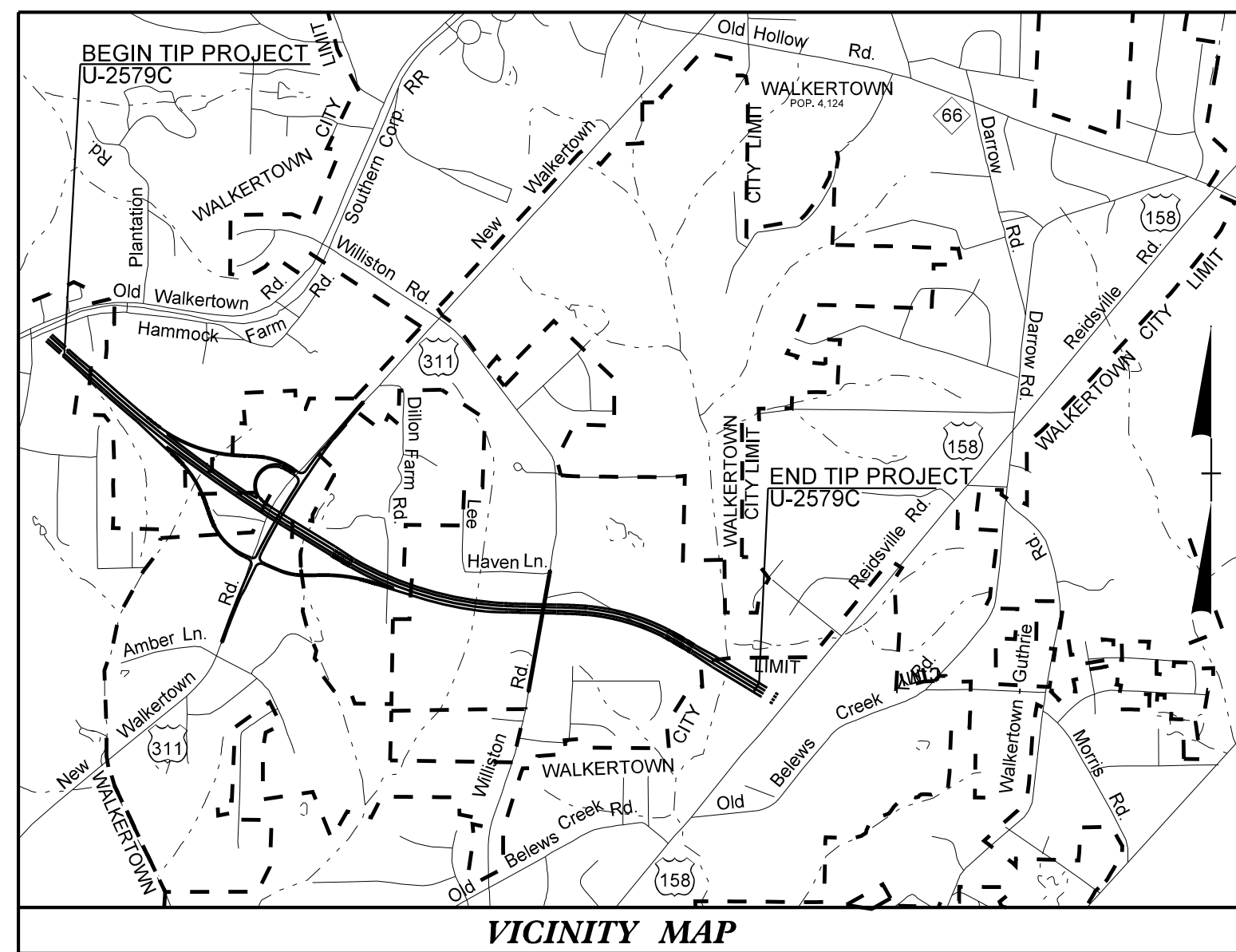
**This electronic collection of documents is provided
for the convenience of the user
and is Not a Certified Document –**

**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.**

5/1/2017 8:58:58 AM K:\RAL_IPTD\ITS\011036384 - U-2579C ITS\Plans\U-2579C-118.dwg

CONTRACT: C203979 TIP PROJECT: U-2579C



VICINITY MAP

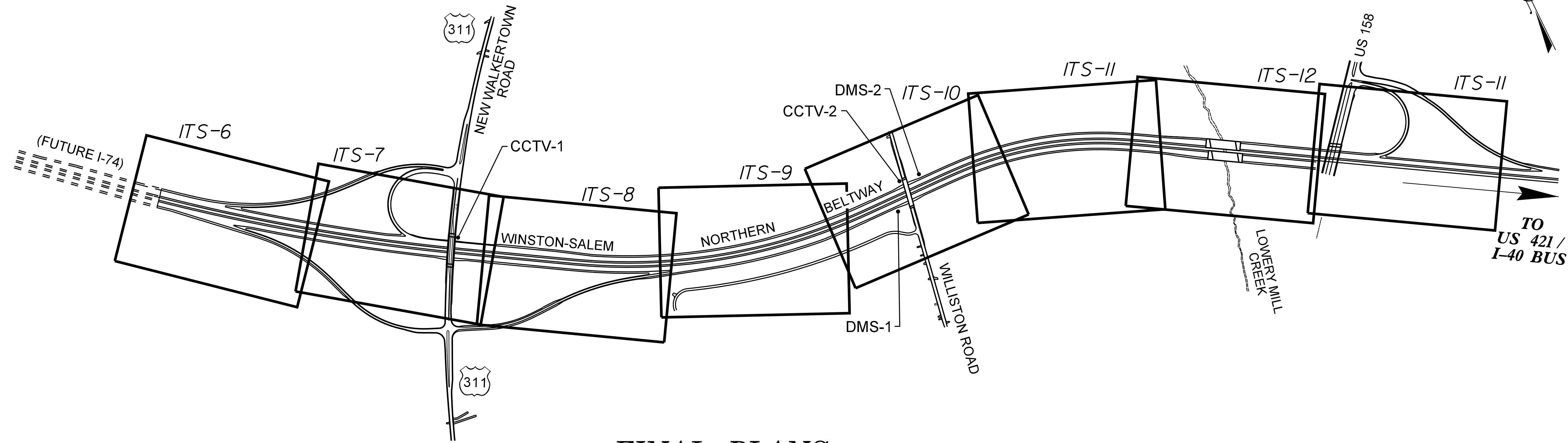
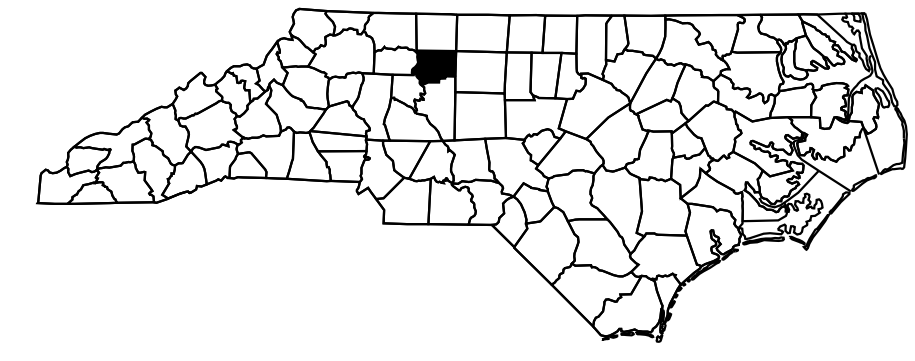
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

FORSYTH COUNTY

LOCATION: WINSTON - SALEM NORTHERN BELTWAY (EASTERN SECTION)
FROM US 311 TO US 158 (FUTURE I-74)

TYPE OF WORK: INSTALLATION OF FIBER-OPTIC COMMUNICATIONS NETWORK, CCTV AND DMS SYSTEM

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579C	1	20
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34839.1.9	NHP-0918(062)	PE	
34839.3.GV6	NHP-0918(062)	CONST	



FINAL PLANS

2012 STANDARD SPECIFICATIONS	
PROJECT LENGTH PROJECT LENGTH = 1.989 MILES	
LETTING DATE: OCTOBER 17, 2017	
INDEX OF SHEETS	
ITS-1	TITLE SHEET
ITS-2	CONSTRUCTION NOTES AND LEGEND
ITS-3	SYSTEM BLOCK DIAGRAM
ITS-4 THRU ITS-11	CCTV, DMS AND CABLE ROUTING PLANS
ITS-12 THRU ITS-13	DMS ELEVATION DETAILS
ITS-14 THRU ITS-18	SPLICE DETAILS
ITS-19 THRU ITS-20	TYPICAL DETAILS

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 2012 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
1751.01	CONTROLLER AND CABINETS
1751.02	CONTROLLER AND CABINETS

NC DOT CONTACTS:
 TRANSPORTATION SAFETY AND MOBILITY
 INTELLIGENT TRANSPORTATION SYSTEMS SECTION
 - STATE ITS AND SIGNALS ENGINEER

PLANS PREPARED BY: **Kimley»Horn**
 NC License #F-0102
 P.O. Box 33068
 Raleigh, NC 27636
 TEL: (919) 677-2000
 FAX: (919) 677-2050

KIMLEY-HORN CONTACTS: KEVIN W. SMITH, P.E. - PROJECT MANAGER

750 Greenfield Pkwy., Garner, NC 27529

SEAL

SIGNATURE _____ DATE _____

SEAL

DocuSigned by:
Kevin W. Smith
0088E0483B0440F

5/3/2017

SIGNATURE _____ DATE _____

- 1 INSTALL 3-WIRE COPPER SERVICE ENTRANCE CONDUCTORS
- 2 INSTALL 4-WIRE COPPER FEEDER CONDUCTORS
- 3 INSTALL 3-WIRE COPPER FEEDER CONDUCTORS
- 4 INSTALL SMFO CABLE
- 5 INSTALL MMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH OR PLOW
- 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 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 NEW POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 INSTALL ETHERNET EDGE SWITCH IN CABINET
- 27 INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPLICE CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPLICE ENCLOSURE
- 30 MODIFY EXISTING SPLICE ENCLOSURE
- 31 INSTALL POLE MOUNTED SPLICE CABINET
- 32 INSTALL BASE MOUNTED SPLICE CABINET
- 33 REMOVE EXISTING SPLICE CABINET

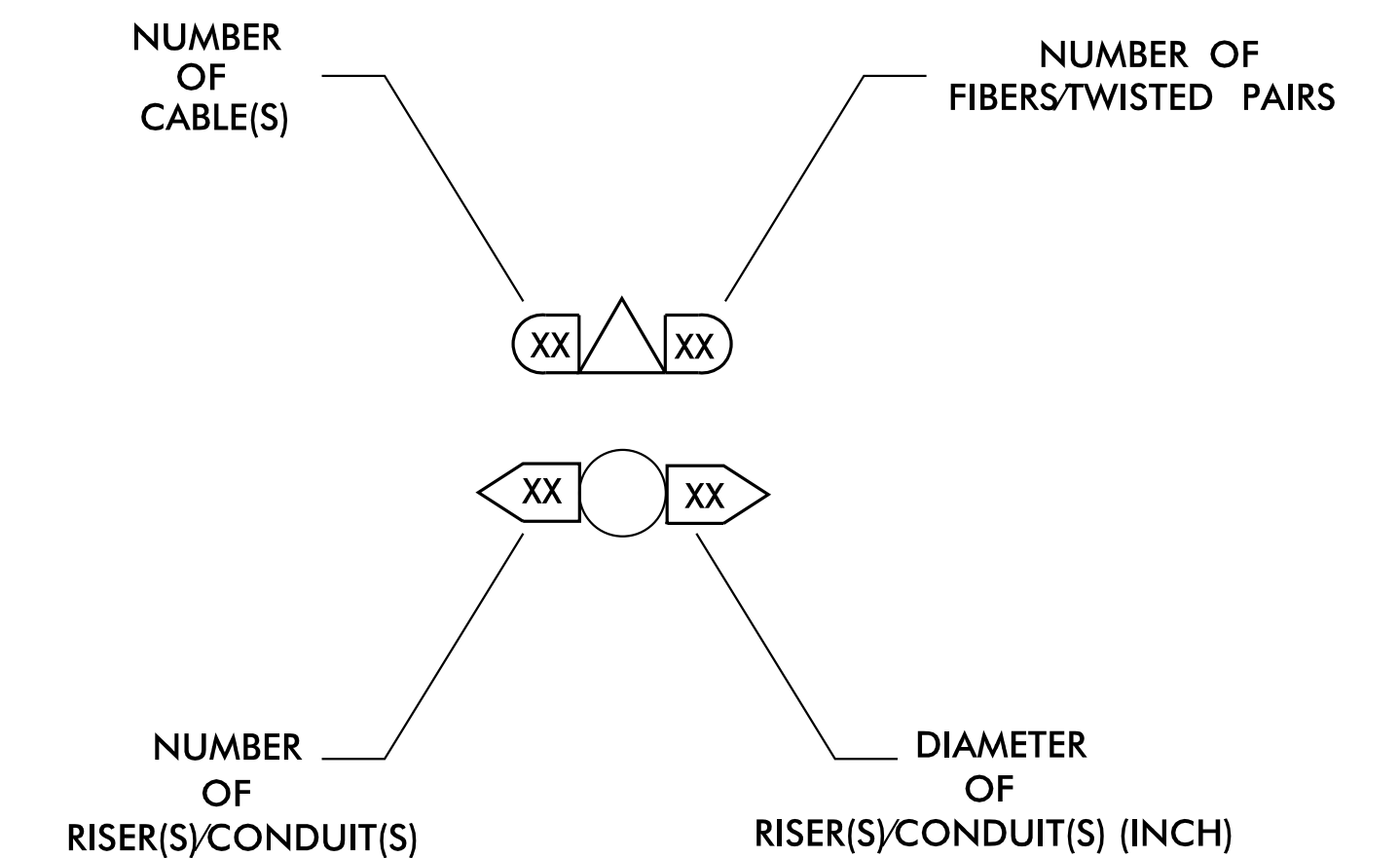
- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 INSTALL SPECIAL OVERSIZED JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 INSTALL 6" x 6" WOOD PEDESTAL
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 49 REMOVE EXISTING MESSENGER CABLE
- 50 INSTALL DIGITAL VIDEO ENCODER
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 20 FEET OF COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING SIGNAL/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 PEDESTAL TYPE SIGN STRUCTURE FOUNDATION AND DMS ASSEMBLY
- 60 INSTALL DISCONNECT ON CCTV POLE OR DMS STRUCTURE

LEGEND

<p>PROPOSED</p> <p>FO ——— OVERHEAD FIBER OPTIC CABLE</p> <p>----- TRENCHED CONDUIT</p> <p>DD ——— DIRECTIONAL DRILLED CONDUIT</p> <p>○ WOOD POLE</p> <p>◻ METAL POLE</p> <p>← STANDARD GUY ASSEMBLY</p> <p>◻ JUNCTION BOX</p> <p>⊗ EQUIPMENT CABINET</p> <p>Ⓢ SPLICE ENCLOSURE</p> <p>Ⓢ SPLICE CABINET</p> <p>◻ CCTV CAMERA ASSEMBLY</p> <p>◻ DMS SIGN ASSEMBLY</p> <p>◻ ELECTRICAL SERVICE</p> <p>Ⓢ XX-XXXX CCTV CAMERA /DMS NUMBER</p>	<p>EXISTING</p> <p>EXI ———</p> <p>-----</p> <p>NA</p> <p>● WOOD POLE</p> <p>◻ METAL POLE</p> <p>← STANDARD GUY ASSEMBLY</p> <p>◻ JUNCTION BOX</p> <p>⊗ EQUIPMENT CABINET</p> <p>Ⓢ SPLICE ENCLOSURE</p> <p>Ⓢ SPLICE CABINET</p> <p>◻ CCTV CAMERA ASSEMBLY</p> <p>NA</p> <p>◻ ELECTRICAL SERVICE</p> <p>Ⓢ XX-XXXX</p>
--	--

CONSTRUCTION NOTE SYMBOLOGY KEY

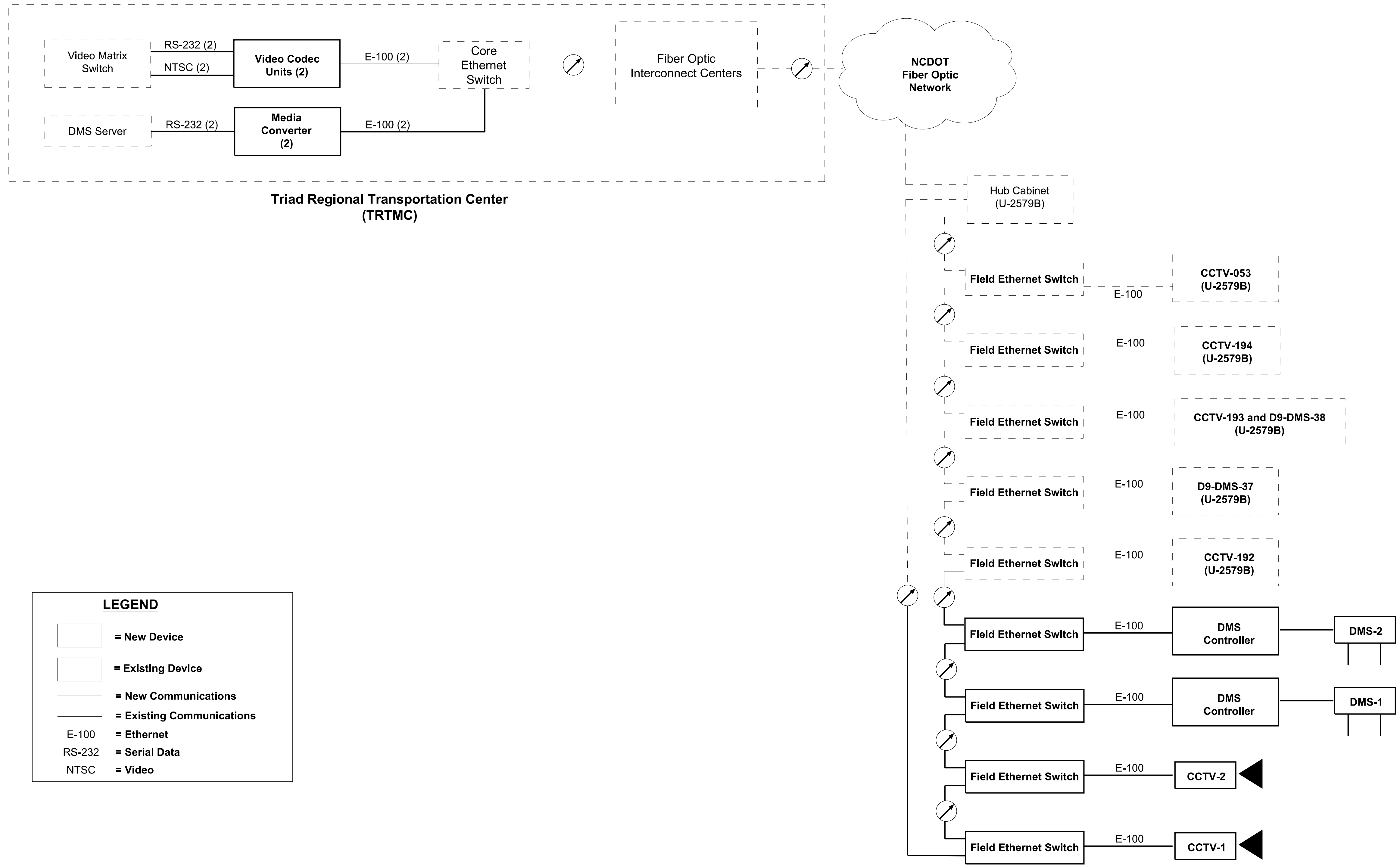
- Ⓢ XX INDICATES NUMBER OF CABLES, LOOPS, ETC.
- Ⓢ XX INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- ◻ XX INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- ◻ XX INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)



5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c.its-phz.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

	<p>WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS CONSTRUCTION NOTES</p> <p>DIVISION 09 FORSYTH COUNTY</p> <p>PLAN DATE: MAY 2017 REVIEWED BY: I. VAN OSDELL</p> <p>PREPARED BY: J. CROSS REVIEWED BY: K. SMITH</p>	<p>SEAL</p>									
<p>SCALE</p> <p>0</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE							<p>DocuSigned By: Kevin W. Smith</p> <p>SIGNATURE DATE</p> <p>5/3/2017</p> <p>CADD Filename:</p>
REVISIONS	INIT.	DATE									



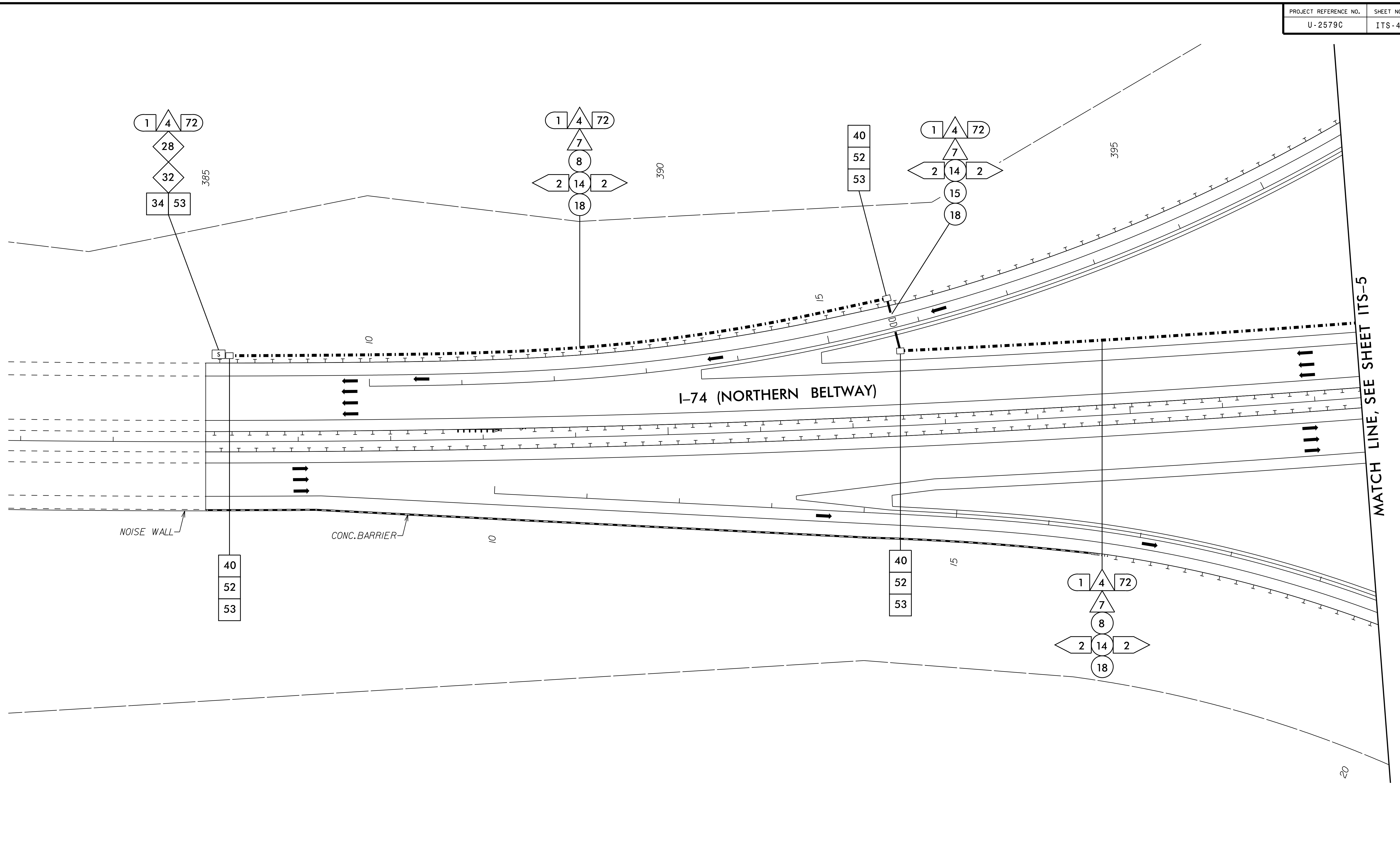
LEGEND

- = New Device
- = Existing Device
- = New Communications
- = Existing Communications
- E-100 = Ethernet
- RS-232 = Serial Data
- NTSC = Video

5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c_ITS_psh3.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

	WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS BLOCK DIAGRAM		
	DIVISION 09 FORSYTH COUNTY PLAN DATE: MAY 2017 REVIEWED BY: I. VAN OSDELL PREPARED BY: J. CROSS REVIEWED BY: K. SMITH		
SCALE 0	REVISIONS _____ _____ _____	INIT. DATE _____ _____ _____	SIGNATURE Kevin W. Smith DATE 5/3/2017

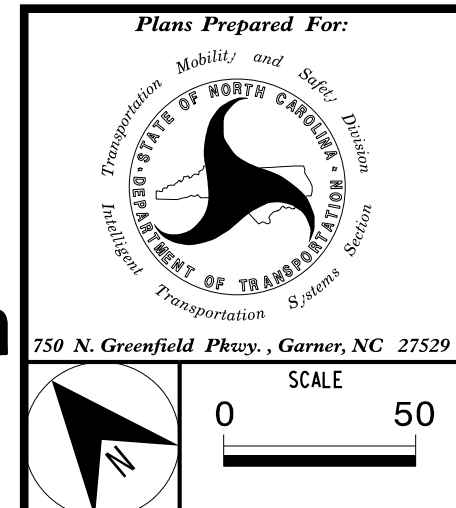


MATCH LINE, SEE SHEET ITS-5

5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c ITS-psn4.dgn

NOTE:
 1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.

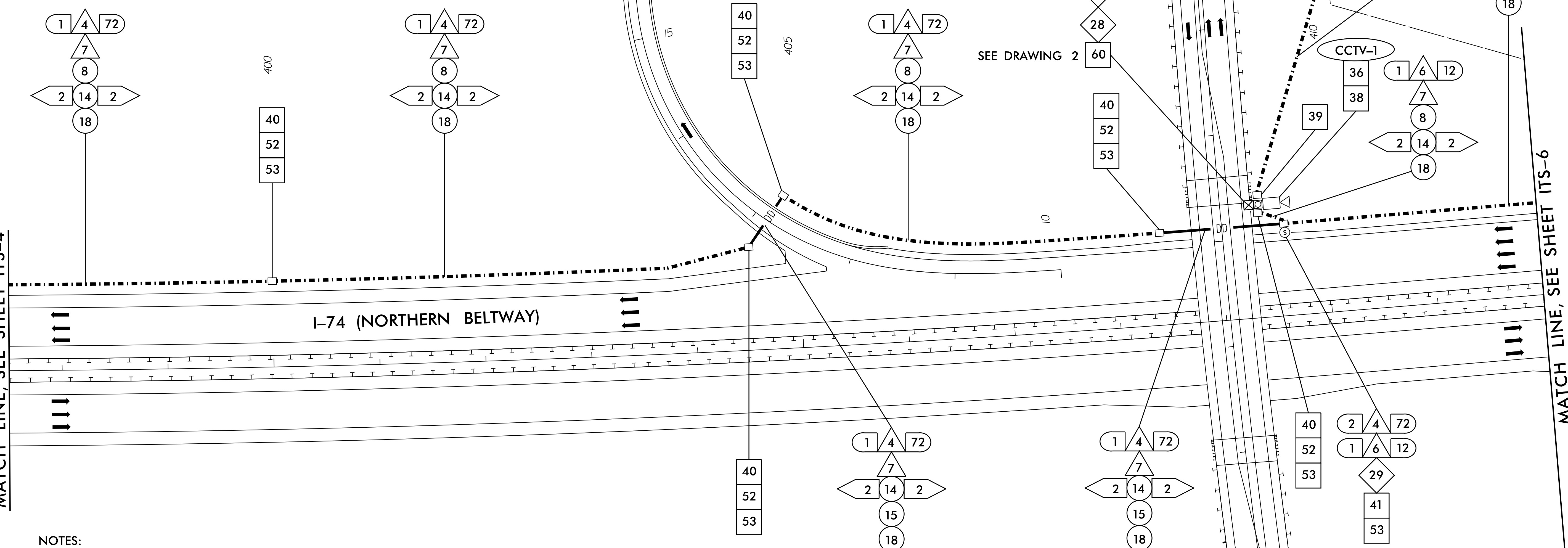
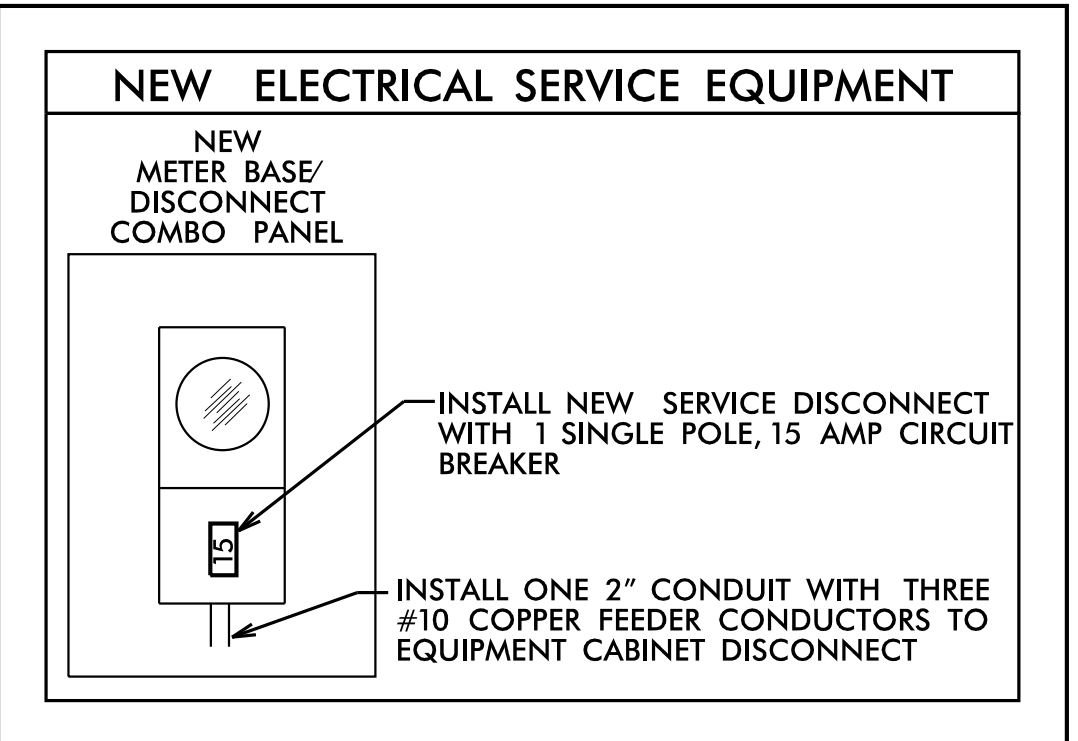
Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050



WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS CABLE AND CONDUIT ROUTING PLAN	
DIVISION 09	FORSYTH COUNTY
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH
REVISIONS	INIT. DATE

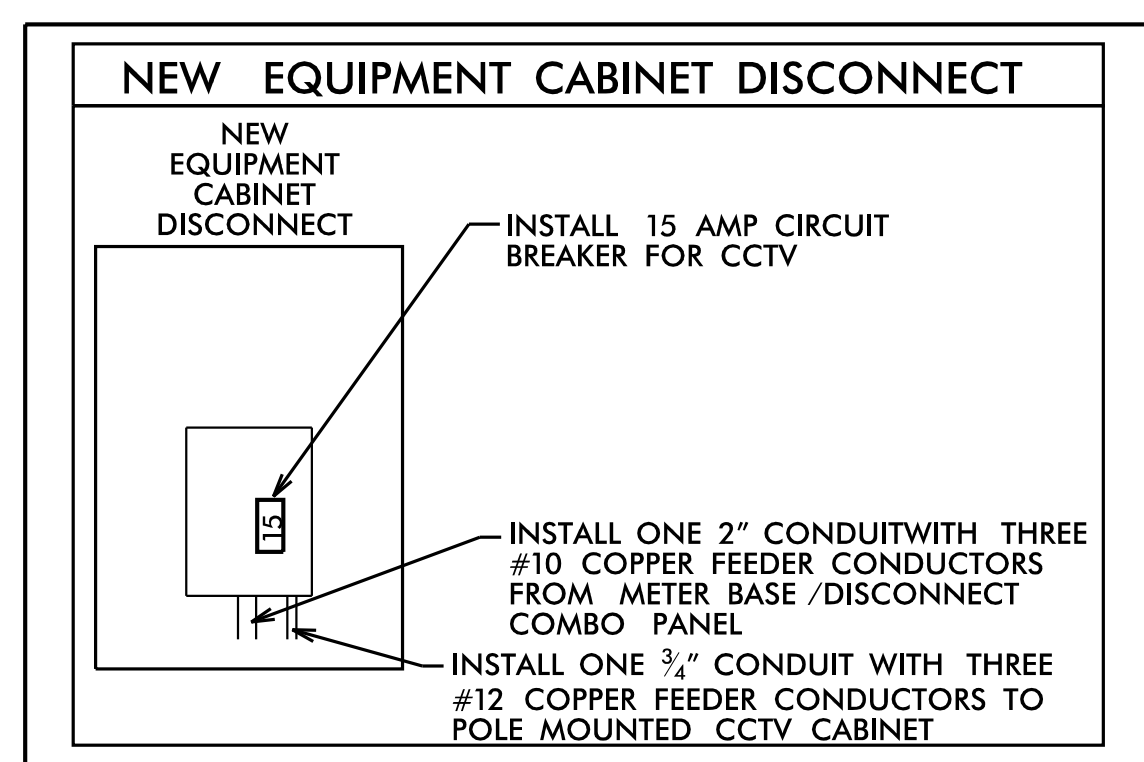
SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 KEVIN W. SMITH
 SEAL 030472
 DATE: 5/3/2017
 CADD Filename:

DRAWING 1



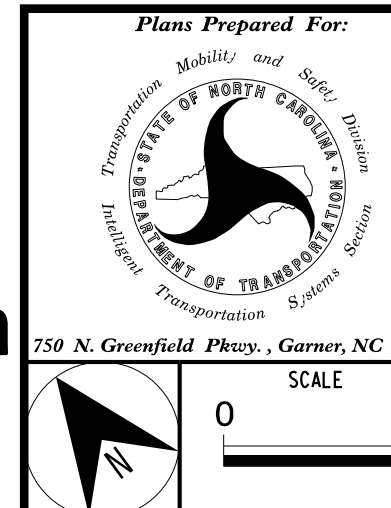
- NOTES:
1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
 2. THE FINAL LOCATION OF CCTV MUST BE FIELD VERIFIED BY THE NCDOT REGIONAL ITS ENGINEER PRIOR TO INSTALLATION.
 3. MOUNT CCTV CAMERA 45' ABOVE GRADE.
 4. INSTALL NEW FIELD EQUIPMENT CABINET ON NEW CCTV METAL POLE.
 5. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON ITS-20 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
 6. ELECTRICAL SERVICE DETAILS AND CONSTRUCTION METHODS DEPICT CONDITIONS AT THE TIME OF DESIGN. CONTRACTOR TO VERIFY ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION AND OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO MAKING ANY CHANGES.
 7. INSTALL 6" x 6" WOOD PEDESTAL 10' FROM EXISTING DUKE ENERGY POWER POLE.
 8. COORDINATE WITH THE REGIONAL ITS ENGINEER TO CONTACT DUKE ENERGY REPRESENTATIVE IN ORDER TO OBTAIN POWER TO NEW ELECTRICAL SERVICE.

DRAWING 2



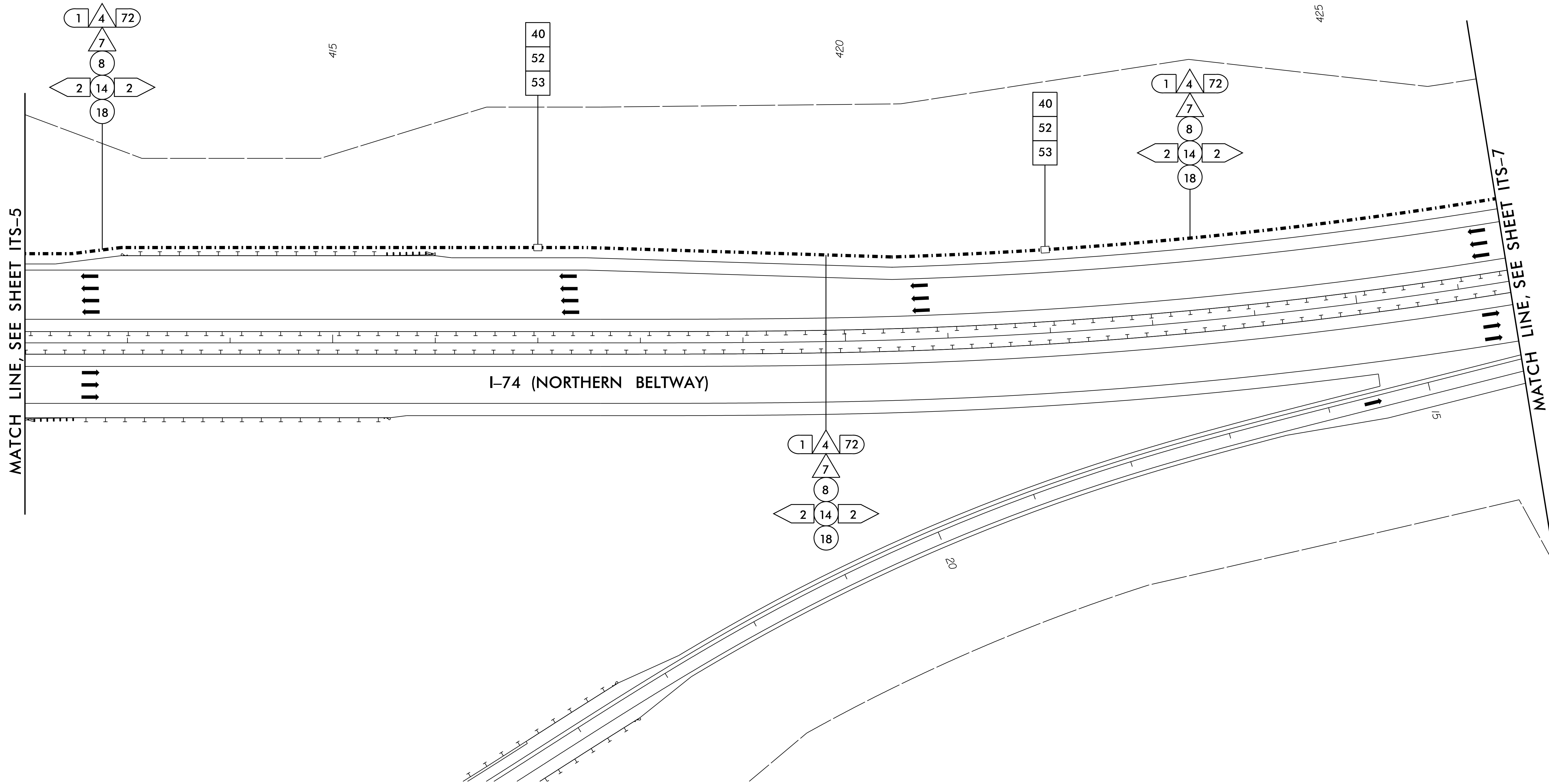
5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c_ITS_psh5.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050



Plans Prepared For: WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS COMMUNICATIONS CABLE AND CONDUIT ROUTING PLAN	
DIVISION 09 FORSYTH COUNTY	
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH
REVISIONS	INIT. DATE
_____	_____
_____	_____

SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 KEVIN W. SMITH
 SEAL 030472
 5/3/2017
 SIGNATURE DATE
 CADD Filename:



MATCH LINE, SEE SHEET ITS-5

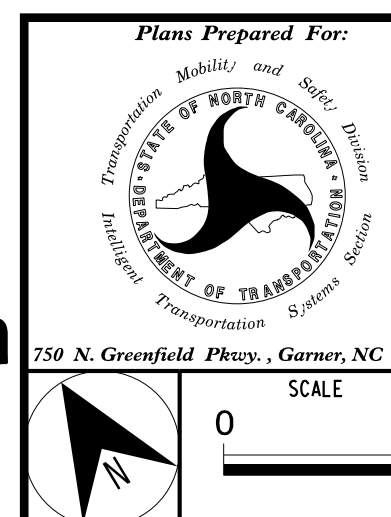
MATCH LINE, SEE SHEET ITS-7

I-74 (NORTHERN BELTWAY)

NOTE:
1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.

5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c ITS.psh6.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

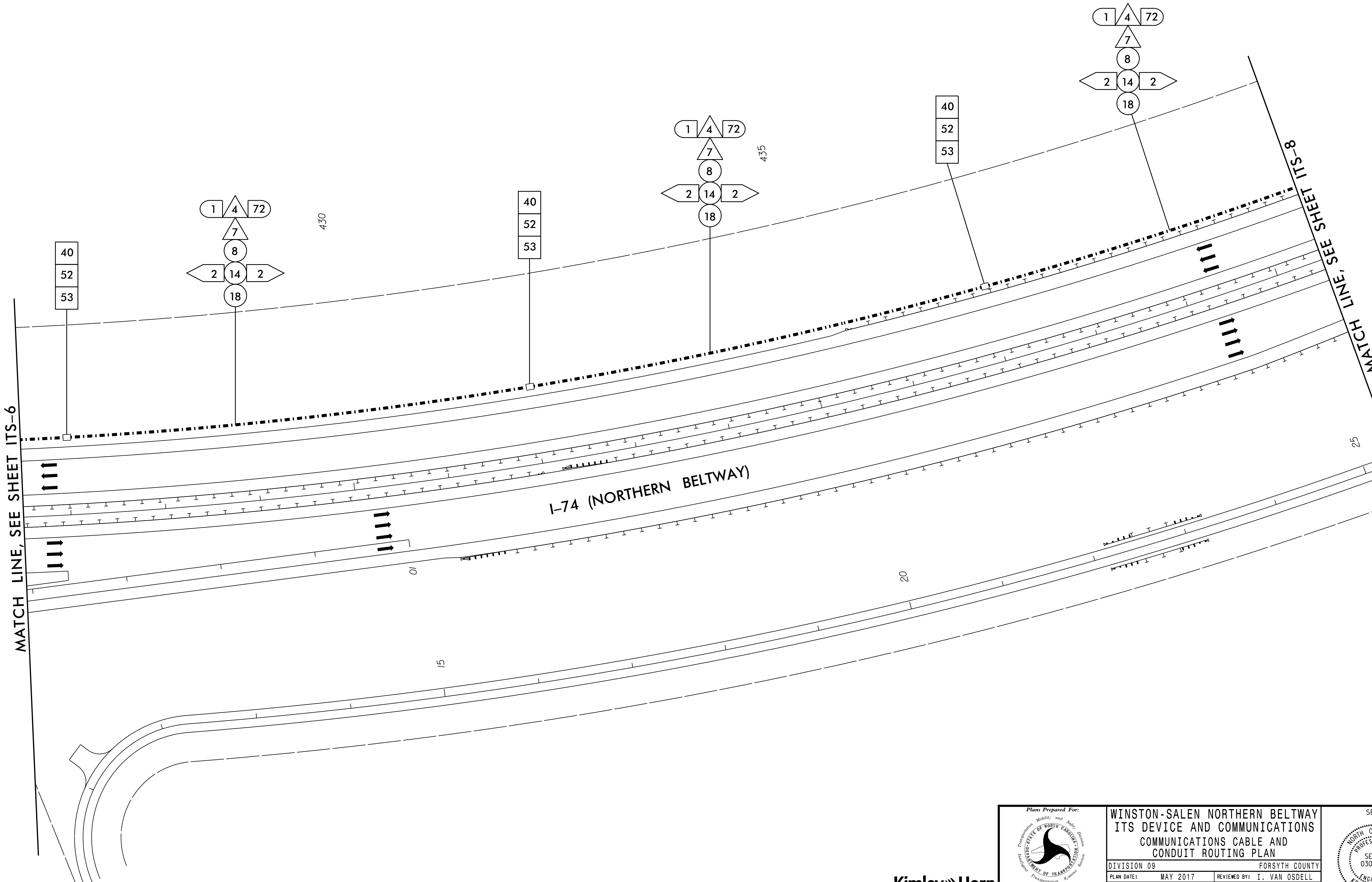


WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS CABLE AND CONDUIT ROUTING PLAN	
DIVISION 09	FORSYTH COUNTY
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH
REVISIONS	INIT. DATE

SEAL

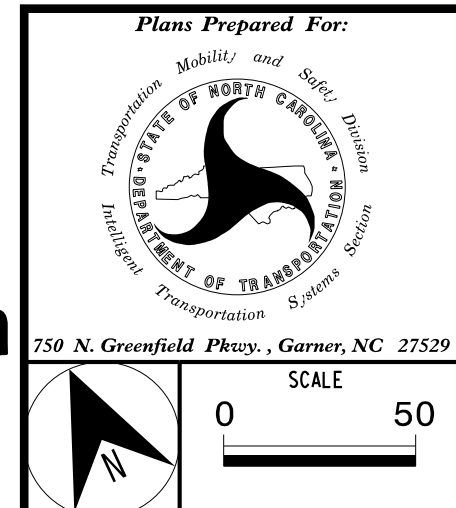
DocuSigned by:
 Kevin W. Smith
 5/3/2017
 SIGNATURE DATE
 CADD File name:

NOTE:
1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.



5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c_ITS_psh7.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

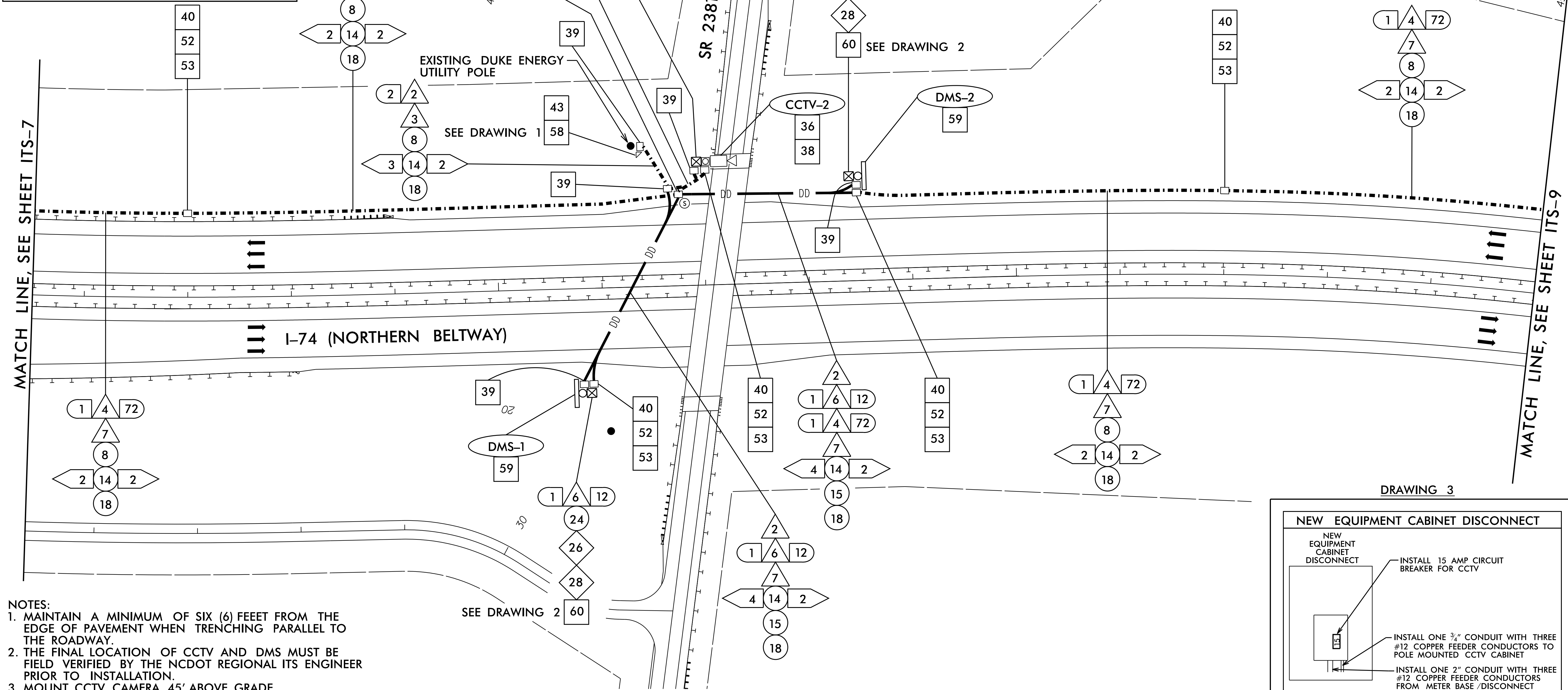
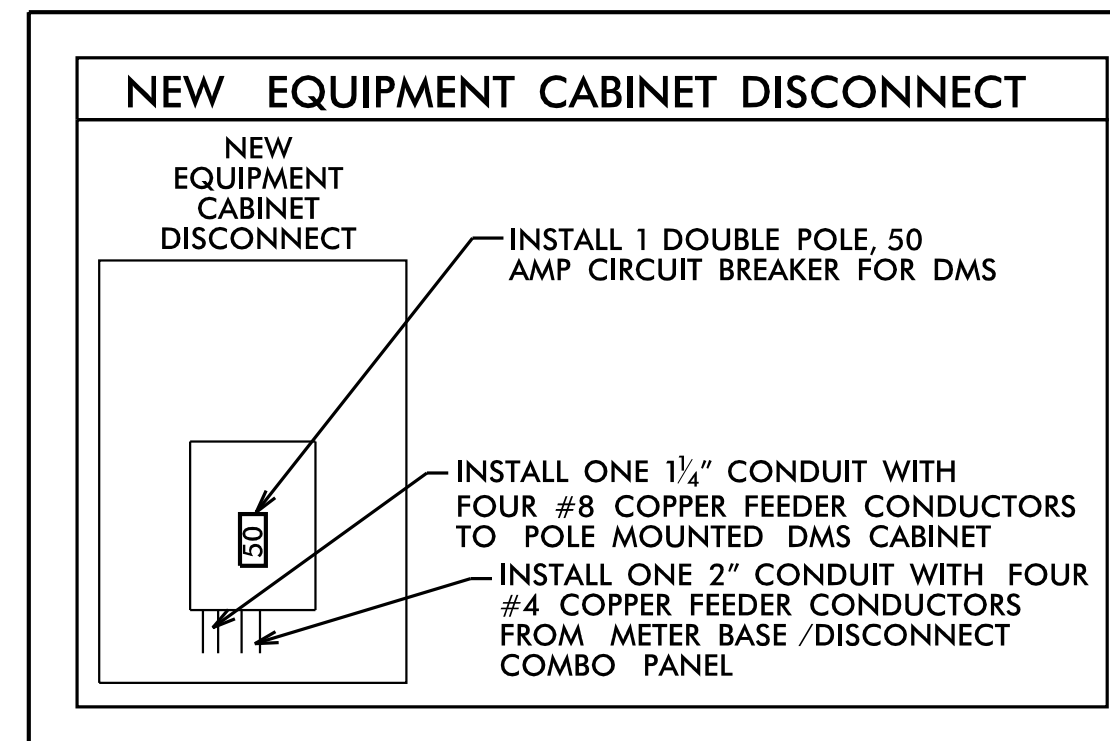
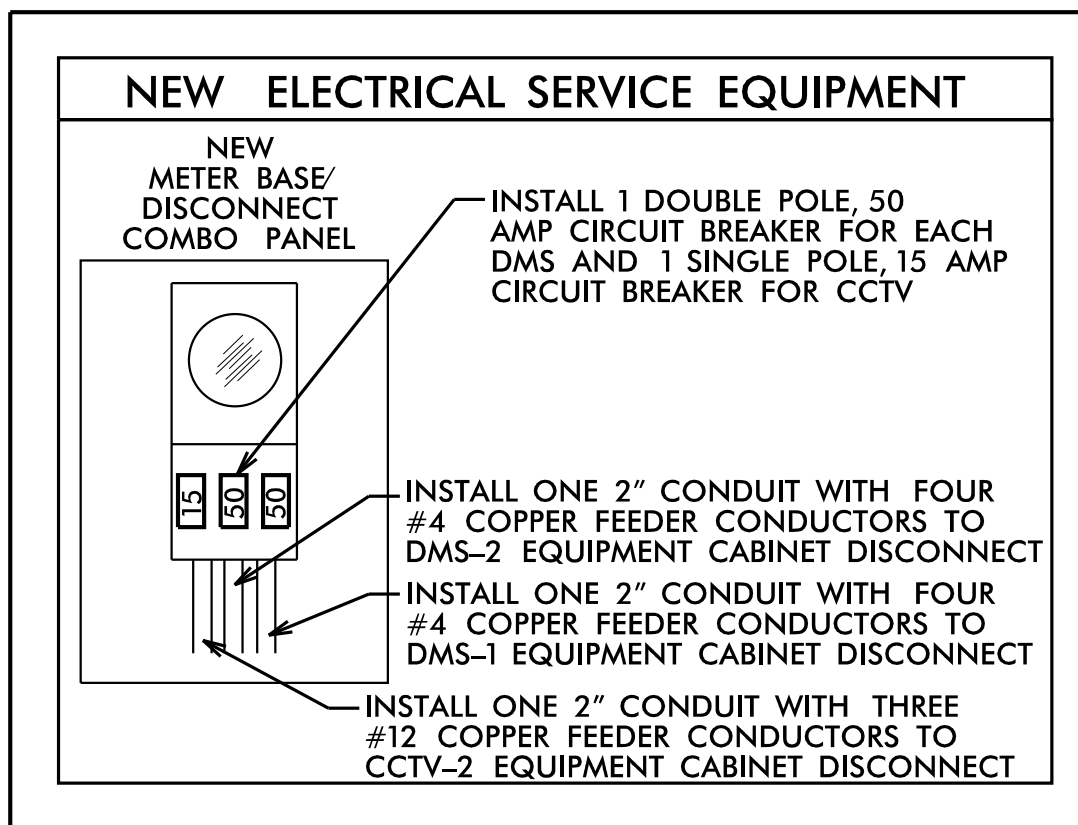


WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS CABLE AND CONDUIT ROUTING PLAN	
DIVISION 09	FORSYTH COUNTY
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH
REVISIONS	INIT. DATE

SEAL

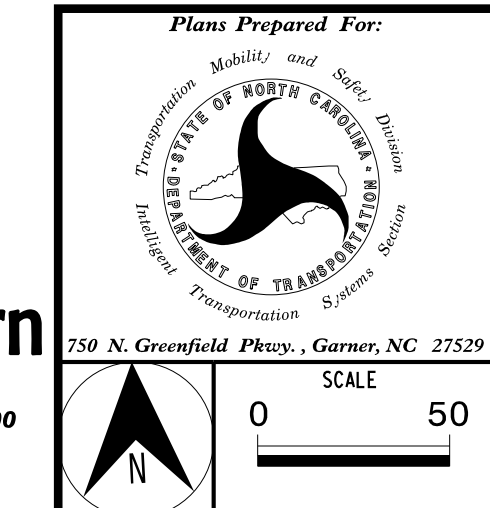
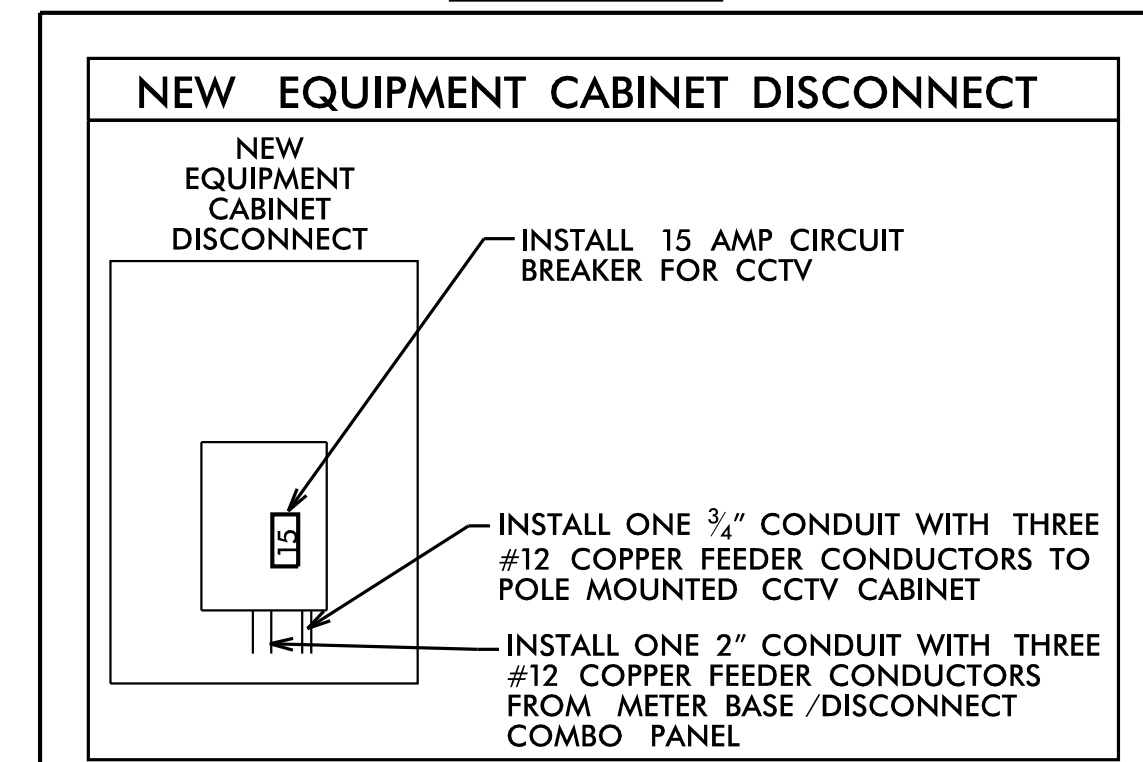
Kevin W. Smith
 0688E0483B0440F
 5/3/2017
 SIGNATURE DATE
 CADD Filename:

SCALE	0	50



- NOTES:**
1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
 2. THE FINAL LOCATION OF CCTV AND DMS MUST BE FIELD VERIFIED BY THE NCDOT REGIONAL ITS ENGINEER PRIOR TO INSTALLATION.
 3. MOUNT CCTV CAMERA 45' ABOVE GRADE.
 4. INSTALL NEW FIELD EQUIPMENT CABINET ON NEW CCTV METAL POLE.
 5. INSTALL NEW DMS, WALKWAY, LADDER AND POLE MOUNTED CABINET ON NEW DMS STRUCTURE.
 6. INSTALL NEW GROUNDING SYSTEM AS SHOWN ON ITS-20 AND ITS-21 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
 7. ELECTRICAL SERVICE DETAILS AND CONSTRUCTION METHODS DEPICT CONDITIONS AT THE TIME OF DESIGN. CONTRACTOR TO VERIFY ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION AND OBTAIN APPROVAL FROM THE ENGINEER PRIOR TO MAKING ANY CHANGES.

8. INSTALL 6" x 6" WOOD PEDESTAL 10' FROM EXISTING DUKE ENERGY POWER POLE.
9. INSTALL CONDUITS FOR FEEDER CONDUCTORS AND FIBER OPTIC CABLE IN SAME BORE AND/OR TRENCH. USE SEPERATE CONDUITS AND JUNCTION BOXES FOR POWER AND COMMUNICATIONS.
10. COORDINATE WITH THE REGIONAL ITS ENGINEER TO CONTACT DUKE ENERGY REPRESENTATIVE IN ORDER TO OBTAIN POWER TO NEW ELECTRICAL SERVICE.
11. SEE ROADWAY PLANS FOR GUARDRAIL INSTALLATION AT DMS LOCATIONS.



WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS COMMUNICATIONS CABLE AND CONDUIT ROUTING PLAN

DIVISION 09 FORSYTH COUNTY

PLAN DATE: MAY 2017 REVIEWED BY: I. VAN OSDELL

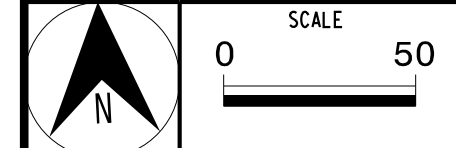
PREPARED BY: J. CROSS REVIEWED BY: K. SMITH

REVISIONS	INIT.	DATE

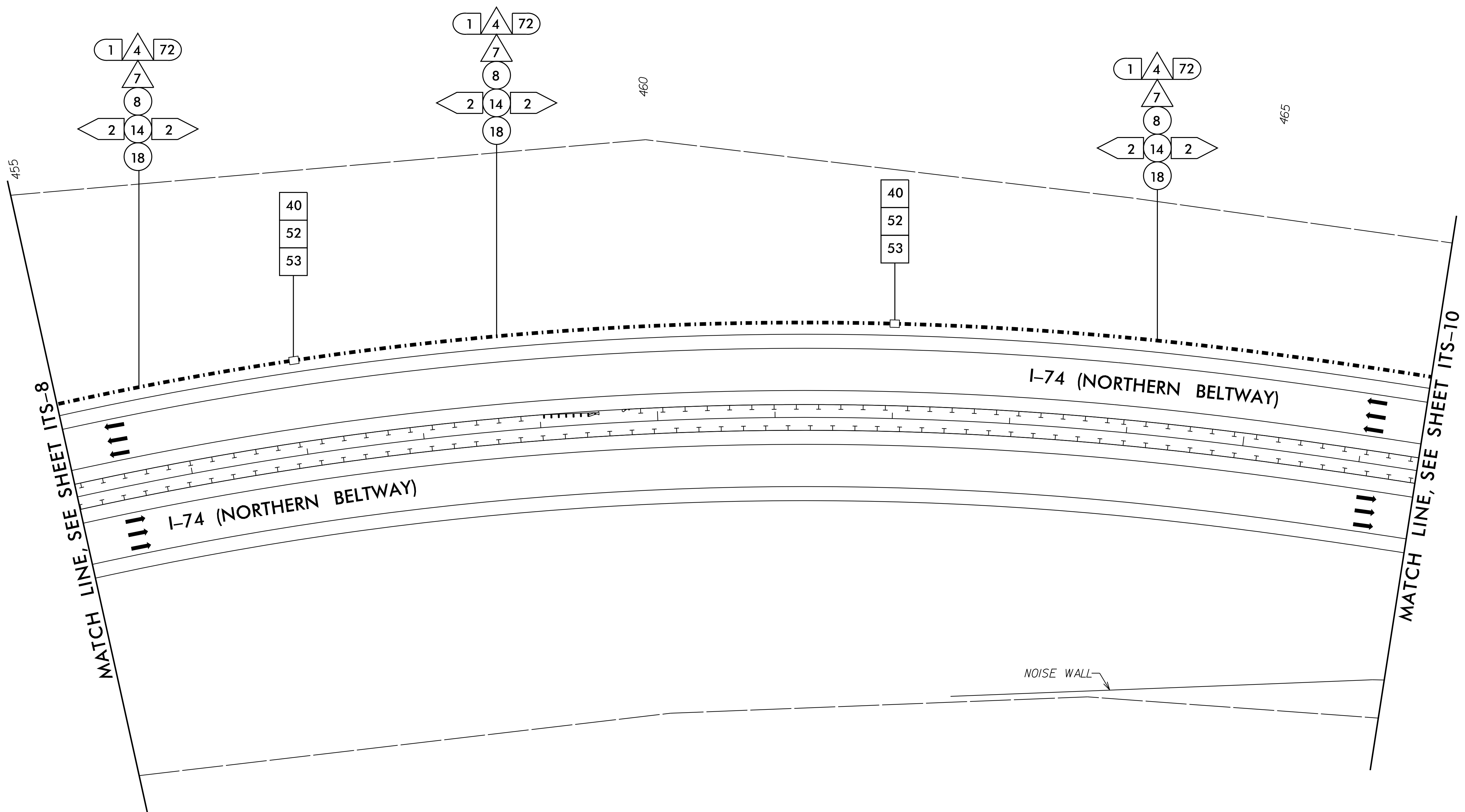
Signature: Kevin W. Smith, Date: 5/3/2017

Kimley Horn

NC License #F-0102
421 Fayetteville St., Suite 600
Raleigh, NC 27636
Tel: (919) 677-2000
Fax: (919) 677-2050



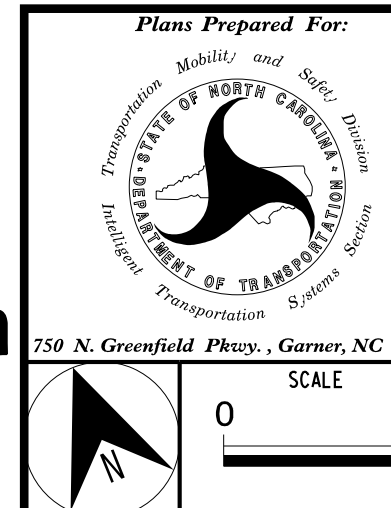
5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c_Its_pshb.dgn



NOTE:
 1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.

5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c ITS-ps9.dgn

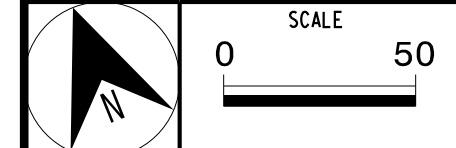
Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

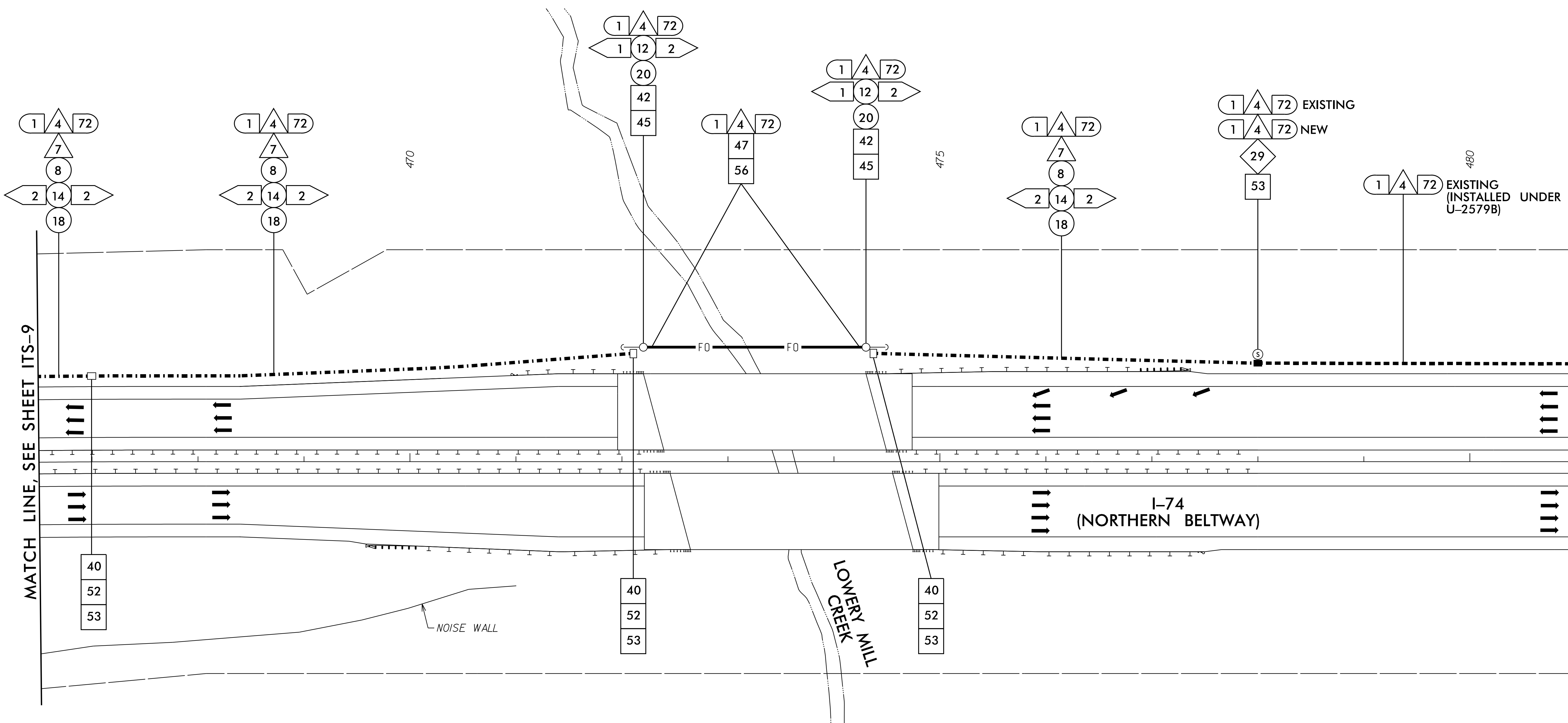


WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS CABLE AND CONDUIT ROUTING PLAN	
DIVISION 09	FORSYTH COUNTY
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH
REVISIONS	INIT. DATE

SEAL

DocuSigned By:
 Kevin W. Smith
 5/3/2017
 SIGNATURE DATE
 CADD Filename:

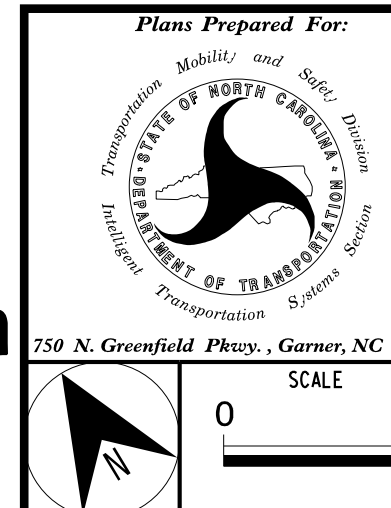




5/1/2017 K:\RAL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c_Its_psh0.dgn

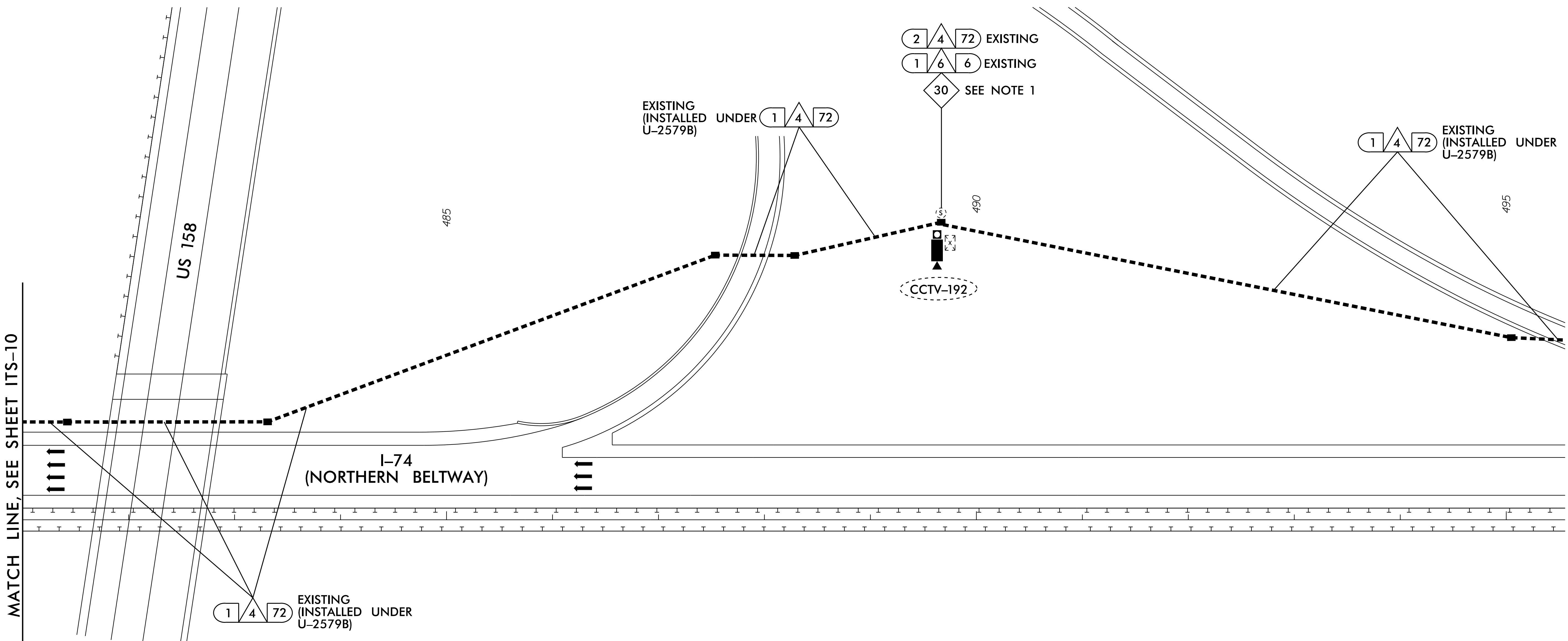
NOTE:
 1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050



WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS CABLE AND CONDUIT ROUTING PLAN	
DIVISION 09	FORSYTH COUNTY
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH
REVISIONS	INIT. DATE

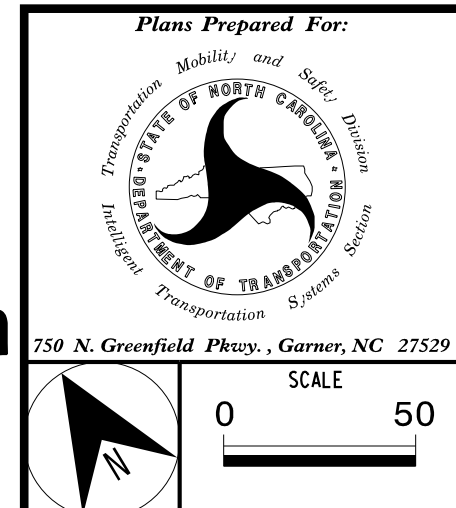
SEAL
 NORTH CAROLINA PROFESSIONAL ENGINEER
 KEVIN W. SMITH
 SEAL 030472
 DATE 5/3/2017
 SIGNATURE
 CADD Filename:



MATCH LINE, SEE SHEET ITS-10

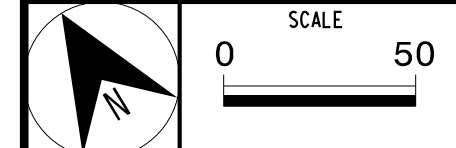
5/1/2017 K:\ARL_TPTD_ITS\01036384 - U-2579C ITS\Plans\U2579c_Its_psh1.dgn

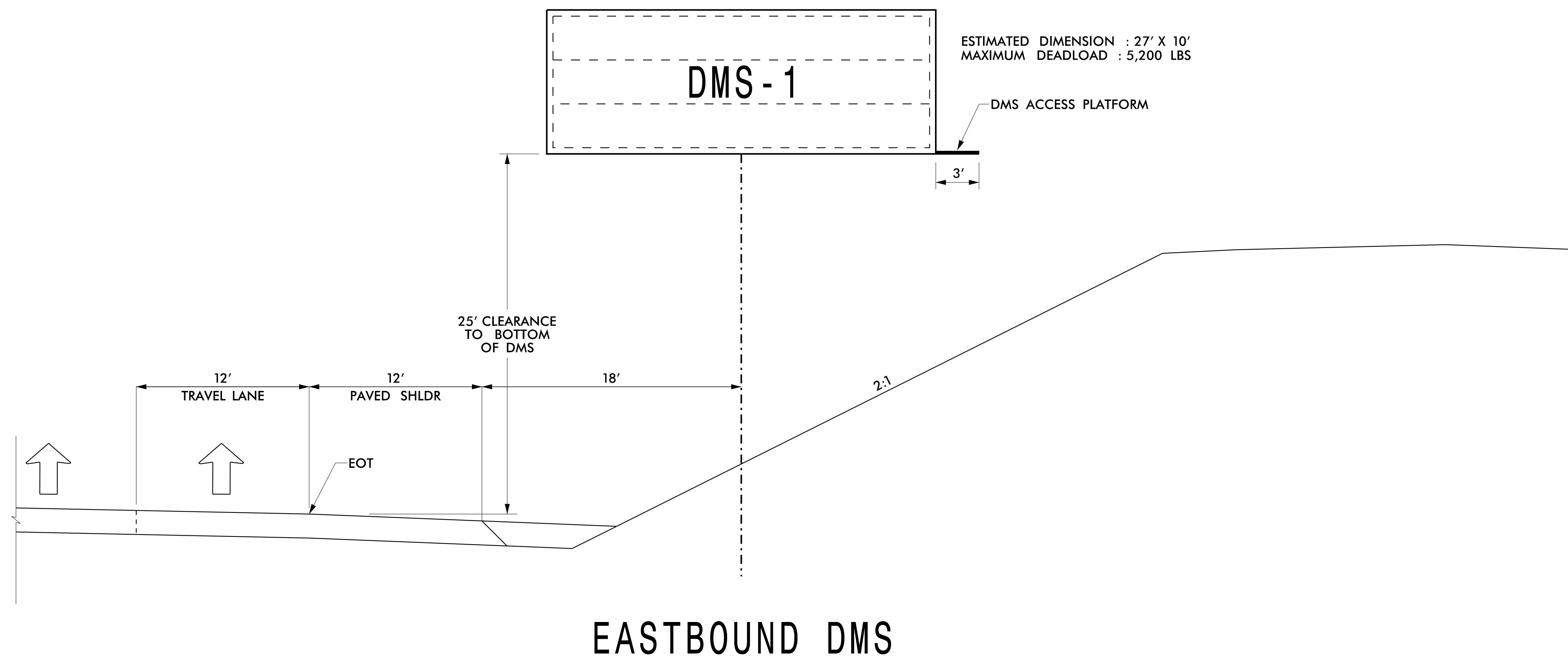
Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050



WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS CABLE AND CONDUIT ROUTING PLAN	
DIVISION 09	FORSYTH COUNTY
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL
PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH
REVISIONS	INIT. DATE

SEAL
 NORTH CAROLINA
 PROFESSIONAL
 ENGINEER
 KEVIN W. SMITH
 SEAL
 030472
 DocuSigned by:
 Kevin W. Smith
 0088E04E3B0440F
 SIGNATURE DATE
 5/3/2017
 CADD Filename:





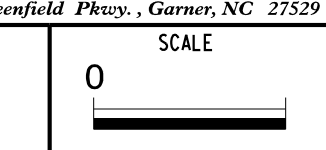
EASTBOUND DMS

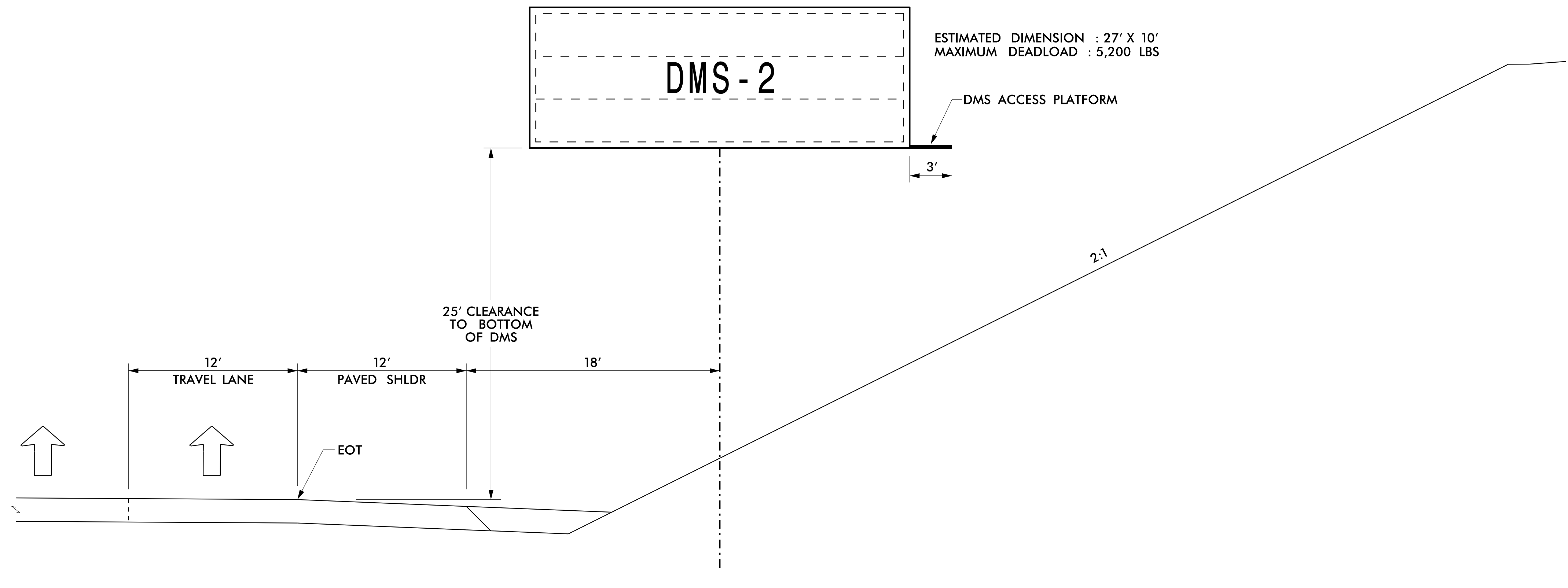
NOTES

- CONTRACTOR IS RESPONSIBLE FOR FURNISHING ELEVATION DRAWINGS FOR ENGINEER'S APPROVAL.
- PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORM.
- 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.
- INSTALL A LEVEL CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.
- USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
- FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.
- 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.
- DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 90 MPH.
- VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.
- SEE ROADWAY PLANS FOR GUARDRAIL DETAILS AT DMS LOCATIONS.

	WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS DMS-1 ELEVATION VIEW		SEAL
	DIVISION 09 FORSYTH COUNTY		
	PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL	
PREPARED BY: J. CROSS		REVIEWED BY: K. SMITH	DocuSigned by:
REVISIONS		INIT. DATE	
SIGNATURE		DATE	

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050





WESTBOUND DMS

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 LEVEL 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. DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 90 MPH.
9. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.
10. SEE ROADWAY PLANS FOR GUARDRAIL DETAILS AT DMS LOCATIONS.

5/1/2017 KARAL_TPTD_ITS_01036384 - U-2579C ITS\Plans\U2579c_Its_pshl3.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

	WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS DMS-2 ELEVATION VIEW		
	DIVISION 09	FORSYTH COUNTY	
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL	PREPARED BY: J. CROSS REVIEWED BY: K. SMITH	
SCALE: 0	REVISIONS	INIT.	DATE

**NEW SPLICE CABINET
LOCATED NORTH OF US-311**

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

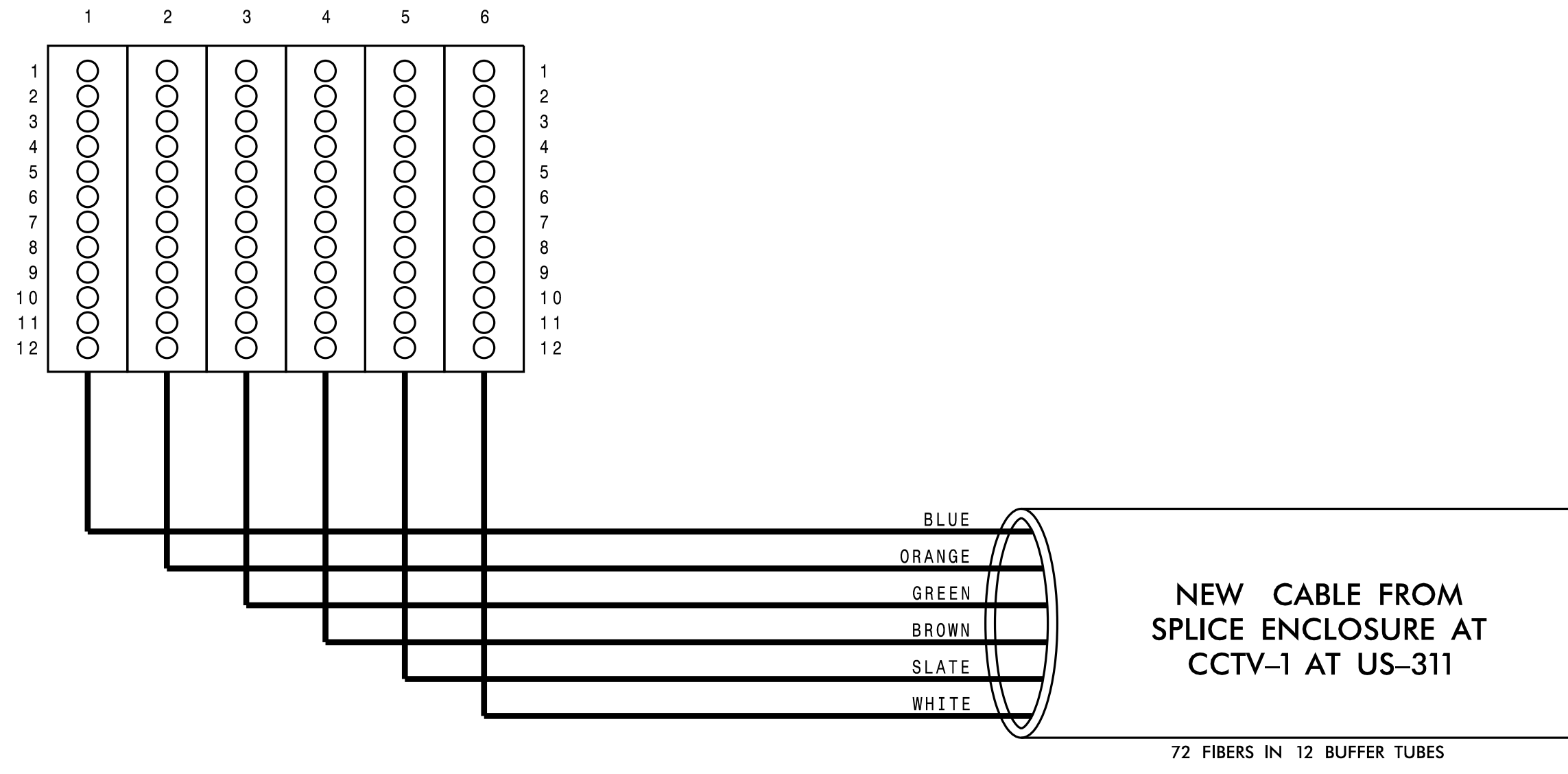
LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER
 O - EXISTING SPLICE
 □ - EXPRESS INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
 SPLICE - SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED

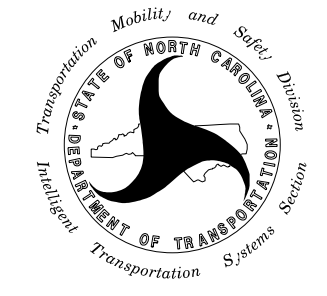
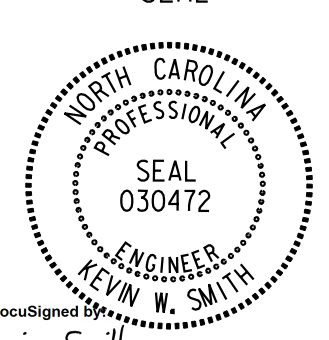
NOTES:

- FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY - ACTUAL EQUIPMENT FORM MAY VARY.
- ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
- CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING SPLICING. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER WHERE EXISTING SPLICING IS NOT AS EXPECTED.



5/1/2017 K:\ARL_TPTD_ITS\01036384 - U-2579C ITS\Plans\U2579c_Its_psh4.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

Plans Prepared For:  NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS FIBER OPTIC SPLICING DETAIL		SEAL  KEVIN W. SMITH ENGINEER
DIVISION 09		FORSYTH COUNTY		DocuSigned by: Kevin W. Smith 0686E483B0440F SIGNATURE DATE
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL	PREPARED BY: J. CROSS	REVIEWED BY: K. SMITH	
REVISIONS		INIT.	DATE	CADD Filename:

**NEW SPLICE ENCLOSURE
LOCATED AT CCTV-1 AT
US-311**

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

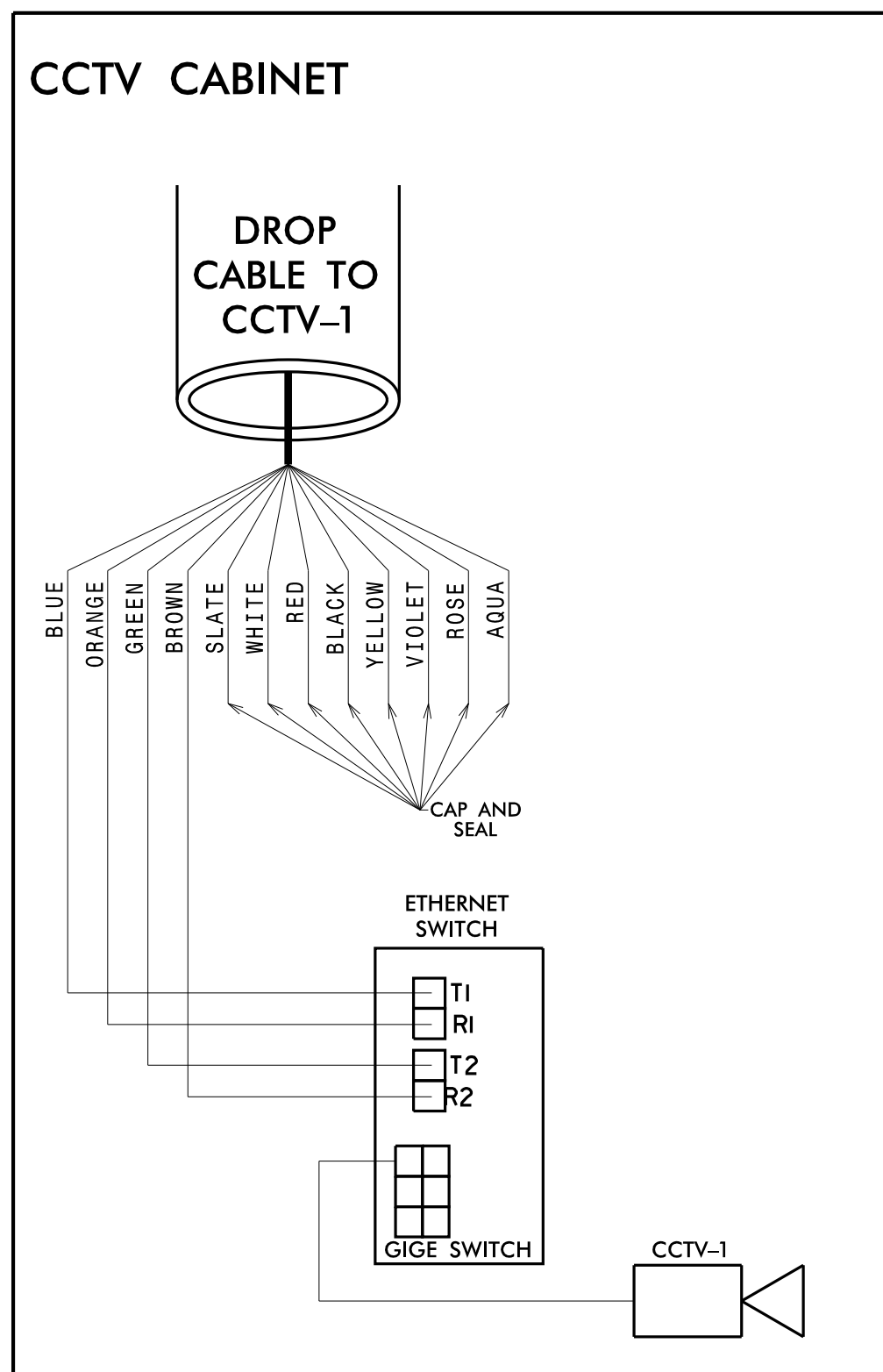
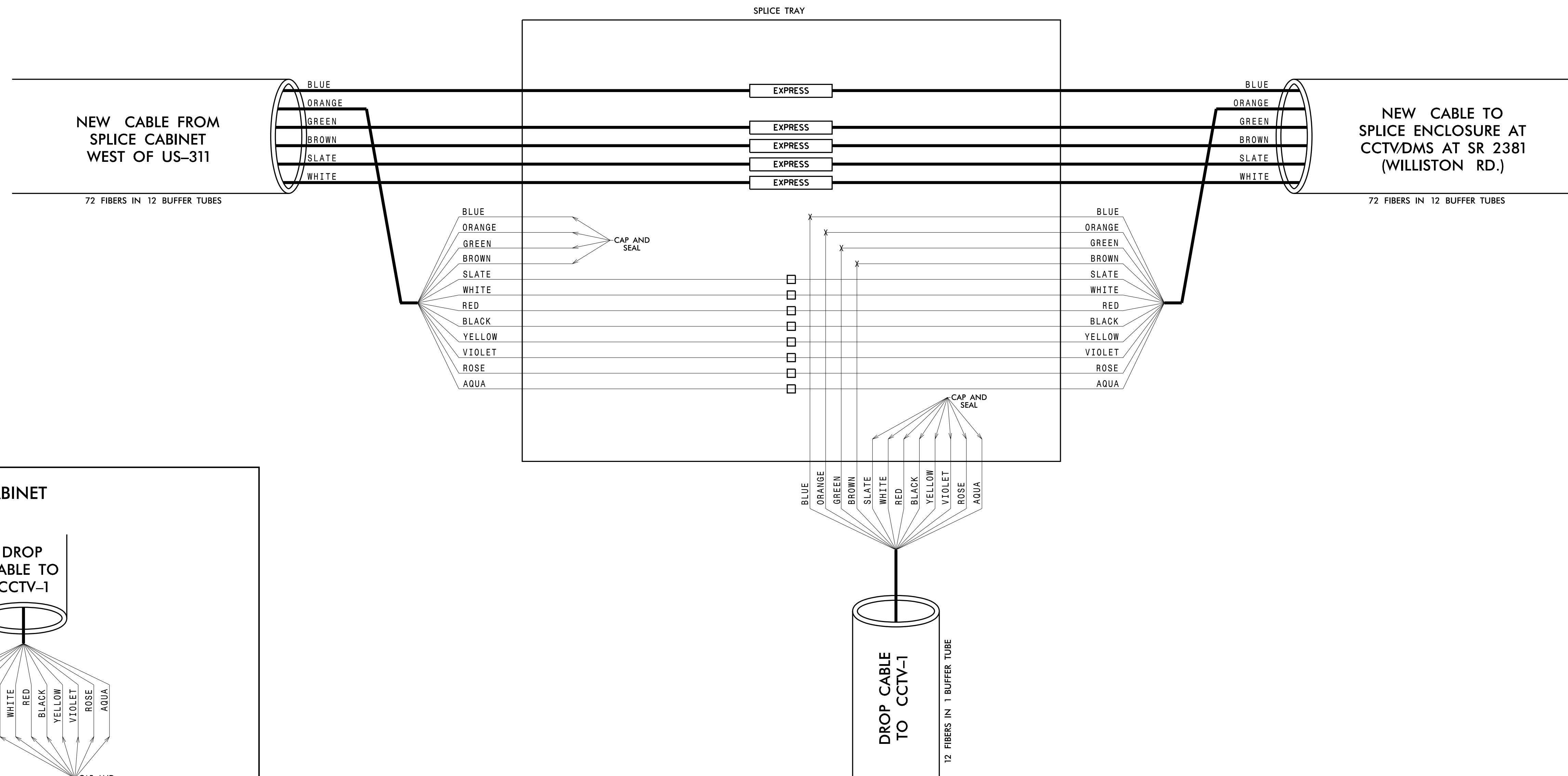
LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER
 O - EXISTING SPLICE
 □ - EXPRESS INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
 SPLICE - SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED

NOTES:

- FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY - ACTUAL EQUIPMENT FORM MAY VARY.
- ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
- CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING SPLICING. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER WHERE EXISTING SPLICING IS NOT AS EXPECTED.



5/1/2017 K:\ARL_TPTD_ITS\01036384 - U-2579C ITS\Plans\U2579c_ITS_psh15.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

Plans Prepared For:
 WILSON COUNTY
 Department of Transportation
 250 N. Greenfield Place, Garner, NC 27529

**WINSTON-SALEN NORTHERN BELTWAY
ITS DEVICE AND COMMUNICATIONS**
 FIBER OPTIC SPLICING DETAIL

DIVISION 09 FORSYTH COUNTY

PLAN DATE: MAY 2017 REVIEWED BY: I. VAN OSDELL
 PREPARED BY: J. CROSS REVIEWED BY: K. SMITH

REVISIONS	INIT.	DATE

SCALE: 0

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER KEVIN W. SMITH SEAL 030472
 Kevin W. Smith
 0688E0483B0440F
 SIGNATURE DATE 5/3/2017
 CADD Filename:

**NEW SPLICE ENCLOSURE
LOCATED AT CCTV/DMS
SOUTH OF SR 2381 (WILLISTON RD.)**

COLOR CODE
TIA/EIA 598-C

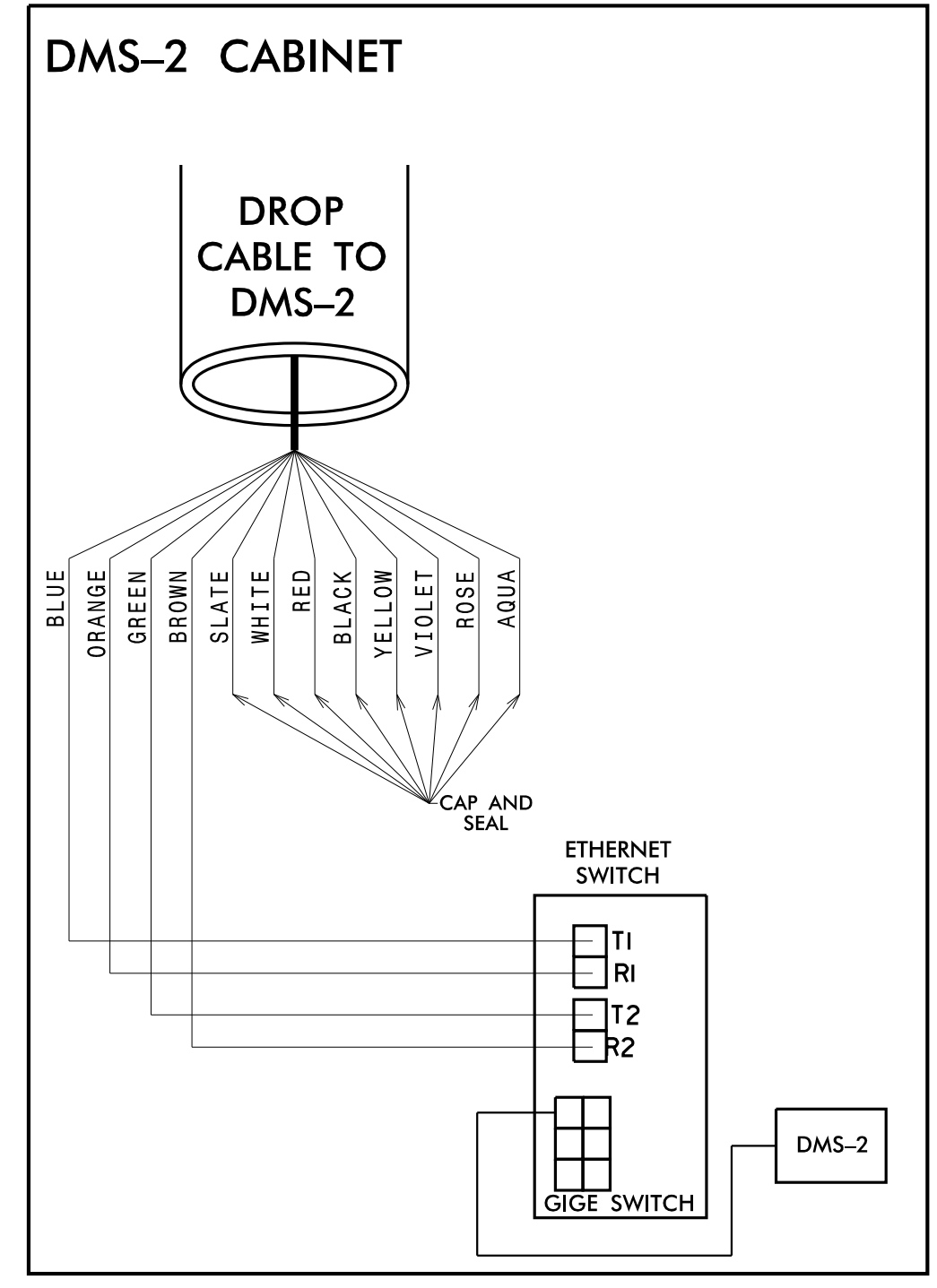
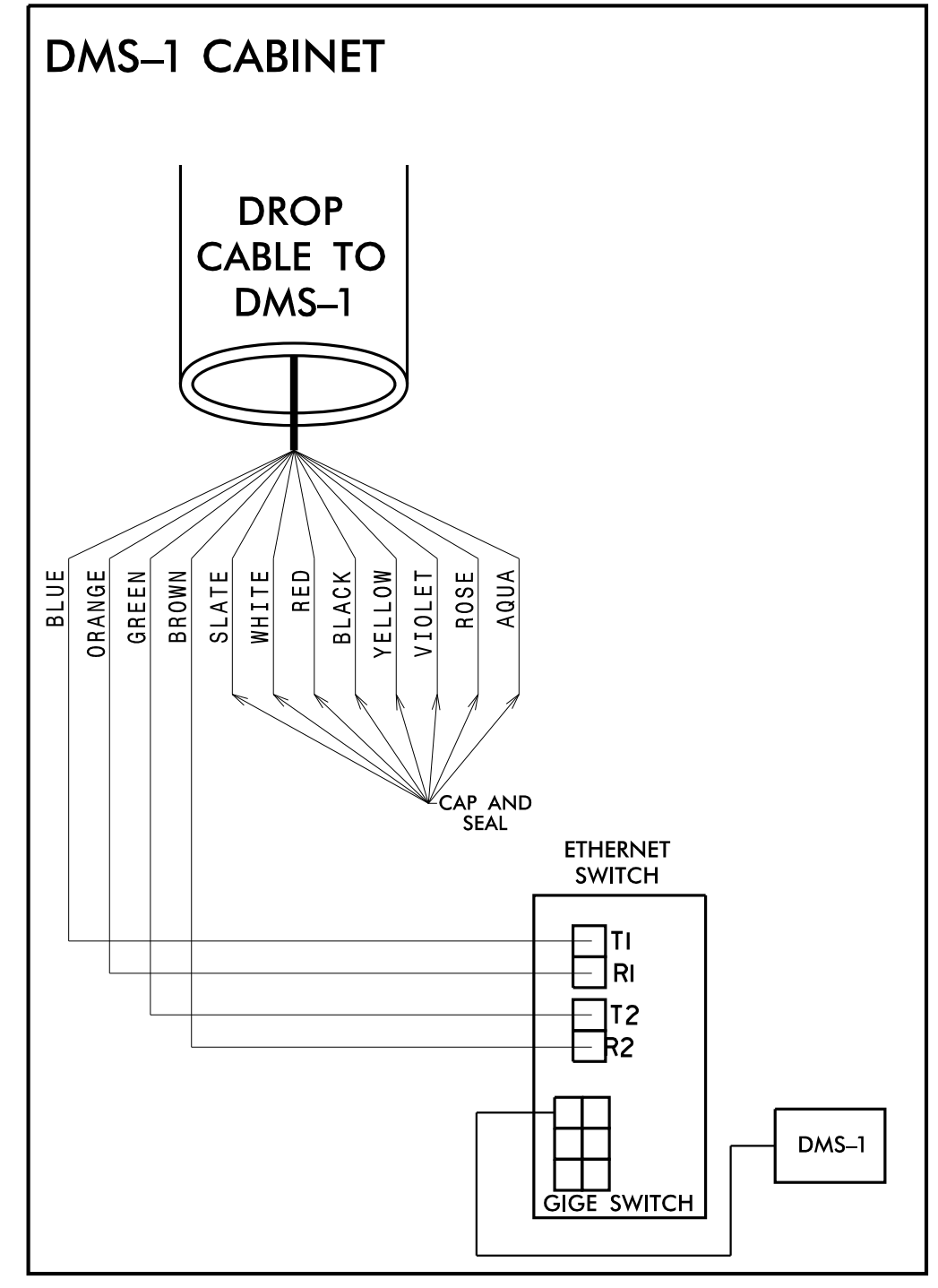
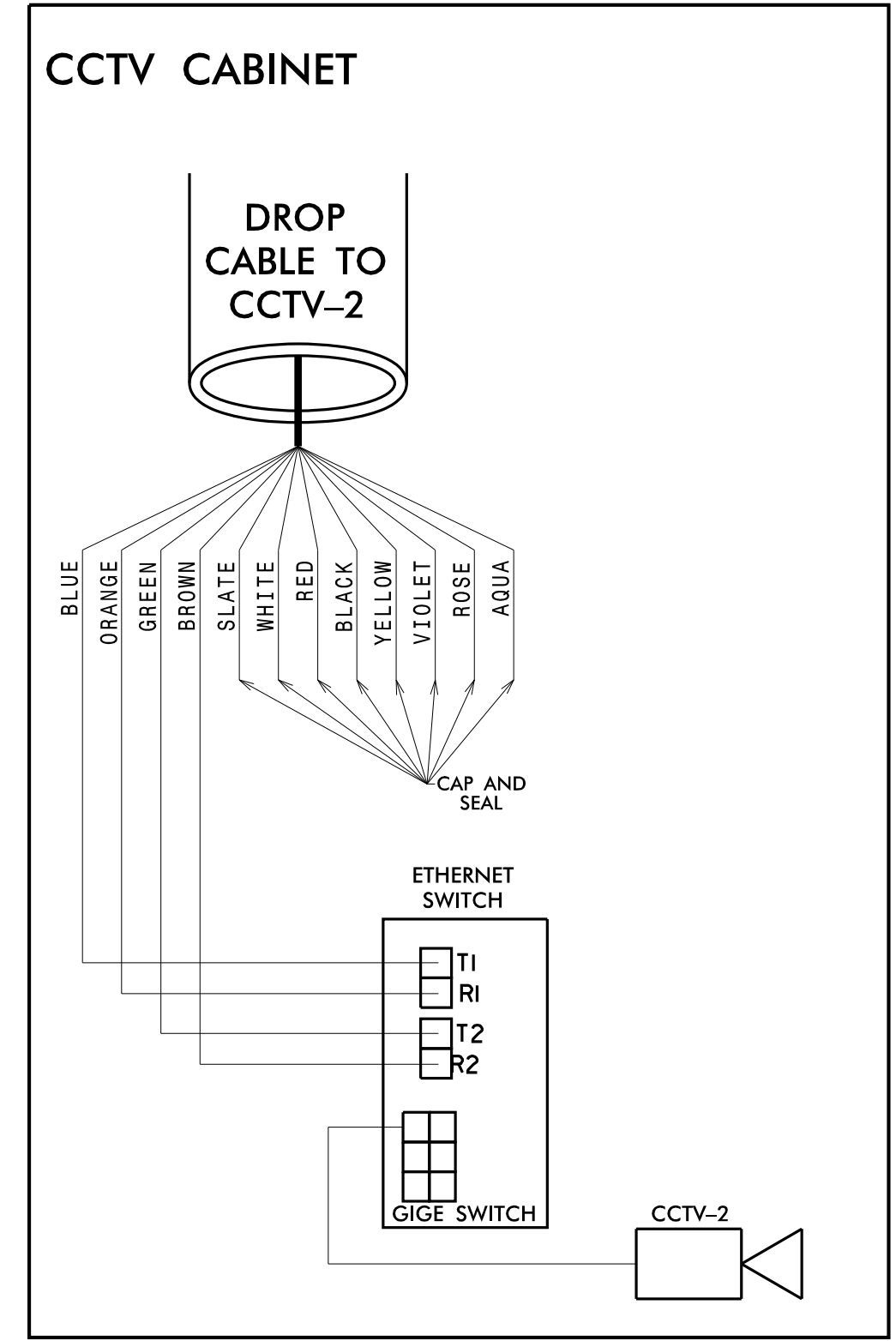
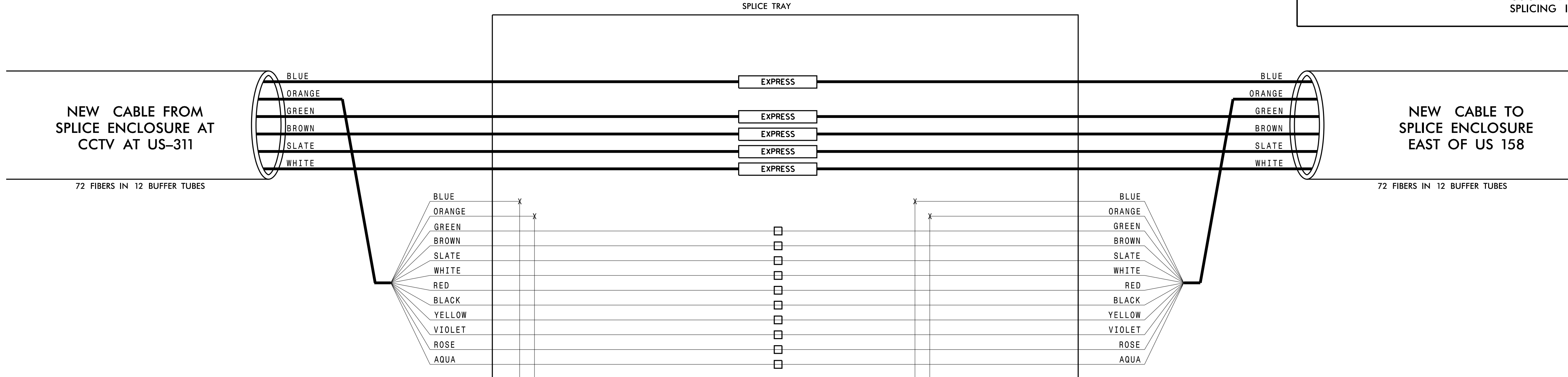
(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER
 O - EXISTING SPLICE
 □ - EXPRESS INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
 SPLICE - SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED

NOTES:
 1. FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY - ACTUAL EQUIPMENT FORM MAY VARY.
 2. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
 3. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING SPLICING. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER WHERE EXISTING SPLICING IS NOT AS EXPECTED.



5/1/2017 K:\ARL_TPTD_ITS\01036384 - U-2579C ITS\Plans\U2579c_Its_psh6.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

Plans Prepared For:
**WINSTON-SALEN NORTHERN BELTWAY
ITS DEVICE AND COMMUNICATIONS**
 FIBER OPTIC SPLICING DETAIL

DIVISION 09 FORSYTH COUNTY
 PLAN DATE: MAY 2017 REVIEWED BY: I. VAN OSDELL
 PREPARED BY: J. CROSS REVIEWED BY: K. SMITH

SCALE: 0

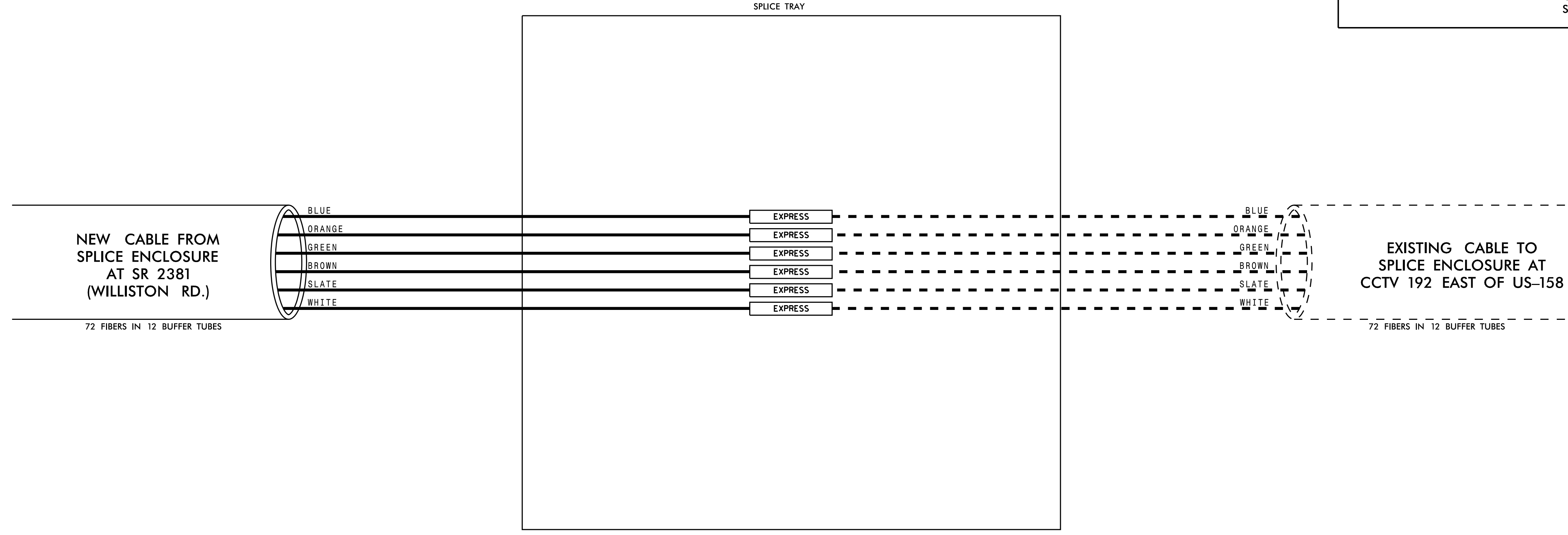
REVISIONS: INIT. DATE

Signature: Kevin Smith
 Date: 5/3/2017
 SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER 030472

**NEW SPLICE ENCLOSURE
LOCATED AT EXISTING
JUNCTION BOX EAST OF US 158**

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X	- FUSION SPLICE INDIVIDUAL FIBER
(2) ORANGE	(8) BLACK	O	- EXISTING SPLICE
(3) GREEN	(9) YELLOW	□	- EXPRESS INDIVIDUAL FIBER
(4) BROWN	(10) VIOLET	EXPRESS	EXPRESS ENTIRE BUFFER TUBE
(5) SLATE	(11) ROSE	SPLICE	SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED
(6) WHITE	(12) AQUA		

NOTES:
1. FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY - ACTUAL EQUIPMENT FORM MAY VARY.
2. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
3. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING SPLICING. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER WHERE EXISTING SPLICING IS NOT AS EXPECTED.



5/1/2017 K:\ARL_TPTD_ITS\01036384 - U-2579C ITS\Plans\U2579c_ITS_psh7.dgn

Kimley»Horn
NC License #F-0102
421 Fayetteville St., Suite 600
Raleigh, NC 27636
Tel: (919) 677-2000
Fax: (919) 677-2050

	WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS FIBER OPTIC SPLICING DETAIL		
	DIVISION 09 FORSYTH COUNTY PLAN DATE: MAY 2017 REVIEWED BY: I. VAN OSDELL PREPARED BY: J. CROSS REVIEWED BY: K. SMITH		
SCALE 0 _____	REVISIONS _____ _____ _____	INIT. DATE _____ _____ _____	SEAL DATE: 5/3/2017 CADD Filename:

EXISTING SPLICE ENCLOSURE
LOCATED AT CCTV 192
SOUTH OF US-158

EXISTING
DROP
CABLE TO
CCTV 192

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

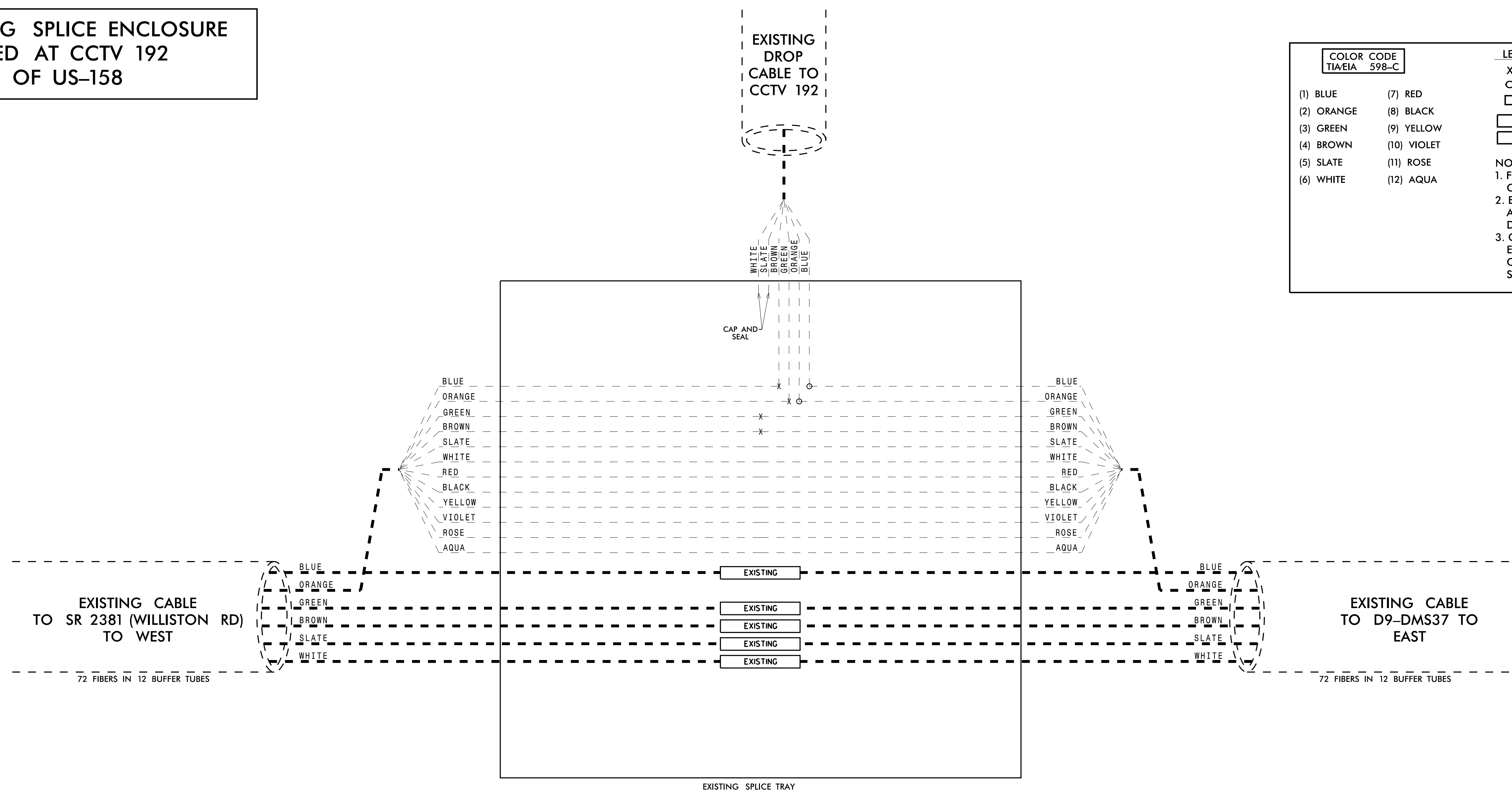
LEGEND

X - FUSION SPLICE INDIVIDUAL FIBER
O - EXISTING SPLICE
□ - EXPRESS INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE OR MAINTAIN IF EXISTING EXPRESSED

NOTES:

- FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY - ACTUAL EQUIPMENT FORM MAY VARY.
- ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
- CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING SPLICING. THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER WHERE EXISTING SPLICING IS NOT AS EXPECTED.

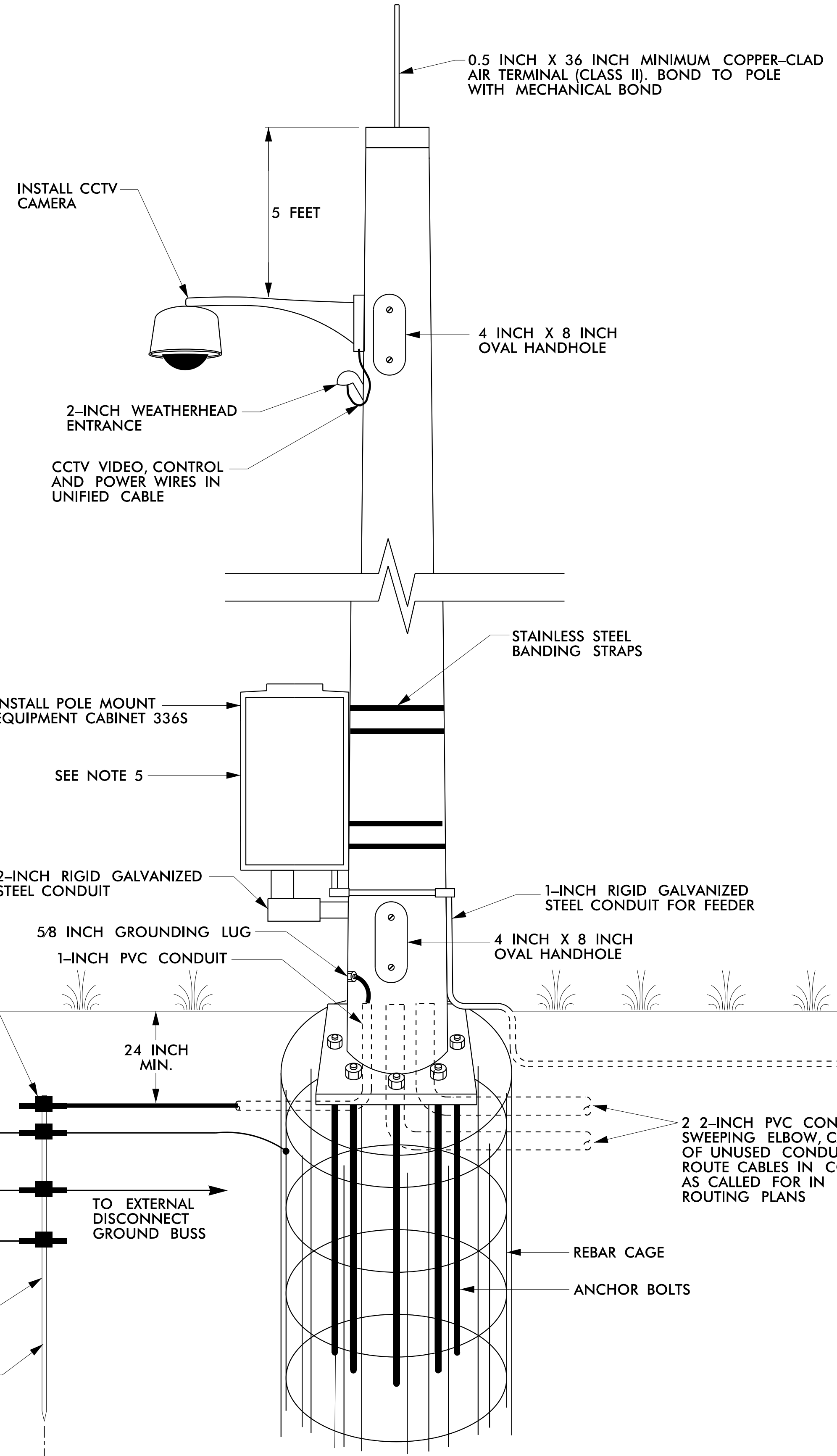
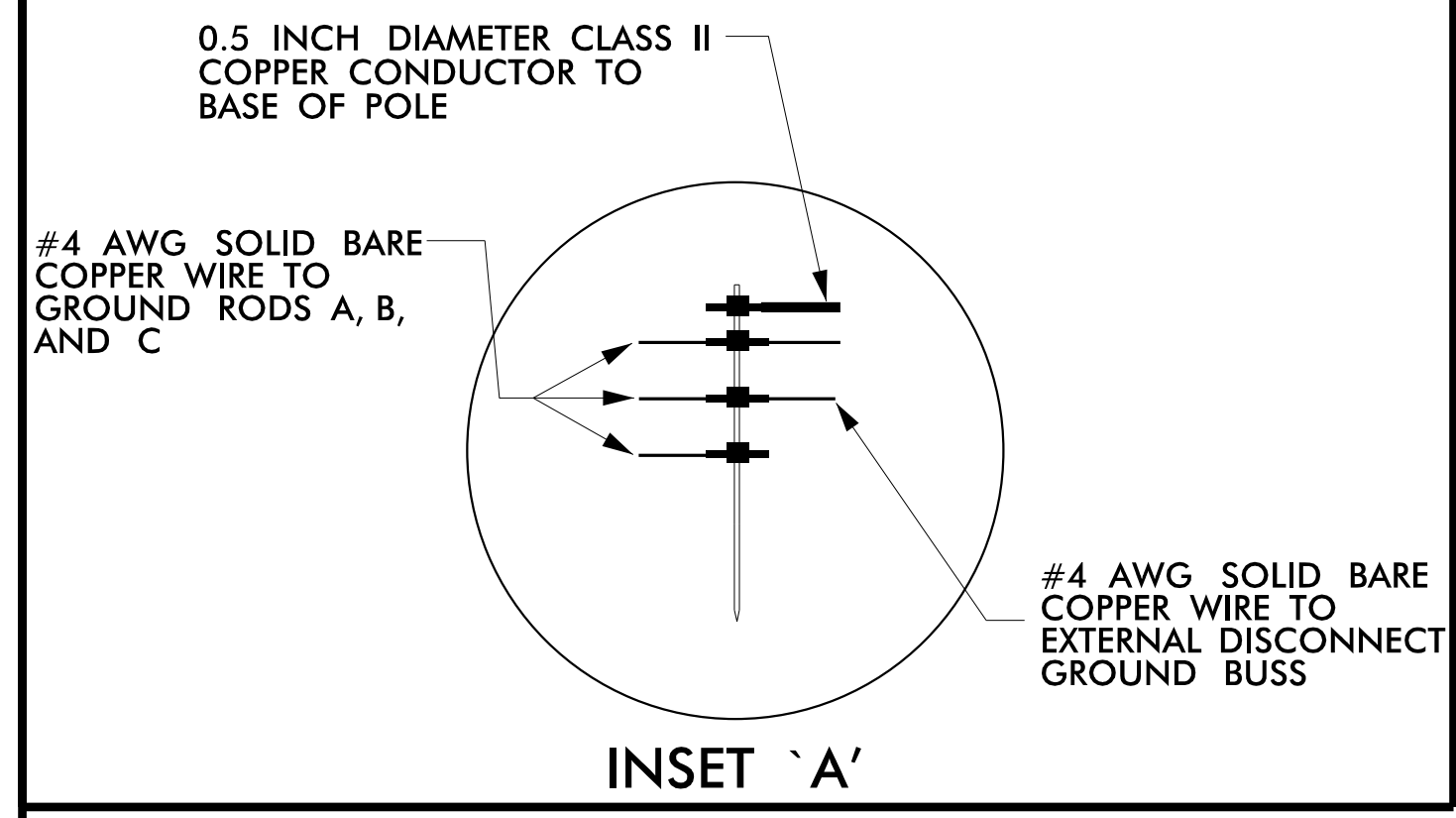
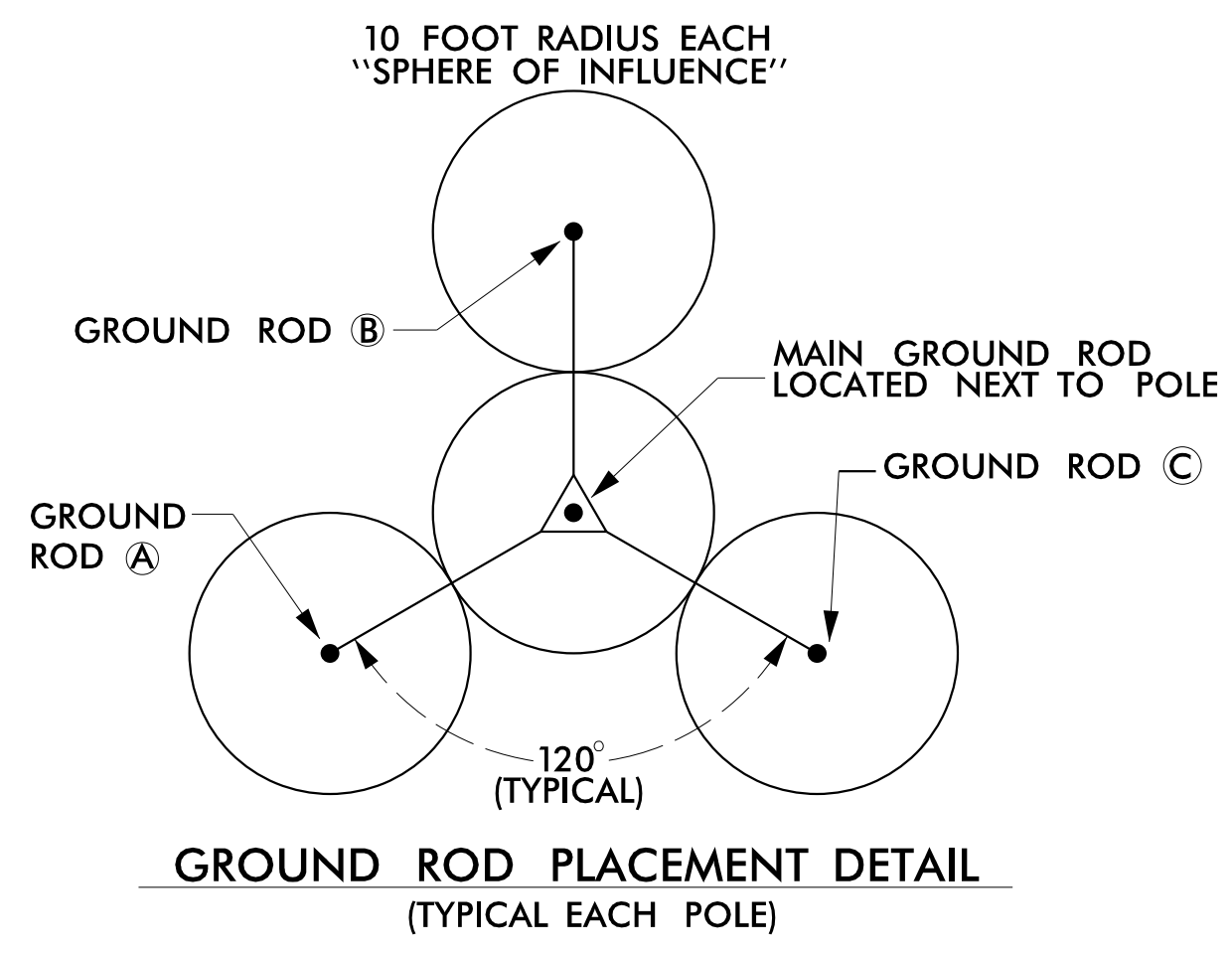


INSTALL ALL FIBER TRUNK LINE AND DROP CABLES AND PERFORM ALL THE SPLICING ON PROJECT U-2579C BEFORE MODIFYING THE EXISTING SPLICE ENCLOSURE

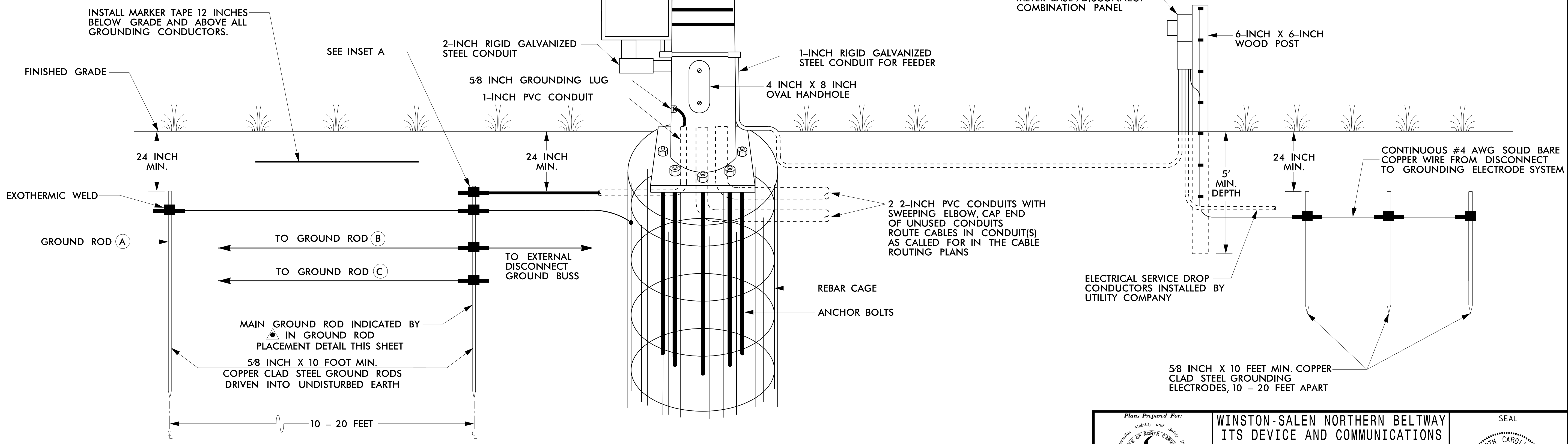
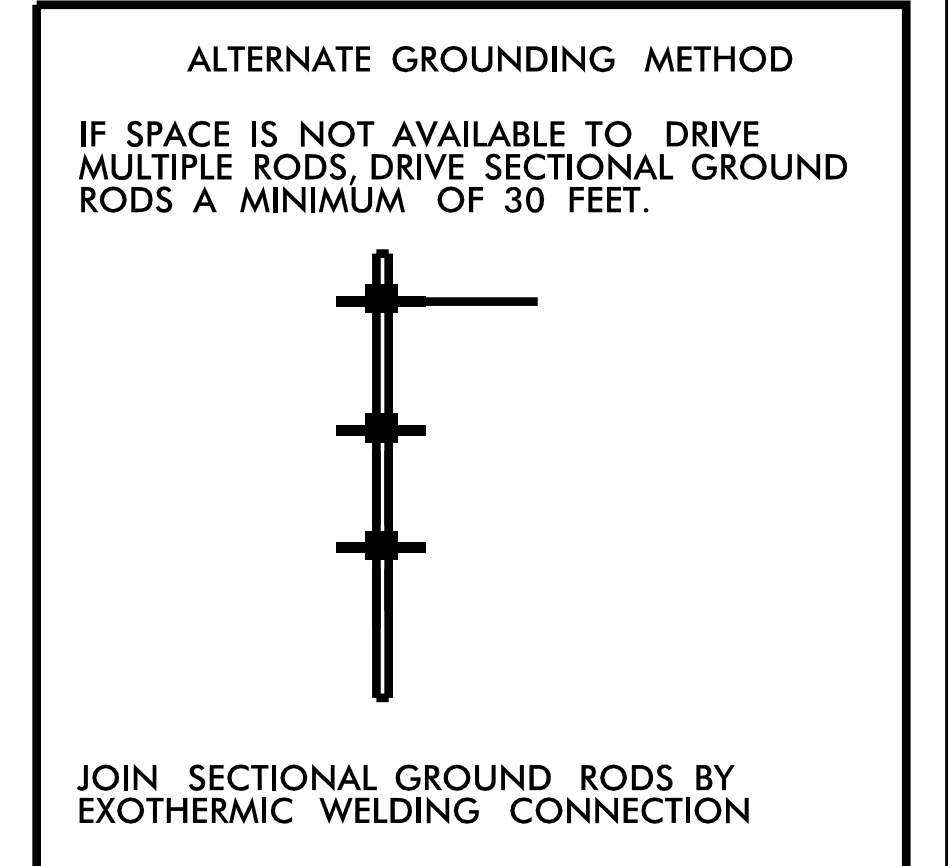
5/1/2017 K:\ARL_TPTD_ITS\01036384 - U-2579C ITS\Plans\U2579c_Its_psh8.dgn

Kimley»Horn
NC License #F-0102
421 Fayetteville St., Suite 600
Raleigh, NC 27636
Tel: (919) 677-2000
Fax: (919) 677-2050

	WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS FIBER OPTIC SPLICING DETAIL		SEAL
	DIVISION 09	FORSYTH COUNTY	
PLAN DATE: MAY 2017	REVIEWED BY: I. VAN OSDELL	PREPARED BY: J. CROSS	
REVISIONS	INIT.	DATE	DATE
SIGNATURE: <i>Kevin W. Smith</i>		DATE: 5/3/2017	



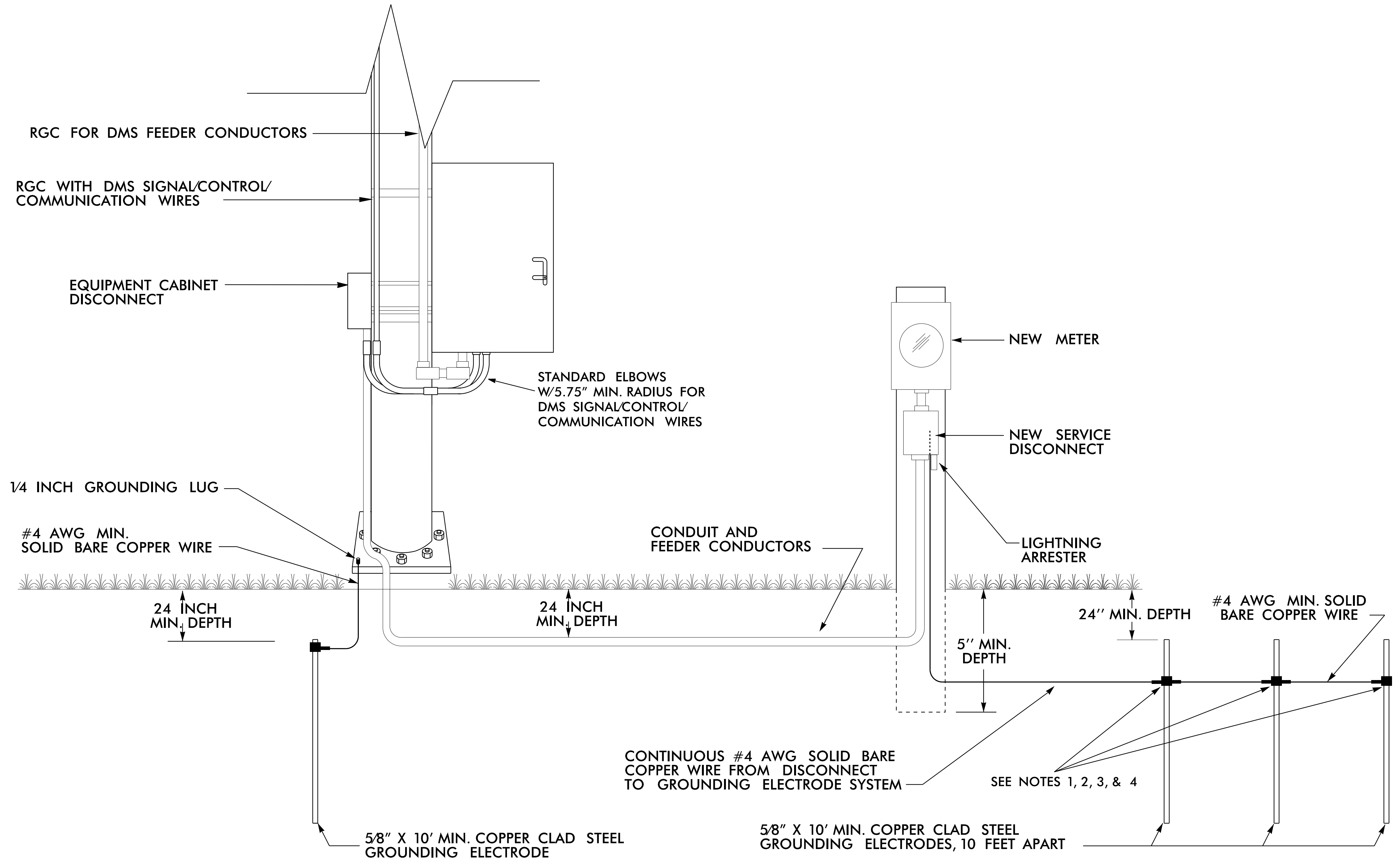
- NOTES**
1. BOND 0.5 INCH DIAMETER, 28 STRAND (MINIMUM) CLASS II COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
 2. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
 3. BOND #4 AWG SOLID BARE COPPER WIRE TO REBAR CAGE AND THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
 4. 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. THE CONTRACTOR MAY, UPON APPROVAL OF THE ENGINEER, INSTALL A 30-FOOT SECTIONAL GROUND ROD WHEN CONDITIONS WILL NOT ALLOW FOR THE INSTALLATION OF THE 3 - RADIAL GROUND RODS.
 7. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.



5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c.ITS_psh9.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

	WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS CCTV CAMERA WITH CABINET ON METAL POLE	
	DIVISION 09 PLAN DATE: MAY 2017 PREPARED BY: J. CROSS	FORSYTH COUNTY REVIEWED BY: I. VAN OSDELL REVIEWED BY: K. SMITH
SCALE 0	REVISIONS INIT. DATE	SEAL SIGNATURE DATE



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. 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 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.

5/1/2017 K:\ARL\TPTD\ITS\01036384 - U-2579C ITS\Plans\U2579c.ITS_psh20.dgn

Kimley»Horn
 NC License #F-0102
 421 Fayetteville St., Suite 600
 Raleigh, NC 27636
 Tel: (919) 677-2000
 Fax: (919) 677-2050

	WINSTON-SALEN NORTHERN BELTWAY ITS DEVICE AND COMMUNICATIONS DYNAMIC MESSAGE SIGN ELECTRICAL SERVICE AND GROUNDING TYP. DETAIL		SEAL								
	DIVISION 09 FORSYTH COUNTY PLAN DATE: MAY 2017 REVIEWED BY: I. VAN OSDELL PREPARED BY: J. CROSS REVIEWED BY: K. SMITH		03/04/2017 KEVIN W. SMITH ENGINEER								
SCALE 	REVISIONS <table border="1"> <thead> <tr> <th>NO.</th> <th>DESCRIPTION</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	NO.	DESCRIPTION	INIT.	DATE					SIGNATURE 	DATE 5/3/2017
NO.	DESCRIPTION	INIT.	DATE								