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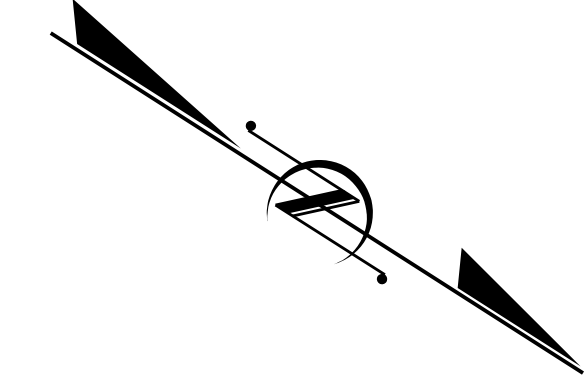
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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

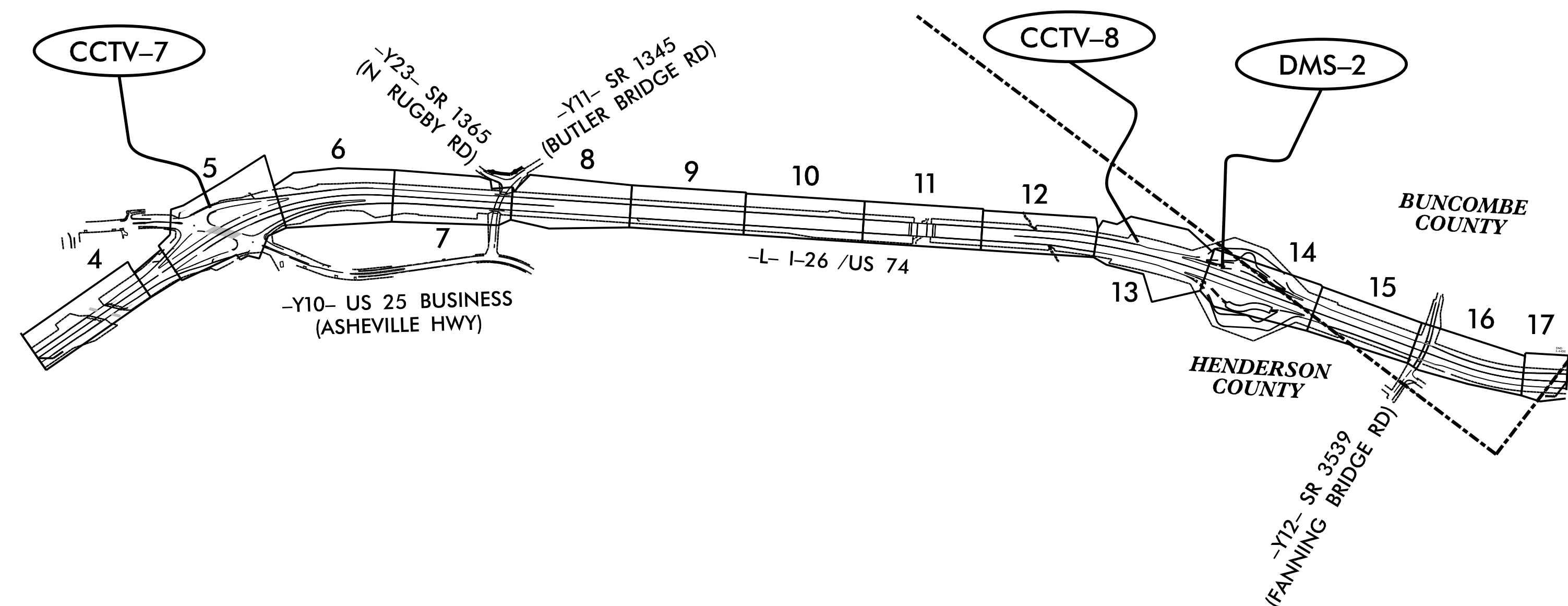
**BUNCOMBE AND HENDERSON COUNTIES**

**LOCATION: I-26 FROM JUST SOUTH OF US 25 (ASHEVILLE HIGHWAY) TO JUST NORTH OF SR 3539 (FANNING BRIDGE RD)**

**TYPE OF WORK: FIBER, CCTV CAMERA AND DYNAMIC MESSAGE SIGN INSTALLATIONS**



**TIP PROJECT: I-4400C**



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**CONTRACT:**

<b>2018 STANDARD SPECIFICATIONS</b>	
PROJECT LENGTH <b>PROJECT LENGTH = 3.525 MILES</b>	
LETTING DATE: <b>JUNE 2019</b>	
<b>INDEX OF SHEETS</b>	
ITS-01	TITLE SHEET
ITS-02	NETWORK BLOCK DIAGRAM
ITS-03	CONSTRUCTION NOTES AND LEGEND
ITS-04-17	COMMUNICATION ROUTING PLANS
ITS-18	DMS ELEVATION
ITS-19-22	SPLICE DETAILS
ITS-23-25	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 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE	STD. NO.	TITLE
862.01	GUARDRAIL PLACEMENT	1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
862.02	GUARDRAIL INSTALLATION	1180.01	SKINNY - DRUM
862.03	STRUCTURE ANCHOR UNIT	1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION
862.04	ANCHORING END OF GUARDRAIL		SPACING
865.01	CABLE GUIDERAIL	1261.02	GUARDRAIL AND BARRIER DELINEATORS -TYPES AND
1101.01	WORK ZONE WARNING SIGNS		MOUNTING
1101.02	TEMPORARY LANE CLOSURES	1262.01	GUARDRAIL END DELINEATION
1101.04	TEMPORARY SHOULDER CLOSURES	1700.01	ELECTRICAL SERVICE OPTIONS
1101.01	TRAFFIC CONTROL DESIGN TABLES	1700.02	ELECTRICAL SERVICE GROUNDING
1110.02	PORTABLE WORK ZONE SIGNS	1715.01	UNDERGROUND CONDUIT-TRENCHING
1115.01	FLASHING ARROW BOARDS	1716.01	JUNCTION BOXES
1130.01	DRUMS	1720.01	WOOD POLES
1135.01	CONES	1721.01	GUY ASSEMBLY
1150.01	FLAGGING DEVICES	1751.02	CONTROLLER AND CABINETS

**NCDOT CONTACTS:**

ANNA G. HENDERSON, PE	DIVISION 13 TRAFFIC ENGINEER
STEVEN BUCHANAN	DIVISION 14 TRAFFIC ENGINEER
SCOTT M. COLLIER, PE	REGIONAL TRAFFIC SAFETY ENGINEER
GREGG GREEN	SIGNALS COMMUNICATIONS PROJECT ENGINEER

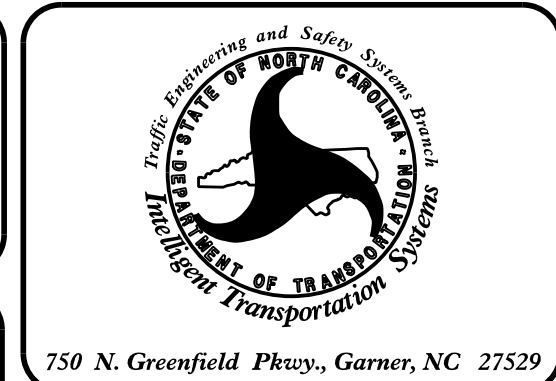
**PLANS PREPARED BY:**

**HNTB**

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

**HNTB CONTACTS:**

N.R. SIMMONS, PE, PTOE - PROJECT MANAGER  
D.L. JONES, PE - SENIOR ITS PROJECT MANAGER  
R. NUNE, PE - SENIOR ITS DESIGN ENGINEER  
A. ALI - ITS ENGINEER I  
A.H. THORNBURG, PE - DESIGN ENGINEER III  
T.R. TERRELL - SENIOR DESIGN TECHNICIAN

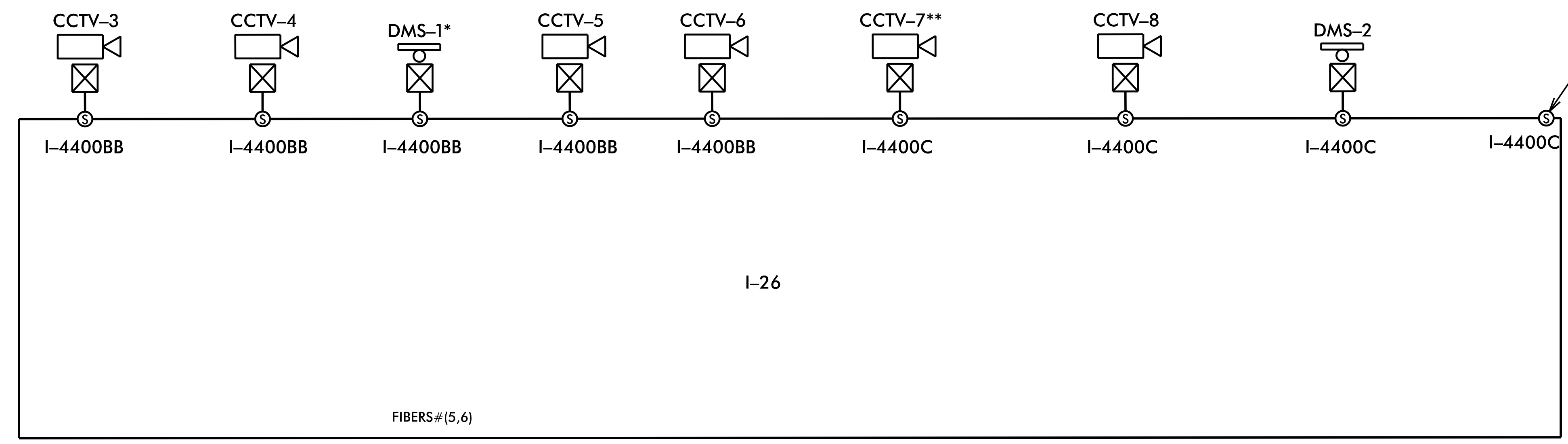


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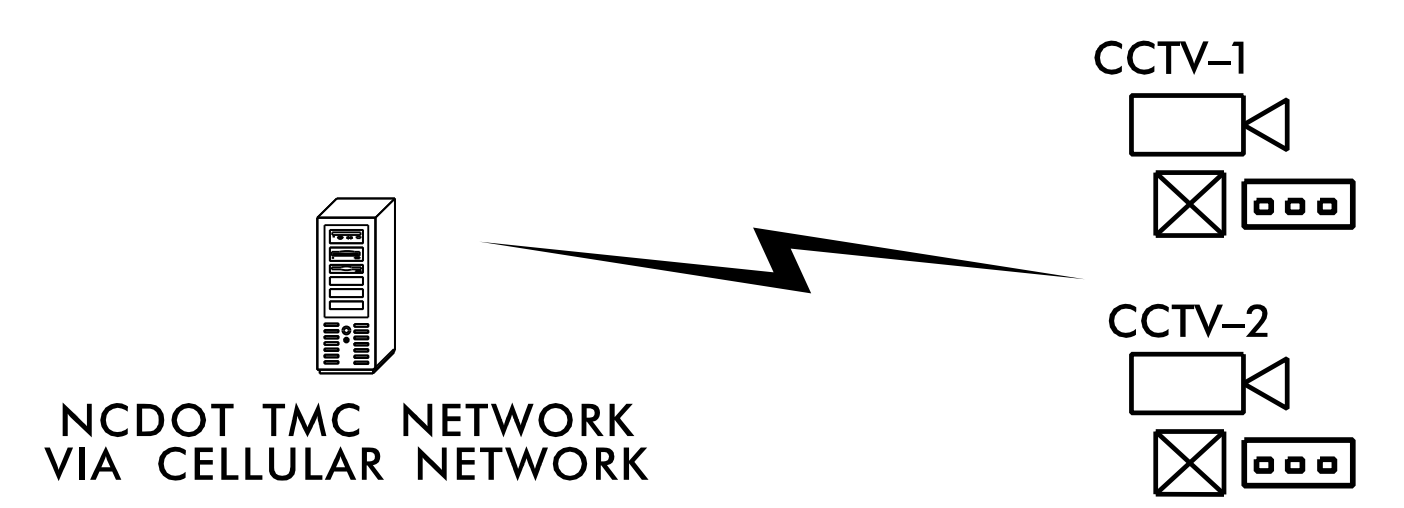
**NORTH CAROLINA**  
PROFESSIONAL  
SEAL  
048072  
ENGINEER  
RAKESH NUNE

DocuSigned by:  
Rakesh Nune  
4/26/2019

### BLOCK DIAGRAM APPLIES TO I-4400BB AND I-4400C



NOTE: FIBERS #3,4 AND FIBERS# 7,8 ARE CONNECTED TO SOLAR PANEL POWERED DEVICES FROM SECTION I-4700  
 \*PROPOSED DMS IS REPLACING EXISTING DMS AT THIS LOCATION.  
 \*\*PROPOSED CCTV IS REPLACING EXISTING CCTV AT THIS LOCATION.



#### LEGEND

- EXISTING ITS EQUIPMENT CABINET
- PROPOSED ITS EQUIPMENT CABINET
- SPLICE ENCLOSURE
- CCTV (EXISTING)
- CCTV (PROPOSED)
- DMS PEDESTAL MOUNTED WITH CABINET
- CELLULAR MODEM IN CABINET
- CONNECTION TO EXISTING NETWORK
- NETWORK CONNECTION BY THIRD PARTY

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**NOTES:**

1. THIS BLOCK DIAGRAM IS AN APPROXIMATE REPRESENTATION OF CONNECTIONS. SEE SPLICE DIAGRAMS SHEETS FOR DETAILED CONNECTIONS.
2. CONTACT NCDOT FOR NETWORK CONFIGURATION WHICH CONSISTS OF BUT IS NOT LIMITED TO IP ADDRESS, VLAN NUMBER, ACL AND PORT CONFIGURATION.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH NCDOT PERSONNEL TO OBTAIN ALL RELEVANT NETWORK INFORMATION BEFORE TESTING.
4. ALL SWITCHES SHALL BE CONFIGURED PER NCDOT SECURITY REQUIREMENTS.

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

 Plans Prepared for: 250 N. Greenfield Place, Garner, NC 27529	I-4400C NETWORK BLOCK DIAGRAM		SEAL  ASHEVILLE ENGINEER RAKESH NUNE
	PLAN DATE: November 2018 PREPARED BY: Atizaz Ali	REVIEWED BY: T.R. Terrell REVIEWED BY: N.R. Simmons	



- 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 CAT 5e CCTV 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 HEAT-SHRINK TUBING
- 13 INSTALL HEAT-SHRINK TUBING RETROFIT KIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT ENTRANCE
- 22 INSTALL NEW CONDUIT INTO NEW CABINET BASE (USE EXISTING CONDUIT STUBOUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUBOUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO POLE MOUNTED CABINET
- 26 TERMINATE FIBER-OPTIC CABLE ON INTERCONNECT CENTER IN CCTV EQUIPMENT CABINET
- 27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPlice CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPlice ENCLOSURE
- 30 INSTALL AERIAL SPlice ENCLOSURE
- 31 INSTALL SPlice CABINET
- 32 MODIFY EXISTING SPlice ENCLOSURE OR INTERCONNECT CENTER
- 33 REMOVE EXISTING SPlice CABINET
- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY

- 37 REMOVE EXISTING DMS, CABINET AND STRUCTURE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL STANDARD (ELECTRICAL) JUNCTION BOX
- 40 INSTALL OVERSIZED JUNCTION BOX
- 41 INSTALL SPECIAL OVERSIZED JUNCTION BOX
- 42 INSTALL CELL MODEM
- 43 REMOVE EXISTING METAL POLE AND FOUNDATION
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 REMOVE EXISTING COMMUNICATIONS CABLE
- 49 EXISTING SIGNAL CABINET
- 50 CONDUITS INSTALLED IN BRIDGE STRUCTURE (SEE ROADWAY PLANS)
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKERS
- 53 STORE 30 FEET OF COMMUNICATIONS CABLE (EACH CABLE), EXCEPT AS NOTED ON PLANS
- 54 REMOVE EXISTING CABINET
- 55 LASH CABLE(S) TO EXISTING SIGNAL /COMMUNICATION CABLE
- 56 LASH CABLES TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE
- 59 BOND TRACER WIRE TO EQUIPMENT GROUND BUS ON ONE END
- 60 BOND MESSENGER TO POLE GROUND
- 61 BOND RISER TO POLE GROUND
- 62 INSTALL DMS, PEDESTAL STRUCTURE, ACCESS LADDER AND DMS FOUNDATION
- 63 INSTALL POLE MOUNTED CABINET
- 64 INSTALL NEW EQUIPMENT CABINET DISCONNECT
- 65 INSTALL GROUND MOUNTED CABINET
- 66 INTERCEPT EXISTING JUNCTION BOX
- 67 INSTALL CCTV CAMERA EXTENSION POLE
- 68 INSTALL SOLAR PANEL ASSEMBLY
- 69 REMOVE WOOD POLE
- 70 INSTALL WOOD POLE
- 71 REMOVE EXISTING CCTV CAMERA

**LEGEND**

	FD	NEW FIBER OPTIC COMMUNICATIONS CABLE
	EXI	EXISTING COMMUNICATIONS CABLE
	REM	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
		NEW CONDUIT
		EXISTING CONDUIT
	DD	NEW DIRECTIONAL DRILLED CONDUIT
		EXISTING GUARDRAIL
		NEW GUARDRAIL
		NEW CHAIN LINK FENCE
		EXISTING METAL POLE WITH MASTARM
		NEW METAL POLE WITH MASTARM
		EXISTING RIGHT OF WAY
		NEW OVERSIZED HEAVY DUTY JUNCTION BOX
		EXISTING JUNCTION BOX
		NEW OVERSIZED HEAVY DUTY JUNCTION BOX WITH SPlice ENCLOSURE
		EXISTING OVERSIZED HEAVY DUTY JUNCTION BOX WITH NEW SPlice ENCLOSURE
		NEW SPECIAL OVERSIZED HEAVY DUTY JUNCTION BOX WITH SPlice ENCLOSURE
		EXISTING SPECIAL OVERSIZED HEAVY DUTY JUNCTION BOX WITH NEW SPlice ENCLOSURE
		NEW WOOD POLE
		EXISTING WOOD POLE
		NEW AERIAL SPlice
		EXISTING AERIAL SPlice
		NEW SPlice ENCLOSURE
		EXISTING SPlice ENCLOSURE
		NEW METAL POLE
		EXISTING METAL POLE
		NEW DMS
		EXISTING DMS
		NEW CCTV CAMERA ASSEMBLY
		EXISTING CCTV CAMERA ASSEMBLY
		NEW STANDARD GUY ASSEMBLY
		EXISTING STANDARD GUY ASSEMBLY
		NEW SIGNAL CABINET
		EXISTING SIGNAL CABINET
		NEW ITS EQUIPMENT CABINET
		EXISTING ITS EQUIPMENT CABINET
		NEW SOLAR PANEL ASSEMBLY
		NEW ELECTRICAL SERVICE
		EXISTING ELECTRICAL SERVICE
	SP	SIGNAL POLE
	XXX-#	CCTV/DMS NUMBER
	XX-XXXX	SIGNAL INVENTORY NUMBER

**ATTACHMENT POINT:**

DISTANCE ABOVE INCHES REFERENCE POINT

REFERENCE POINT DISTANCE BELOW INCHES

**CONSTRUCTION NOTE SYMBOLOGY KEY**

NUMBER OF CABLE(S), LOOPS, ETC. NUMBER OF FIBERS / TWISTED PAIRS PER CABLE, ETC.

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

NUMBER OF DEVICES NUMBER OF FIBERS

NUMBER OF CABLES REMOVE OR MODIFY CABLE

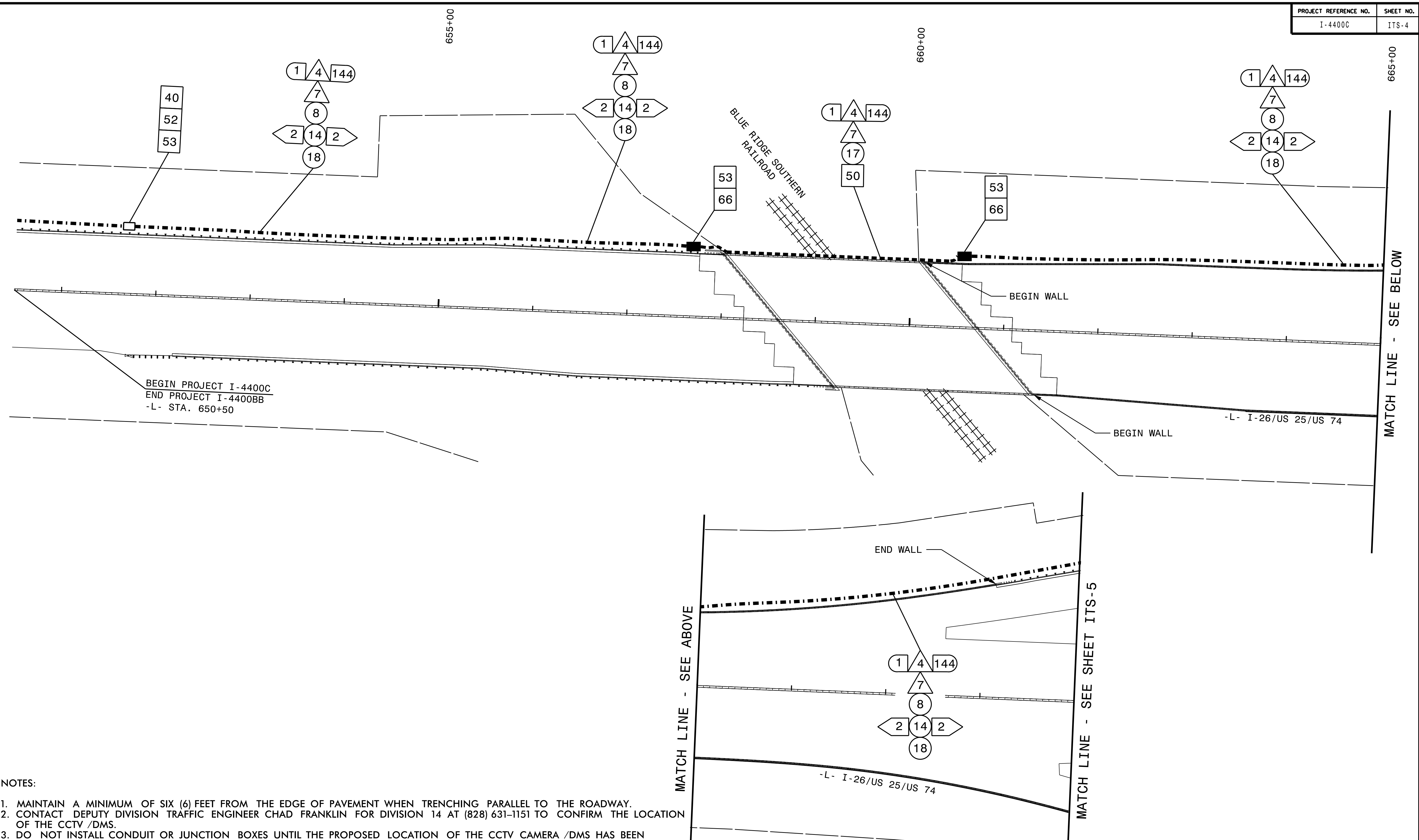
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343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554  
(919) 546-8997

	I-4400C <b>CONSTRUCTION NOTES AND LEGEND</b>	
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 PREPARED BY: Atizaz Ali	REVIEWED BY: T.R. Terrell REVIEWED BY: N.R. Simmons
SCALE NONE	REVISIONS _____	INIT. DATE _____
DocuSigned by: Rakesh Nune 4/26/2019		SIGNATURE DATE _____
CADD File name: I4400C ITS-03.dgn		





NOTES:

1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT DEPUTY DIVISION TRAFFIC ENGINEER CHAD FRANKLIN FOR DIVISION 14 AT (828) 631-1151 TO CONFIRM THE LOCATION OF THE CCTV /DMS.
3. DO NOT INSTALL CONDUIT OR JUNCTION BOXES UNTIL THE PROPOSED LOCATION OF THE CCTV CAMERA /DMS HAS BEEN CONFIRMED BY THE DEPUTY DIVISION TRAFFIC ENGINEER.
4. INSTALL CONDUITS FOR FEEDER CONDUCTORS AND FIBER OPTIC CABLE IN THE SAME BORE AND /OR TRENCH. USE SEPARATE CONDUITS, RED FOR POWER AND ORANGE FOR COMMUNICATIONS.
5. DO NOT INSTALL ELECTRICAL POWER CONDUCTORS AND FIBER-OPTIC CABLE INSIDE THE SAME JUNCTION BOX.
6. MOUNT THE CCTV CAMERA 45' ABOVE GRADE.
7. MOUNT THE CCTV CAMERA 5' BELOW THE TOP OF THE POLE.
8. INSTALL A NEW DMS, WALKWAY, LADDER, AND POLE-MOUNTED CABINET ON THE NEW DMS STRUCTURE.
9. INSTALL A LEVEL CONCRETE TECHNICIAN PAD MEASURING A MINIMUM OF 4 INCHES THICK, 24 INCHES WIDE AND 36 INCHES LONG AT THE FRONT DOOR OF THE CCTV /DMS EQUIPMENT CABINET. SEE TYPICAL DETAILS SHEET.
10. CONTACT DUKE ENERGY AT (800) 653-5307 TO ARRANGE FOR ELECTRICAL SERVICE.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE AVAILABLE FAULT CURRENT INFORMATION FROM THE POWER COMPANY FOR THE REQUIRED ELECTRICAL SERVICE AND PLACE A "FAULT CURRENT" STICKER INSIDE THE SERVICE DISCONNECT PANEL WITH THE DATE AND AVAILABLE FAULT CURRENT ON THE STICKER.

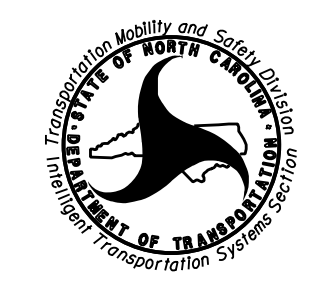
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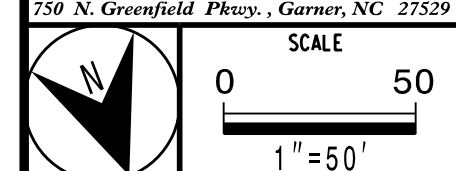
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 343 E. Six Forks Road, Suite 200  
 Raleigh, North Carolina 27609  
 NC License No: C-1554  
 (919) 546-8997

Plans Prepared for:  
  
 250 N. Greenfield Place, Garner, NC 27529

<b>I-4400C CABLE ROUTING PLAN</b>	
Division 13/14 Buncombe/Henderson Asheville	REVIEWED BY: T.R. Terrell
PLAN DATE: November 2018	REVIEWED BY: N.R. Simmons
PREPARED BY: Atizaz Ali	REVIEWED BY: N.R. Simmons
REVISIONS	INIT. DATE

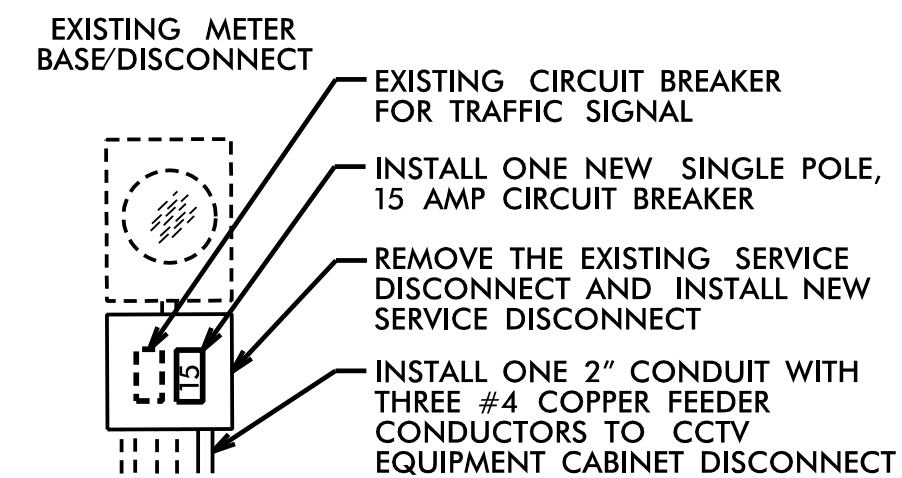
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 4/26/2019  
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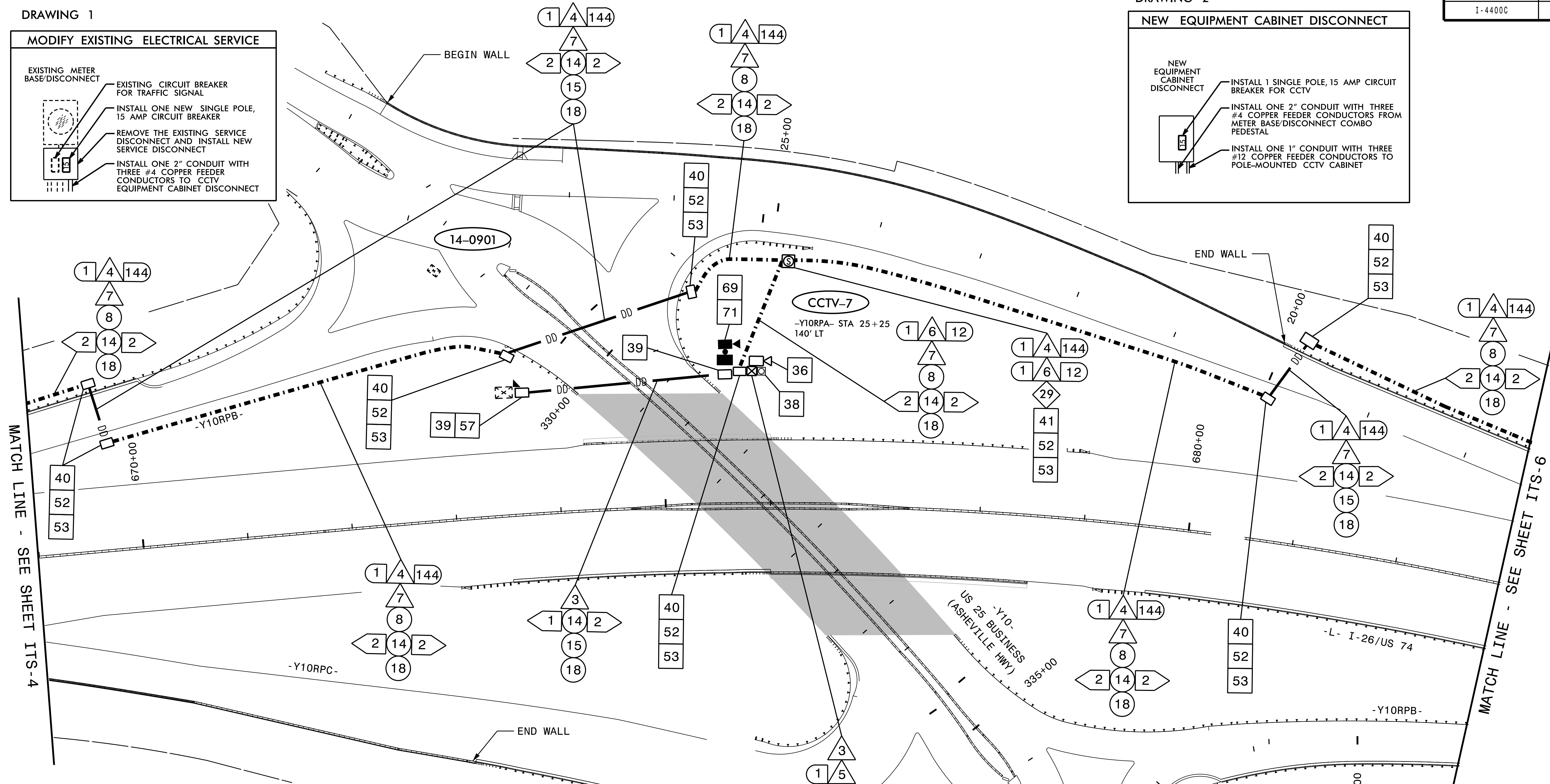
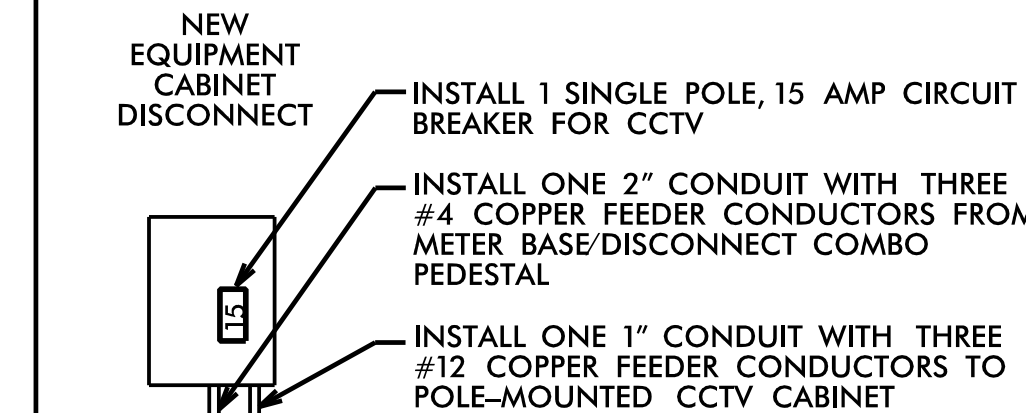
DRAWING 1

MODIFY EXISTING ELECTRICAL SERVICE



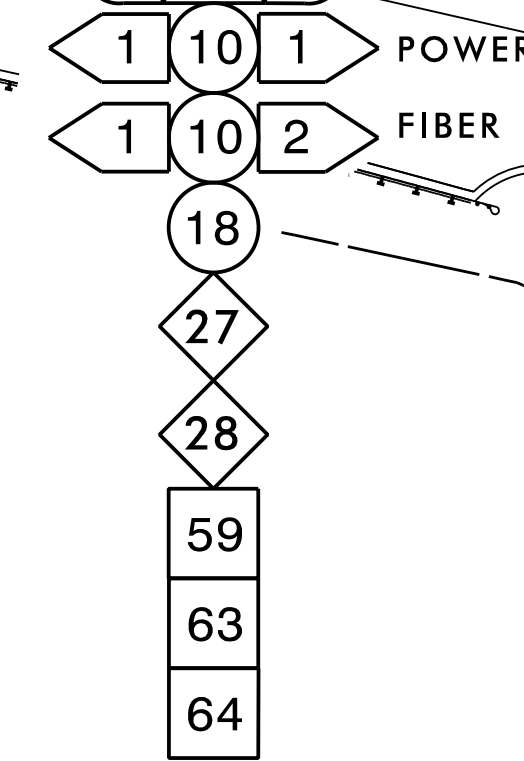
DRAWING 2

NEW EQUIPMENT CABINET DISCONNECT



NOTES:

1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT DEPUTY DIVISION TRAFFIC ENGINEER CHAD FRANKLIN FOR DIVISION 14 AT (828) 631-1151 TO CONFIRM THE LOCATION OF THE CCTV /DMS.
3. DO NOT INSTALL CONDUIT OR JUNCTION BOXES UNTIL THE PROPOSED LOCATION OF THE CCTV CAMERA /DMS HAS BEEN CONFIRMED BY THE DEPUTY DIVISION TRAFFIC ENGINEER.
4. INSTALL CONDUITS FOR FEEDER CONDUCTORS AND FIBER OPTIC CABLE IN THE SAME BORE AND /OR TRENCH. USE SEPARATE CONDUITS, RED FOR POWER AND ORANGE FOR COMMUNICATIONS.
5. DO NOT INSTALL ELECTRICAL POWER CONDUCTORS AND FIBER-OPTIC CABLE INSIDE THE SAME JUNCTION BOX.
6. MOUNT THE CCTV CAMERA 45' ABOVE GRADE.
7. MOUNT THE CCTV CAMERA 5' BELOW THE TOP OF THE POLE.
8. INSTALL A NEW DMS, WALKWAY, LADDER, AND POLE-MOUNTED CABINET ON THE NEW DMS STRUCTURE.
9. INSTALL A LEVEL CONCRETE TECHNICIAN PAD MEASURING A MINIMUM OF 4 INCHES THICK, 24 INCHES WIDE AND 36 INCHES LONG AT THE FRONT DOOR OF THE CCTV /DMS EQUIPMENT CABINET. SEE TYPICAL DETAILS SHEET.
10. CONTACT DUKE ENERGY AT (800) 653-5307 TO ARRANGE FOR ELECTRICAL SERVICE.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE AVAILABLE FAULT CURRENT INFORMATION FROM THE POWER COMPANY FOR THE REQUIRED ELECTRICAL SERVICE AND PLACE A "FAULT CURRENT" STICKER INSIDE THE SERVICE DISCONNECT PANEL WITH THE DATE AND AVAILABLE FAULT CURRENT ON THE STICKER.
12. SIX (6) WEEKS PRIOR TO BEGINNING WORK ON THE DEVICES, CONTACT THE DIVISION 14 DEPUTY TRAFFIC ENGINEER TO ARRANGE FOR THE DIVISION TO PROGRAM THE NEW FIELD ETHERNET SWITCHES WITH THE NECESSARY NETWORK CONFIGURATION DATA, INCLUDING BUT NOT LIMITED TO: THE PROJECT IP ADDRESS, DEFAULT GATEWAY SUBNET MASK AND VLAN ID INFORMATION, NOTIFY THE DEPUTY TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTION PROPERLY. WORK IS NOT COMPLETE UNTIL THE SYSTEM IS BACK UP AND FUNCTIONAL.



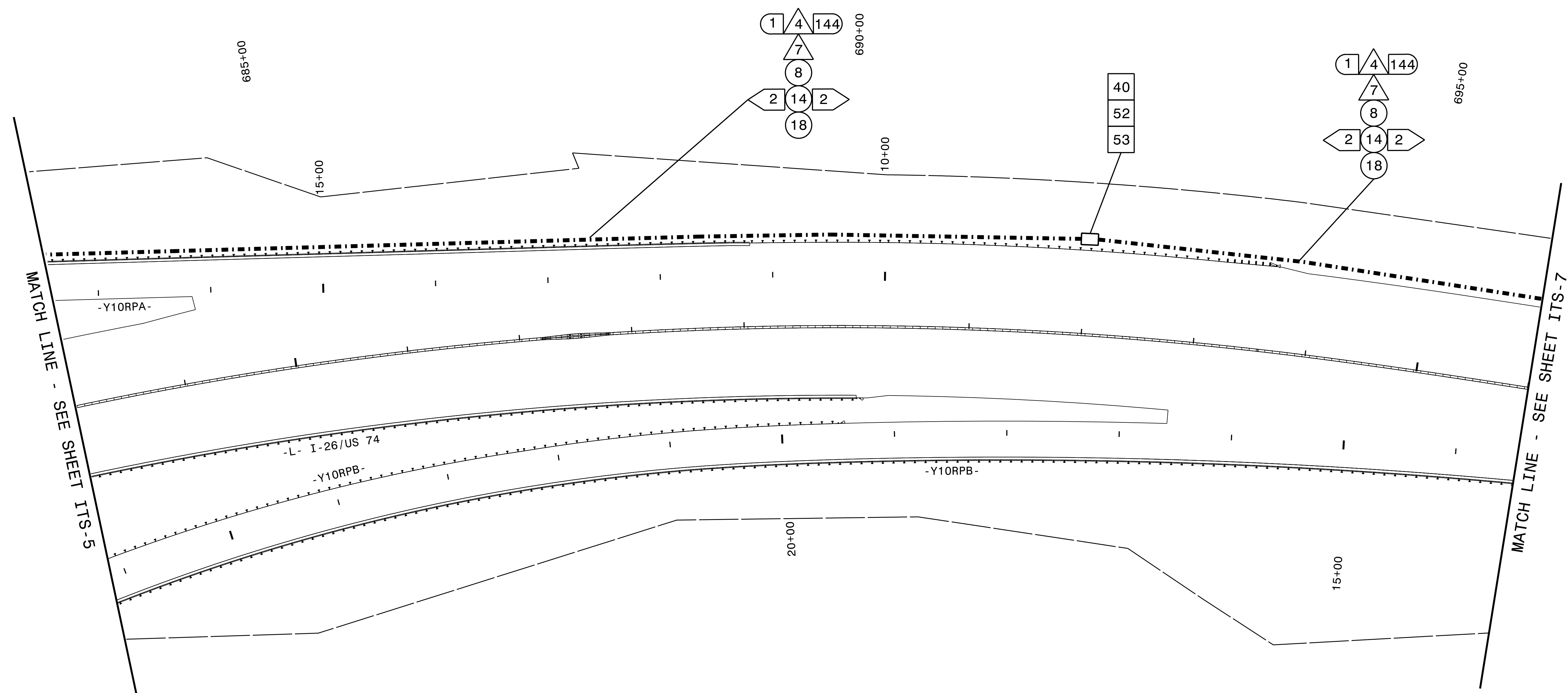
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**HNTB**

HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Road, Suite 200  
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	<p>I-4400C CABLE ROUTING PLAN</p>								
	<p>Division 13/14 Buncombe/Henderson Asheville</p>	<p>PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell</p>		<p>PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons</p>					
<p>250 N. Greenfield Place, Garner, NC 27529</p>	<p>SCALE 0 50 1"=50'</p>	<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE				<p>DocuSigned by: Rakesh Nune 4/26/2019</p> <p>SEAL 048072 ENGINEER RAKESH NUNE</p>
REVISIONS	INIT.	DATE							





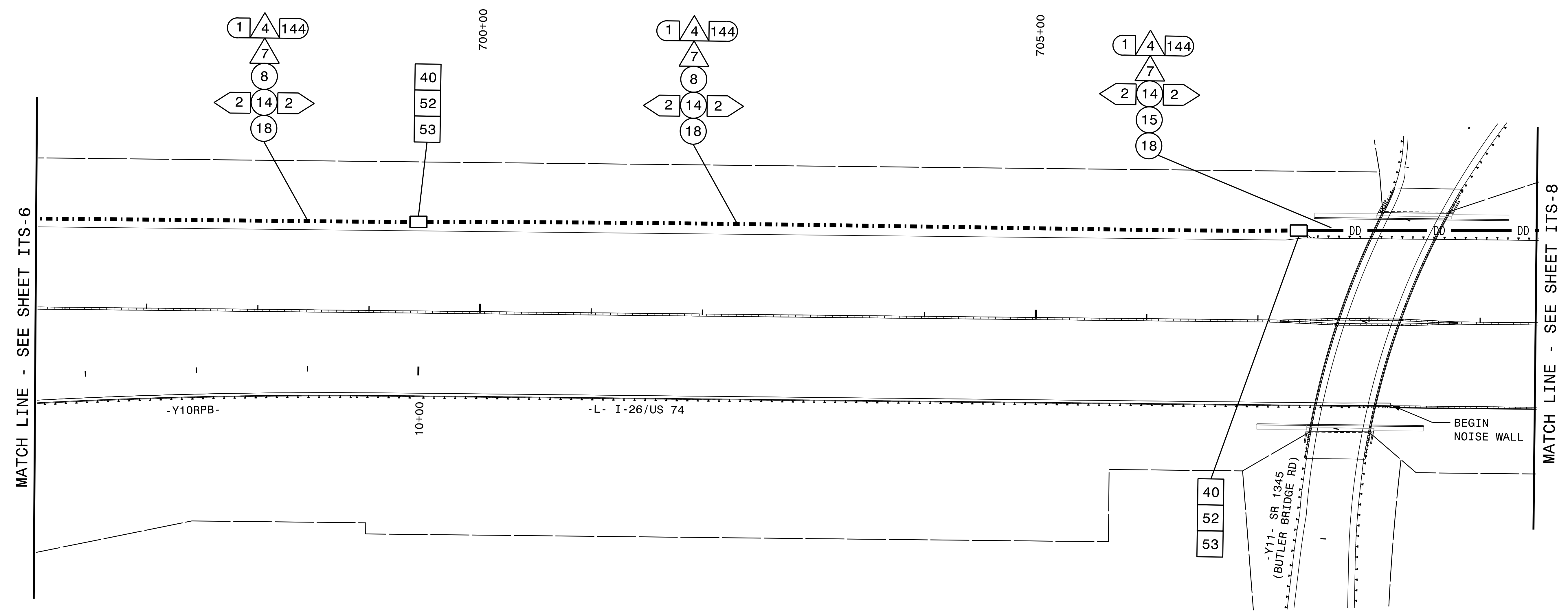
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	<b>I-4400C</b> <b>CABLE ROUTING PLAN</b>								
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons								
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REVISIONS	INIT.	DATE							



NOTES:

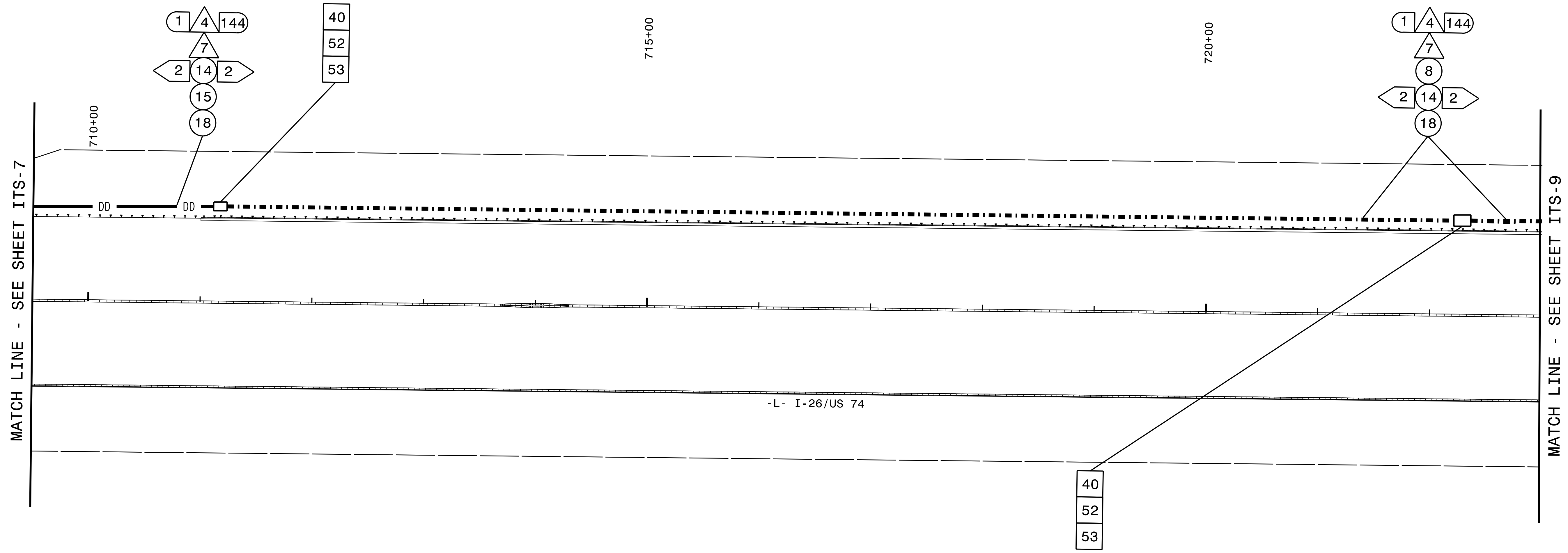
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	<b>I-4400C</b> <b>CABLE ROUTING PLAN</b>								
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons								
250 N. Greenfield Place, Garner, NC 27529 	SCALE 0 50 1"=50'	<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE				DocuSigned by:  Rakesh Nune 4/26/2019 SEAL NORTH CAROLINA PROFESSIONAL ENGINEER RAKESH NUNE SIGNATURE DATE CADD File name: I-4400C ITS-07.dgn
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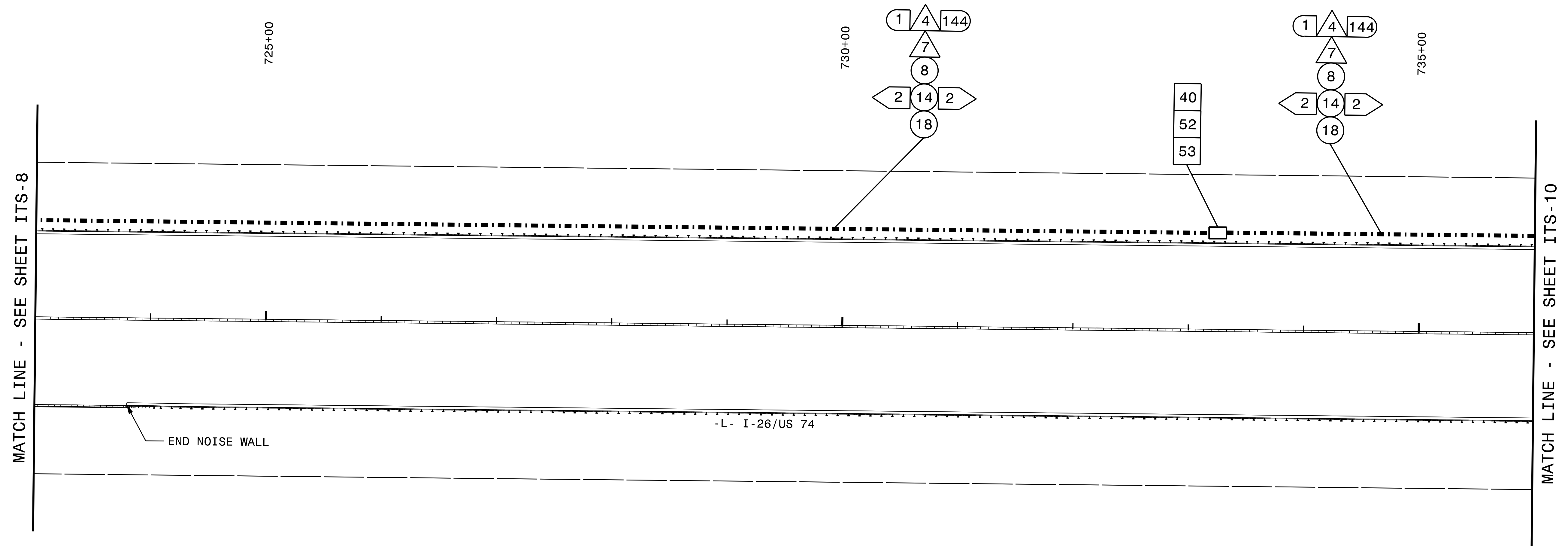
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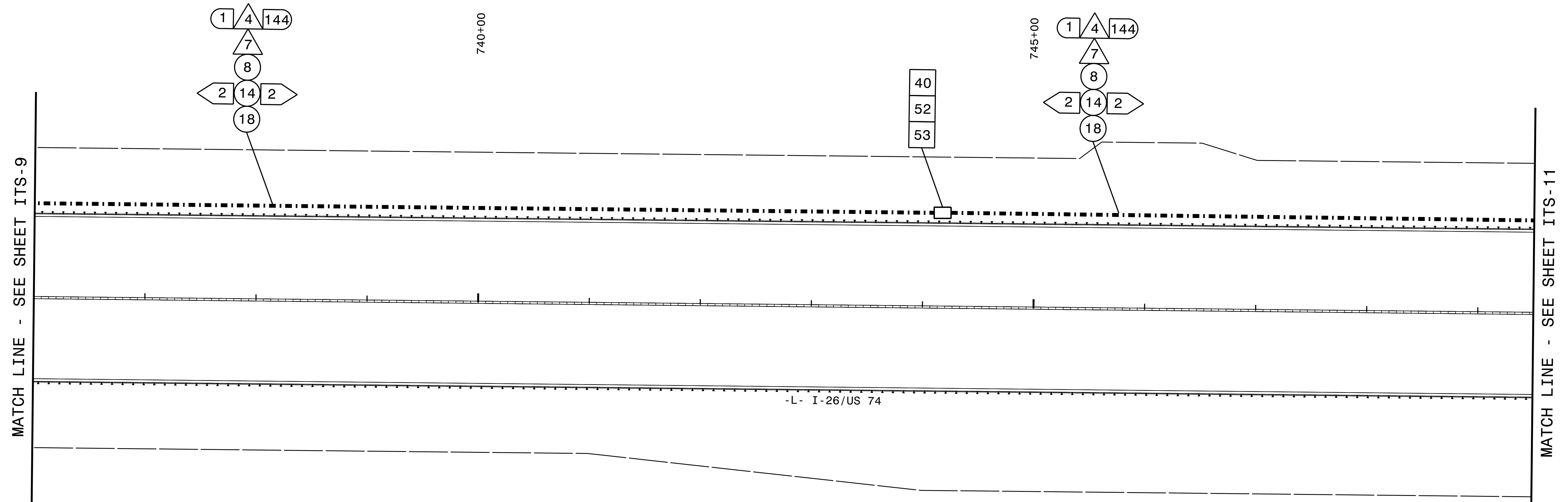
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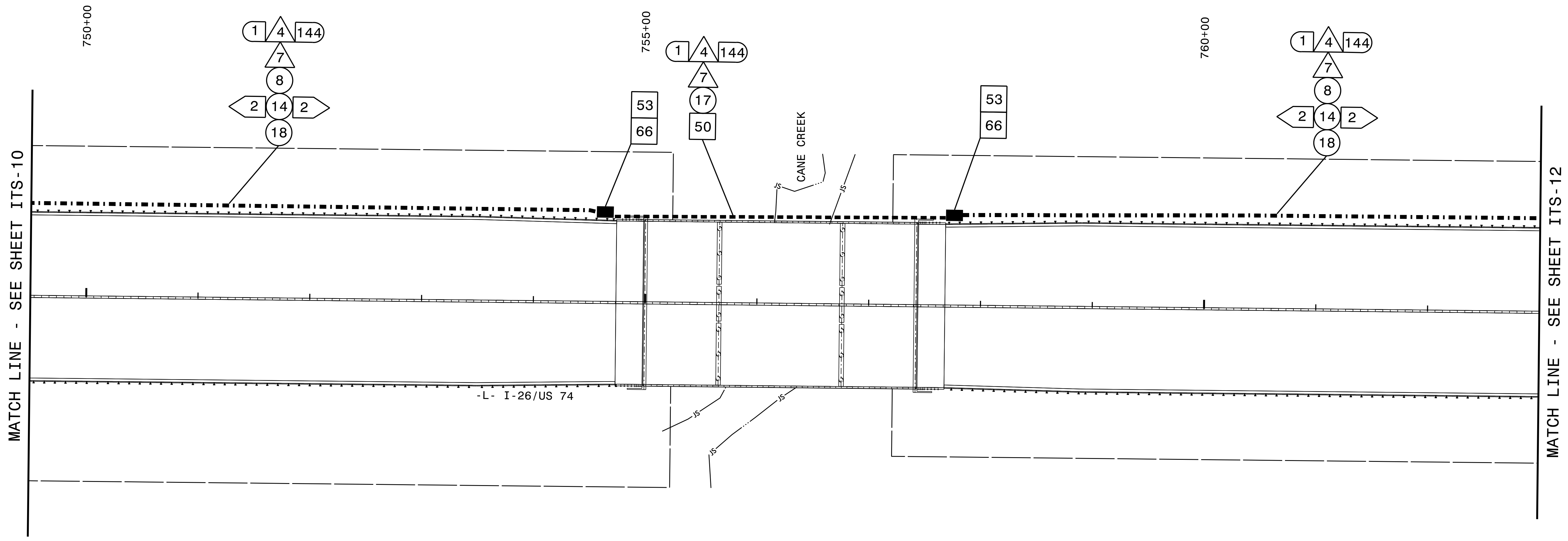
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	I-4400C CABLE ROUTING PLAN								
	Division 13/14	Buncombe/Henderson		Asheville					
<small>Plans Prepared for:</small> 	PLAN DATE: November 2018	REVIEWED BY: T.R. Terrell	<small>DocuSigned by:</small> 						
<small>250 N. Greenfield Place, Garner, NC 27529</small>	PREPARED BY: Atizaz Ali	REVIEWED BY: N.R. Simmons		4/26/2019					
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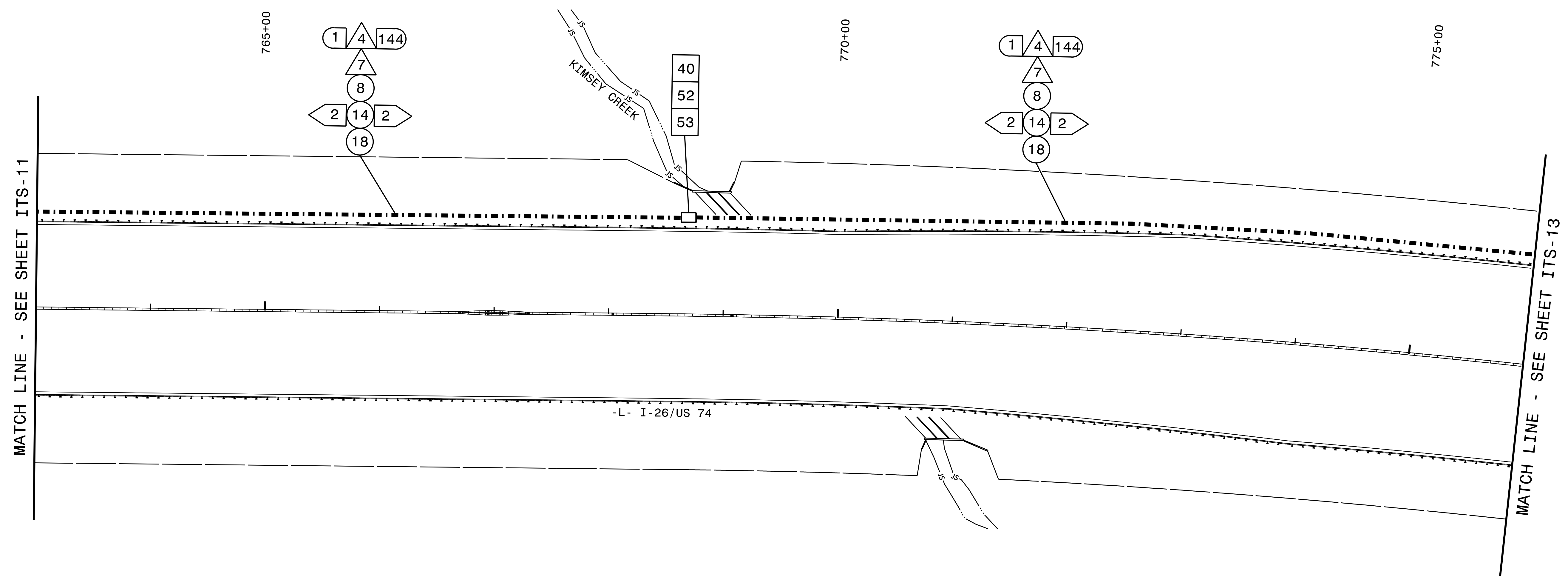
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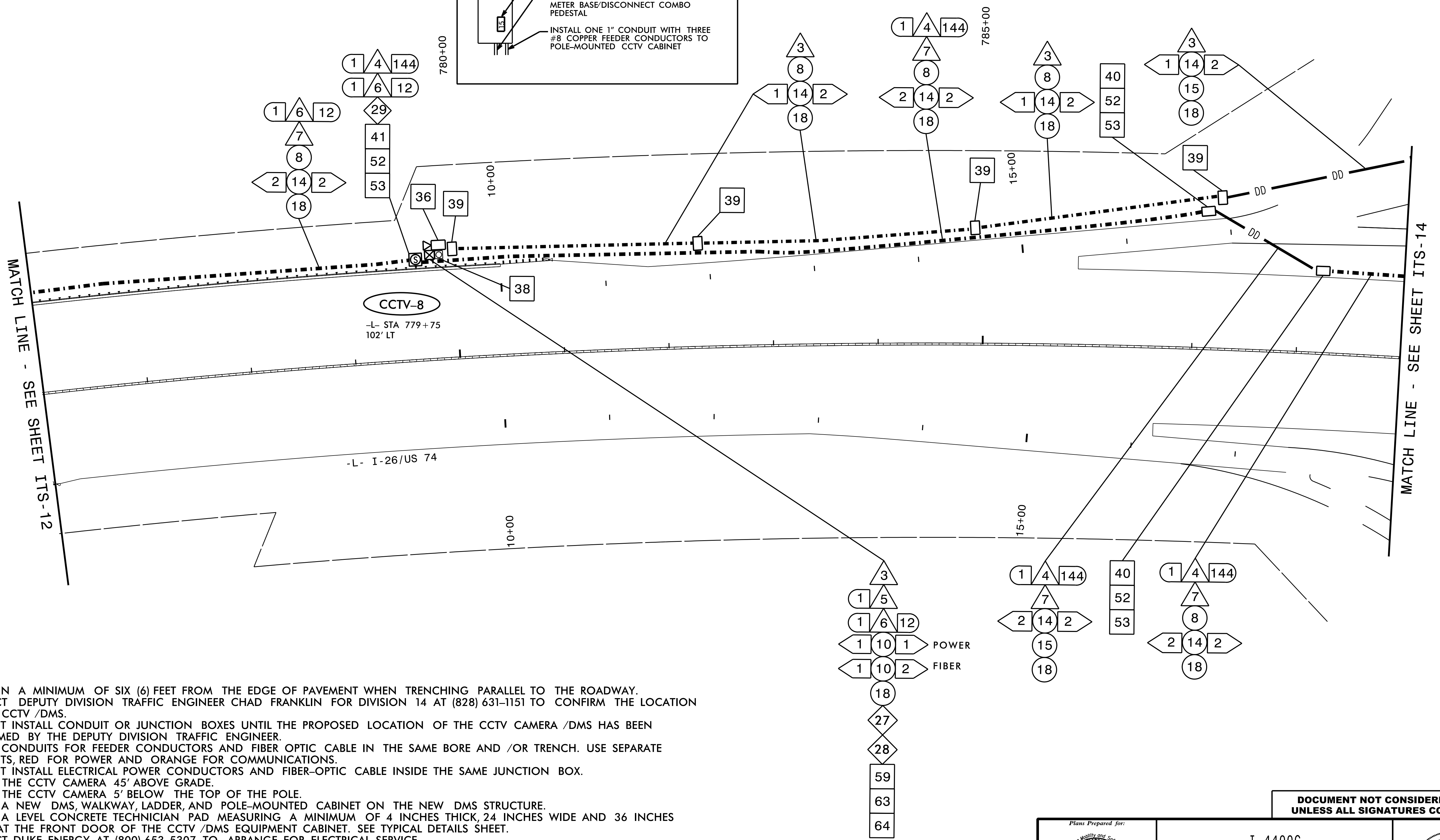
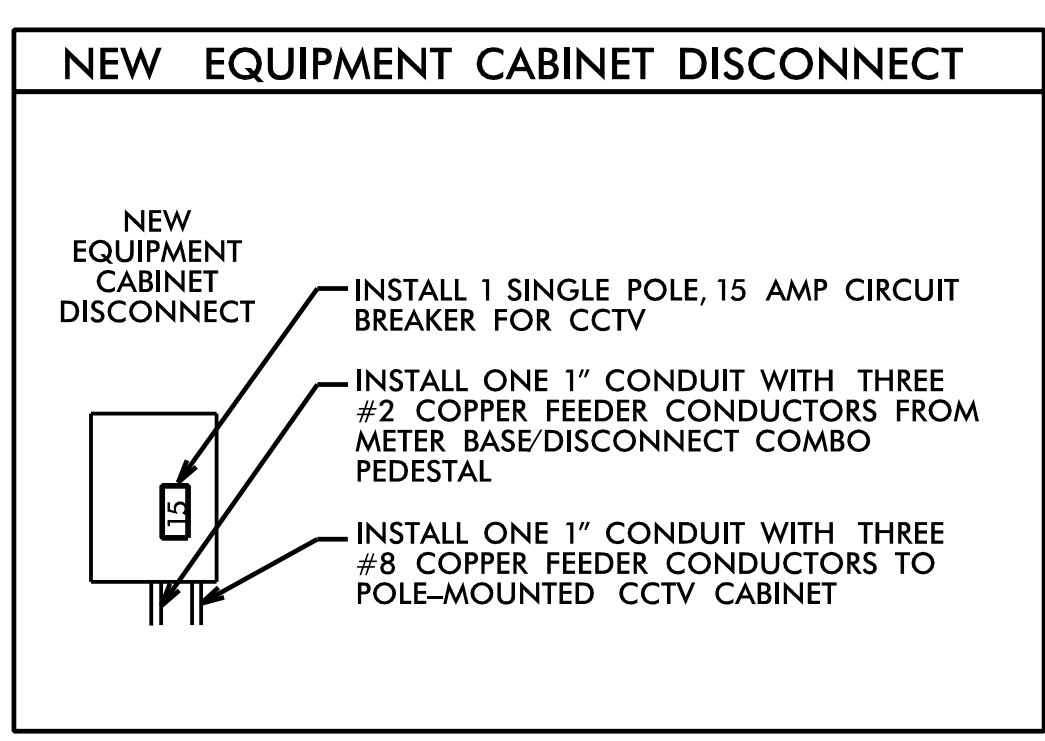
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	<p>I-4400C CABLE ROUTING PLAN</p>		
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<p>PLANNED BY: Atizaz Ali</p>		<p>REVIEWED BY: T.R. Terrell</p>	
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DRAWING 1



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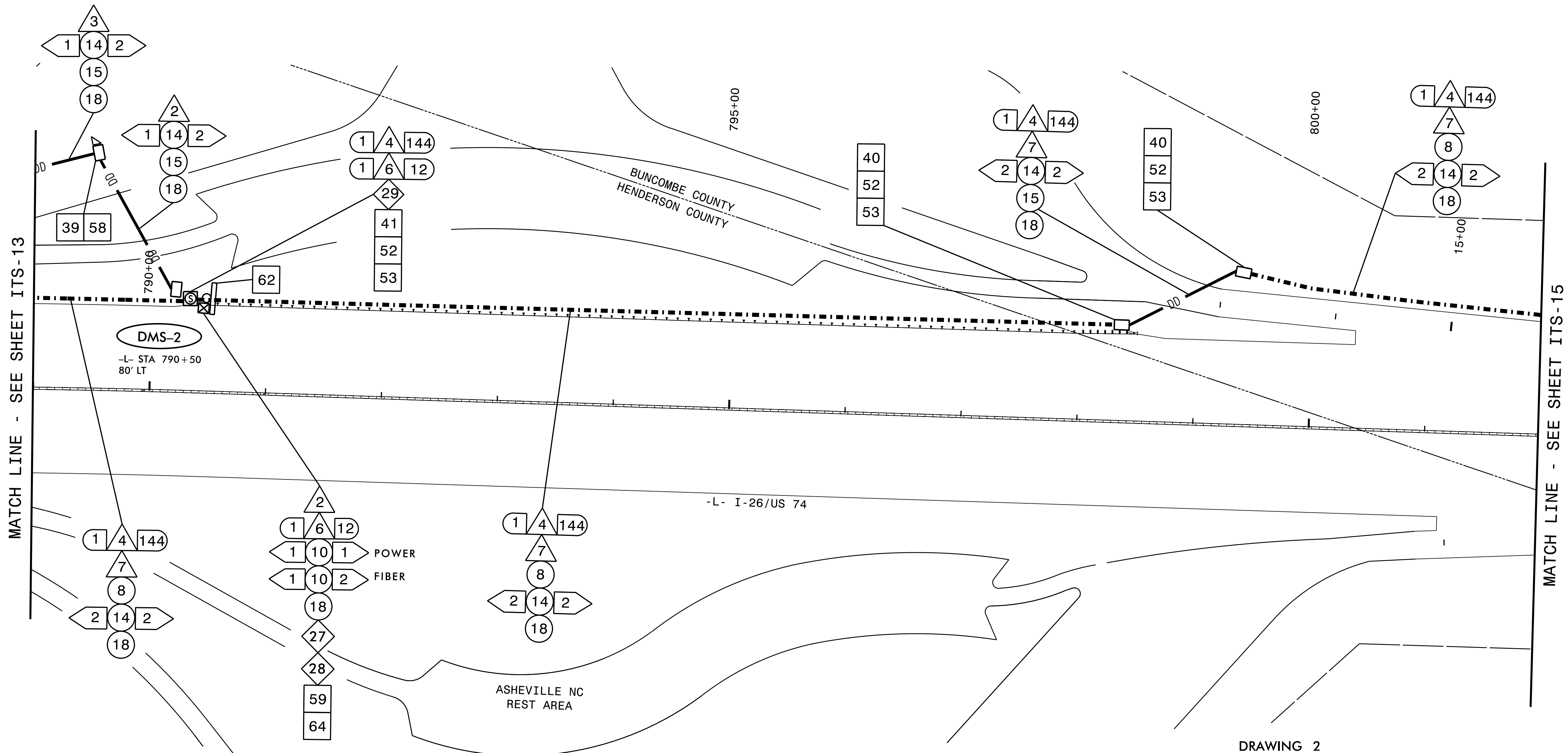
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 Plans Prepared for: NORTH CAROLINA DEPARTMENT OF TRANSPORTATION 259 N. Greenfield Place, Garner, NC 27529	<b>I-4400C CABLE ROUTING PLAN</b>		 SEAL NORTH CAROLINA PROFESSIONAL ENGINEER RAKESH NUNE
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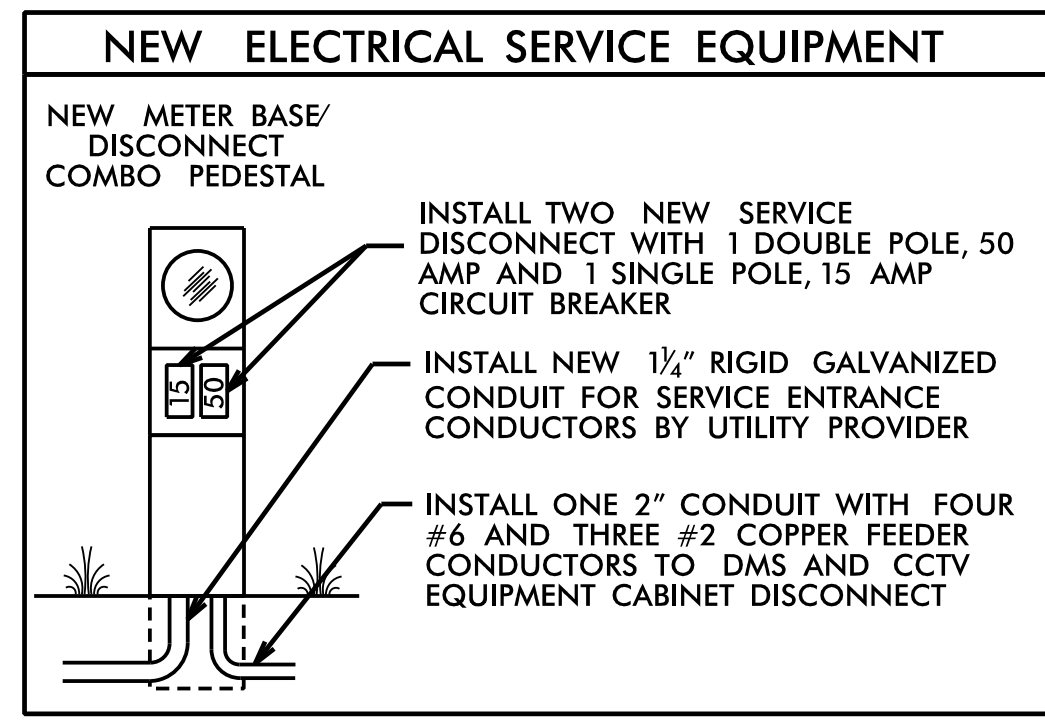
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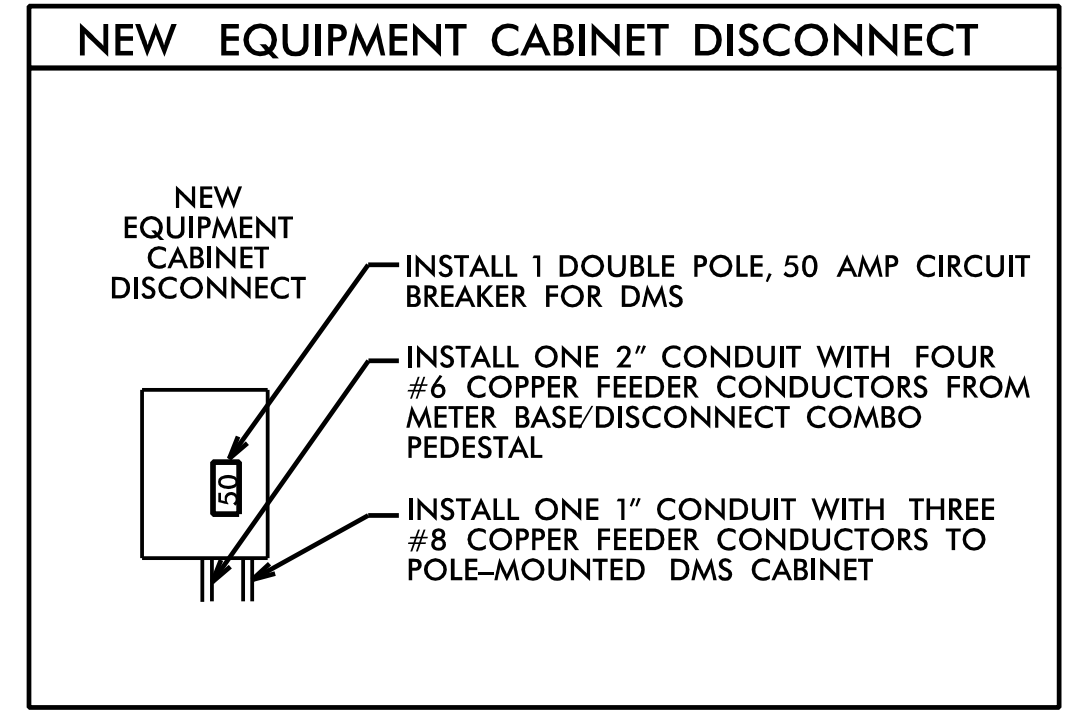
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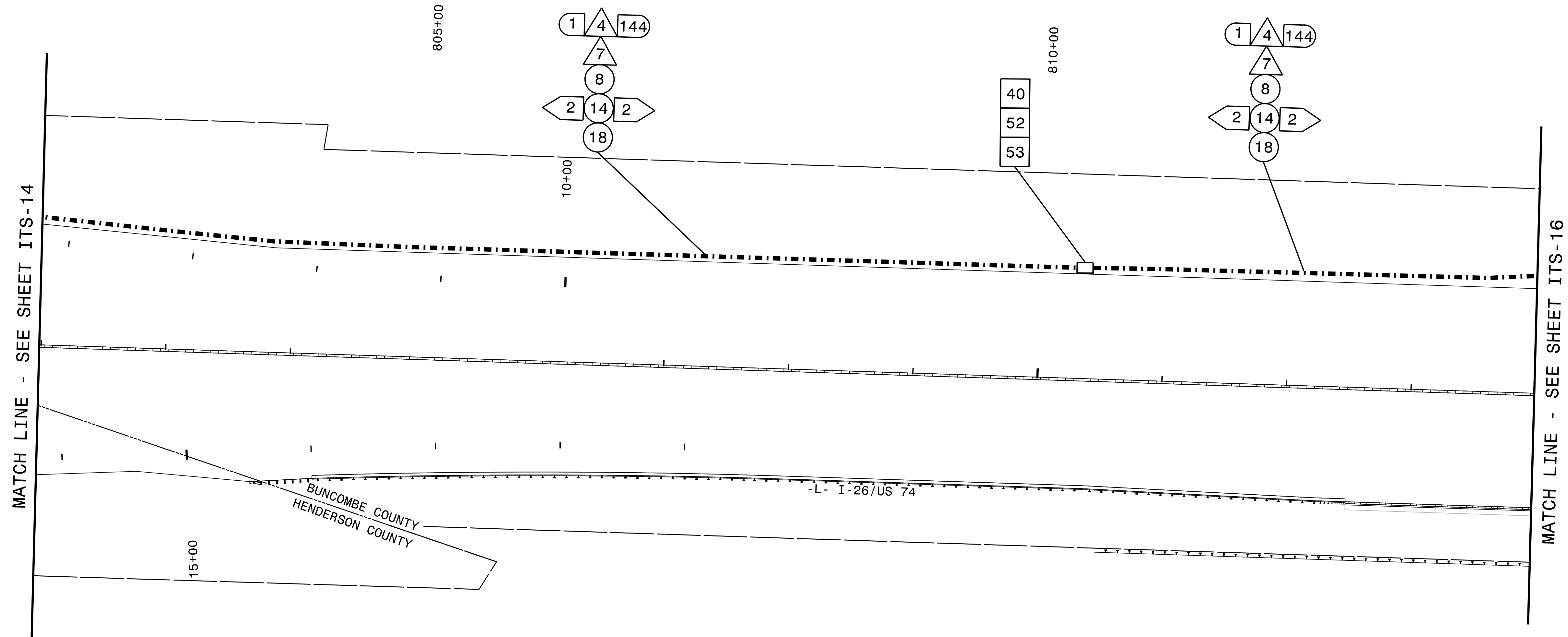
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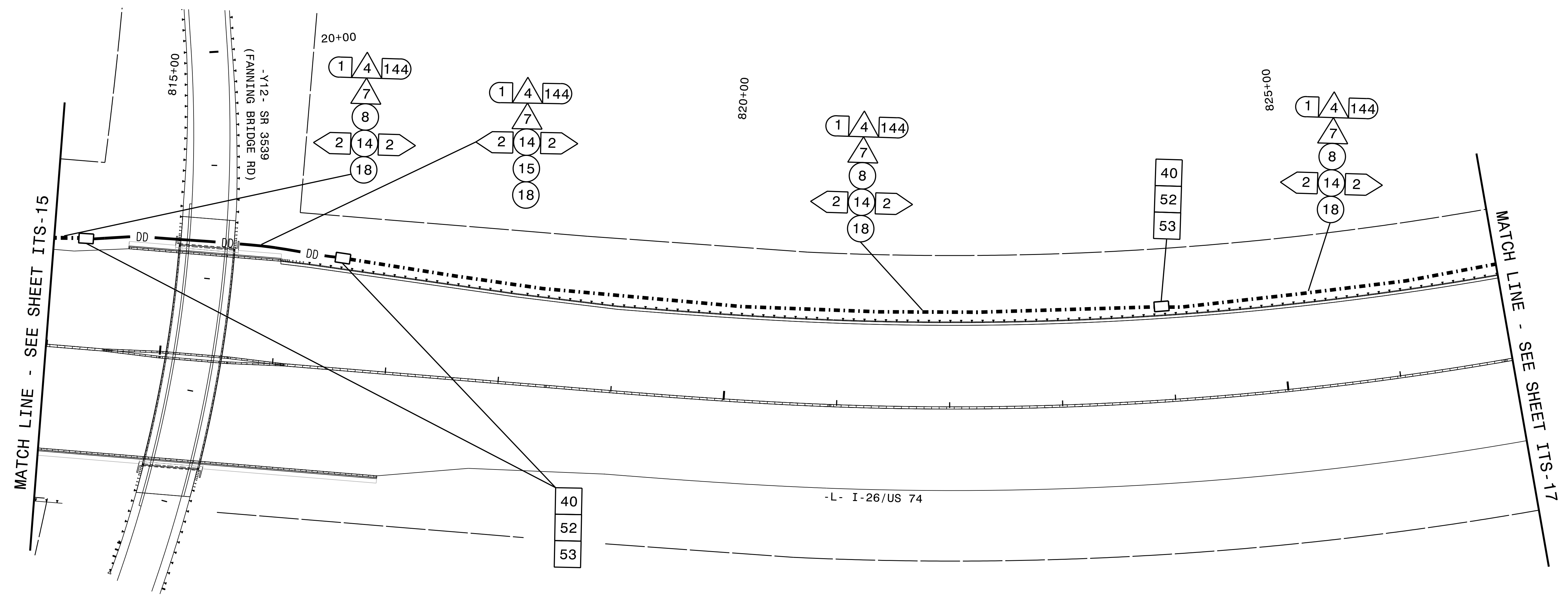
1. MAINTAIN A MINIMUM OF SIX (6) FEET FROM THE EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY.
2. CONTACT DEPUTY DIVISION TRAFFIC ENGINEER CHAD FRANKLIN FOR DIVISION 14 AT (828) 631-1151 TO CONFIRM THE LOCATION OF THE CCTV /DMS.
3. DO NOT INSTALL CONDUIT OR JUNCTION BOXES UNTIL THE PROPOSED LOCATION OF THE CCTV CAMERA /DMS HAS BEEN CONFIRMED BY THE DEPUTY DIVISION TRAFFIC ENGINEER.
4. INSTALL CONDUITS FOR FEEDER CONDUCTORS AND FIBER OPTIC CABLE IN THE SAME BORE AND /OR TRENCH. USE SEPARATE CONDUITS, RED FOR POWER AND ORANGE FOR COMMUNICATIONS.
5. DO NOT INSTALL ELECTRICAL POWER CONDUCTORS AND FIBER-OPTIC CABLE INSIDE THE SAME JUNCTION BOX.
6. MOUNT THE CCTV CAMERA 45' ABOVE GRADE.
7. MOUNT THE CCTV CAMERA 5' BELOW THE TOP OF THE POLE.
8. INSTALL A NEW DMS, WALKWAY, LADDER, AND POLE-MOUNTED CABINET ON THE NEW DMS STRUCTURE.
9. INSTALL A LEVEL CONCRETE TECHNICIAN PAD MEASURING A MINIMUM OF 4 INCHES THICK, 24 INCHES WIDE AND 36 INCHES LONG AT THE FRONT DOOR OF THE CCTV /DMS EQUIPMENT CABINET. SEE TYPICAL DETAILS SHEET.
10. CONTACT DUKE ENERGY AT (800) 653-5307 TO ARRANGE FOR ELECTRICAL SERVICE.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE AVAILABLE FAULT CURRENT INFORMATION FROM THE POWER COMPANY FOR THE REQUIRED ELECTRICAL SERVICE AND PLACE A "FAULT CURRENT" STICKER INSIDE THE SERVICE DISCONNECT PANEL WITH THE DATE AND AVAILABLE FAULT CURRENT ON THE STICKER.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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	I-4400C CABLE ROUTING PLAN							
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons							
	<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE				Documented by: Rakesh Nune 4/26/2019 SIGNATURE DATE CADD Filename: I-4400C ITS-15.dgn
REVISIONS	INIT.	DATE						





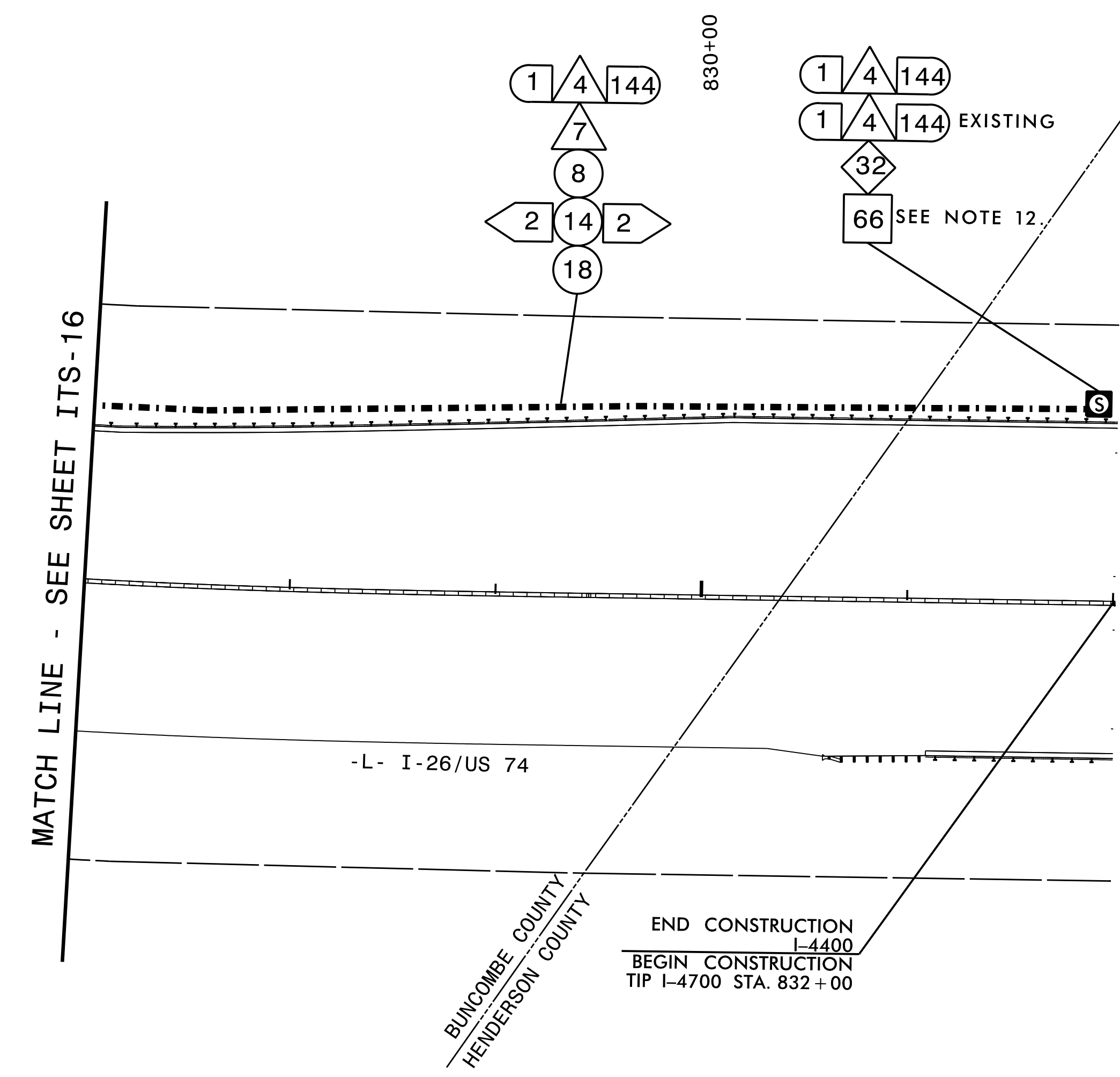
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	<b>I-4400C</b> <b>CABLE ROUTING PLAN</b>								
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons								
259 N. Greenfield Place, Garner, NC 27529 	SCALE 0 50 1"=50'	<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS	INIT.	DATE				DocuSigned by:  Rakesh Nune 4/26/2019 SEAL ENGINEER RAKESH NUNE DATE CADD File name: I-4400C ITS-16.dgn
REVISIONS	INIT.	DATE							



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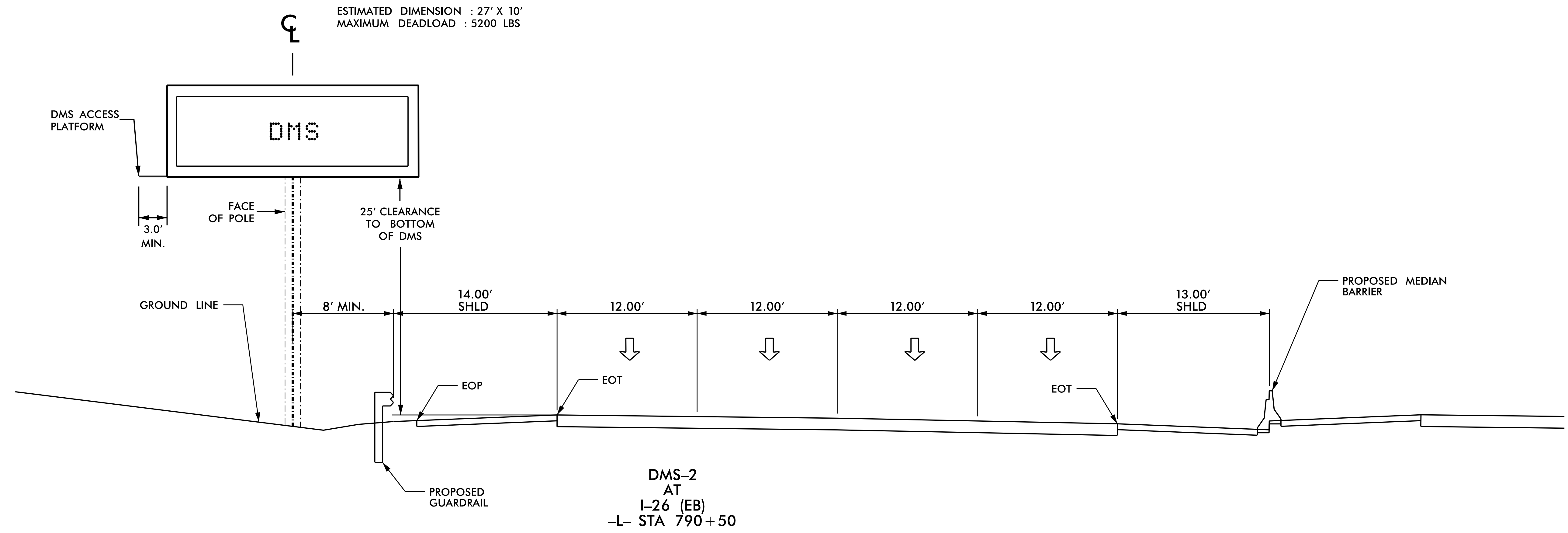
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10. CONTACT DUKE ENERGY AT (800) 653-5307 TO ARRANGE FOR POWER TO ELECTRICAL SERVICE.
11. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THE AVAILABLE FAULT CURRENT INFORMATION FROM THE POWER COMPANY FOR THE REQUIRED ELECTRICAL SERVICE AND PLACE A "FAULT CURRENT" STICKER INSIDE THE SERVICE DISCONNECT PANEL WITH THE DATE AND AVAILABLE FAULT CURRENT ON THE STICKER.
12. EXISTING JUNCTION BOX INSTALLED UNDER I-4700 PROJECT.

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	I-4400C CABLE ROUTING PLAN							
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons							
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REVISIONS	INIT.	DATE						





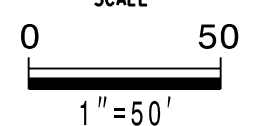
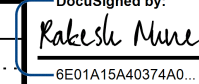


NOTES:

1. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES. CONTRACTOR IS RESPONSIBLE FOR FURNISHING ELEVATION DRAWINGS FOR ENGINEER'S APPROVAL.
2. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.
3. 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.
4. DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 130 MPH.
5. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.

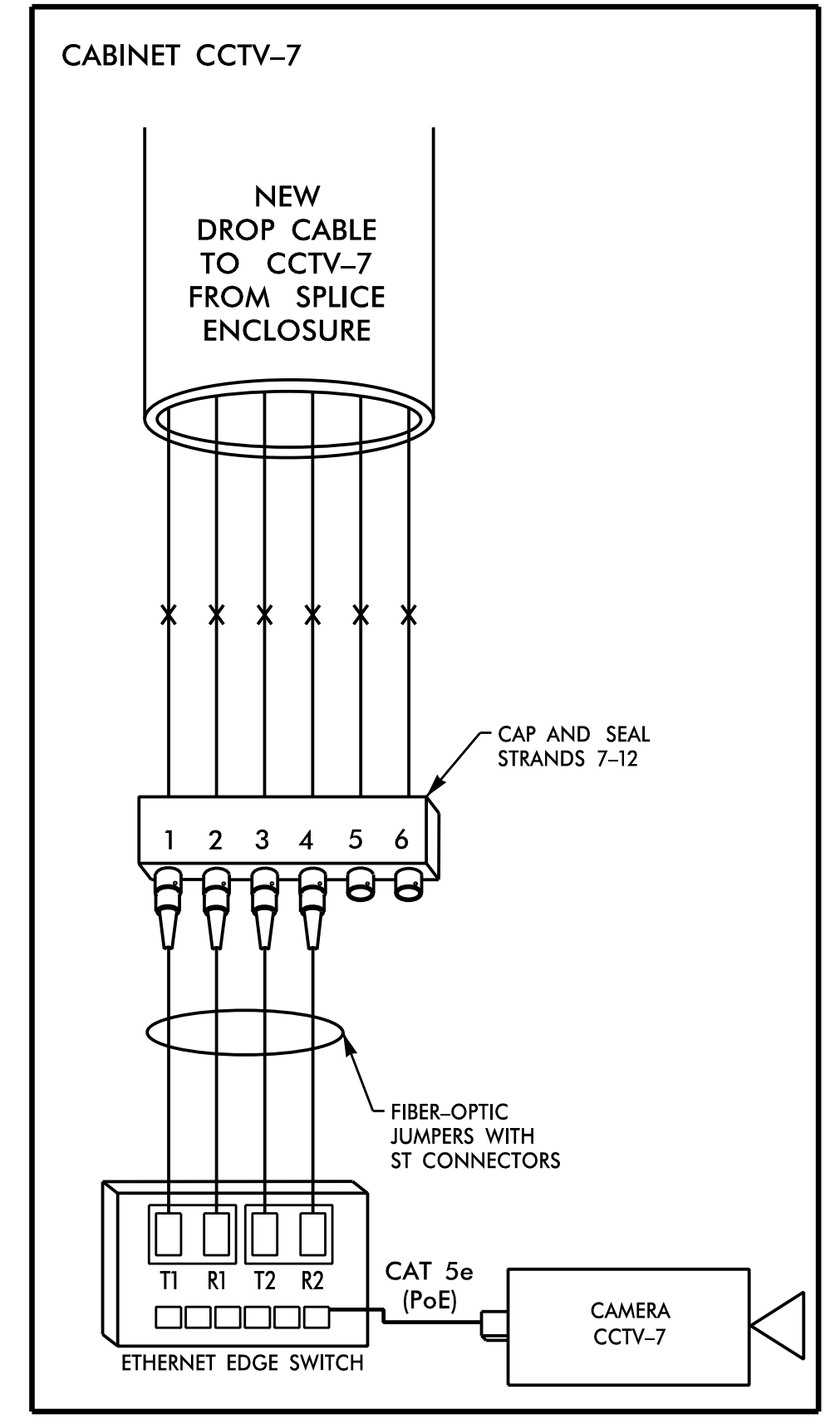
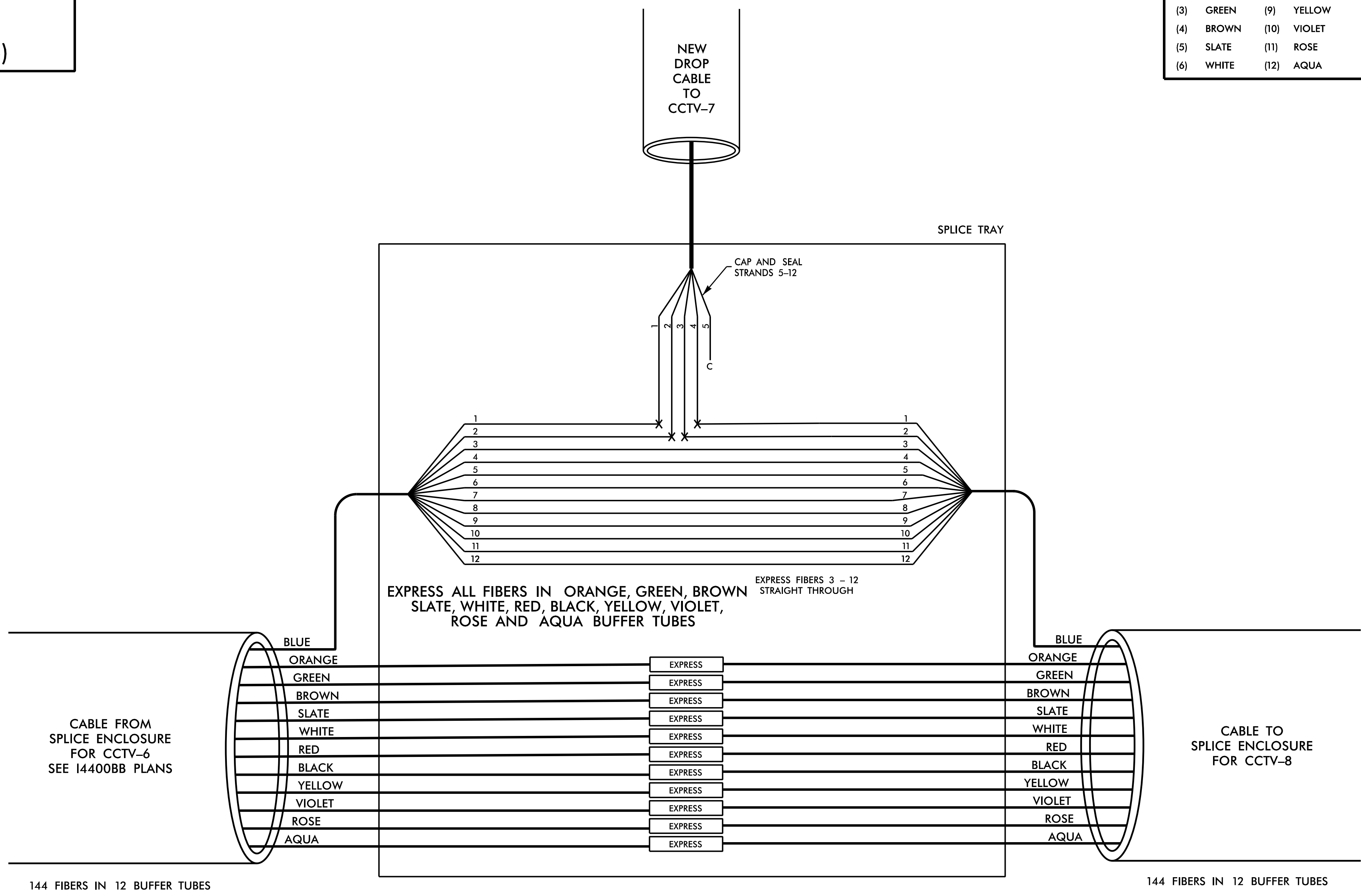
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 <small>250 N. Greenfield Place, Garner, NC 27529</small>	<b>I-4400C</b> <b>DMS-2 ELEVATION</b>									
	<small>Division 13/14 Buncombe/Henderson Asheville</small> <small>PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell</small> <small>PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons</small>									
<small>SCALE</small> 	<small>REVISIONS</small> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>INIT.</th> <th>DATE</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	INIT.	DATE					<small>DocuSigned by:</small>  <small>4/26/2019</small> <small>SEAL 048072</small> <small>SIGNATURE DATE</small> <small>CADD Filename: I4400C ITS-18.dgn</small>
NO.	DATE	INIT.	DATE							

**CCTV-7**  
**I-26 (EB) AT**  
**OFF-RAMP TO US25**  
**(ASHEVILLE HWY)**  
**(-Y10RPA- STA. 25+25)**

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



**NOTES:**

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

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

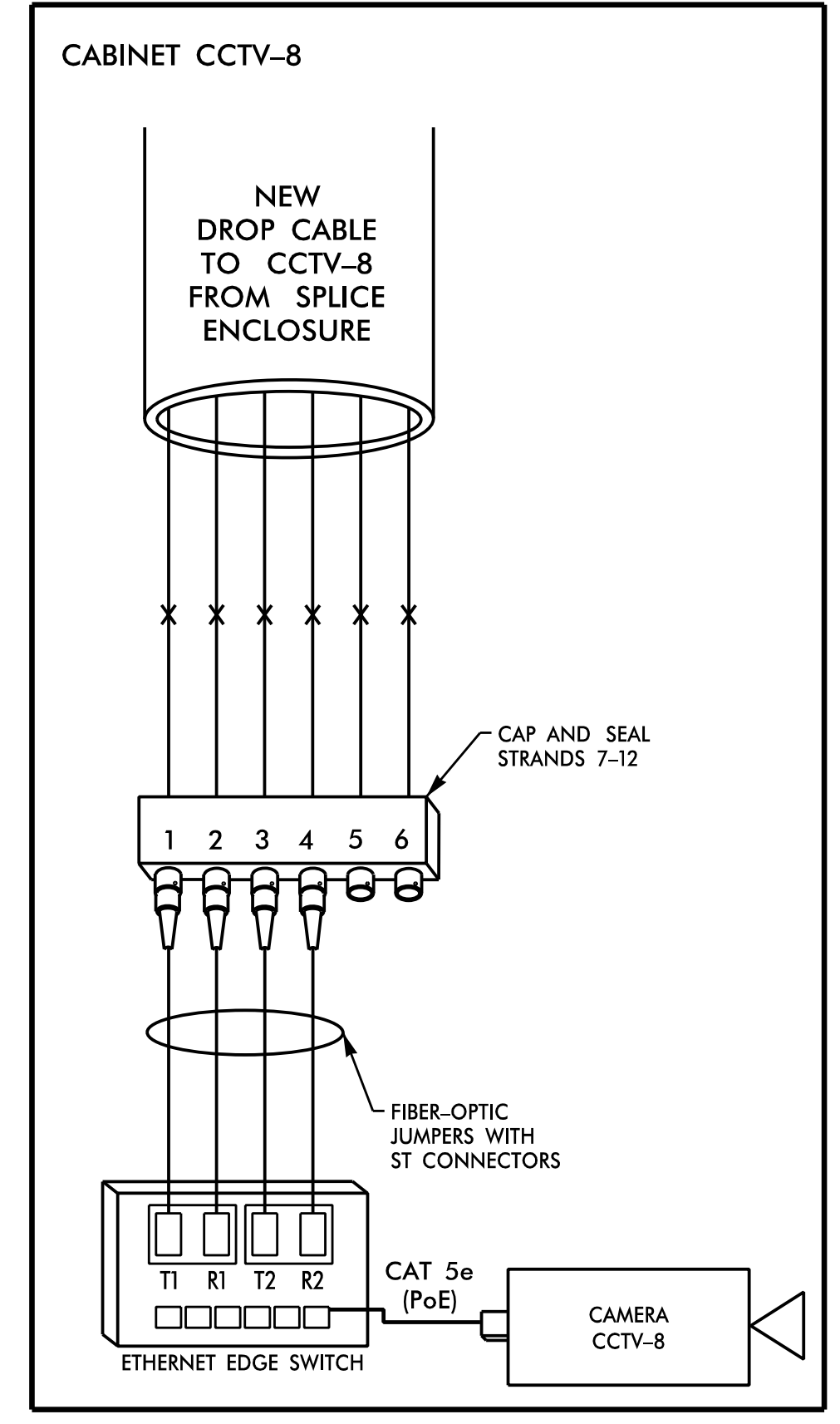
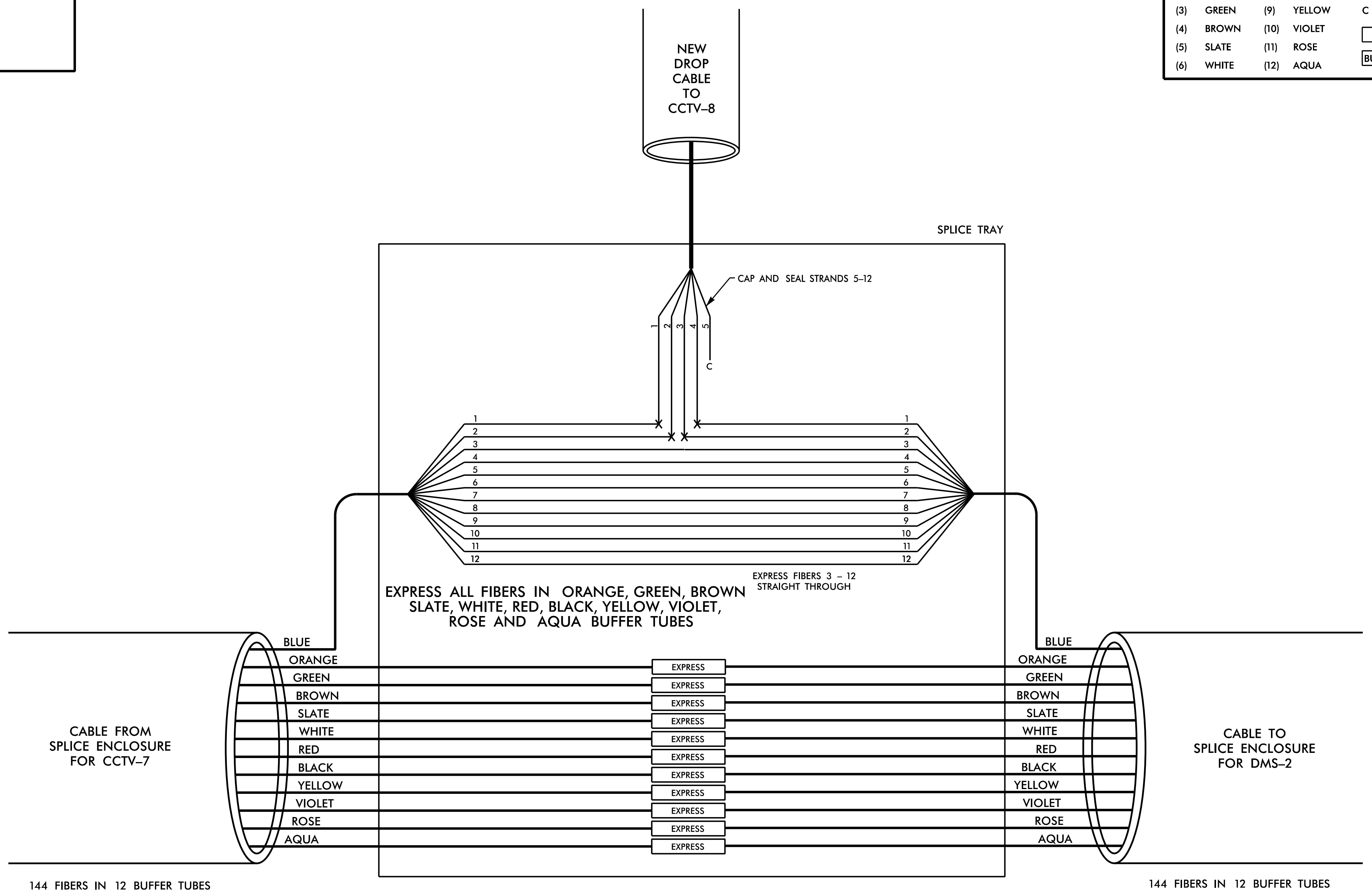
PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (1-4) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS.

<p>Plans Prepared for:</p> <p>250 N. Greenfield Place, Garner, NC 27529</p>	<p><b>I-4400C</b></p> <p><b>ITS DEVICES SPLICE DETAILS</b></p>		<p>SEAL</p> <p>SEAL 048072 ENGINEER RAKESH NUNE</p>
	<p>Division 13/14 Buncombe/Henderson Asheville</p> <p>PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell</p> <p>PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons</p>		
SCALE	REVISIONS	INIT.	DATE
NONE			
<p>DocuSigned by: Rakesh Nune</p>			4/26/2019
<p>ADD File name: I4400C ITS-19.dgn</p>			



**CCTV-8**  
**I-26 (EB)**  
**AT**  
**-L- STA. 779+75**

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



**NOTES:**

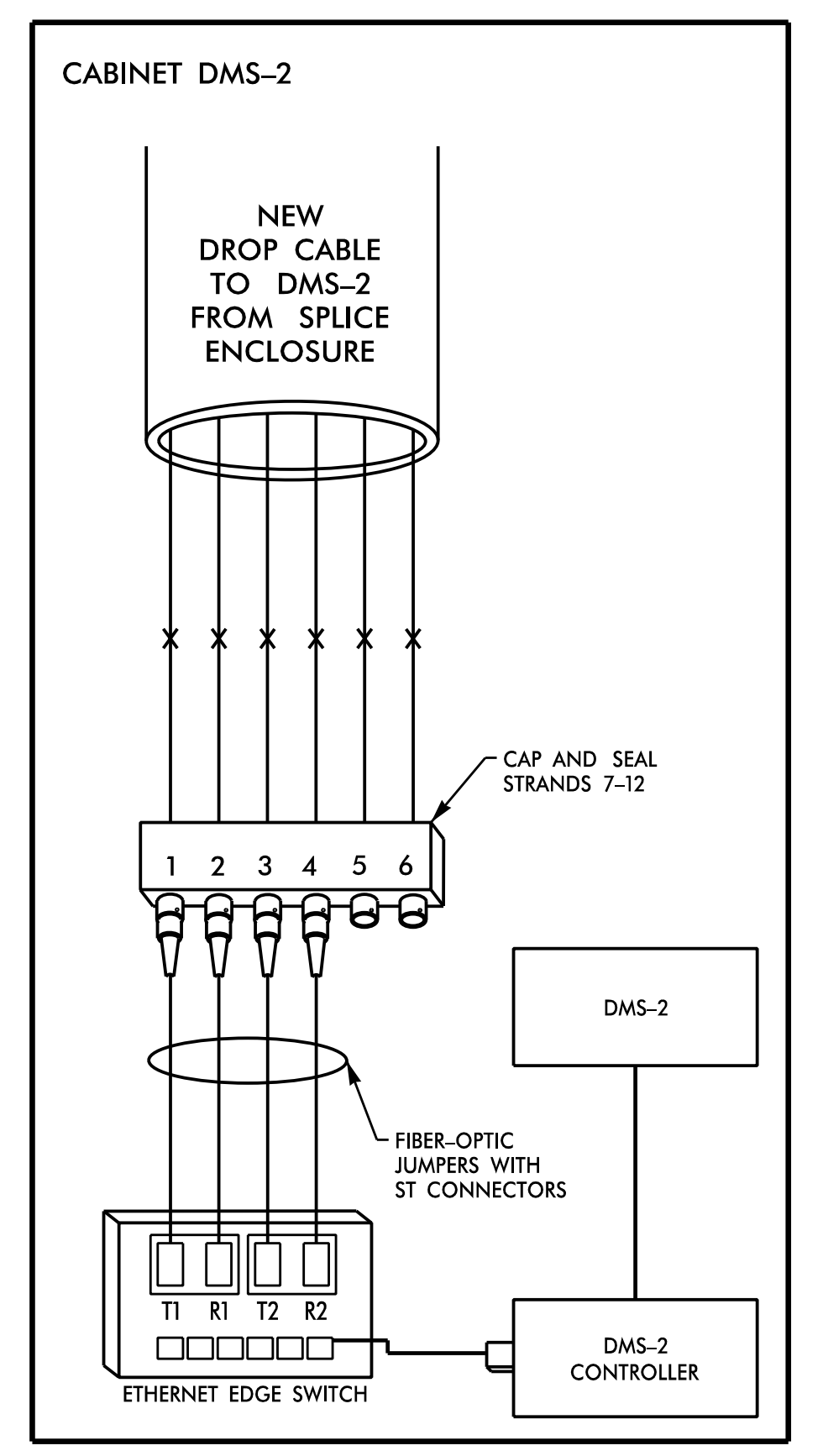
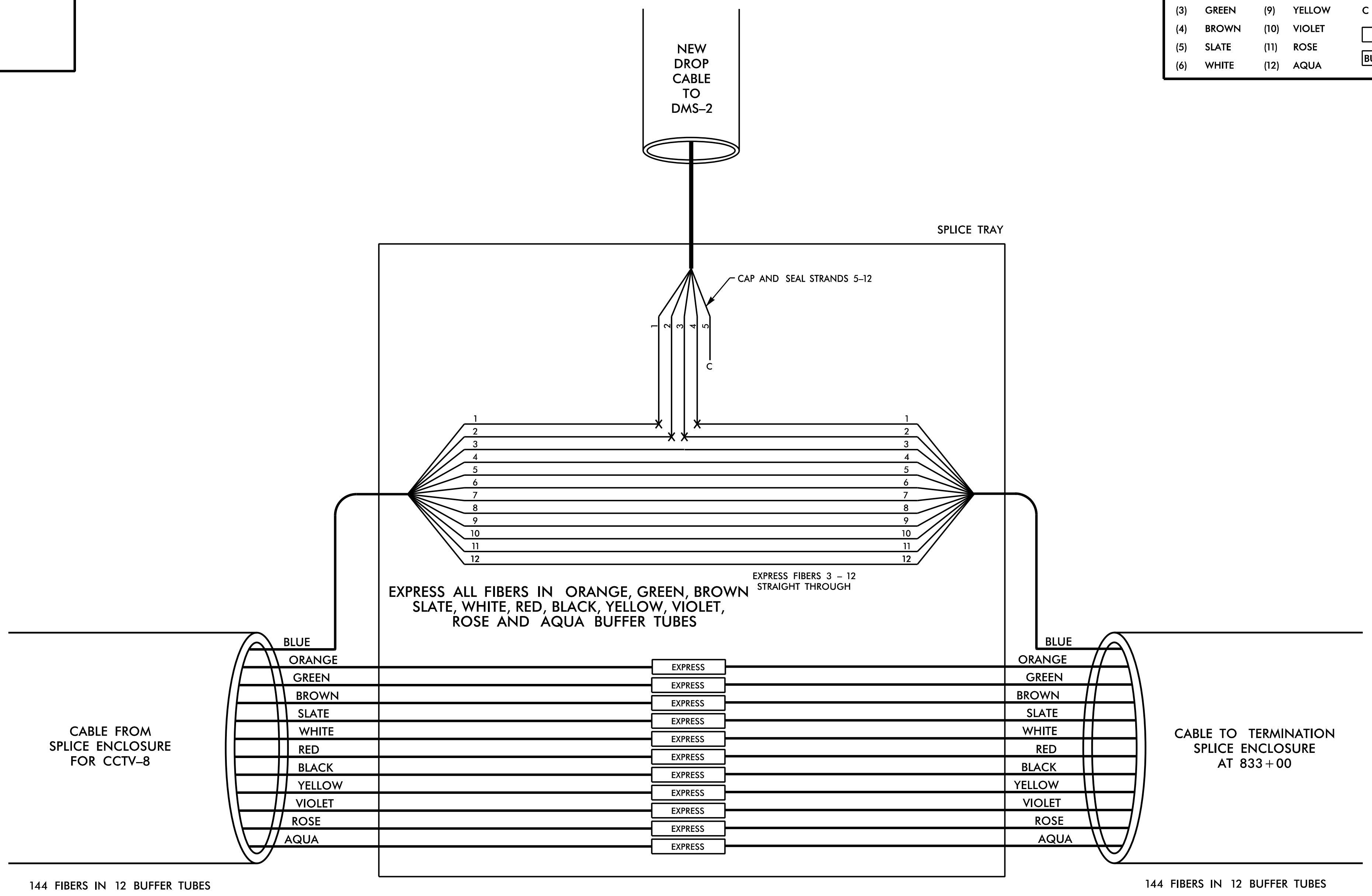
- UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
- UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.
- ETHERNET EDGE SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
- INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING: REFERENCE SECTION 1731 "FIBER OPTIC SPLICE ENCLOSURE"  
 (1) SPLICE  
 (2) DATE  
 (3) COMPANY NAME  
 (4) NAME OF INDIVIDUAL PERFORMING THE SPLICING

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

Plans Prepared for: 250 N. Greenfield Place, Garner, NC 27529	<b>I-4400C</b> <b>ITS DEVICES SPLICE DETAILS</b>		SEAL Rakesh Nune ENGINEER 048072
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons		
SCALE	REVISIONS	INIT.	DATE
NONE			4/26/2019

**DMS-2**  
**I-26 (EB)**  
**AT**  
**-L- STA 790+50**

COLOR CODE TIA/EIA 598-C			LEGEND	
(1) BLUE	(7) RED	X = NEW FUSION SPLICE INDIVIDUAL FIBER		
(2) ORANGE	(8) BLACK	● = EXISTING FUSION SPLICE		
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(6) WHITE	(12) AQUA			



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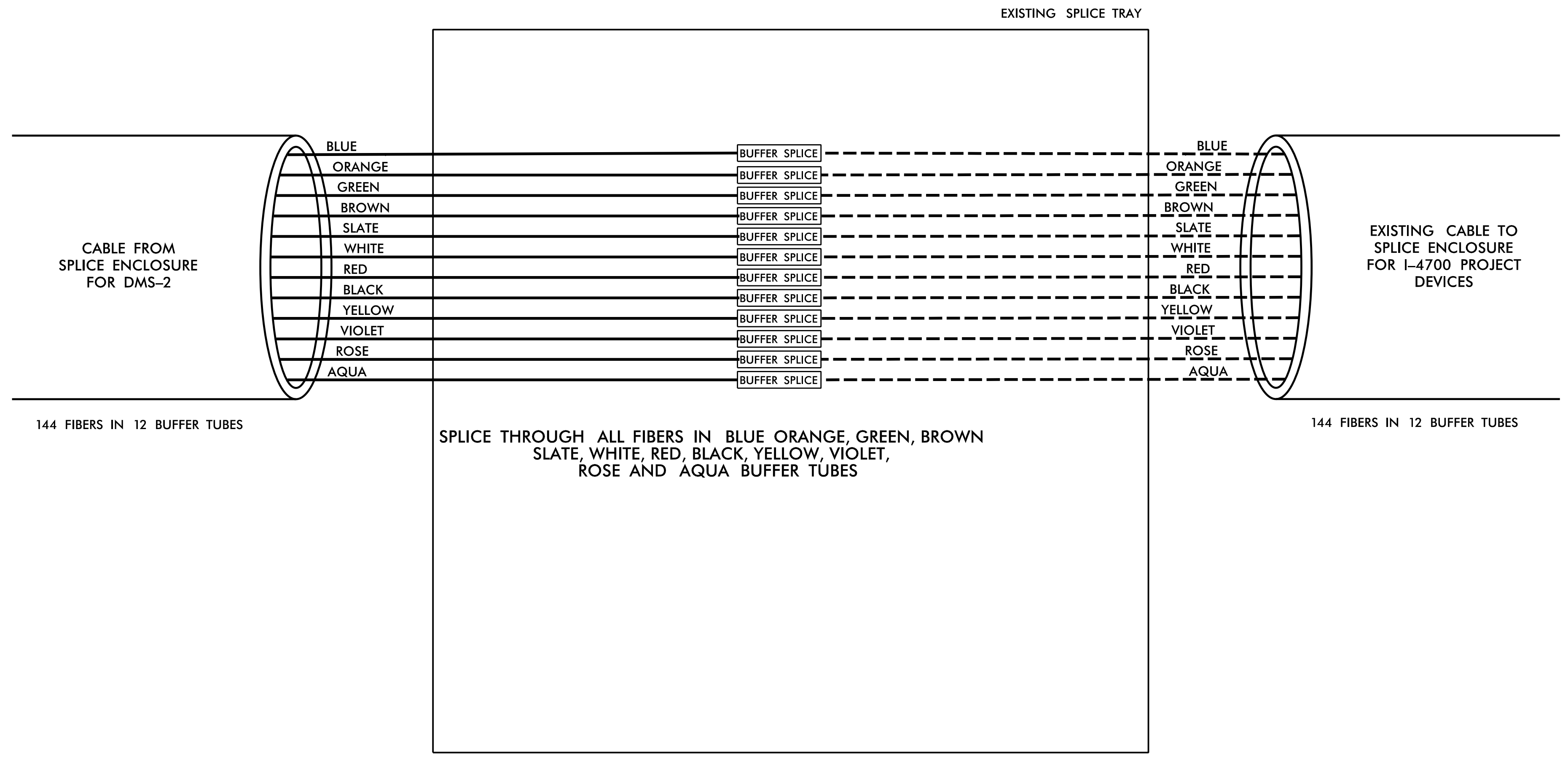
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	<b>I-4400C</b> <b>ITS DEVICES SPLICE DETAILS</b>		
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons		
250 N. Greenfield Place, Garner, NC 27529	SCALE NONE	REVISIONS _____	DocuSigned by: <b>Rakesh Nune</b> 4/26/2019 BE01A15A40374A0 SIGNATURE DATE ADD File name: I4400C ITS-21.dgn



**EXISTING TERMINATION  
ENCLOSURE  
I-26 (WB)  
AT  
-L- STA. 832 + 00**


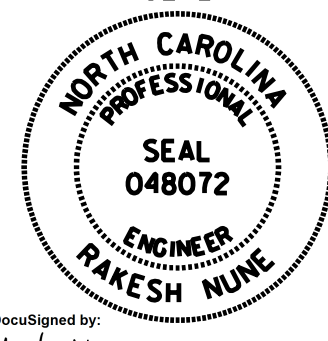
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(3) GREEN	(9) YELLOW	C =	CAP AND SEAL	
(4) BROWN	(10) VIOLET	<span style="border: 1px solid black; padding: 2px;">EXPRESS</span> =	EXPRESS ENTIRE BUFFER TUBE THROUGH WITHOUT CUTTING	
(5) SLATE	(11) ROSE	<span style="border: 1px solid black; padding: 2px;">BUFFER SPLICE</span> =	SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR	
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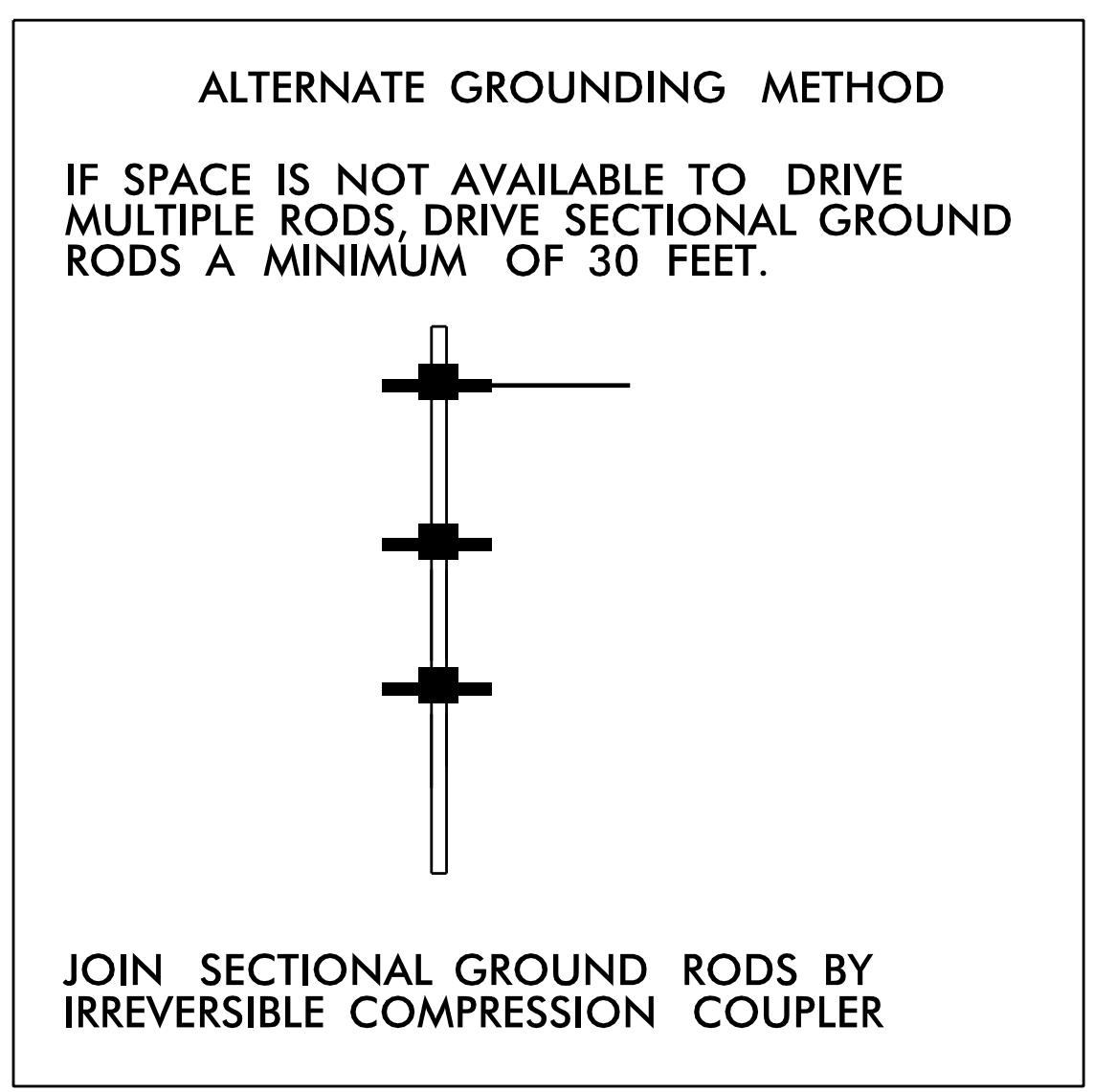
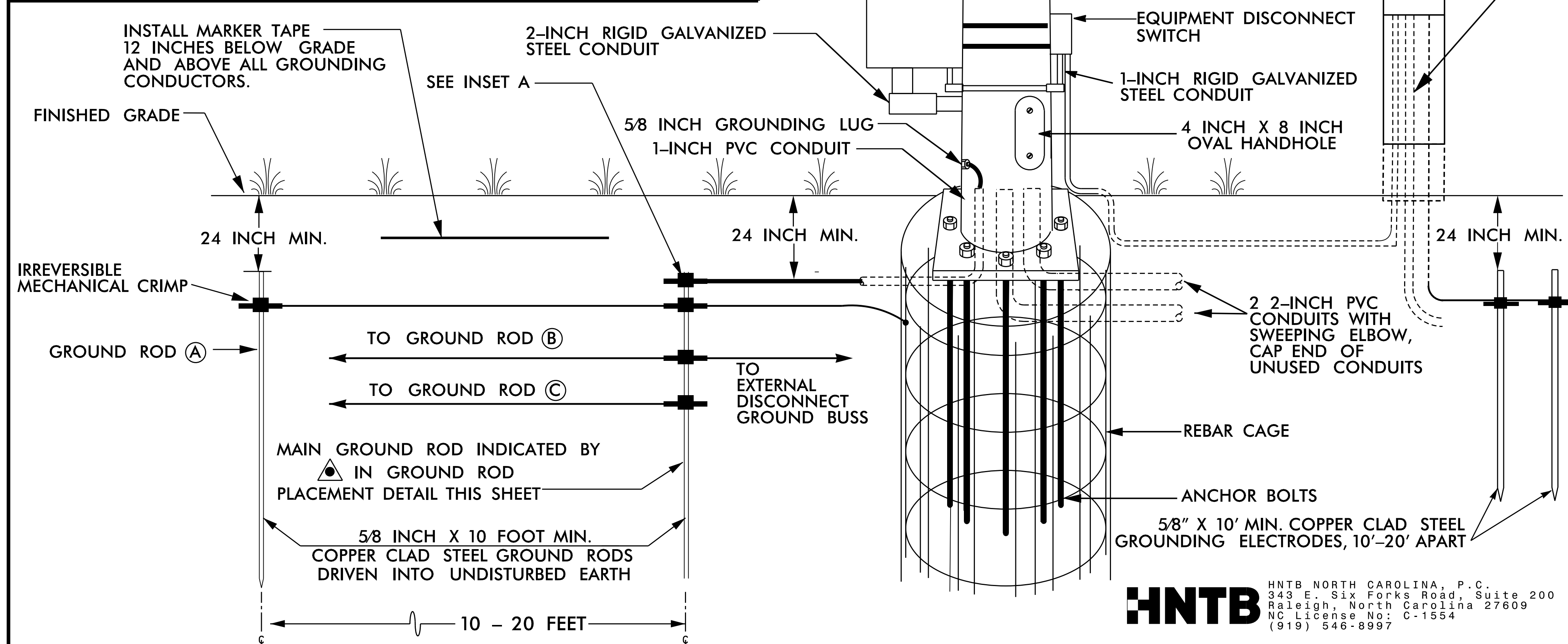
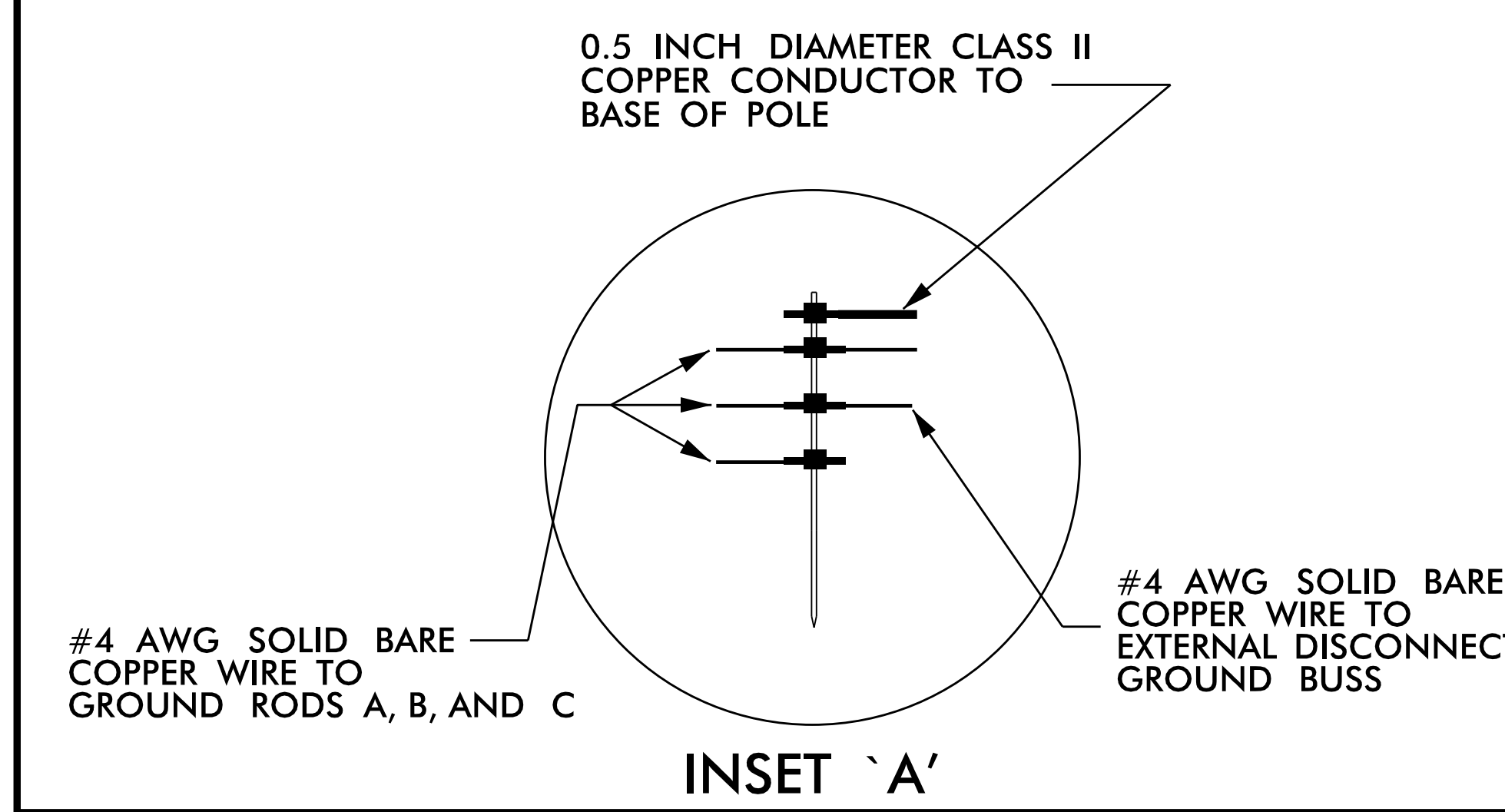
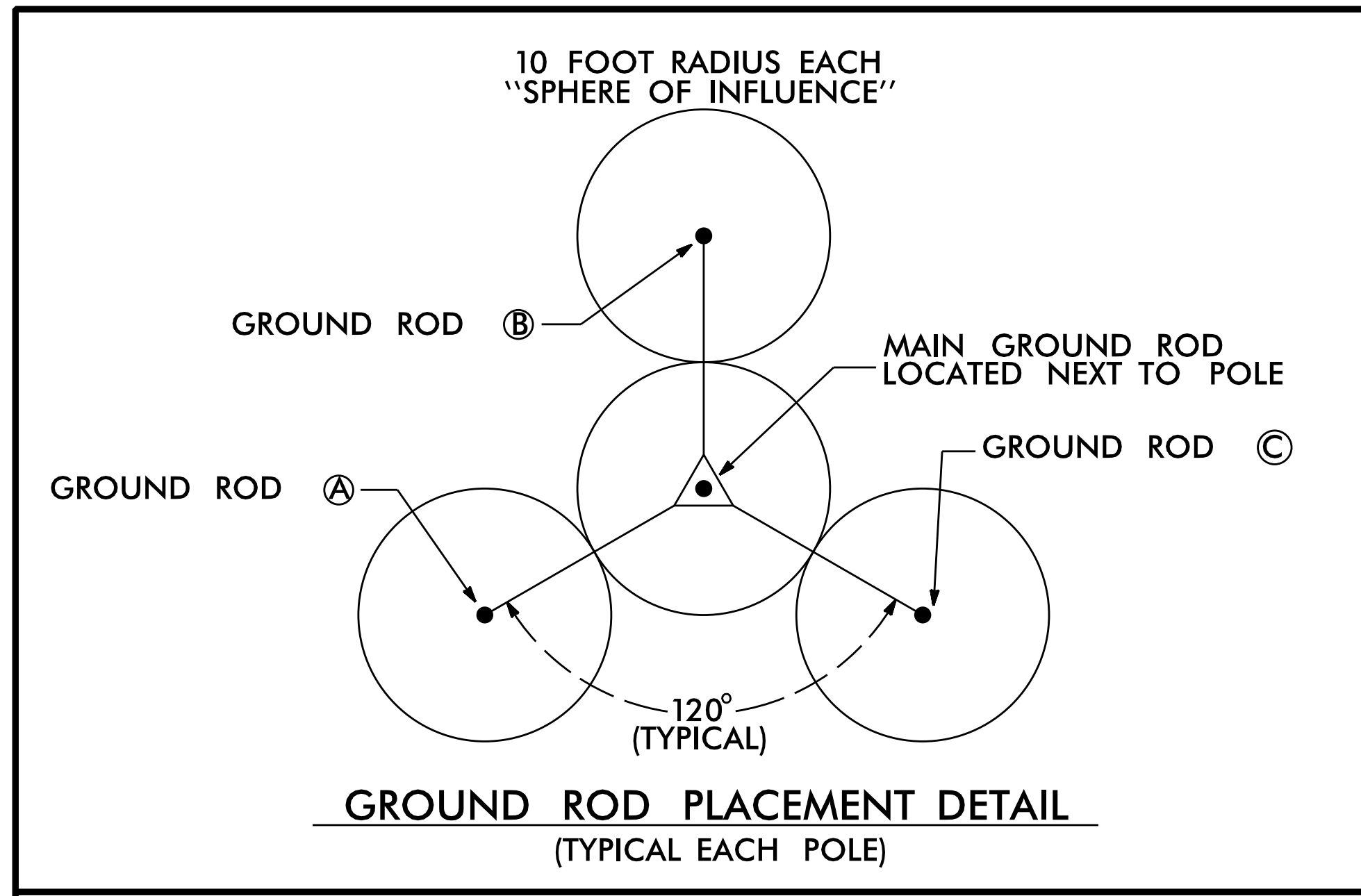


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 <small>250 N. Greenfield Place, Garner, NC 27529</small>	<b>I-4400C</b> <b>ITS DEVICES SPLICE DETAILS</b>		
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons		
SCALE NONE	REVISIONS	INIT.	DATE
			DocuSigned by: Rakesh Nune 4/26/2019 BE01A15A40374A0 SIGNATURE DATE ADD File name: I4400C ITS-22.dgn



- 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. 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.

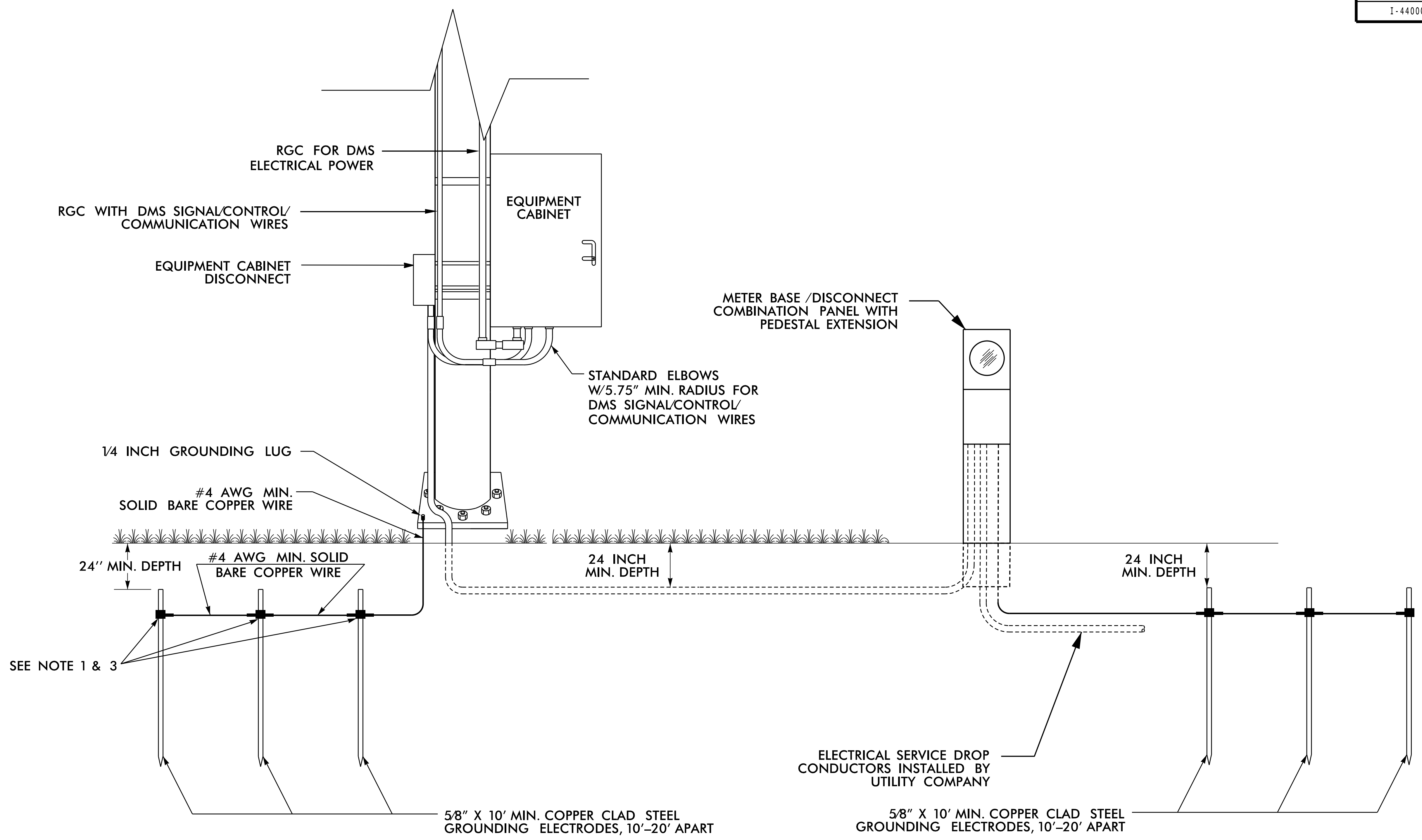
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Raleigh, North Carolina 27609  
NC License No: C-1554  
(919) 546-8997

Plans Prepared for:		FOR METAL POLE WITH UNDERGROUND ELECTRICAL SERVICE		
Division 13/14 Buncombe/Henderson Asheville		SEAL		
PLAN DATE: November 2018	REVIEWED BY: T.R. Terrell	PREPARED BY: Atizaz Ali	REVIEWED BY: N.R. Simmons	DocuSigned by: Rakesh Nune 4/26/2019 REDA15A40374AD SIGNATURE DATE CADD Filename: I4400C ITS-23.dgn
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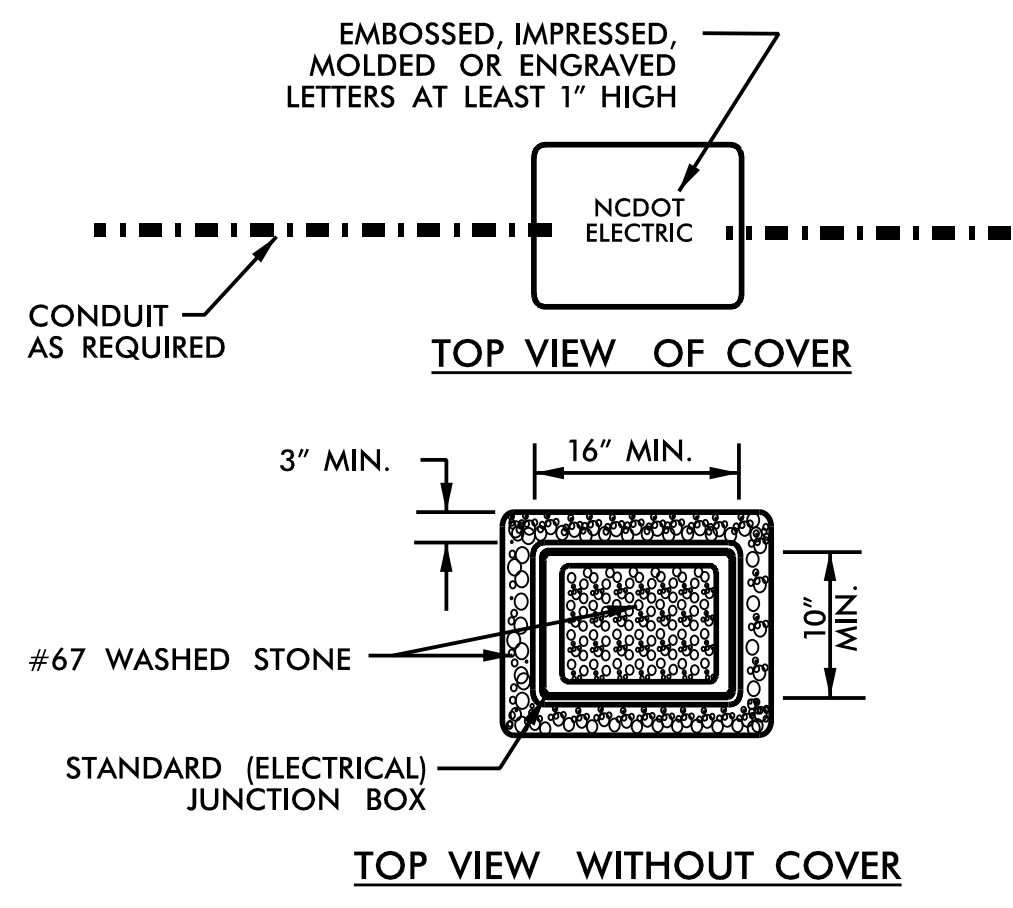
1. INSTALL A MINIMUM OF 3 GROUND RODS SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHALL MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUND RODS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. ALL CONNECTIONS TO GROUND RODS SHOULD BE MADE WITH AN IRREVERSIBLE MECHANICAL CRIMP METHOD.
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 EQUIPMENT CABINET.

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

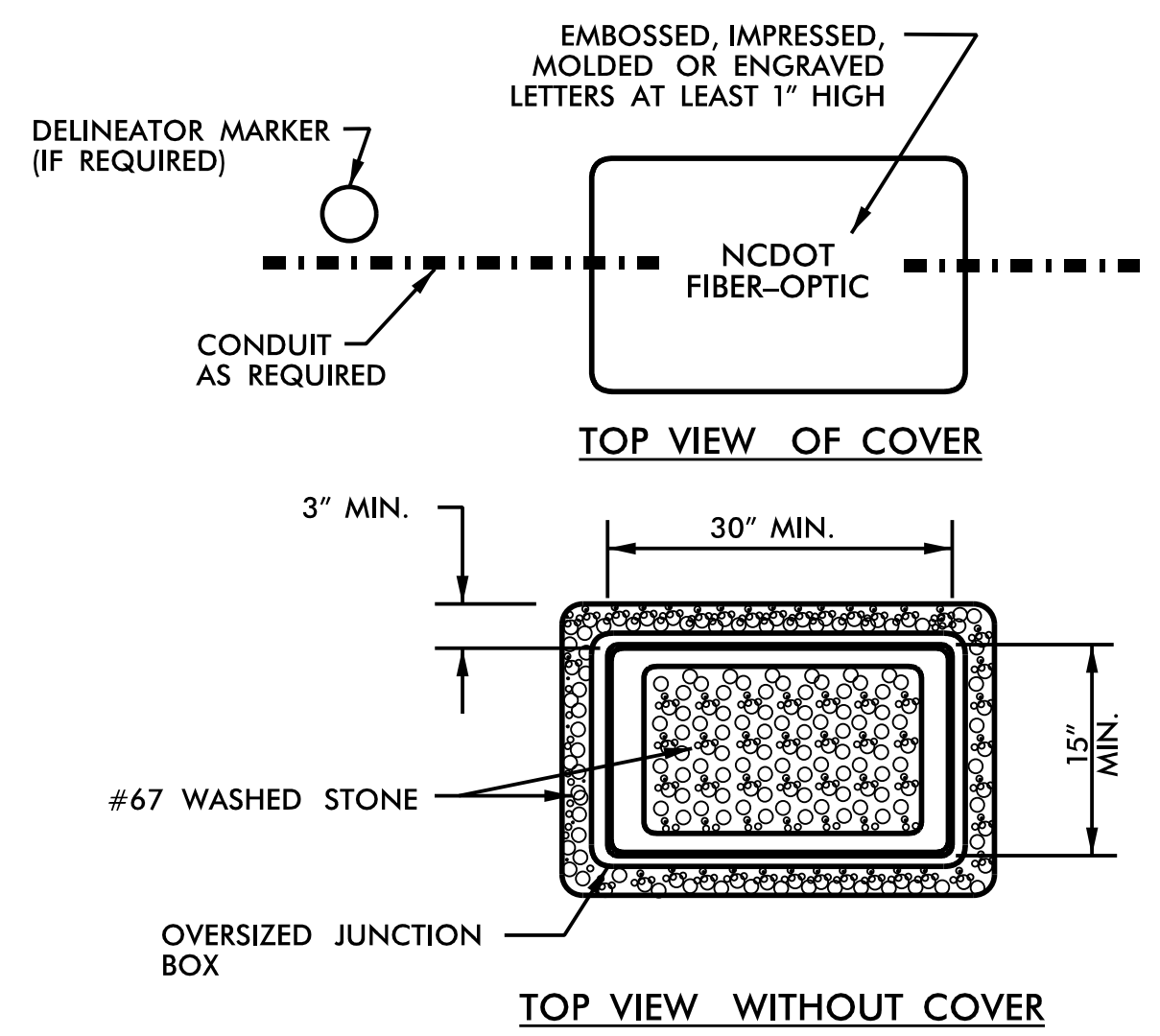
**HNTB**  
 HNTB NORTH CAROLINA, P.C.  
 343 E. Six Forks Road, Suite 200  
 Raleigh, North Carolina 27609  
 NC License No: C-1554  
 (919) 546-8997

Plans Prepared for:  250 N. Greenfield Place, Garner, NC 27529	<b>DYNAMIC MESSAGE SIGN NEW ELECTRICAL SERVICE AND GROUNDING DETAIL</b>		SEAL  ENGINEER <b>RAKESH NUNE</b>
	Division 13/14 Buncombe/Henderson Asheville PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons		
SCALE NONE	REVISIONS	INIT.	DATE
DocuSigned by: 			4/26/2019
CADD File name: I4400C ITS-24.dgn			

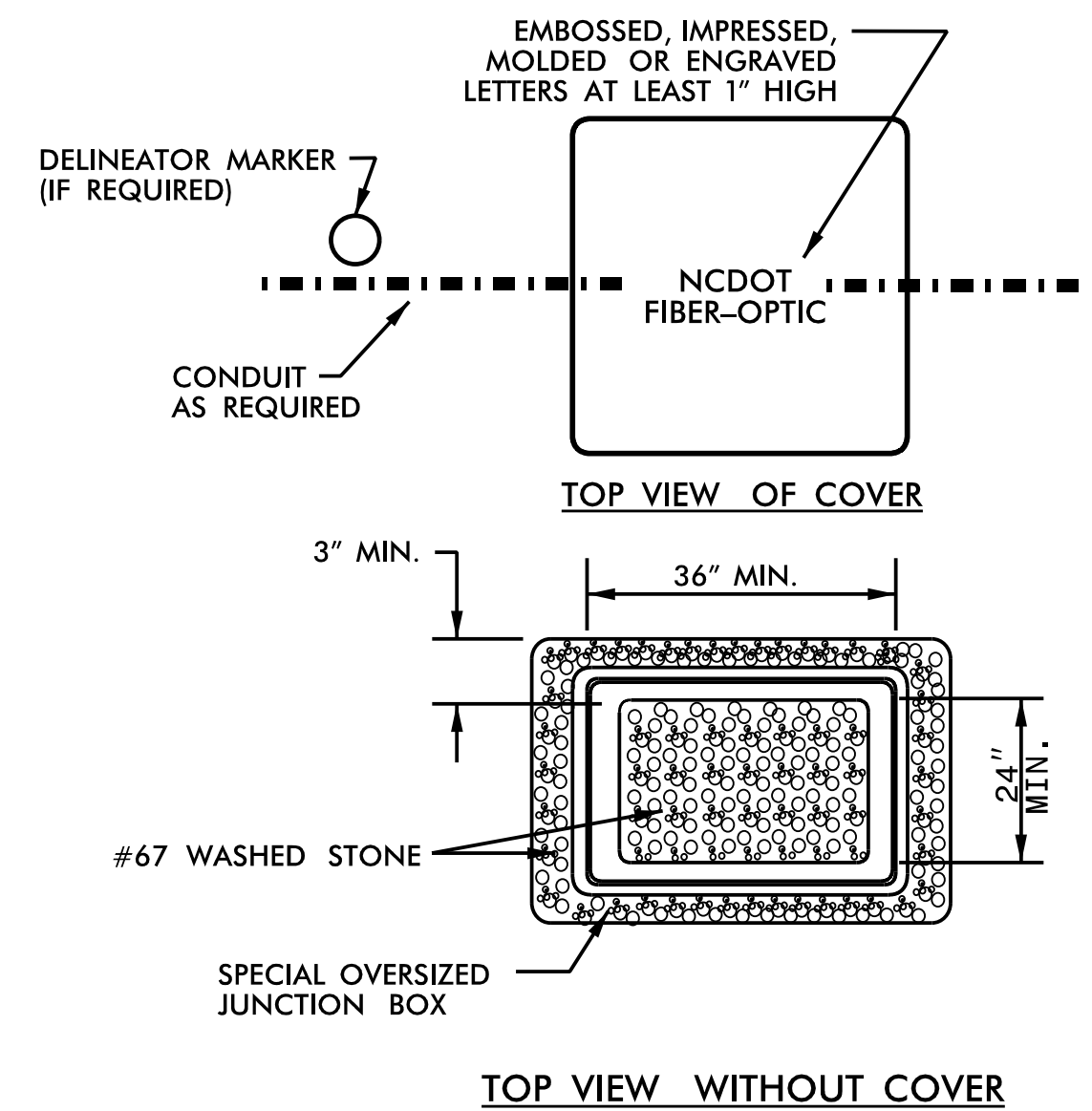
**STANDARD (ELECTRICAL)  
JUNCTION BOX**



**OVERSIZED HEAVY DUTY  
JUNCTION BOX**

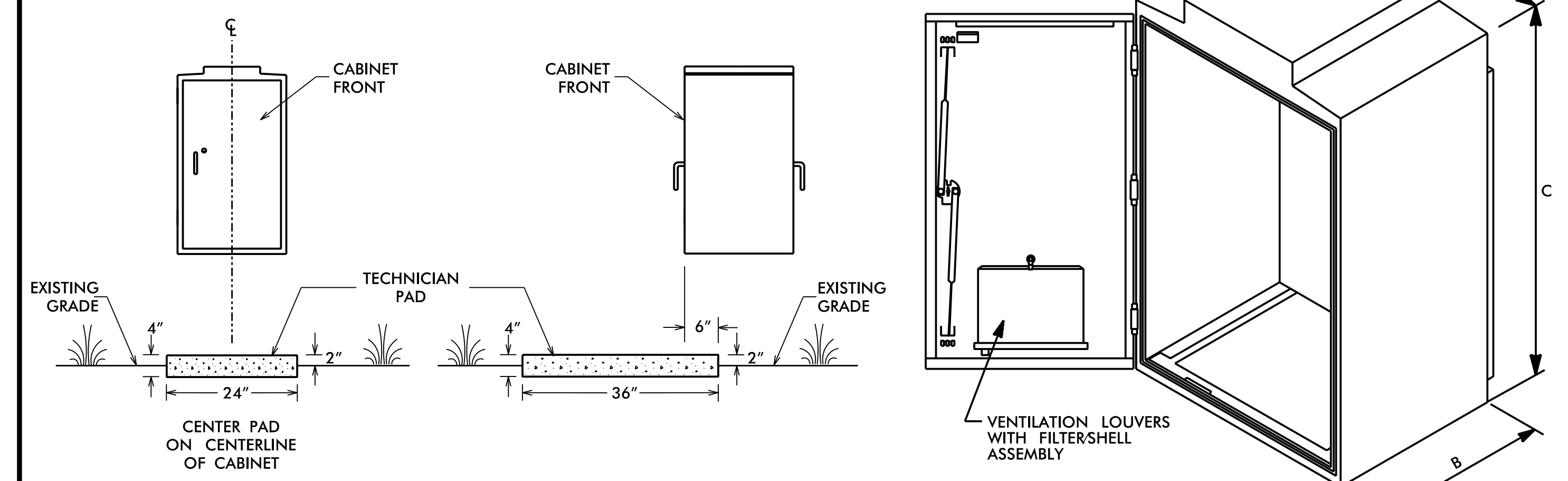


**SPECIAL OVERSIZED HEAVY DUTY  
JUNCTION BOX**

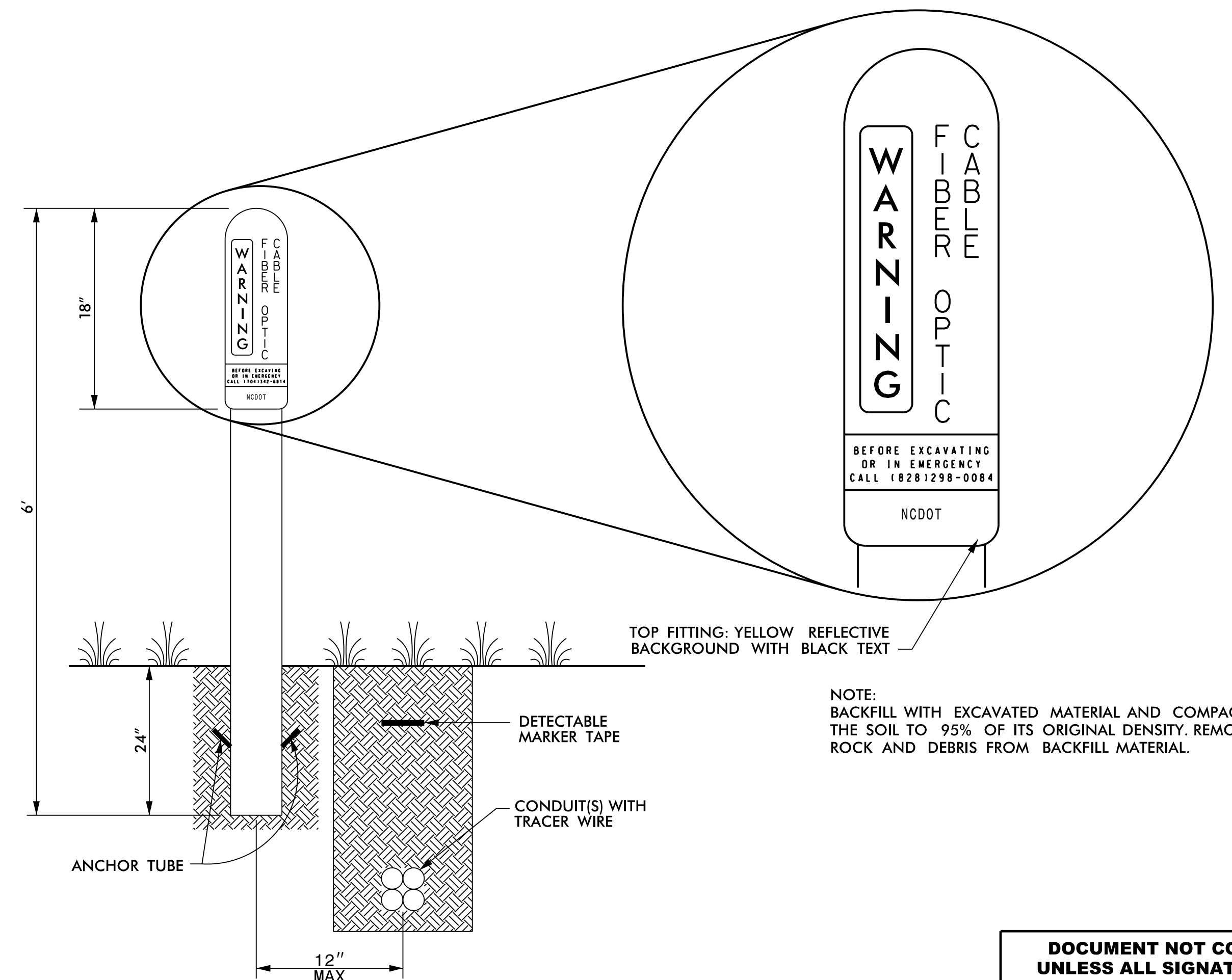


**CABINET HOUSING DIMENSIONS**

3365  
A 24"  
B 20"  
C 46"



**EQUIPMENT CABINET  
AND TECHNICIAN PAD**



**PVC POST-MOUNTED DELINEATOR MARKER**

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

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<p>Plans Prepared for:</p> <p>250 N. Greenfield Place, Garner, NC 27529</p>	<p><b>TYPICAL DETAILS</b></p> <p>Division 13/14 Buncombe/Henderson Asheville</p> <p>PLAN DATE: November 2018 REVIEWED BY: T.R. Terrell</p> <p>PREPARED BY: Atizaz Ali REVIEWED BY: N.R. Simmons</p>		<p>SEAL</p> <p>DocuSigned by: Rakesh Nune 4/26/2019</p>					
	<p>SCALE</p> <p>NONE</p>	<table border="1"> <thead> <tr> <th>REVISIONS</th> <th>INIT.</th> <th>DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		REVISIONS	INIT.	DATE		
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