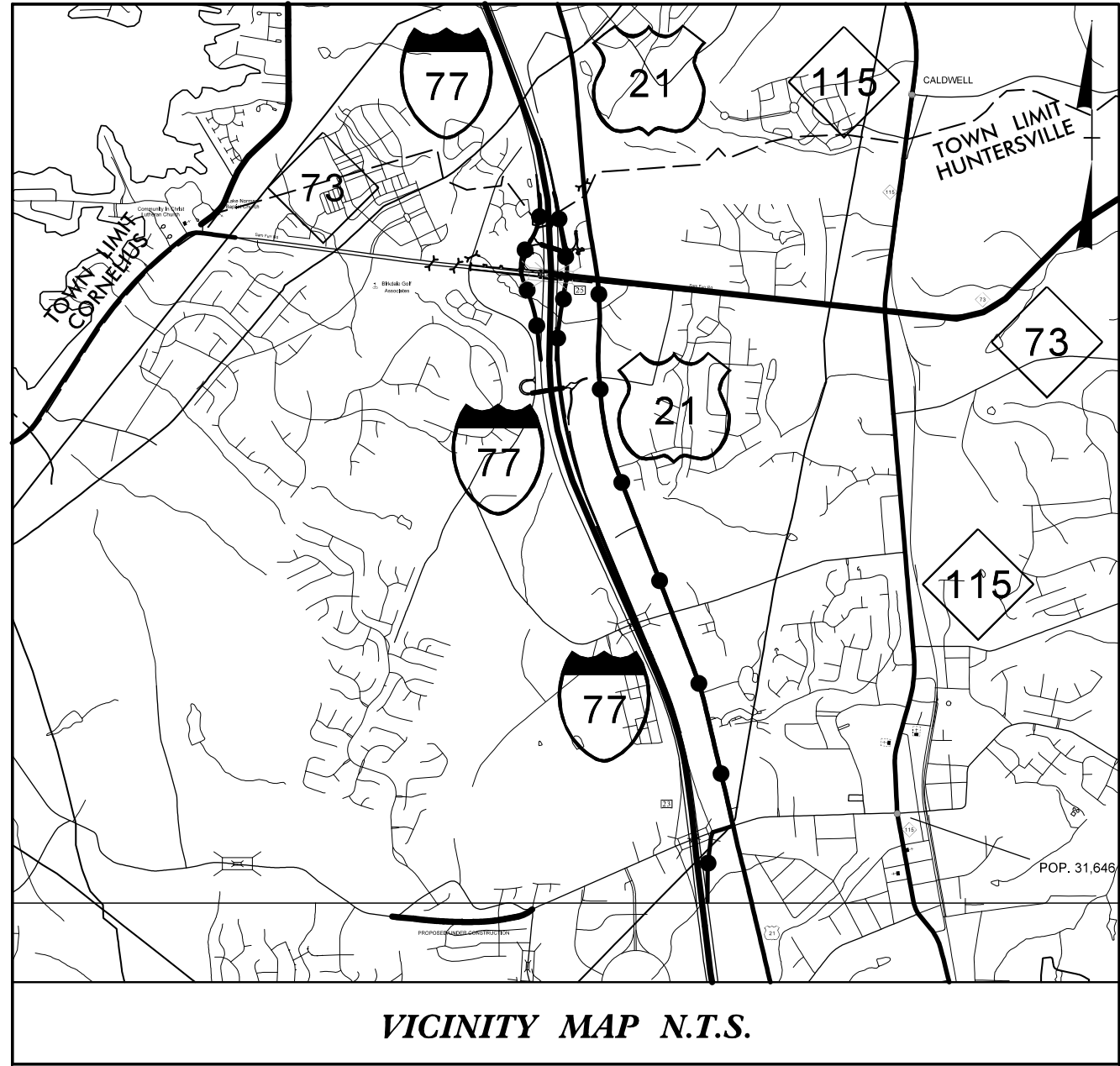


TIP Project: I-5715



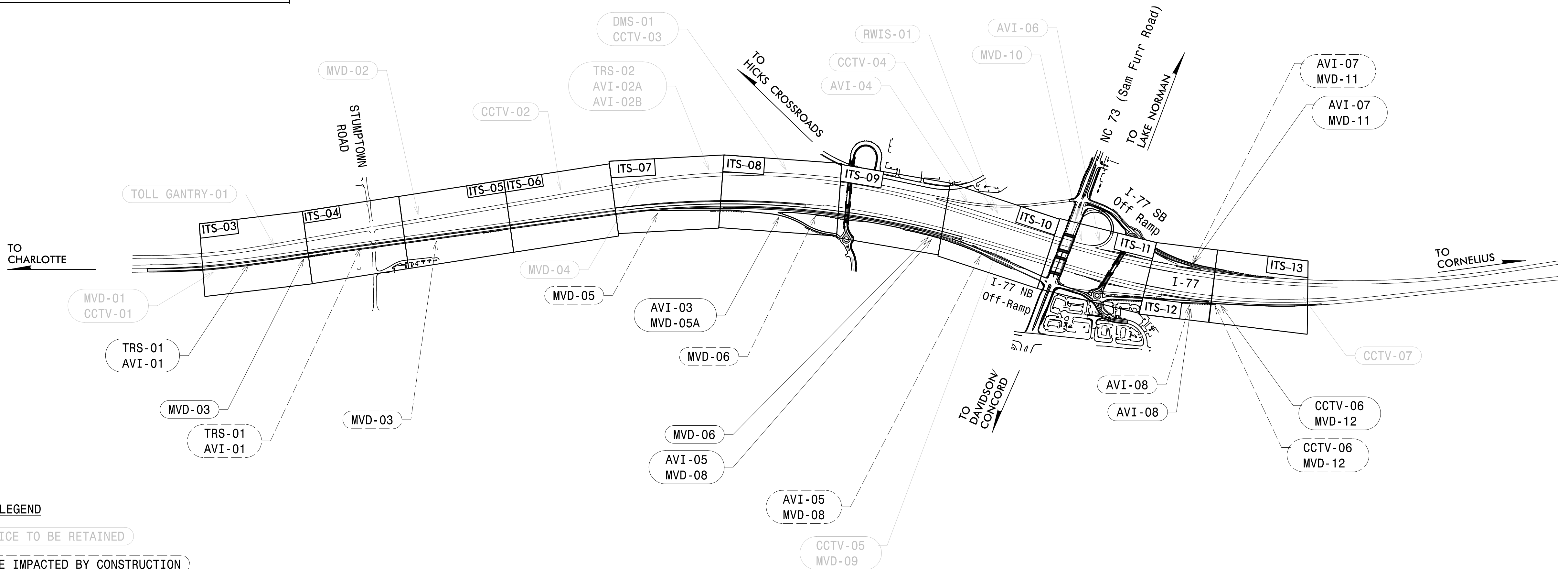
VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MECKLENBURG COUNTY

LOCATION: I-77 AND THE NC 73 INTERCHANGE UPGRADE EXISTING
INTERCHANGE TO SPLIT DIAMOND CONFIGURATION

TYPE OF WORK: COMMUNICATIONS CABLE AND CONDUIT ROUTING
AND METAL POLE INSTALLATION FOR TOLLING
INFRASTRUCTURE



LEGEND

EXISTING DEVICE TO BE RETAINED

EXISTING DEVICE TO BE IMPACTED BY CONSTRUCTION

NEW DEVICE LOCATION

Index of Sheets

Sheet #	Description
ITS-01	Title Sheet
ITS-02	Construction Notes and Legend
ITS-02A	TRS Cabinet and Generator Pad Detail
ITS-02B - ITS-02H	Equipment Details
ITS-03 - ITS-14	Communications and Conduit Routing Plan
ITS-15A - ITS-15F	Splice Details

NCDOT SIGNAL CONTACT:

Nicholas Zinser, PE
WESTERN REGION SIGNALS ENGINEER

Keith M. Mims, P.E.
SIGNAL EQUIPMENT DESIGN ENGINEER

Nathan Dominguez, P.E.
INTELLIGENT TRANSPORTATION SYSTEMS ENGINEER

Refer to "Roadway Standard Drawings
NCDOT" dated January 2024 and
"Standard Specifications for Roads
and Structures" dated January 2024.

LETTING DATE: OCTOBER 20, 2026

PROJECT LENGTH: APPROXIMATELY 2.559 MILES

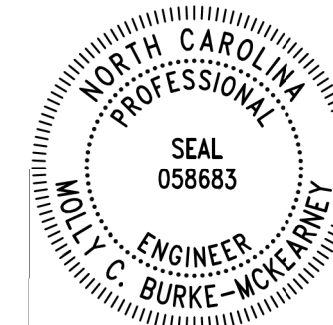
PLANS PREPARED BY:

Kimley»Horn

421 Fayetteville Street, Suite 600
Raleigh, North Carolina 27601
PE NO. E-0102

Molly C. Burke-McKearney, P.E.

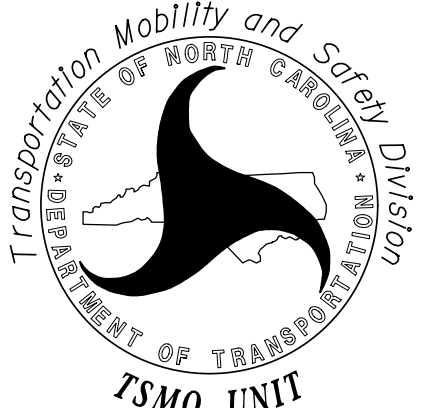
INTELLIGENT TRANSPORTATION SYSTEMS ENGINEER



Signed by:
Molly Burke-McKearney
SIGNATURE:

9/4/2026
P.E.

Prepared In the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY & SAFETY DIVISION



750 N. Greenfield Parkway, Garner, NC 27529

K:\XCHL_PRR\4011036264 - I-5715\651\prj\dwg\65A - ITS\ITS-02.dgn 12:07:38 PM 1/30/2026

- 1

INSTALL 3-WIRE COPPER FEEDER CONDUCTORS
- 2

INTSALL 4-WIRE COPPER FEEDER CONDUCTORS
- 3

INTSALL ETHERNET CABLE
- 4

INSTALL SMFO CABLE
- 5

EXISTING SMFO CABLE
- 6

INSTALL FIBER OPTIC DROP CABLE ASSEMBLY
- 7

INSTALL TRACER WIRE
- 8

TRENCH
- 9

INSTALL PVC CONDUIT
- 10

INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11

INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12

INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13

INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 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 BASE MOUNTED CABINET
- 25

INSTALL NEW RISER INTO BASE 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

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- 30

INSTALL AERIAL SPLICE ENCLOSURE
- 31

MODIFY EXISTING INTERCONNECT CENTER /SPLICE ENCLOSURE
- 32

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- 33

INSTALL BASE MOUNTED SPLICE CABINET

- 34

INSTALL CABINET FOUNDATION
- 35

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- 36

INSTALL CCTV CAMERA ASSEMBLY
- 37

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- 38

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- 39

INSTALL JUNCTION BOX
- 40A

INSTALL OVERSIZED JUNCTION BOX
- 40B

INSTALL SPECIAL OVERSIZED JUNCTION BOX (36" x 24" x 24")
- 41

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- 42

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- 43

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- 44

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- 45

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- 46

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- 47

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- 48A

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- 48B

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- 49

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- 50

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- 51

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- 52A

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- 52B

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- 53A

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- 53B

STORE 50 FEET OF EACH COMMUNICATIONS CABLE
- 54

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- 55

LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56

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- 57

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- 58

INSTALL NEW ELECTRICAL SERVICE
- 59

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- 60

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- 61

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- 62

BOND RISER AND MESSENGER CABLE TO POLE GROUND
- 63

BOND RISER TO POLE GROUND
- 64

BOND MESSENGER CABLE TO POLE GROUND
- 65

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- 66

INSTALL APPROVED CONDUIT PLUG /SEALER
- 67

SLACK SPAN

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

NEW	EXISTING

ATTACHMENT POINT:

XX"SS
YYY

DISTANCE ABOVE (IN)/ATTACHMENT POINT

YYY
XX"SS

REFERENCE POINT
DISTANCE BELOW (IN)/ATTACHMENT POINT

SS

REFERENCE LOCATION

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

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)

NUMBER OF CABLE(S)/SETS OF CONDUCTORS

NUMBER OF RISER(S)/CONDUIT(S)

NUMBER OF FIBERS/CONDUCTOR SIZE

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

NEW/EXISTING CABLE/CONDUCTORS

REMOVE/MODIFY CABLE

CONDUIT/RISER

PLANS PREPARED IN THE OFFICE OF:
Kimley»Horn
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

Prepared for the Offices of:

750 N. Greenfield Pkwy., Garner, NC 27529

0

SCALE

N/A

I-5715

Communications Cable and Conduit Routing Plan

Division 10

Mecklenburg

Huntersville

PLAN DATE: March 2026

REVIEWED BY: MC Burke

PREPARED BY: SP Pennington

REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL

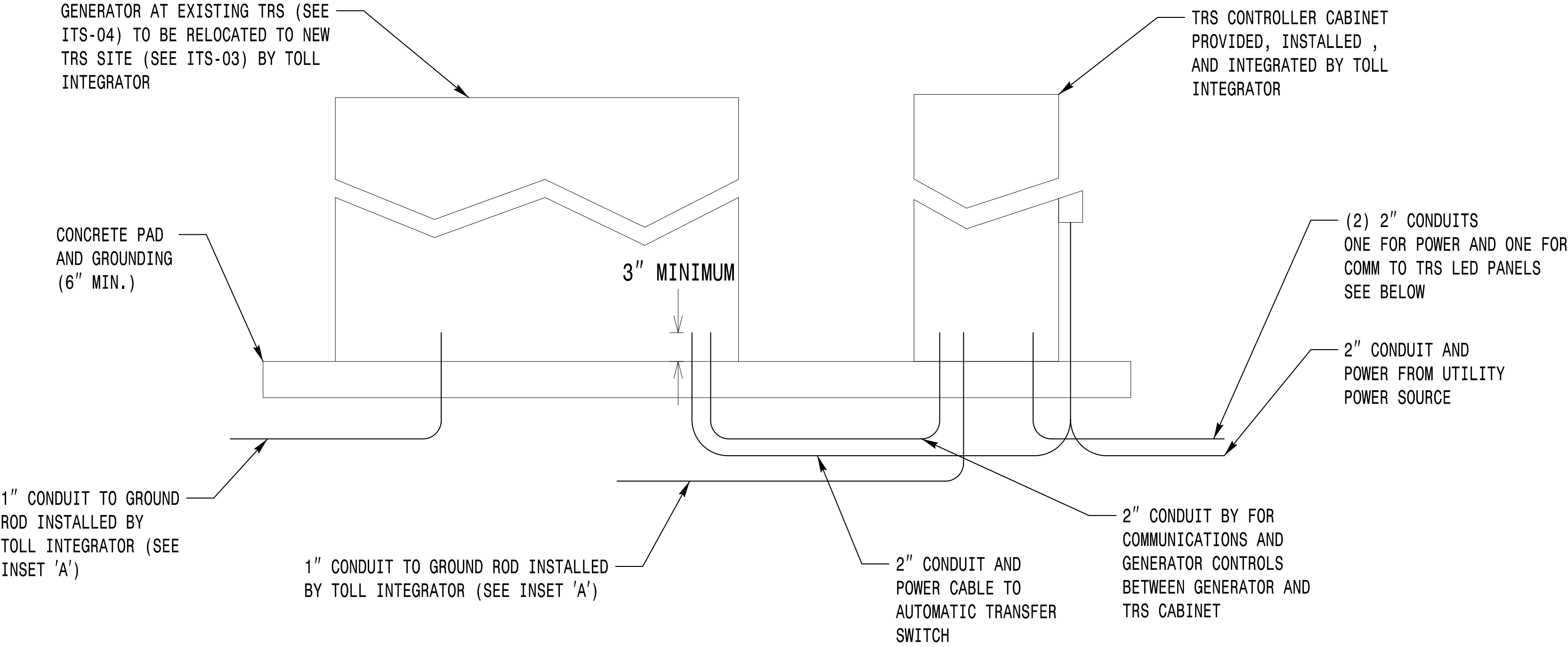
Signed by: Molly Burke-McKenzie

DATE: 05/08/2026

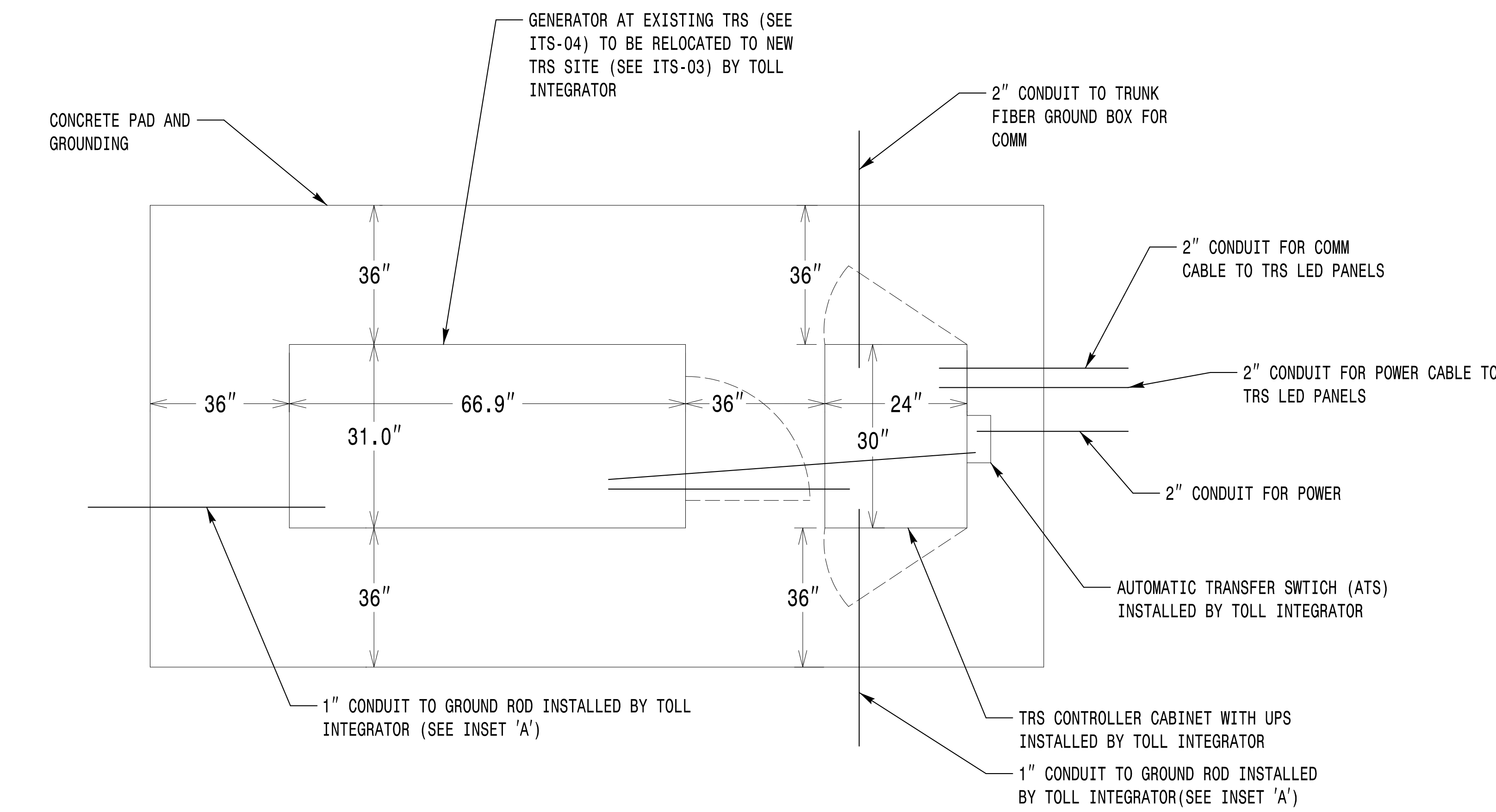
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DATE

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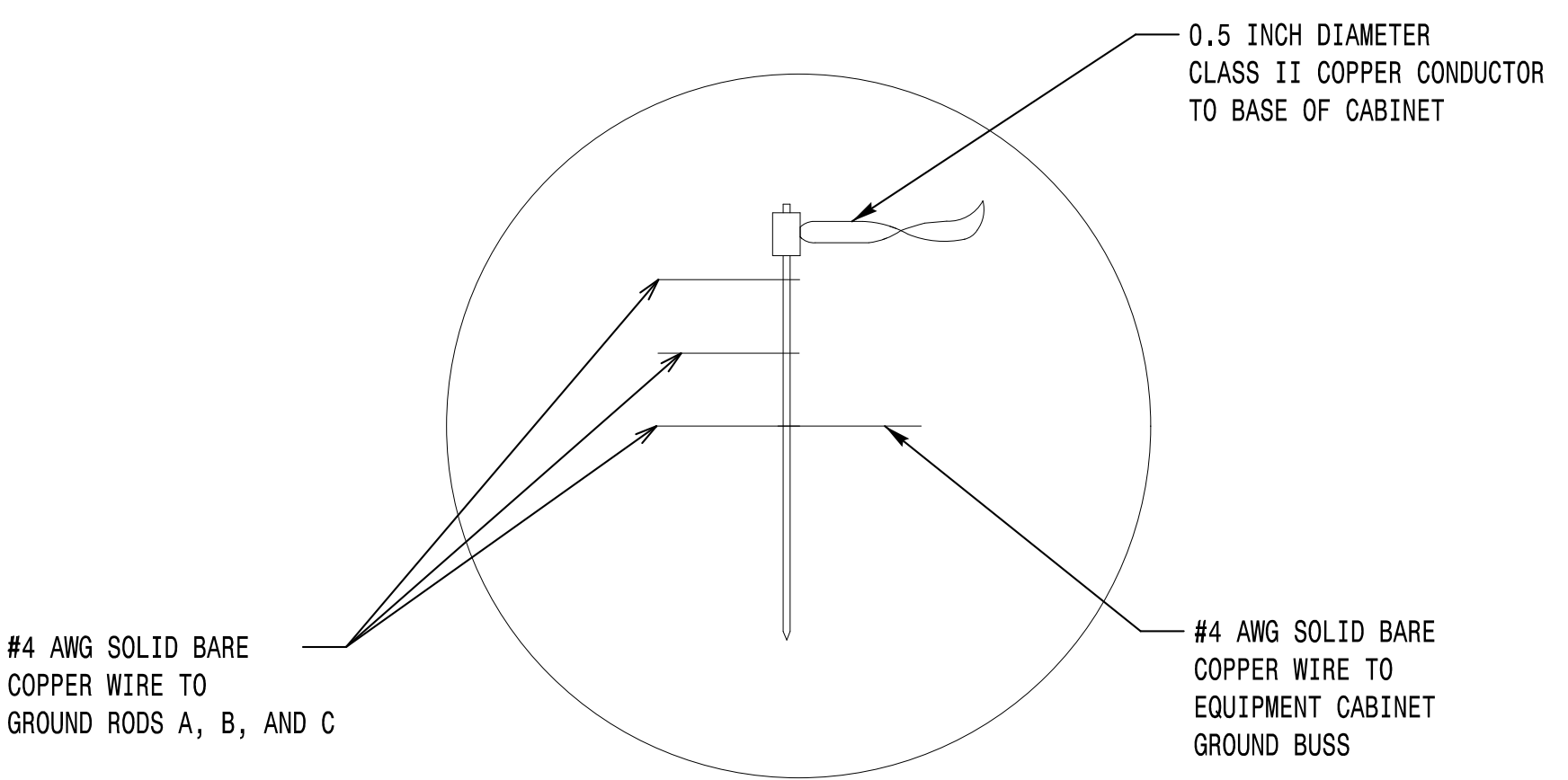
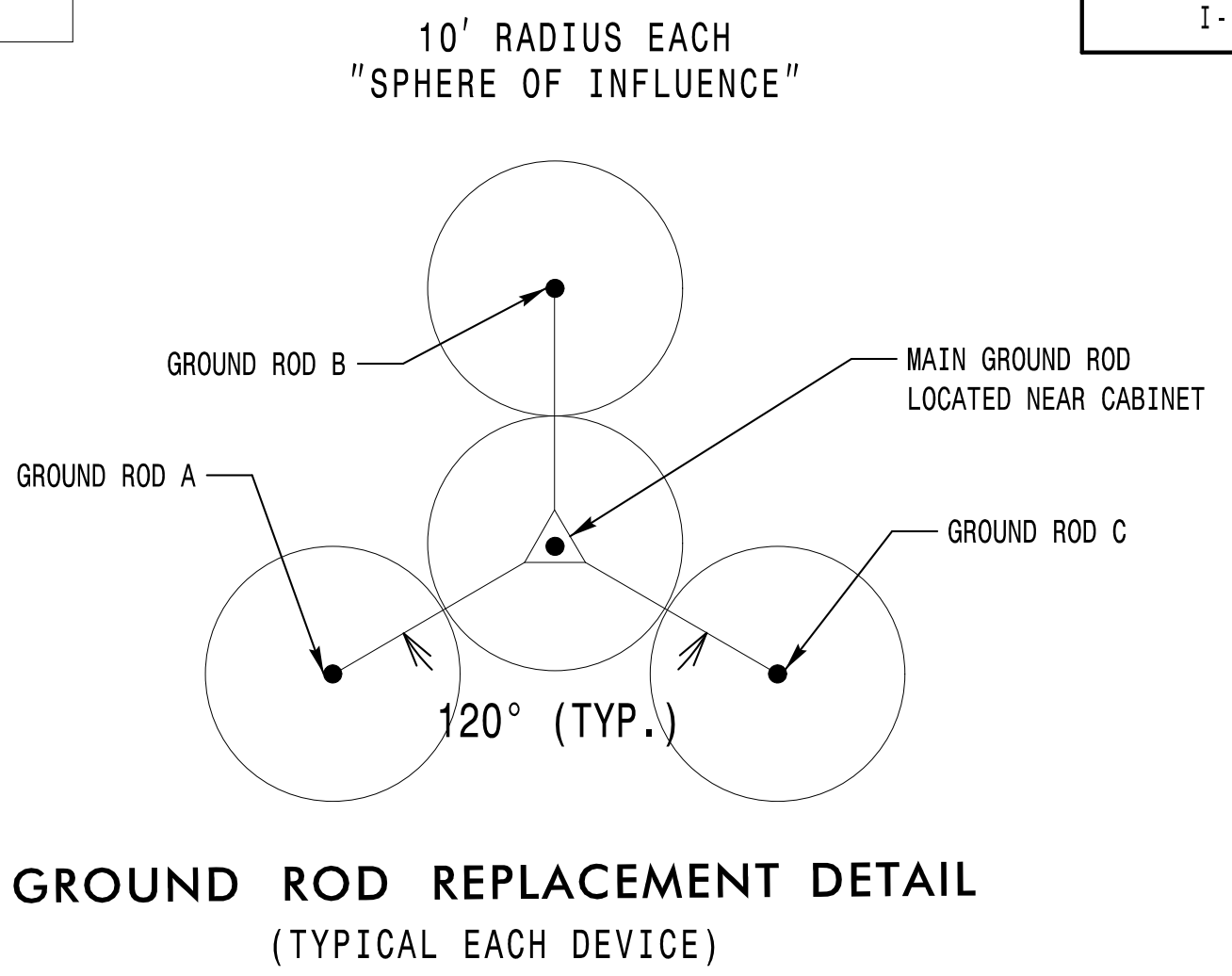


TRS CABINET WITH GENERATOR PAD
ELEVATION VIEW



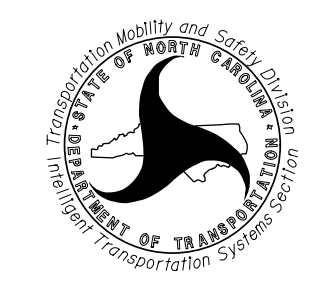
TRS CABINET WITH GENERATOR PAD
PLAN VIEW

INSET 'A'



- NOTES:
- I-5715 CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING: DESIGN AND INSTALLATION OF METAL SUPPORT STRUCTURES AND FOUNDATIONS; REMOVAL OF EXISTING METAL POLE SUPPORT STRUCTURES AND FOUNDATIONS; INSTALLATION OF GENERATOR PAD; INSTALLATION OF CONDUIT AND JUNCTION BOXES FOR FIBER-OPTIC CABLE AND ELECTRICAL CONDUCTOR INSTALLATION.
 - TOLL INTEGRATOR IS RESPONSIBLE FOR THE FOLLOWING: PROVIDING, INSTALLING, INTEGRATING, AND TESTING OF ALL TEMPORARY AND PROPOSED TOLLING DEVICES, INCLUDING AVI, MVD, CCTV CAMERAS, AND TRS; INSTALLATION OF ITS EQUIPMENT CABINETS AND EQUIPMENT CABINET COMPONENTS; TRS BACKUP GENERATOR RELOCATION; FIBER-OPTIC CABLE INSTALLATION, SPLICING, AND TESTING, INCLUDING BOTH TRUNK LINE FIBER AND DROP CABLE CONNECTIONS; ELECTRICAL SERVICE INSTALLATION, MODIFICATION, AND COORDINATION AND ELECTRICAL CONDUCTOR INSTALLATION.
 - PROVIDE FOR POWER TO AUTOMATIC TRANSFER SWITCH (ATS) VIA 2" CONDUIT.
 - PROVIDE 2" CONDUIT FROM TRS CABINET TO TRUNK FIBER GROUND BOX.
 - PROVIDE 2" CONDUIT FROM GENERATOR TO ATS.
 - PROVIDE 2" CONDUIT FROM GENERATOR TO TRS CABINET FOR GENERATOR HEALTH COMMUNICATIONS.
 - PROVIDE 2" STUB-UPS AT LOCATIONS AS SHOWN.
 - PROVIDE 2" CONDUIT FOR TRS CABINET TO TRS POLE STUB-UP (POWER).
 - PROVIDE 2" CONDUIT FOR TRS CABINET TO TRS POLE STUB-UP (COMM.).
 - GENERATOR AND TRS CABINET SHALL BE BOLTED TO CONCRETE PAD PER MANUFACTURERS SPECIFICATIONS. GENERATOR AT EXISTING TRS SITE (SEE ITS-04) TO BE RELOCATED BY TOLL INTEGRATOR TO NEW TRS SITE (SEE ITS-03).
 - TRS CABINET TO BE INSTALLED BY TOLL INTEGRATOR.
 - CONCRETE PAD SIZE AS SHOWN.
 - DRAWING FOR TYPICAL REFERENCE ONLY.
 - ALL DIMENSIONS ARE MINIMUM REQUIREMENTS.
 - PROVIDE AND CONNECT CONDUIT TO A GROUND BOX ADJACENT TO ALL TRS CABINETS BETWEEN CABINET AND TRS PANEL.

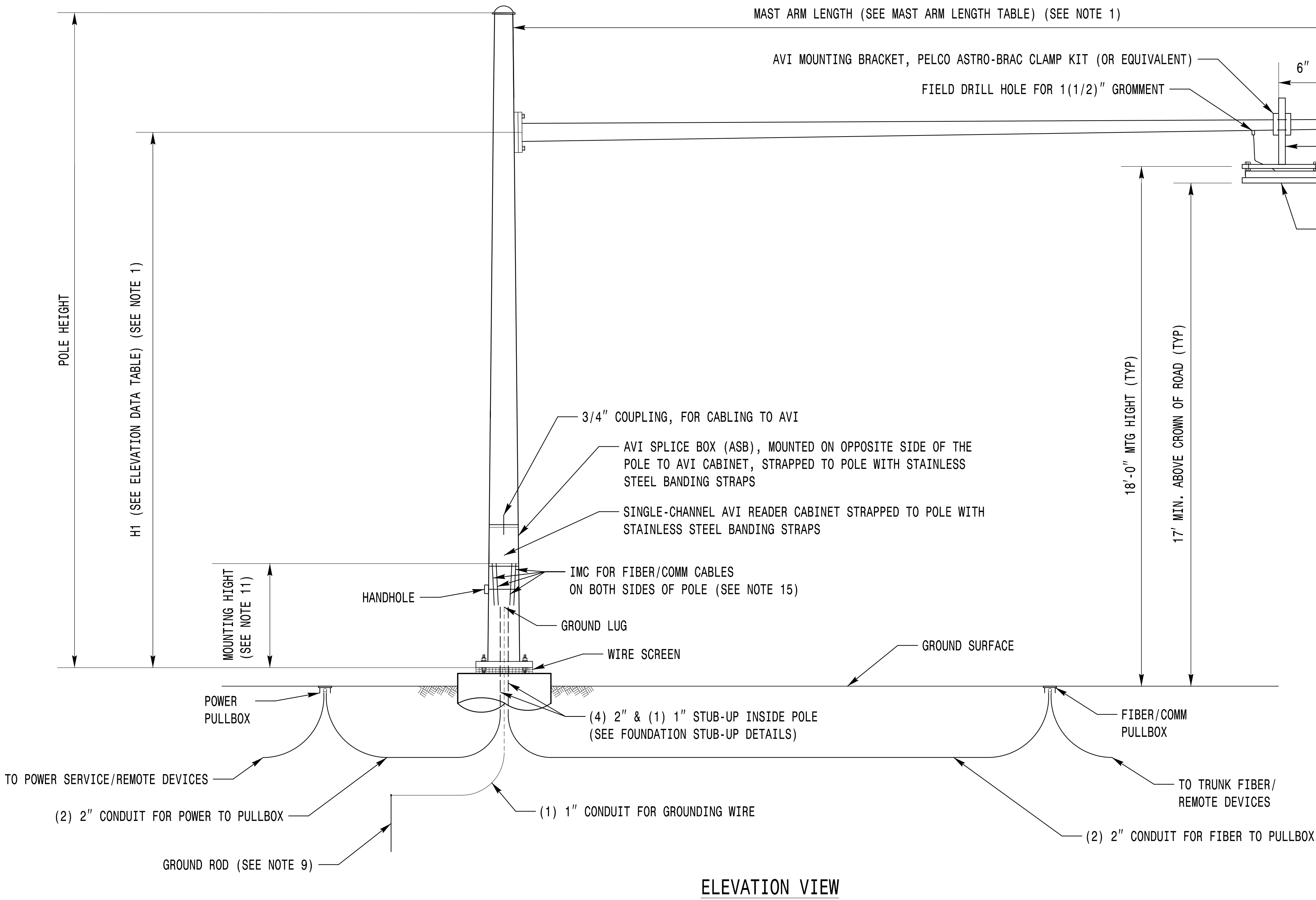
PLANS PREPARED IN THE OFFICE OF:
Kimley»Horn
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

Prepared for the Offices of:  750 N. Greenfield Pkwy., Garner, NC 27529	TRS CABINET AND GENETATOR PAD DETAIL		SEAL  SEAL 058683 MOLLY C. BURKE-MCKENNA, ENGINEER		
	Division 10 Mecklenburg Huntersville				
	PLAN DATE: March 2026	REVIEWED BY: MC Burke			
	PREPARED BY: SP Pennington	REVIEWED BY:			
REVISIONS		INIT.	DATE	Signed by:  MOLLY C. BURKE-MCKENNA SIGNATURE DATE	
0 N/A				CADD Filename: _____	

PROJECT REFERENCE NO.	SHEET NO.
I-5715	ITS-02B

MAST ARM POLE (MAP)

AUTOMATIC VEHICLE IDENTIFICATION (AVI) WITH SINGLE-CHANNEL AVI READER CABINET



ELEVATION VIEW

SPECIAL NOTE

I-5715 contractor shall coordinate with I-77 MP to determine the final device and support structure locations for all toll devices, including AVIs, MVDs, and CCTV cameras.

Contractor shall coordiante with I-77 MP regarding final device locations to verify the required ITS pole heights, mast arm attachment heights, and mast arm lengths prior to the design and installation of the metal pole foundations and structures.

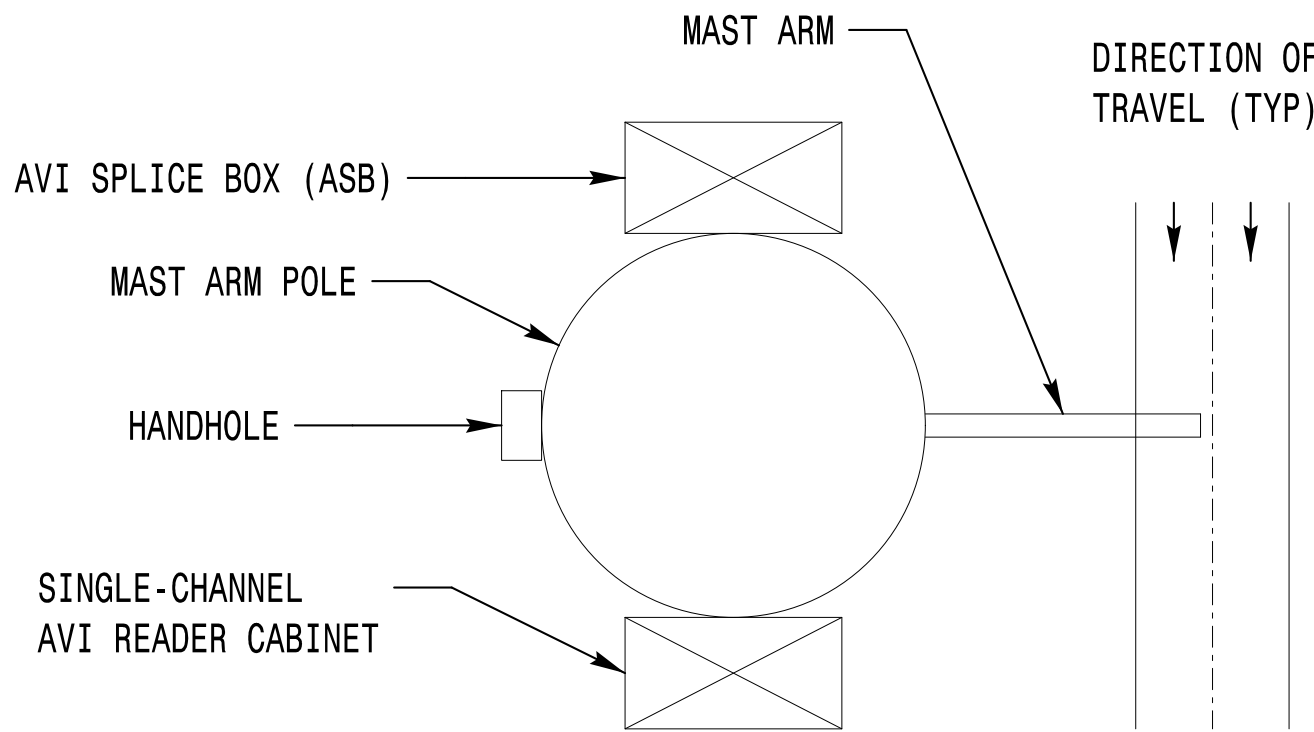
ELEVATION DATA FOR MAST ARM ATTACHMENT (H1) AND MAST ARM LENGTH

Device No.	Sheet No.	Approx. Station Location	Pole Base Elevation (FT)	Edge of Pavement Elevation (FT)	Highest Pavement Elevation (FT)	Mast Arm Attachment (H1)	Mast Arm Length (FT)
AVI-08	ITS-12	-Y1RPA- 16+40	725.3	730.2	730.2	24.2	35

NOTES:

- 1) I-5715 contractor to coordinate with I-77 Moillity Partners (I-77 MP) on device relocation and installation by I-77 MP. I-5715 contractor to coordnate with I-77 MP on final locations of all relocated and proposed devices and associated metal pole support structures to ensure that device placement supports the intended tolling functionality.
- 2) Refer to Elevation Data for Mast Arm Attachment (H1) and Mast Arm Length table below for approximate mast arm attachment heights and lengths. Contractor shall coordinate with I-77 MP on the final device location(s) to verify the required mast arm attachment height and mast arm length prior to metal pole structure and/or foundation design.
- 3) AVI antenna(s) shall be centered over the monitored lane(s). Final device locations and associated metal pole support structures shall be determined by the toll integrator.
- 4) I-5715 contractor to provide a galvanized steel tube inverted T-bar (to be field verified).
- 5) AVI antenna mounting height shall be set to keep the entire antenna at approximately 17' - 6" but no lower than 17'.
- 6) Contractor to provide (4) 2" stub-ups and (1) 1" stub-up at base of mast arm pole as shown.
- 7) Contractor to provide (2) 2" conduits from mast arm pole stub-ups to power pullbox.
- 8) Contractor to provide (2) 2" conduits from mast arm pole stub-ups to fiber/communications pullbox.
- 9) Refer to TRS Cabinet and Generator Pad Detail (ITS-02A), Inset 'A' for Ground Rod Placement Detail.
- 10) Ground surface layout shown is diagrammatic. Drawing for typical reference only.
- 11) FCB and AVI cabinets shall be mounted 6" above handhole.
- 12) All conduit shall not exceed maximum fill ratio.
- 13) Pole cap is required for both upright and mast arm.
- 14) Weatherhead shall be used at coupling(s) where cabling is accessed from pole. All unused couplings must be capped for future use.
- 15) Conduit reducer may be used where applicable. All conduit shall not exceed maximum fill ratio.
- 16) Base of cabinet to be mounted above pole handhole at 6" minimum to 12" maximum to allow for conduit connections between couplings and cabinet.
- 17) Install all equipment per manufacturer's recommendations and as shown in the design.

CONFIGURATION DETAIL



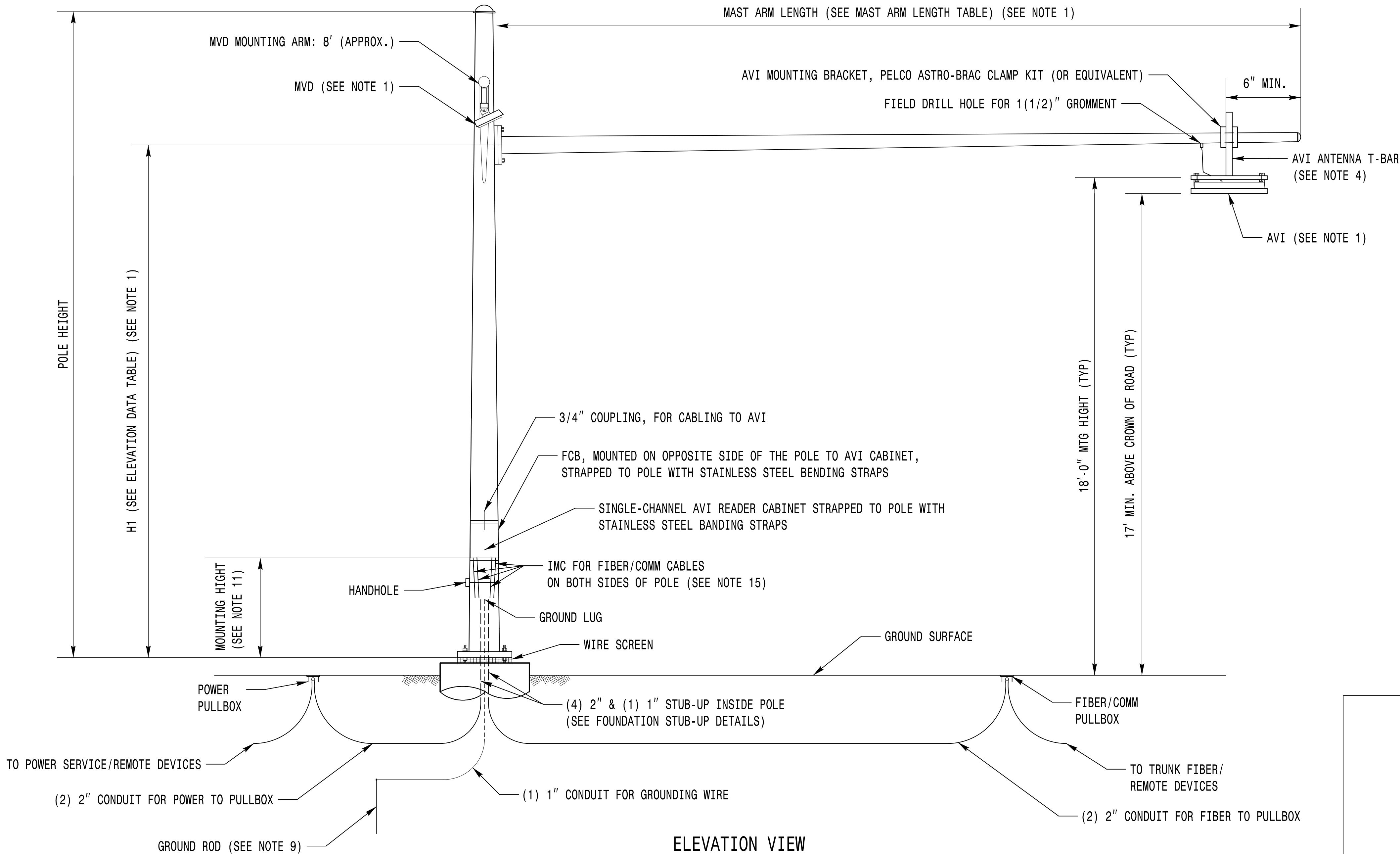
Prepared for the Offices of:		I-5715 Equipment Details AVI Mast Arm Pole		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 058883 MOLLY C. BURKE-MCKENNA	
		Division 10 Mecklenburg Huntersville		SIGNED BY: Molly Burke-Mckenna	
PLAN DATE: March 2026		REVIEWED BY: MC Burke		DATE: 9/4/2026	
PREPARED BY: SP Pennington		REVIEWED BY:		DATE:	
REVISIONS		INIT.		DATE	
0 N/A					
SCALE					
750 N. Greenfield Pkwy., Garner, NC 27529					
PLANS PREPARED IN THE OFFICE OF: Kimley»Horn NC License #F-0102 421 Fayetteville Street, Suite 600 Raleigh, NC 27601 (919) 677-2000					
CADD Filename:					

K:\KCHL_PJ\K011036264 - I-5715\K51\gnd\ls\656A - ITS\ITS-02C (Mast Arm w AVI MVD) (2026-07-12 MCBurke Edits)-dgn

9/4/2026 12:08:18 PM Isreal, Mantley

MAST ARM POLE (MAP)

AUTOMATIC VEHICLE IDENTIFICATION (AVI) WITH SINGLE-CHANNEL AVI READER CABINET AND MICROWAVE VEHICLE DETECTOR (MVD) WITH FIBER COMMUNICATION BOX (FCB)



ELEVATION VIEW

SPECIAL NOTE

I-5715 CONTRACTOR SHALL COORDINATE WITH I-77 MP TO DETERMINE THE FINAL DEVICE AND SUPPORT STRUCTURE LOCATIONS FOR ALL TOLL DEVICES, INCLUDING AVIS, MVDs, AND CCTV CAMERAS.

CONTRACTOR SHALL COORDIANTE WITH I-77 MP REGARDING FINAL DEVICE LOCATIONS TO VERIFY THE REQUIRED ITS POLE HEIGHTS, MAST ARM ATTACHMENT HEIGHTS, AND MAST ARM LENGTHS PRIOR TO THE DESIGN AND INSTALLATION OF THE METAL POLE FOUNDATIONS AND STRUCTURES.

ELEVATION DATA FOR MAST ARM ATTACHMENT (H1) AND MAST ARM LENGTH

Device No.	Sheet No.	Approx. Station Location	Pole Base Elevation (FT)	Edge of Pavement Elevation (FT)	Highest Pavement Elevation (FT)	H1 - Mast Arm Attachment (FT)	Mast Arm Length (FT)
AVI-03/MVD-05A	ITS-08	-Y1RPD- 14+00	767.0	768.8	770.0	21.1	35
AVI-05/MVD-08	ITS-10	-Y2RPD- 41+00	740.9	744.5	744.5	19.3	40
AVI-07/MVD-11	ITS-12	-Y2RPB- 15+70	719.8	720.6	722.6	22.1	35

NOTES CONTINUED:

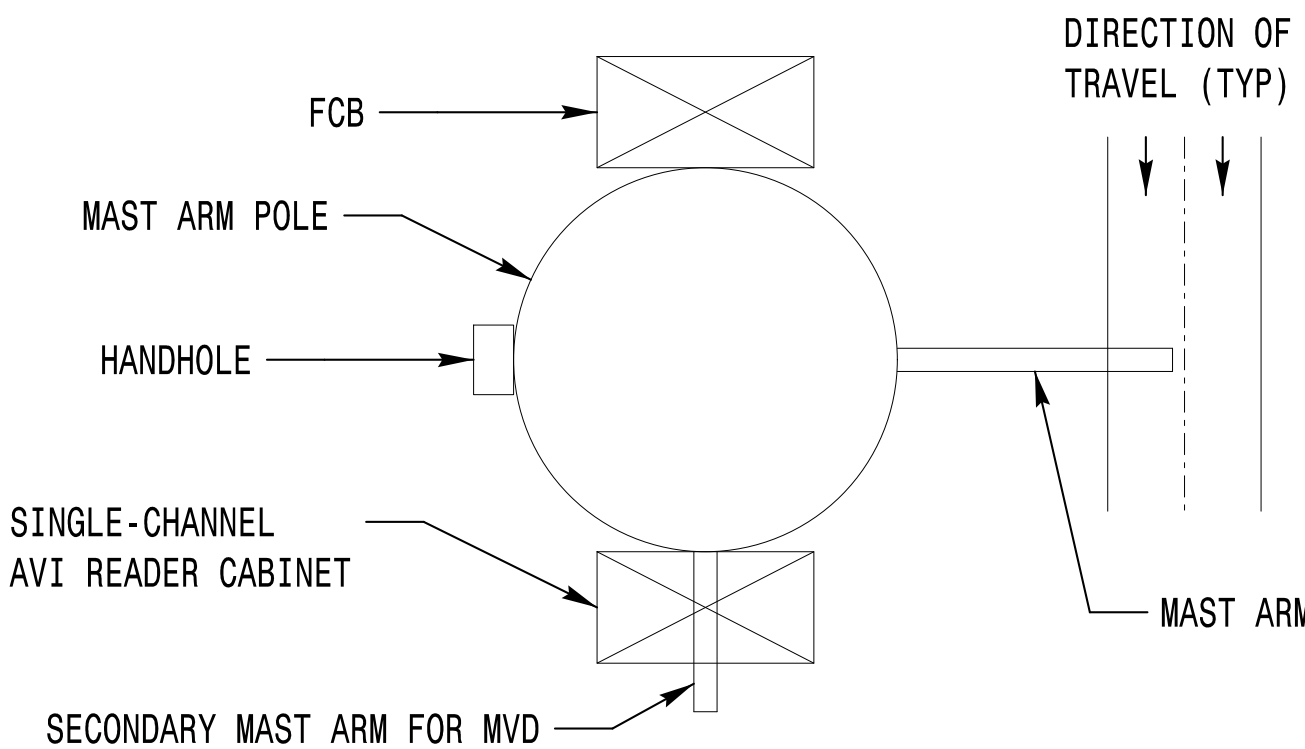
- Weatherhead shall be used at coupling(s) where cabling is accessed from pole. All unused couplings must be capped for future use.
- Conduit reducer may be used where applicable. All conduit shall not exceed maximum fill ratio.
- Install all equipment per manufacturer's recommendations and as shown in the design.

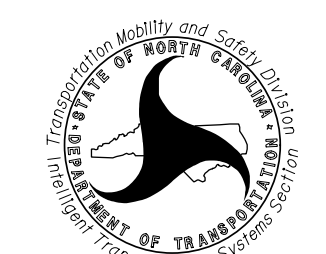
PLANS PREPARED IN THE OFFICE OF:
Kimley»Horn
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

NOTES:

- I-5715 contractor to coordinate with I-77 Moility Partners (I-77 MP) on device relocation and installation by I-77 MP. I-5715 contractor to coordnate with I-77 MP on final locations of all relocated and proposed devices and associated metal pole support structures to ensure that device placement supports the intended tolling functionality.
- Refer to Elevation Data for Mast Arm Attachment (H1) and Mast Arm Length table below for approximate mast arm attachment heights and lengths. Contractor shall coordinate with the toll integrator on the final device location(s) to verify the required mast arm attachment height and mast arm length prior to metal pole structure and/or foundation design.
- AVI antenna(s) shall be centered over the monitored lane(s). Final device locations and associated metal pole support structures shall be determined by the toll integrator.
- I-5715 contractor to provide a galvanized steel tube inverted T-bar (to be field verified).
- AVI antenna mounting height shall be set to keep the entire antenna at approximately 17' - 6" but no lower than 17'.
- Contractor to provide (4) 2" stub-ups and (1) 1" stub-up at base of mast arm pole as shown.
- Contractor to provide (2) 2" conduits from mast arm pole stub-ups to power pullbox.
- Contractor to provide (2) 2" conduits from mast arm pole stub-ups to fiber/communications pullbox.
- Refer to TRS Cabinet and Generator Pad Detail (ITS-02A), Inset 'A' for Ground Rod Placement Detail.
- Ground surface layout shown is diagrammatic. Drawing for typical reference only.
- FCB and AVI cabinets shall be mounted 6" above handhole.
- All conduit shall not exceed maximum fill ratio.
- Device cabling will be ran through the closest available weatherhead and the equipment will be minimized as much as possible with only enough slack to accommodate reaching the device mounting location. Vertical cable runs between the weatherhead and the device will be lashed to the pole and should run the length of the pole to device level then 90° to the device. Do not route cable under metal banding.
- Install MVD mast arm such that the MVD can be installed facing perpendicular to the roadway, as per the manufacturer's recommendations.
- MVD mast arm may be installed on the upstram or downstream side of the pole, depending on the side conditions as indivated in the design. Contractor to confirm MVD mast arm placement with toll integrator.
- Pole cap is required for both upright and mast arm.

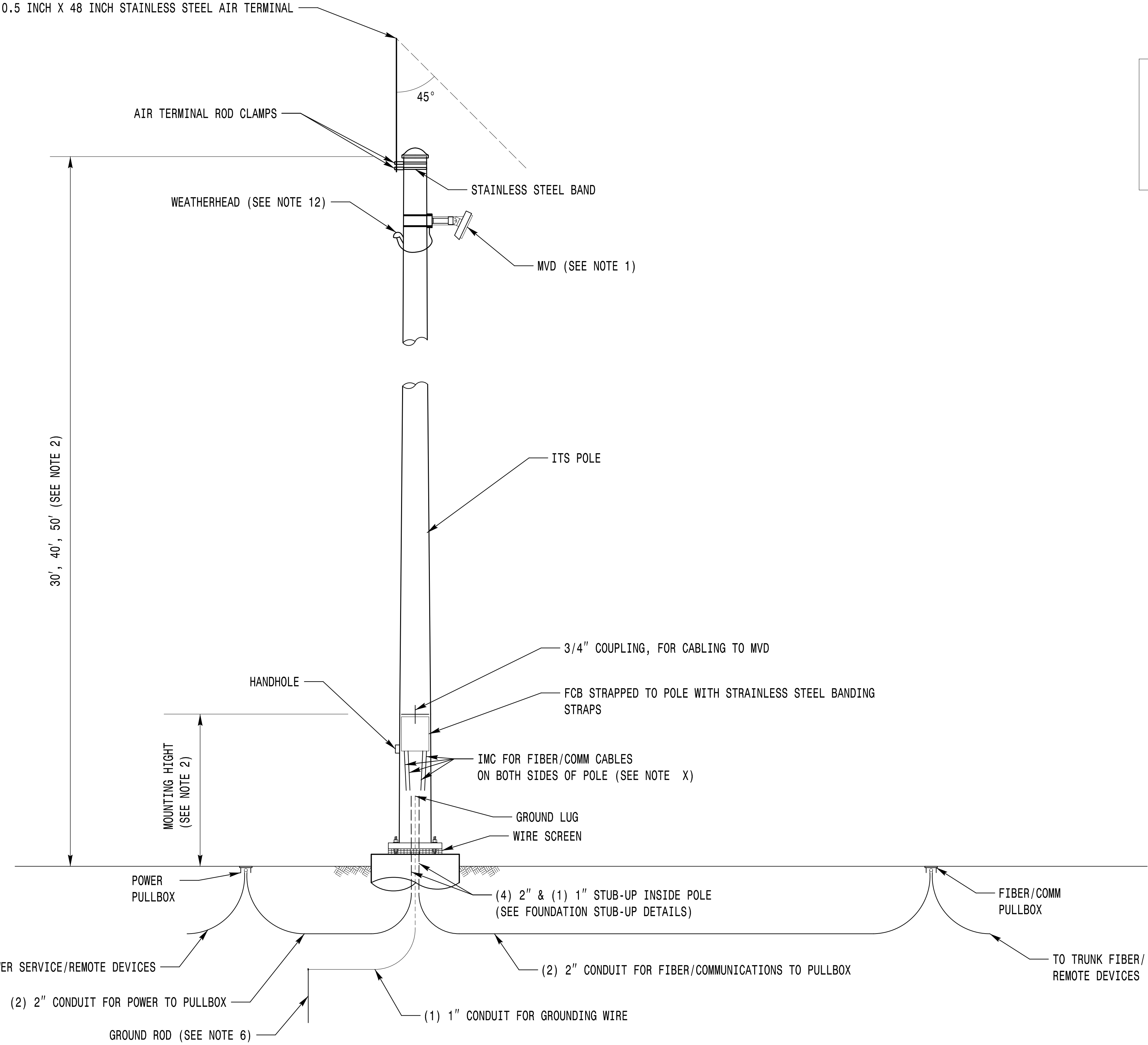
CONFIGURATION DETAIL



Prepared for the Offices of:		I-5715		SEAL	
		Equipment Details			
750 N. Greenfield Pkwy., Garner, NC 27529		AVI, MVD, FCB Mast Arm Pole		SIGNED BY: Molly Burke-McKenna	
SCALE: 0 N/A		Division 10 Mecklenburg Huntersville		DATE: 05/08/2026	
PLAN DATE: March 2026		REVIEWED BY: MC Burke		DATE: 05/08/2026	
PREPARED BY: SP Pennington		REVIEWED BY:		DATE:	
REVISIONS		INIT.		DATE	
CADD Filename:					

PROJECT REFERENCE NO.	SHEET NO.
I-5715	ITS-02D

VARIABLE HEIGHT ITS POLES
MICROWAVE VEHICLE DETECTOR (MVD) ON 30', 40', AND 50' ITS POLES



ELEVATION VIEW

SPECIAL NOTE

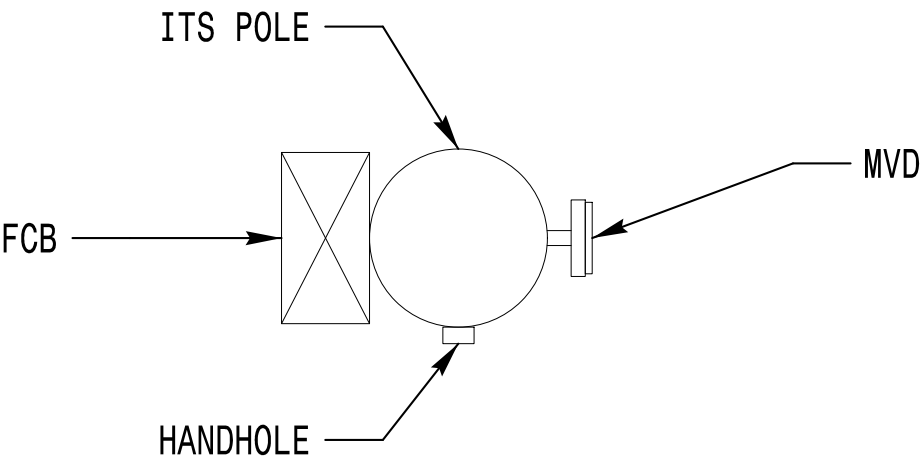
I-5715 CONTRACTOR SHALL COORDINATE WITH I-77 MP TO DETERMINE THE FINAL DEVICE AND SUPPORT STRUCTURE LOCATIONS FOR ALL TOLL DEVICES, INCLUDING AVIS, MVDs, AND CCTV CAMERAS.

CONTRACTOR SHALL COORDIANTE WITH I-77 MP REGARDING FINAL DEVICE LOCATIONS TO VERIFY THE REQUIRED ITS POLE HEIGHTS, MAST ARM ATTACHMENT HEIGHTS, AND MAST ARM LENGTHS PRIOR TO THE DESIGN AND INSTALLATION OF THE METAL POLE FOUNDATIONS AND STRUCTURES.

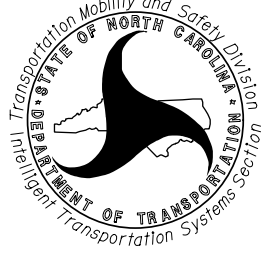
NOTES:

- 1) I-5715 contractor to coordinate with I-77 Moility Partners (I-77 MP) on device relocation and installation by I-77 MP. I-5715 contractor to coordnate with I-77 MP on final locations of all relocated and proposed devices and associated metal pole support structures to ensure that device placement supports the intended tolling functionality.
- 2) Refer to the Metal Pole Support Structure Summary (see ITS-02F) for approximate ITS pole heights. Contractor shall coordinate with the toll integrator on the final device location(s) to verify the required ITS pole height prior to metal pole structure and/or foundation design.
- 3) Contractor to provide (4) 2" stub-ups and (1) 1" stub-up at base of mast arm pole as shown.
- 4) Contractor to provide (2) 2" conduits from mast arm pole stub-ups to power pullbox.
- 5) Contractor to provide (2) 2" conduits from mast arm pole stub-ups to fiber/communications pullbox.
- 6) Refer to TRS Cabinet and Generator Pad Detail (ITS-02A), Inset 'A' for Ground Rod Placement Detail.
- 7) Ground surface layout shown is diagrammatic. Drawing for typical reference only.
- 8) FCB cabinets shall be mounted 6" above handhole.
- 9) All conduit shall not exceed maximum fill ratio.
- 10) Device cabling will be ran through the closest available weatherhead and the equipment wil be minimized as much as possible with only enough slack to accommodate reaching the device mounting location. Vertical cable runs between the weatherhead and the device will be lashed to the pole and should run the length of the pole to device level then 90° to the device. Do not route cable under metal banding.
- 11) Pole cap is required for both upright and mast arm.
- 12) Weatherhead shall be used at coupling(s) where cabling is accessed from pole. All unused couplings must be capped for future use.
- 13) Conduit reducer may be used where applicable. All conduit shall not exceed maximum fill ratio.
- 14) Install all equipment per manufacturer's recommendations and as shown in the design.

CONFIGURATION DETAIL



Prepared for the Offices of:



750 N. Greenfield Pkwy., Garner, NC 27529

I-5715
Equipment Details
Variable Height ITS Poles for MVD

Division 10	Mecklenburg	Huntersville
PLAN DATE: March 2026	REVIEWED BY: MC Burke	
PREPARED BY: SP Pennington	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE: 0 N/A

SEAL



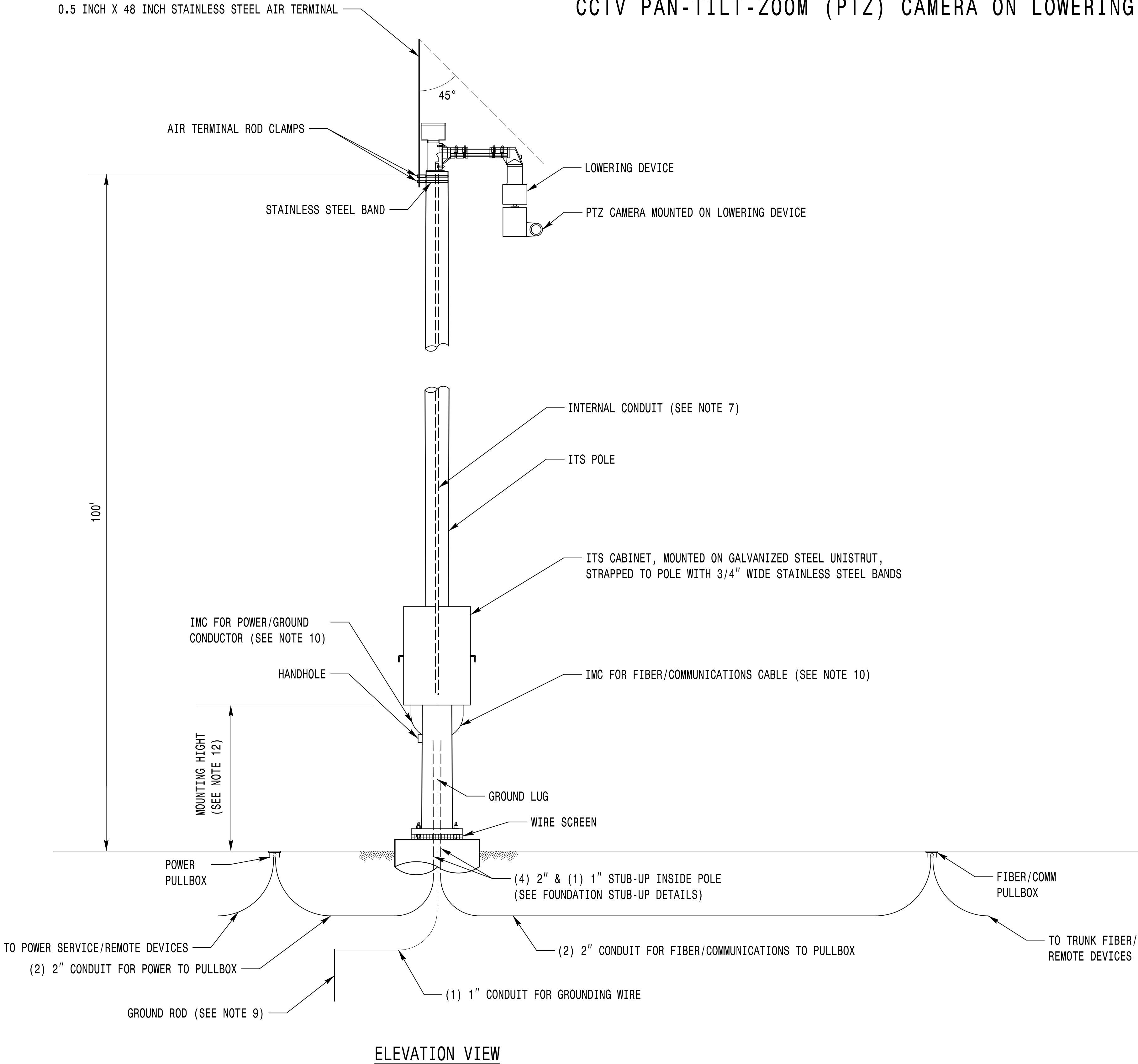
Signed by: Molly C. Burke-McKinnon

DATE: _____

CADD Filename: _____

100' ITS POLE

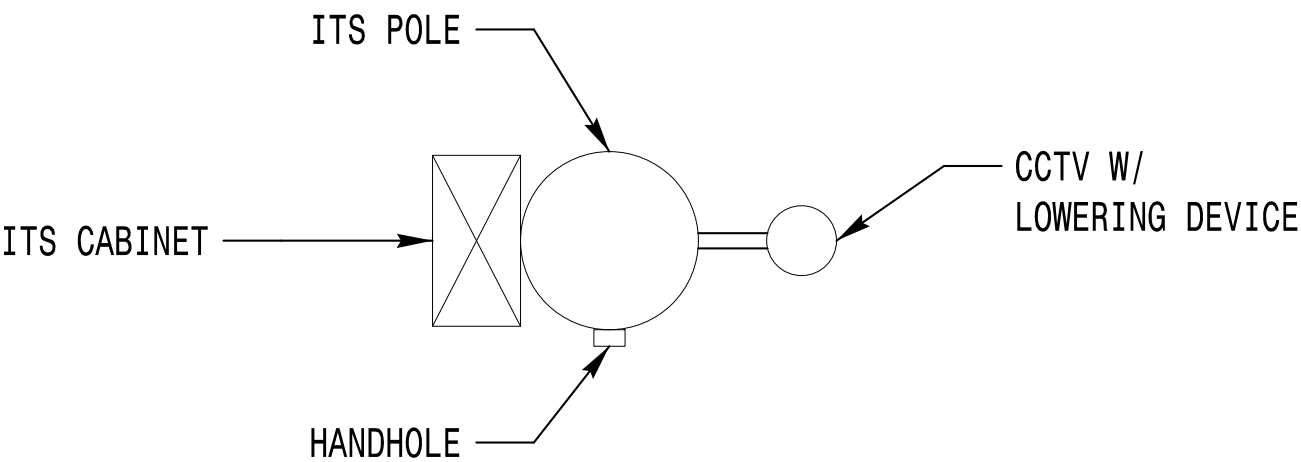
CCTV PAN-TILT-ZOOM (PTZ) CAMERA ON LOWERING DEVICE



NOTES:

- 1) I-5715 contractor to coordinate with I-77 Moility Partners (I-77 MP) on device relocation and installation by I-77 MP. I-5715 contractor to coordnate with I-77 MP on final locations of all relocated and proposed devices and associated metal pole support structures to ensure that device placement supports the intended tolling functionality.
- 2) Contractor to provide (4) 2" stub-ups and (1) 1" stub-up at base of camera pole as shown.
- 3) Contractor to provide (2) 2" conduits from camera pole stub-ups to power pullbox.
- 4) Contractor to provide (2) 2" conduits from camera pole stub-ups to fiber/communications pullbox.
- 5) Refer to TRS Cabinet and Generator Pad Detail (ITS-02A), Inset 'A' for Ground Rod Placement Detail.
- 6) Ground surface layout shown is diagrammatic. Drawing for typical reference only.
- 7) Conduit reducer may be used where applicable. All conduit shall not exceed maximum fill ratio.
- 8) Base of cabinet to be mounted above pole handhole at 6" minimum to 12" maximum to allow for conduit connections between couplings and cabinet.
- 9) Install all equipment per manufacturer's recommendations and as shown in the design.

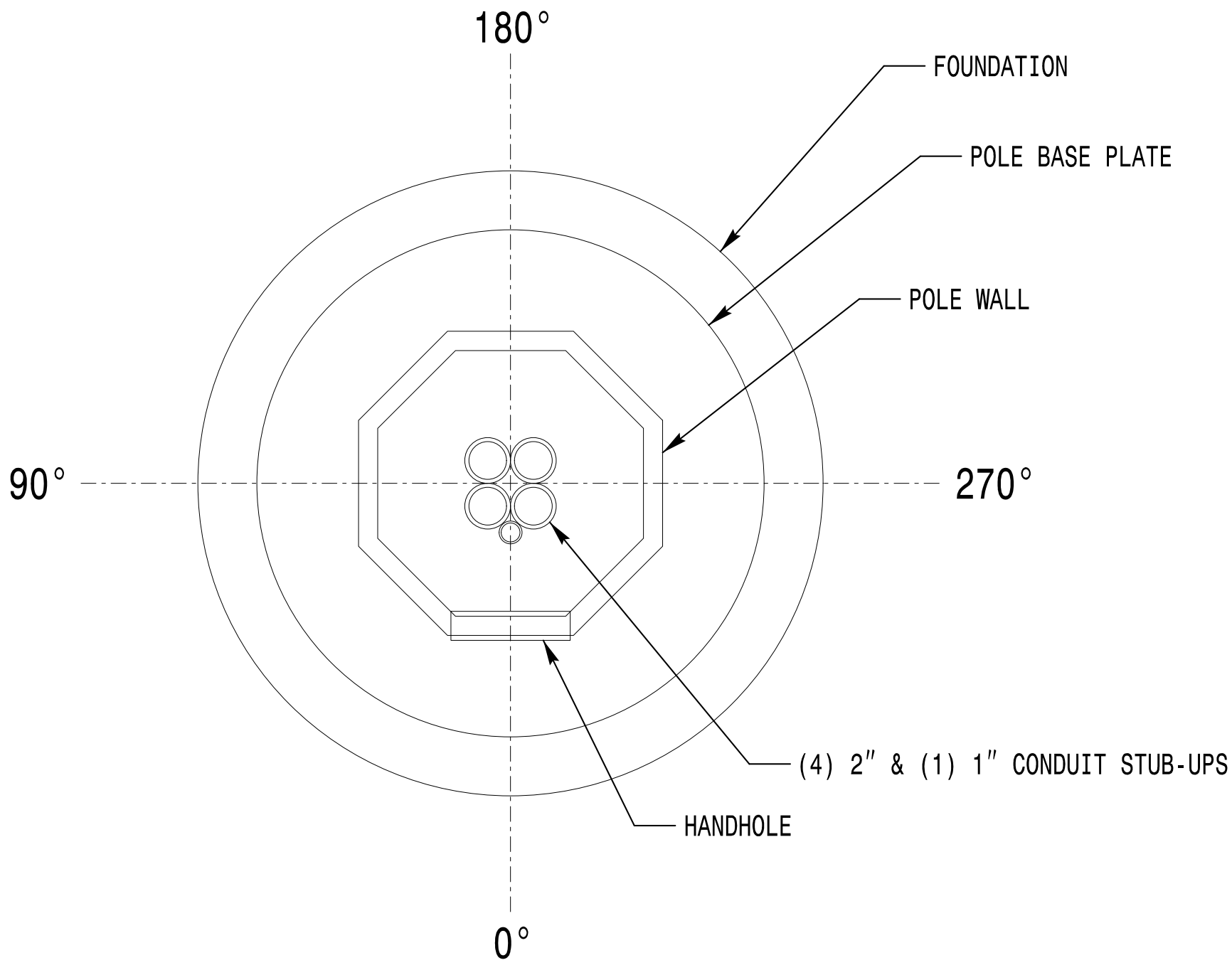
CONFIGURATION DETAIL



PLANS PREPARED IN THE OFFICE OF:
Kimley»Horn
NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

Prepared for the Offices of: 750 N. Greenfield Pkwy., Garner, NC 27529	I-5715 Equipment Details 100' CCTV Camera Pole		SEAL Signed by: MOCK SIGNATURE SIGNATURE DATE CADD Filename: _____	
	Division 10	Mecklenburg		Huntersville
	PLAN DATE: March 2026	REVIEWED BY: MC Burke		
	PREPARED BY: SP Pennington	REVIEWED BY:		
	REVISIONS	INIT.	DATE	

ITS POLES



NOTES:

- 1) I-5715 contractor to coordinate with I-77 Moility Partners (I-77 MP) on device relocation and installation by I-77 MP. I-5715 contractor to coordnate with I-77 MP on final locations of all relocated and proposed devices and associated metal pole support structures to ensure that device placement supports the intended tolling functionality.
- 2) For variable height ITS poles, the contractor shall coordinate witht I-77 MP on the final device locations to verify the requires ITS pole height prior to metal pole/foundation design.
- 3) Inner dimensions of pole at the base plate range from 13" to 15".
- 4) (2) 2" (Fiber/Communications), (2) 2" (Power), & (1) 1" (Ground)conduit stub-ups shall be installed in all ITS pole foundations.
- 5) Stub-up area shall be located at center of foundation.

METAL POLE SUPPORT STRUCTURE SUMMARY

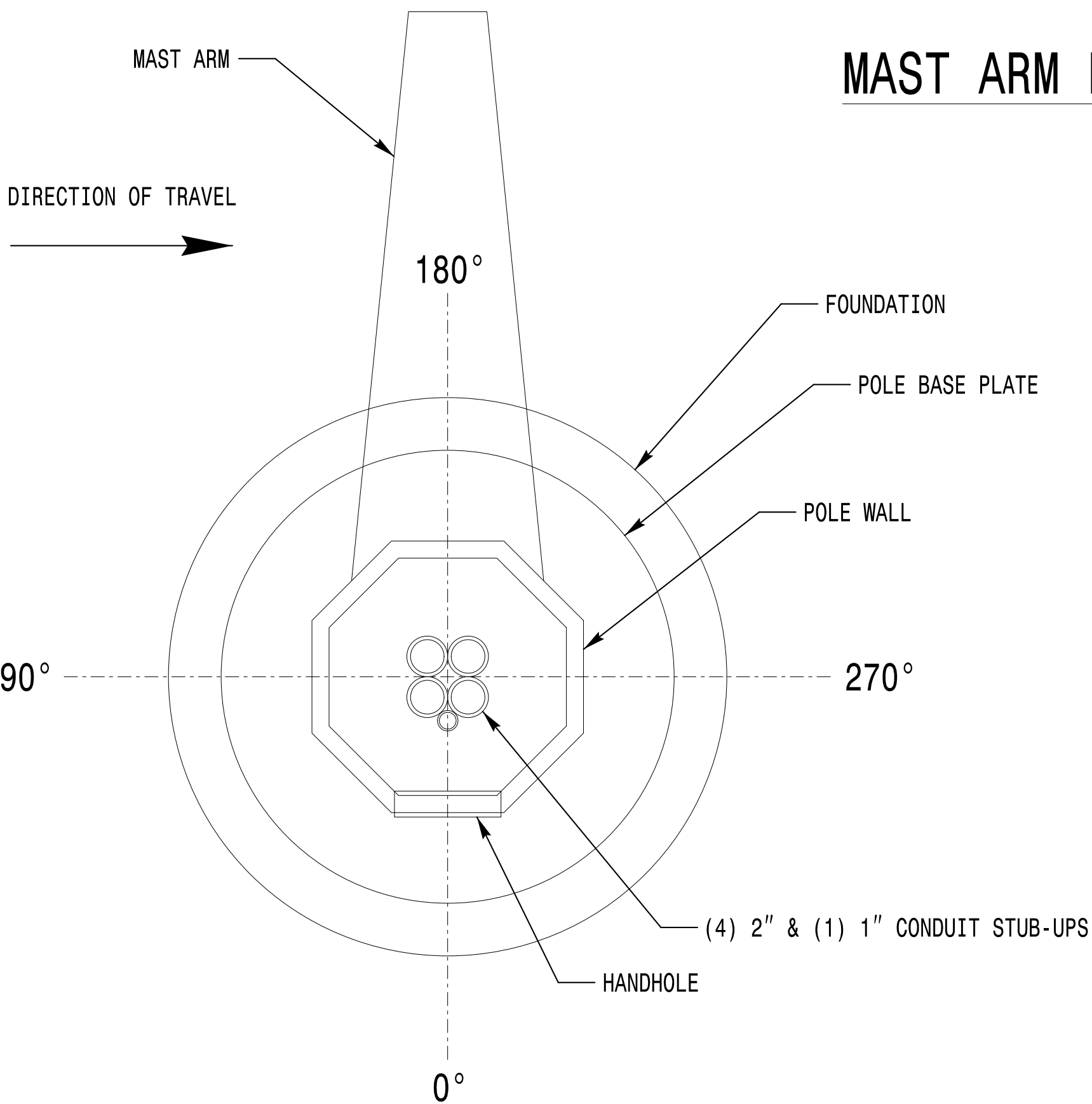
Device No.	Sheet No.	Approx. Station Location	Structure Type
MVD-03	ITS-03	-L3NB- 858+42	30' Pole
MVD-05	ITS-07	-L3NB- 896+75	50' Pole
AVI-03	ITS-08	-Y1RPD- 14+00	AVI Mast Arm
MVD-06	ITS-08	-Y2RPD- 41+05	40' Pole
AVI-05/MVD-08	ITS-10	-Y2RPD- 41+00	AVI Mast Arm
AVI-07/MVD-11	ITS-12	-Y2RPB- 15+70	AVI Mast Arm
AVI-08	ITS-12	-Y2RPA- 16+40	AVI Mast Arm
CCTV-05/MVD-12	ITS-13	-Y2RPA- 13+90	100' Pole

SPECIAL NOTE

I-5715 CONTRACTOR SHALL COORDINATE WITH I-77 MP TO DETERMINE THE FINAL DEVICE AND SUPPORT STRUCTURE LOCATIONS FOR ALL TOLL DEVICES, INCLUDING AVIs, MVDs, AND CCTV CAMERAS.

CONTRACTOR SHALL COORDIANTE WITH I-77 MP REGARDING FINAL DEVICE LOCATIONS TO VERIFY THE REQUIRED ITS POLE HEIGHTS, MAST ARM ATTACHMENT HEIGHTS, AND MAST ARM LENGTHS PRIOR TO THE DESIGN AND INSTALLATION OF THE METAL POLE FOUNDATIONS AND STRUCTURES.

MAST ARM POLES

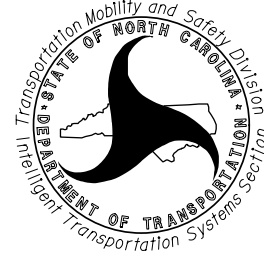


NOTES:

- 1) I-5715 contractor to coordinate with I-77 Moility Partners (I-77 MP) on device relocation and installation by I-77 MP. I-5715 contractor to coordinate with I-77 MP on final locations of all relocated and proposed devices and associated metal pole support structures to ensure that device placement supports the intended tolling functionality.
- 2) Refer to Elevation Data for Mast Arm Attachment (H1) and Mast Arm Length table (see ITS-02B and ITS-02C) for approximate mast arm attachment heights and lengths. Contractor shall coordinate with I-77 MP on the final device location(s) to verify the required mast arm attachment height and mast arm length prior to metal pole structure and/or foundation design.
- 3) Inner dimensions of pole at the base plate range from 8.5" to 11.5".
- 4) (2) 2" (Fiber/Communications), (2) 2" (Power), & (1) 1" (Ground)conduit stub-ups shall be installed in all ITS pole foundations.
- 5) Stub-up area shall be located at center of foundation.

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Prepared for the Offices of:



750 N. Greenfield Pkwy., Garner, NC 27529

I-5715
Equipment Details
Foundation Stub-Up Detail and
Metal Pole Support Structure Summary

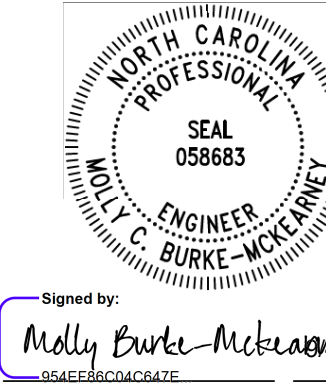
Division 10 Mecklenburg Huntersville

PLAN DATE:	March 2026	REVIEWED BY:	MC Burke
PREPARED BY:	SP Pennington	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE: 0" = 1' N/A

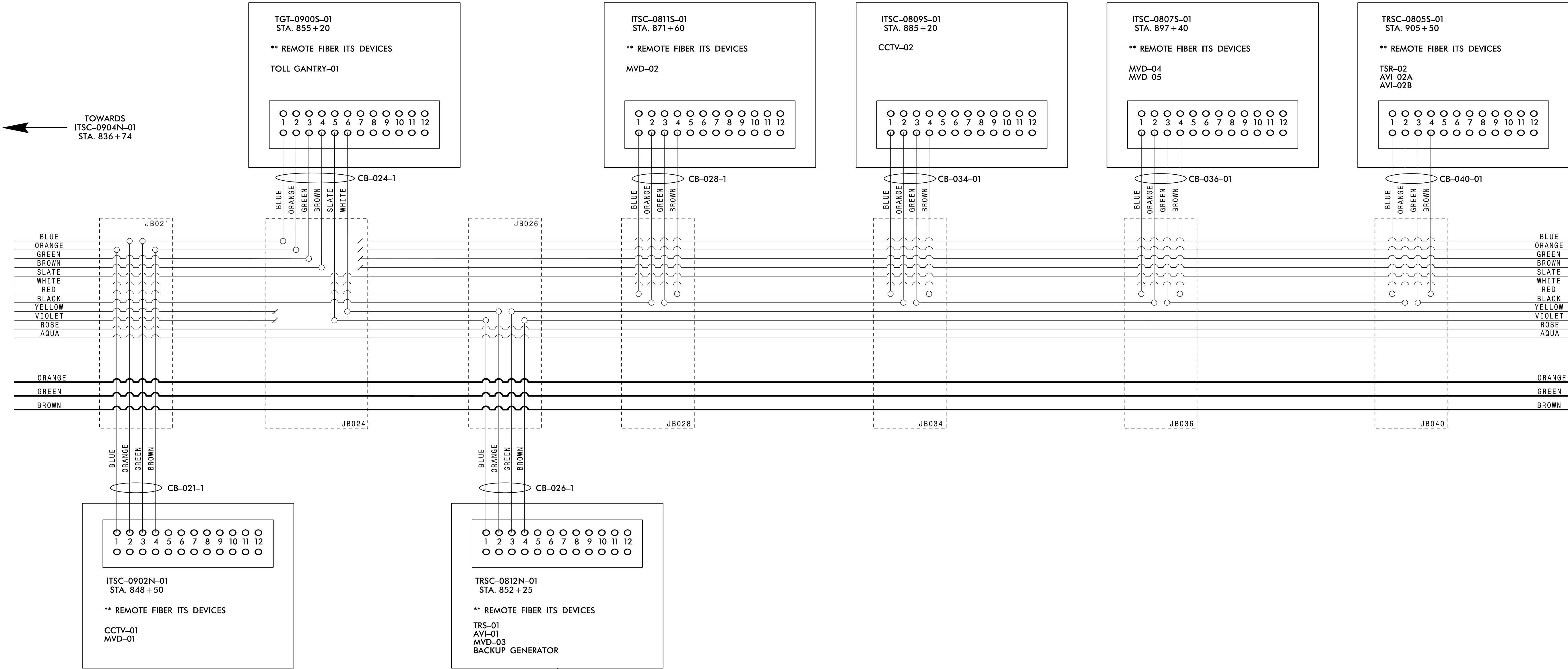
SEAL



Signed by:
Molly Burke-McKinnon
MOLLY C. BURKE-MCKINNON
ENGINEER
SIGNATURE DATE

CADD Filename: _____

* FIELD ACCESS NETWORK ON BLUE TUBE
* GANTRY DISTRIBUTION NETWORK ON ORANGE



EXISTING TRS EQUIPMENT CABINET AND BACKUP GENERATOR TO BE RELOCATED FROM STA. 864+50 TO STA 852+25 (SEE ITS-03 - ITS-04).

UPON RELOCATION OF MVD-03, EXISTING REMOTE SITE CONNECTION TO BE REMOVED FROM ITSC-0811S-01. NEW REMOTE SITE CONNECTION TO BE ESTABLISHED WITH TRSC-0812N-01 (SEE ITS-03, ITS-05).

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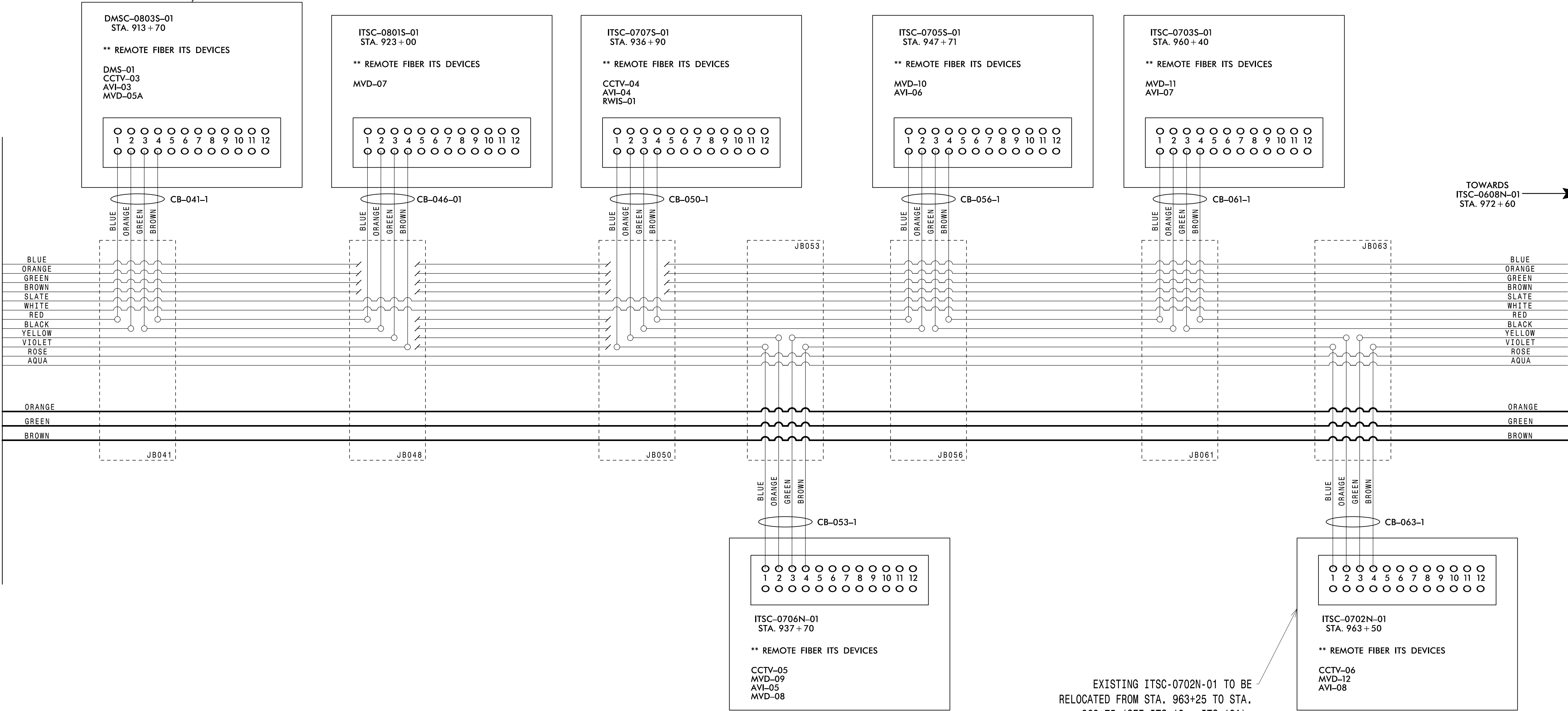
 750 N. Greenfield Pkwy., Garner, NC 27529 	I-5715 Network Diagram		
	Division 10 Mecklenburg Huntersville		
	PLAN DATE: March 2026	REVIEWED BY: MC Burke	
	PREPARED BY: SP Pennington	REVIEWED BY:	
REVISIONS	INIT.	DATE	Signed by: MOLLY C. BURKE-MCLENNAN SIGNATURE DATE
CADD Filename:			

* FIELD ACCESS NETWORK ON BLUE TUBE
* GANTRY DISTRIBUTION NETWORK ON ORANGE

NEW REMOTE SITE CONNECTION TO BE ESTABLISHED TO NEW DEVICES
AVI-03/MVD-05A (SEE ITS-08A).

UPON RELOCATION OF MVD-06, EXISTING REMOTE SITE CONNECTION TO BE
REMOVED FROM DMSC-0803S-01. NEW REMOTE SITE CONNECTION TO BE
ESTABLISHED WITH ITS-0706N-01 (SEE ITS-08 - ITS-10).

MATCH LINE, SEE SHEET ITS-02G



EXISTING ITSC-0702N-01 TO BE
RELOCATED FROM STA. 963+25 TO STA.
963+75 (SEE ITS-13 - ITS-13A).

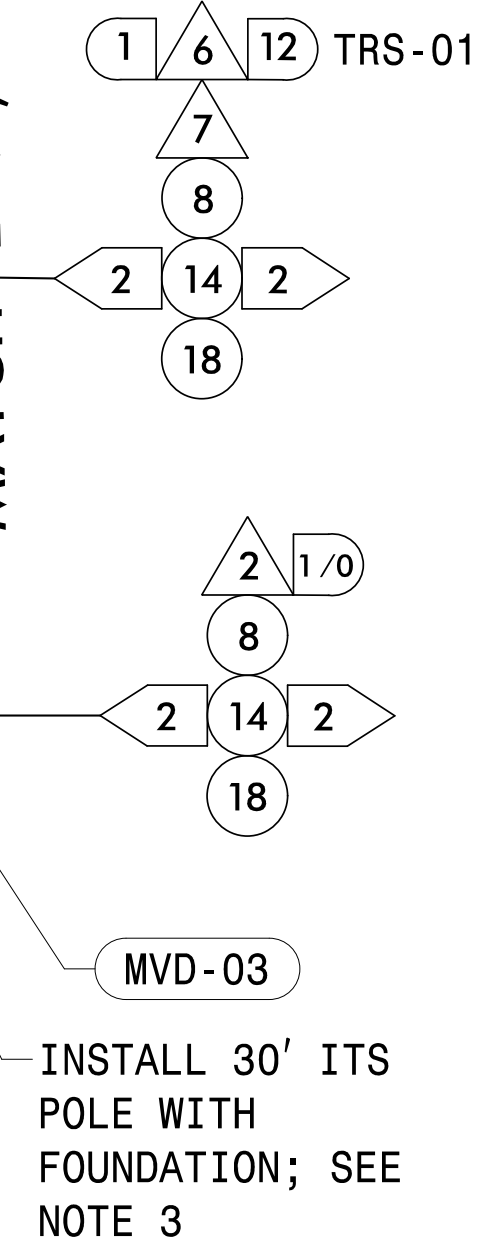
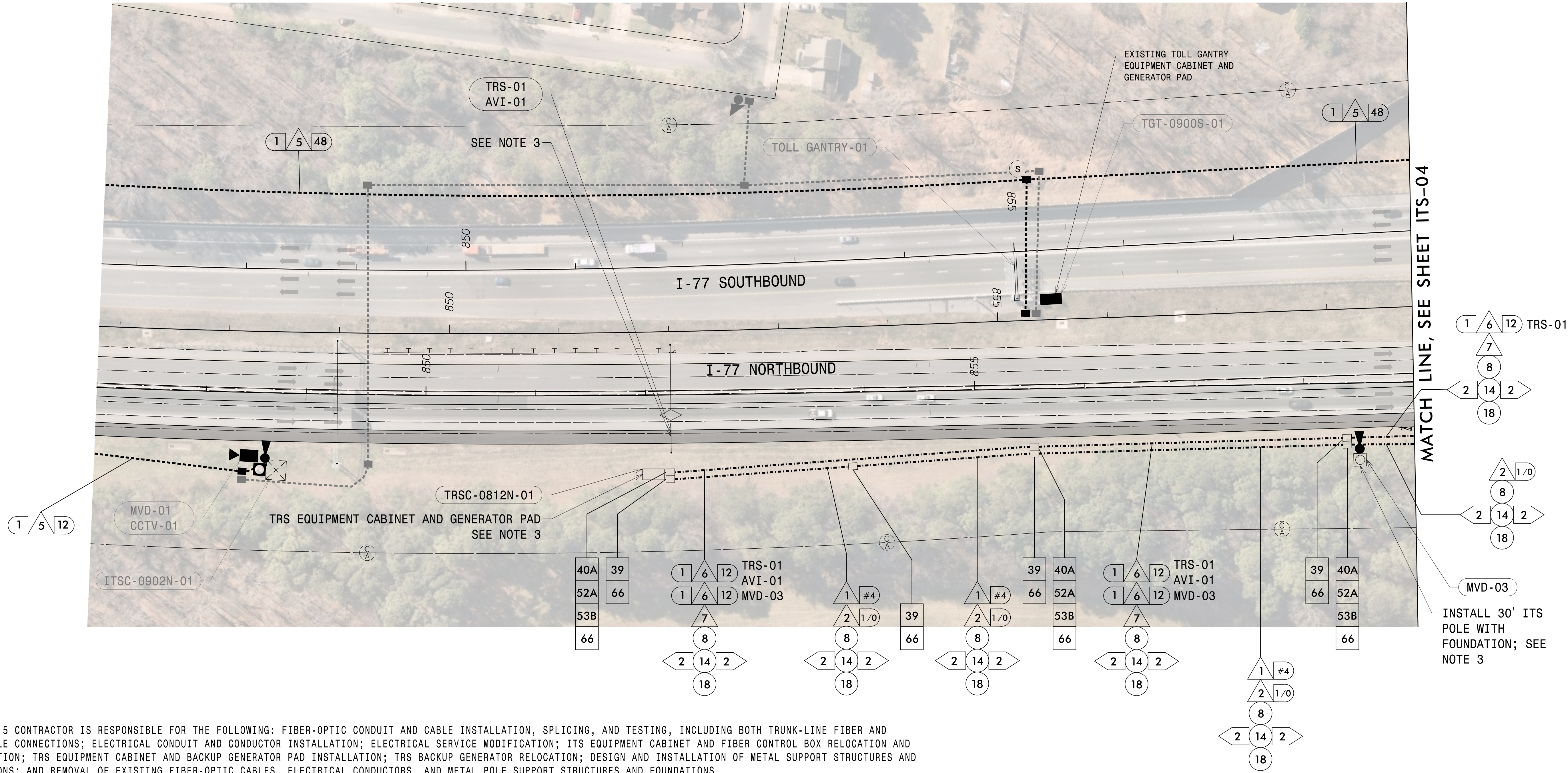
PLANS PREPARED IN THE OFFICE OF:
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421 Fayetteville Street, Suite 600
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 750 N. Greenfield Pkwy., Garner, NC 27529	I-5715		SEAL		
	Network Diagram				
	Division 10	Mecklenburg	Huntersville		
	PLAN DATE: March 2026	REVIEWED BY: MC Burke			
PREPARED BY: SP Pennington	REVIEWED BY:				
REVISIONS	INIT.	DATE			
Signed by:		CADD Filename:			

SPECIAL NOTE

I-5715 CONTRACTOR SHALL COORDINATE WITH I-77 MP TO DETERMINE THE FINAL DEVICE AND SUPPORT STRUCTURE LOCATIONS FOR ALL TOLL DEVICES, INCLUDING AVIs, MVDs, AND CCTV CAMERAS.

CONTRACTOR SHALL COORDIANTE WITH I-77 MP REGARDING FINAL DEVICE LOCATIONS TO VERIFY THE REQUIRED ITS POLE HEIGHTS, MAST ARM ATTACHMENT HEIGHTS, AND MAST ARM LENGTHS PRIOR TO THE DESIGN AND INSTALLATION OF THE METAL POLE FOUNDATIONS AND STRUCTURES.



INSTALL 30' ITS POLE WITH FOUNDATION; SEE NOTE 3

NOTES:

- 1) THE I-5715 CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING: FIBER-OPTIC CONDUIT AND CABLE INSTALLATION, SPLICING, AND TESTING, INCLUDING BOTH TRUNK-LINE FIBER AND DROP-CABLE CONNECTIONS; ELECTRICAL CONDUIT AND CONDUCTOR INSTALLATION; ELECTRICAL SERVICE MODIFICATION; ITS EQUIPMENT CABINET AND FIBER CONTROL BOX RELOCATION AND INSTALLATION; TRS EQUIPMENT CABINET AND BACKUP GENERATOR PAD INSTALLATION; TRS BACKUP GENERATOR RELOCATION; DESIGN AND INSTALLATION OF METAL SUPPORT STRUCTURES AND FOUNDATIONS; AND REMOVAL OF EXISTING FIBER-OPTIC CABLES, ELECTRICAL CONDUCTORS, AND METAL POLE SUPPORT STRUCTURES AND FOUNDATIONS.
- 2) I-77 MOBILITY PARTNERS IS RESPONSIBLE FOR THE FOLLOWING: RELOCATION OF EXISTING TOLLING DEVICES, INCLUDING AVI, MVD, AND CCTV CAMERAS; PROCUREMENT AND INSTALLATION OF NEW ITS DEVICES; PROCUREMENT AND PROGRAMMING OF CELL MODEMS FOR USE WITH TEMPORARY TOLLING DEVICES; AND CALLIBRATION, COMMISSIONING, AND ACCEPTANCE OF ALL TEMPORARY, RELOCATED, AND NEW TOLLING DEVICES.
- 3) PHASE 1 SOUTH, STEP 7
UPON CONFIRMATION OF FINAL GRADE, INSTALL CONDUIT, JUNCTION BOXES, FIBER-OPTIC CABLES, AND ELECTRICAL CONDUCTORS; TRS GENERATOR PAD (SEE ITS-02A FOR GENERATOR PAD DETAIL); AND MVD-03 METAL POLE FOUNDATION AND SUPPORT STRUCTURE AS SHOWN ON PLANS. INSTALL SPARE TRS PROVIDED BY I-77 MP IN PROPOSED OVERHEAD SIGN PRIOR TO INSTALLATION OF OVERHEAD SIGN STRUCTURE. INSTALL OVERHEAD SIGN STRUCTURE. ROUTE COMMUNICATIONS CABLE FROM TRS, THROUGH PROPOSED RISER ATTACHED TO OVERHEAD SIGN STRUCTURE, TO THE TRS GENERATOR PAD.

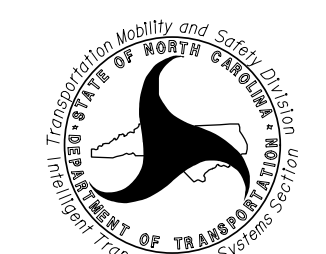
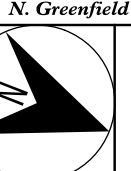
IN COORDINATION WITH I-77 MP, DISCONNECT AND RELOCATE EXISTING TRS EQUIPMENT CABINET AND BACKUP GENERATOR TO NEW LOCATION. TERMINATE COMMUNICATIONS CABLE IN EXISTING TRS EQUIPMENT CABINET AT NEW SITE TO MATCH EXISTING CONDITIONS. COORDINATE WITH I-77 MP TO COMPLETE INTERGRATION AND TESTING. TRS EQUIPMENT CABINET AND GENERATOR RELOCATION, INTERGRATION, AND TESTING MUST OCCUR BETWEEN THE HOURS OF 10:00PM SATURDAY AND 6:00AM SUNDAY.

COORDINATE WITH I-77 MP FOR THE RELOCATION OF MVD-03 BY I-77 MP (SEE ITS-05 FOR THE EXISTING MVD-03 LOCATION). RELOCATE THE EXISTING FIBER CONTROL BOX AND ALL COMPONENTS TO THE NEW SITE. TERMINATE COMMUNICATIONS CABLES TO MATCH EXITING CONDITIONS. ROUTE POE CABLE FROM THE MVD THROUGH THE EXISTING POLE RISER/RACEWAY TO THE RELOCATED FIBER CONTROL BOX, AND TERMINATE TO MATCH EXISTING CONDITIONS. COORDINATE WITH I-77 MP TO COMPLETE CALLIBRATION, COMMISSIONING, AND ACCEPTANCE.

PLANS PREPARED IN THE OFFICE OF:

Kimley»Horn

NC License #F-0102
421 Fayetteville Street, Suite 600
Raleigh, NC 27601
(919) 677-2000

 759 N. Greenfield Pkwy., Garner, NC 27529	I-5715 Communications Cable and Conduit Routing Plan		 SEAL NORTH CAROLINA PROFESSIONAL ENGINEER MOLLY C. BURKE-MCKENZIE 058883
	Division 10 PLAN DATE: March 2026 PREPARED BY: SP Pennington	Mecklenburg REVIEWED BY: MC Burke REVIEWED BY:	
 SCALE 0 N/A	REVISIONS		
	INIT. DATE		
SIGNATURE			DATE
CADD Filename: _____			