

Market: Minnesota/Northern Plains (MNP)
Cell Site Number: MPLSMN5445
Cell Site Name: Woodland Relo
Fixed Asset No: 10152761

SECOND AMENDMENT TO ORPHANAGE WATER TOWER SITE LEASE AGREEMENT

THIS SECOND AMENDMENT TO ORPHANAGE WATER TOWER SITE LEASE AGREEMENT ("Amendment"), dated as of the latter of the signature dates below, is by and between the City of Duluth, a Minnesota Municipal corporation, having a mailing address of 208 City Hall, 411 West 1st Street, Duluth, MN 55802 (hereinafter referred to as "City" or LICENSOR) and New Cingular Wireless PCS, LLC, a Delaware limited liability company, having a new mailing address of 1025 Lenox Park Boulevard NE, 3rd Floor, Atlanta, GA 30319 (hereinafter referred to as "Lessee" or LICENSEE).

WHEREAS, City and Lessee entered into an Orphanage Water Tower Site Lease Agreement dated May 7, 2010, whereby City leased to Lessee certain Premises, therein described, that are a portion of the Property located at 801 Minneapolis Avenue, Duluth, Minnesota 55803; and

WHEREAS, City and Lessee entered into a First Amendment to the Orphanage Water Tower Site Lease Agreement dated September 24, 2013 (collectively, the "Lease"); and

WHEREAS, City and Lessee desire to amend the allowed Antennas and Communication Facilities; and

WHEREAS, City and Lessee desire to amend the Annual Rent; and

WHEREAS, City and Lessee desire to amend the renewal terms of the Lease and to extend the term of the Lease; and

WHEREAS, City and Lessee desire to amend certain paragraphs; and

WHEREAS, City and Lessee, in their mutual interest, wish to amend the Lease as set forth below accordingly.

NOW THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, City and Lessee agree as follows:

1. **COMMENCEMENT DATE.** The Commencement Date of this Amendment is the latter of the signature dates below.
2. **COMMUNICATION PREMISES.** Lessee's Communication Facility and Premise as described in Section 1 and Exhibit B of the Lease and as revised in the First Amendment as outlined in the Ulteig construction drawings last dated January 24, 2013 are hereby amended to allow the Communications Facility and Premises as revised and described in the SAC construction drawings dated June 22, 2020 and attached to this Second Amendment as Exhibit B-2. Exhibit B-1 of the First Amendment will be deleted in its

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entirety and replaced with Exhibit B-2 attached hereto and incorporated herein by this reference.

3. **EXTENSION OF TERM.** In addition to the Extension Terms presently set forth in the Lease, the parties hereby agree to add one (1) additional Extension Term of five (5) years. Accordingly, at the end of the final Extension Term presently set forth in the Lease, the Term will automatically renew for one (1) separate consecutive additional period of five (5) years (each being defined as an Extension Term) upon the same terms and conditions of the Lease, unless Lessee notifies City in writing of Lessee's intention not to renew the Lease at least sixty (60) days prior to the expiration of the existing Term.
4. **RENT.** Effective on the Commencement Date of the Second Amendment, both parties agree that the Annual Rent will increase by Twenty Thousand and 00/100 Dollars (\$20,000.00) per year. The new annual rent for the current year will be Eighty-Eight Thousand, Two Hundred and Ninety-Nine and 88/100 Dollars (\$88,299.88). Within sixty (60) days of the Commencement Date, Lessee shall pay City the balance of the prorated increased Annual Rent due for the current remaining annual term (i.e. thru December 31, 2020). For the year 2021 and years thereafter, Annual Rent shall be paid in full prior to January 1st of the year the Annual Rent is for. Said Annual Rent for year 2021 and years thereafter shall increase by the greater of i) three percent (3%); or ii) Consumer Price Index, over the previous year's Annual Rent.
5. **TERMINATION.** The current term ending on December 31, 2024 will be extended through to December 31, 2029 and the provisions in section 18 (b) and (c) of the original Lease will not apply during this period nor in the Extension Term granted under Section 3 if such Extension Term is exercised.
6. **NOTICES.** Lessee's notice addresses in Paragraph 17 of the Lease are hereby deleted in their entirety and replaced with the following:

As to Lessee: New Cingular Wireless PCS, LLC
Attn: Network Real Estate Administration
Re: Cell Site #MPLSMN5445, Cell Site Name: Woodland Relo (MN)
FA#: 10152761
1025 Lenox Park Blvd NE, 3rd Floor
Atlanta, GA 30319

With a mandatory copy to:

New Cingular Wireless PCS < LLC
Attn: AT&T Legal Department
Re: Cell Site #MPLSMN5445, Cell Site Name: Woodland Relo (MN)
FA#: 10152761
208 S. Akard Street
Dallas, TX 75202-4206

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- 7. OTHER TERMS AND CONDITIONS REMAIN.** In the event of any inconsistencies between the Lease, the First Amendment, and the Second Amendment, the terms of this Second Amendment shall control. Except as expressly set forth in the First Amendment or this Second Amendment, the Lease otherwise is unmodified and remains in full force and effect. Each reference in the Lease to itself shall be deemed also to refer to this Amendment.

- 8. CAPITALIZED TERMS.** All capitalized terms used but not defined herein shall have the same meanings as defined in the Lease.

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IN WITNESS WHEREOF, the parties have caused their properly authorized representatives to execute and seal this Amendment on the dates set forth below.

LESSEE:

NEW CINGULAR WIRELESS PCS, LLC
a Delaware limited liability company

By: AT&T Mobility Corporation
Its: Manager

By: 
Authorized Representative

Print Name: Kristan Kesler
Its: Real Estate & Construction Manager

Date: 10/27/2020

CITY OF DULUTH

By _____
Mayor

Attest _____
City Clerk

Countersigned:

City Auditor

Approved as to form:

City Attorney

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

SITE PHOTO



SEE WESTCHESTER SERVICES LLC STRUCTURAL ANALYSIS REPORT, DATED 06/03/20

AT&T MOBILITY MWR-MW-02375/ LTE 3C/4C/5C/6C/WCS FILTER

Table with target site information: NORTH LAKEWOOD, FA #: 10129235, AZIMUTH: 218.16°, RAD CENTER: 167'-0"

PROJECT : SITE # : FA # : PTN # :

PACE # :

JURISDICTION : CITY OF DULUTH SITE NAME : WOODLAND RELO ADDRESS : 801 MINNEAPOLIS AVE. DULUTH, MN 55802

PROJECT INFORMATION

SITE NAME: WOODLAND RELO COUNTY: ST. LOUIS ADDRESS: 801 MINNEAPOLIS AVE. DULUTH, MN 55802 JURISDICTION: CITY OF DULUTH SITE NUMBER: MPLSMN5445 FA NUMBER: 10152761 PTN: 3514A0CQZ8/ 3514A0CW78/ 3514A0CMY3/ 3514A0H85G/ 3514A0H7XH/ 3514A0LAML/ 3514A0R4KJ PACE: MRUMW022002/ MRUMW022014/ MRUMW026086/ MRUMW026520/ MRUMW021983/ MRUMW031704/ MRUMW035665 USID: 116670 LATITUDE: 46° 50' 45.91" N (46.846028) LONGITUDE: 92° 04' 38.53" W (-92.078250) GROUND OWNER: CITY OF DULUTH 441 W. 1ST ST. CITY CALL ROOM 105 DULUTH, MN 55802 LANDLORD CONTACT: ERIC SHAFFER EMAIL: ESHAFFER@DULUTHMN.COM APPLICANT: AT&T WIRELESS 901 S. MARQUETTE AVE. MINNEAPOLIS, MN 55402 AT&T PROJECT MANAGER: JANIS DELINS EMAIL: JD799U@ATT.COM AT&T CONSTRUCTION MANAGER: MICHAEL VANSTEELE (LTE 3C/4C/5C/6C/WCS SOW) EMAIL: MV5267A@ATT.COM OR CURTIS WOOD (MW SOW) EMAIL: CW9759A@ATT.COM

PROJECT CONSULTANTS

PROJECT MANAGEMENT: SAC WIRELESS 540 W. MADISON ST. 9TH FLOOR CHICAGO, ILLINOIS 60661 CONTACT: SHAMMIKKA CHISOLM EMAIL: SHAMMIKKA.CHISOLM@SACW.COM SITE ACQUISITION: SAC WIRELESS CONTACT: KARLA SUSNJAR EMAIL: KARLA.SUSNJAR@SACW.COM ARCHITECT: GREG PHASSOS SAC AE DESIGN GROUP, INC. 540 W. MADISON ST. 9TH FLOOR CHICAGO, ILLINOIS 60661 PHONE: (312)-971-7884 EMAIL: GREG.PHASSOS@SACW.COM CONSTRUCTION: BLUESTREAM (LTE 3C/4C/5C/6C/WCS SOW) CONTACT: DANA WEBB EMAIL: DANA.WEBB@KGPCO.COM OR PATHWAVE, INC (MW SOW) CONTACT: SHAWN SELLNOW EMAIL: SHAWN.SELLNOW@PATHWAVE.COM

VICINITY MAP



LOCAL MAP



NOT TO SCALE

NOT TO SCALE

DRIVING DIRECTIONS

DIRECTIONS FROM: 7900 XERXES AVE S, BLOOMINGTON MN 55431 KEEP STRAIGHT ONTO CR-31 [YORK AVE S], KEEP STRAIGHT ONTO CR-31 [XERXES AVE S], TAKE RAMP (RIGHT) ONTO SR-62, MERGE ONTO I-35W [SR-62], AT EXIT 23B TAKE RAMP (RIGHT) ONTO I-35W, ROAD NAME CHANGES TO I-35, AT EXIT 256B TURN RIGHT ONTO RAMP, KEEP STRAIGHT ONTO LOCAL ROAD(S), TURN LEFT (NORTH-WEST) ONTO (N) LAKE AVE, TURN RIGHT (NORTH-EAST) ONTO E 2ND ST, BEAR LEFT (NORTH) ONTO LOCAL ROAD(S), BEAR LEFT (NORTH-WEST) ONTO SR-194 [N 6TH AVE E], TURN RIGHT (NORTH-EAST) ONTO CR-9 [E 4TH ST], TURN LEFT (NORTH-WEST) ONTO CR-9 [WOODLAND AVE], TURN RIGHT (EAST) ONTO E MANKATO ST, TURN LEFT (NORTH) ONTO ALLANDALE AVE, THEN IMMEDIATELY TURN RIGHT (EAST) ONTO E MANKATO ST, TURN RIGHT (SOUTH) ONTO LOCAL ROAD(S), ARRIVE AT DESTINATION

811 Know what's below. Call before you dig. TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG IN MINNESOTA, CALL GOPHER STATE ONE CALL. TOLL FREE: 1-800-252-1166 OR FAX A LOCATE: 1-800-236-4967 www.gopherstateonecall.org MINNESOTA STATUTE REQUIRES MIN OF 48 HOURS NOTICE BEFORE YOU EXCAVATE

REFERENCE MATERIALS

- THESE DRAWINGS ARE BASED AT&T SCOPING DOCUMENT DATED 10/28/19
REVISED RFDS PENDING. CONTRACTOR TO USE LATEST VERSION WITH CD'S PER SCOPE OF WORK.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ARCHITECT OR ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

DRAWING INDEX

Table with drawing index: T1 TITLE SHEET, A5 ANTENNA & CABLE CONFIGURATION, SP1 NOTES & SPECIFICATIONS, A6 ANTENNA, RRH AND MOUNTING DETAILS, A1 COMPOUND PLAN, A6.1 DETAILS, A2 EQUIPMENT PLAN, A7 CABLE NOTES & COLOR CODING, A3 TOWER ELEVATION, E1 GROUNDING DETAILS, A4 ANTENNA PLAN, E2 GROUNDING DETAILS, A4.1 MICROWAVE PLAN

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE. THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING: MICROWAVE SCOPE: UPGRADE EXISTING (1+1) HSBY MW TO RLAG (4+0), REMOVE (2) EXISTING ODUS, INSTALL (4) PROPOSED MPT-HL-HQAM ODUS W/COUPLERS INSIDE SHELTER, INSTALL (1) PROPOSED RACK MOUNT, REMOVE (2) EXISTING COAX LINES, INSTALL (2) PROPOSED EW63 CABLES, REPLACE EXISTING MSS SHELF W/PROPOSED MSS SHELF W/CORE-EVO CARD, USE EASV2 CARD AND 7.1 SW. LITE 3C (PCS) SCOPE: REMOVE (3) EXISTING AT&T LTE 2C (AWS) RRH2X40-AWS+RDEM. (1) PER SECTOR IN POSITION 2. (TYP. OF 3 SECTORS), INSTALL (3) PROPOSED AT&T LTE 2C/3C (AWS/PCS) RRH 4T4R B25/66. (1) PER SECTOR IN POSITION 1. (TYP. OF 3 SECTORS), REUSE EXISTING DC TRUNK LINES. LITE 5C (WCS) SCOPE: CONVERTER MODULES IN PROPOSED POWER PLANT, INSTALL (3) WCS FILTERS IN EXISTING FIF RACK, INSTALL PROPOSED POWERSHIFT MODULES IN PROP. POWER PLANT, INSTALL (6) PROPOSED DBC0061F1V51-2 IN-LINE TO COMBINE UMTS 850 WITH LTE 700 IN POSITION 1. (TYP. OF 3 SECTORS), REMOVE (3) EXISTING BREAKERS FROM EXISTING POWER PLANT, INSTALL (3) PROPOSED 50A BREAKERS IN PROP. POWER PLANT, INSTALL (1) PROPOSED ABIA CARD IN EXISTING FIF RACK. LITE 5C (WCS) GROUND SCOPE: INSTALL (3) PROPOSED 20A BREAKERS IN PROP. POWER PLANT. LITE 6C (850) SCOPE: REMOVE (3) EXISTING AT&T LTE 1C/2C PANEL ANTENNAS. (1) PER SECTOR IN POSITION 2. (TYP. OF 3 SECTORS), INSTALL (3) PROPOSED AT&T LTE 5C/6C PANEL ANTENNAS. (1) PER SECTOR IN POSITION 2. (TYP. OF 3 SECTORS), INSTALL (3) PROPOSED AT&T LTE 6C (850) AIRSCALE B5. (1) PER SECTOR IN POSITION 2. (TYP. OF 3 SECTORS), INSTALL (1) PROPOSED RAYCAP FC18-PC12-25E, INSTALL (3) PROPOSED RAYCAP DC2-48-60-0-9E, INSTALL (1) PROPOSED AT&T DC TRUNK LINE, INSTALL (1) PROPOSED AT&T FIBER TRUNK LINE. LITE 6C (850) GROUND SCOPE: UPGRADE EXISTING DC6 TO DC12 USING (2) PROPOSED DC3-48-60-0-RM MODULES IN EXISTING FIF RACK, INSTALL (3) PROPOSED 25A BREAKERS IN PROP. POWER PLANT, INSTALL (1) PROPOSED ABIA CARD IN EXISTING FIF RACK, INSTALL (1) PROPOSED ASIK CARD IN EXISTING FIF RACK.

LITE 3C (PCS) GROUND SCOPE: INSTALL PROPOSED POWERSHIFT MODULES IN PROP. POWER PLANT, REMOVE (3) EXISTING BREAKERS FROM EXISTING POWER PLANT, INSTALL (3) PROPOSED 50A BREAKERS IN PROP. POWER PLANT, INSTALL (1) PROPOSED ABIA CARD IN EXISTING FIF RACK. LITE 4C (700 FN) SCOPE: REMOVE (3) EXISTING AT&T UMTS PANEL ANTENNAS (1) PER SECTOR IN POSITION 1. (TYP. OF 3 SECTORS), INSTALL (3) PROPOSED AT&T UMTS/LTE 1C/2C/3C/4C PANEL ANTENNAS. (1) PER SECTOR IN POSITION 1. (TYP. OF 3 SECTORS), REMOVE (3) EXISTING AT&T LTE 1C RRH2X40-07L-AT. (1) PER SECTOR IN POSITION 2. (TYP. OF 3 SECTORS), INSTALL (3) PROPOSED AT&T LTE 1C/4C (700 FN) RRH 4T4R B12/14. (1) PER SECTOR IN POSITION 1. (TYP. OF 3 SECTORS), REUSE EXISTING DC TRUNK LINES. LITE 4C (700 FN) GROUND SCOPE: REPLACE (1) EXISTING POWER PLANT W/(1) PROPOSED POWER PLANT, INSTALL (16) PROPOSED BATTERIES IN EXISTING BATTERY CABINET, REUSE (16) EXISTING BATTERIES IN EXISTING BATTERY CABINET, INSTALL (18) VERTIV 565050 POWER.

SPECIAL NOTES: ALL WORK SHALL BE INSTALLED IN CONFORMANCE WITH CURRENT AT&T CONSTRUCTION INSTALLATION GUIDE. EXISTING CONDITIONS WILL BE CHANGED & VERIFIED IN FIELD. IF SIGNIFICANT DEVIATIONS OR DETERIORATION ARE ENCOUNTERED AT THE TIME OF CONSTRUCTION, A REPAIR PERMIT WILL BE OBTAINED & CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY. THESE DRAWINGS ARE FULL SIZE & SCALEABLE ON 11"x17" SHEET SIZE. STATEMENT THAT COMPLIANCE WITH THE ENERGY CODE IS NOT REQUIRED. SCOPE OF WORK DOES NOT INVOLVE MODIFICATIONS TO EXTERIOR ENVELOPE OF BUILDING, HVAC SYSTEMS OR ELECTRICAL LIGHTING.



Table with revisions: REV. DATE DESCRIPTION INITIALS. A 11/21/19 ISSUED FOR REVIEW NL, B 04/16/20 ISSUED FOR REVIEW NL, C 04/28/20 FOR CONSTRUCTION NL, 1 05/08/20 FOR CONSTRUCTION RP, A 06/22/20 FOR CONSTRUCTION BM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

Signature: Gregory Phassos. SIGNATURE: GREGORY PHASSOS. PRINT NAME: GREGORY PHASSOS. DATE: 06/22/20. LICENSE # 56324. EXP. 06/30/20

MWR-MW-02375/ LTE 3C/4C/5C/6C/WCS FILTER 10152761 WOODLAND RELO 801 MINNEAPOLIS AVE. DULUTH, MN 55802

SHEET TITLE: TITLE SHEET

SHEET NUMBER: T1

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GENERAL CONSTRUCTION

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:

CONTRACTOR/CM – SAC WIRELESS
SUB-CONTRACTOR – PER TRADE
OWNER – AT&T WIRELESS

2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ARCHITECT PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ARCHITECT PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A OT 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE

EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ARCHITECT, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.

24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY AT&T TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION AT&T MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.

ANTENNA MOUNTING

40. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
41. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
42. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
43. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
44. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
45. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
46. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
47. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.
48. JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
49. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO AT&T.
50. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.

TORQUE REQUIREMENTS

51. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.

52. ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
 - A. RF CONNECTION BOTH SIDES OF THE CONNECTOR.
 - B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.

FIBER & POWER CABLE MOUNTING

53. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
54. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
55. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

COAXIAL CABLE NOTES

56. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
57. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
58. CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION.
59. ALL JUMPERS TO THE ANTENNAS FROM THE MAIN TRANSMISSION LINE SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".
60. ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
61. CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
62. CONTRACTOR SHALL GROUND ALL EQUIPMENT. INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES, AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATION AND RECOMMENDATION.
63. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS AND CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
64. CONTRACTOR TO VERIFY THAT EXISTING COAX HANGERS ARE STACKABLE SNAP IN HANGERS. IF EXISTING HANGERS ARE NOT STACKABLE SNAP IN HANGERS THE CONTRACTOR SHALL REPLACE EXISTING HANGERS WITH NEW SNAP IN HANGERS IF APPLICABLE.

GENERAL CABLE AND EQUIPMENT NOTES

65. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMA'S, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
66. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
67. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
68. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
69. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
 - A. TEMPERATURE SHALL BE ABOVE 50° F.
 - B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
 - C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
 - D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.
70. ALL CABLES SHALL BE GROUNDED WITH COAXIAL CABLE GROUND KITS. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS.
 - A. GROUNDING AT THE ANTENNA LEVEL.
 - B. GROUNDING AT MID LEVEL, TOWERS WHICH ARE OVER 200'-0", ADDITIONAL CABLE GROUNDING REQUIRED.
 - C. GROUNDING AT BASE OF TOWER PRIOR TO TURNING HORIZONTAL.
 - D. GROUNDING OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT.
 - E. GROUNDING INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
71. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.



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Gregory Phassos
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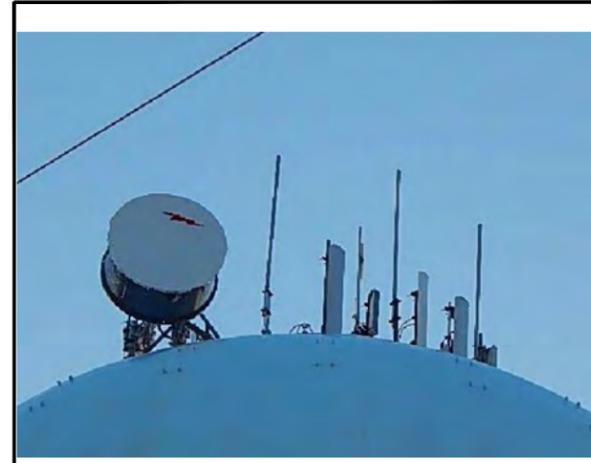
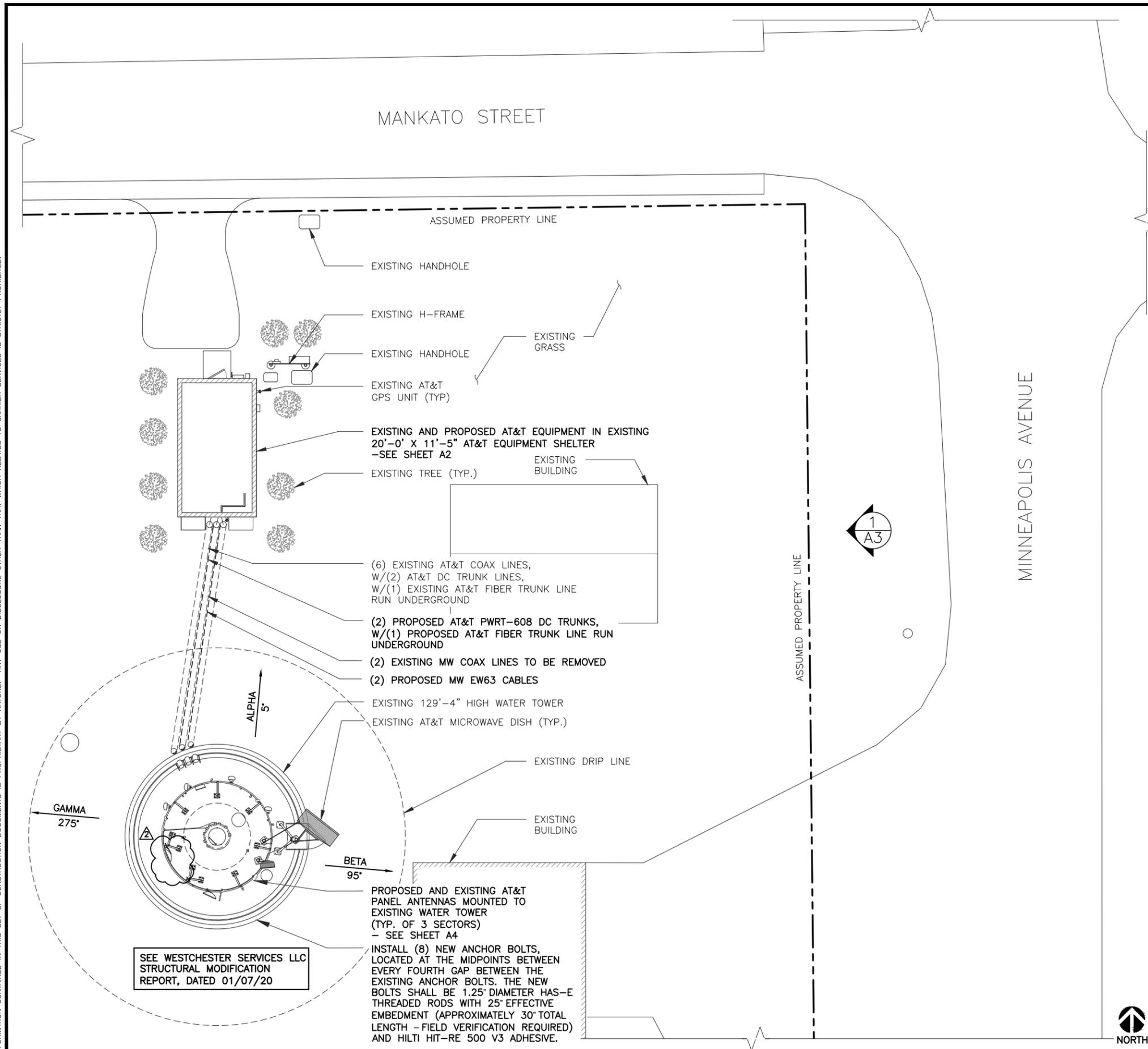
PRINT NAME: GREGORY PHASSOS
DATE: 06/22/20 LICENSE # 56324
EXP. 06/30/20

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LTE 3C/4C/5C/6C/WCS
FILTER
10152761
WOODLAND RELO
801 MINNEAPOLIS AVE.
DULUTH, MN 55802**

SHEET TITLE
**NOTES &
SPECIFICATIONS**

SHEET NUMBER
SP1

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SITE PHOTO 2



SITE PHOTO 1

AT&T
7900 XERXES AVE. S
BLOOMINGTON, MN 55431

SAC
540 W. MADISON ST.
9TH FLOOR
CHICAGO, IL 60661
WWW.SACW.COM
312.895.4977

SAC
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9TH FLOOR
CHICAGO, IL 60661
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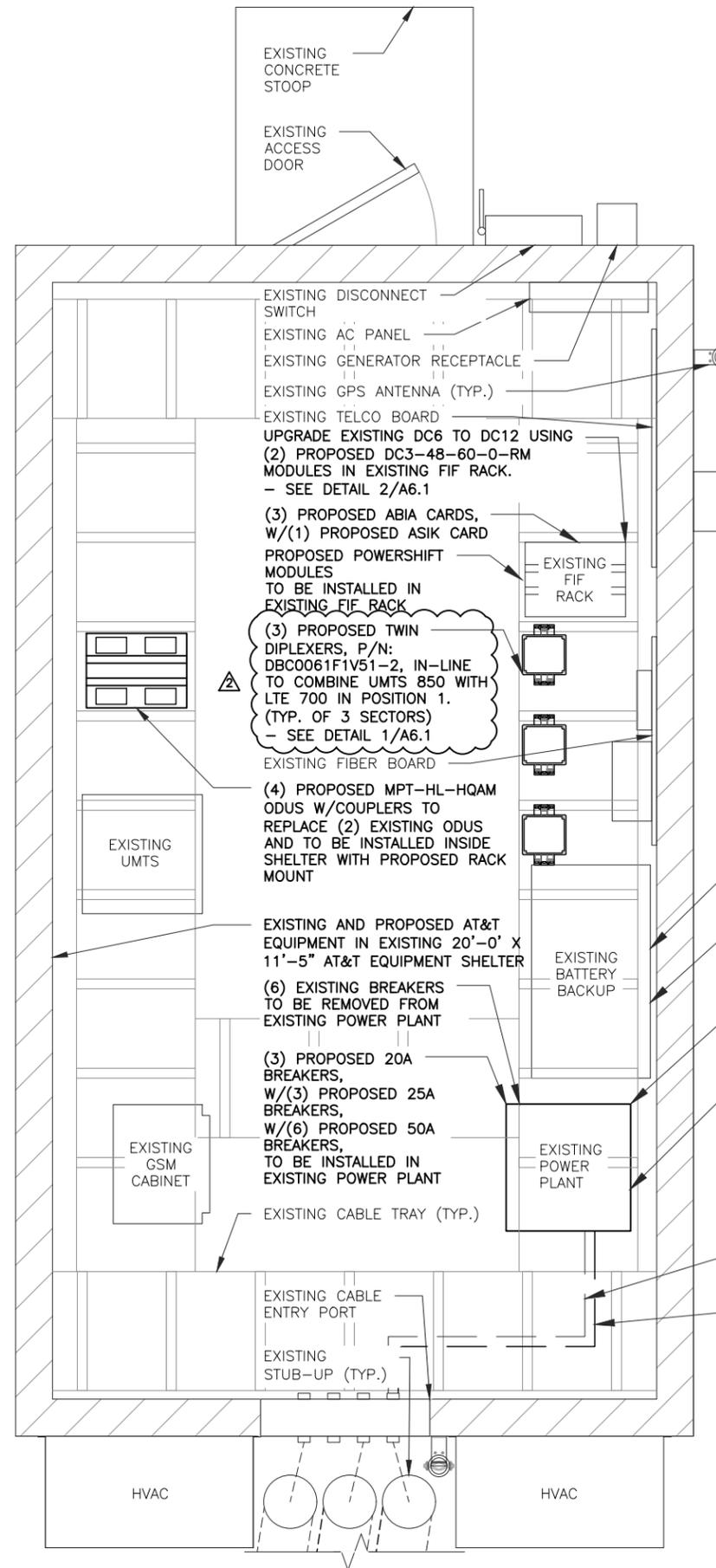
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SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A1

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MICROWAVE SCOPE:

- UPGRADE EXISTING (1+1) HSBY MW TO RLAG (4+0)
- REMOVE (2) EXISTING ODUS
- INSTALL (4) PROPOSED MPT-HL-HQAM ODUS W/COUPLERS INSIDE SHELTER WITH PROPOSED RACK MOUNT.
- REMOVE (2) EXISTING COAX LINES
- INSTALL (2) PROPOSED EW63 CABLES
- REPLACE EXISTING MSS SHELF W/PROPOSED MSS SHELF W/CORE-EVO CARD.
- USE EASV2 CARD AND 7.1 SW



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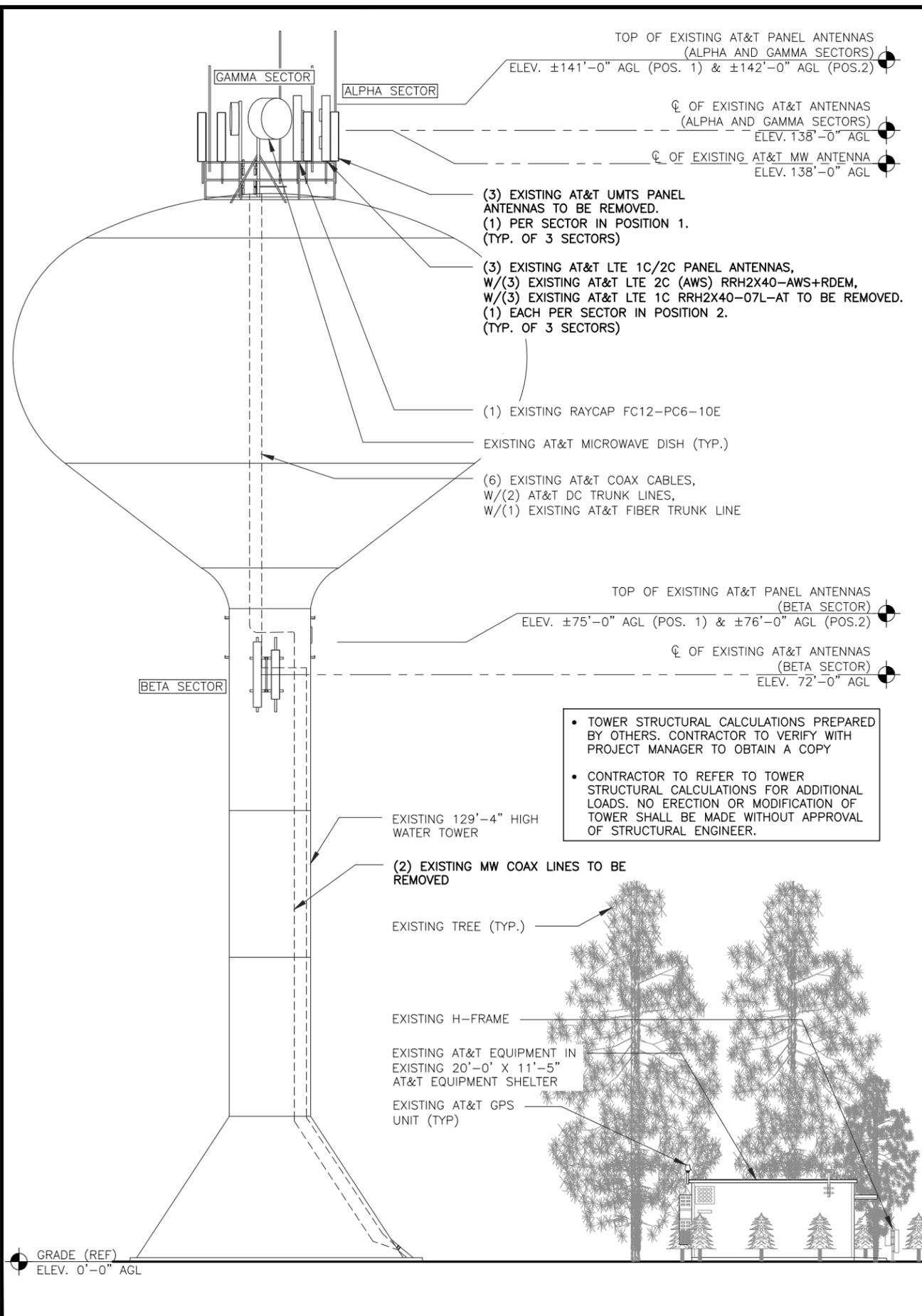
EQUIPMENT PLAN

SHEET NUMBER

A2



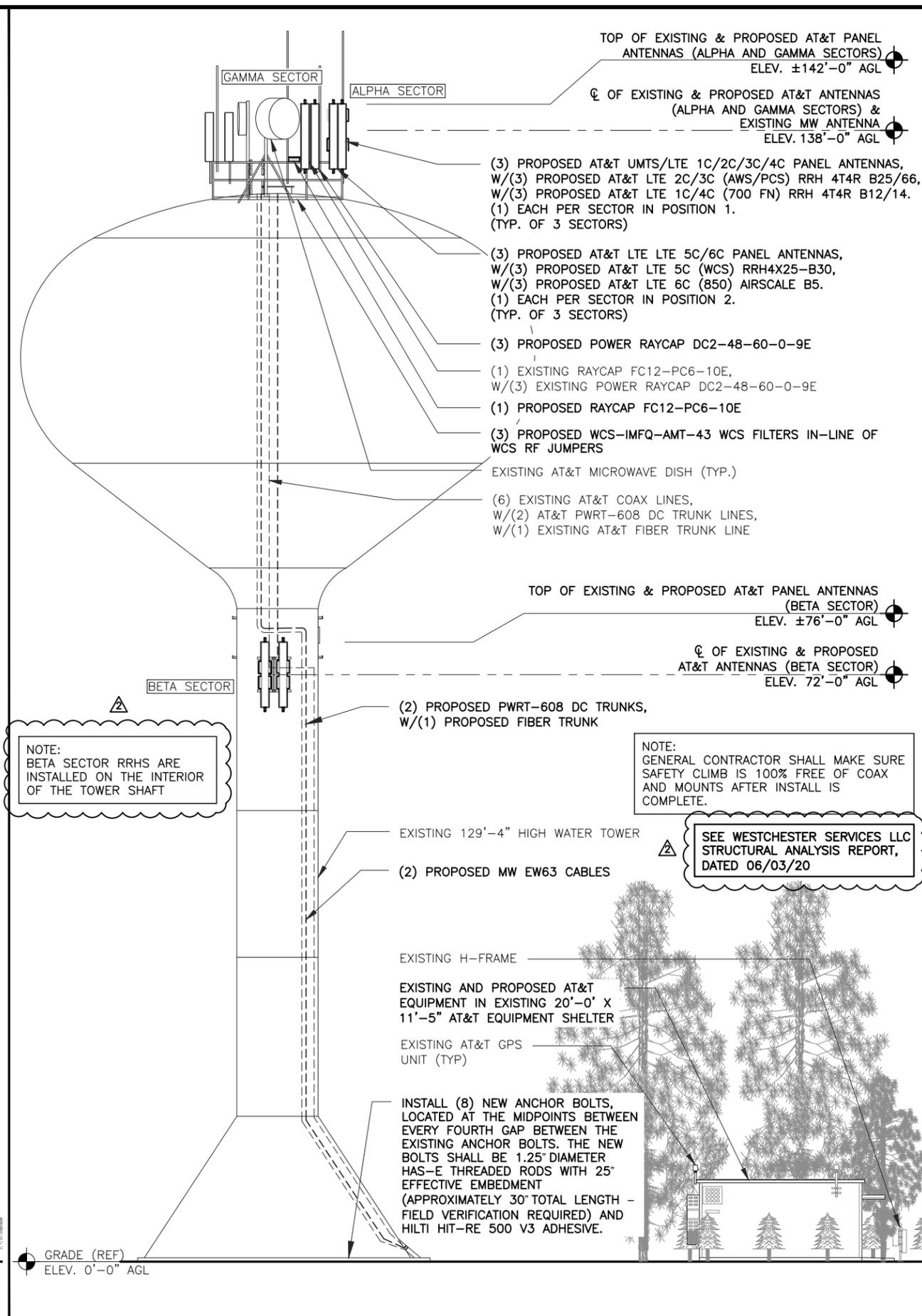
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EXISTING TOWER ELEVATION

0' 2' 4' 8'
SCALE: 1/8" = 1'-0" (24x36)
(OR) 1/16" = 1'-0" (11x17)

2



PROPOSED TOWER ELEVATION

0' 2' 4' 8'
SCALE: 1/8" = 1'-0" (24x36)
(OR) 1/16" = 1'-0" (11x17)

1



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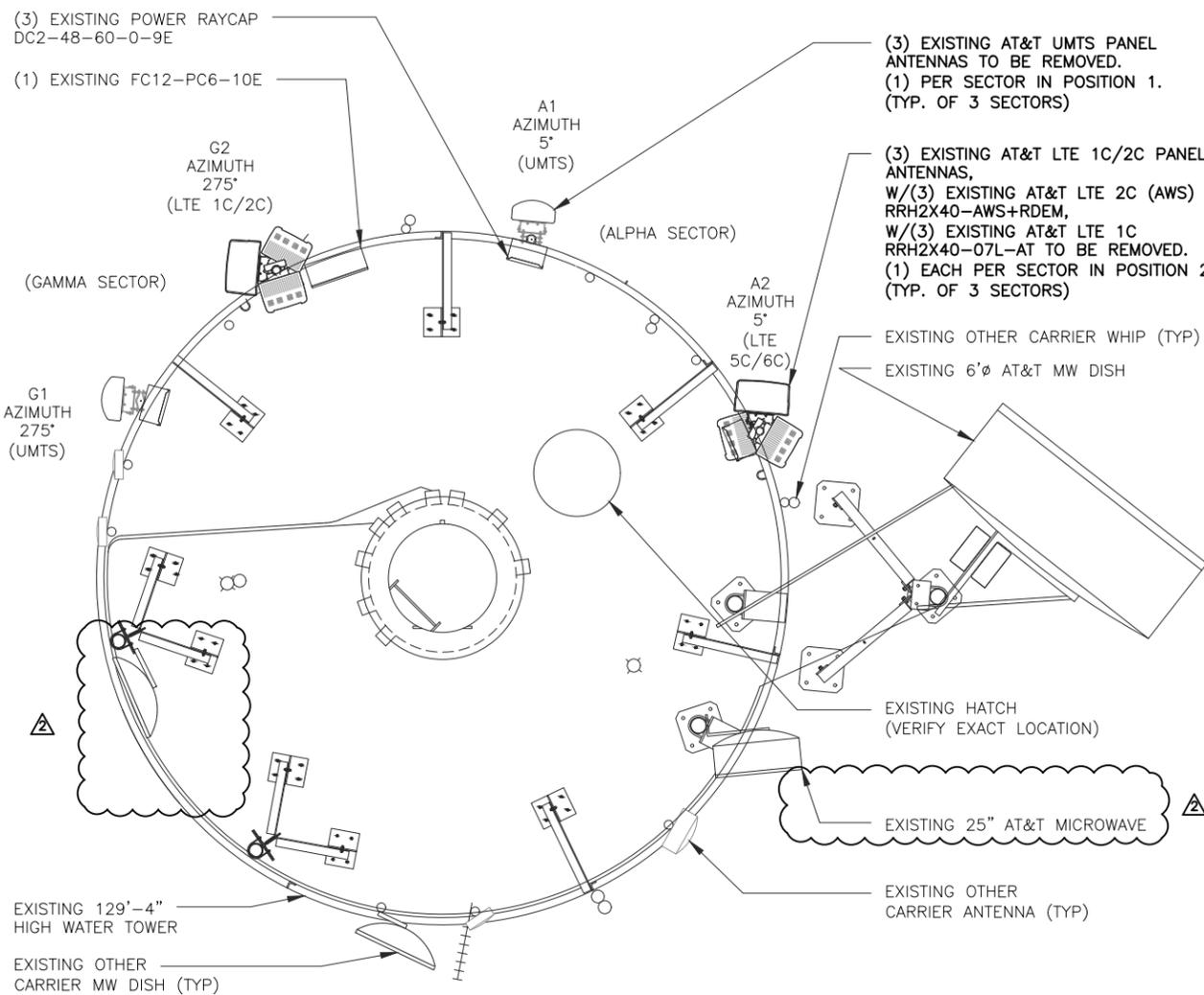
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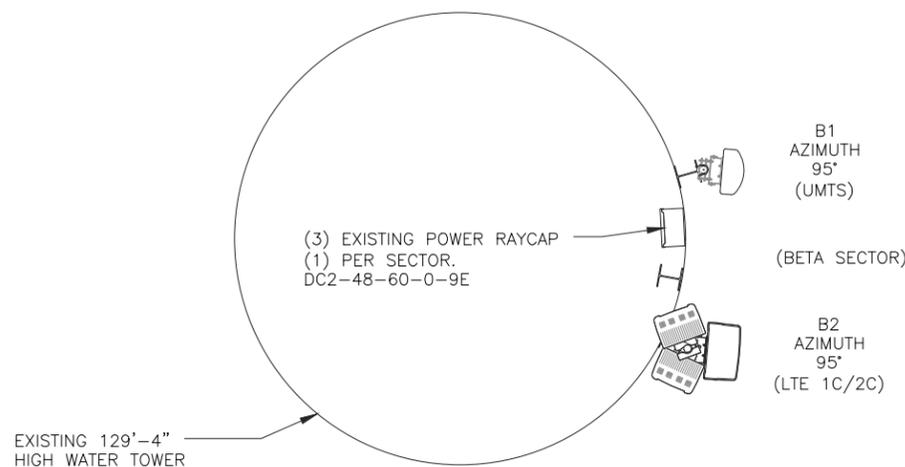
SHEET TITLE
TOWER ELEVATION

SHEET NUMBER
A3

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@ 138' A.G.L.
(ALPHA/GAMMA SECTORS)

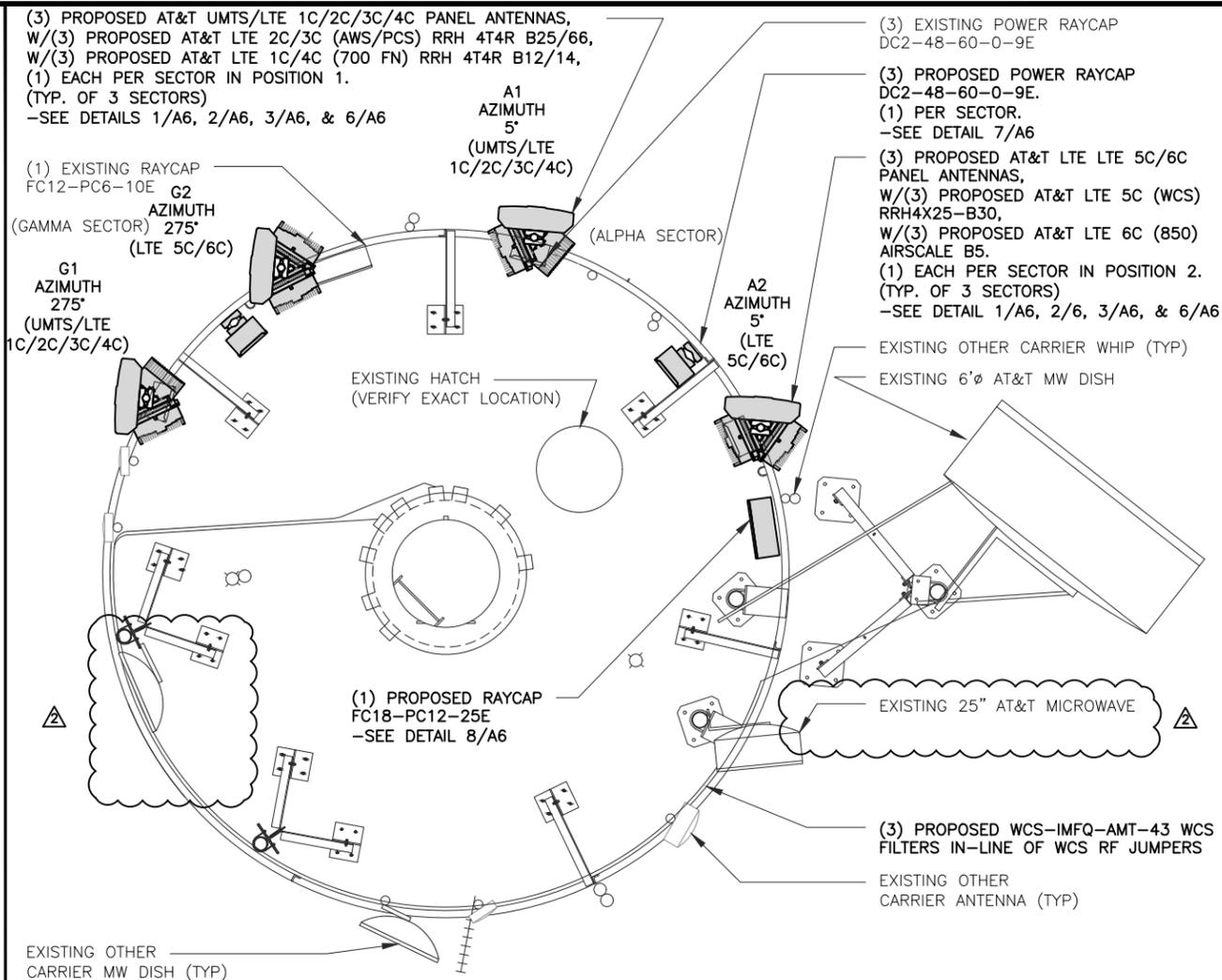


@ 72' A.G.L.
(BETA SECTOR)

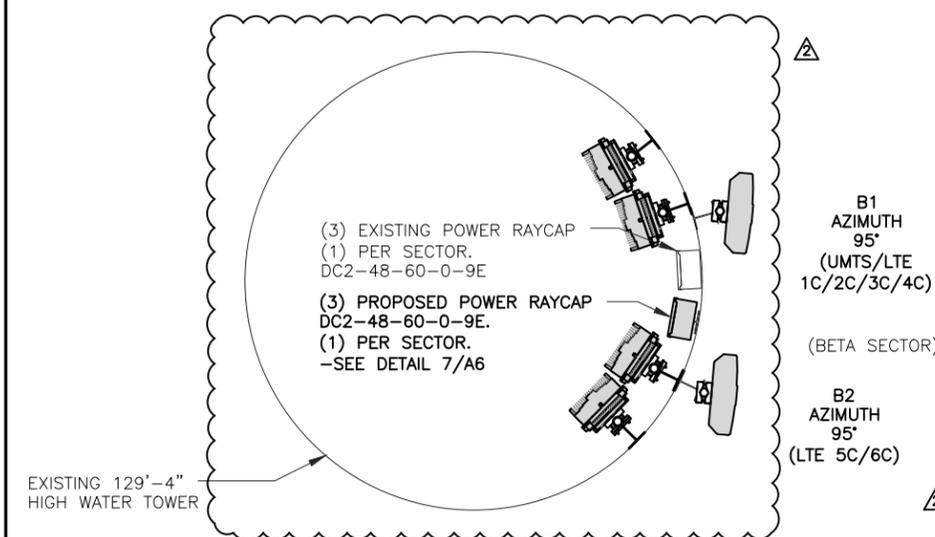


0 6" 1" 2"
SCALE: 1/2" = 1'-0" (24x36)
(OR) 1/4" = 1'-0" (11x17)

2



@ 138' A.G.L.
(ALPHA/GAMMA SECTORS)



@ 72' A.G.L.
(BETA SECTOR)



0 6" 1" 2"
SCALE: 1/2" = 1'-0" (24x36)
(OR) 1/4" = 1'-0" (11x17)

1



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SHEET TITLE
**ANTENNA
PLAN**

SHEET NUMBER
A4

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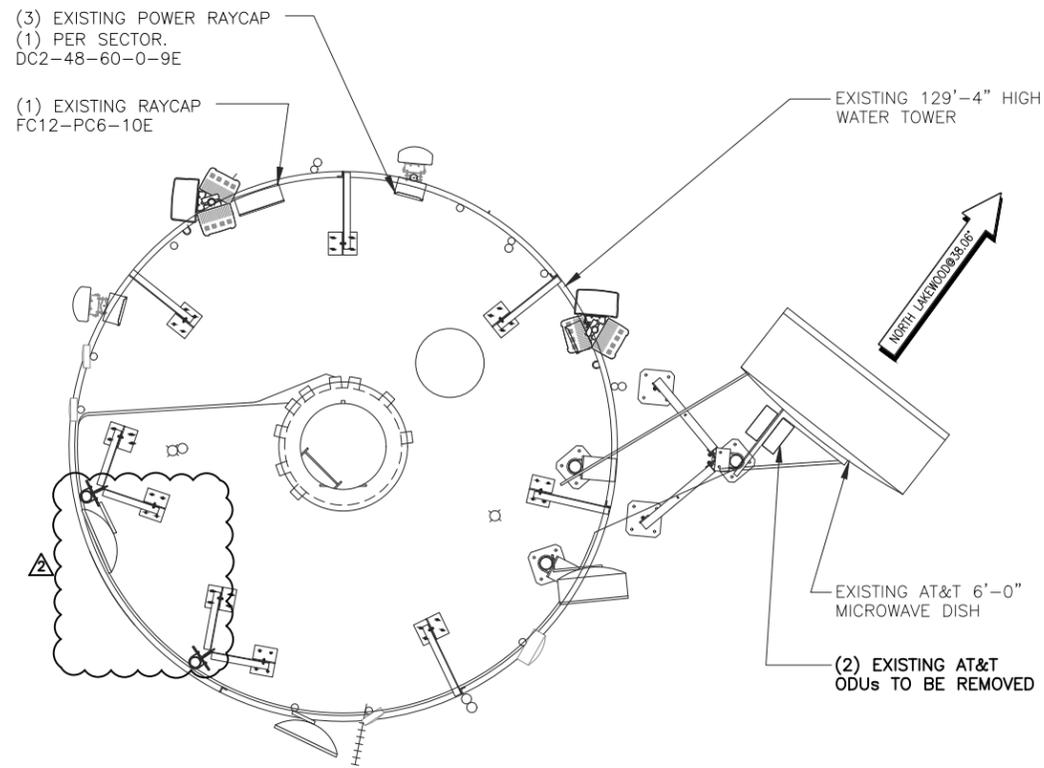
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SHEET TITLE
MICROWAVE PLAN,
MICROWAVE &
CABLE
CONFIGURATION

SHEET NUMBER

A4.1

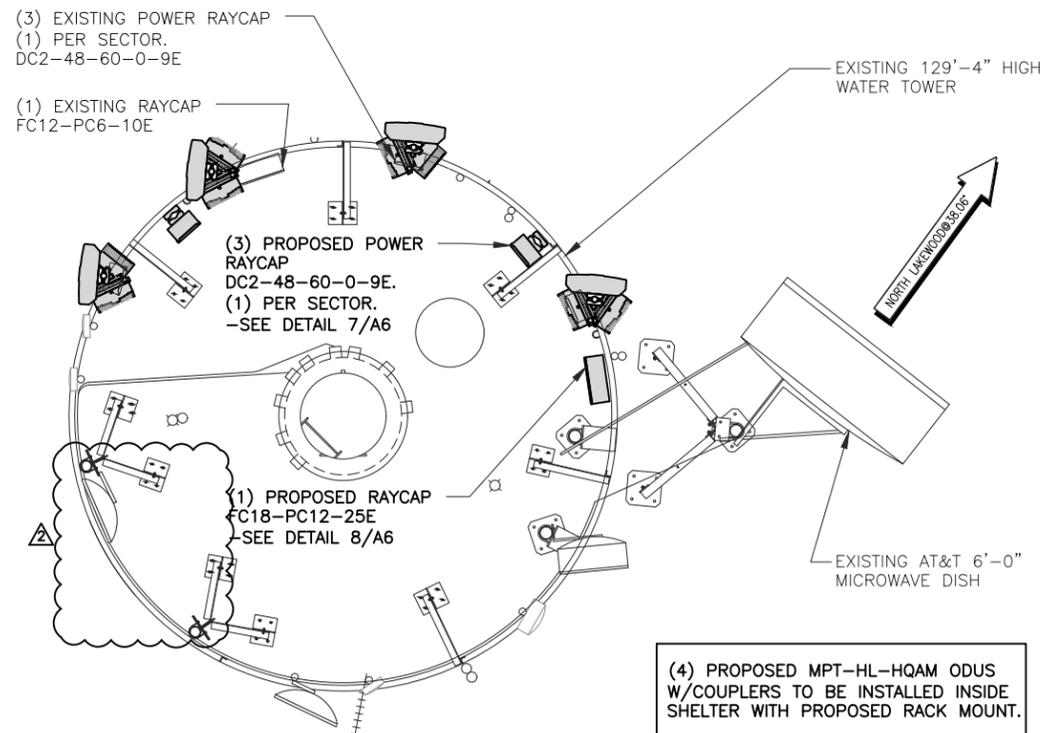


EXISTING ANTENNA PLAN

SCALE: 3/8" = 1'-0" (24x36)
(OR) 3/16" = 1'-0" (11x17)



2



NOTE:
VERIFY IF FIELD CONDITIONS VARY FROM
CONDITIONS SHOWN ON DRAWINGS

PROPOSED ANTENNA PLAN

SCALE: 3/16" = 1'-0" (24x36)
(OR) 3/32" = 1'-0" (11x17)



1

PROPOSED ANTENNA CONFIGURATION AND CABLE SCHEDULE

TECH	MW ANTENNA	ANTENNA ϕ HEIGHT	AZIMUTH	ODU	CABLE TYPE	CABLE LENGTH
EXISTING MICROWAVE	UHX6-59-D3A/L RF (X)	138' AGL	38.06°	(4) MPT-HL-HQAM (N) (GROUND)	(2) EW63 (N)	190'

* INCLUDES SAFETY FACTOR OF 20' FT. (10 FT. AT BOTH ENDS OF CABLE RUN).
CONTRACTOR TO VERIFY RF DATA WITH AT&T WIRELESS CONSTRUCTION MANAGER
AND/OR RF ENGINEER PRIOR TO INSTALLATION

(N) = NEW
(X) = EXISTING
(XR) = EXISTING/RELOCATED
(E) = ELECTRICAL
(M) = MECHANICAL

M.W. & CABLE CONFIGURATION

NO SCALE

3

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PROPOSED ANTENNA CONFIGURATION AND CABLE SCHEDULE

SECTOR	POS	TECH	ANTENNA	ANTENNA ☉ HEIGHT	AZIMUTH	TMA/RRU MODEL#	DC SURGE AND DISTRIBUTION	CABLE TYPE	CABLE LENGTH (+20%)	DOWNTILTS
A	1	UMTS/LTE 1C/2C/ 3C/4C	KMW (N) EPBQ-654L8H8-L2	138' AGL	5°	(1) RRH 4T4R B12/14 (N) (1) RRH 4T4R B25/66 (N) (1) TMA (X) ((1) TWIN DIPLEXER (N)) ⚠	DC2-48-60-0-9E	(2) PWRT-608 DC TRUNKS (N) (2) DC TRUNK (X) (1) FIBER TRUNK (N) (2) COAX (X)	250'	0
	2	LTE 5C/6C	KMW (N) EPBQ-654L8H8-L2		5°	(1) AIRSCALE B5 (N) (1) RRH 4T4R-B30 100W (N) (1) FILTER (N)		(1) FIBER TRUNK (X)		0
B	1	UMTS/LTE 1C/2C/ 3C/4C	KMW (N) EPBQ-654L8H8-L2	72' AGL	95°	(1) RRH 4T4R B12/14 (N) (1) RRH 4T4R B25/66 (N) (1) TMA (X) ((1) TWIN DIPLEXER (N)) ⚠	(1) RAYCAP (X) FC12-PC6-10E	DC TRUNK (SHARED W/A1) FIBER TRUNK (SHARED W/A1) (2) COAX (X)	190'	0
	2	LTE 5C/6C	KMW (N) EPBQ-654L8H8-L2		95°	(1) AIRSCALE B5 (N) (1) RRH 4T4R-B30 100W (N) (1) FILTER (N)	(3) RAYCAP (N) DC2-48-60-0-9E	FIBER TRUNK (SHARED W/A2)		0
C	1	UMTS/LTE 1C/2C/ 3C/4C	KMW (N) EPBQ-654L8H8-L2	138' AGL	275°	(1) RRH 4T4R B12/14 (N) (1) RRH 4T4R B25/66 (N) (1) TMA (X) ((1) TWIN DIPLEXER (N)) ⚠	(1) RAYCAP (N) FC18-PC12-25E	DC TRUNK (SHARED W/A1) FIBER TRUNK (SHARED W/A1) (2) COAX (X)	250'	0
	2	LTE 5C/6C	KMW (N) EPBQ-654L8H8-L2		275°	(1) AIRSCALE B5 (N) (1) RRH 4T4R-B30 100W (N) (1) FILTER (N)		FIBER TRUNK (SHARED W/A2)		0

* INCLUDES SAFETY FACTOR OF 20' FT. (10 FT. AT BOTH ENDS OF CABLE RUN).
CONTRACTOR TO VERIFY RF DATA WITH AT&T WIRELESS CONSTRUCTION MANAGER
AND/OR RF ENGINEER PRIOR TO INSTALLATION

(N) = NEW
(X) = EXISTING
(XR) = EXISTING/RELOCATED
(E) = ELECTRICAL
(M) = MECHANICAL

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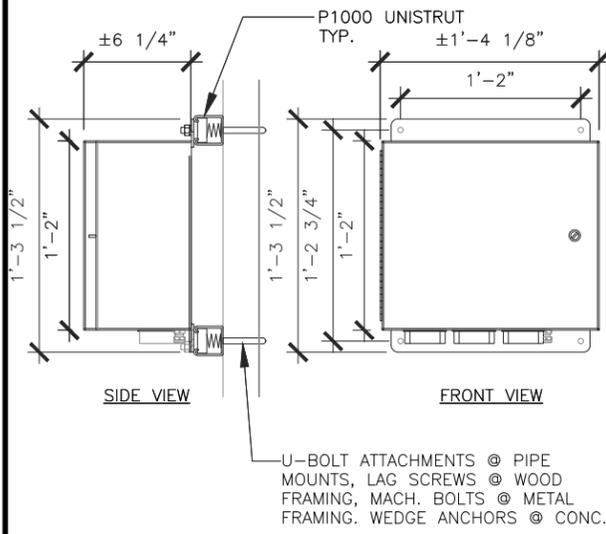
SHEET TITLE
**ANTENNA &
CABLE
CONFIGURATION**

SHEET NUMBER
A5

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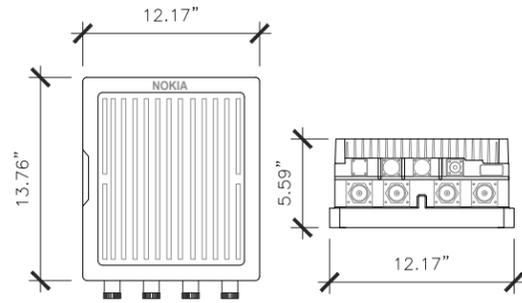
RAYCAP FC18-PC12-25E FIBER DC POWER CONNECTION

DIMENSIONS, HxWxD: 14.00"x16.10"x6.65"
 WEIGHT, WITHOUT MOUNTING KIT: ±24 kg (52.9 lbs)



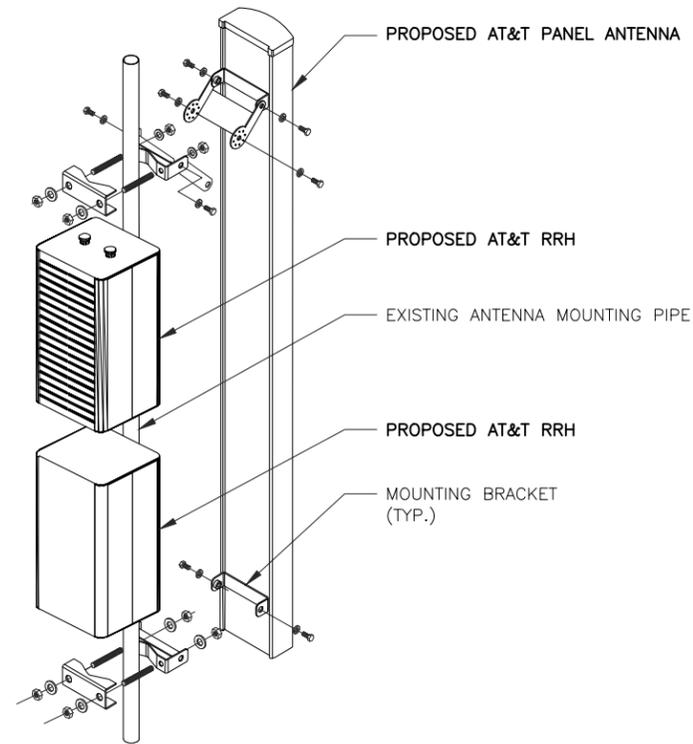
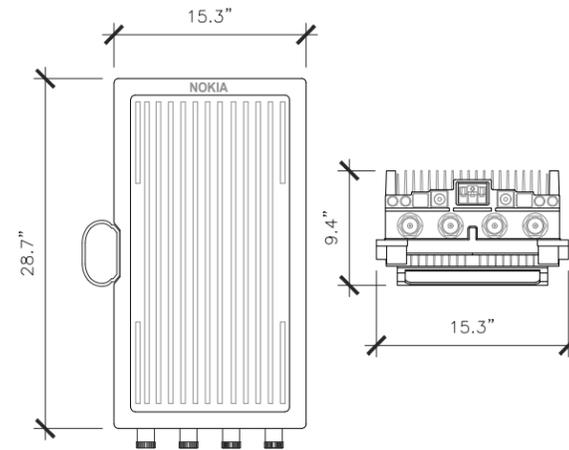
NOKIA AIRSCALE RRH 4T4R B30 100W

DIMENSIONS, HxWxD: 13.25" X 12.05" X 5.51"
 WEIGHT: 39.02 POUNDS W/ID COVER



NOKIA AIRSCALE DUAL RRH 4T4R B12/14 320W AHLBA

DIMENSIONS, HxWxD: 560 X 308 X 177 (MM) (CORE)
 22.0" X 12.1" X 7" (CORE)
 730 X 390 X 240 (MM) (OVERALL NOT-TO-EXCEED WITH COVER AND BRACKET)
 28.7" X 15.3" X 9.4" (OVERALL NOT-TO-EXCEED WITH COVER AND BRACKET)
 WEIGHT: < 46 (kg)
 < 101.4 lbs (OVERALL NOT-TO-EXCEED WITH COVER AND BRACKET)



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RAYCAP FC18 DETAIL NOT TO SCALE 8

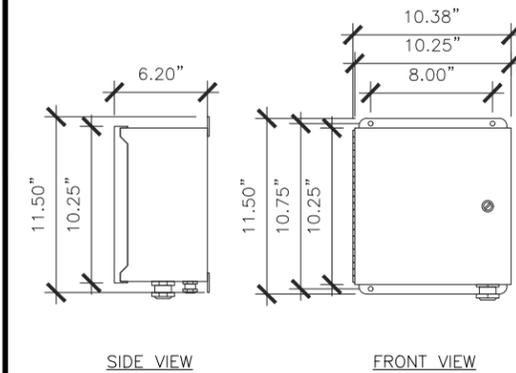
LTE 5C RRH MOUNTING DETAIL NOT TO SCALE 6

LTE 1C/4C RRH MOUNTING DETAIL NOT TO SCALE 4

TYPICAL ANTENNA AND RRH MOUNTING DETAIL NOT TO SCALE 2

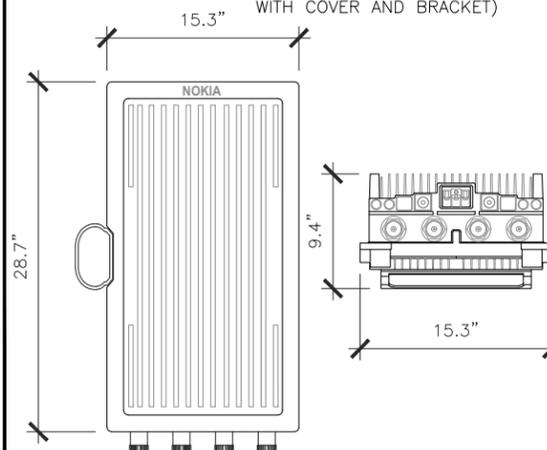
RAYCAP DC2-48-60-9 DC SURGE SUPPRESSOR

DIMENSIONS, HxWxD: 10.25"x10.25"x6.20"
 WEIGHT, WITHOUT MOUNTING KIT: ±16.0 lbs



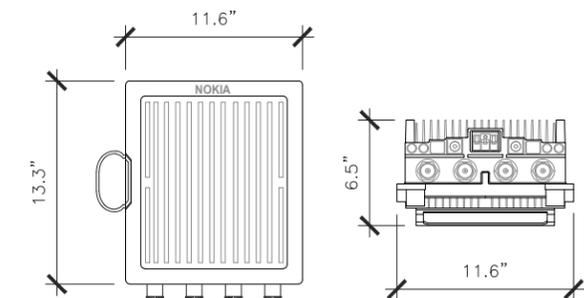
NOKIA AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB

DIMENSIONS, HxWxD: 560 X 308 X 149 (MM) (CORE)
 22.0" X 12.1" X 5.7" (CORE)
 730 X 390 X 240 (MM) (OVERALL NOT-TO-EXCEED WITH COVER AND BRACKET)
 28.7" X 15.3" X 9.4" (OVERALL NOT-TO-EXCEED WITH COVER AND BRACKET)
 WEIGHT: < 40 (kg)
 < 88.2 lbs (OVERALL NOT-TO-EXCEED WITH COVER AND BRACKET)



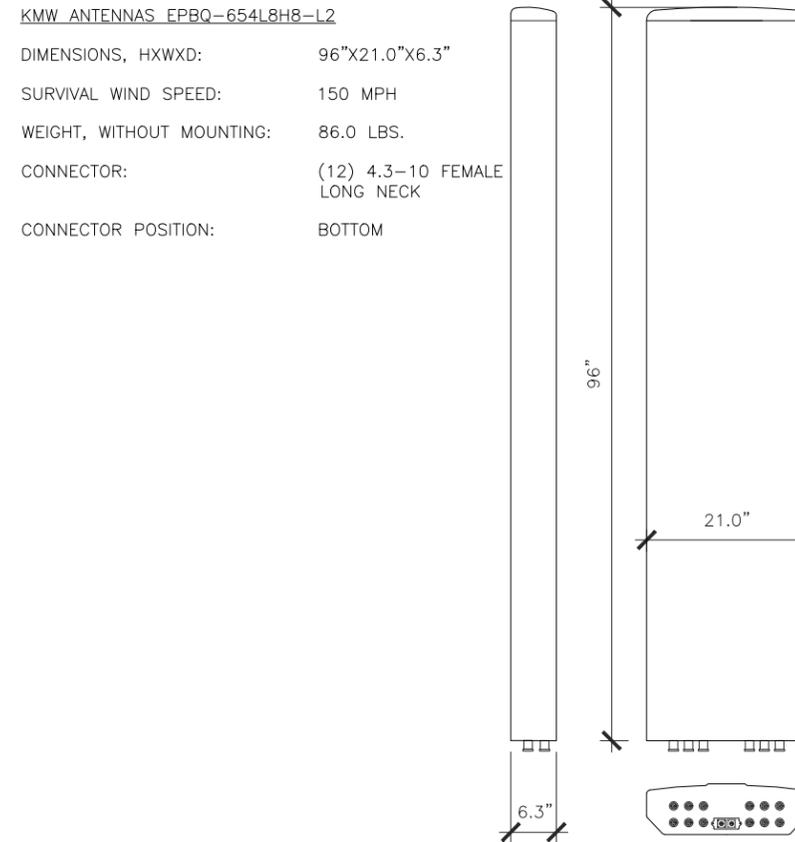
NOKIA NOKIA AIRSCALE RRH 4T4R B5 160W AHCA

DIMENSIONS, HxWxD: 337 X 295 X 165 (MM)
 13.3" X 11.6" X 6.5"
 WEIGHT: 16.7 (kg)
 36.8 POUNDS



KMW ANTENNAS EPBQ-654L8H8-L2

DIMENSIONS, HxWxD: 96"x21.0"x6.3"
 SURVIVAL WIND SPEED: 150 MPH
 WEIGHT, WITHOUT MOUNTING: 86.0 LBS.
 CONNECTOR: (12) 4.3-10 FEMALE LONG NECK
 CONNECTOR POSITION: BOTTOM



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SHEET TITLE
**ANTENNA,
 RRH AND
 MOUNTING
 DETAILS**

SHEET NUMBER
A6

RAYCAP DC2 DETAIL NOT TO SCALE 7

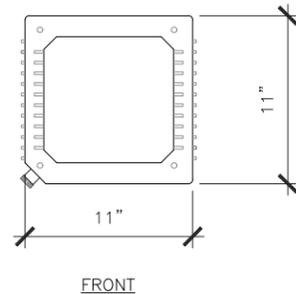
LTE 2C/3C RRH MOUNTING DETAIL NOT TO SCALE 5

LTE 6C RRH MOUNTING DETAIL NOT TO SCALE 3

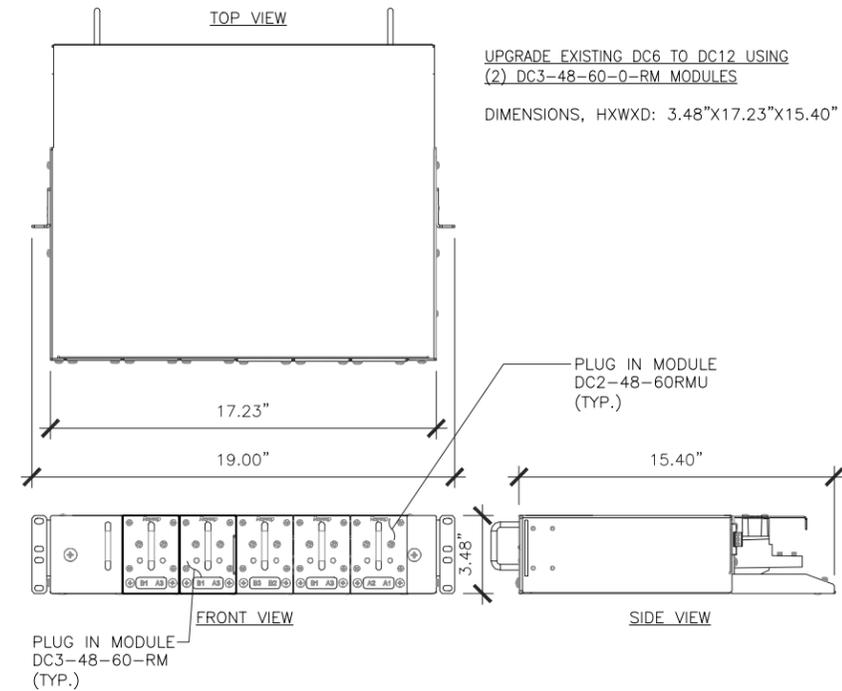
UMTS/LTE 1C/2C/3C/4C (POS 1) & LTE 5C/6C (POS 2) ANTENNA DETAIL NOT TO SCALE 1

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NOKIA 9500 MICROWAVE PACKET RADIO: MPT-HL-HQAM
 DIMENSIONS, HxWxD: 11" x 11" x 6.5"
 279.4x279.4x165.1 (mm)
 WEIGHT, WITHOUT MOUNTING KIT: 14.3 lbs (6.486 kg)



FRONT



ODU DETAIL

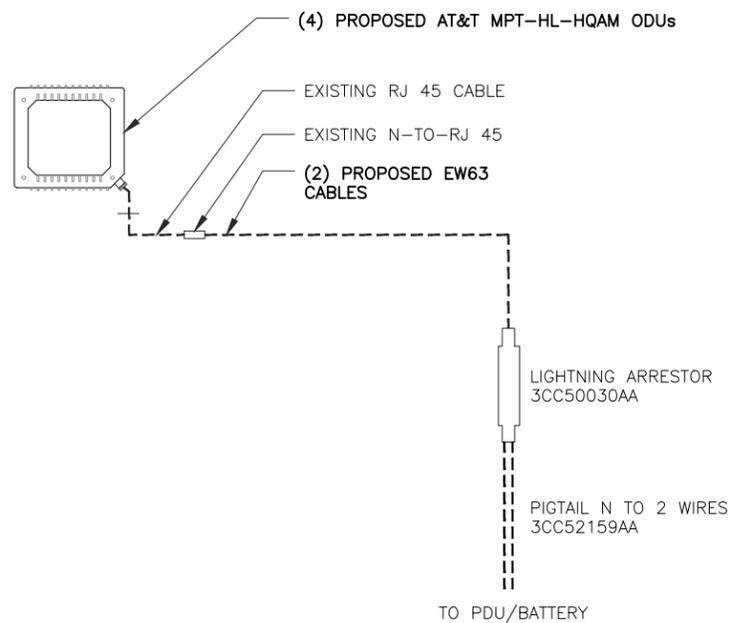
NOT TO SCALE

4

RAYCAP DC3 RACK MOUNT DETAIL

NOT TO SCALE

2



TYPICAL ODU CABLING DETAIL

NOT TO SCALE

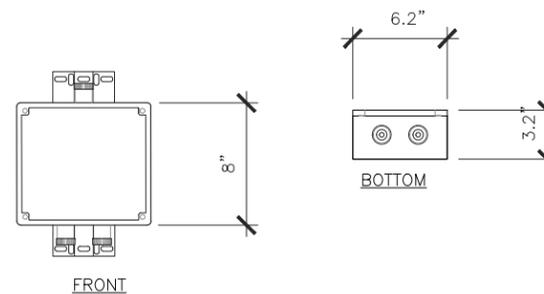
3

DBC0061F1V51-2 DETAIL

NOT TO SCALE

1

KAEIUS DBC0061F1V51-2
 DIMENSIONS, HxWxD: 8"x6.2"x3.2"
 WEIGHT, WITHOUT MOUNTING KIT: 4.3 kg (9.5 lbs)



TYPICAL ODU CABLING DETAIL

NOT TO SCALE

3

DBC0061F1V51-2 DETAIL

NOT TO SCALE

1



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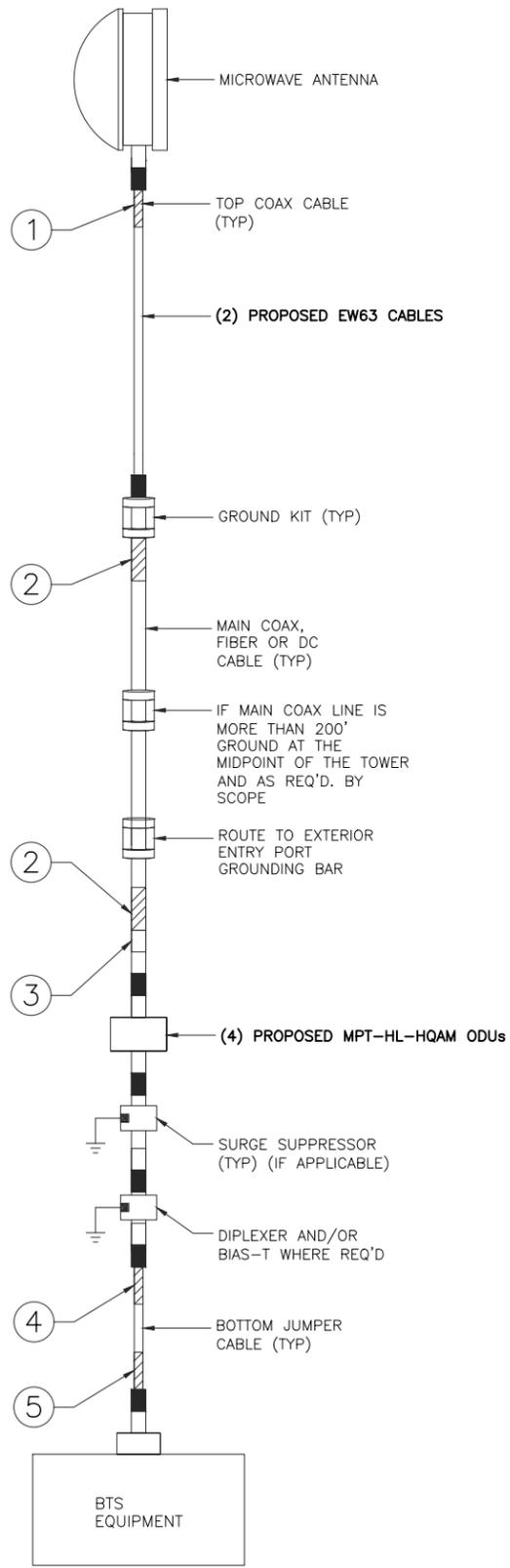
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SHEET NUMBER
A6.1



1. CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
2. THE SIZE, HEIGHT, AND DIRECTION OF THE ANTENNAS SHALL BE ADJUSTED TO ACHIEVE THE AZIMUTHS SPECIFIED AND LIMIT SHADOWING AND TO MEET THE SYSTEM REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY THE HEIGHT OF THE ANTENNA WITH THE AT&T WIRELESS PROJECT MANAGER.
4. VERIFY TYPE AND SIZE OF TOWER LEG PRIOR TO ORDERING ANY ANTENNA MOUNT.
5. UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY.
6. ANTENNA AZIMUTHS ARE DEGREES OFF OF TRUE NORTH, BEARING CLOCKWISE, IN WHICH ANTENNA FACE IS DIRECTED. ALL ANTENNAS (AND SUPPORTING STRUCTURES AS PRACTICAL) SHALL BE ACCURATELY ORIENTED IN THE SPECIFIED DIRECTION.
7. CONTRACTOR SHALL VERIFY ALL RF INFORMATION PRIOR TO CONSTRUCTION.
8. SWEEP TEST SHALL BE PERFORMED BY GENERAL CONTRACTOR AND SUBMITTED TO AT&T WIRELESS CONSTRUCTION SPECIALIST. TEST SHALL BE PERFORMED PER AT&T WIRELESS STANDARDS.
9. CABLE LENGTHS WERE DETERMINED BASED ON THE DESIGN DRAWING. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
10. CONTRACTOR TO USE ROSENBERGER FIBER LINE HANGER COMPONENTS (OR ENGINEER APPROVED EQUAL).

ANTENNA & CABLING NOTES

NO SCALE 4

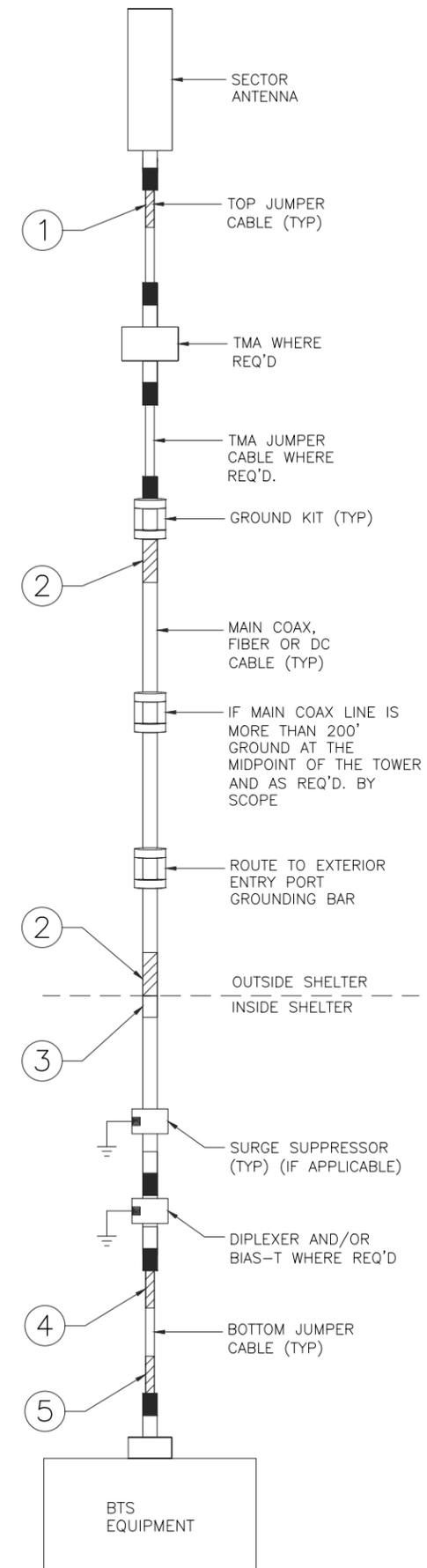
RF, DC, & COAX CABLE MARKING LOCATIONS TABLE

NO	LOCATIONS
①	EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
②	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
③	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER.
④	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
⑤	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.

CABLE MARKING DIAGRAM

NO SCALE 3

1. THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE.
2. THE STANDARD IS BASED ON EIGHT COLORED TAPES-RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE, AND VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR CONTRACTOR ON SITE.
3. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLE NUMBER AS SHOWN ON "CABLE COLOR CHART".
4. WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN TECHNOLOGIES IS ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING STANDARD. IN THE ABSENCE OF AN EXISTING COLOR CODING AND TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
5. ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) THREE WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
6. ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE, AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE BETWEEN EACH COLOR.
7. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE-TO-SIDE.
8. IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE NEW TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.



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SHEET TITLE
**CABLE NOTES
& COLOR
CODING**

SHEET NUMBER
A7

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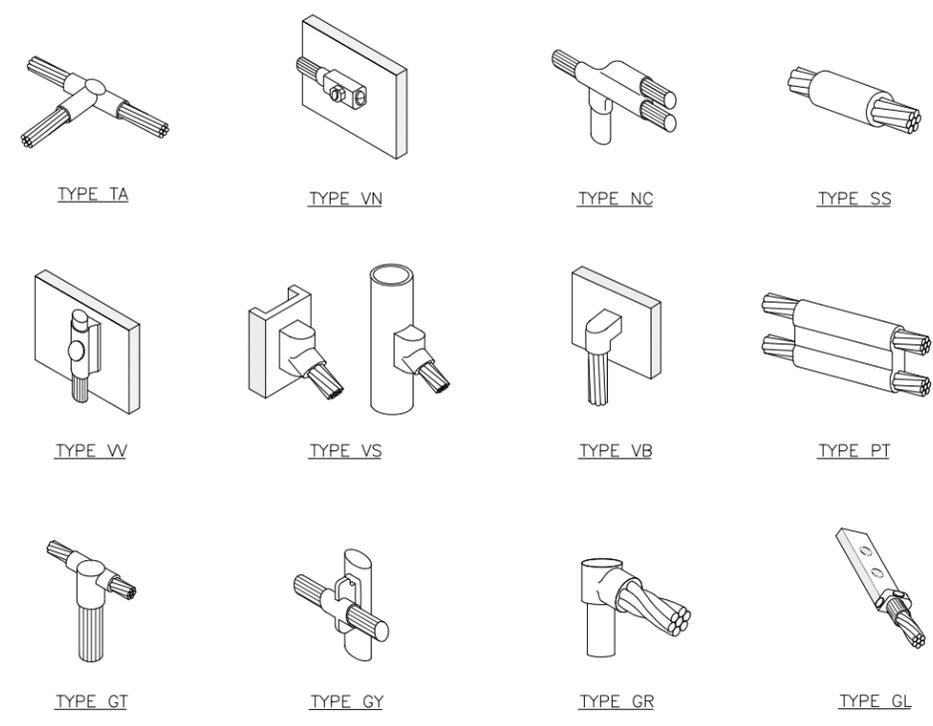
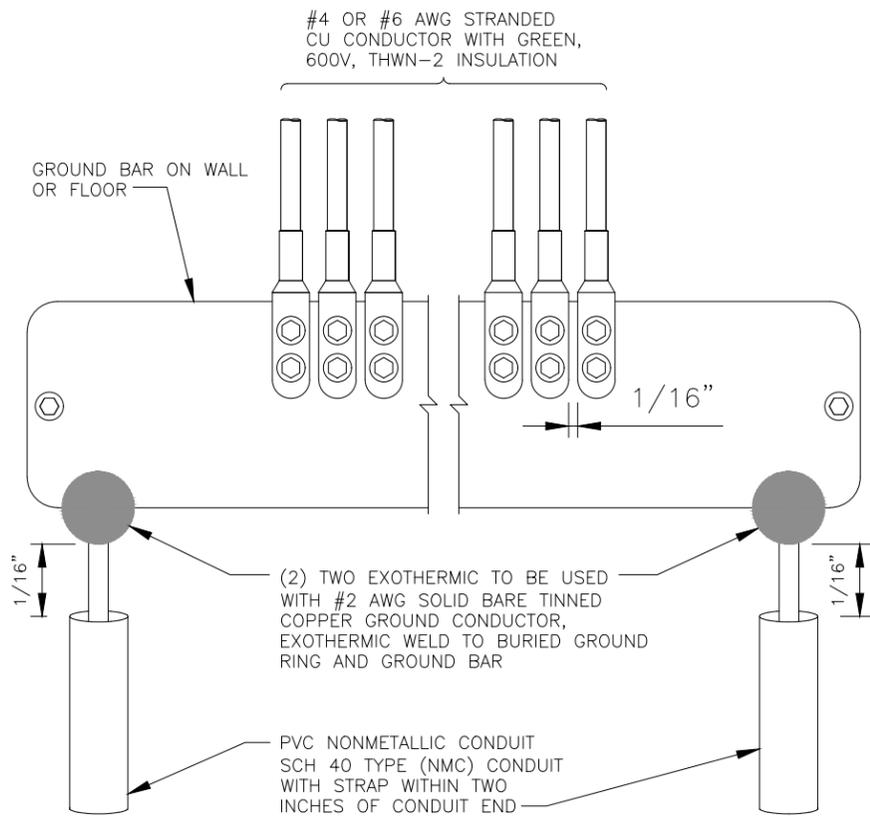
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SHEET TITLE
**GROUNDING
DETAILS**

SHEET NUMBER
E1



GROUND BAR DETAILS

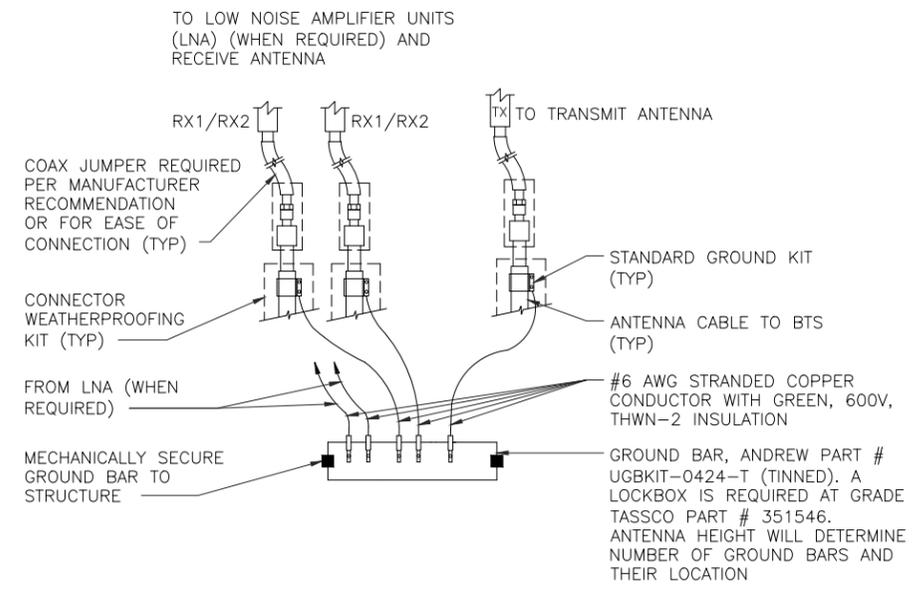
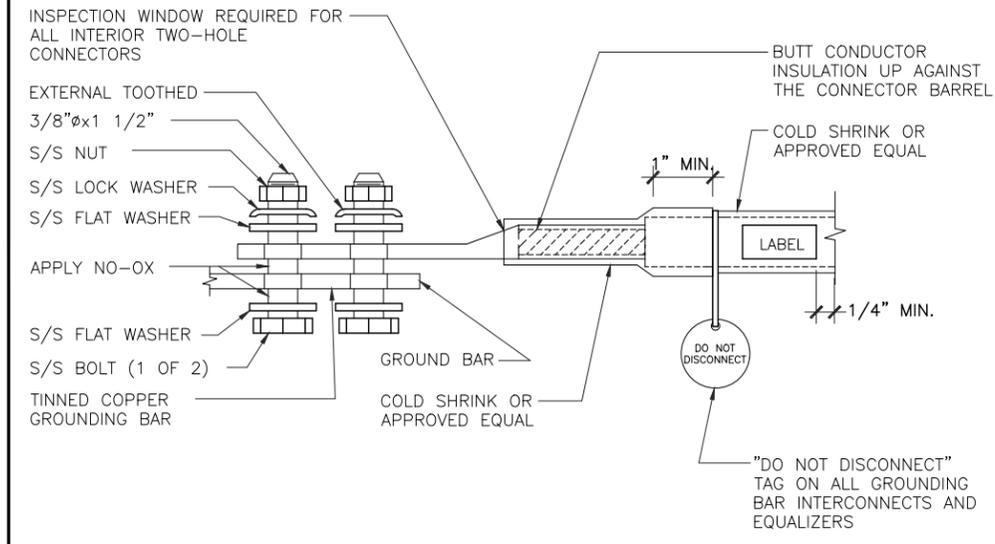
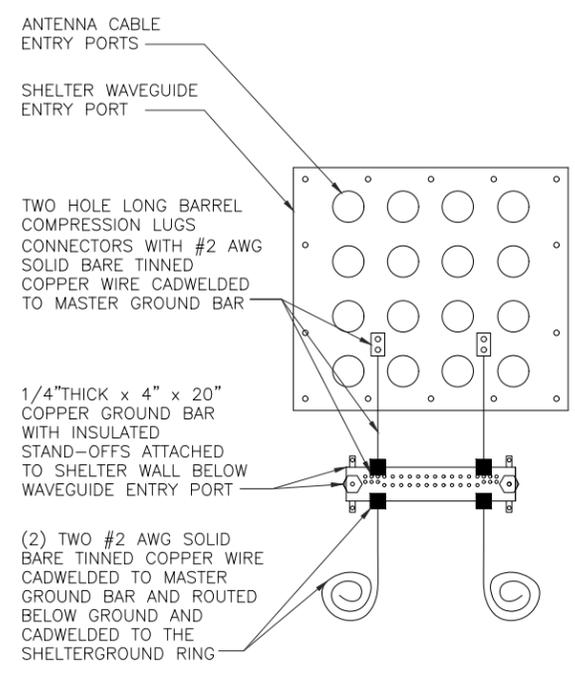
NO SCALE

5

CALDWELL DETAILS

NO SCALE

4



COAX GROUND KIT DETAIL

NO SCALE

3

EXTERIOR TWO HOLE LUG DETAIL

NO SCALE

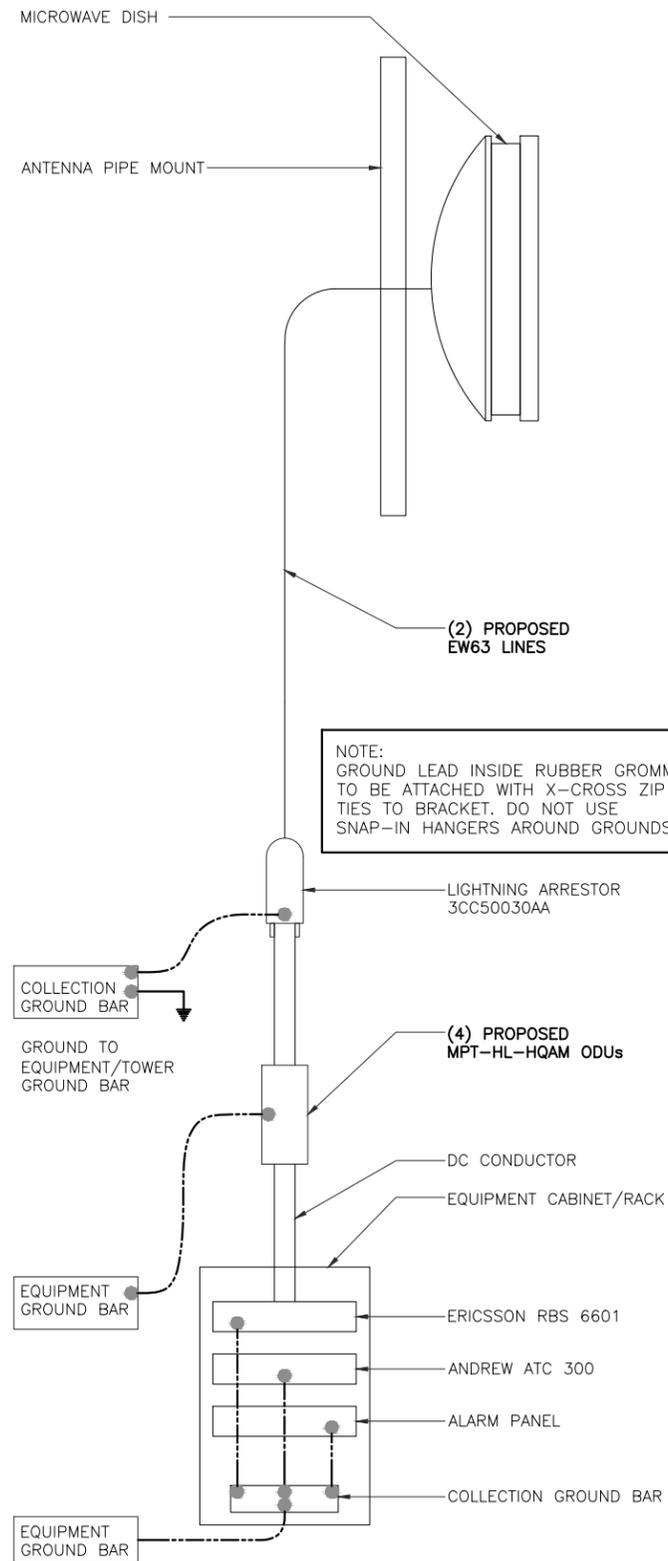
2

ANTENNA GROUND BAR DETAIL

NO SCALE

1

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**GROUNDING
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E2