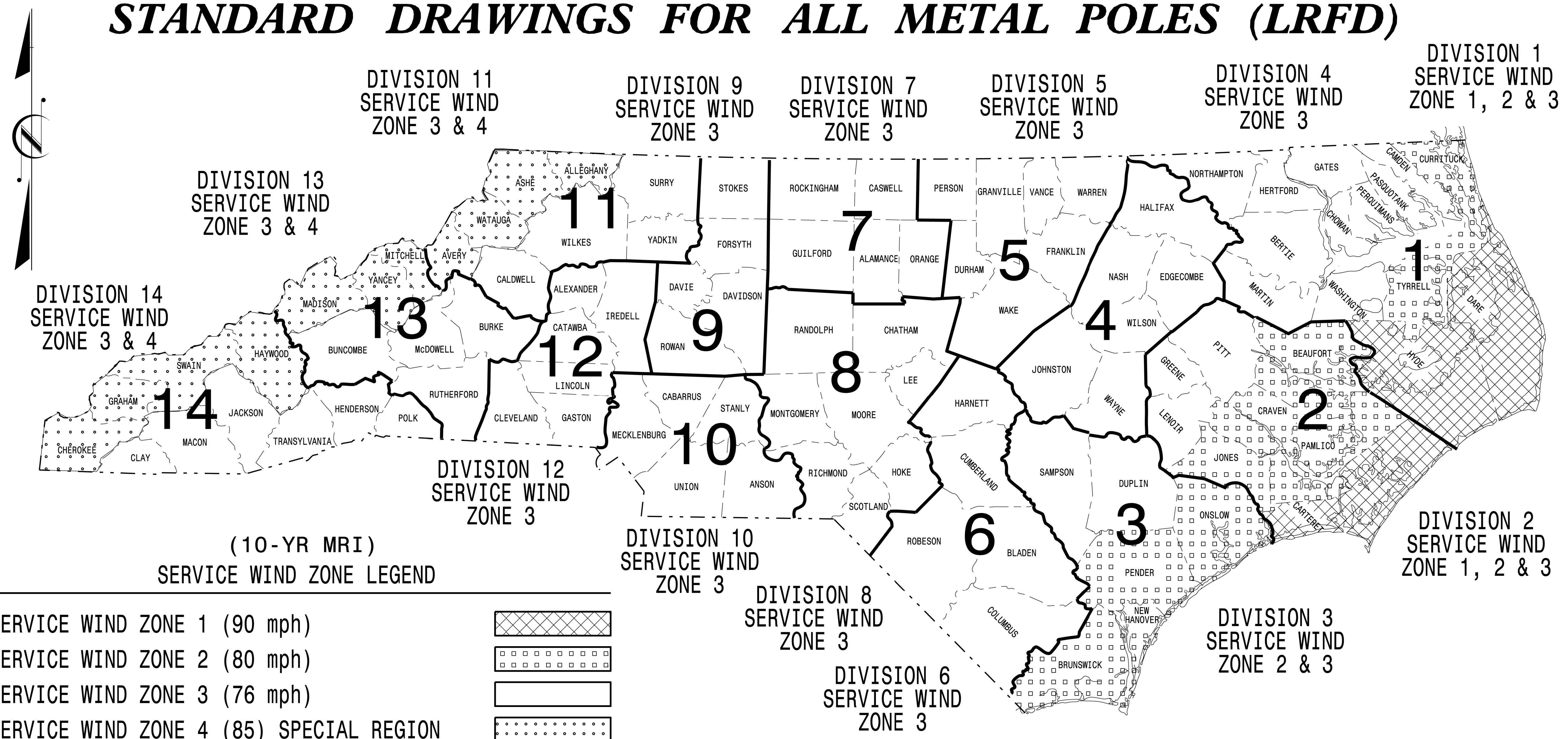


# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## STANDARD DRAWINGS FOR ALL METAL POLES (LRFD)



<https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx>

21-SEP-2023 08:22 S:\ITS\SSM\ITS\_Signals\Standards\Drawings\2024\_Metal\_Pole\_Standards\11\_Metal\_Pole\_Standards.dgn

Prepared in the Offices of:

750 N. Greenfield Pkwy.  
Garner, NC 27529

Designed in conformance with the latest 2020 Interim to the 1st Edition 2015

### AASHTO LRFD

Standard Specifications for Highway Signs, Luminaires, and Traffic Signals

DRAWING NUMBER	INDEX OF PLANS DESCRIPTION
Sig. M 1A	Statewide Wind Zone Map (700-yr MRI)
Sig. M 1B	Statewide Wind Zone Map (10-yr MRI)
Sig. M 2	Typical Fabrication Details-All Metal Poles
Sig. M 3	Typical Fabrication Details-Strain Poles
Sig. M 4	Typical Fabrication Details-Mast Arm Poles
Sig. M 5	Typical Fabrication Details-Mast Arm Connection
Sig. M 6	Typical Fabrication Details-Strain Pole Attachments
Sig. M 7	Construction Details-Foundations
Sig. M 8	Standard Strain Pole Foundation-All Soil Conditions
Sig. M 9	Typical Fabrication Details-CCTV Camera Poles

**NCDOT CONTACTS:**  
MOBILITY AND SAFETY DIVISION -  
TRANSPORTATION SYSTEMS MANAGEMENT  
AND OPERATIONS UNIT

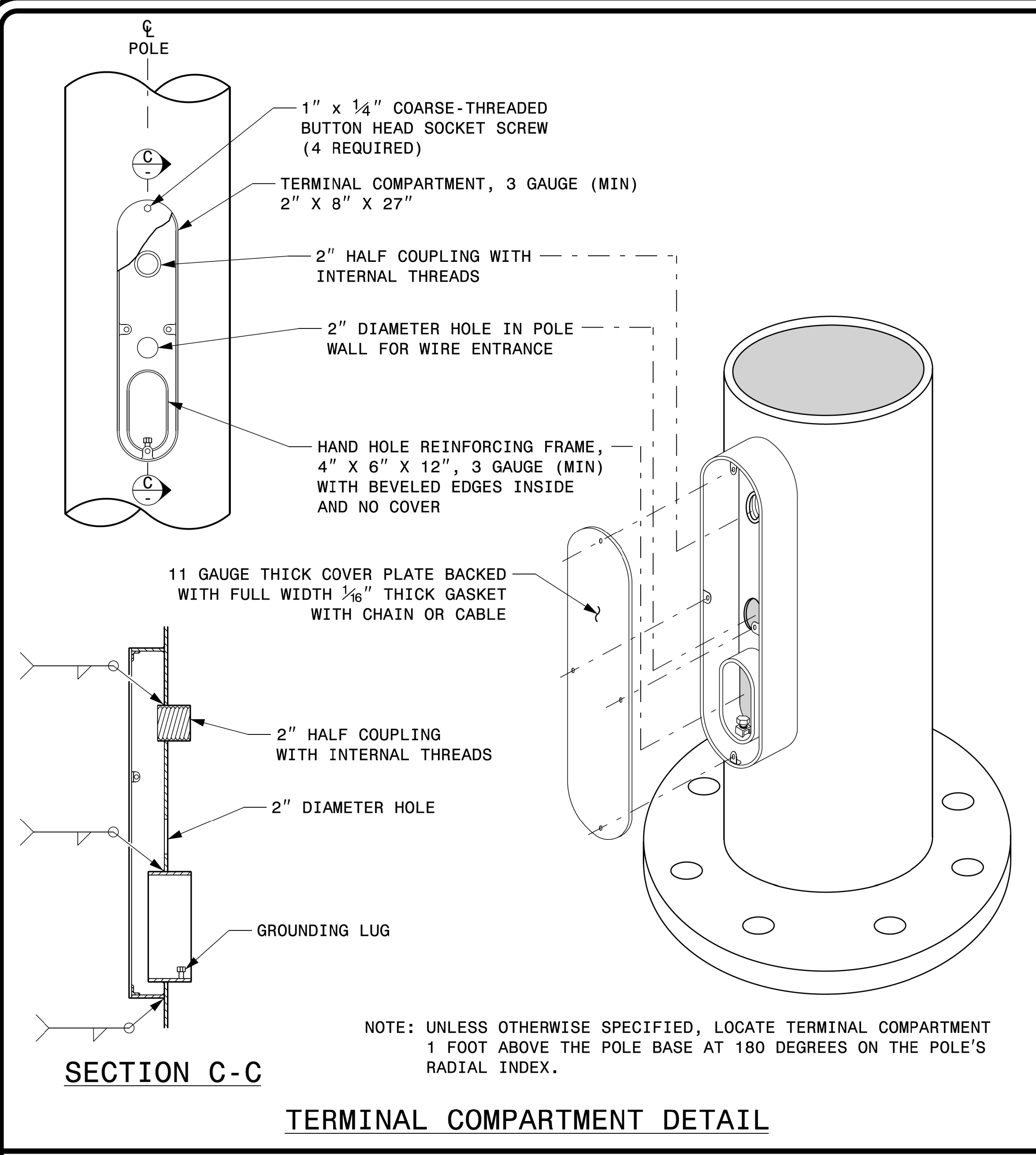
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**D.Y. ISHAK - STATE SIGNALS ENGINEER**  
**K. DURIGON, P.E. - ITS AND SIGNALS STRUCTURAL ENGINEER**  
**B. WALKER, P.E. - ITS AND SIGNALS STRUCTURAL ENGINEER**

SEAL

DocuSigned by:  
**Kevin Durigon**  
SIGNATURE  
4B23DC70B3784DA

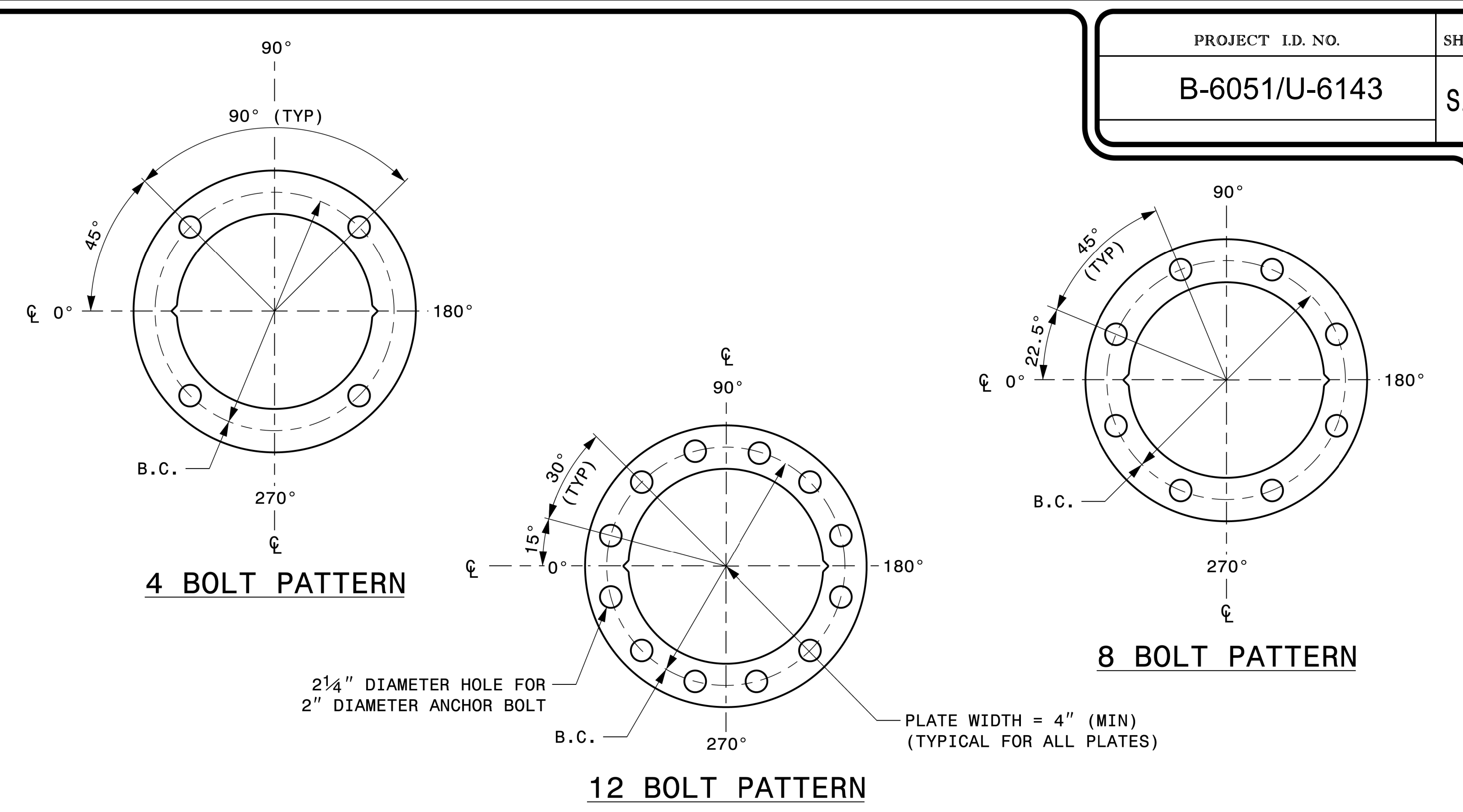
09/21/2023  
DATE



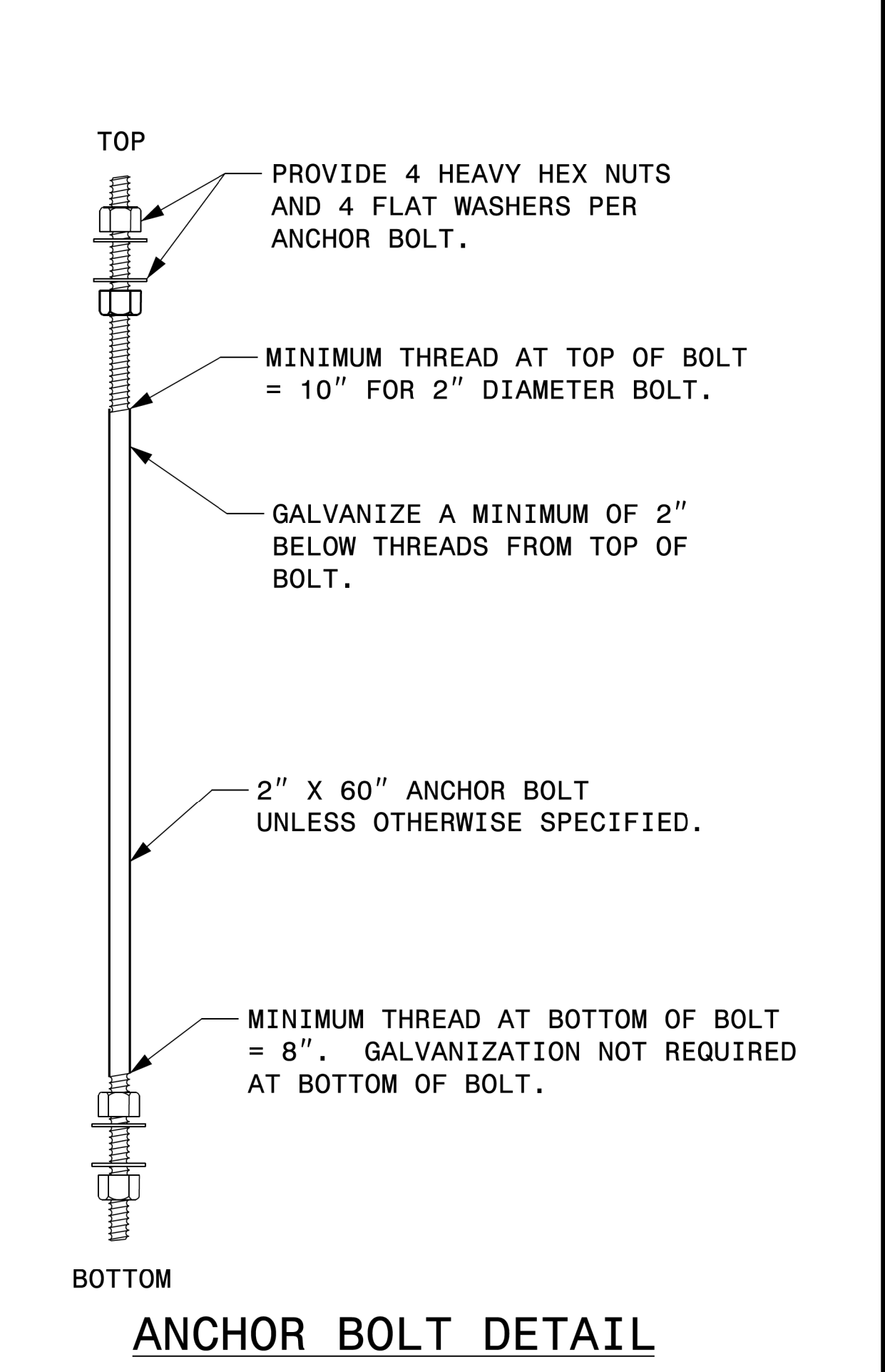
SECTION C-C

TERMINAL COMPARTMENT DETAIL

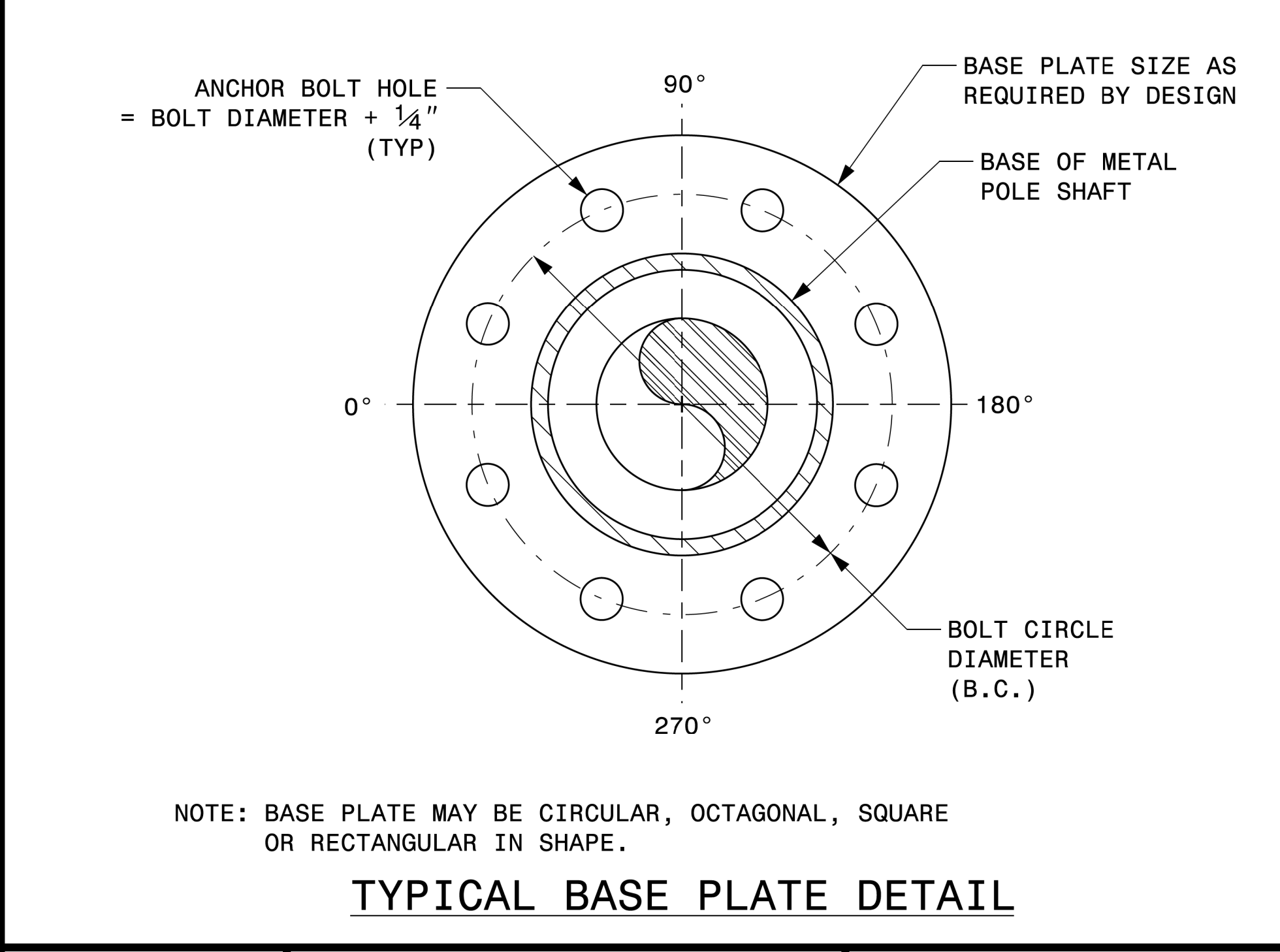
NOTE: UNLESS OTHERWISE SPECIFIED, LOCATE TERMINAL COMPARTMENT 1 FOOT ABOVE THE POLE BASE AT 180 DEGREES ON THE POLE'S RADIAL INDEX.



CONSTRUCT TEMPLATES AND PLATES FROM 1/4" (MIN) THICK STEEL. GALVANIZING IS NOT REQUIRED.  
**BASE PLATE TEMPLATE AND ANCHOR BOLT LOCK PLATE DETAILS**



ANCHOR BOLT DETAIL



TYPICAL BASE PLATE DETAIL

MFG _____	MFG. DATE: MM/YY _____
SHAFT D/T/L/Y _____	_____
ARM-A D/T/L/Y _____	_____
ARM-B D/T/L/Y _____	_____
A.B. DIA./B.C./L/Y _____	_____
NCDOT SIG. INV. NO. _____	_____
NCDOT POLE NO. _____	_____

MFG _____	MFG. DATE: MM/YY _____
SECTION D/T/L/Y _____	_____
NCDOT SIG. INV. NO. _____	_____
NCDOT POLE NO. _____	_____

ARM I.D. TAG  
 (PROVIDE ON EACH SECTION OF A MULTI-SECTION MAST ARM)

SHAFT I.D. TAG  
 (PROVIDE ON SHAFT OF STRAIN POLES AND MAST ARM POLE SHAFT)

NOTES:

- D = DIAMETER, T = THICKNESS, L = LENGTH, Y = YIELD STRENGTH
- A.B. = ANCHOR BOLT
- B.C. = BOLT CIRCLE OF ANCHOR BOLTS
- IF STANDARD DESIGN, INCLUDE CASE NUMBER IN ADDITION TO POLE NUMBER ON "NCDOT POLE NO." LINE.
- SIGNAL INV. NUMBER AND POLE I.D. NUMBER. SEE DRAWING M3 AND M4 FOR MOUNTING POSITIONS OF I.D. TAGS.

IDENTIFICATION TAG DETAILS

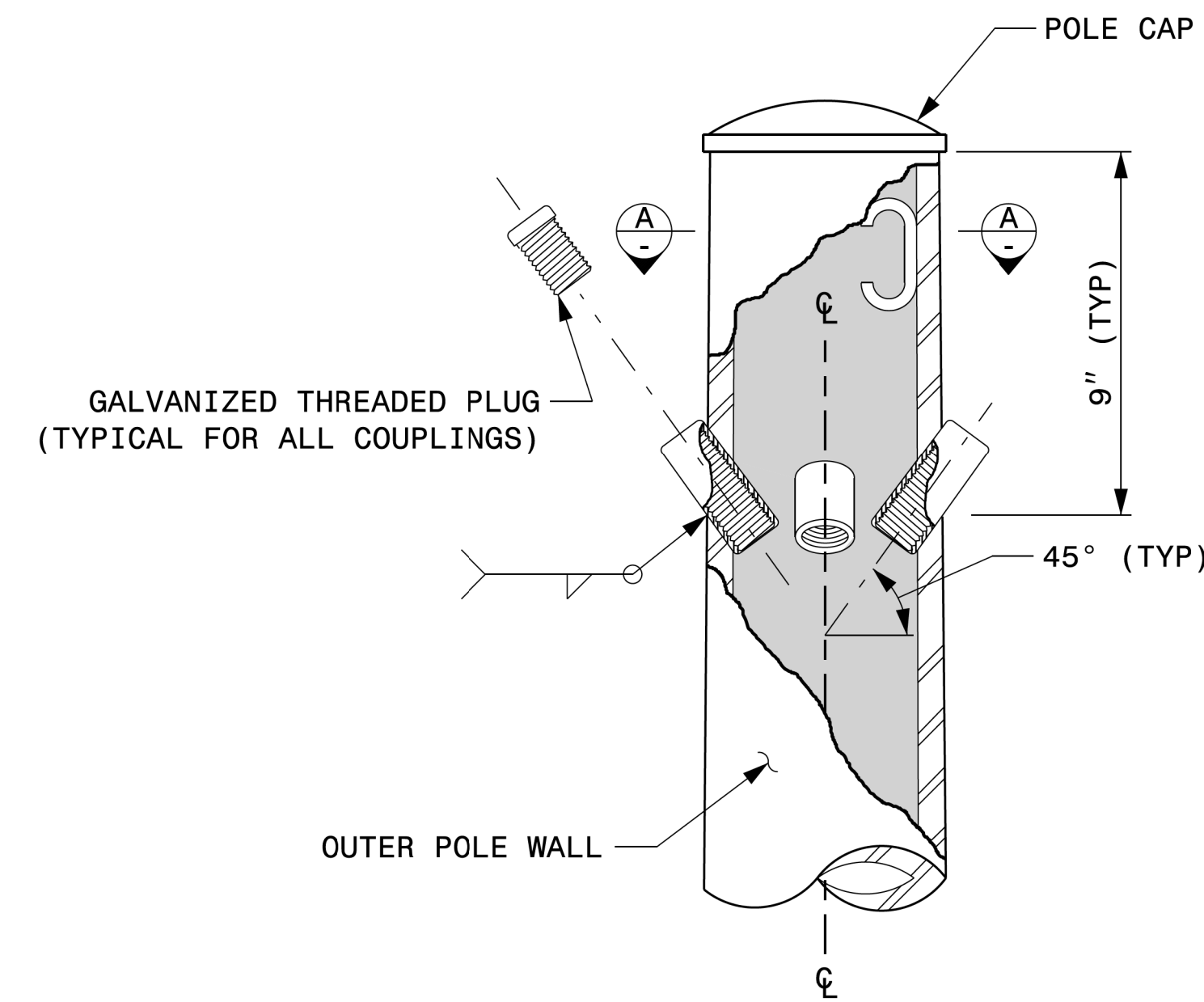
	Typical Fabrication Details For All Metal Poles	
	PLAN DATE: SEPTEMBER 2023 DESIGNED BY: C.F. ANDREWS PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR	REVISIONS INIT. DATE
DocuSigned by: 	09/21/2023 DATE	SEAL

21-SEP-2023 07:56  
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 Kevin Durigon

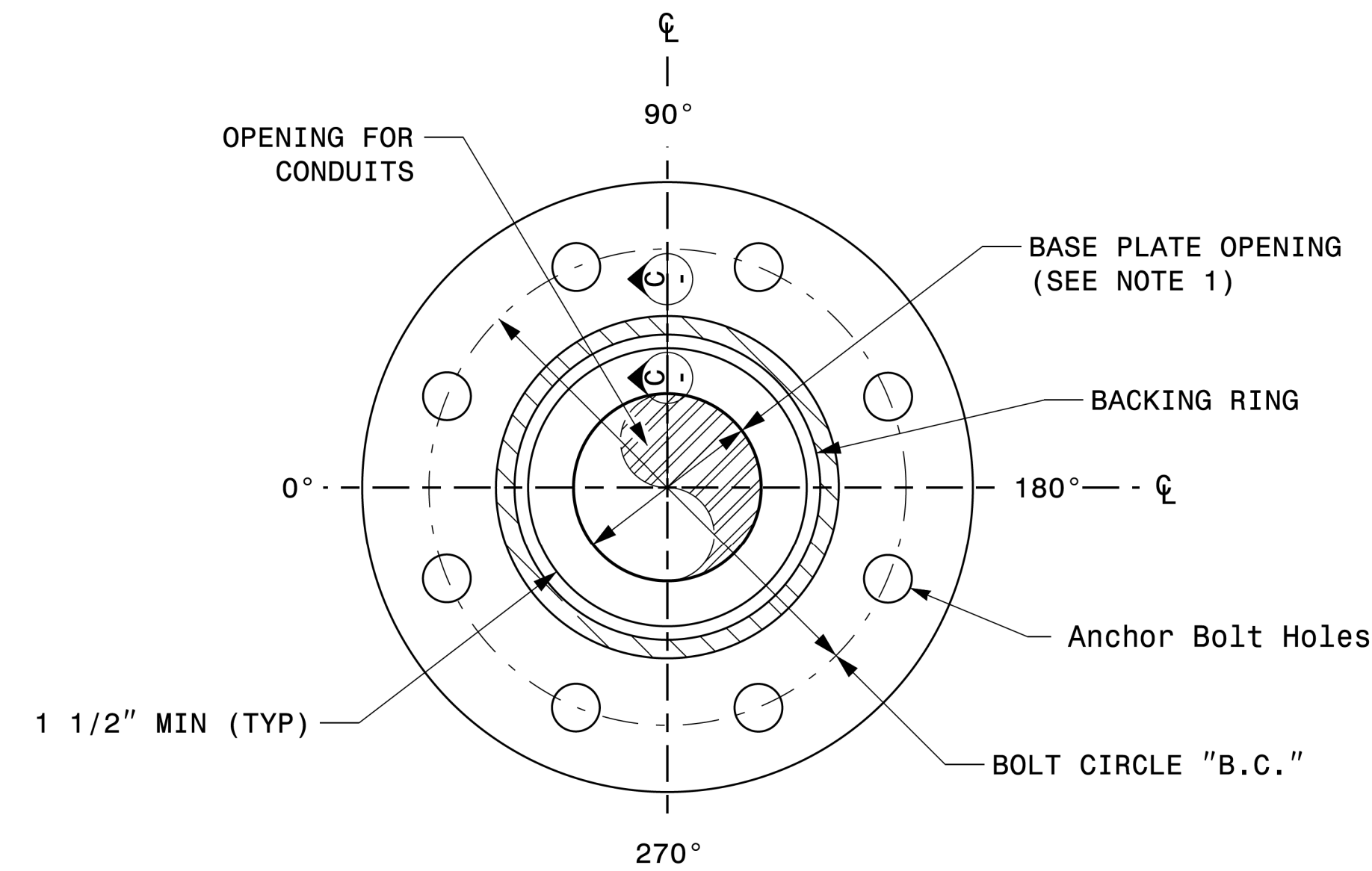
**Fabrication Details – All Metal Poles**

NOTE:

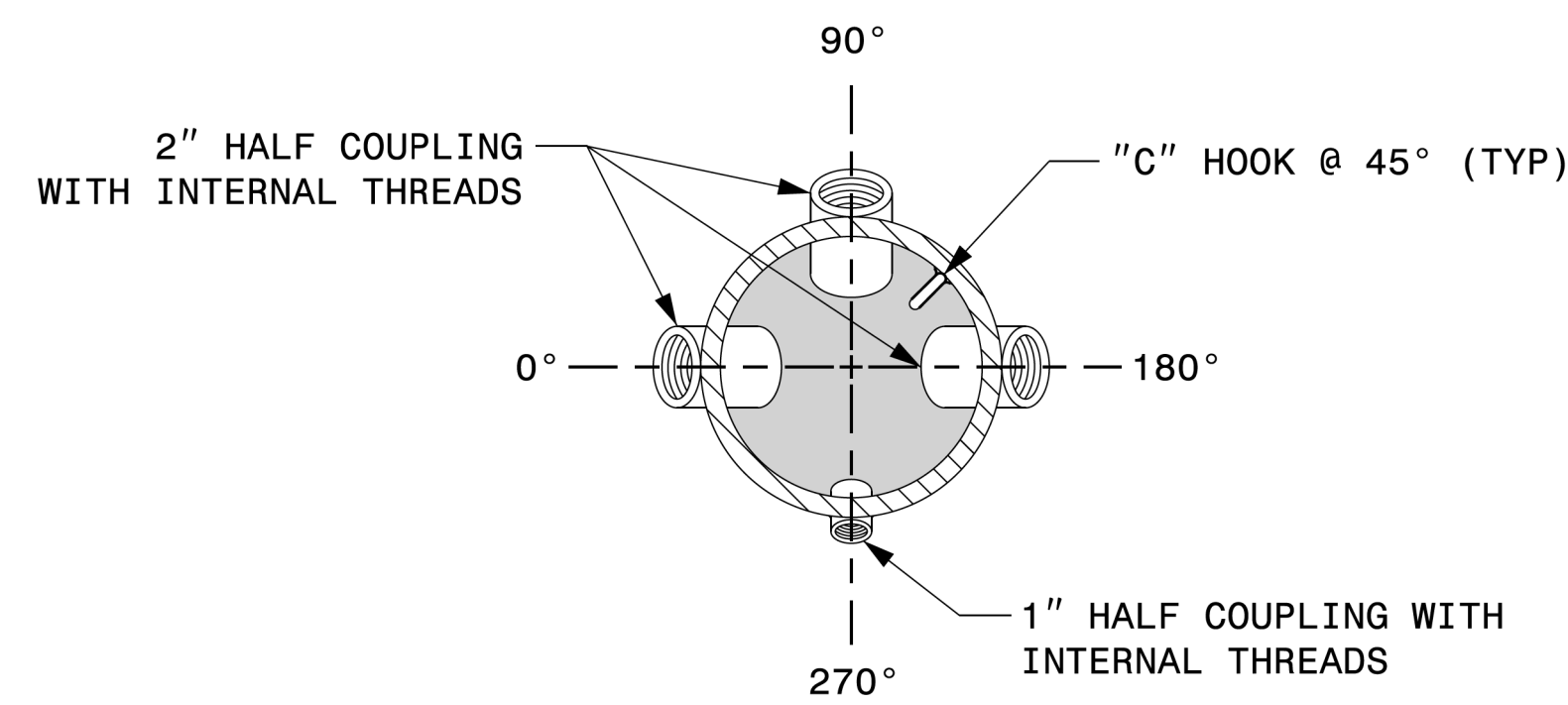
1. OPENING IN POLE BASE PLATE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3 1/2" BUT SHALL NOT BE LESS THAN 8 1/2".



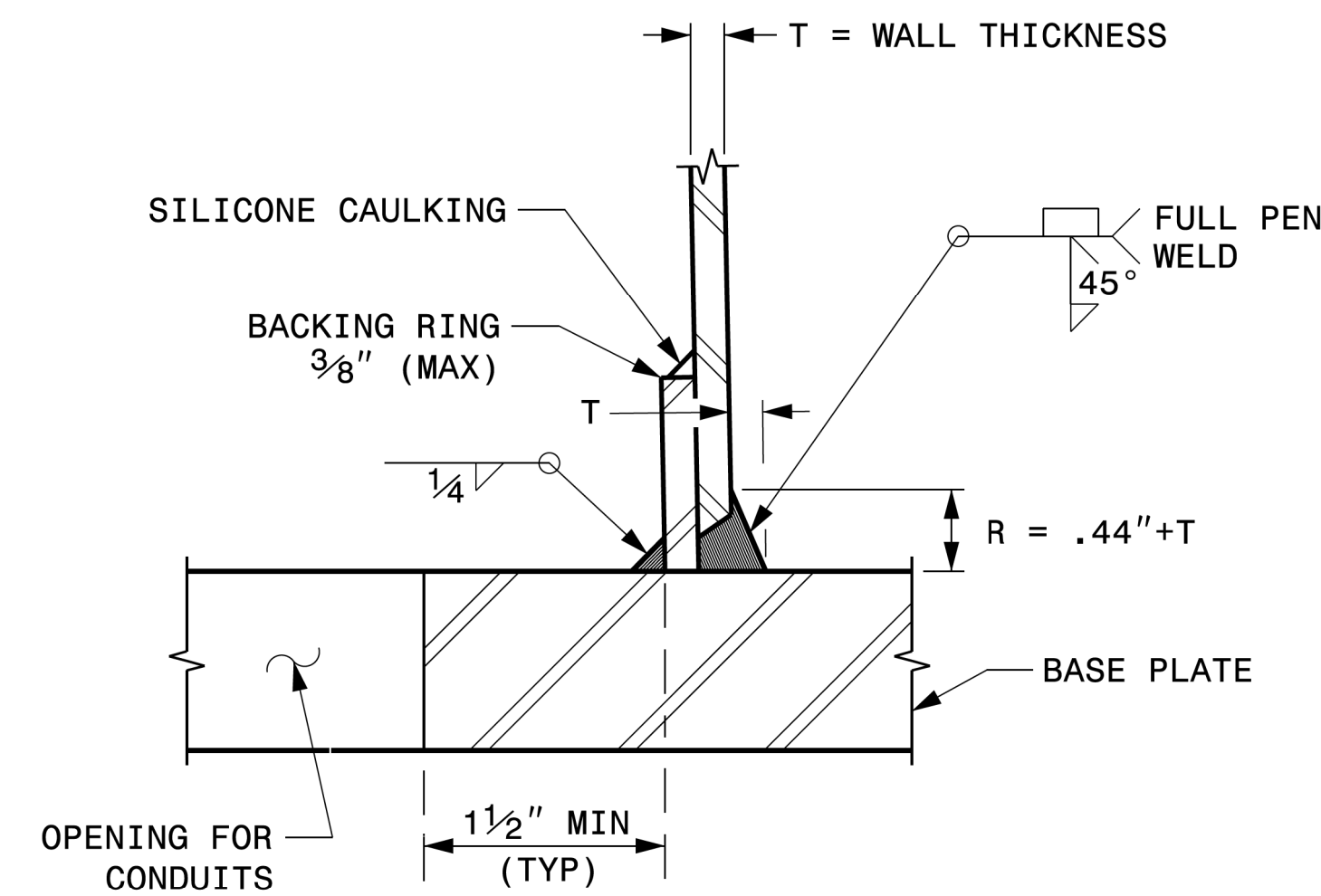
CABLE ENTRANCES AT TOP OF POLE



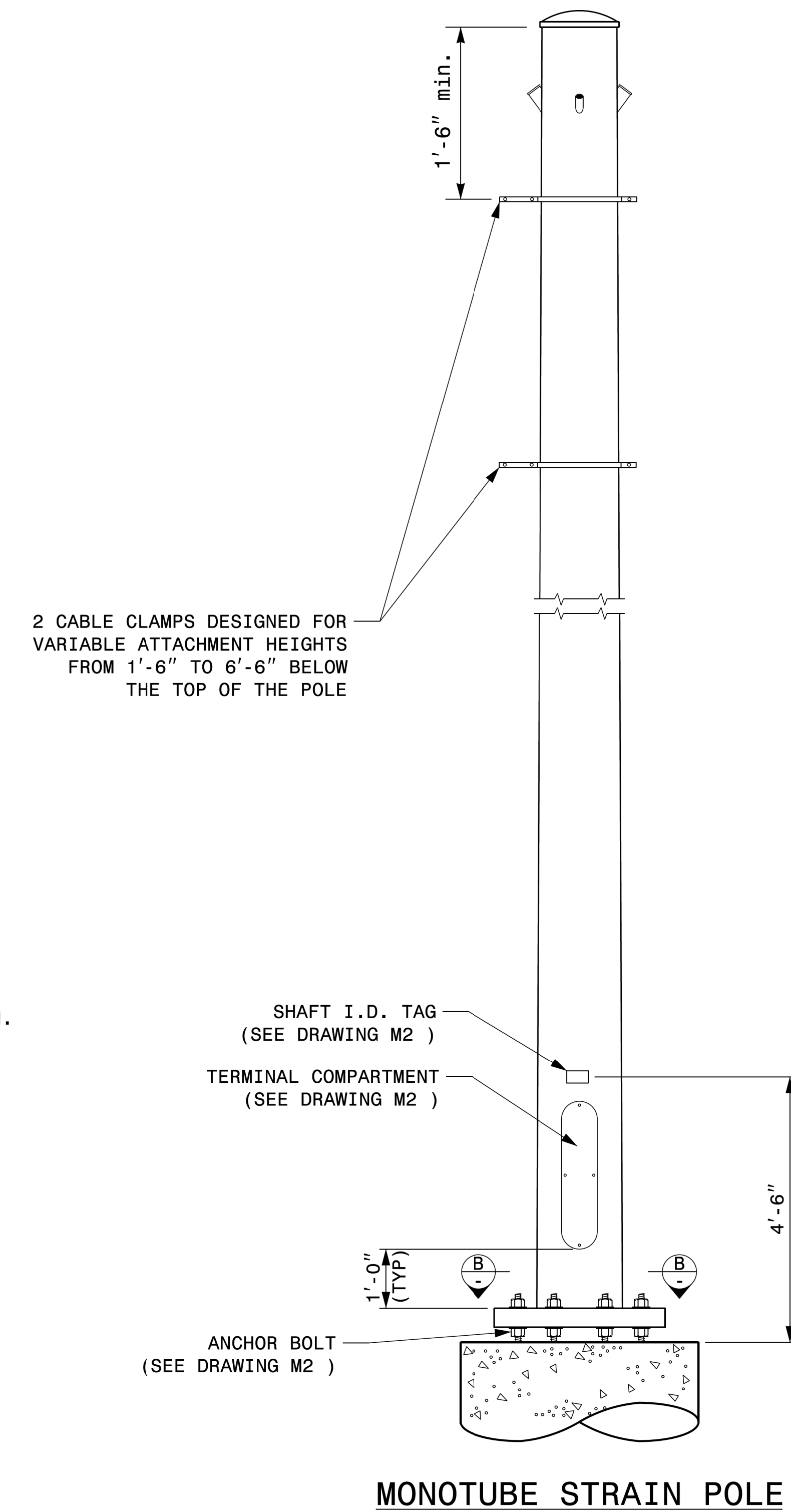
SECTION B-B  
POLE BASE PLATE DETAILS  
(8 AND 12 BOLT PATTERN)



SECTION A-A  
RADIAL ORIENTATION OF FACTORY INSTALLED  
ACCESSORIES AT TOP OF POLE



SECTION C-C  
(POLE ATTACHMENT TO BASE PLATE)  
FULL-PENETRATION  
GROOVE WELD DETAIL



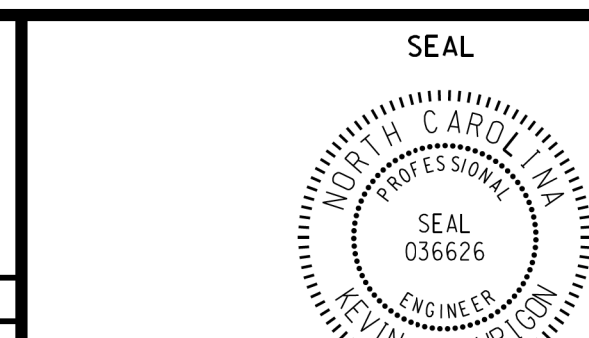
MONOTUBE STRAIN POLE



Typical Fabrication Details  
For  
Strain Poles

PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON  
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

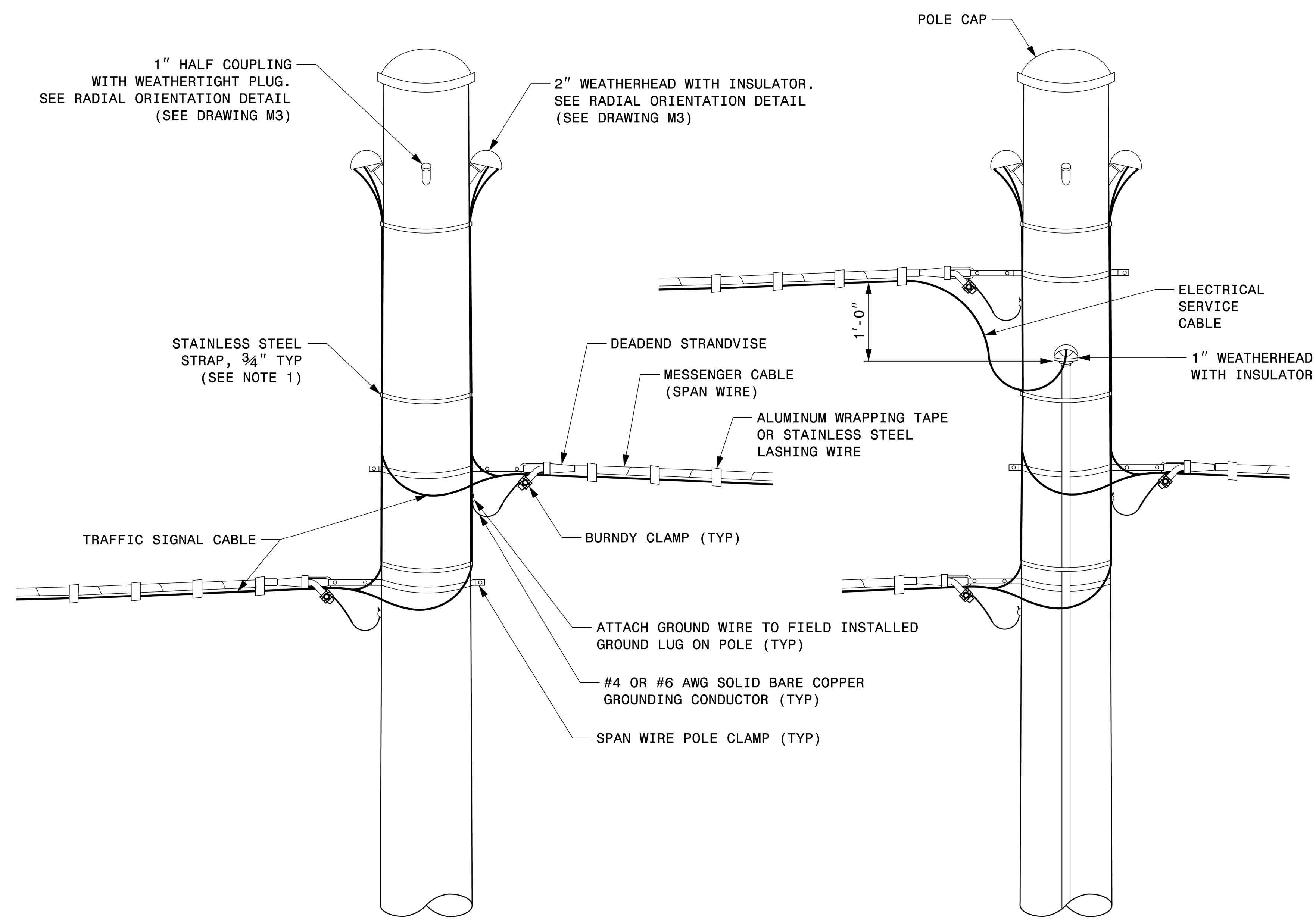


DocuSigned by:  
Kevin Durigon

09/21/2023  
DATE



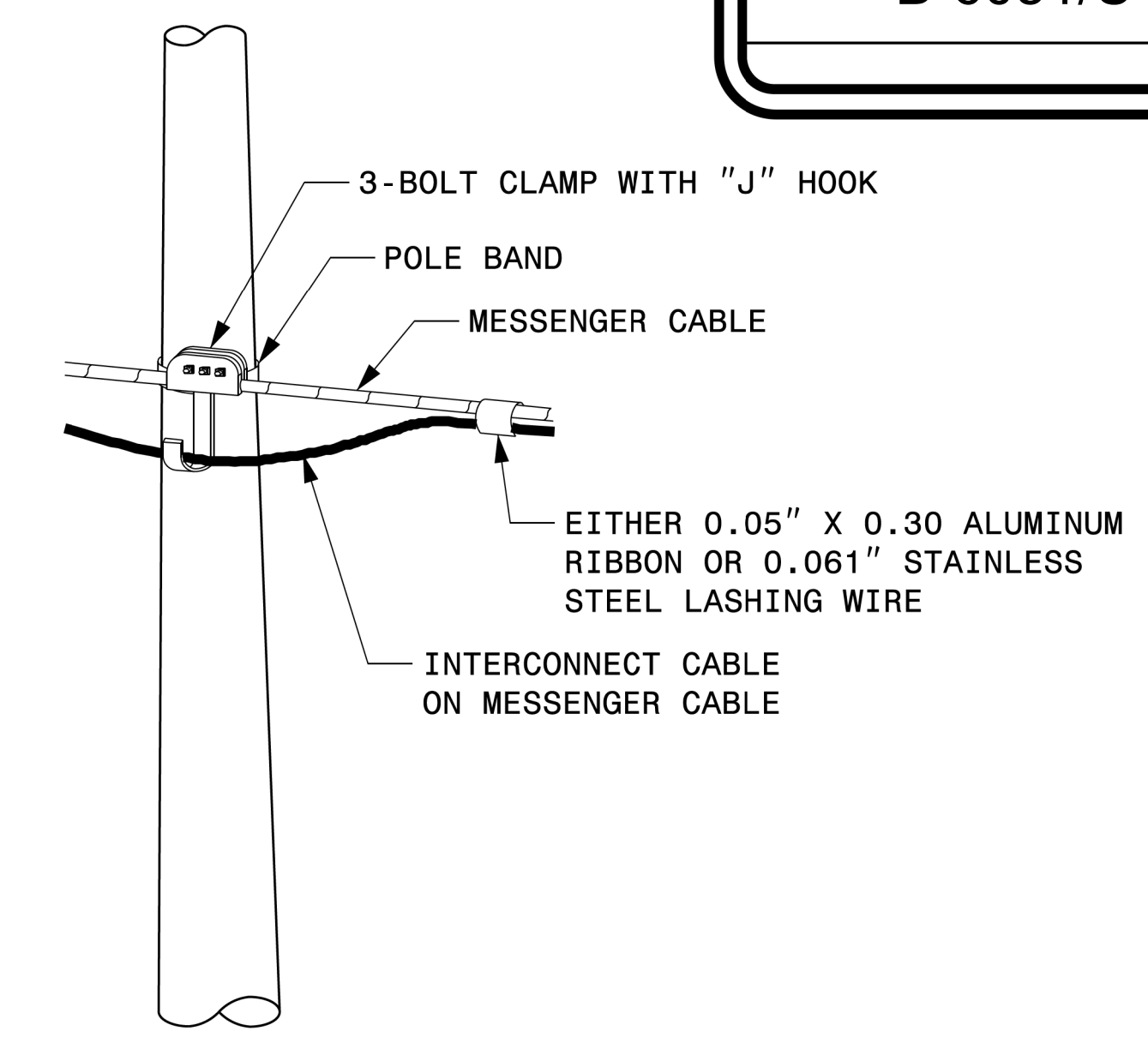




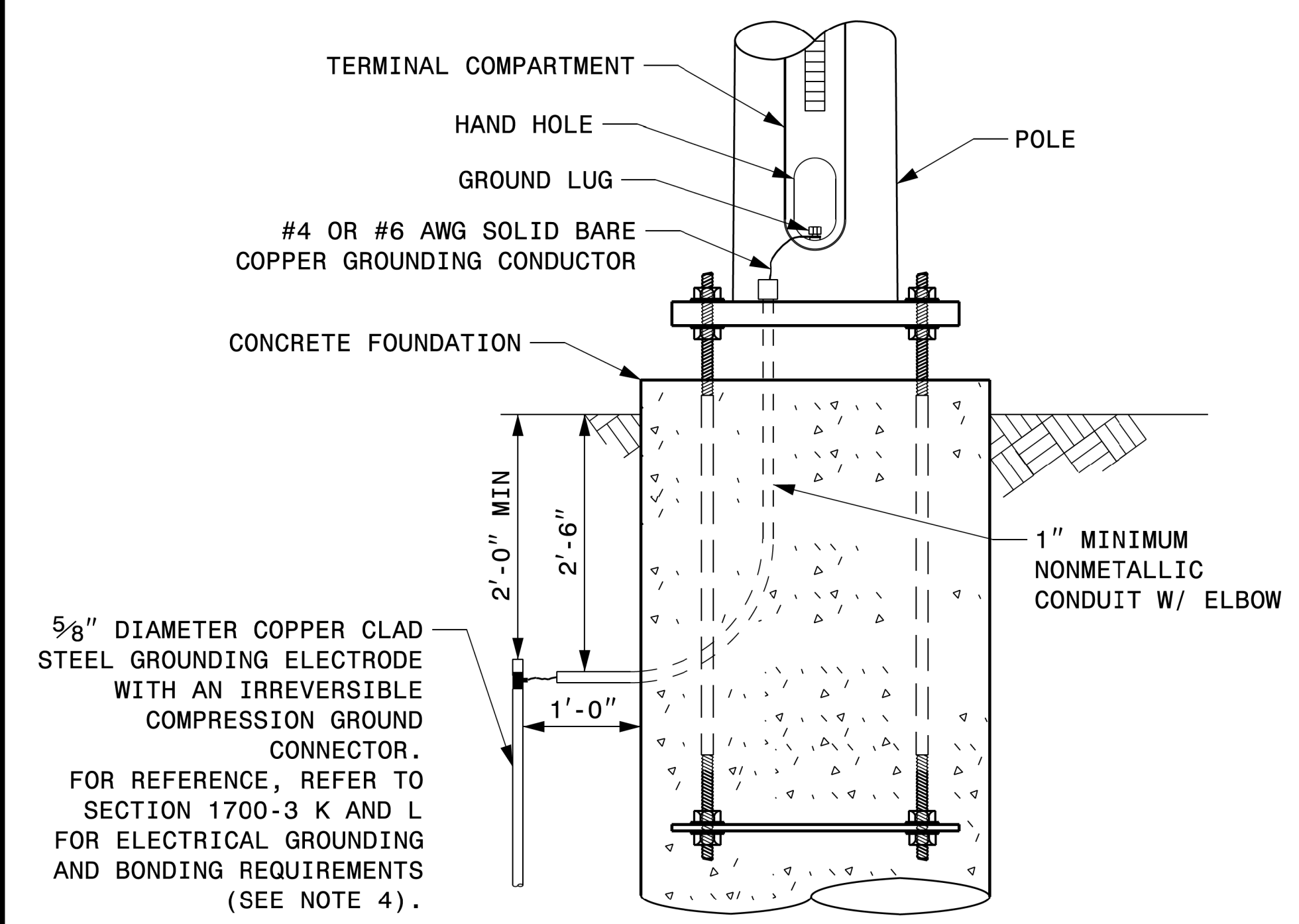
**STRAIN POLE ATTACHMENTS**

**NOTES:**

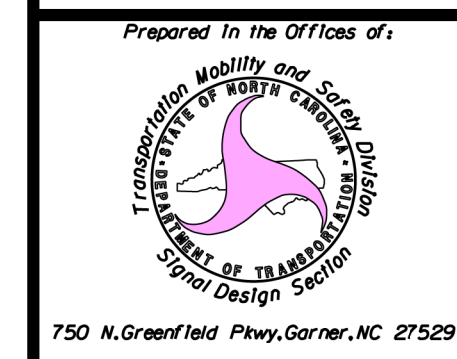
1. STRAP ALL SIGNAL CABLES TO THE SIDE OF THE POLE WITH 3/4" STAINLESS STEEL STRAPS WHEN THE DISTANCE BETWEEN SPAN WIRE ATTACHMENT CLAMP AND WEATHERHEADS EXCEEDS 3'-0".
2. PROVIDE MINIMUM TWO SPAN WIRE POLE CLAMPS PER POLE.
3. IT IS PROHIBITED TO ATTACH TWO SPAN WIRES AT ONE POLE CLAMP.
4. FOR GENERAL REQUIREMENTS, REFER TO NCDOT STANDARD SPECIFICATIONS FOR ROADWAY AND STRUCTURES, JANUARY 2024.



**ATTACHMENT OF CABLE TO INTERMEDIATE METAL POLE**



**METAL POLE GROUNDING DETAIL FOR STRAIN POLE AND MAST ARM**



Typical Fabrication Details  
For  
Strain Pole Attachments

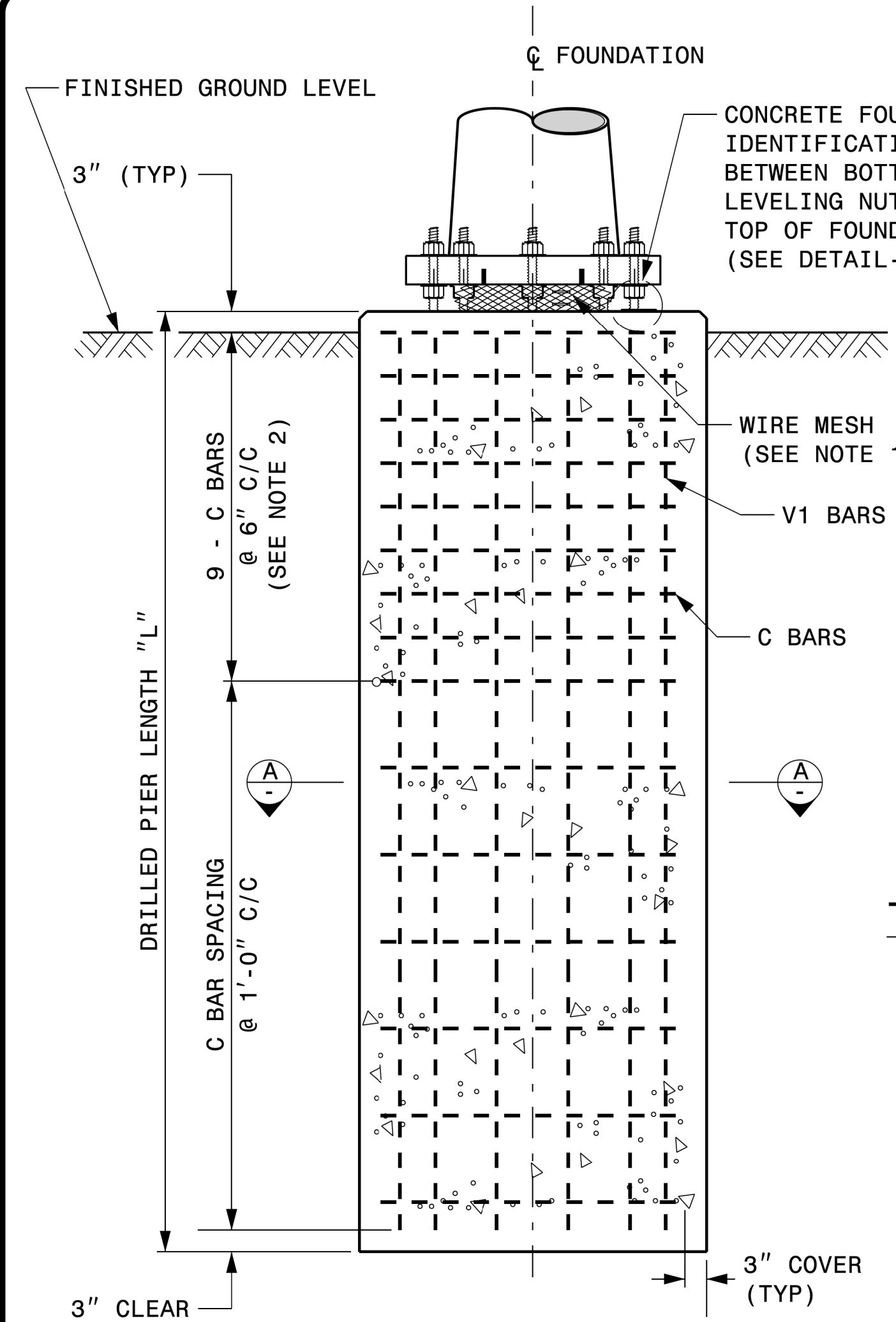
PLAN DATE: SEPTEMBER 2023 DESIGNED BY: C.F. ANDREWS  
PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR

REVISIONS	INIT.	DATE

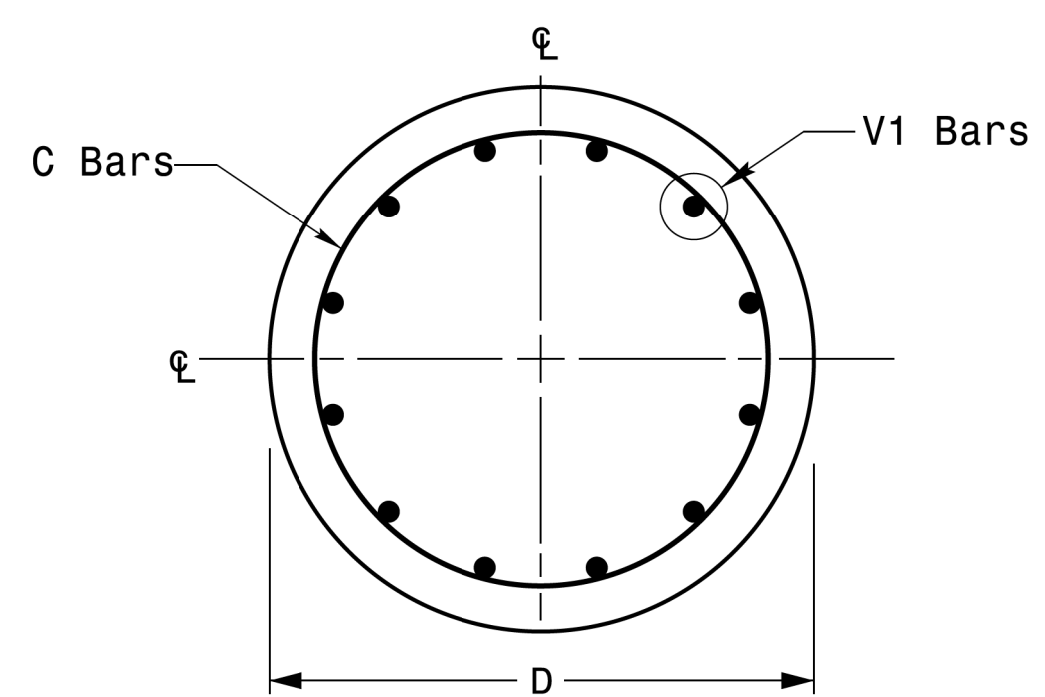
DocuSigned by:  
**Kevin Durigon**  
09/21/2023  
DATE

750 N. Greenfield Pkwy, Garner, NC 27529  
SCALE: NA  
NONE

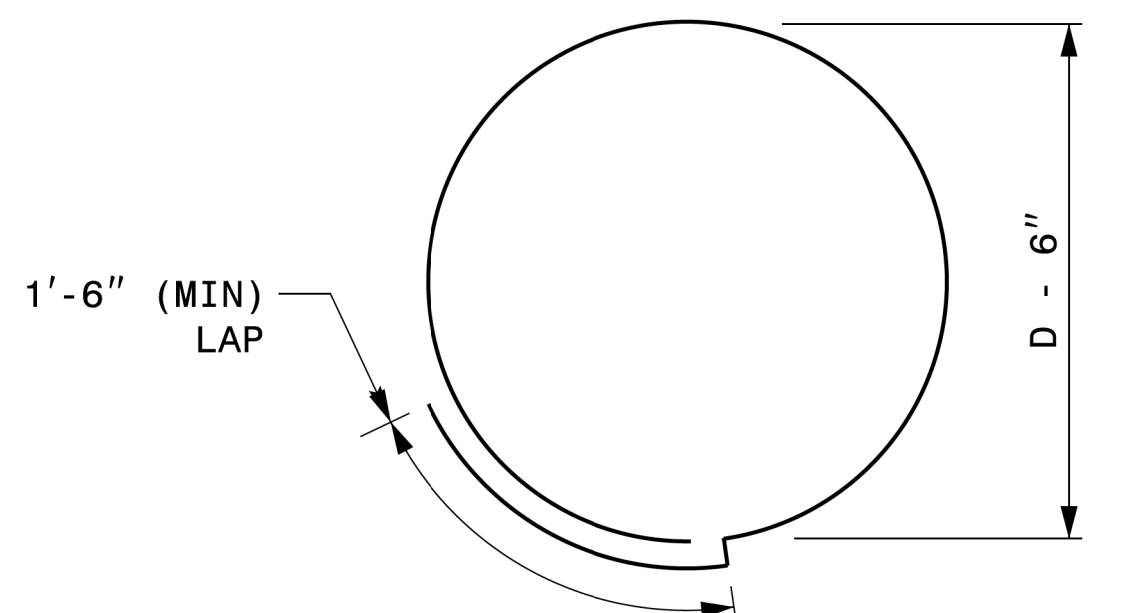
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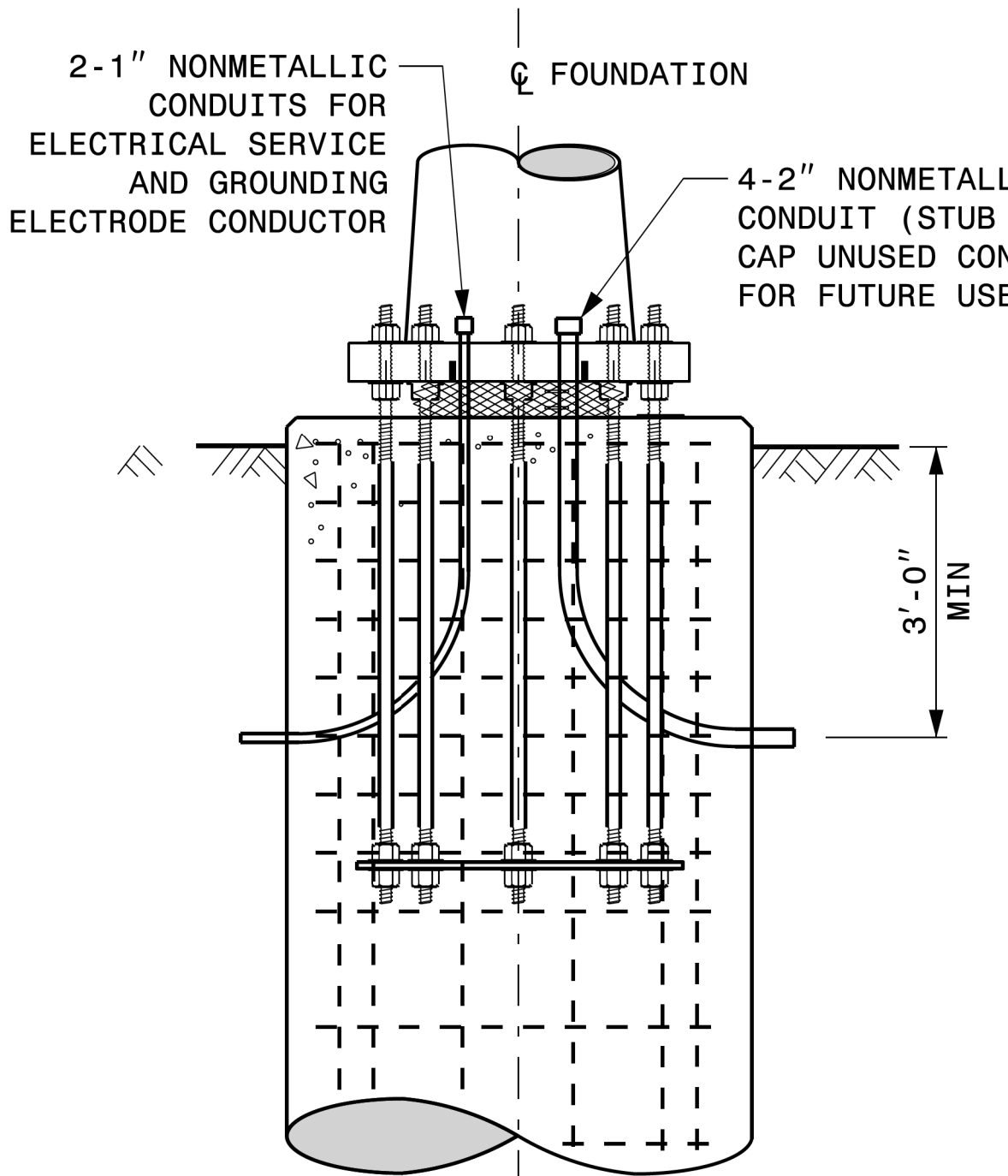
**CONCRETE SHAFT ELEVATION**



**SECTION A-A**



**TYPICAL "C" BAR DETAIL**



**TYPICAL FOUNDATION CONDUIT DETAILS**

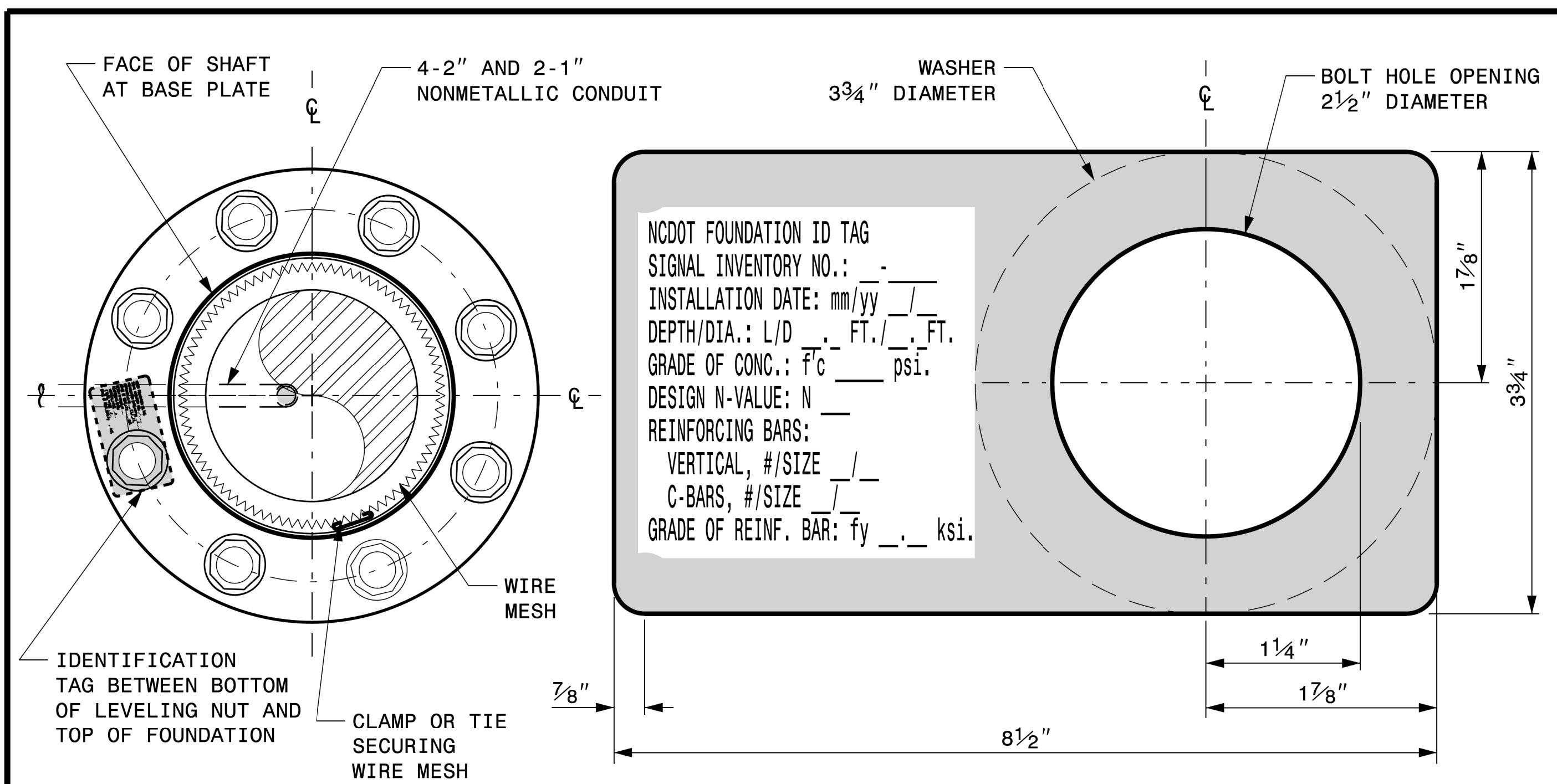
**GENERAL NOTES:**

- IF ACTUAL SUBSURFACE CONDITIONS DIFFER SIGNIFICANTLY FROM BORING DATA, CONTACT THE ENGINEER BEFORE EXCAVATING OR PLACING CONCRETE.
- CIRCULAR TIE REINFORCING RINGS MAY BE VERTICALLY ADJUSTED BY +/-3" AT A DEPTH BETWEEN 2'-0" AND 3'-0" TO FACILITATE THE INSTALLATION OF ELECTRICAL CONDUIT ENTERING IN THE CAGE.
- FOR STANDARD FOUNDATIONS, SEE SHEET SIG. M8 FOR DETAILS. VERTICAL REINFORCING BARS (V1) MAY BE HORIZONTALLY ADJUSTED BY +/-3" TO FACILITATE THE INSTALLATION OF ELECTRICAL CONDUIT ENTERING INTO THE CAGE.
- PROVIDE 2" TO 5" FOUNDATION PROJECTION ABOVE GROUND LEVEL, DEPENDING ON THE GROUND SLOPE.
- UNLESS OTHERWISE SHOWN, FOUNDATION DESIGNS ARE BASED ON NON-SLOPING LEVEL GROUND SURFACES WITH SLOPE RATIOS OF 8:1 (H:V) OR FLATTER. IF ACTUAL GROUND LINE SLOPES ARE STEEPER, CONTACT THE ENGINEER BEFORE EXCAVATING OR PLACING CONCRETE.
- CONSTRUCT FOUNDATIONS IN ACCORDANCE WITH NCDOT STANDARD PROVISIONS SPO9 R005- FOUNDATIONS AND ANCHOR ROD ASSEMBLIES FOR METAL POLES. ALL APPLICABLE 2024 NCDOT STANDARD SPECIFICATIONS ARE REFERENCED IN THIS PROVISION. REFER TO THE NCDOT RESOURCES/SPECIFICATIONS PAGE LOCATED ON THE CONNECT NCDOT WEBSITE.  
[https://connect.ncdot.gov/resources/Specifications and Special Provisions.aspx](https://connect.ncdot.gov/resources/Specifications%20and%20Special%20Provisions.aspx)
- USE AIR ENTRAINED AA CONCRETE MIX WITH A COMPRESSION STRENGTH OF f'c=4500 psi (MIN) AFTER 28 DAYS.
- USE ASTM A615 GRADE 60 DEFORMED BARS FOR ALL REINFORCING STEEL. MAINTAIN AT LEAST 3" COVER ON ALL REINFORCEMENT.
- LOCATE IDENTIFICATION TAG ON TOP OF THE FOUNDATION, DIRECTLY ABOVE THE CONDUIT'S ENTRY POINT.
- PROVIDE TWO LAYERS OF 4 MESH GALVANIZED WELDED 23 GAUGE (0.025) 6" WIDE AROUND PIPES UNDER THE BASE PLATE AND SECURE IT WITH TIES IF NECESSARY.
- PREFERRED LOCATION FOR THE I.D. TAG IS AS SHOWN IN DETAIL-A: DIRECTLY ABOVE THE CONDUIT ENTERING THE FOUNDATION.

**REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (4'-0" DIAMETER)**

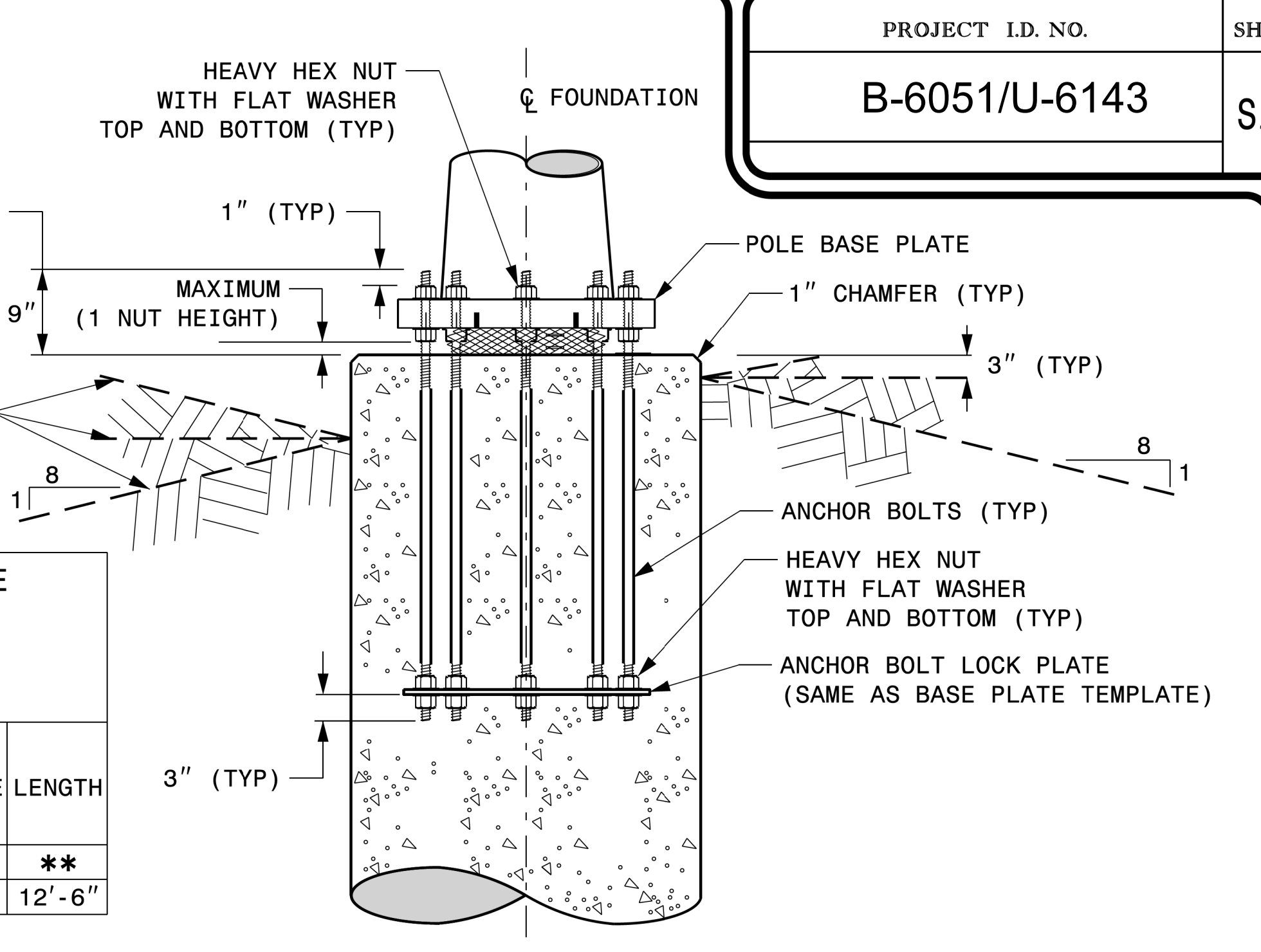
"D" SHAFT DIAMETER	CONCRETE VOLUME (CU. YDS)	BAR NAME	MIN. SIZE	TYPE	LENGTH
4'-0"	.465 X L	V1	#8	STR.	**
		C	#4	CIR.	12'-6"

\* SEE NOTE 2  
\*\* SEE NOTE 3



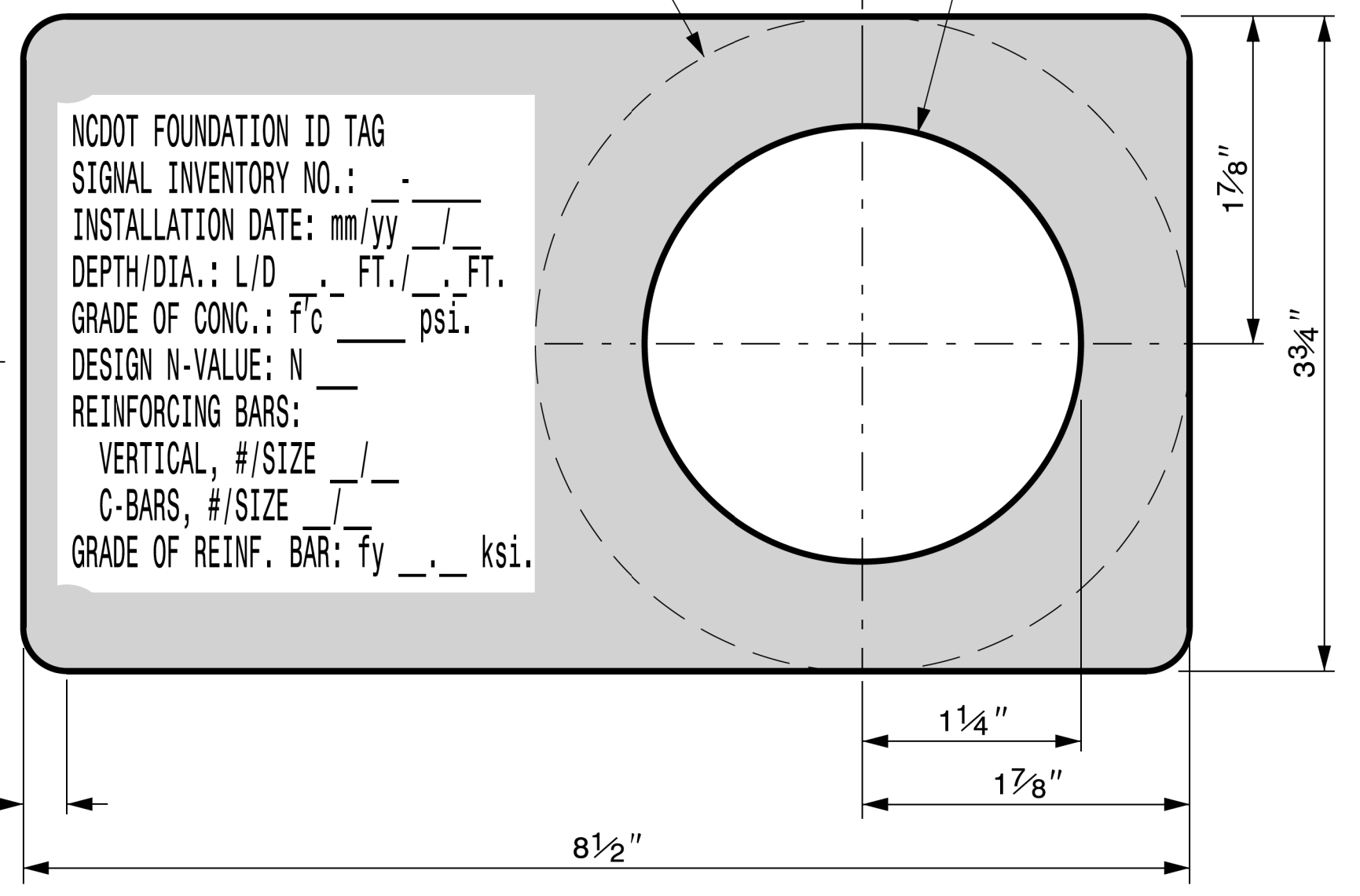
**DETAIL-A**

D = DIAMETER  
L = LENGTH / DEPTH  
mm = MONTH  
yy = YEAR



**TYPICAL FOUNDATION ANCHOR BOLT DETAILS**

(REINFORCING CAGE NOT SHOWN FOR CLARITY)



**CONCRETE FOUNDATION IDENTIFICATION TAG DETAILS**

	<p>Construction Details For Foundations</p>		
	<p>PLAN DATE: SEPTEMBER 2023 DESIGNED BY: K.C. DURIGON</p>	<p>PREPARED BY: K.C. DURIGON REVIEWED BY: D.C. SARKAR</p>	
<p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>SCALE: NA</p>	<p>REVISIONS: INIT. DATE</p>	<p>DocuSigned by: Kevin Durigon</p>

21-SEP-2023 08:06 S:\ITS\SS\WITS\S\Signal\Structures\Drawings\2024 Metal Pole Std Drawings for LRPD\2024 Sig.M7 Std. Construction Details-Strain Poles.dgn Kadar.dgn

**Construction Details - Foundations**

# SOIL CONDITION

PROJECT I.D. NO.	SHEET NO.
B-6051/U-6143	Sig.M8

STANDARD STRAIN POLES						STANDARD FOUNDATIONS 48" Diameter Drilled Pier Length (L) – Feet							Reinforcement			
Case No.	Pole Height (Ft.)	Base Plate BC (In.)	Reactions at the Pole Base			Clay				Sand			Longitudinal		Stirrups	
			Axial (kip)	Shear (kip)	Moment (ft-kip)	Medium N-Value 4-8	Stiff N-Value 9-15	Very Stiff N-Value 16-30	Hard N-Value >30	Loose N-Value 4-10	Medium N-Value 11-30	Dense N-Value >30	Bar Size (#)	Quantity (ea.)	Bar Size (#)	Spacing (in.)
S26L1	26	22	2	9	210	19.5	12.5	9	6.5	15.5	14.5	13	8	12	4	12
S26L2	26	23	2	10	240	19.5	12	9	6.5	15.5	14.5	13	8	12	4	12
S26L3	26	25	2	11	260	20.5	12	10	8	16	15	13	8	12	4	12
S30L1	30	22	2	9	230	19	11	9	7	15.5	14	12.5	8	12	4	12
S30L2	30	23	2	10	270	20	12	10	8	16	14.5	13	8	12	4	12
S30L3	30	25	2	11	290	21	12	10	8	17	15	13.5	8	12	4	12
S30H1	30	25	3	13	355	23	13	11	9	18	16.5	14.5	8	12	4	12
S30H2	30	29	3	15	405	25	14	11	9	19	17.5	15.5	8	14	4	12
S30H3	30	29	3	16	430	26	15	12	9	20	18	16	8	14	4	6
S35L1	35	22	3	8	260	19.5	12	10	8	15.5	14.5	13	8	12	4	12
S35L2	35	23	3	10	300	21	12	10	8	16.5	15	13.5	8	12	4	12
S35L3	35	25	3	10	320	21.5	13	10	8	17	15.5	14	8	12	4	12
S35H1	35	25	3	12	390	23.5	14	11	9	18	17	15	8	14	4	12
S35H2	35	29	4	14	460	26	15	12	9	20	18	16	8	14	4	6
S35H3	35	29	4	16	495	28.5	15	13.5	10	21.5	19	17	8	14	4	6


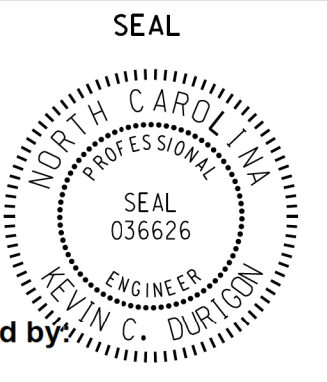

**GENERAL NOTES:**

1. VALUES SHOWN IN THE "REACTIONS AT THE POLE BASE" COLUMN REPRESENT THE MINIMUM ACCEPTABLE CAPACITY ALLOWED FOR DESIGN USING A COMBINED FORCE RATIO (CFR) OF 1.00.
2. USE CHAIRS AND SPACERS TO MAINTAIN PROPER CLEARANCE.
3. FOR FOUNDATION, ALWAYS USE AIR-ENTRAINED CONCRETE MIX.

**FOUNDATION SELECTION:**

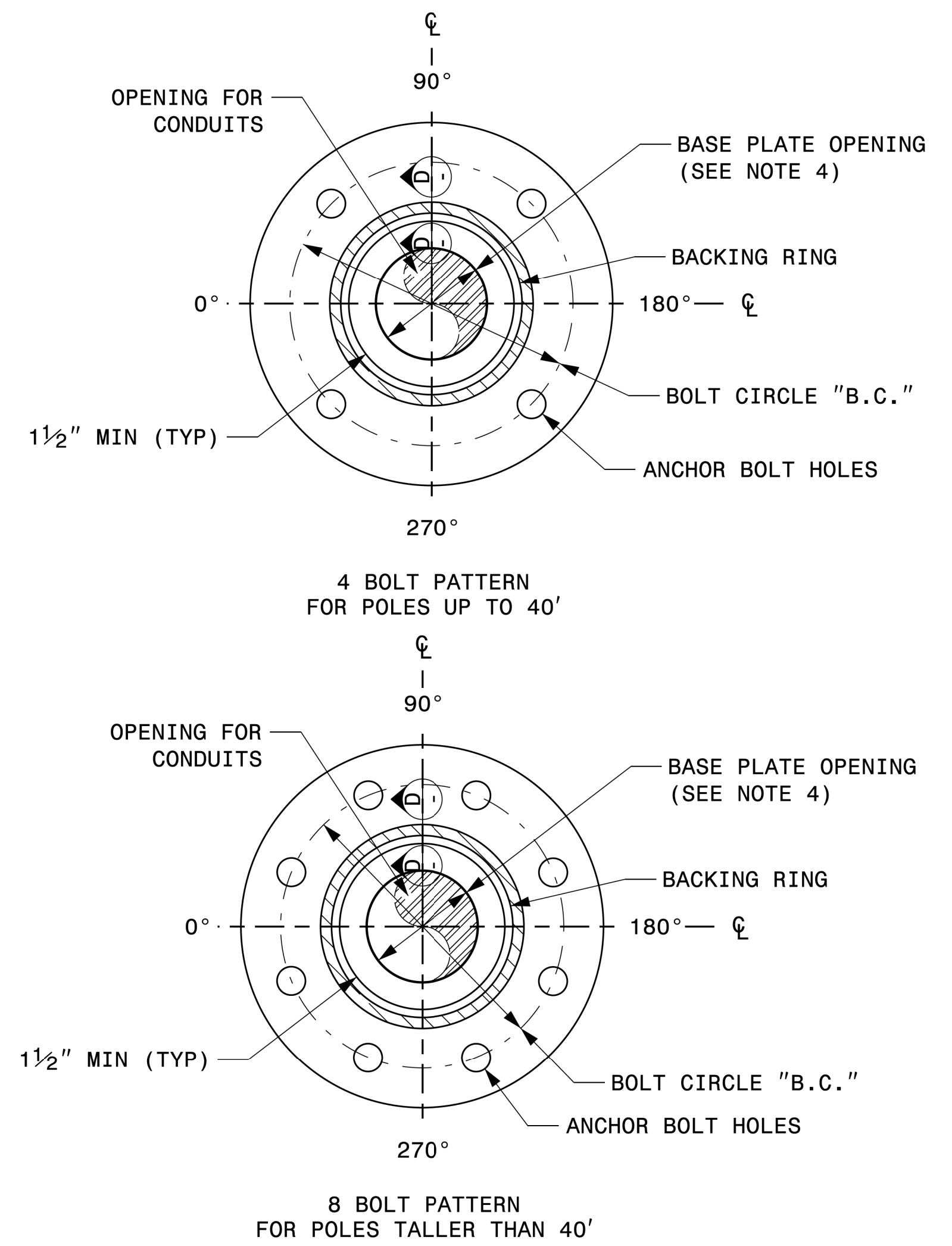
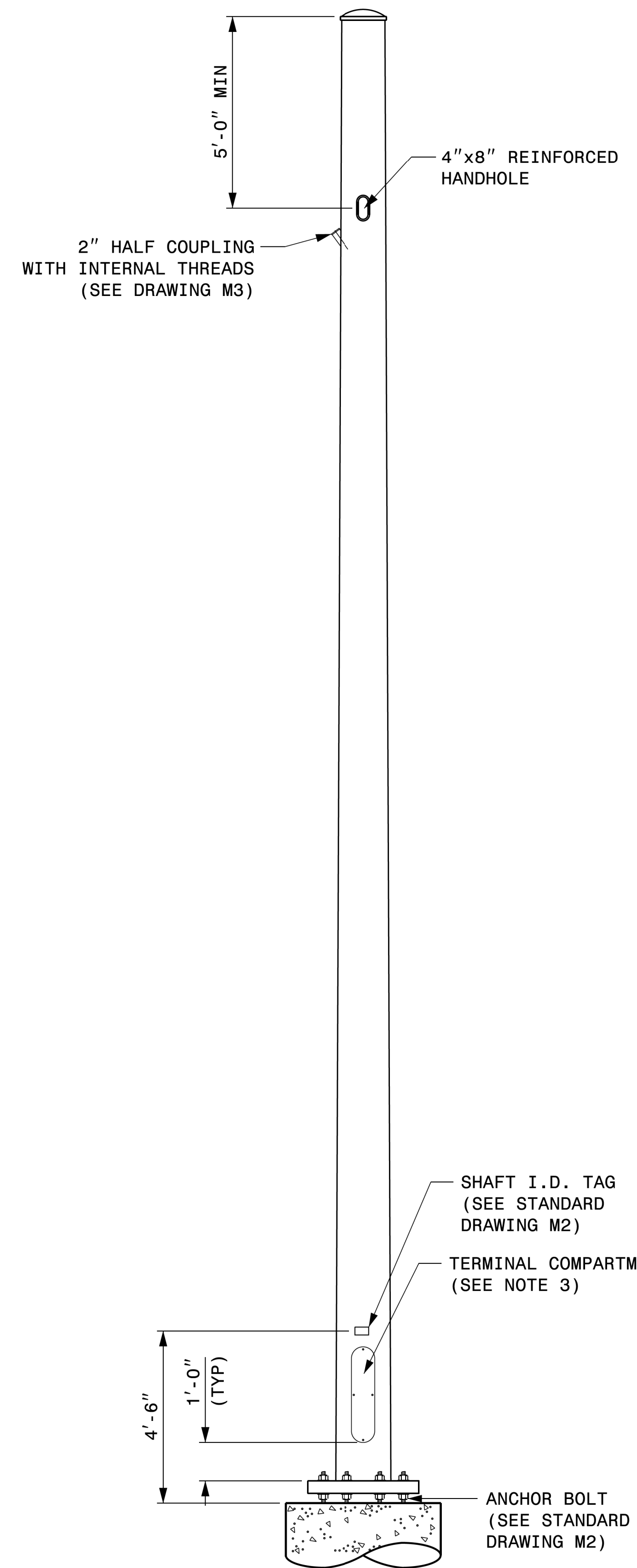
1. PERFORM A STANDARD PENETRATION TEST AT EACH PROPOSED FOUNDATION SITE TO DETERMINE "N" VALUE.
2. SELECT THE APPROPRIATE WIND ZONE FROM M1 DRAWING.
3. SELECT THE SOIL TYPE (CLAY OR SAND) THAT BEST DESCRIBES THE SOIL CHARACTERISTICS.
4. GET THE APPROPRIATE STANDARD POLE CASE NUMBER FROM THE PLANS OR FROM THE ENGINEER.
5. SELECT THE APPROPRIATE COLUMN UNDER "STANDARD FOUNDATIONS" BASED ON SOIL TYPE AND "N" VALUE. SELECT THE APPROPRIATE ROW BASED ON THE POLE LOAD CASE.
6. THE FOUNDATION DEPTH IS THE VALUE SHOWN IN THE "STANDARD FOUNDATIONS" CATEGORY WHERE THE COLUMN AND THE ROW INTERSECT.
7. USE CONSTRUCTION PROCEDURES AND DESIGN METHODS PRESCRIBED BY FHWA-NHI-10-016 MANUAL FOR DRILLED SHAFTS.

48" DIAMETER FOUNDATION CONCRETE VOLUME (CUBIC YARDS) = (0.465) x DRILLED PIER LENGTH

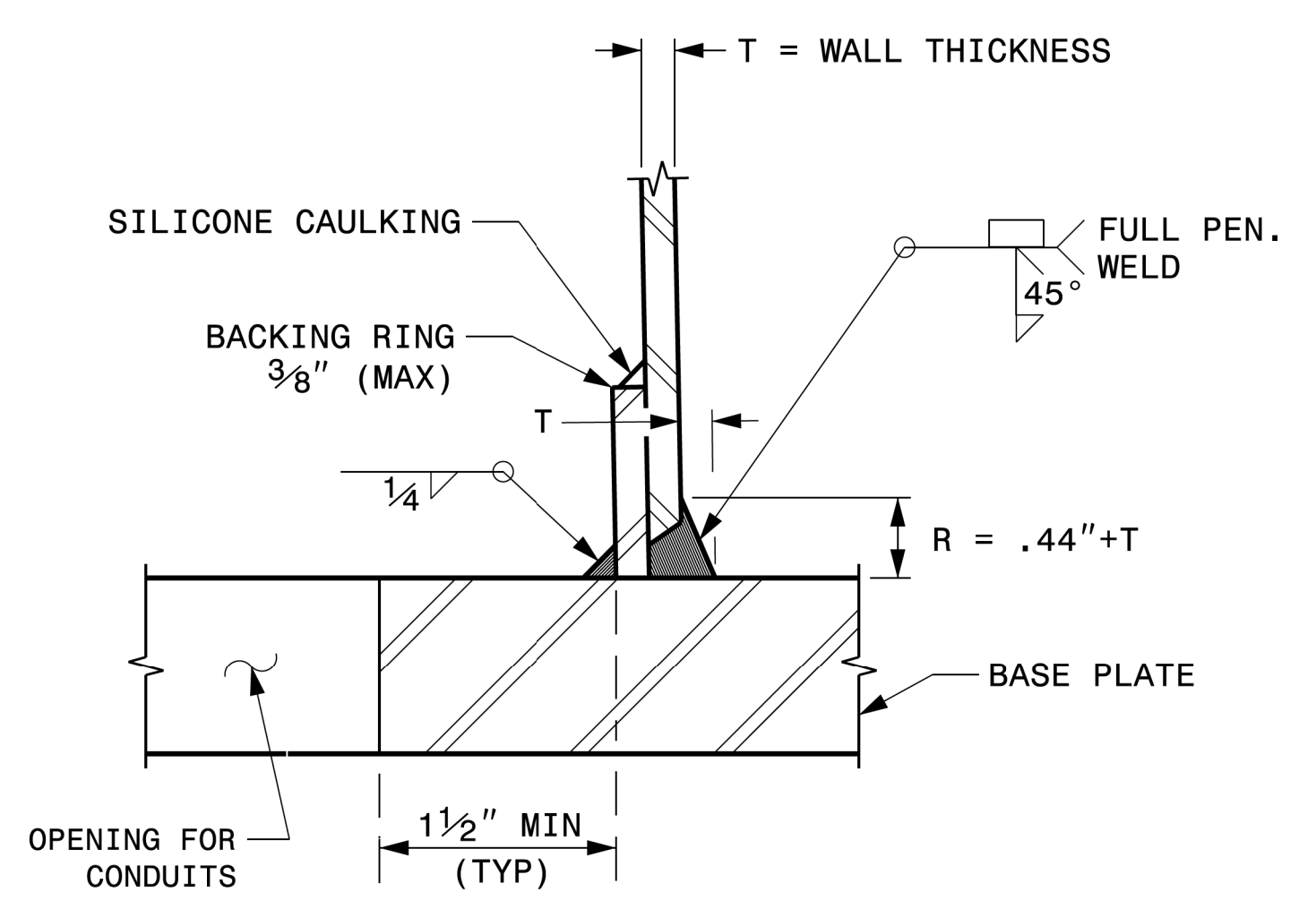
 Prepared in the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529	<b>Standard Strain Pole Foundation for All Soil Conditions</b>	SEAL  DocuSigned by: 
SCALE: NA NONE	PLAN DATE: SEPTEMBER 2023    DESIGNED BY: K.C. DURIGON PREPARED BY: K.C. DURIGON    REVIEWED BY: D.C. SARKAR	REVISIONS:    INIT.    DATE _____ _____ _____
		09/21/2023 DATE

21-SEP-2023 08:08  
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 KCD:KDM

Standard Strain Pole Foundation – All Soil Conditions



**BASE PLATE DETAILS**



**SECTION D-D**  
(POLE ATTACHMENT TO BASE PLATE)  
**FULL-PENETRATION**  
**GROOVE WELD DETAIL**

**CCTV CAMERA POLE**  
(NOT TO SCALE)

**NOTES:**

1. THIS DRAWING PROVIDES BASIC DETAILS FOR CCTV POLES. PROJECT REQUIREMENTS MAY REQUIRE SPECIAL FACTORY PREPS THAT ARE NOT SHOWN ON THESE DETAILS.
2. DETAILS FOR INTERNAL CAMERA LOWERING SYSTEMS ARE NOT SHOWN.
3. POLE MOUNTED CABINETS MAY REQUIRE MODIFICATIONS TO THE LOWER HANDHOLE OPENING TO MOUNT CABINETS. 4" X 8" REINFORCED HANDHOLES ARE ACCEPTABLE OPTIONS, AND MAY BE PREFERRED.
4. OPENING IN POLE BASE SHALL BE EQUAL TO POLE BASE INSIDE DIAMETER MINUS 3 1/2" BUT SHALL NOT BE LESS THAN 8 1/2".
5. USE COMPACT SECTION CRITERIA D/T RATIO PER AASHTO LTS-LRFD 1ST EDITION SECTION 5.7.2.

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: NONE

Typical Fabrication Details For CCTV Poles

PLAN DATE: SEPTEMBER 2023	DESIGNED BY: K.C. DURIGON
PREPARED BY: K.C. DURIGON	REVIEWED BY: C.F. ANDREWS
REVISIONS	INIT. DATE

SEAL

DocuSigned by:  
**Kevin Durigon**  
SIGNATURE

09/21/2023  
DATE

21-SEP-2023 08:16 S:\AT\56\UMTS Signals\Signal Design Sections\Structures\Drawings\2024 Metal Pole Std Drawings for LRFD\2024 Sig.M9 Fabrication Details - CCTV Poles.dgn Kevin G. Durigon

- 1 INSTALL COAX CABLE
- 2 INSTALL ETHERNET CABLE
- 3 INSTALL 3-WIRE COPPER FEEDER CONDUCTORS
- 4 INSTALL SMFO CABLE
- 5 EXISTING SMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 9 INSTALL PVC CONDUIT
- 10 INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12 INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUB-OUTS
- 22 INSTALL NEW CONDUIT INTO 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 NEW ETHERNET EDGE SWITCH
- 27 INSTALL NEW FIBER OPTIC TRANSCEIVER
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPLICE CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPLICE ENCLOSURE
- 30 INSTALL AERIAL SPLICE ENCLOSURE
- 31 MODIFY EXISTING INTERCONNECT CENTER /SPLICE ENCLOSURE
- 32 INSTALL POLE MOUNTED SPLICE CABINET
- 33 INSTALL BASE MOUNTED SPLICE CABINET

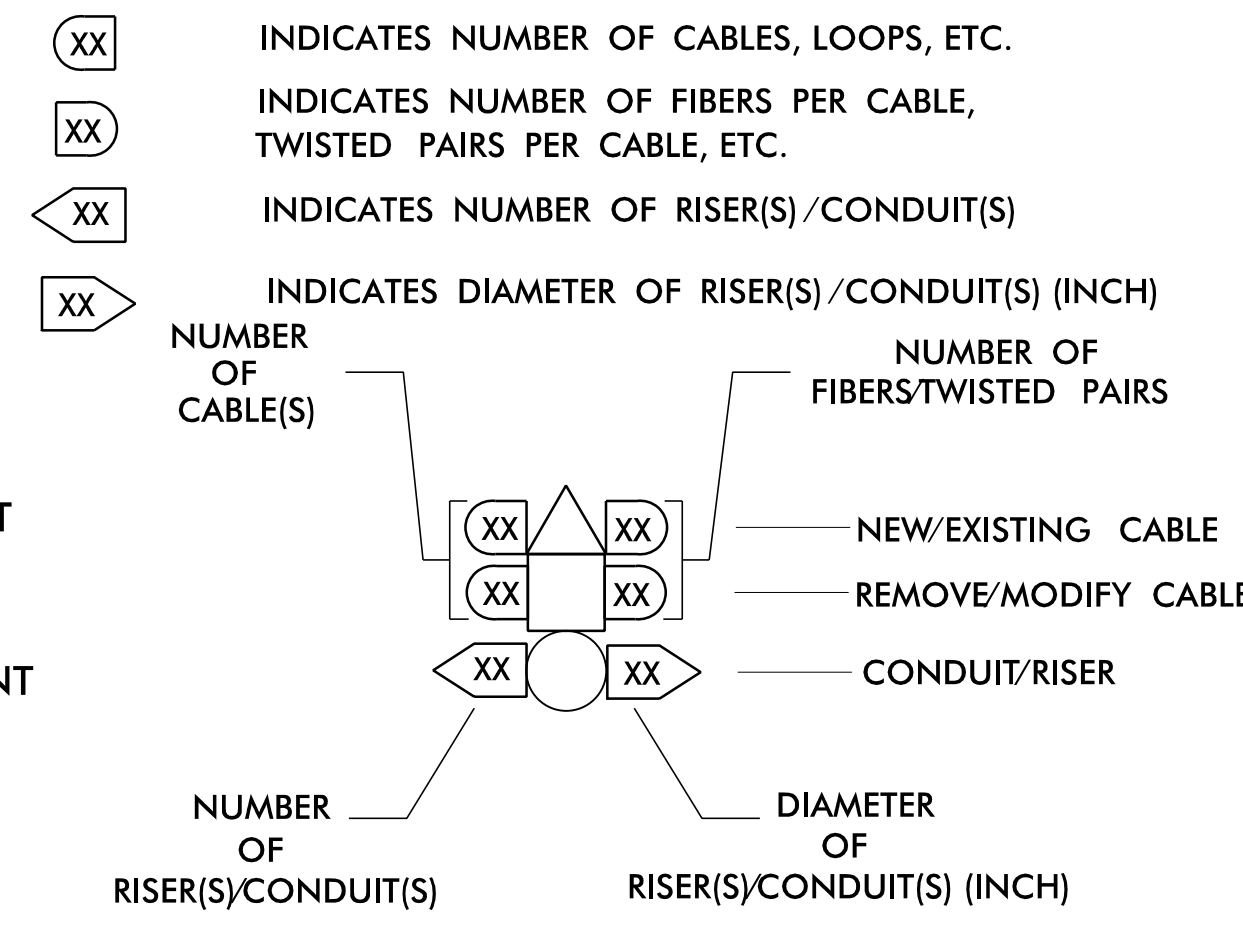
- 34 INSTALL CABINET FOUNDATION
- 35 INSTALL CCTV CAMERA POLE MOUNTED CABINET
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40A INSTALL OVERSIZED JUNCTION BOX
- 40B INSTALL SPECIAL OVERSIZED JUNCTION BOX (36" x 24" x 24")
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48A REMOVE EXISTING COMMUNICATIONS AND MESSENGER CABLE
- 48B REMOVE EXISTING COMMUNICATIONS CABLE
- 49 BACK PULL EXISTING COMMUNICATIONS CABLE
- 50 INSTALL CELL MODEM AND ANTENNA
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53A STORE 20 FEET OF COMMUNICATIONS CABLE
- 53B STORE 50 FEET OF EACH COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE
- 59 INSTALL NEW EQUIPMENT CABINET DISCONNECT
- 60 INSTALL NEW POLE MOUNTED CABINET
- 61 BOND TRACER WIRE TO EQUIPMENT GROUND BUS
- 62 DO NOT BOND TRACER WIRE TO EQUIPMENT GROUND BUS
- 63 BOND RISER AND MESSENGER CABLE TO POLE GROUND
- 64 BOND RISER TO POLE GROUND
- 65 BOND MESSENGER CABLE TO POLE GROUND
- 66 INSTALL HEAT SHRINK TUBING RETROFIT KIT
- 67 INSTALL MOLDABLE DUCT SEAL
- 68 SLACK SPAN

**LEGEND**

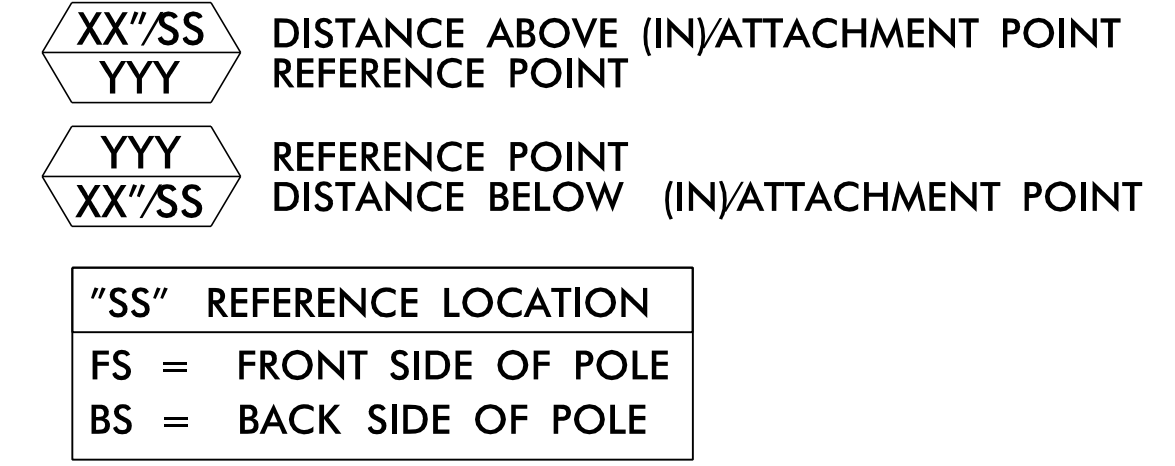
	NEW FIBER OPTIC COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE
	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
	NEW AERIAL GUY ASSEMBLY
	NEW CONDUIT
	EXISTING CONDUIT
	NEW DIRECTIONAL DRILLED CONDUIT

NEW	EXISTING

**CONSTRUCTION NOTE SYMBOLOGY KEY**



**ATTACHMENT POINT:**



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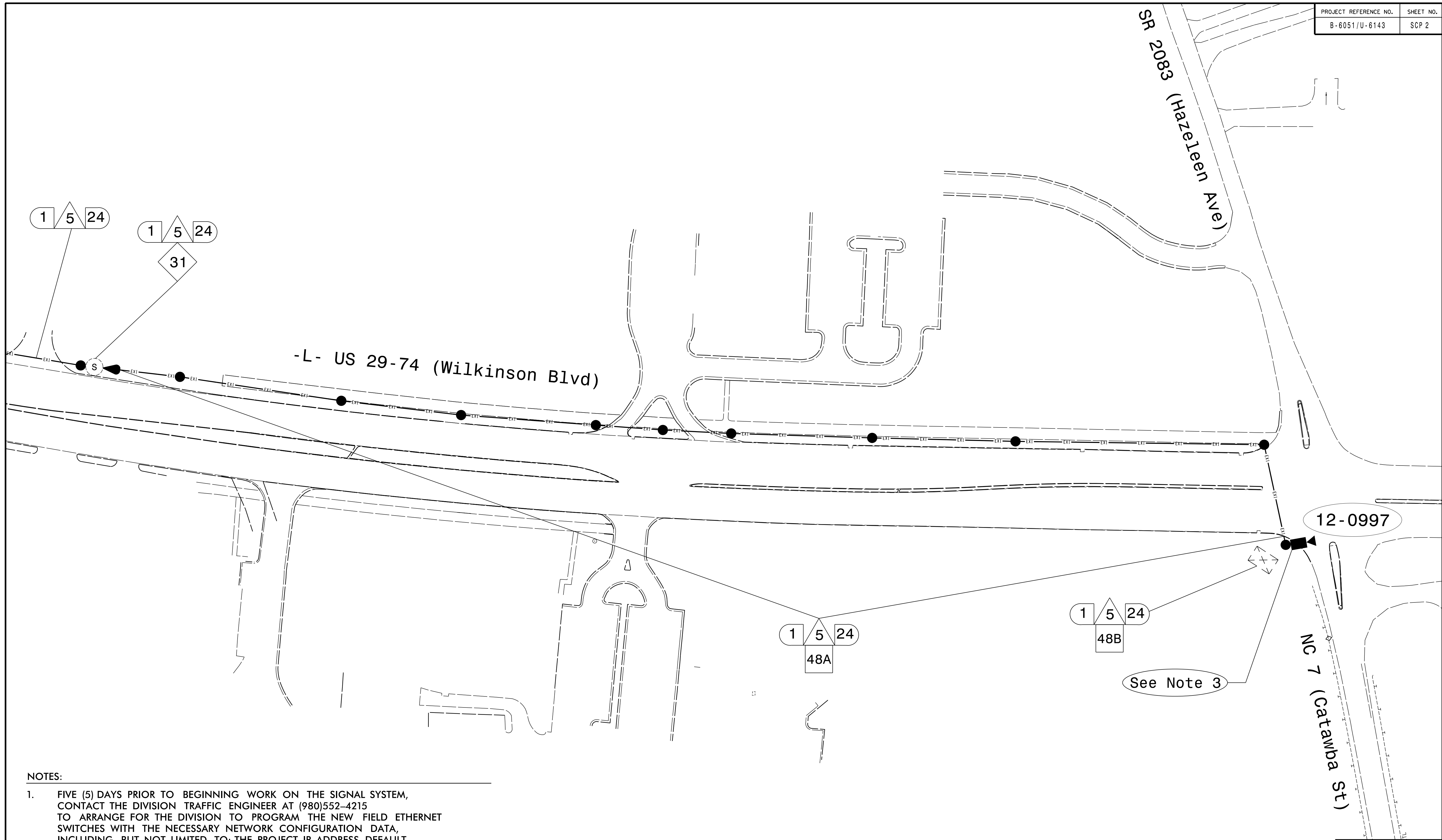
**D12-09 Belmont**  
**B-6051/U-6143**  
**Signal Communication Plans**

Division 12 Gaston County Belmont  
 PLAN DATE: August 2025 REVIEWED BY: DT Sears  
 PREPARED BY: WP Erickson-Jones REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEERS  
 SEAL 044558  
 DAVID T. SEARS  
 8/11/2025  
 SIGNATURE DATE  
 CADD Filename:



**NOTES:**

1. FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (980)552-4215 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 DIVISION TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.
2. CELL MODEM TO BE SUPPLIED BY THE DEPARTMENT. CONTACT THE DIVISION 12 TRAFFIC ENGINEER AT (980)552-4215 TO REQUEST THE CELL MODEM. ALLOW AN 8 WEEKS LEAD TIME BEFORE ANTICIPATED DEPLOYMENT. CELL MODEM TO BE INSTALLED AT SIN# 12-0997 AS SOON AS IT HAS BEEN ACQUIRED AND SUPPLIED BY THE DIVISION TRAFFIC ENGINEER.
3. REMOVE EXISTING CCTV EQUIPMENT AND RETURN CCTV AND ASSOCIATED HARDWARE TO THE DIVISION TRAFFIC ENGINEER AT 130 E MARION ST, SHELBY, 28151-0047.

**TMP PHASE 1**

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 750 N. Greenfield Place, Garner, NC 27529  
 SCALE

D12-09 Belmont B-6051/U-6143 Signal Communication Plans	
Division 12	Gaston County Belmont
PLAN DATE: August 2025	REVIEWED BY: DT Sears
PREPARED BY: WP Erickson-Jones	REVIEWED BY:
REVISIONS	INIT. DATE

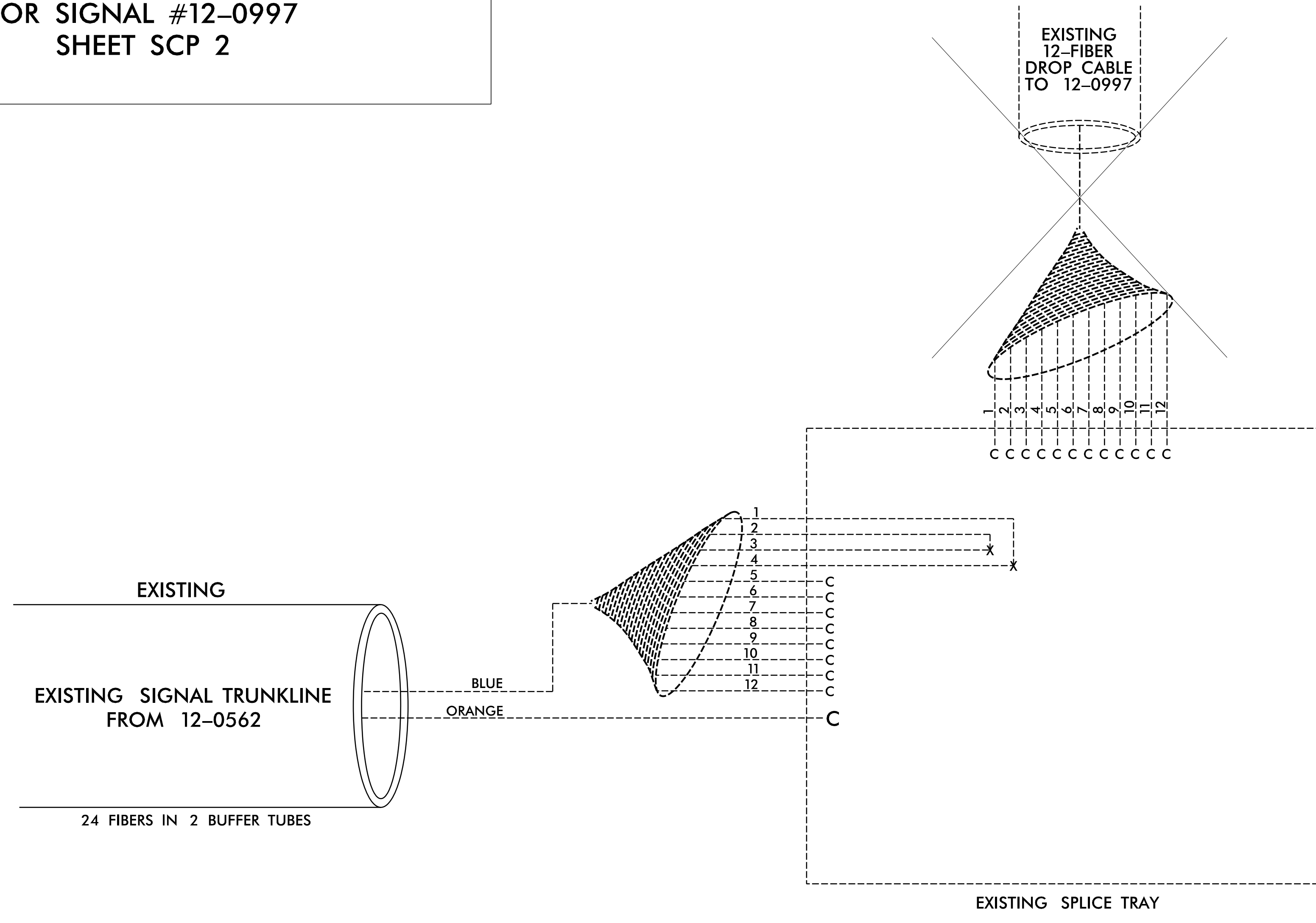
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 044558  
 DAVID T. SEARS  
 David T. Sears  
 069183F28E5741E  
 SIGNATURE DATE  
 8/1/2025  
 SIG. INVENTORY NO.

8/1/2025  
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 dsccor5

# FIBER OPTIC CABLE

MODIFY SPLICE ENCLOSURE  
FOR SIGNAL #12-0997  
SHEET SCP 2



COLOR CODE TIA/EIA 598-A		LEGEND	
(1) BLUE	(7) RED	C = CAP AND SEAL	
(2) ORANGE	(8) BLACK	X = FUSION SPLICE INDIVIDUAL FIBER	
(3) GREEN	(9) YELLOW		
(4) BROWN	(10) VIOLET	<b>BUFFER TUBE</b> = EXPRESS ENTIRE BUFFER TUBE	
(5) SLATE	(11) ROSE	<b>SPLICE</b> = SPLICE ENTIRE BUFFER TUBE COLOR TO COLOR	
(6) WHITE	(12) AQUA		

**NOTES:**

- FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY, ACTUAL EQUIPMENT FORM MAY VARY.
- UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
- UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.
- ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
- DROP CABLE INTO THE SIGNAL CABINET TO BE REMOVED. ONCE CELL MODEM HAS BEEN SUPPLIED BY THE DIVISION TRAFFIC ENGINEER, INSTALL IN THE SIGNAL CABINET.
- INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:
  - SPLICE
  - DATE
  - COMPANY NAME
  - NAME OF INDIVIDUAL PERFORMING THE SPLICING

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

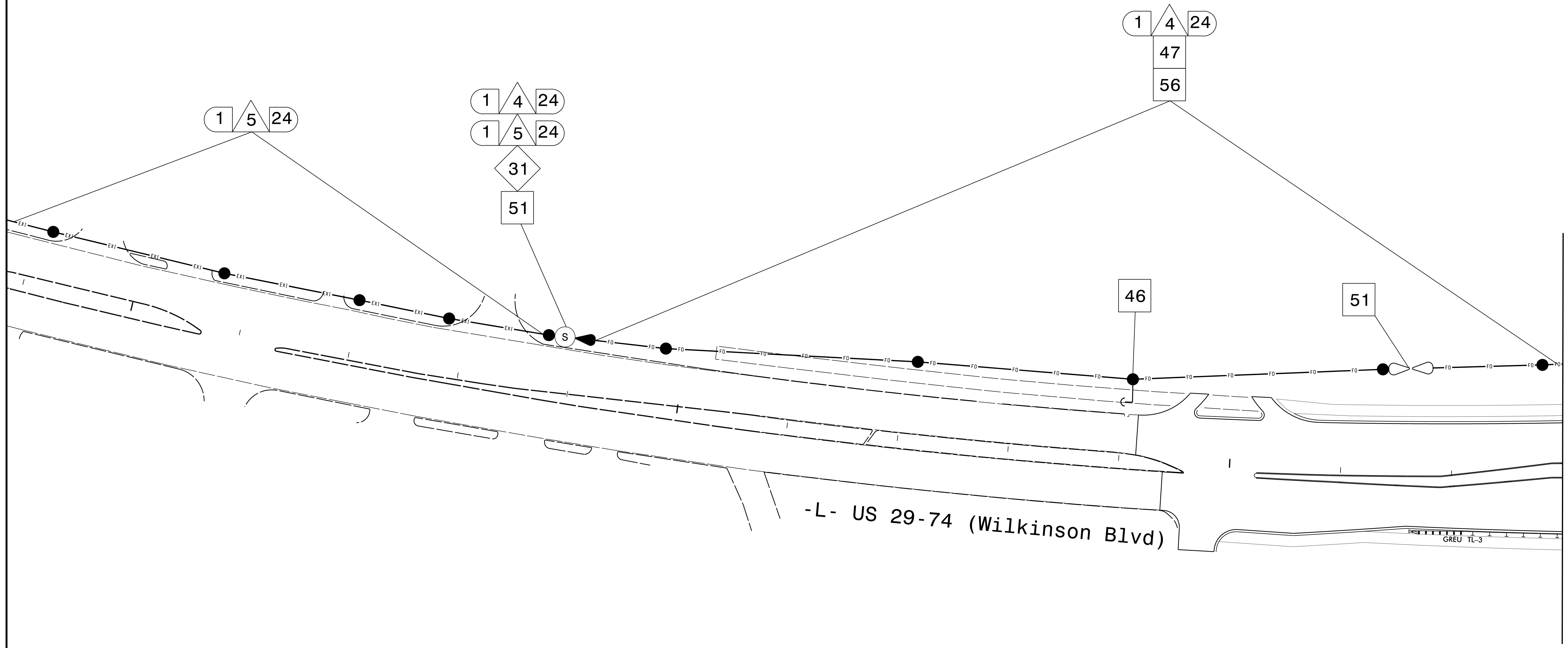
**TMP PHASE 1**

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	<b>SPLICE DETAILS</b>	
	Division 12 Gaston County Belmont PLAN DATE: August 2025 REVIEWED BY: DT Sears PREPARED BY: WP Erickson-Jones REVIEWED BY:	REVISIONS INIT. DATE _____ _____
SCALE N/A	SIGNATURE _____ DATE 8/11/2025	CADD Filename:

8/11/2025  
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 dsccs



NOTES:

- FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL SYSTEM, CONTACT THE DIVISION TRAFFIC ENGINEER AT (980)552-4215 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 DIVISION TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE SIGNAL SYSTEM IS BACK UP AND OPERATIONAL.

FINAL

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8/1/2025  
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 750 N. Greenfield Place, Garner, NC 27529  
 SCALE

D12-09 Belmont B-6051/U-6143 Signal Communication Plans	
Division 12	Gaston County Belmont
PLAN DATE: August 2025	REVIEWED BY: DT Sears
PREPARED BY: WP Erickson-Jones	REVIEWED BY:
REVISIONS	INIT. DATE

Seal of David T. Sears, Professional Engineer, License No. 044558, State of North Carolina. Includes signature and date 8/1/2025.

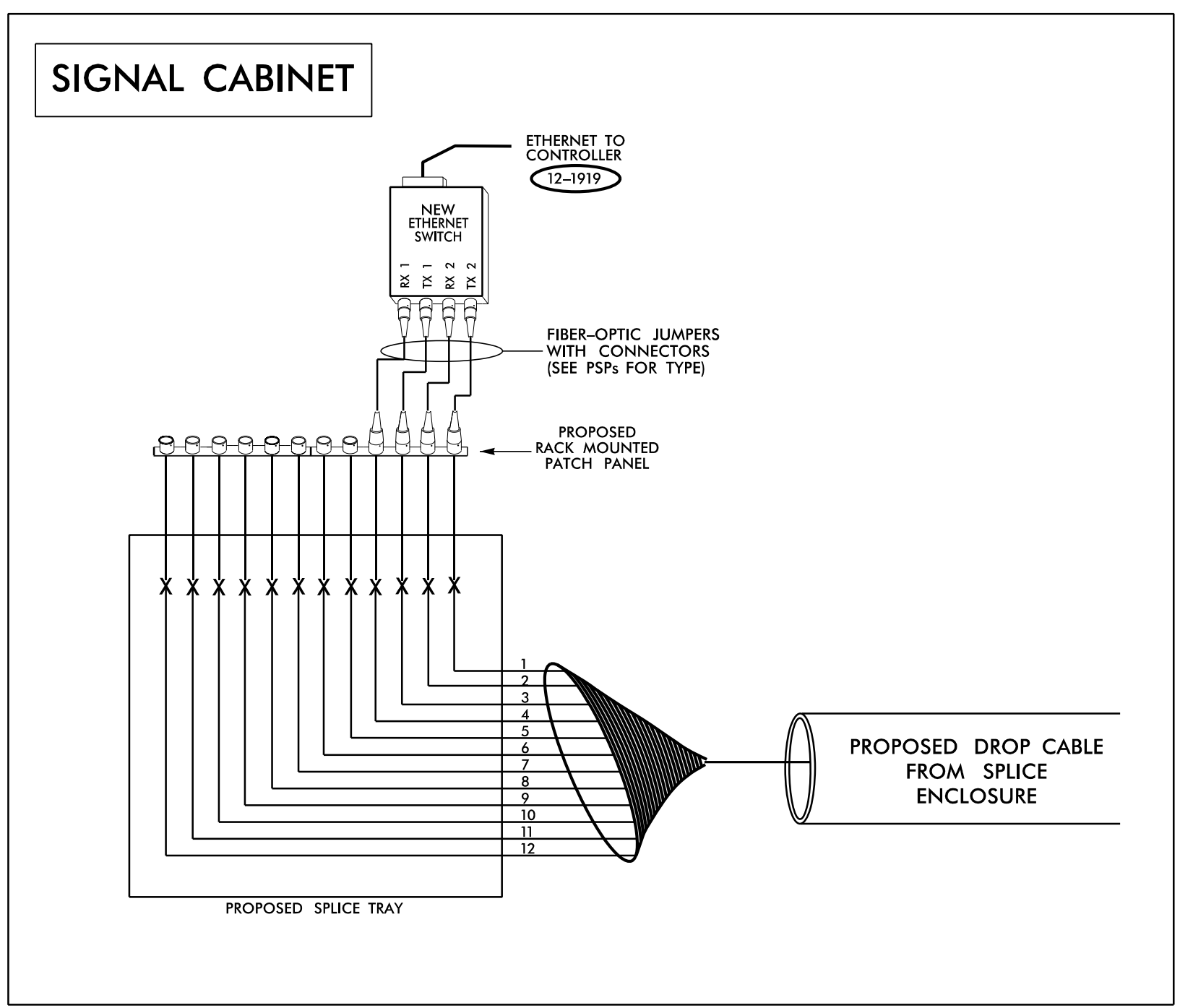
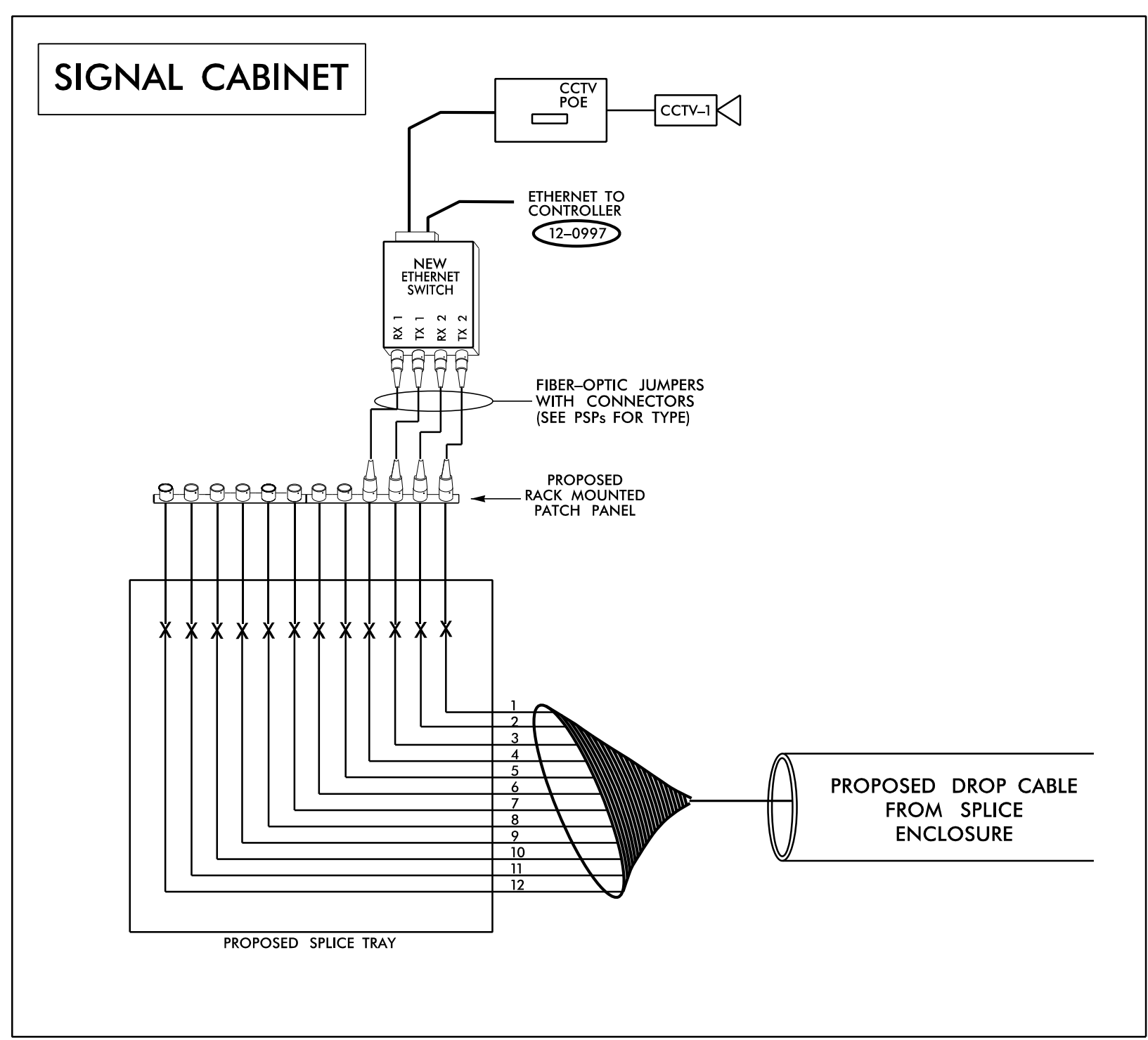
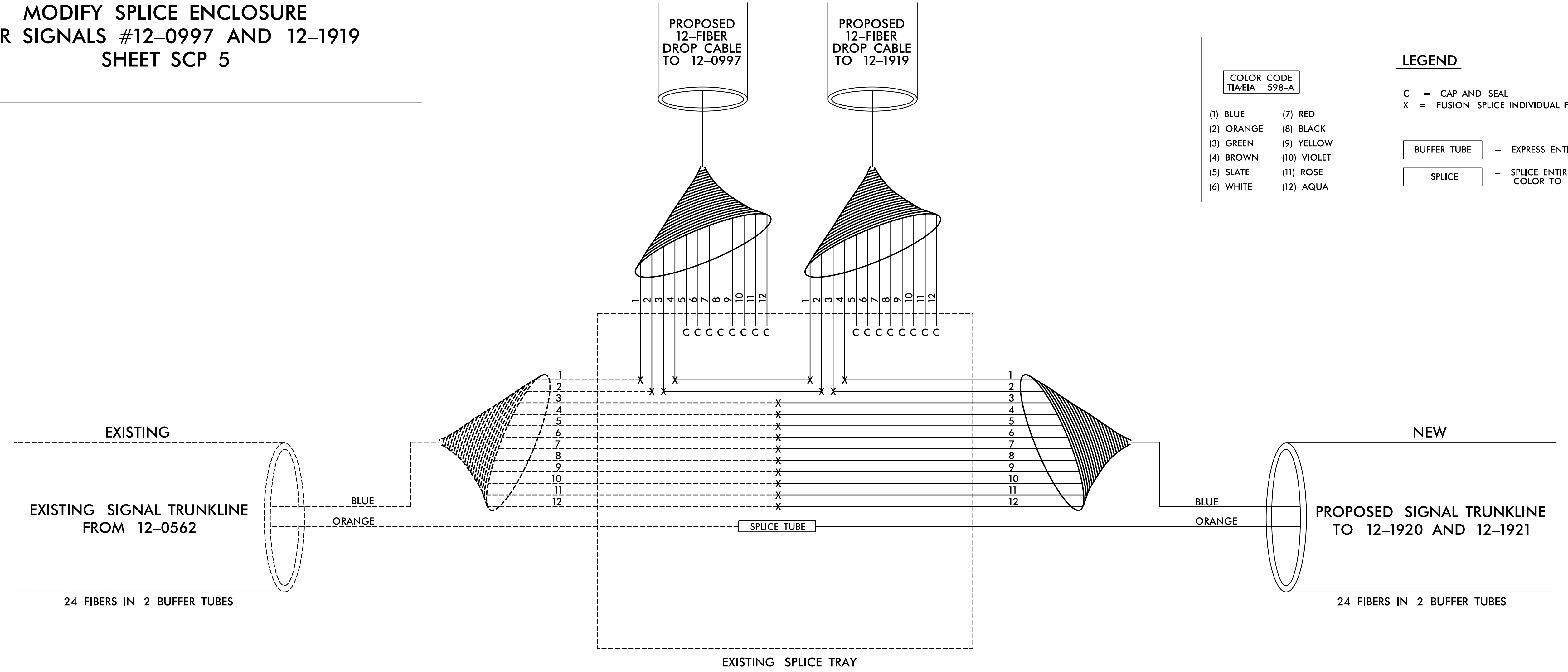




**MODIFY SPLICE ENCLOSURE  
FOR SIGNALS #12-0997 AND 12-1919  
SHEET SCP 5**

**FIBER OPTIC CABLE**

COLOR CODE TIA/EIA 598-A		LEGEND	
(1) BLUE	(7) RED	C = CAP AND SEAL	
(2) ORANGE	(8) BLACK	X = FUSION SPLICE INDIVIDUAL FIBER	
(3) GREEN	(9) YELLOW		
(4) BROWN	(10) VIOLET	= EXPRESS ENTIRE BUFFER TUBE	
(5) SLATE	(11) ROSE	= SPLICE ENTIRE BUFFER TUBE COLOR TO COLOR	
(6) WHITE	(12) AQUA		



**NOTES:**

1. FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY, ACTUAL EQUIPMENT FORM MAY VARY.
  2. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
  3. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.
  4. ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
  5. INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:  
(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 OTRD TEST RESULTS TO THE ENGINEER.

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

Prepared for the Offices of:  
  
**SPLICE DETAILS**

Division 12 Gaston County Belmont  
 PLAN DATE: August 2025 REVIEWED BY: DT Sears  
 PREPARED BY: WP Erickson-Jones REVIEWED BY:

REVISIONS	INIT.	DATE

SCALE: N/A

David T. Sears  
 8/11/2025

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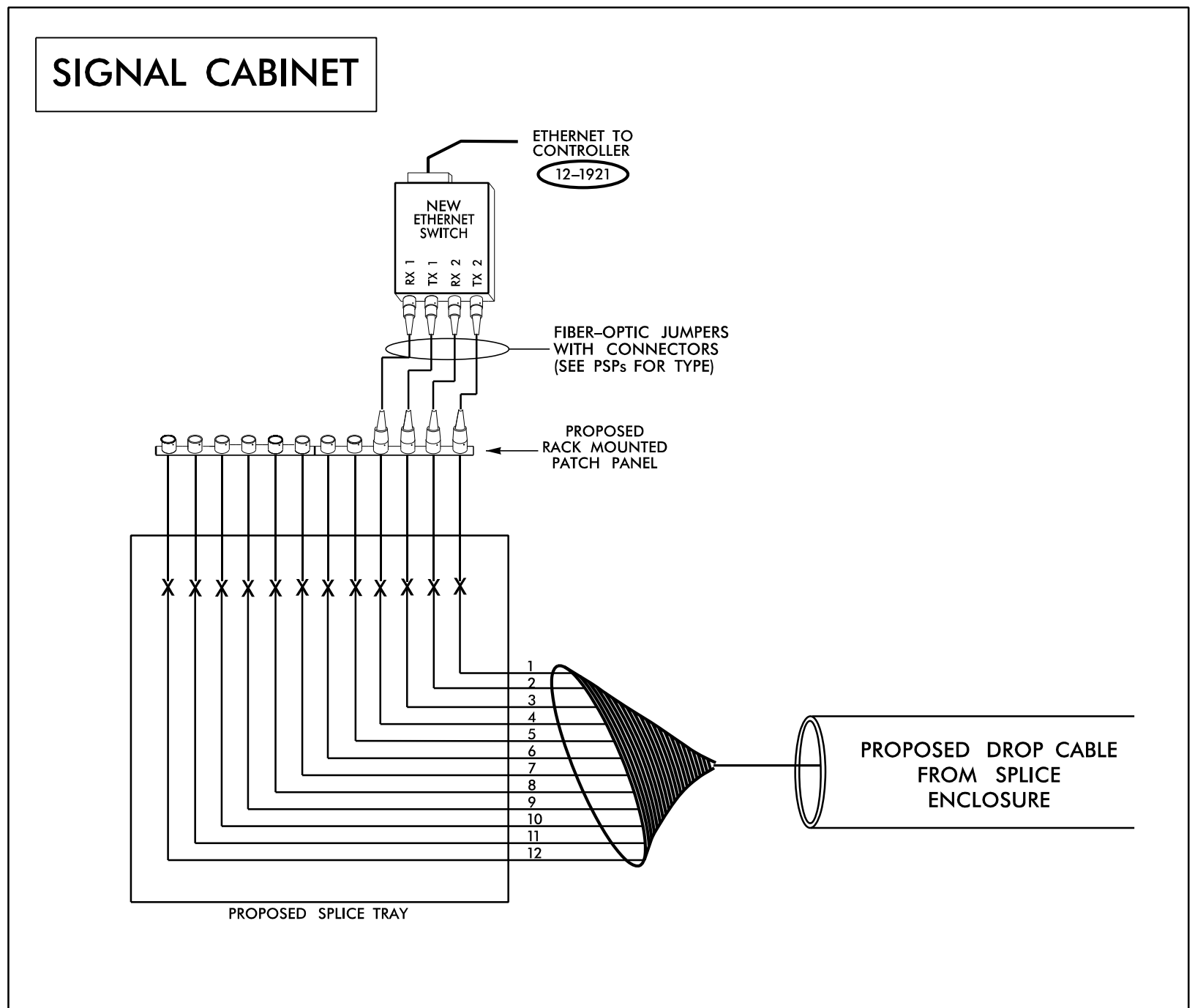
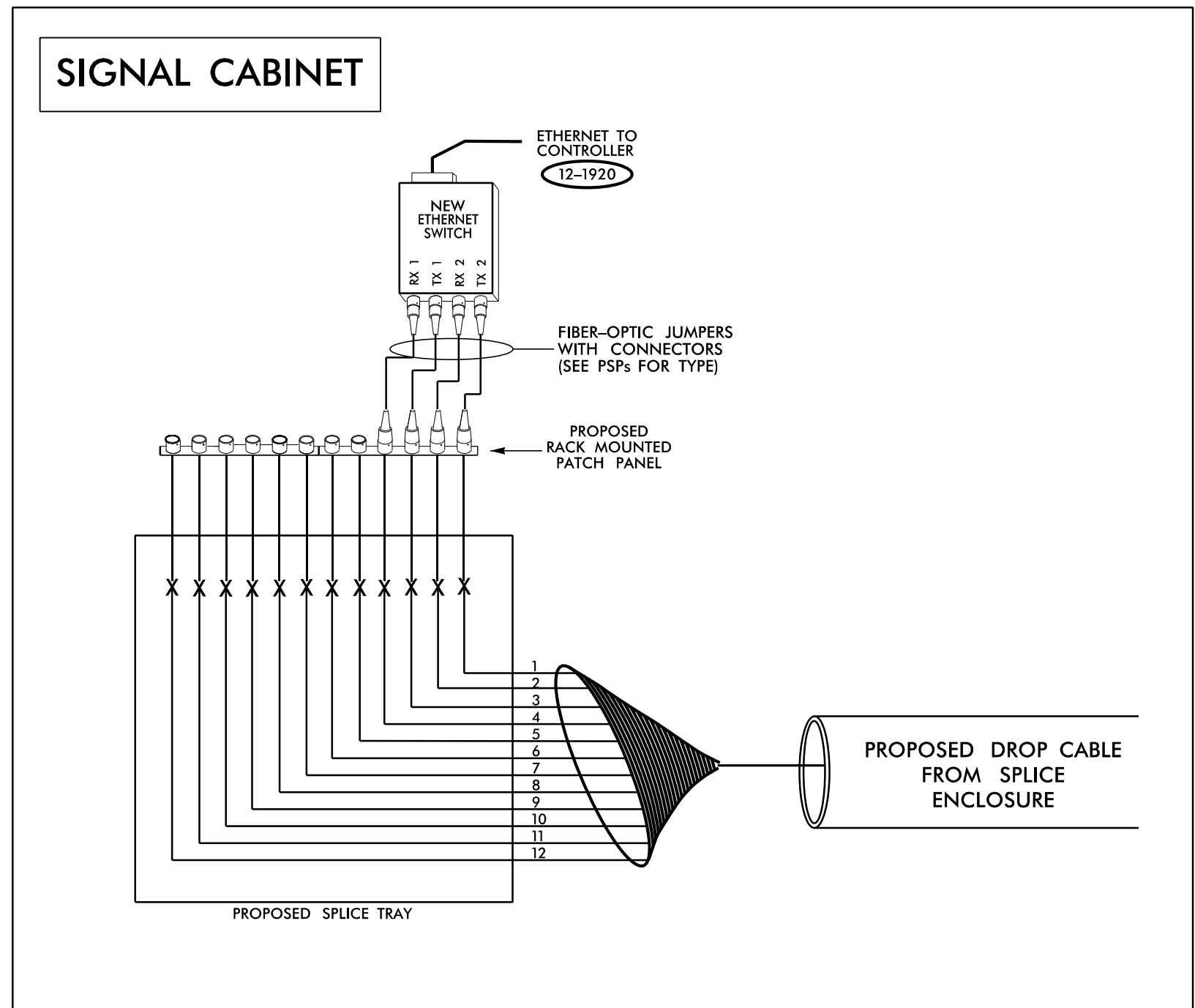
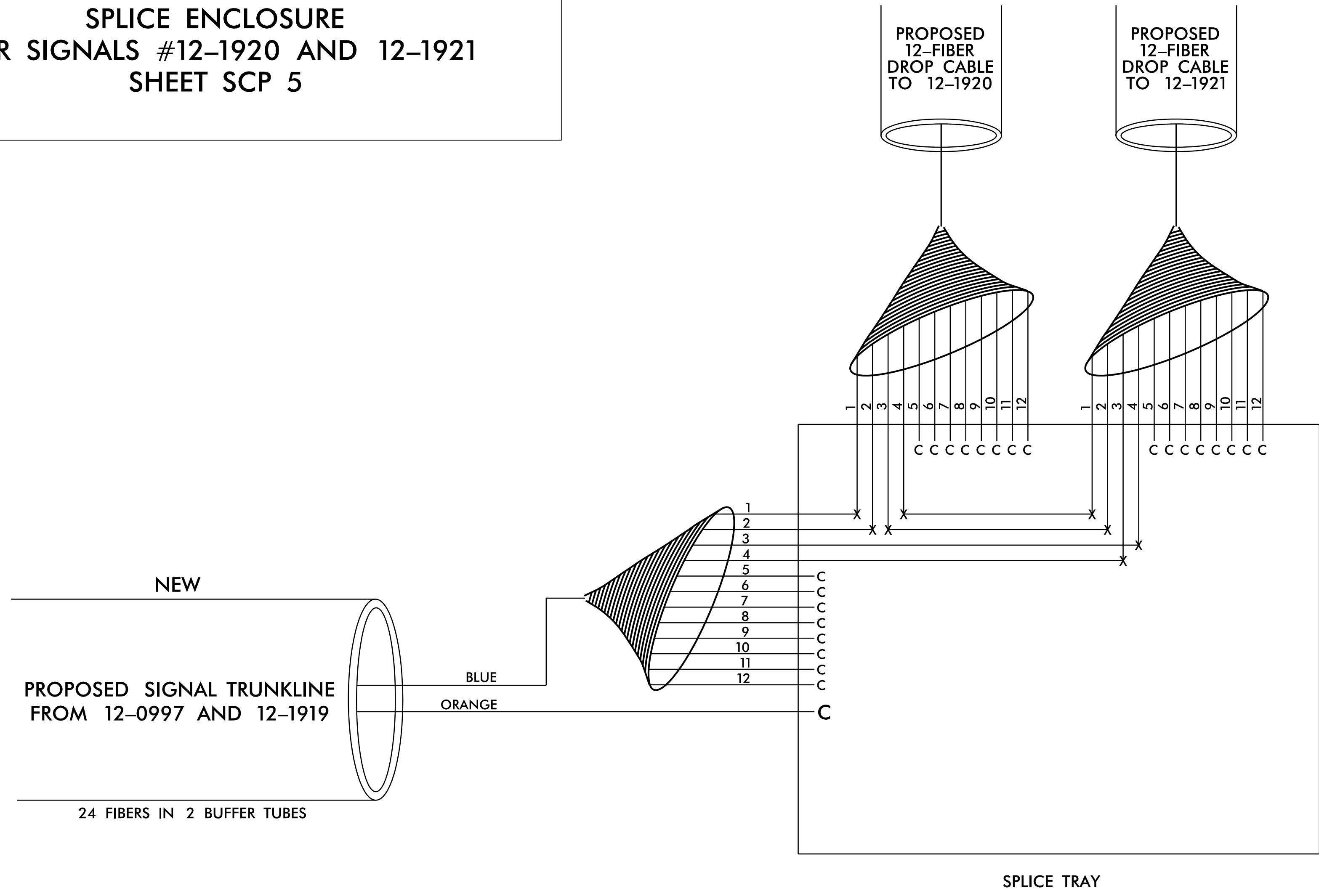
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# FIBER OPTIC CABLE

**SPLICE ENCLOSURE  
FOR SIGNALS #12-1920 AND 12-1921  
SHEET SCP 5**

COLOR CODE TIA/EIA 598-A		LEGEND	
(1) BLUE	(7) RED	C = CAP AND SEAL	
(2) ORANGE	(8) BLACK	X = FUSION SPLICE INDIVIDUAL FIBER	
(3) GREEN	(9) YELLOW	<span style="border: 1px solid black; padding: 2px;">BUFFER TUBE</span> = EXPRESS ENTIRE BUFFER TUBE	
(4) BROWN	(10) VIOLET	<span style="border: 1px solid black; padding: 2px;">SPLICE</span> = SPLICE ENTIRE BUFFER TUBE COLOR TO COLOR	
(5) SLATE	(11) ROSE		
(6) WHITE	(12) AQUA		



**NOTES:**

- FIBER INTERCONNECT CENTER RACKS ARE SCHEMATIC ONLY, ACTUAL EQUIPMENT FORM MAY VARY.
  - UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
  - UNUSED BUFFER TUBES LEFT COILED AND STORED IN SPLICE TRAY.
  - ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING /ENSURING PROPER TERMINATION.
  - INCLUDE ON THE COVER OF EACH SPLICE TRAY THE FOLLOWING:  
(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 OTRD TEST RESULTS TO THE ENGINEER.

**FINAL**

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

		<b>SPLICE DETAILS</b>			
Division 12 Gaston County Belmont		PLAN DATE: August 2025 REVIEWED BY: DT Sears		PREPARED BY: WP Erickson-Jones REVIEWED BY:	
SCALE: N/A		REVISIONS:		INIT. DATE	
Signature: <i>David T. Sears</i>		Signature:		DATE: 8/11/2025	

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