



# Extenet Systems, Inc.

BAY STATE ROAD/BACK BAY WEST COMMISSION 6/13/21

# Scope of Work:

- ▶ Replace existing streetlight and attach a wireless communications antenna at the top of the new pole along with related equipment inside a mounted cabinet. Utilities to be brought underground to the new pole.
- ▶ This replacement will be done in accordance with the Agreement between the Applicant and the City of Boston.

# Locations:

<b>NE-MA- BSTN3N01- 03127</b>	<b>Bay State Rd./Back Bay West Commission</b>	<b>147 Bay State Rd.</b>	<b>Concrete Pole</b>
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# 147 Bay State Rd.

(Existing Conditions)



# 147 Bay State Rd.

(Existing Conditions)



# 147 Bay State Rd.

(Existing Conditions)



LATITUDE: 42.350344°  
LONGITUDE: -71.099920°



LOCATION AND DESIGN APPROVED  
BOSTON PUBLIC WORKS  
STREET LIGHTING DEPARTMENT

BY: \_\_\_\_\_

DATE: \_\_\_\_\_

# NE-MA-BSTN3N01-TMO

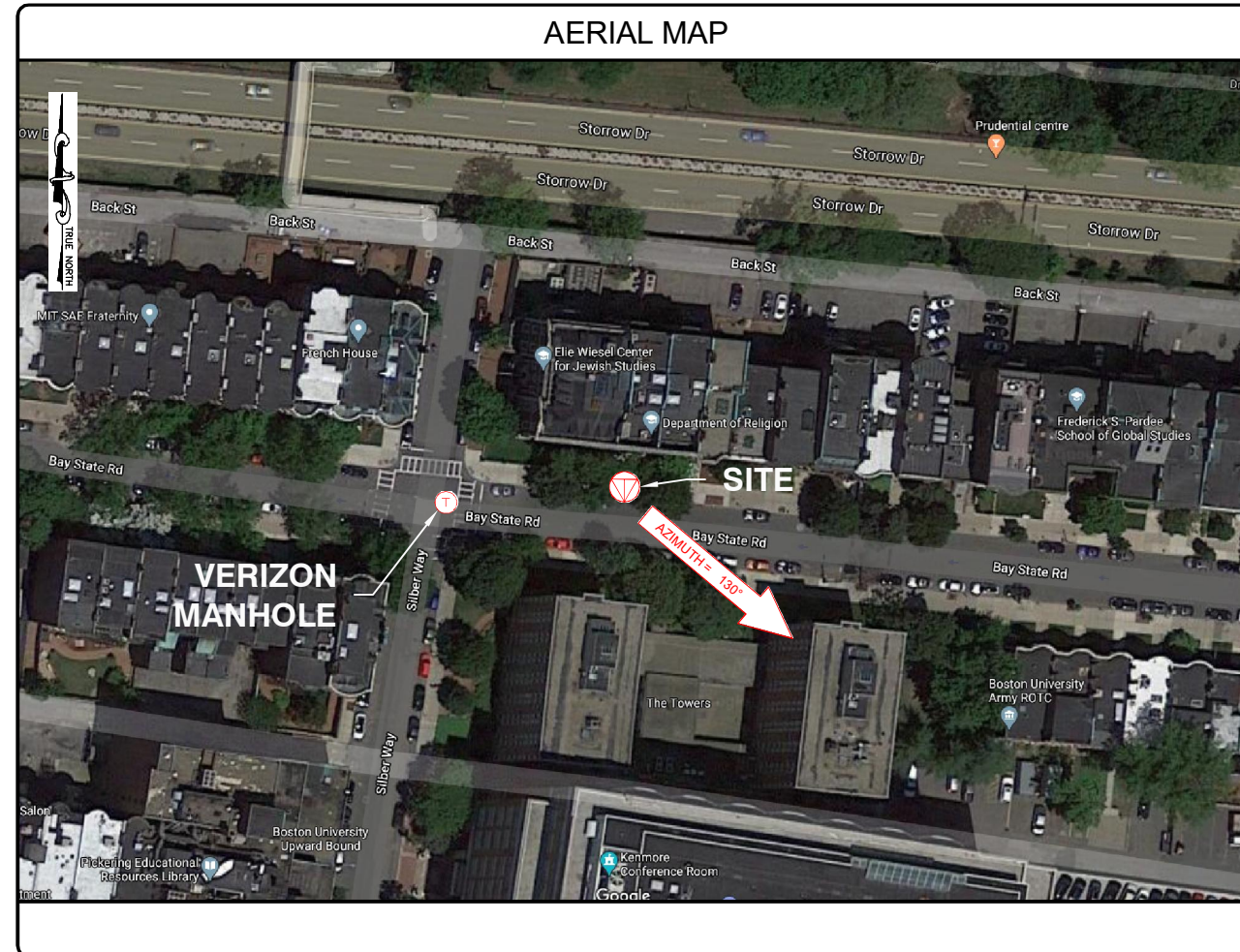
## NE-MA-BSTN3N01-03127 / NE3265BA\_31LAB

### PROPOSED SMALL CELL NODE

147 BAY STATE ROAD, BOSTON, MA 02215  
CITY OF BOSTON, SUFFOLK COUNTY



Know what's below.  
Call before you dig.



ENGINEERING FIRM

APPLICANT

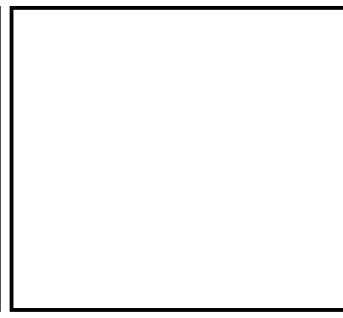
SITE INFORMATION

NE-MA-BSTN3N01-03127  
TMO ID: NE3265BA\_31LAB  
147 BAY STATE ROAD  
BOSTON, MA 02215  
SUFFOLK COUNTY

DESIGN RECORD

REVISIONS				
REV	DATE	DESCRIPTION	BY	
1	01/29/21	SHROUD REPLACEMENT	CWE	
0	03/31/20	PRELIMINARY	NSB	

PROFESSIONAL STAMP



ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.  
MA PROFESSIONAL ENGINEER LIC. #50019

SHEET TITLE

TITLE SHEET

SHEET NUMBER

SHEET  
01 OF 06

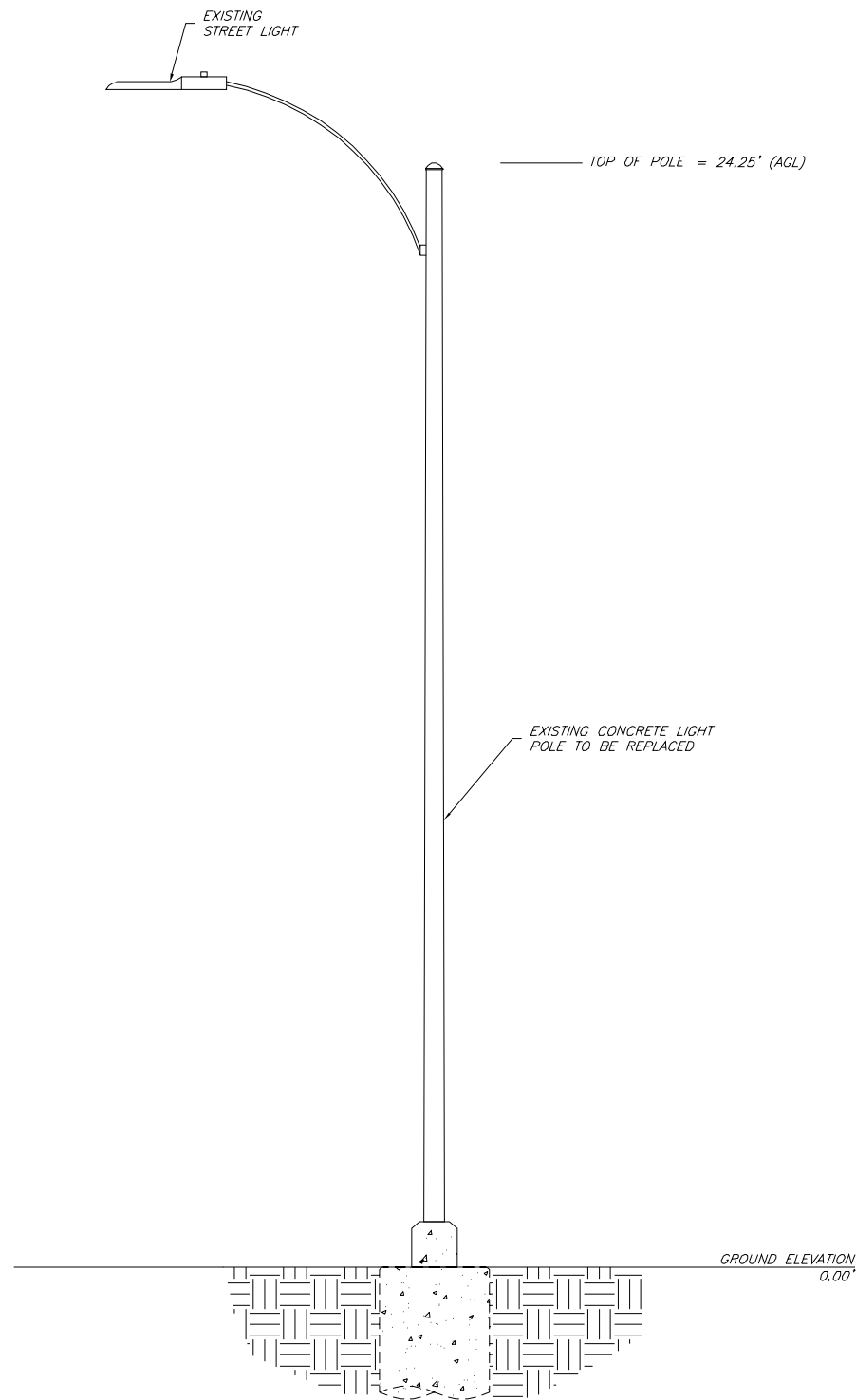
PROJECT INFORMATION	
PROJECT NAME:	NE-MA-BSTN3N01-TMO
POLE TAG:	NO TAG LATITUDE: 42.350344° LONGITUDE: -71.099920°
JURISDICTION:	CITY OF BOSTON SUFFOLK COUNTY
EXTENET PROJECT MANAGER:	RICK ANGELINI 3030 WARRENVILLE RD, SUITE 340 LISLE, IL 60532 NOC: (866) 892-5327
HUB LOCATION:	HUB: 4BN0166B 91 WESTLAND AVENUE BOSTON, MA 02115
ELECTRIC COMPANY:	EVERSOURCE

CODE COMPLIANCE	
ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THE LATEST EDITIONS OF THE FOLLOWING CODES.	
<ul style="list-style-type: none"> <li>2015 INTERNATIONAL BUILDING CODE (MASSACHUSETTS AMENDED 9TH EDITION)</li> <li>2017 NATIONAL ELECTRICAL CODE</li> <li>NFPA 1-2015 EDITION</li> <li>2015 IFC - REFERENCE 527 CMR</li> <li>AMERICAN CONCRETE INSTITUTE</li> <li>AMERICAN INSTITUTE OF STEEL CONSTRUCTION</li> <li>MANUAL OF STEEL CONSTRUCTION 13TH EDITION</li> </ul>	<ul style="list-style-type: none"> <li>ANSI/TIA-222-G</li> <li>TIA 607</li> <li>INSTITUTE FOR ELECTRICAL &amp; ELECTRONICS ENGINEER 81</li> <li>IEEE C2 NATIONAL ELECTRIC SAFETY CODE LATEST EDITION</li> <li>TELECORDIA GR-1275</li> <li>ANSI/T 311</li> </ul>

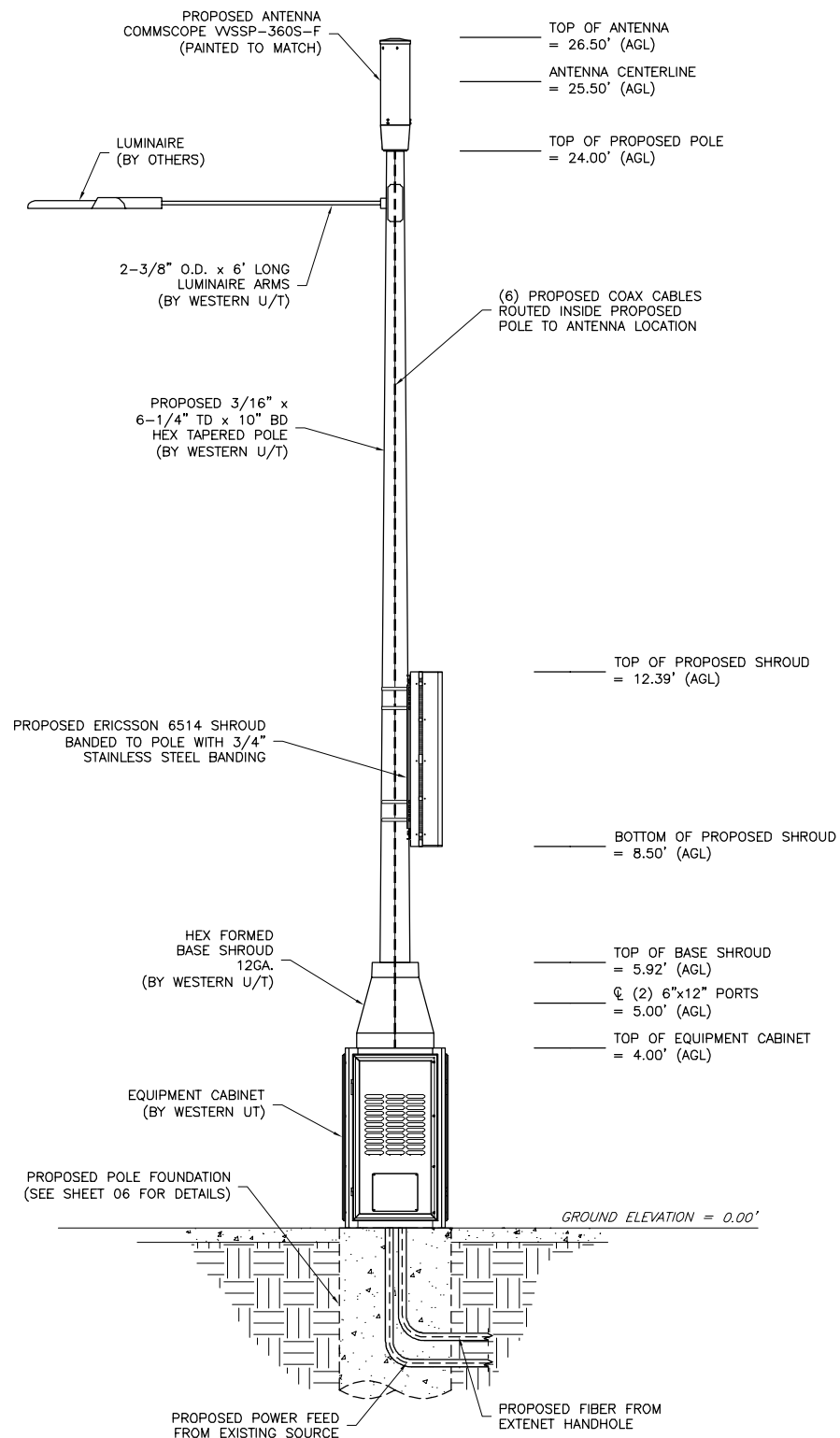
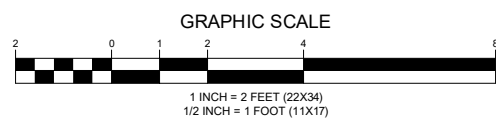
DRAWING INDEX	
01	TITLE SHEET
02	NOTES
03	ELEVATION
04	ANTENNA & EQUIPMENT DETAILS
05	ELECTRICAL & GROUNDING DETAILS
06	FOUNDATION DETAILS & NOTES



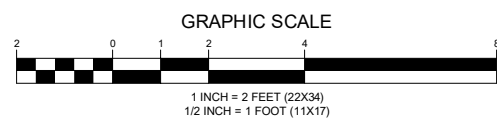




EXISTING ELEVATION (LOOKING WEST)



PROPOSED ELEVATION (LOOKING WEST)



EXISTING CONDITIONS

NOTES:

- ALL MATERIALS WILL MATCH CURRENTLY EXISTING MATERIALS AND WHERE NEEDED ANY RF FRIENDLY MATERIAL WILL BE PAINTED TO MATCH.
- IT IS ASSUMED THAT ALL PROPOSED UTILITIES WILL BE ROUTED BELOW GRADE TO THE PROPOSED INSTALLATION.
- EXTENET WILL PLACE SMALL PLACARD ON POLE IDENTIFYING OWNERSHIP/CONTACT INFORMATION DIRECTLY TO POLE OR EMBEDDED INTO THE POLE (NOT ATTACHED WITH A BAND), SHALL BE MADE OF BRASS OR BRONZE.
- CONTRACTOR SHALL FIELD VERIFY SITE OR LAYOUT RESTRICTIONS, SITE CONDITIONS, DIMENSIONS, AND ELEVATIONS BEFORE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER OF RECORD PRIOR TO BEGINNING PROJECT. ALL WORK SHALL BE PERFORMED USING ACCEPTED CONSTRUCTION PRACTICES.
- NO FIELD MODIFICATIONS MAY BE MADE TO THE STRUCTURE WITHOUT THE EXPRESS WRITTEN CONSENT FROM THE ENGINEER OF RECORD. WESTERN UT, INC. AND ENGINEER OF RECORD ASSUME NO RESPONSIBILITY FOR THE STRUCTURE IF ALTERATIONS AND/OR ADDITIONS ARE MADE.
- THE CONTRACTOR AND ALL SUBCONTRACTORS SHALL COMPLY WITH ALL LOCAL CODES, REGULATIONS, AND ORDINANCES AS WELL AS STATE DEPARTMENT OF INDUSTRIAL REGULATIONS AND DIVISION OF INDUSTRIAL SAFETY (OSHA) REQUIREMENTS.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT ALL WORK TO THE BEST OF HIS/HER ABILITY AND SKILL. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES, AND SEQUENCES, AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR SHALL VERIFY, COORDINATE, AND PROVIDE ALL NECESSARY BLOCKING, BACKING, FRAMING, HANGERS, OR OTHER SUPPORTS FOR ALL ITEMS REQUIRING SAME, WHETHER SHOWN OR NOT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY BRACING, SHORING, FORMWORK, ETC., AND SHALL CONFORM TO ALL NATIONAL, STATE, AND LOCAL ORDINANCES AND CODES IN ORDER TO SAFELY EXECUTE ALL STAGES OF WORK TO COMPLETE THIS PROJECT.
- CONTRACTOR ASSUMES RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES. THIS REQUIREMENT APPLIES CONTINUOUSLY, AND IS NOT LIMITED TO NORMAL WORKING HOURS.
- CONTRACTOR TO HOLD ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN. THE CONTRACTOR IS FINANCIALLY RESPONSIBLE FOR REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED IN CONJUNCTION WITH THE EXECUTION OF WORK ON THIS PROJECT.

ENGINEERING FIRM

**NB+C**  
TOTALLY COMMITTED.  
NB+C ENGINEERING SERVICES, LLC.  
100 APOLLO DRIVE, SUITE 303  
CHELMSFORD, MA 01824  
(978) 956-6308

APPLICANT

**extenet**  
SYSTEMS  
YOUR NETWORK EVERYWHERE.  
3030 WARRENVILLE ROAD, SUITE 340  
LISLE, IL 60532  
(630) 505-3800

SITE INFORMATION

NE-MA-BSTN3N01-03127  
TMO ID: NE3265BA\_31LAB  
147 BAY STATE ROAD  
BOSTON, MA 02215  
SUFFOLK COUNTY

DESIGN RECORD

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REV	DATE	DESCRIPTION	BY
1	01/29/21	SHROUD REPLACEMENT	CWE
0	03/31/20	PRELIMINARY	NSB

PROFESSIONAL STAMP

ENGINEER

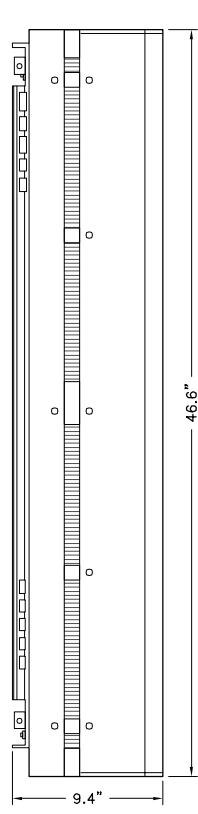
KRUPAKARAN KOLANDAIVELU, P.E.  
MA PROFESSIONAL ENGINEER LIC. #50019

SHEET TITLE

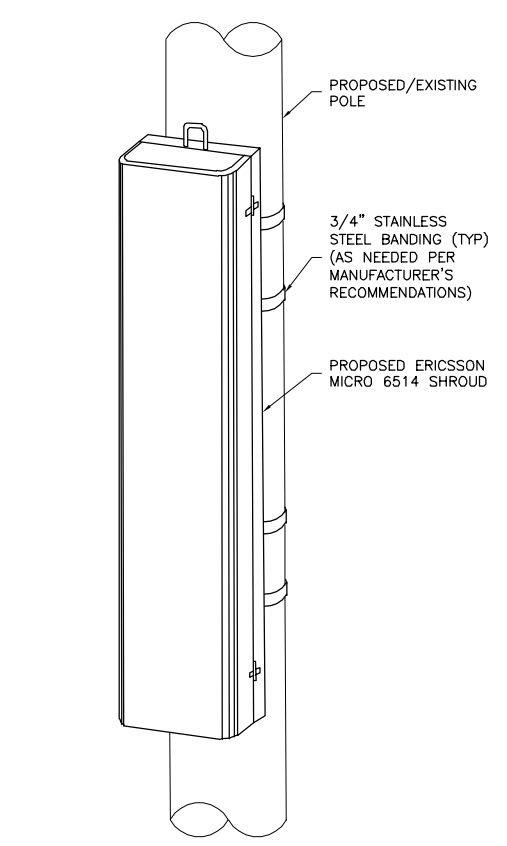
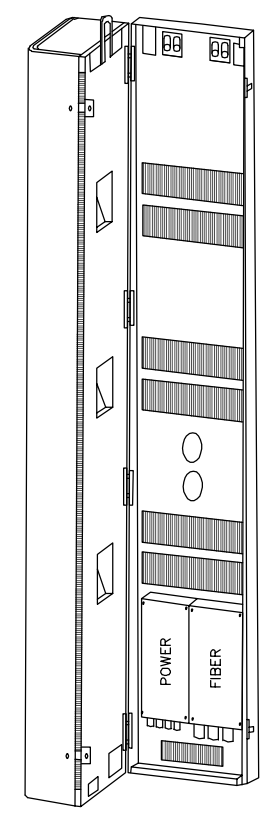
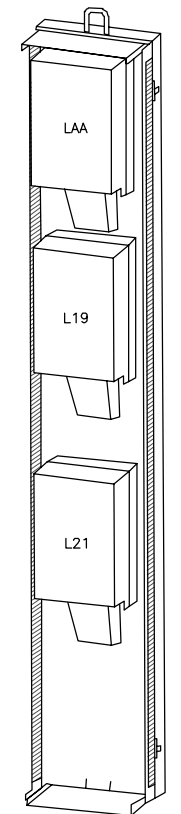
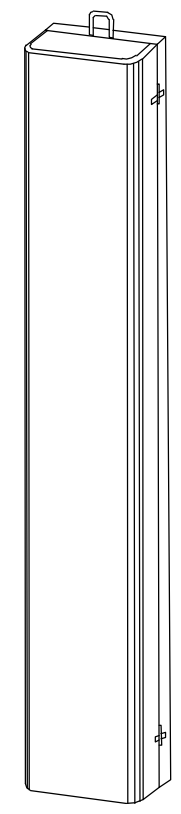
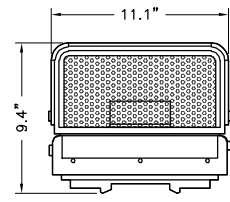
ELEVATION

SHEET NUMBER

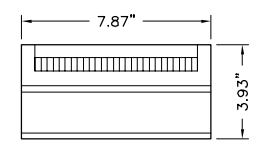
SHEET  
03 OF 06



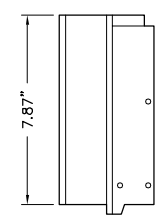
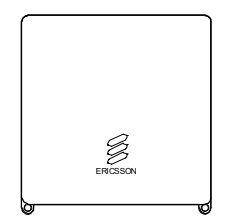
**MECHANICAL SPECIFICATIONS**  
 ERICSSON PART# - ENCLOSURE 6514  
 HEIGHT: 46.6 IN  
 WIDTH: 11.1 IN  
 DEPTH: 9.4 IN  
 WEIGHT: 44.5 LBS (ENCLOSURE ONLY)  
 WEIGHT: 103.2 LBS (FULLY EQUIPPED)



2 EQUIPMENT MOUNTING DETAIL  
 04 NTS



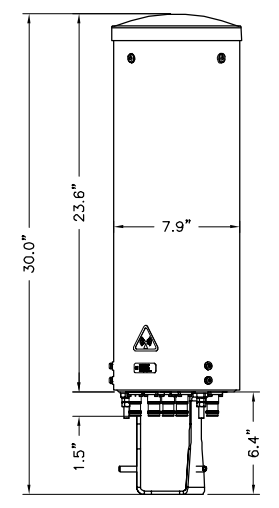
WEIGHT = 9.92LBS



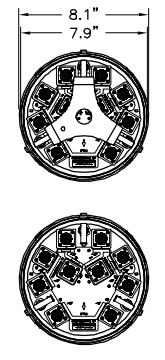
ERICSSON RADIO				
2203 B66 & B25	AC: 100-250V	NORMAL VOLTAGE RANGE AT RADIO INPUT CONNECTOR DC: -36 TO -58.5	NOMINAL VOLTAGE: -48V DC	95W TYPICAL / 130W MAX
2205 B46	AC: 100-250V	NORMAL VOLTAGE RANGE AT RADIO INPUT CONNECTOR DC: -36 TO -58.5	NOMINAL VOLTAGE: -48V DC	75W TYPICAL / 130W MAX

3 ERICSSON REMOTE RADIO UNIT (RRU)  
 04 NTS

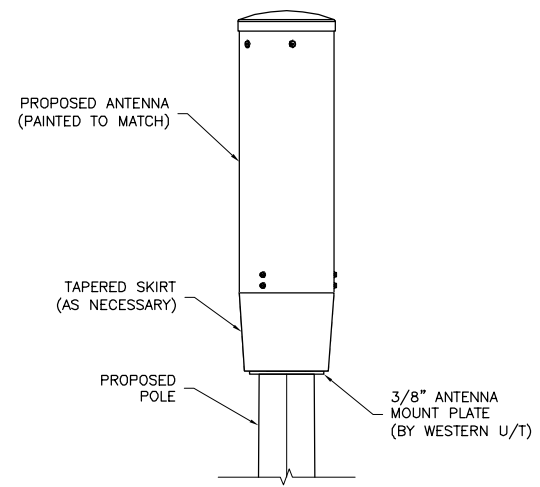
1 ERICSSON MICRO 6514 SHROUD DETAIL  
 04 NTS



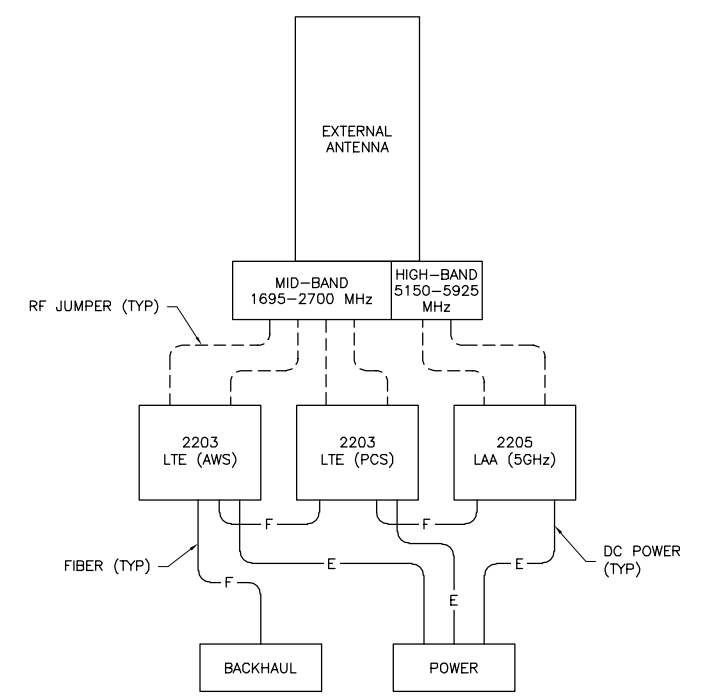
**MECHANICAL SPECIFICATIONS**  
 COMMSCOPE PART# - VVSSP-360S-F  
 HEIGHT: 23.6 IN  
 WIDTH: 7.9 IN  
 WEIGHT: 15.4 LBS (WITHOUT MOUNT)



4 ANTENNA DETAIL  
 04 NTS



5 ANTENNA MOUNT DETAIL  
 04 NTS



6 WIRING DIAGRAM  
 04 NTS

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PROFESSIONAL STAMP

Blank area for professional stamp.

ENGINEER

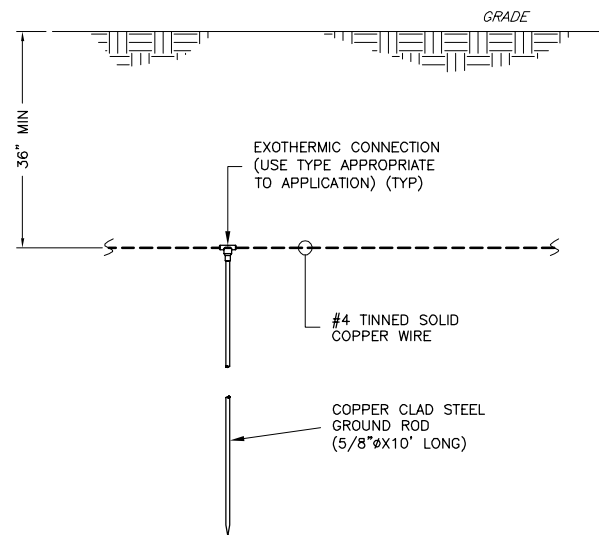
KRUPAKARAN KOLANDAIVELU, P.E.  
 MA PROFESSIONAL ENGINEER LIC. #50019

SHEET TITLE

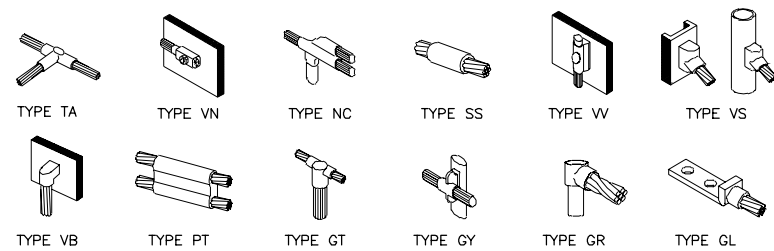
**ANTENNA & EQUIPMENT DETAILS**

SHEET NUMBER

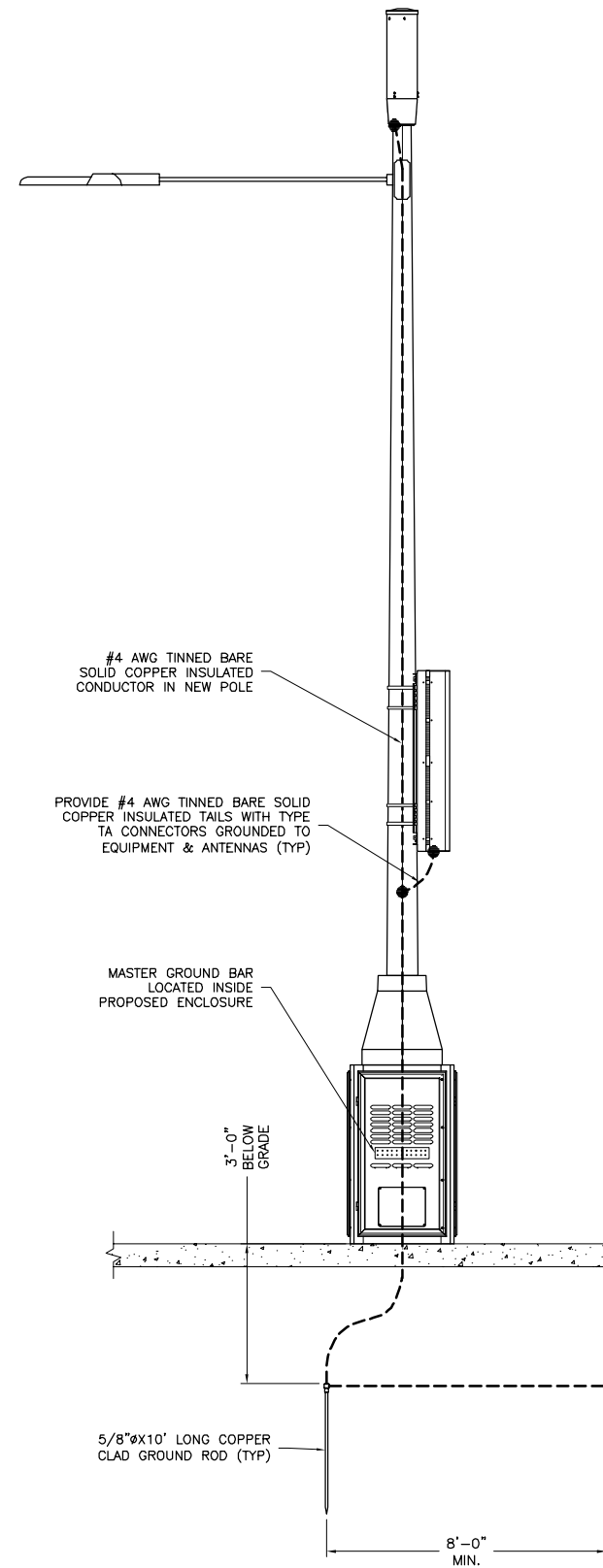
SHEET  
**04 OF 06**



1 TYPICAL GROUND ROD DETAIL  
05 NTS



2 GROUNDING CONNECTION DETAILS  
05 NTS



3 ELECTRICAL & GROUNDING RISER DIAGRAM  
05 NTS

NOTE:  
EXISTING/PROPOSED UTILITY WIRES,  
SIGNS, AND EXISTING EQUIPMENT  
NOT SHOWN FOR CLARITY.

ENGINEERING FIRM

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TOTALLY COMMITTED.

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100 APOLLO DRIVE, SUITE 303  
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PROFESSIONAL STAMP

ENGINEER

KRUPAKARAN KOLANDAIVELU, P.E.  
MA PROFESSIONAL ENGINEER LIC. #50019

SHEET TITLE

**ELECTRICAL  
& GROUNDING  
DETAILS**

SHEET NUMBER

SHEET  
**05 OF 06**

REVISIONS

REV	DATE	DESCRIPTION	BY
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DESIGN RECORD

PROFESSIONAL STAMP

ENGINEER

SHEET TITLE

SHEET NUMBER

KRUPAKARAN KOLANDAIVELU, P.E.  
MA PROFESSIONAL ENGINEER LIC. #50019

FOUNDATION DETAILS & NOTES

GENERAL NOTES

- CONTRACTOR IS RESPONSIBLE FOR CHECKING AREA FOR UNDERGROUND FACILITIES PRIOR TO EXCAVATING ANY MATERIALS.
- CONTRACTOR SHALL INSPECT AND REMOVE ALL DEBRIS FROM BOTTOM OF EXCAVATION.
- CONTRACTOR SHALL VERIFY ANCHOR BOLT LAYOUT PRIOR TO, AND IMMEDIATELY AFTER PLACING CONCRETE. ANCHOR BOLT LAYOUT IS CRITICAL FOR MONOPOLE INSTALLATION.
- CONTRACTOR SHALL USE AND PROVIDE DEFORMED REINFORCING BARS CONFORMING TO ASTM A615 GR. 60 (60,000 PSI MIN. YIELD). CONTRACTOR SHALL USE STEEL WIRE TO HOLD REINFORCING BARS TOGETHER. IF WELDING REBAR IS PREFERRED, SUBSTITUTE USING A706 GR. 60 DEFORMED BARS.
- CONTRACTOR SHALL USE AND PROVIDE CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI. CONCRETE SHALL USE 1" MAXIMUM STONE AGGREGATE MIX DESIGN: 6 1/2 SACKS OF CEMENT MINIMUM PER CUBIC YARD. 5" MINIMUM AND 7" MAXIMUM CONCRETE SLUMP.
- CONCRETE SHALL BE CONSOLIDATED USING VIBRATORY METHODS THROUGHOUT DEPTH OF FOUNDATION. VIBRATING LOWER DEPTHS MAY BE ACCOMPLISHED BY TOUCHING REBAR CAGE WITH VIBRATOR.
- CONTRACTOR SHOULD ANTICIPATE THE USE OF A FULL-LENGTH TEMPORARY CASING TO STABILIZE THE EXCAVATION. THE CASING SHALL BE WITHDRAWN DURING THE PLACEMENT OF CONCRETE IN THE EXCAVATED HOLE. CONCRETE SHALL BE PLACED USING CONVENTIONAL METHODS TO MINIMIZE SEGREGATION OF CONCRETE AND AGGREGATE. CONCRETE SHALL NOT FREE FALL MORE THAN 5 FT. CONCRETE MAY BE PLACED BELOW WATER USING TREMIE METHODS.
- CONCRETE SHALL BE PLACED TO THE DEPTH INDICATED, AND THE ABOVE GRADE PORTION SHALL BE FORMED. THE REBAR CAGE, ANCHOR BOLTS, AND CONCRETE SHALL BE PLACED WITHIN 24 HOURS OF COMPLETING THE EXCAVATION. COLD JOINTS ARE NOT ALLOWED.
- THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ADEQUATE CONCRETE COVERAGE OVER REINFORCING BARS TO MINIMIZE CORROSION POTENTIAL. UNLESS OTHERWISE NOTED, CONTRACTOR SHALL USE 3" CONCRETE COVER OVER REBAR. TOP OF FOOTING SHALL BE TROWELLED LEVEL AND SMOOTH.
- DRILLED PIER FOUNDATION DESIGN PER 2009/2012 IBC, TABLE 1806.2, CLASS 4 MATERIAL.
- TOTAL VOLUME OF CONCRETE REQUIRED FOR THIS FOUNDATION IS APPROXIMATELY 1.1 CU. YDS.

FACTORED BASE REACTIONS

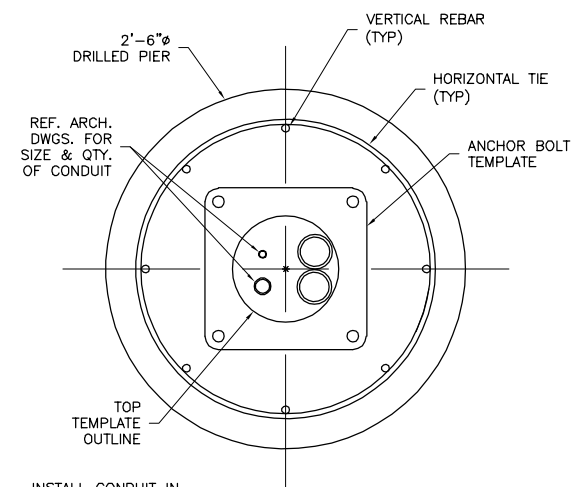
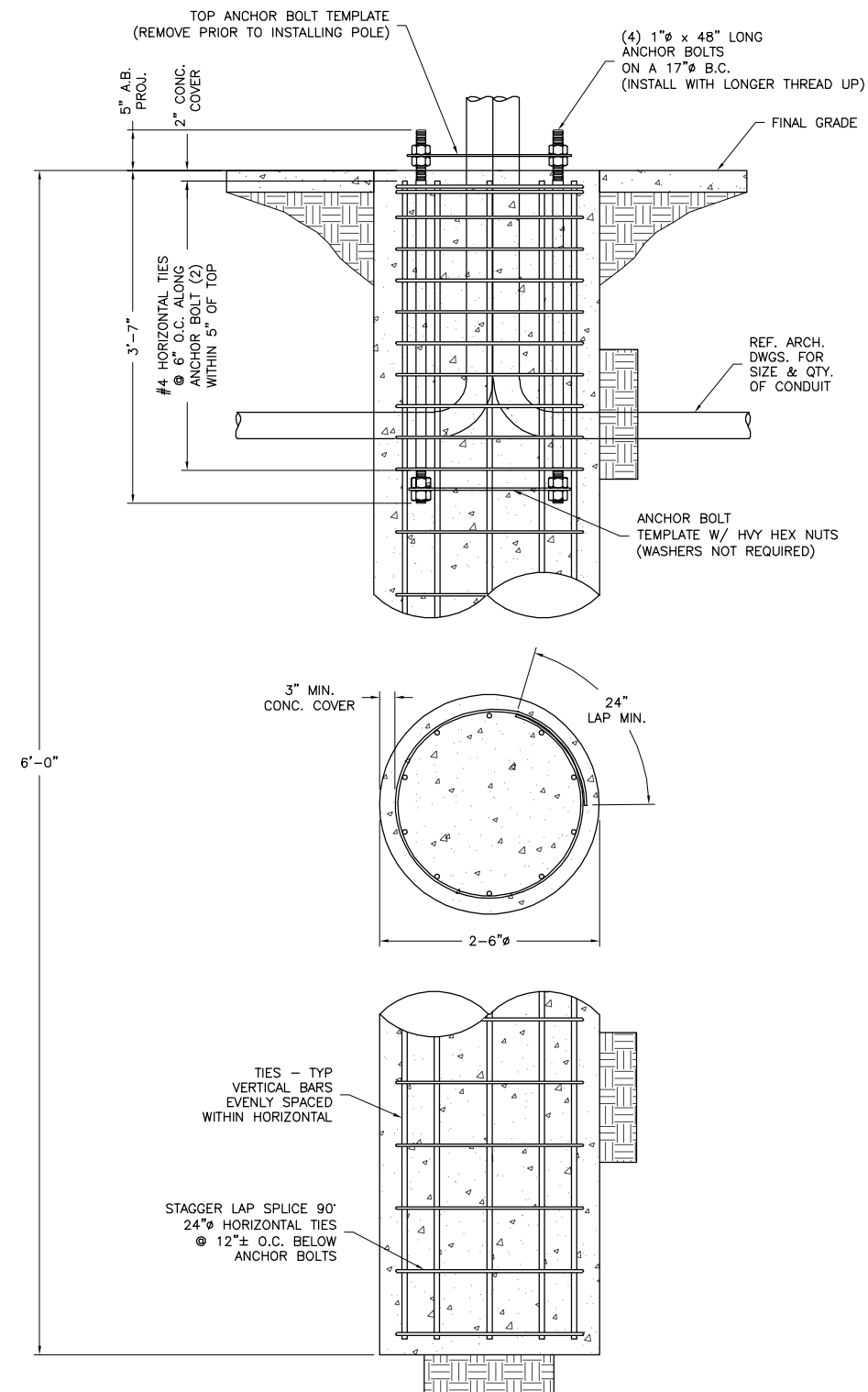
MOMENT = 18.1 ft-kips  
SHEAR = 1.51 kips  
VERTICAL = 0.57 kips

SPECIAL INSPECTIONS

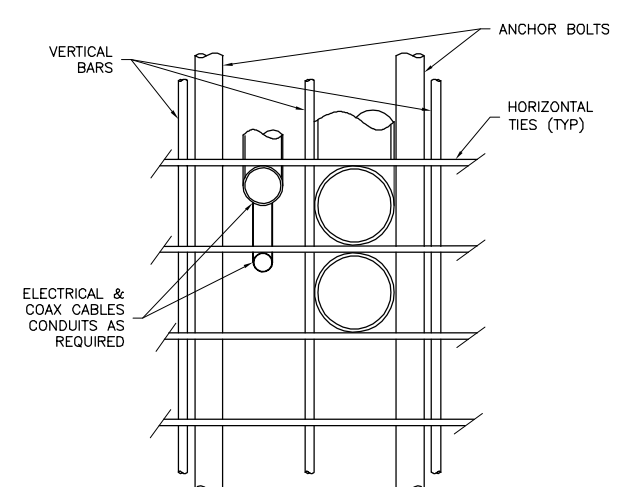
SPECIAL INSPECTION:  
THE FOLLOWING ELEMENTS OF CONSTRUCTION SHALL REQUIRE SPECIAL INSPECTION PER 2009/2012 IBC, SECTION 1704

ITEM DESCRIPTION	INSPECTION BY	MATERIAL
1. PIER EXCAVATION LATERAL BEARING CAPACITY	SOILS ENGINEER	300 PSF/FT LATERAL
2. PIER CONSTRUCTION REINFORCING STEEL BAR SIZES AND INSTALLATION	SPECIAL INSPECTOR	ASTM A615 GR. 60
3. ANCHOR BOLTS BOLT SIZE AND LENGTHS INSTALLATION	SPECIAL INSPECTOR	ASTM F1554 GR. 55
4. CONCRETE TEST SPECIMENS PLACEMENT OF CONCRETE	SPECIAL INSPECTOR	f'c=4,000 PSI TYPE II CEMENT

FOUNDATION DESIGN PREPARED BY  
WESTERN UTILITY/TELECOM, INC.

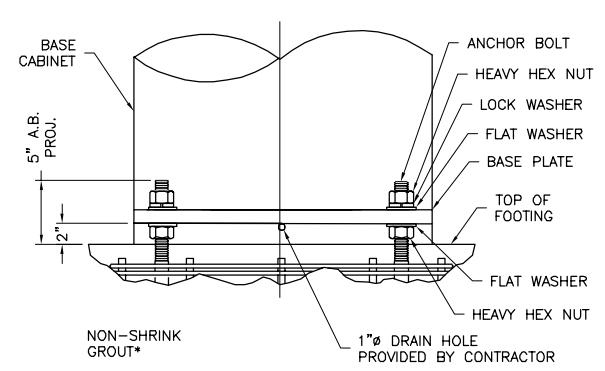


1 CONDUIT DETAIL @ PIER SEC.  
06 NTS



ADJUST REBAR AS NEEDED TO ACCOMMODATE CONDUIT. SEE REINFORCEMENT SUMMARY FOR SIZE, QUANTITY AND LOCATION OF VERTICAL BARS AND HORIZONTAL TIES.

2 CONDUIT DETAIL  
06 NTS



\*NON-SHRINK GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 6,000 PSI.  
BASE PLATE SHALL NOT BE GROUTED UNTIL AFTER THE STRUCTURE HAS BEEN INSTALLED AND PLUMBED.

3 BASE GROUNDING DETAIL  
06 NTS

DESCRIPTION	QTY.	SIZE	LENGTH	WEIGHT	OVERLAP
VERTICAL BARS	8	#6	5'-6"	66 LBS.	N/A
HORIZONTAL TIES	10	#4	6'-4"	55 LBS.	2'-0"