FA NUMBER: 12682206
PACE NUMBER: MRCAR033595
PROJECT TRACKING #: 2301ADHFYP
SITE NAME: 368-712
AMERICAN TOWER: OLD STAGE NC (280851)

PER THE PROVIDED SELF-SUPPORT STRUCTURAL ANALYSIS DRAWN BY AMERICAN TOWER CORPORATION, DATED 07/10/2020; SMW ENGINEERING CANNOT SEE ANY CONFLICTS BETWEEN THE TOWER DESIGN 251' AND THE PROPOSED LOCATION OF THE MOUNTS 245'.

1808 OAK GROVE CHURCH ROAD
ANGIER, NC 27501
HARNETT COUNTY

SITE INFORMATION

SITE ADDRESS:	1808 OAK GROVE CHURCH ROAD ANGIER, NC 27501
RFDS USID #: RFDS ID #: RFDS DATE:	142592 4001668 06/17/2020
LATITUDE (NAD 83): LONGITUDE (NAD 83):	35.4517500° (N 35° 27' 06.3000") -78.7096640° (W -78° 42' 34.7904")
GROUND ELEVATION:	255' (AMSL)
JURISDICTION:	HARNETT COUNTY
JURISDICTION CONTACT:	NAME: JAY SIKES PHONE: (919) 961-1747
ZONING:	N/A
TOWER OWNER:	AMERICAN TOWER ADDRESS: 5000 VALLEYSTONE DRIVE CARY, NC 27519
TOWER OWNER SITE NAME:	OLD STAGE NC (280851)
STRUCTURE TYPE:	SELF-SUPPORT
STRUCTURE HEIGHT:	251' (AGL) (OVERALL HEIGHT)
POWER SUPPLIER:	POWER COMPANY: DUKE ENERGY CONTACT NAME: NOT PROVIDED PHONE NUMBER: NOT PROVIDED REF #: N/A
TELCO SUPPLIER:	TELCO COMPANY: CENTURYLINK CONTACT NAME: NOT PROVIDED PHONE NUMBER: NOT PROVIDED REF #: N/A
GAS SUPPLIER:	GAS COMPANY: NOT PROVIDED CONTACT NAME: NOT PROVIDED PHONE NUMBER: NOT PROVIDED REF #: N/A

PROJECT TEAM

APPLICANT:	HIGH PERFORMANCE SERVICES, LLC 3001 MILLS STREET LAFAYETTE, LA 70507 ALLYSON POE 772-713-6229
A&E FIRM:	SMW ENGINEERING GROUP N.C., PLLC 158 BUSINESS CENTER DRIVE BIRMINGHAM, AL PHONE #: 205-252-6985
ENGINEER:	V.G. DUVALL, JR., PE 158 BUSINESS CENTER DRIVE BIRMINGHAM, AL 35244

VICINITY MAP

TRUE NORTH

DIRECTIONS

FROM RALEIGH, NORTH CAROLINA:
FOLLOW US-401 S AND OLD STAGE RD TO BENSON RD IN BLACK RIVER (21.5 MI). TAKE GUY RD TO OAK GROVE CHURCH RD (3.0 MI). CONTINUE ONTO OAK GROVE CHURCH RD (1.0 MI). TURN LEFT ONTO HOMESTEAD LN (0.5 MI).

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.

- 2018 NX BYILDING CODE
- 2017 NATIONAL ELECTRICAL CODE
- 2017 NFPA 70, LIFE SAFETY CODE
- 2012 IFC
- AMERICAN CONCRETE INSTITUTE
- AMERICAN INSTITUTE OF STEEL CONSTRUCTION
- MANUAL OF STEEL CONSTRUCTION 13TH EDITION
- ANSI/TIA-222-G
- TIA 607
- INSTITUTE FOR ELECTRICAL & ELECTRONICS ENGINEER 81
- IEEE C2 NATIONAL ELECTRIC SAFETY CODE LATEST EDITION
- TELECORDIA GR-1275
- ANSI/T 311

DRAWING INDEX

Verle Duvall

Digitally signed by Verle Duvall
Date: 2020.10.14 16:08:53 -05'00'

DRAWING SCALE

THESE DRAWINGS ARE SCALED TO FULL SIZE AT 22"X34" AND HALF SIZE AT 11"X17". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE TO PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

SCOPE OF WORK

THIS PROJECT CONSISTS OF:

- INSTALLATION OF UTILITIES TO SITE (IF REQUIRED)
- INSTALLATION OF EQUIPMENT FOR AT&T UNMANNED TELECOMMUNICATIONS FACILITY

NORTH CAROLINA ONE-CALL
STATE WIDE CALL: 811
CALL BEFORE YOU DIG

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

SMW ENGINEERING GROUP, N.C., PLLC
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

SMW #: 20-0570.1

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368-712

TITLE SHEET & PROJECT INFORMATION

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

T-1

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: 368-712
Address: 1808 OAK GROVE CHURCH ROAD   Zip Code 27501
Owner/Authorized Agent: AMERICAN TOWER Phone # (N/P) _____ - _______   E-Mail N/P
Owned By: ☒ City/County ☒ Private ☐ State
Code Enforcement Jurisdiction: ☐ City ANGIER ☐ County HARNETT ☐ State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				( )	
Civil	SMW ENGINEERING GRP, NC, PLLC	VG DUVALL JR, PE	023757	(281) 650-9731	vg@smweng.com
Electrical	SMW ENGINEERING GRP, NC, PLLC	VG DUVALL JR, PE	023757	(281) 650-9731	vg@smweng.com
Fire Alarm				( )	
Plumbing				( )	
Mechanical				( )	
Sprinkler-Standpipe				( )	
Structural				( )	
Retaining Walls >5' High				( )	
Other				( )	

("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC BUILDING CODE: ☐ New Building ☒ Addition ☐ Renovation
☐ 1st Time Interior Completion
☐ Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements
☐ Phased Construction - Shell/Core- Contact the local inspection jurisdiction for possible additional procedures and requirements

2018 NC EXISTING BUILDING CODE: EXISTING: ☐ Prescriptive ☐ Repair ☐ Chapter 14
Alteration: ☐ Level I ☐ Level II ☐ Level III
☐ Historic Property ☐ Change of Use

CONSTRUCTED: (date) ________ **CURRENT OCCUPANCY(S)** (Ch. 3): ________
RENOVATED: (date) ________ **PROPOSED OCCUPANCY(S)** (Ch. 3): ________

OCCUPANCY CATEGORY (Table 1604.5): **Current:** ☐ I ☐ II ☐ III ☐ IV
Proposed: ☐ I ☐ II ☐ III ☐ IV

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A
(check all that apply) ☐ I-B ☒ II-B ☐ III-B ☐ V-B
Sprinklers: ☐ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☐ No ☐ Yes Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☐ No ☐ Yes **Flood Hazard Area:** ☐ No ☐ Yes
Special Inspections Required: ☐ No ☐ Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
3rd Floor	N/A		
2nd Floor	N/A		
Mezzanine	N/A		
1st Floor	N/A		
Basement	N/A		
TOTAL	N/A		

ALLOWABLE AREA

Primary Occupancy Classification(s): Select one Select one Select one Select one Select one Select one
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☐
Educational ☐
Factory ☐ F-1 Moderate ☐ F-2 Low
Hazardous ☐ H-1 Detonate ☐ H-2 Deflagrate ☐ H-3 Combust ☐ H-4 Health ☐ H-5 HPM
Institutional ☐ I-1 Condition ☐ 1 ☐ 2
☐ I-2 Condition ☐ 1 ☐ 2
☐ I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
☐ I-4
Mercantile ☐
Residential ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage ☐ S-1 Moderate ☐ S-2 Low ☐ High-piled
☐ Parking Garage ☐ Open ☐ Enclosed ☐ Repair Garage
Utility and Miscellaneous ☒

Accessory Occupancy Classification(s): X
Incidental Uses (Table 509): ________
Special Uses (Chapter 4 – List Code Sections): ________
Special Provisions: (Chapter 5 – List Code Sections): ________
Mixed Occupancy: ☒ No ☐ Yes Separation: _____ Hr. Exception: ________

☐ Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.

☐ Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\textit{Actual Area of Occupancy A}}{\textit{Allowable Area of Occupancy A}} + \frac{\textit{Actual Area of Occupancy B}}{\textit{Allowable Area of Occupancy B}} \leq 1$$

N/A + N/A + ... = N/A ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
N/A					
N/A					
N/A					
N/A					

[1] Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = N/A (F)
b. Total Building Perimeter = N/A (P)
c. Ratio (F/P) = N/A (F/P)
d. W = Minimum width of public way = N/A (W)
e. Percent of frontage increase $I_f = 100[F/P - 0.25] \times W/30$ = N/A (%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	N/A		
Building Height in Stories (Table 504.4)	N/A		

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED (W/ N/A * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses	N/A						
Bearing Walls	N/A						
Exterior							
North							
East							
West							
South							
Interior							
Nonbearing Walls and Partitions Exterior walls	N/A						
North							
East							
West							
South							
Interior walls and partitions							
Floor Construction Including supporting beams and joists		N/A					
Floor Ceiling Assembly							
Columns Supporting Floors							
Roof Construction, including supporting beams and joists		N/A					
Roof Ceiling Assembly							
Columns Supporting Roof							
Shaft Enclosures - Exit							
Shaft Enclosures - Other							
Corridor Separation		N/A					
Occupancy/Fire Barrier Separation		N/A					
Party/Fire Wall Separation		N/A					
Smoke Barrier Separation		N/A					
Smoke Partition		N/A					
Tenant/Dwelling Unit/ Sleeping Unit Separation		N/A					
Incidental Use Separation		N/A					

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
N/A			
N/A			
N/A			

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: ☒ No ☐ Yes
Exit Signs: ☒ No ☐ Yes
Fire Alarm: ☒ No ☐ Yes
Smoke Detection Systems: ☒ No ☐ Yes ☐ Partial _______
Panic Hardware: ☒ No ☐ Yes

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: N/A

☐ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations (if not on the site plan)
☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☐ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
☐ Occupant loads for each area
☐ Exit access travel distances (1017)
☐ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
☐ Dead end lengths (1020.4)
☐ Clear exit widths for each exit door
☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
☐ Actual occupant load for each exit door
☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☐ Location of doors with panic hardware (1010.1.10)
☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☐ Location of doors equipped with hold-open devices
☐ Location of emergency escape windows (1030)
☐ The square footage of each fire area (202)
☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☐ Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED
N/A							

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	
N/A						
TOTAL						

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATERCLOSETS			URINALS	LAVATORIES			SHOWERS /TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE	UNISEX		MALE	FEMALE	UNISEX		REGULAR	ACCESSIBLE
SPACE N/A	EXIST'G										
	NEW										
	REQ'D										

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)
N/A

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

SMW ENGINEERING GROUP, N.C., PLLC
TOGETHER PLANNING A BETTER TOMORROW
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

SMW #: 20–0570.1

at&t mobility corp.

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368–712
BUILDING CODES

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

B-1

ENERGY SUMMARY N/A

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: ☐ No ☐ Yes (The remainder of this section is not applicable)

Exempt Building: ☐ No ☐ Yes (Provide code or statutory reference): _____

Climate Zone: ☒ 3A ☐ 4A ☐ 5A

Method of Compliance: Energy Code ☐ Performance ☒ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive
(If "Other" specify source here)_____

THERMAL ENVELOPE (Prescriptive method only) N/A

Roof/ceiling Assembly (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Skylights in each assembly: _____
U-Value of skylight: _____
total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Openings (windows or doors with glazing)
U-Value of assembly: _____
Solar heat gain coefficient: _____
projection factor: _____
Door R-Values: _____

Walls below grade (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors over unconditioned space (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors slab on grade
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Horizontal/vertical requirement: _____
slab heated: _____

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

DESIGN LOADS:

Importance Factors: Snow (I_S) N/A
Seismic (I_E) 1.00

Live Loads: Roof N/A psf
Mezzanine N/A psf
Floor N/A psf

Ground Snow Load: N/A psf

Wind Load: Basic Wind Speed 90 mph (ASCE-7)
Exposure Category C

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☒ C ☐ D
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) ☐ I ☒ II ☐ III ☐ IV
Spectral Response Acceleration S_S 0.329 %g S_1 0.108 %g
Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☒ D ☐ E ☐ F
Data Source: ☐ Field Test ☒ Presumptive ☐ Historical Data
Basic structural system ☐ Bearing Wall ☒ Telecommunication Tower (steel pole)
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Analysis Procedure: ☐ Simplified ☒ Equivalent Lateral Force ☐ Dynamic
Architectural, Mechanical, Components anchored? ☐ Yes ☐ No

LATERAL DESIGN CONTROL: Earthquake ☐ Wind ☒

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) N/A psf
Presumptive Bearing capacity 2500 psf
Pile size, type, and capacity N/A

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY N/A

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb:_____

Interior design conditions
winter dry bulb: _____
summer dry bulb:_____
relative humidity: _____

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason.: _____
Chiller
Size category. If oversized, state reason.: _____

List equipment efficiencies: _____

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY N/A

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code ☐ Performance ☐ Prescriptive
ASHRAE 90.1 ☐ Performance ☐ Prescriptive

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
☐ C406.2 More Efficient HVAC Equipment Performance
☐ C406.3 Reduced Lighting Power Density
☐ C406.4 Enhanced Digital Lighting Controls
☐ C406.5 On-Site Renewable Energy
☐ C406.6 Dedicated Outdoor Air System
☐ C406.7 Reduced Energy Use in Service Water Heating

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368-712

BUILDING CODES

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
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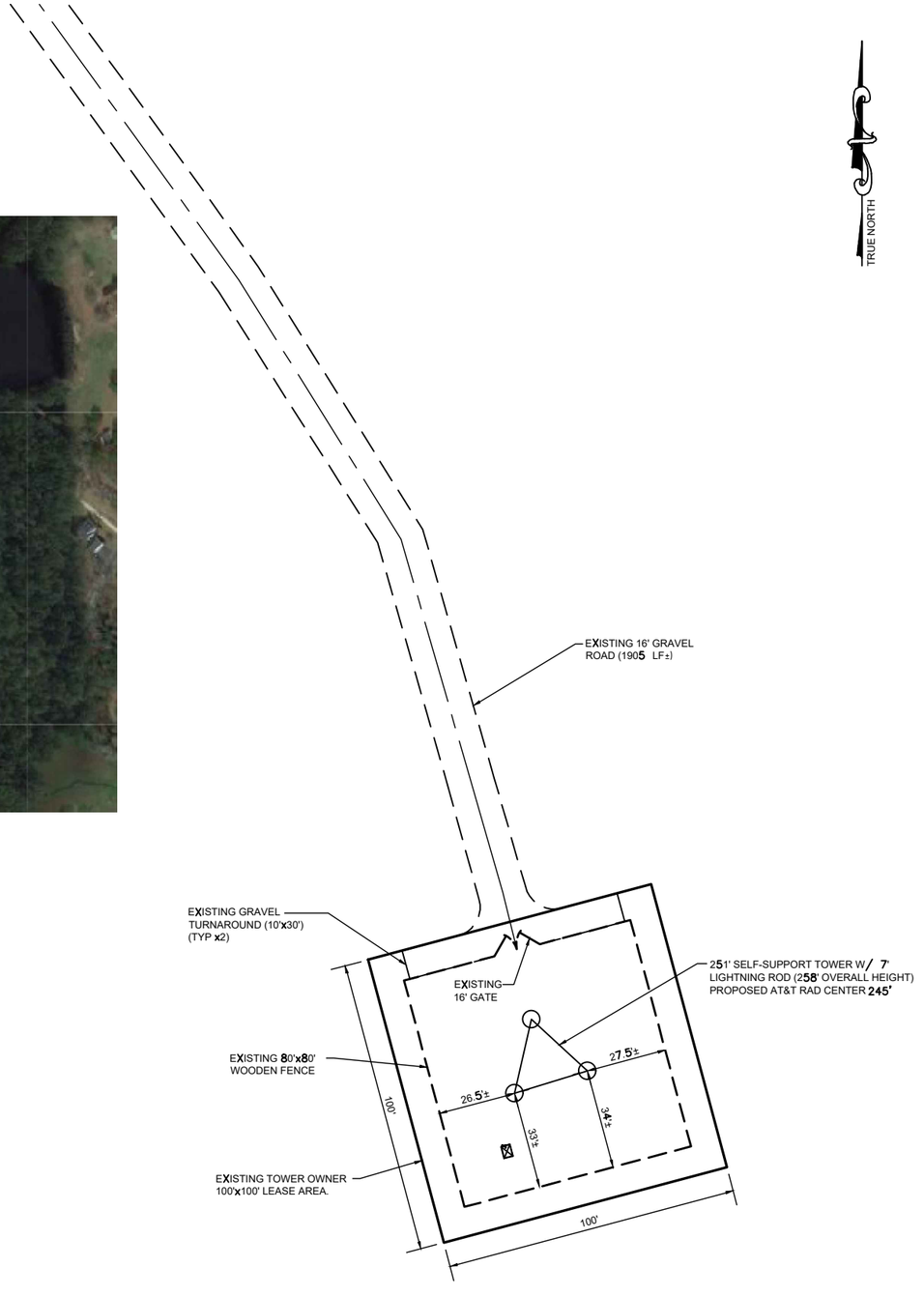
JOB #: 12682206

B-2

NC CA#: P1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

2 / Z-1 OVERVIEW
SCALE: NOT TO SCALE



1 / Z-1 SITE PLAN
SCALE: 1" = 50' (FOR 22"X34" PRINTS)

SUBJECT PROPERTY IS LOCATED IN PANEL #3720068000J, DATED 10/03/2006 AND IN FLOOD ZONE "X" AND IS NOT IN A SPECIAL FLOOD HAZARD ZONE.

TRUE NORTH

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 INCH = 50 FEET
FOR 22"X34" PRINTS

DRAWING NOTES

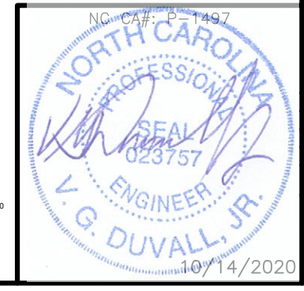
THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE, ARE THE EXCLUSIVE PROPERTY OF LESSOR/SITE OWNER AND THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. REUSE, REPRODUCTION OR PUBLICATION BY ANY METHOD, IN WHOLE OR IN PART, IS PROHIBITED EXCEPT BY WRITTEN PERMISSION FROM LESSOR/SITE OWNER. TITLE TO THESE PLANS AND/OR SPECIFICATIONS SHALL REMAIN WITH LESSOR/SITE OWNER WITHOUT PREJUDICE AND VISUAL CONTACT WITH THEM SHALL CONSTITUTE PRIMA FACIE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

ALL MEASUREMENTS AND LOCATIONS USED IN THIS SITE DESIGN ARE APPROXIMATE AND LESSOR/SITE OWNER MAKES NO REPRESENTATIONS OR WARRANTIES AS TO UNDERGROUND FEATURES, INCLUDING BUT NOT LIMITED TO UTILITIES, ROCK FORMATIONS, ETC. THIS SITE DESIGN SHALL NOT BE USED FOR CONSTRUCTION PURPOSES AND LESSEE SHOULD CONTACT AND UTILIZE A UTILITY LOCATOR SERVICE PRIOR TO COMMENCING CONSTRUCTION TO AVOID SERVICE DISRUPTION TO OTHER USERS AND INJURY OR DEATH.

LEGEND

- PROPERTY LINE – SUBJECT PARCEL
- EXISTING SETBACK LINE
- PROPOSED LEASE AREA
- PROPOSED EASEMENT
- PROPOSED FENCE LINE
- EXISTING ROAD
- EXISTING OVERHEAD UTILITIES
- EXISTING BUILDING

NC CA#: P-1497



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368-712

SITE PLAN

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM

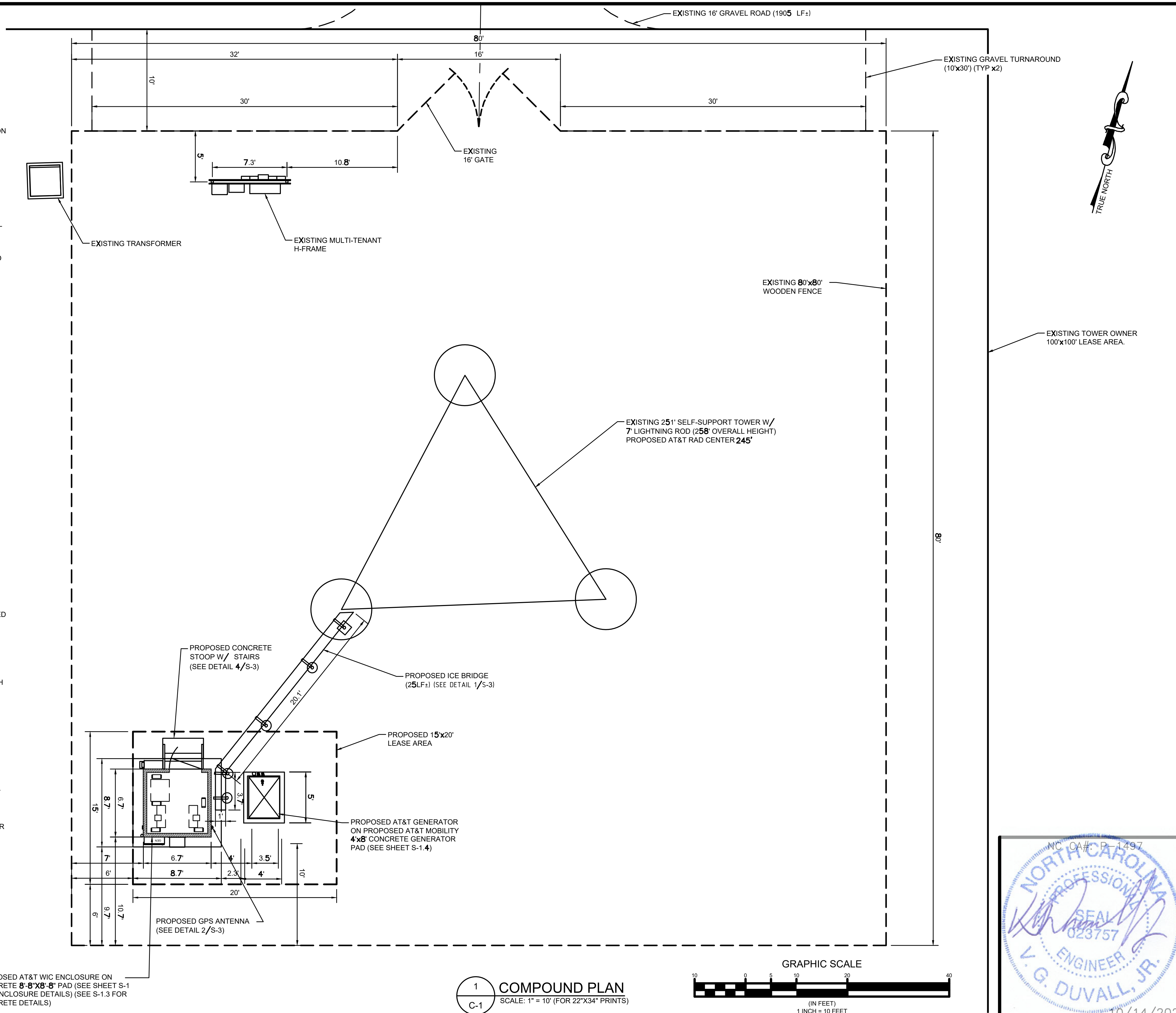
JOB #: 12682206

Z-1

GENERAL NOTES

1. ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE UNITI CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
8. CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES AND NOTIFY UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION AT 811 PRIOR TO EXCAVATION AT SITE.
9. ANY UNDERGROUND UTILITIES OR STRUCTURES THAT EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
10. NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
11. THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
12. THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
13. POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.
14. THERE ARE NO COMMERCIAL SIGNS PROPOSED FOR THIS INSTALLATION.
15. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
16. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
MAXIMUM SOIL LIFTS:
JUMPING JACK - 3"
CROWS FOOT TRENCH ROLLER - 6"
HOE OPERATED VIBRATORY PLATE - 8"
WHEELED VIBRATORY SOIL COMPACTOR - 12"
*LIFT HEIGHTS MAY NEED TO BE ADJUSTED DEPENDING ON SOIL TYPES AND MOISTURE CONTENT.
17. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY UTILITY OWNER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES.
18. THE AREAS DISTURBED DUE TO CONSTRUCTION ACTIVITY SHALL BE GRADED AND RESTORED PER CODE/LANDLORD REQUIREMENTS (REFER TO GRADING PLAN).
19. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL, AND COORDINATED WITH THE MUNICIPALITY.
20. UTILITY WARNING TAPE SHALL BE PLACED ABOVE ALL NEW CONDUITS AT MAX 18" DEPTH BELOW GRADE.
21. THE CONTRACTOR RESPONSIBILITIES:
   a. ALL WORK IN THE AT&T LEASED AREA EXCEPT POWER AND TELCO CONDUIT FROM MULTI-GANG METER RACK AND TELCO DEMARC WHICH SHALL BE INSTALLED BY BUILD-TO-SUIT VENDOR.
   b. INSTALLATION OF WAVEGUIDE SUPPORT FROM AT&T LEASED AREA TO TOWER BASE.
   c. POWER AND FIBER LINES FROM AT&T GROUND EQUIPMENT TO ANTENNA MOUNT LOCATION ON TOWER.
   d. AT&T ANTENNAS, RRUs AND APPURTENANT AT&T EQUIPMENT ON ANTENNA MOUNTING PLATFORM AT RAD CENTER IN ACCORDANCE WITH AT&T RFDS.
   e. CONSTRUCTION OF ACCESS ROAD, COMPOUND, TOWER FOUNDATION, TOWER OFFLOAD & SET, FENCING, H-FRAME, MULTI-METER LOAD CENTER, TELCO BOX, POWER/FIBER CONDUIT, GROUNDING AND OTHER ACTIVITIES.

CONTRACTOR SHALL CLEAR LEASE AREA OF ALL TREES, SHRUBS, ROCKS, SURFACE SOIL AND DEBRIS. EXCAVATE INTO SLOPES AND/OR ADD FILL DIRT WITH REQUIRED COMPACTION TO LEVEL THE COMPOUND. SITE SHALL BE GRADED TO ALLOW NATURAL DRAINAGE FROM THE COMPOUND. CONTRACTOR WILL GRADE THE AREA AROUND COMPOUND TO PREVENT SOIL EROSION AND ADHERE TO ALL LOCAL, STATE AND FEDERAL REGULATIONS. RETAINING WALLS AND RIP-RAP ARE OUT OF SCOPE AND WILL REQUIRE A CHANGE ORDER UNLESS INCLUDED IN THE CONSTRUCTION PLANS OR ADDED TO SCOPE DURING BID WALKS.



1 / C-1 COMPOUND PLAN
SCALE: 1" = 10' (FOR 22"X34" PRINTS)

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158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
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SMW #: 20-0570.1

at&t mobility corp.

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368-712
COMPOUND PLAN

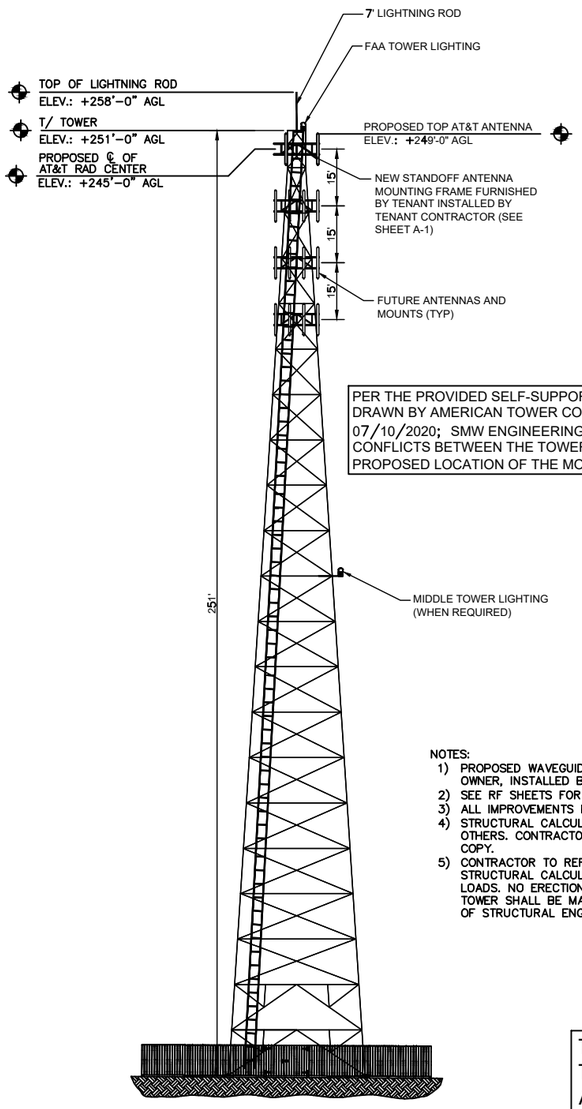
NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023757 V. G. DUVALL, JR.
10/14/2020

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

C-1

EXISTING NELLO MOUNT TO BE REMOVED & REPLACED

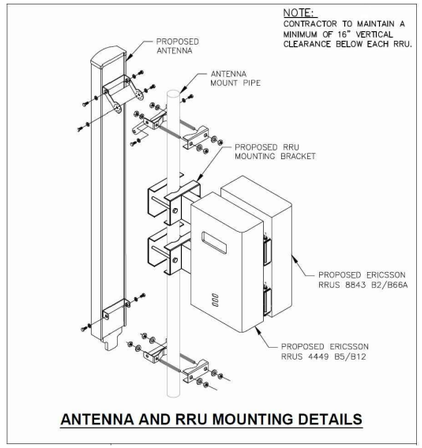
CX WILL NEED CRANE HIEGHT FOR 275'



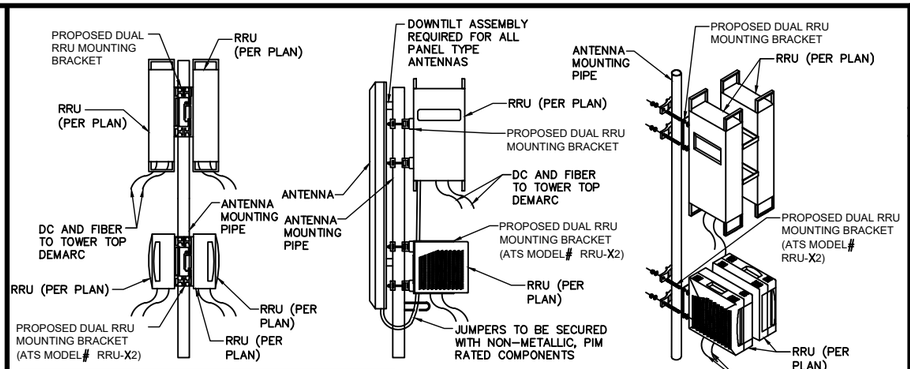
PER THE PROVIDED SELF-SUPPORT STRUCTURAL ANALYSIS DRAWN BY AMERICAN TOWER CORPORATION, DATED 07/10/2020; SMW ENGINEERING CANNOT SEE ANY CONFLICTS BETWEEN THE TOWER DESIGN 251' AND THE PROPOSED LOCATION OF THE MOUNTS 245'.

NOTES:
1) PROPOSED WAVEGUIDE LADDER FURNISHED BY OWNER, INSTALLED BY CONTRACTOR.
2) SEE RF SHEETS FOR AT&T RFDS INFORMATION.
3) ALL IMPROVEMENTS NOT SHOWN FOR CLARITY
4) STRUCTURAL CALCULATIONS PREPARED BY OTHERS. CONTRACTOR TO OBTAIN LATEST COPY.
5) CONTRACTOR TO REFER TO TOWER STRUCTURAL CALCULATIONS FOR ADDITIONAL LOADS. NO ERECTION OR MODIFICATION OF TOWER SHALL BE MADE WITHOUT APPROVAL OF STRUCTURAL ENGINEER.

1 / C-2 TOWER ELEVATION
SCALE: NOT TO SCALE

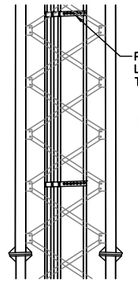


ANTENNA AND RRU MOUNTING DETAILS



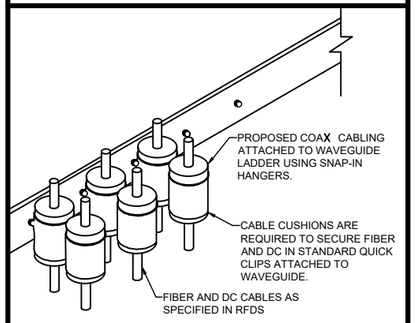
NOTE:
ALL DOWN TILT AZIMUTHS TO BE VERIFIED BY RF SITE DATA SHEET. SEE CONSTRUCTION MANAGER FOR INFORMATION.

RRU 32 & RRU 11 MOUNTING DETAIL
NOT TO SCALE



NOTES:
1) THE LAYOUT ON THIS DETAIL IS FOR REFERENCE ONLY.
2) CONTRACTOR SHALL VERIFY EXACT PLACEMENT OF NEW COAX WITH CURRENT STRUCTURAL ANALYSIS BY OTHERS.
3) NOT ALL CABLES SHOWN FOR CLARITY.

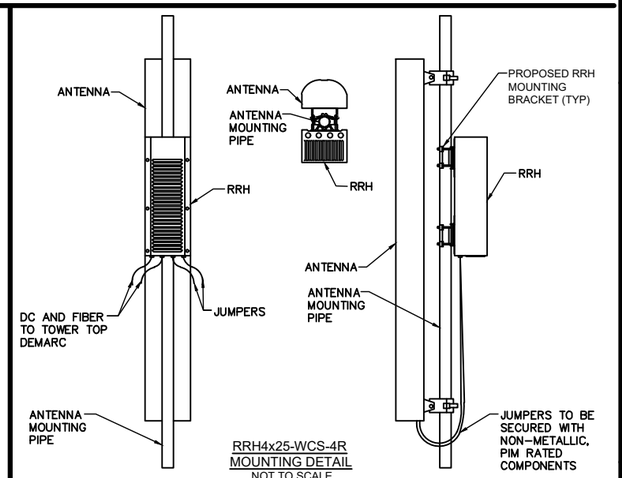
WAVEGUIDE DETAIL
NOT TO SCALE



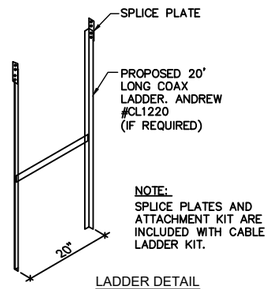
NOTE: THIS LAYOUT FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY EXACT PLACEMENT OF NEW FIBER AND DC CABLES WITH CURRENT STRUCTURAL ANALYSIS OR TOWER MANUFACTURES DESIGN BY OTHERS.

CABLE CONFIGURATION DETAIL
NOT TO SCALE

LEFT BLANK INTENTIONALLY



RRH4x25-WCS-4R MOUNTING DETAIL
NOT TO SCALE

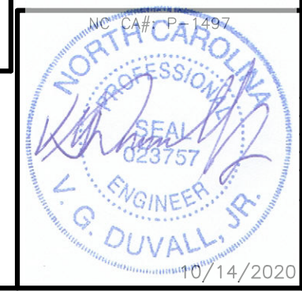


NOTE:
SPLICE PLATES AND ATTACHMENT KIT ARE INCLUDED WITH CABLE LADDER KIT.

LADDER DETAIL
NOT TO SCALE

TOWER NOTE:
TOWER ELEVATION IS SCHEMATIC IN NATURE. ACTUAL TOWER DRAWINGS TO BE PROVIDED BY TOWER OWNER AT LATER DATE TO SHOW THERE ARE NO DESIGN ISSUES WITH THE MOUNTS AND ANTENNA.

NC CA#: P-1497



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at&t mobility corp.

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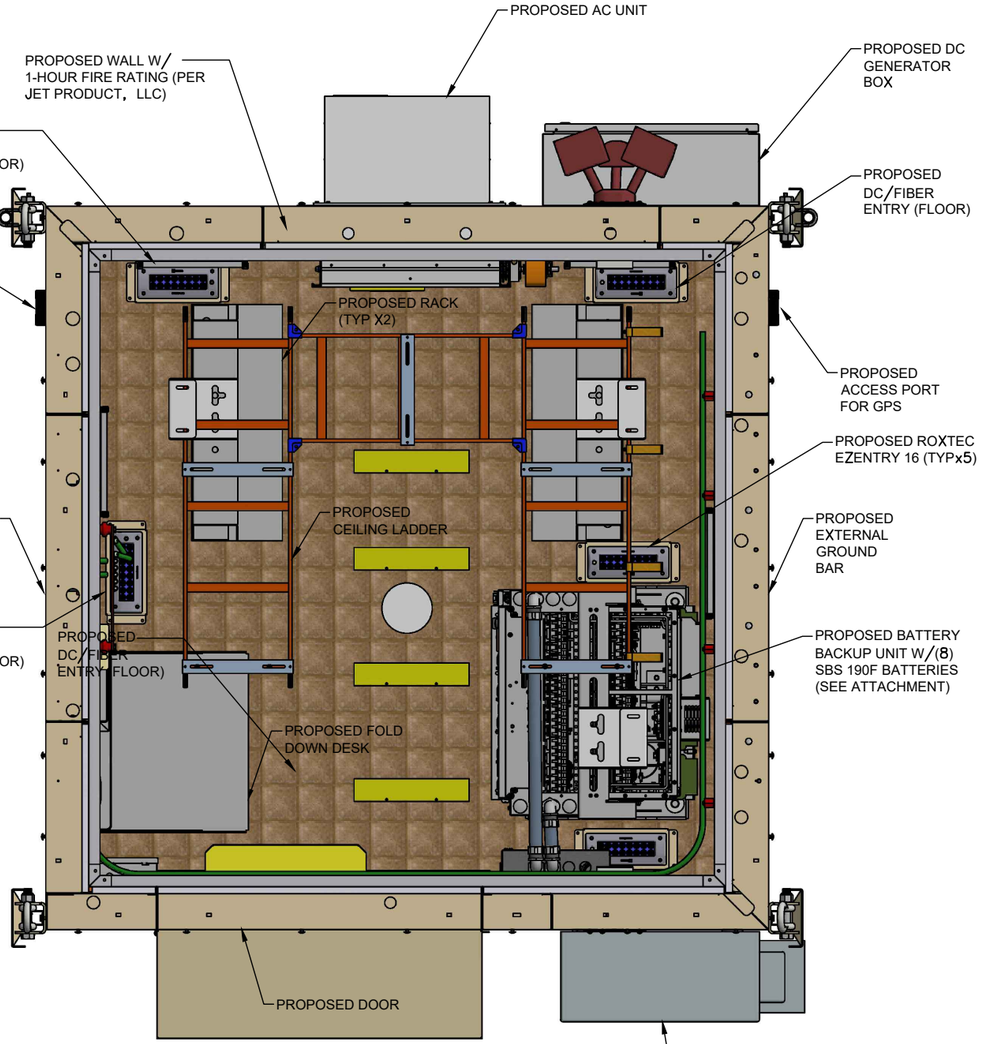
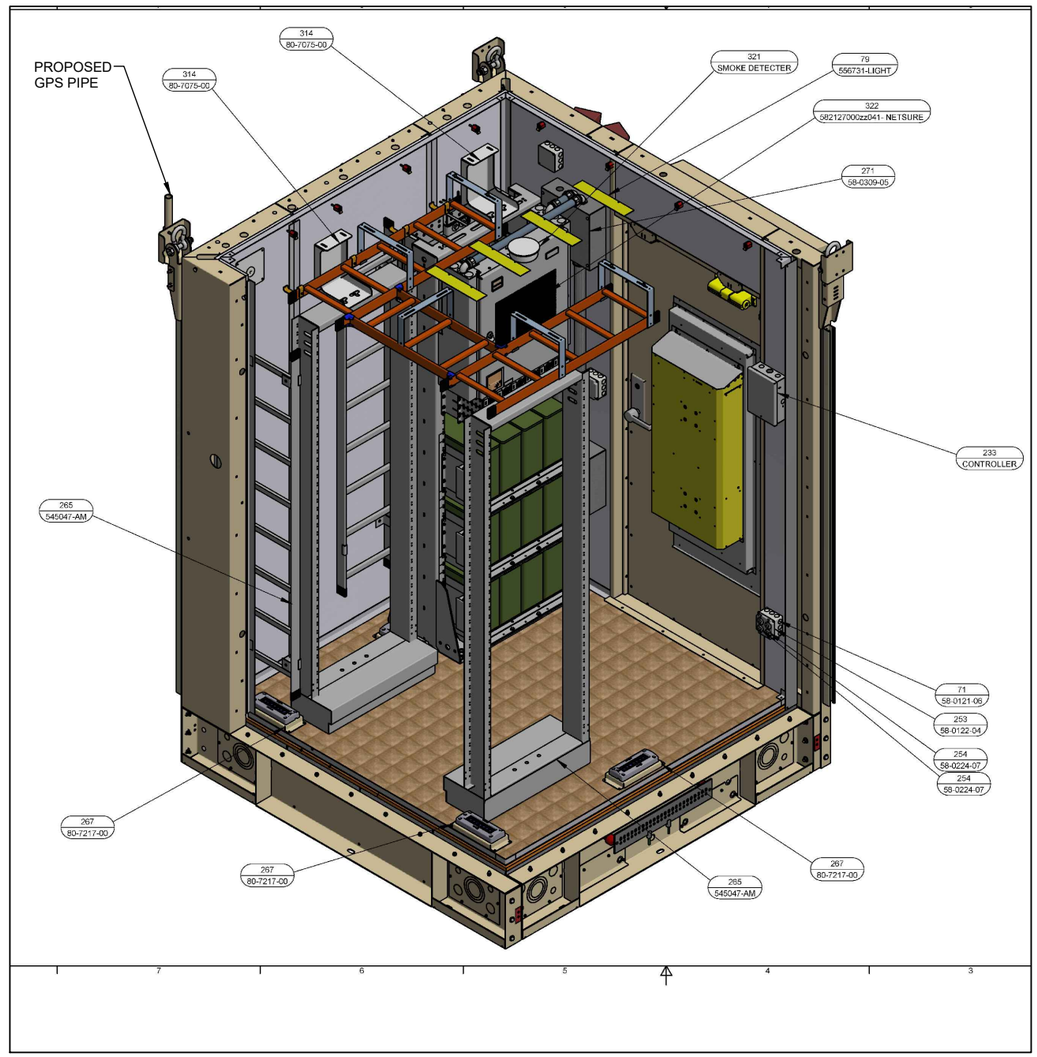
368-712

TOWER ELEVATION AND DETAILS

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

C-2





DETAILS BY OTHERS NOTE:
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DETAILS PROVIDED BY AT&T FOR THE PURPOSE OF USE IN THESE CONSTRUCTION DRAWINGS. CONTACT AT&T FOR COMPLETE INFORMATION AND GUIDELINES FOR INSTALLATION OF EQUIPMENT CABINET AND GENERATOR.

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
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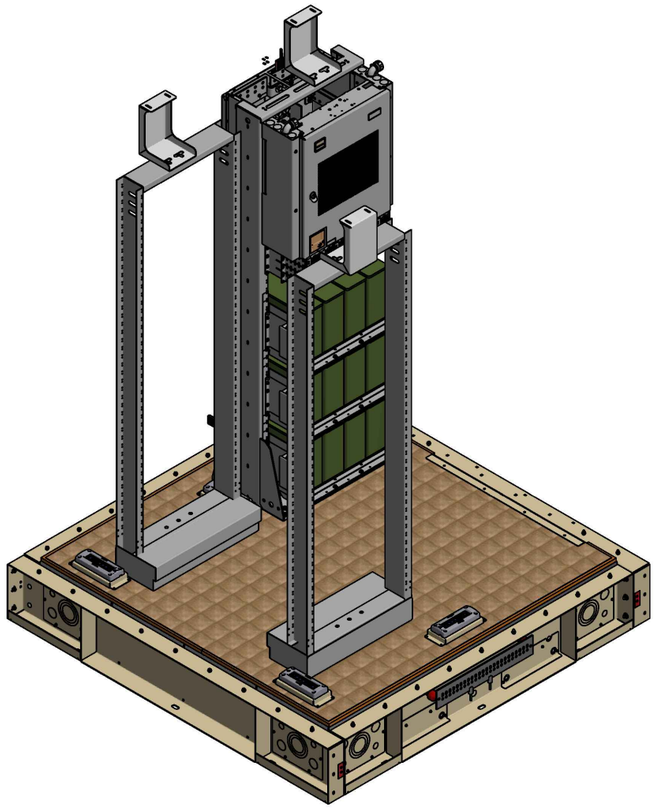
AT&T EQUIPMENT

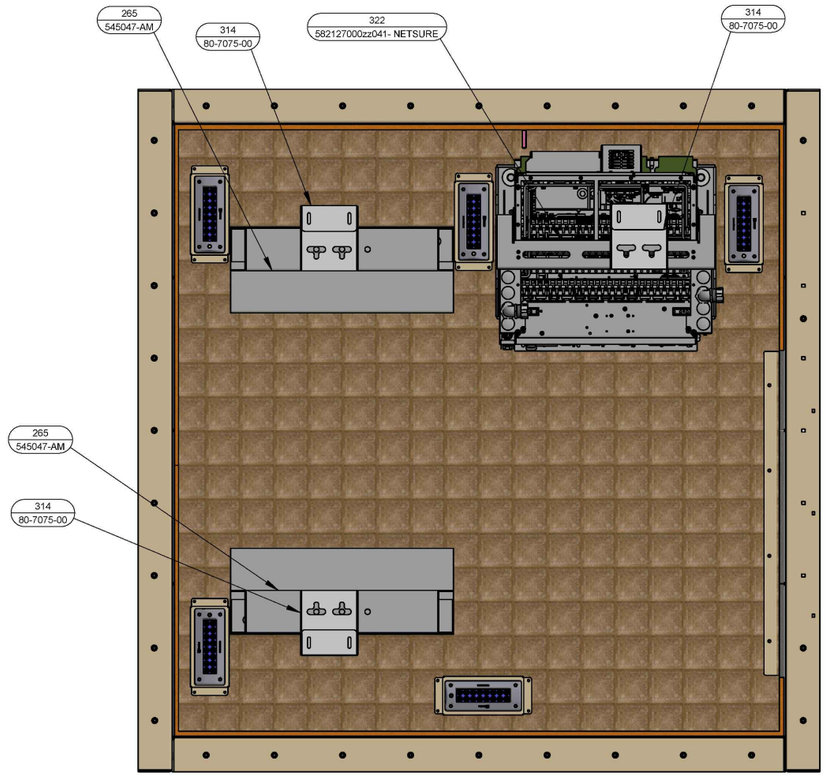
DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM

JOB #: 12682206

S-1

RACK DETAIL





* SECURE THE RACKS TO THE FLOOR AND TO THE CEILING MOUNT SUPPORTS WITH 1/2-13 X 2.5 LONG SS HHCS. GROUND EACH RACK INDIVIDUALLY TO THE INTERNAL GROUND BAR USING 58-0361-03 6GA AWG FLEX CLOTH COVERED WIRE.

VERTIV.

Approved:	NONE NONE
Drawing Scale:	NOT_TO_SCALE
Prepared By:	IMS-VERTIV
Approved By:	IMS-VERTIV
Date:	02_MAR_2017
Rev:	01
Title:	AT&T_WIC_DESIGN/LAYOUT
Document No:	AT&T_WIC_DESIGN_LAYOUT-03-01-2017
Sheet:	12 OF 15

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AT&T EQUIPMENT

DESIGNED:	VGD
DRAWN:	JCM
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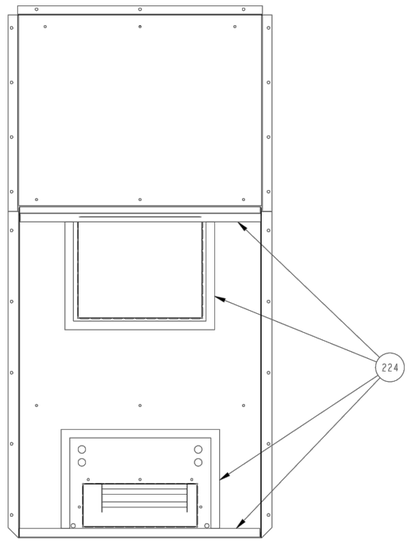
LAST REVISION BY:	JCM
JOB #:	12682206

S-1.1



GASKET INSTALLATION
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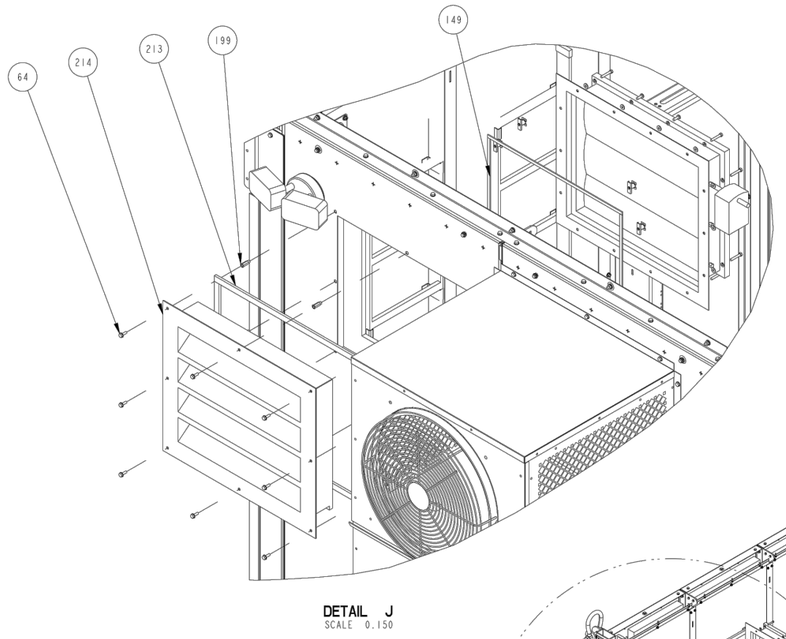
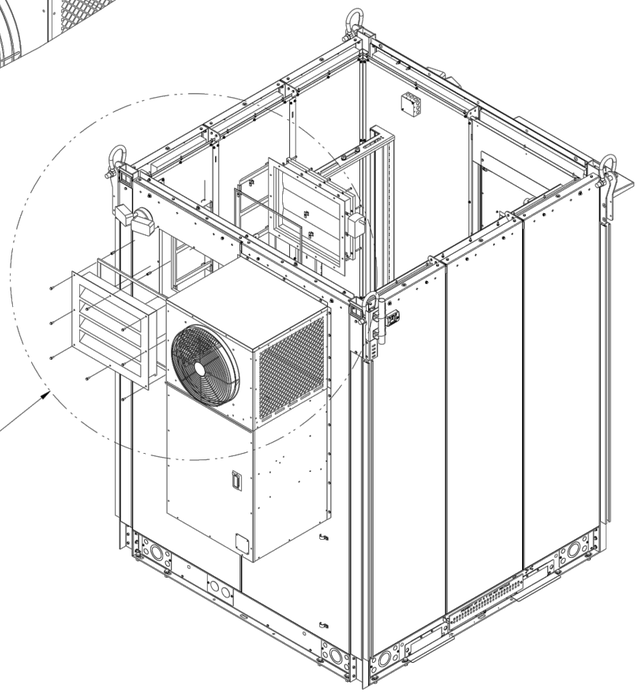
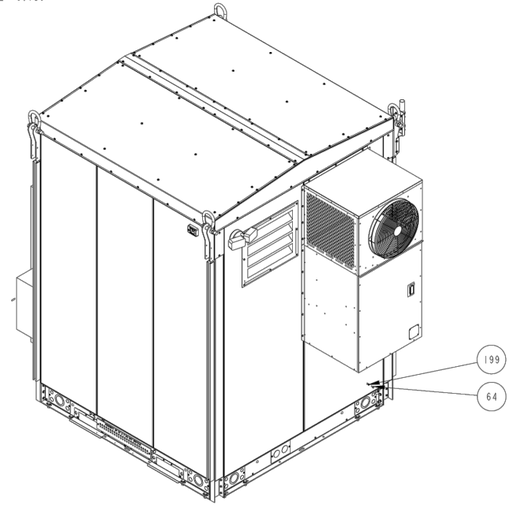


DETAIL J
SCALE 0.150





SCALE 0.055

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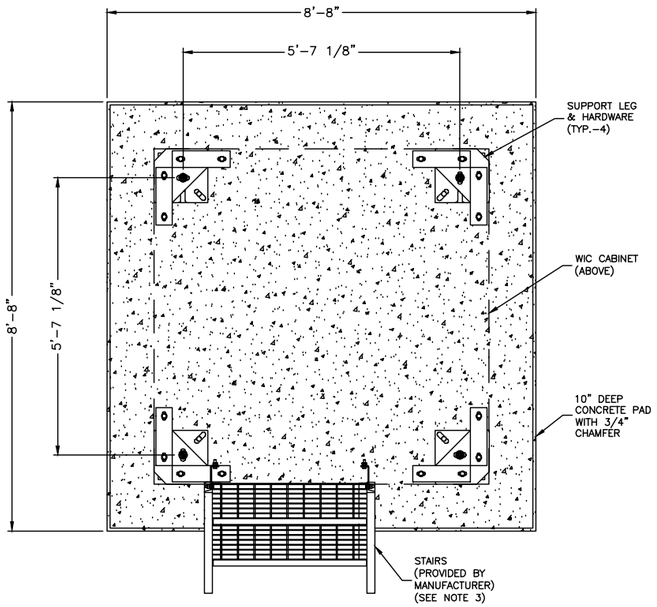
368-712

AT&T EQUIPMENT

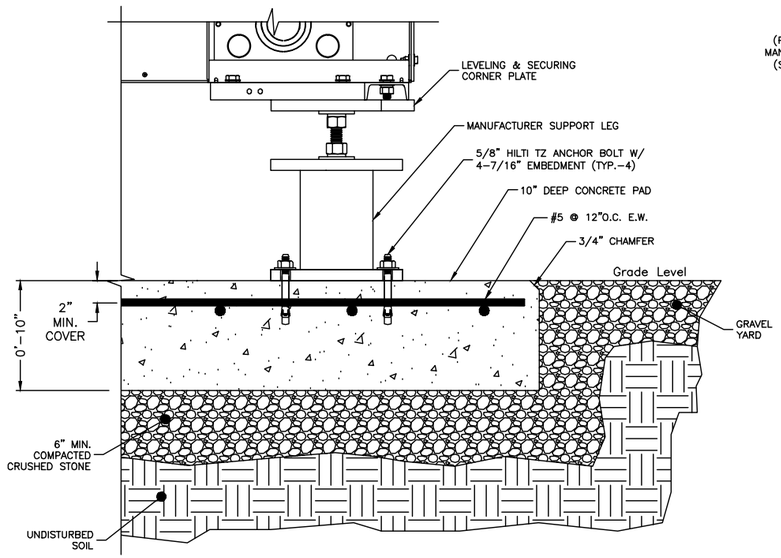
DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

S-1.2



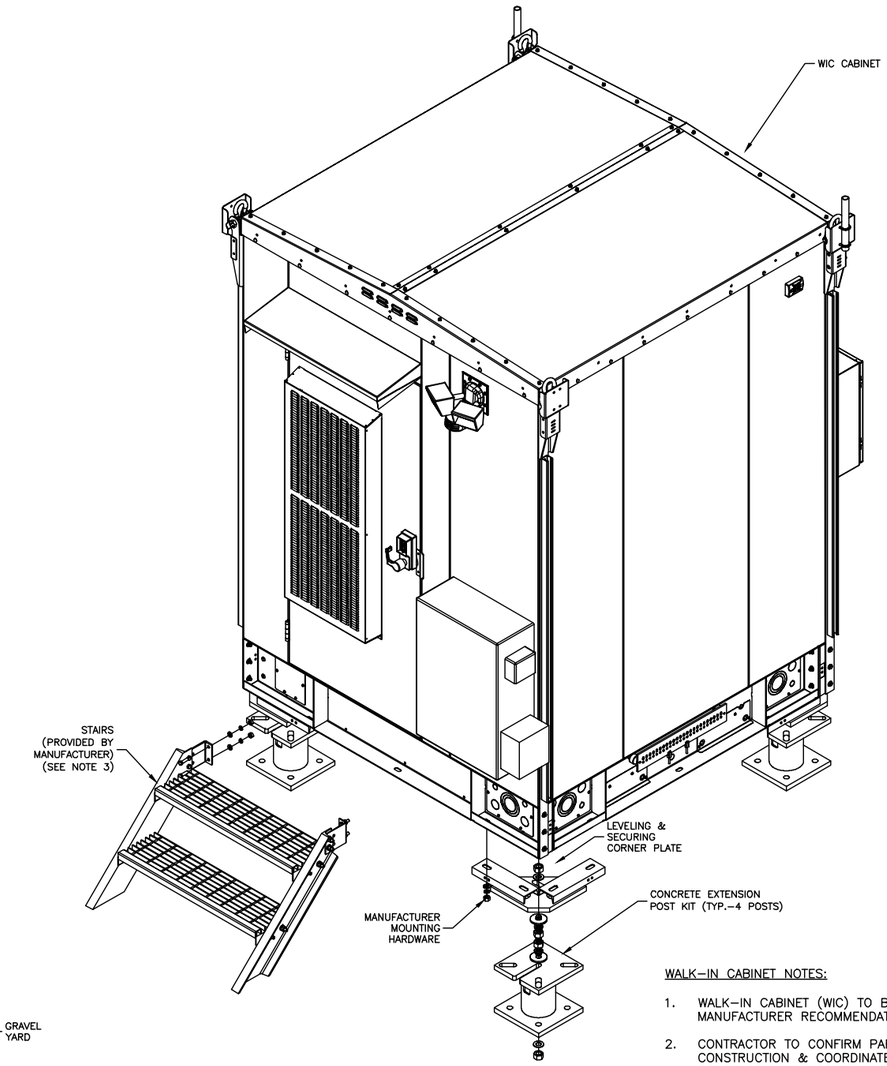
WIC FOUNDATION DETAIL

11"x17" SCALE: 3/8" = 1'-0"



WIC BASE SECTION

11"x17" SCALE: 1" = 1'-0"



WIC ISOMETRIC

11"x17" SCALE: N.T.S.

DETAILS BY OTHERS NOTE:
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WALK-IN CABINET NOTES:

1. WALK-IN CABINET (WIC) TO BE INSTALLED ACCORDING TO MANUFACTURER RECOMMENDATIONS & SPECIFICATIONS.
2. CONTRACTOR TO CONFIRM PARTS & HARDWARE PRIOR TO CONSTRUCTION & COORDINATE WITH AT&T CM.
3. FOUNDATION TO BE FLUSH WITH EXISTING GRADE. CONTRACTOR SHALL MAINTAIN A MAXIMUM 18" CLEARANCE FROM GRADE TO BOTTOM OF WIC TO ACCOMMODATE STAIRS. VERIFY IN FIELD PRIOR TO POST INSTALLATION.
4. COORDINATE POWER & TELCO CONDUIT STUBUP PLACEMENT WITH ELECTRICAL TRADES. SEE E-1 FOR ADDITIONAL INFORMATION.
5. PROVIDE WORKING HVAC AND ELECTRICAL WORKING SPACE CLEARANCES PER MANUFACTURER RECOMENDATIONS & CODE REQUIREMENTS.
6. WIC DIMENSIONS: 6'-8"W X 6'-8"L X 9'-6" TALL (NO BASE)
   WIC WEIGHT: 5500 LBS (EMPTY) 7500 LBS (FULLY INTEGRATED)
7. CONTRACTOR TO PROVIDE AND INSTALL SPECIFIED CONCRETE ANCHORS.

NO GEOTECHNICAL REPORT HAS BEEN PROVIDED TO SMW ENGINEERING AT THIS TIME. GEO REPORT TO BE PROVIDED AT LATER DATE.

1 / S-1.3 WIC FOOTING
SCALE: NOT TO SCALE

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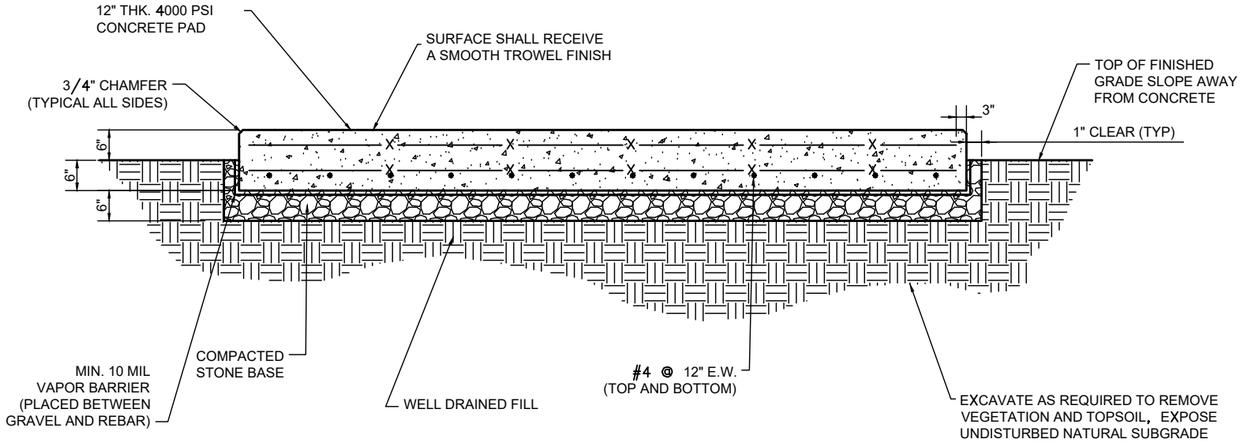
AT&T EQUIPMENT - WIC FOOTING DESIGN

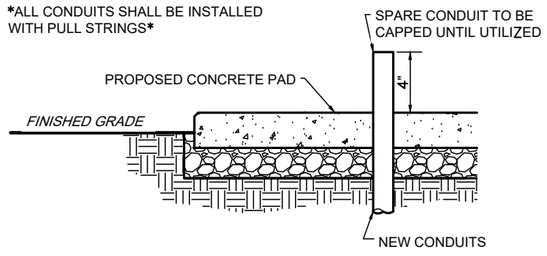
DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

S-1.3

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020



1 / S-1.4 CONCRETE GENERATOR PAD DETAIL
SCALE: NOT TO SCALE



2 / S-1.4 CONDUIT PENETRATION DETAIL - GENERATOR
SCALE: NOT TO SCALE

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NC CA#: P-1497

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10/14/2020

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM

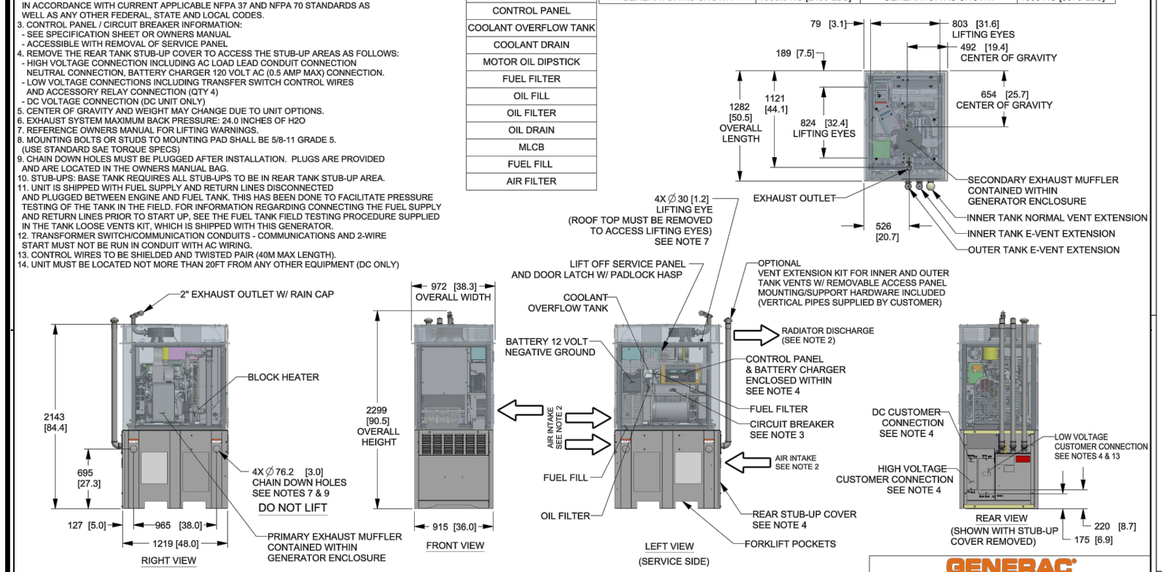
JOB #: 12682206

S-1.4

NOTES:
1. REFERENCE INSTALLATION GUIDE SUPPLIED WITH UNIT FOR CONCRETE PAD GUIDELINES
2. ALLOW SUFFICIENT ROOM ON ALL SIDES OF THE GENERATOR FOR MAINTENANCE/SERVICE, INTAKE AIR FLOW, AND RADIATOR/EXHAUST DISCHARGE. THIS UNIT MUST BE INSTALLED IN ACCORDANCE WITH CURRENT APPLICABLE NFPA 37 AND NFPA 70 STANDARDS AS WELL AS ANY OTHER FEDERAL, STATE AND LOCAL CODES.
3. CONTROL PANEL / CIRCUIT BREAKER INFORMATION:
 - SEE SPECIFICATION SHEET OR OWNERS MANUAL
 - ACCESSIBLE WITH REMOVAL OF SERVICE PANEL
4. REMOVE THE REAR TANK STUB-UP COVER TO ACCESS THE STUB-UP AREAS AS FOLLOWS:
 - HIGH VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION NEUTRAL CONNECTION, BATTERY CHARGER 120 VOLT AC (0.5 AMP MAX) CONNECTION.
 - LOW VOLTAGE CONNECTIONS INCLUDING TRANSFER SWITCH CONTROL WIRES AND ACCESSORY RELAY CONNECTION (QTY 4)
 - DC VOLTAGE CONNECTION (DC UNIT ONLY)
5. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
6. EXHAUST SYSTEM MAXIMUM BACK PRESSURE: 24.0 INCHES OF H2O
7. REFERENCE OWNERS MANUAL FOR LIFTING WARNINGS.
8. MOUNTING BOLTS OR STUDS TO MOUNTING PAD SHALL BE 5/8-11 GRADE 5. (USE STANDARD SAE TORQUE SPECS)
9. CHAIN DOWN HOLES MUST BE PLUGGED AFTER INSTALLATION. PLUGS ARE PROVIDED AND ARE LOCATED IN THE OWNERS MANUAL BAG.
10. STUB-UPS: BASE TANK REQUIRES ALL STUB-UPS TO BE IN REAR TANK STUB-UP AREA.
11. UNIT IS SHIPPED WITH FUEL SUPPLY AND RETURN LINES DISCONNECTED AND PLUGGED BETWEEN ENGINE AND FUEL TANK. THIS HAS BEEN DONE TO FACILITATE PRESSURE TESTING OF THE TANK IN THE FIELD. FOR INFORMATION REGARDING CONNECTING THE FUEL SUPPLY AND RETURN LINES PRIOR TO START UP, SEE THE FUEL TANK FIELD TESTING PROCEDURE SUPPLIED IN THE TANK LOOSE VENTS KIT, WHICH IS SHIPPED WITH THIS GENERATOR.
12. TRANSFORMER SWITCH/COMMUNICATION CONDUITS - COMMUNICATIONS AND 2-WIRE START MUST NOT BE RUN IN CONDUIT WITH AC WIRING.
13. CONTROL WIRES TO BE SHIELDED AND TWISTED PAIR (40M MAX LENGTH).
14. UNIT MUST BE LOCATED NOT MORE THAN 20FT FROM ANY OTHER EQUIPMENT (DC ONLY)

ITEMS ACCESSIBLE SERVICE SIDE OF UNIT
BATTERY
CONTROL PANEL
COOLANT OVERFLOW TANK
COOLANT DRAIN
MOTOR OIL DIPSTICK
FUEL FILTER
OIL FILL
OIL FILTER
OIL DRAIN
MLCB
FUEL FILL
AIR FILTER

WEIGHT DATA WITH EMTPY BASETANK (SEE NOTE 5)		WEIGHT DATA WITH FULL BASETANK (SEE NOTE 5)	
GENERATOR AS SHOWN	1088.6 KG [2400 LBS]	GENERATOR AS SHOWN	1395 KG [3075 LBS]



DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

DIMENSION: mm [inch]

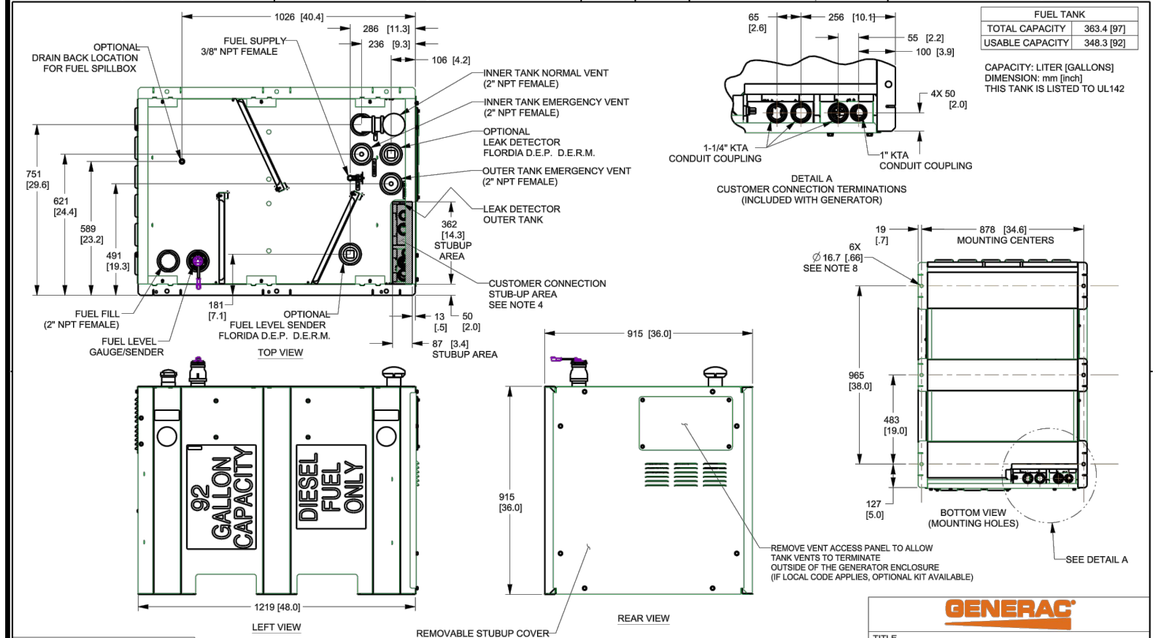
INSTALLATION DRAWING

ELECTRONICALLY APPROVED INSIDE WINDCHILL

GENERAC

TITLE: INSTALL, D2.5L 20 KW AC, 15 KW DC TELECOM

ISSUE DATE: 1/15/16			
SIZE B	CAGE NO N/A	DWG NO 10000000489	REV 1
SCALE 0.032	WT-KG	SHEET 1 of 2	



FUEL TANK	
TOTAL CAPACITY	363.4 [97]
USABLE CAPACITY	348.3 [92]

CAPACITY: LITER [GALLONS]
DIMENSION: mm [inch]
THIS TANK IS LISTED TO UL142

DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

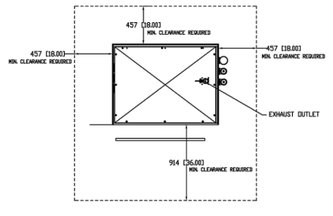
INSTALLATION DRAWING

ELECTRONICALLY APPROVED INSIDE WINDCHILL

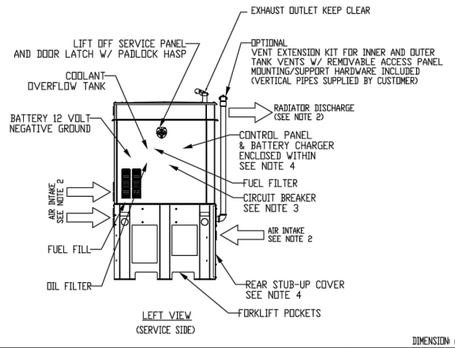
GENERAC

TITLE: STUB-UP VIEW
INSTALL, D2.5L 20 KW AC, 15 KW DC TELECOM

ISSUE DATE: 1/15/16			
SIZE B	CAGE NO N/A	DWG NO 10000000489	REV 1
SCALE NTS	WT-KG	SHEET 2 of 2	



PLAN VIEW



DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

DIMENSION: mm [inch]

INSTALLATION DRAWING

ELECTRONICALLY APPROVED INSIDE WINDCHILL

REFERENCE DRAWING- 10000000489 SHEET 1-2

GENERAC

TITLE: CLEARANCE RQUIRED, D2.5L 20 KW AC, 15 KW DC TELECOM

ISSUE DATE:			
SIZE B	CAGE NO N/A	DWG NO 10000000489-	REV
SCALE no.	WT-KG	SHEET 1 OF 1	

DETAILS BY OTHERS NOTE:
DETAILS SHOWN ON THIS PAGE WERE PROVIDED BY OTHERS AND ARE NOT CARRIED UNDER THE SIGNATURE AND SEAL OF SMW AND/OR IT'S ENGINEERS.

NC CA#: P-1497

NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.

10/14/2020

SMW ENGINEERING GROUP, N.C., PLLC
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

SMW #: 20-0570.1

at&t mobility corp.

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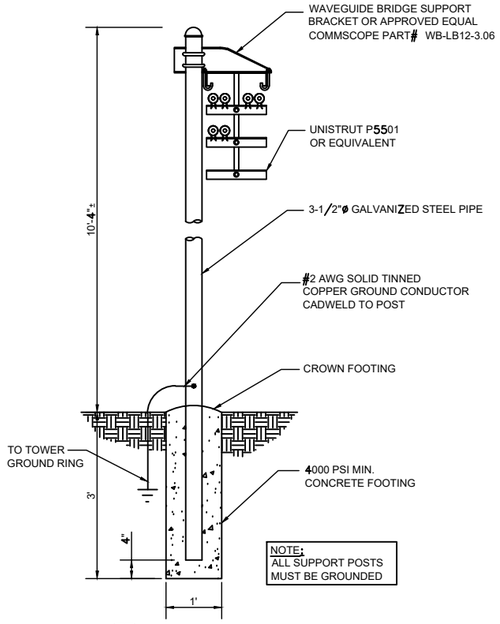
368-712

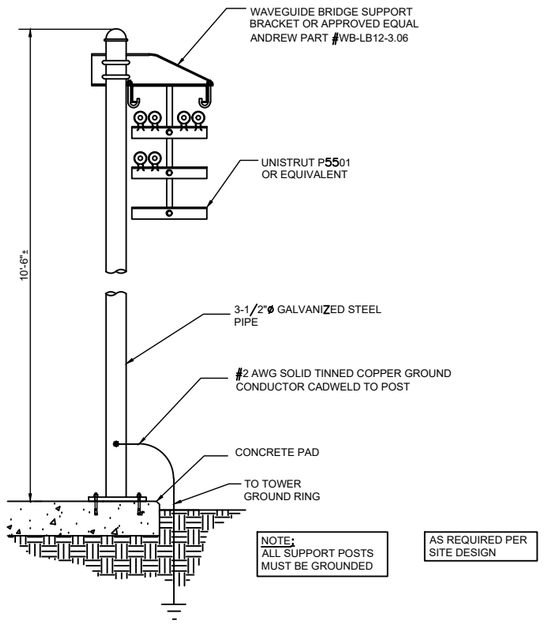
AT&T EQUIPMENT

DESIGNED: VCD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

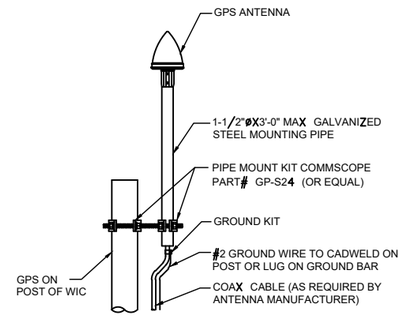
S-2



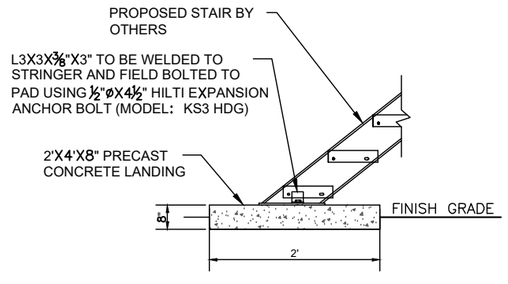
1 / S-3 **CABLE BRIDGE DETAIL**
SCALE: NOT TO SCALE



3 / S-3 **CABLE BRIDGE DETAIL - CONCRETE SLAB**
SCALE: NOT TO SCALE



2 / S-3 **GPS ANTENNA MOUNTING DETAIL**
SCALE: NOT TO SCALE



4 / S-2 **STAIR STOOP DETAIL**
SCALE: NOT TO SCALE

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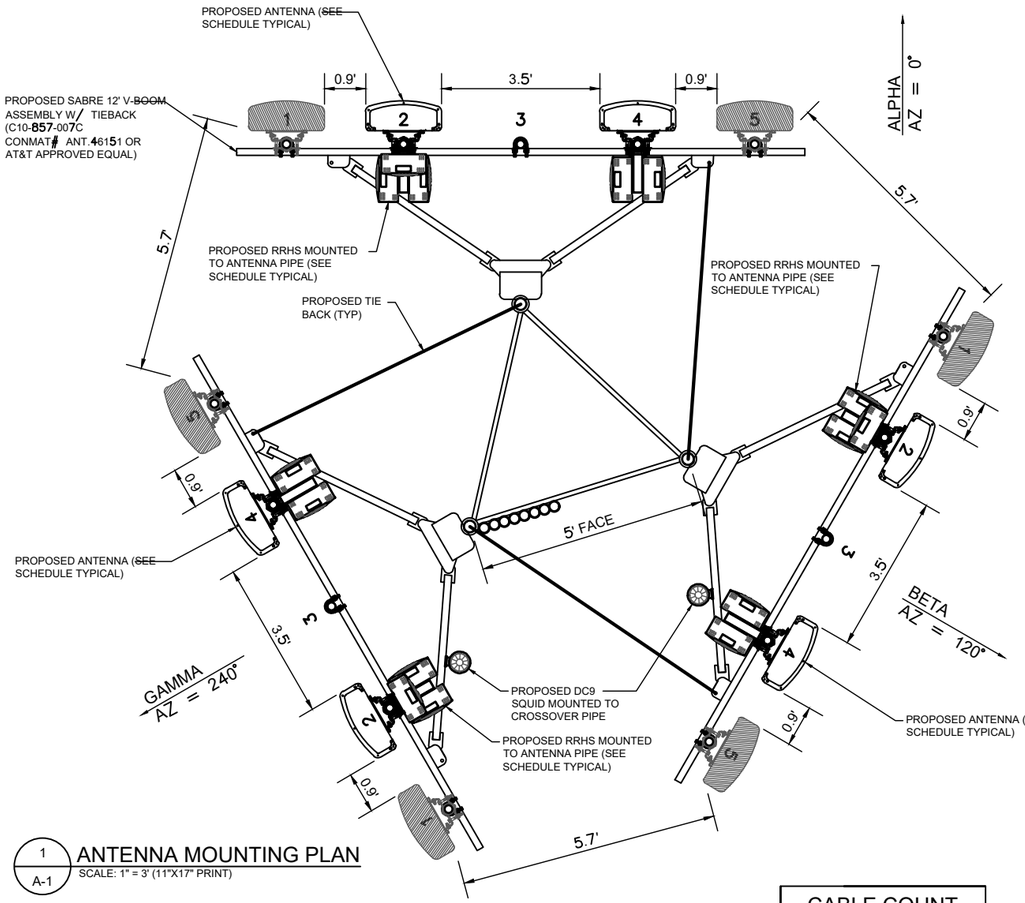
AT&T EQUIPMENT

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

S-3



1 / A-1 ANTENNA MOUNTING PLAN
SCALE: 1" = 3' (11"X17" PRINT)

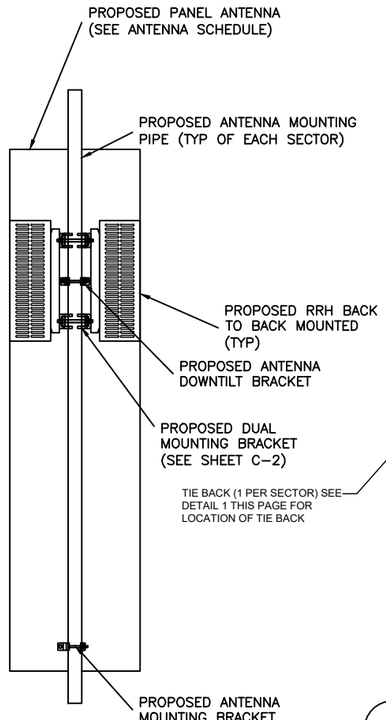
CONTRACTOR TO OBTAIN LATEST RFDS FOR FINAL ANTENNA CONFIGURATION.

APPROVED AT&T MOUNTS	
MANUFACTURER	MODEL
ADVANCED TOWER	HEAVY WLL-1-NP CONMAT# ANT.15884
BETTER METAL	BVM-12K-WLL-1 CONMAT# ANT.15893
COMMSCOPE	SFG2CG-12-B CONMAT# ANT.15913
CONNECT-IT WIRELESS	PVFM12-3-B CONMAT# ANT.15921
KENWOOD TELECOM	T1672KT12 CONMAT# ANT.15948
NEWAVE	ATV1-312-3 CONMAT# ANT.15954
SABRE	C10-857-007C CONMAT# ANT.46151
VALMONT	VFA10-HD1T5NP CONMAT# ANT.16006

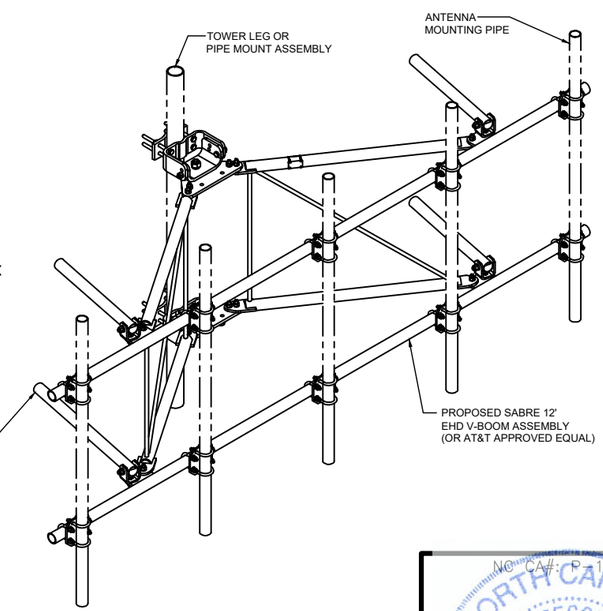
ANTENNA AND RRH SCHEDULE						
SECTOR	POS	ANTENNA MODEL	TECHNOLOGY	AZIMUTH	ANTENNA HEIGHT	RRH MODEL
ALPHA	1	–	-	–	–	-
	2	COMMSCOPE NNH4-65C-R6-V3	LTE 700/1900/AWS	0°	245'±	(1) 4449 B5/B12, (1) 4415 B25, & (1) 4426 B66
	3	–	-	–	–	-
	4	COMMSCOPE NNH4-65C-R6-V3	LTE 700/WCS	0°	245'±	(1) 4478 B14 & (1) 4415 B30
	5	–	-	–	–	-
BETA	1	–	-	–	–	-
	2	COMMSCOPE NNH4-65C-R6-V3	LTE 700/1900/AWS	120°	245'±	(1) 4449 B5/B12, (1) 4415 B25, & (1) 4426 B66
	3	–	-	–	–	-
	4	COMMSCOPE NNH4-65C-R6-V3	LTE 700/WCS	120°	245'±	(1) 4478 B14 & (1) 4415 B30
	5	–	-	–	–	-
GAMMA	1	–	-	–	–	-
	2	COMMSCOPE NNH4-65C-R6-V3	LTE 700/1900/AWS	240°	245'±	(1) 4449 B5/B12, (1) 4415 B25, & (1) 4426 B66
	3	–	-	–	–	-
	4	COMMSCOPE NNH4-65C-R6-V3	LTE 700/WCS	240°	245'±	(1) 4478 B14 & (1) 4415 B30
	5	–	-	–	–	-

CABLE COUNT	
QUANTITY	CABLE TYPE
2	DC CABLE (.92")
4	DC CABLE (1.159")
2	FIBER TRUNK (.39") (24 PR)
-	2" INNERDUCT

ANTENNA SEPARATION REQUIREMENTS:
INSTALLERS TO MAINTAIN:
1) A 3' SEPARATION BETWEEN ALL ANTENNAS* ON THE SAME MOUNT (* SEE NOTE 3)
2) A 4' SEPARATION IS TO BE MAINTAIN BETWEEN ANTENNAS ON DIFFERENT SECTOR MOUNTS
3) IF ANTENNAS ARE 700 B/C (B12/B17) AND 700 D/E (B29); THEN A 6' SEPARATION WILL BE REQUIRED FOR THESE ANTENNAS. (SEE DETAIL C-4.2)



3 / A-1 RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



4 / A-1 ANTENNA MOUNT FRAME DETAIL
SCALE: NOT TO SCALE

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BIRMINGHAM, AL 35244
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SMW #: 20-0570.1

at&t mobility corp.

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368-712

ANTENNA PLAN & SCHEDULE (SELF-SUPPORT TOWER)

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

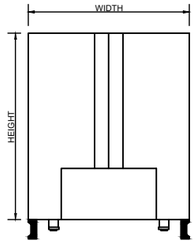
A-1

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

SIZE AND WEIGHT TABLE

RRH	WIDTH	DEPTH	HEIGHT W/O CABLE MANAGEMENT COVER	WEIGHT W/O BRACKET
4415 (B25)	13.2"	5.4"	15"	46 LBS
4426 (B66)	13.2"	5.8"	15"	48.4 LBS
4478	13.2"	7.4"	15"	59.9 LBS

NOTE:
DIMENSIONS DO NOT INCLUDE MOUNTING BRACKET AND SOLAR SHIELD.

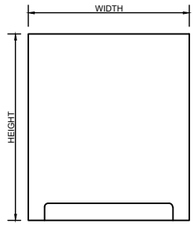


1 / A-2 REMOTE RADIO HEAD (RRH)
SCALE: NOT TO SCALE

SIZE AND WEIGHT TABLE

RRH	WIDTH	DEPTH	HEIGHT W/O CABLE MANAGEMENT COVER	WEIGHT W/O BRACKET
4449	13.2"	9.4"	17.9"	70.5 LBS
8843	13.2"	10.9"	14.9"	72 LBS

NOTE:
DIMENSIONS DO NOT INCLUDE MOUNTING BRACKET AND SOLAR SHIELD.

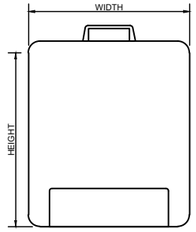


2 / A-2 REMOTE DUAL RADIO HEAD (RRH)
SCALE: NOT TO SCALE

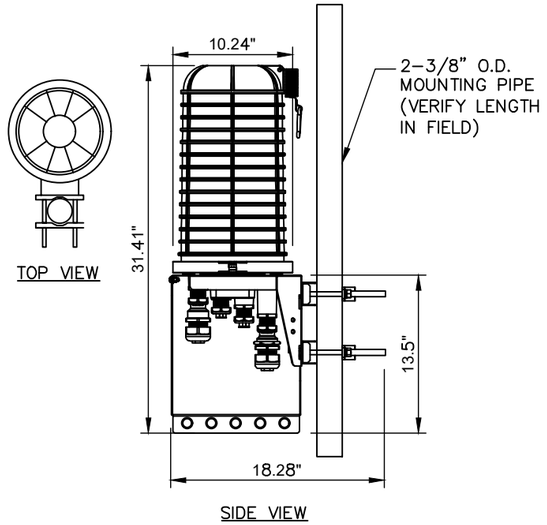
SIZE AND WEIGHT TABLE

RRH	WIDTH	DEPTH	HEIGHT W/O CABLE MANAGEMENT COVER	WEIGHT W/O BRACKET
4415	13.4"	5.9"	16.5"	46 LBS
4478	13.4"	8.26"	18.1"	59.4 LBS

NOTE:
DIMENSIONS DO NOT INCLUDE MOUNTING BRACKET AND SOLAR SHIELD.



3 / A-2 REMOTE RADIO HEAD (RRH)
SCALE: NOT TO SCALE



4 / A-2 RAYCAP DC9-48-60-24-8C-EV
SCALE: NOT TO SCALE

CONTRACTOR TO OBTAIN LATEST RFDS FOR FINAL ANTENNA CONFIGURATION.

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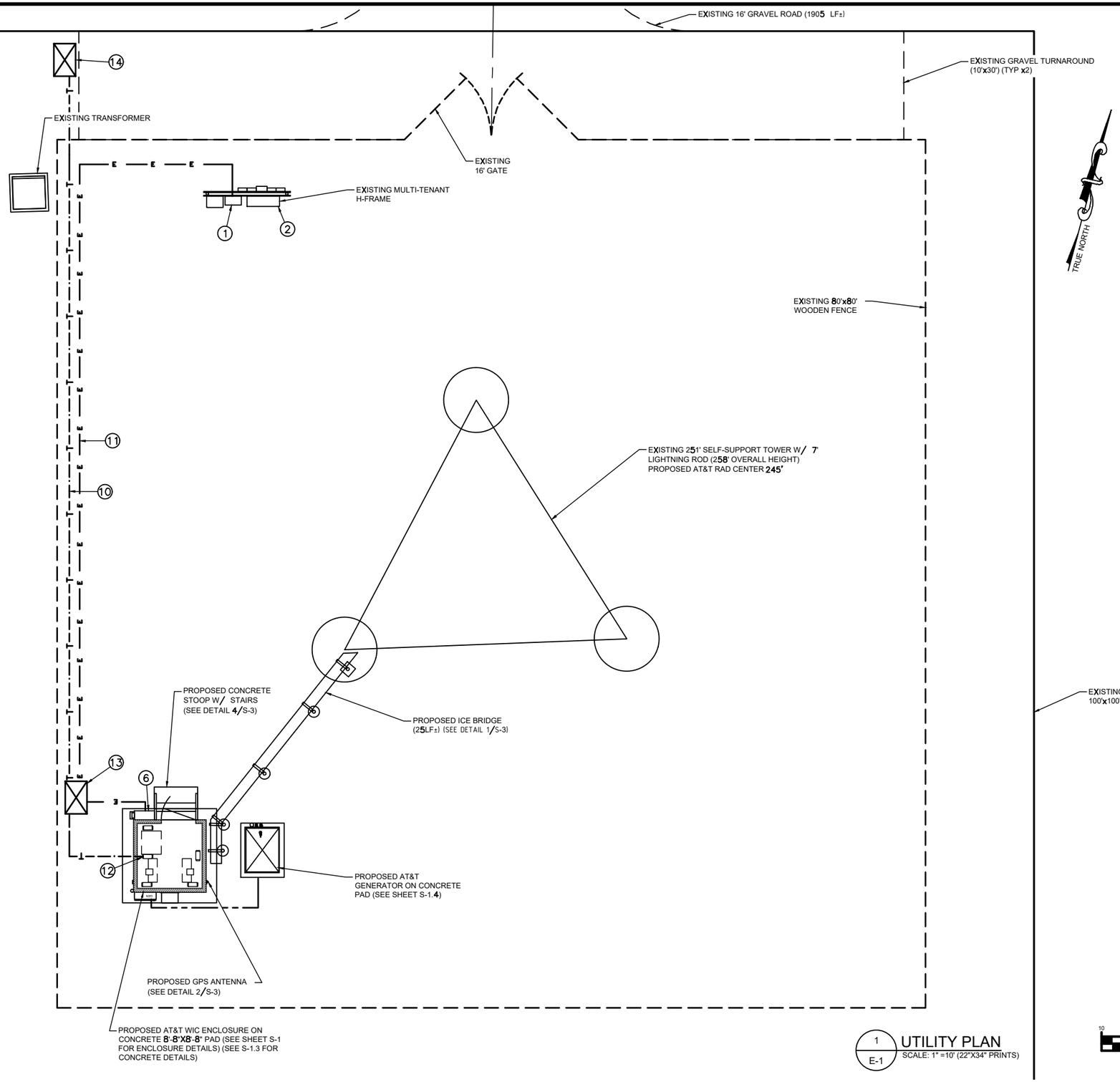
RRH, ANTENNA & EQUIPMENT SPECS (ERICSSON)

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

A-2

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020



ELECTRICAL KEY NOTES

1. METER PANEL. SEE SHEET E-2 FOR ELECTRICAL ONE-LINE DIAGRAM ELECTRICAL KEY NOTES
2. 48"x48"x12" TELCO CABINET.
3. NOT USED.
4. NOT USED.
5. NOT USED.
6. PROPOSED ELECTRICAL LOAD CENTER
7. NOT USED.
8. NOT USED.
9. NOT USED.
10. PROPOSED TRENCH FOR NEW U/G TELCO SERVICES (103'±) (1) 4"Ø PVC W/ (3) 1-1/4" INNERDUCTS AND MULE TAPE FROM NEW COMMUNITY UTILITIES RACK TO NEW AT&T EQUIPMENT PAD.
11. PROPOSED TRENCH FOR NEW U/G ELECTRICAL SERVICE (93'±) (1) 2.5"Ø SCH 80 PVC FROM NEW COMMUNITY UTILITIES RACK TO NEW AT&T EQUIPMENT PAD.
12. PROPOSED TELCO PORT ON FLOOR OF WIC.
13. PULL BOX REQUIRED WHEN CONDUIT RUNS CONTAIN MORE THAN 360° IN BENDS BETWEEN END TURNUPS.
14. PROPOSED FIBER HANDHOLE

THE ELECTRICAL CONTRACTOR, UPON COMPLETION OF HIS WORK, SHALL PROVIDE AS-BUILT INFORMATION ON EXACT LOCATIONS OF UNDERGROUND SERVICES. INFORMATION SHOULD BE GIVEN TO THE GENERAL CONTRACTOR FOR INCLUSION IN FINAL AS-BUILT SURVEY DOCUMENTS TO BE GIVEN TO AT&T WIRELESS.

PROVIDE PULLSTRING IN ALL EMPTY CONDUITS.

CONTRACTOR SHALL USE SCH 80 PVC UNDER ANY DRIVEWAY OR VEHICLE ACCESS POINTS.

1 / E-1 UTILITY PLAN
SCALE: 1" =10' (22"X34" PRINTS)

NORTH CAROLINA ONE-CALL
STATE WIDE CALL: 811
CALL BEFORE YOU DIG

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 INCH = 10 FEET
FOR 22"X34" PRINTS

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
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368-712

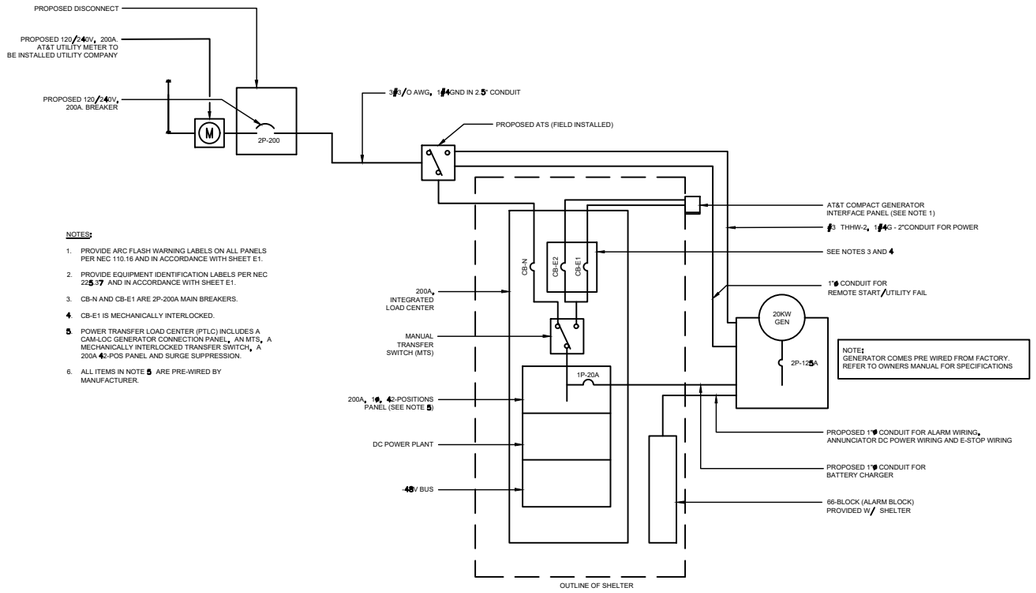
UTILITY PLAN

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

E-1

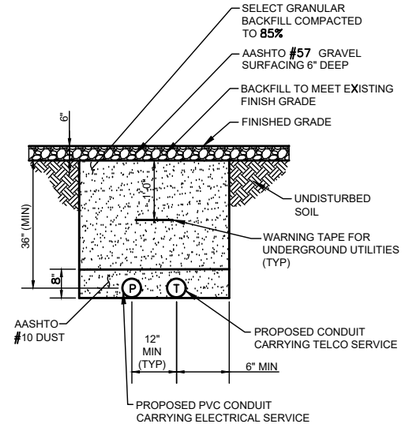
ELECTRICAL NOTES

1. SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
2. CONTRACTOR SHALL PERFORM ALL VERIFICATIONS, OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO ORDERING OF ANY EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT AND DISCREPANCIES.
3. VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
4. THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
5. CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
6. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
7. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. ELECTRICAL MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION OVER THE CONSTRUCTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL CURRENT APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU. ALL MATERIALS AND EQUIPMENT SHALL BE APPROVED FOR THEIR INTENDED USE AND LOCATION.
8. ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
9. ENTIRE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE. ALL WORK, MATERIAL AND EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
10. PROPERLY SEAL ALL PENETRATIONS. PROVIDE UL LISTED FIRE-STOPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USING SILICONE SEALANT.
11. DELIVER ALL BROCHURES, OPERATING MANUALS, CATALOGS AND SHOP DRAWINGS TO THE PROJECT MANAGER AT JOB COMPLETION. PROVIDE MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT. AFFIX MAINTENANCE LABELS TO MECHANICAL EQUIPMENT.
12. ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG., UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE TYPE THHW, RATED IN ACCORDANCE WITH NEC 110-14(C).
13. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
14. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE; ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
15. CONDUIT:
    - A. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
    - B. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
    - C. LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECTIFIERS AND WHERE PERMITTED BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZE GROUND CONDUCTOR.
    - D. CONDUIT RUNS SHALL BE SURFACE MOUNTED ON CEILINGS OR WALLS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, CEILING, OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLING.
    - E. PVC CONDUIT MAY BE PROVIDED ONLY WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS. PROVIDE UV-RESISTANT CONDUIT WHERE EXPOSED TO THE ATMOSPHERE. PROVIDE GROUND CONDUCTOR IN ALL PVC RUNS; EXCEPT WHERE PERMITTED BY CODE TO OMIT.
17. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS; EXCEPT AS REQUIRED BY CODE TO FOLLOW A DIFFERENT SCHEME.
18. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
19. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION. LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
20. COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY THE CONTRACTOR.
21. VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.
22. RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER.



NOTES:
1. PROVIDE ARC FLASH WARNING LABELS ON ALL PANELS PER NEC 110.16 AND IN ACCORDANCE WITH SHEET E1.
2. PROVIDE EQUIPMENT IDENTIFICATION LABELS PER NEC 225.37 AND IN ACCORDANCE WITH SHEET E1.
3. CB-N AND CB-E1 ARE 2P-200A MAIN BREAKERS.
4. CB-E1 IS MECHANICALLY INTERLOCKED.
5. POWER TRANSFER LOAD CENTER (PTLC) INCLUDES A CAM-LOC GENERATOR CONNECTION PANEL, AN MTS, A MECHANICALLY INTERLOCKED TRANSFER SWITCH, A 200A 42-POS PANEL AND SURGE SUPPRESSION.
6. ALL ITEMS IN NOTE 5 ARE PRE-WIRED BY MANUFACTURER.

1 / E-2 ONE-LINE DETAIL - PROPOSED METER AND DISCONNECT
NTS



NOTE:
1. EXCAVATE EXISTING SUBGRADE AS REQUIRED TO INSTALL CONDUITS IN ACCORDANCE WITH OSHA AND ALL APPLICABLE CODES.

2 / E-2 TYPICAL TRENCH DETAIL
NTS

INTEGRATED LOAD CENTER

LOAD				LOAD PER PHASE (VA)															LOAD PER PHASE (VA)				LOAD			
	DESCRIPTION	QTY.	UNIT V.A.	PHASE A	PHASE B	WIRE COLOR	LOADS CONTINUOUS	LOADS NON-CONTINUOUS	LOADS SUB-PANEL	WIRE SIZE	GROUNDING WIRE SIZE	TRIP	TRIP	GROUNDING WIRE SIZE	WIRE SIZE	LOADS SUB-PANEL	LOADS NON-CONTINUOUS	LOADS CONTINUOUS	WIRE COLOR	PHASE A	PHASE B	UNIT V.A.	QTY.	DESCRIPTION	
1	RECTIFIER #1	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #5	2
3		1	1400		1400	RED													RED		1400	1400	1		4
5	RECTIFIER #2	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #6	6
7		1	1400		1400	RED													RED		1400	1400	1		8
9	RECTIFIER #3	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #7	10
12		1	1400		1400	RED													RED		1400	1400	1		12
13	RECTIFIER #4	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			X	BLK	1400		1400	1	RECTIFIER #8	14
15		1	1400		1400	RED													RED		1400	1400	1		16
17						BLK													BLK						18
19						RED	X			12	12	20							RED						20
21	GFCI RECEPTACLES	2	180	360		BLK	X			12	(12)	20							BLK						22
23	OPTIONAL FIBER BOX RECEPTACLE	1	180		180	RED	X			12	12	20							RED						24
25	BATTERY CHARGER	1	240	240		BLK	X			12	12	20							BLK						26
27	BLOCK HEATER	1	1500		1500	RED	X			12	12	20							RED						28
29	OIL HEATER	1	180	180		BLK	X			12	12	20							BLK						30
		SUBTOTAL CONTINUOUS		6,380	7,280															5,600	5,600	SUBTOTAL CONTINUOUS			
		SUBTOTAL NON-CONTINUOUS		–	–															–	–	SUBTOTAL NON-CONTINUOUS			
		SUBTOTAL SUB-PANEL		–	–															–	–	SUBTOTAL SUB-PANEL			

PANEL DESIGNATION: ELECTRICAL PANEL (ITEM 2)							
MAIN LUGS: N/A	MAIN BREAKER: 200 AMP				BRANCH BREAKER TYPE: SIEMENS – BL		
VOLTAGE: 120/240	CYCLE: 60	PHASE: 1	WIRES: 3	MAIN COPPER BUS: 200 AMPS	NEUTRAL: 200 AMPS		

TOTAL KVA CONTINUOUS x 1.25	31.075
TOTAL KVA NON-CONTINUOUS	–
TOTAL KVA SUB-PANEL	–
TOTAL KVA	31.075
TOTAL AMPS	129.48

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BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

SMW #: 20–0570.1

at&t mobility corp.

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1	09/14/20	REV. PER CLIENT COMMENTS
2	10/06/20	REV. PER CLIENT COMMENTS
3	10/14/20	ISSUED FOR CONSTRUCTION

368–712

ELECTRICAL PANEL SCHEDULE, DIAGRAM & NOTES

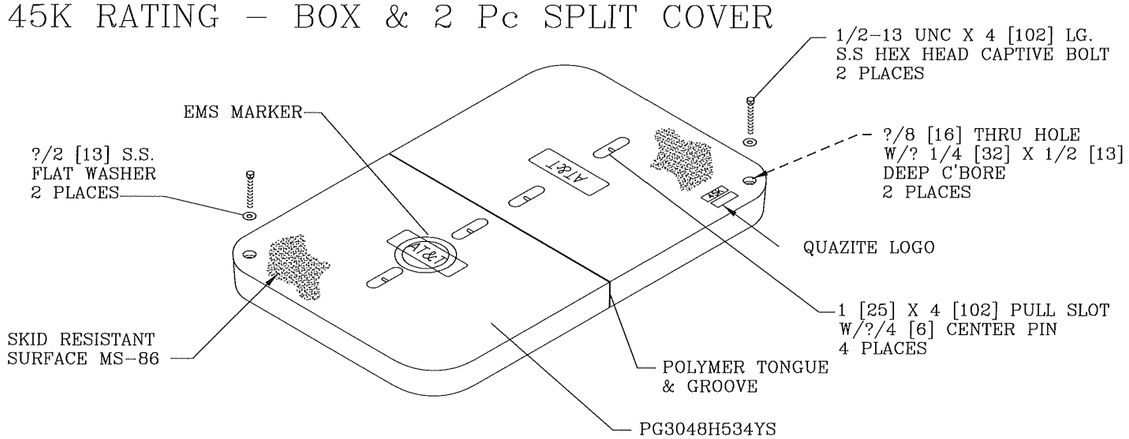
NC CA#: C-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. Q. DUVALL, JR.
10/14/2020

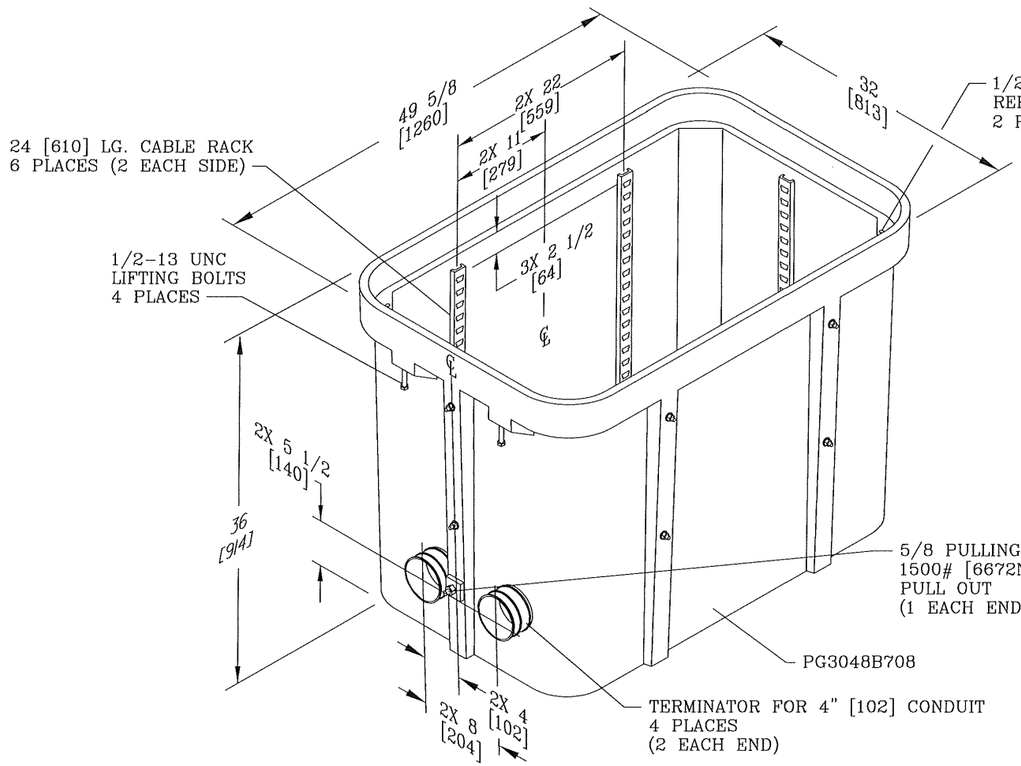
DESIGNED: VCD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

E-2

TYPICAL AT&T HANDHOLE DETAIL

HANDHOLE – 30"x48"x36"
45K RATING – BOX & 2 Pc SPLIT COVER





NOTES:

1. CUSTOMER IS AT&T

2. THIS ASSEMBLY IS RATED FOR NON-DELIBERATE VEHICULAR TRAFFIC WITH A DESIGN LOAD OF 15,000 LBS. [66,720 N] OVER A 10 [254] X 20 [508] AREA AND MUST PASS A MINIMUM STATIC TEST LOAD 45,146 LBS. [200,809 N].

3. DIMENSIONS IN BRACKETS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

DETAILS BY OTHERS NOTE:
DETAILS SHOWN ON THIS PAGE WERE PROVIDED BY OTHERS AND ARE NOT CARRIED UNDER THE SIGNATURE AND SEAL OF SMW AND/OR IT'S ENGINEERS.

CONSTRUCTION NOTES:
1. DEPTH OF EXCAVATION IS 4" DEEPER THAN THE DEPTH OF THE HANDHOLE.
2. USE BASE GRAVEL NO LARGER THAN 1/2 "
3. PLACE HANDHOLE WITH COVER IN PLACE.
4. SET HANDHOLE FLUSH WITH GRADE

NC CA#: C-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

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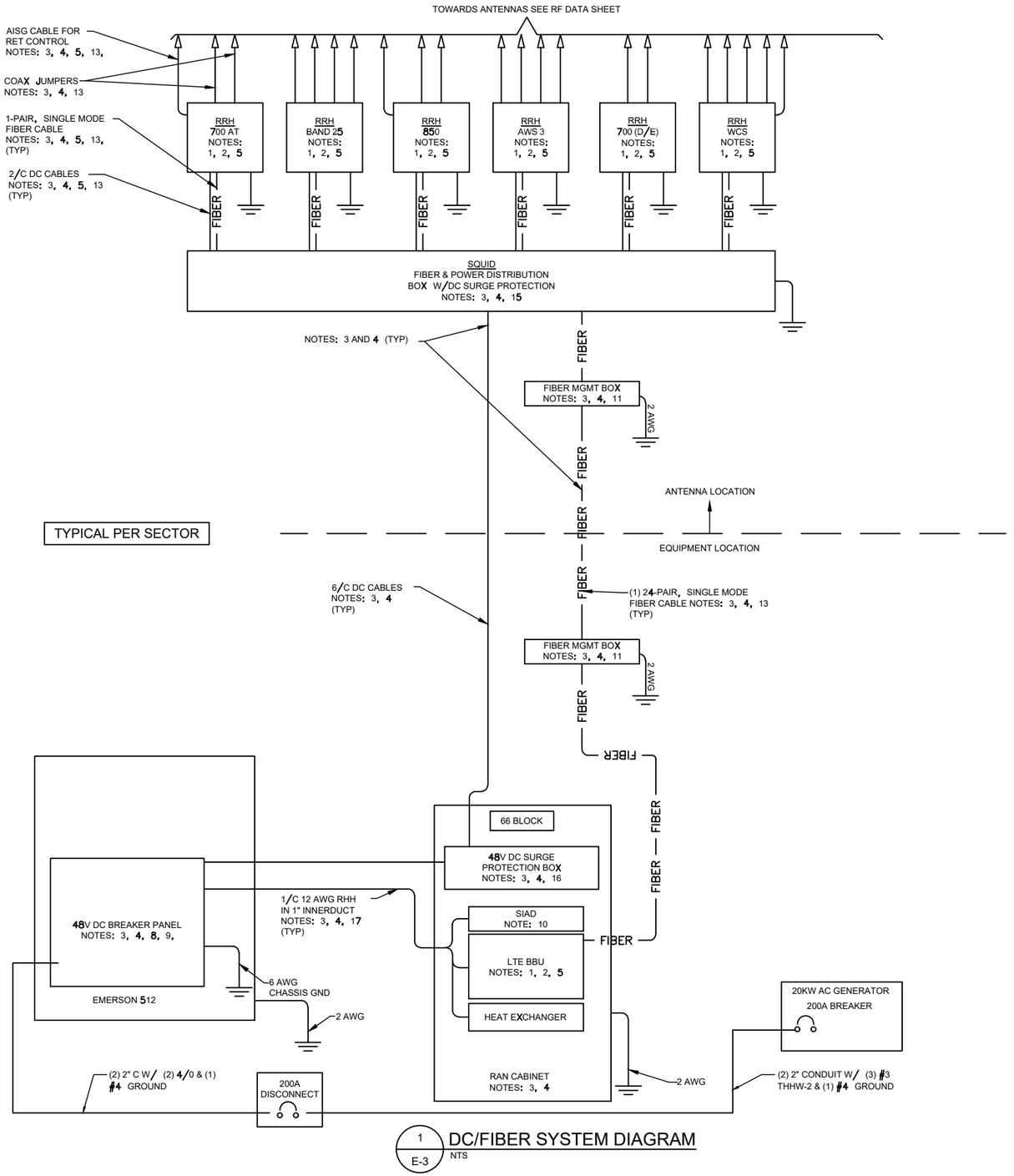
368-712

HANDHOLE DETAIL

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

E-2.1



NOTES:

1. FURNISHED BY OEM/AT&T.
2. INSTALLED BY OEM OR AS SCOPED BY MARKET.
3. FURNISHED BY OTHERS
4. INSTALLED BY OTHERS
5. FINAL CONNECTION BY OEM OR AS SCOPED BY MARKET.
6. OPEN END OF CONDUITS TO BE LEFT WEATHERPROOFED UNTIL TERMINATED.
7. DELETED.
8. BREAKERS SPECIFIED SOLD SEPERATELY.
9. BREAKERS TO BE TAGGED AND LOCKED OUT.
10. SIAD IS FURNISHED AND INSTALLED BY OTHERS AND INCLUDES POWER CONNECTIONS AND FIBER TO THE UNIT OR AS SCOPED BY MARKET. INSTALL 10 AWG CHASSIS GROUND, PROVIDE (2) 10A BREAKERS FROM A 24V DC POWER SOURCE OR (2) 5A BREAKERS FROM A 48V DC POWER SOURCE AND CONNECT USING MFR POWER CABLE WITH SPECIAL CONNECTOR.
11. FIBER MANAGEMENT BOX IS J-SOURCE MODEL 12126FM4SEC.
12. LEC TO FURNISH AND INSTALL NETWORK INTERFACE DEVICE.
13. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
14. SEE DETAIL 1408 FOR DC POWER CABLE SIZES.
15. FIBER AND POWER DISTRIBUTION BOX 4/48V SURGE SHALL BE RAYCAP MODEL DC9-48-60-24-8F.
16. POWER DISTRIBUTION W/DC SURGE PROTECTION BOX SHALL BE RAYCAP MODEL DC9-48-60-0-18.
17. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX OR KS24194, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS 1 (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL COPPER, CLASS B STRANDED WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/75°C WET INSTALLATION.
18. 10A FUSE FOR HEAT EXCHANGER FURNISHED AND INSTALLED BY OTHERS.
19. DELETED
20. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
21. RET CONTROL FROM THE RRH IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
22. DELETED.
23. FIBER AND POWER DISTRIBUTION BOX 4/48V SURGE SHALL BE RAYCAP MODEL DC9-48-60-0-1E.
24. FIBER MANAGEMENT BOX IS COMMSCOPE MODEL FB 18188.
25. FIBER AND POWER DISTRIBUTION BOX 4/48V SURGE SHALL BE RAYCAP MODEL DC12-48-60-0-25E.

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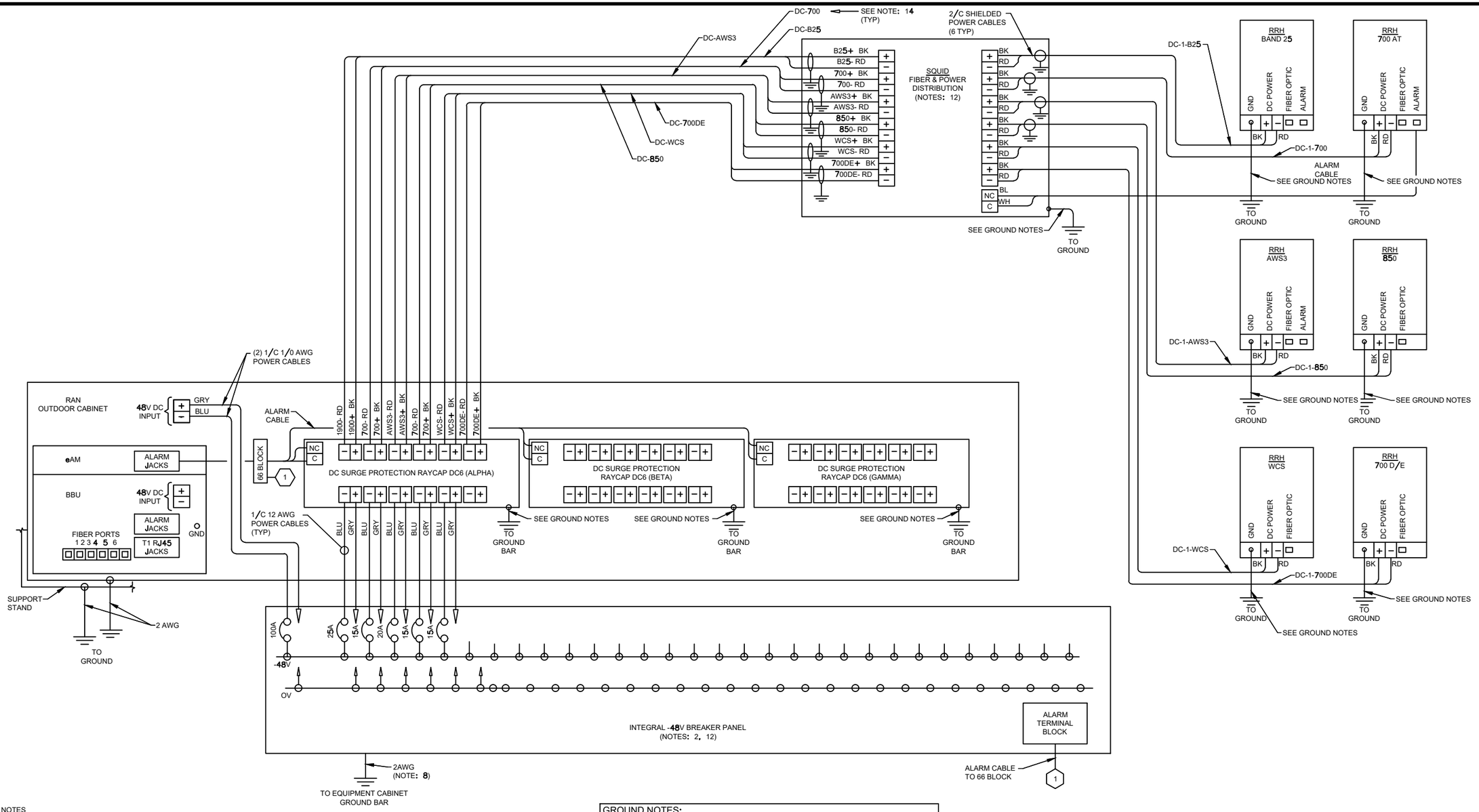
368-712

DC/FIBER SYSTEM DIAGRAM

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

E-3



NOTES

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-AWS+".
2. INSTALL ON IN AUXILIARY EQUIPMENT CABINET.
3. CABLE TERMINALS FOR +24V INPUT FEED A, FEED B AND REFERENCE GROUND SHALL BE 2-HOLE: 3/8" ON 1" CENTER.
4. INSTALL CABLE TERMINALS FOR FEED A AND FEED B RETURN BACK-TO-BACK ON OPPOSITE SIDES OF PAD USING 1-HOLE 3/8" TERMINALS.
5. CABLE TERMINALS FOR CHASSIS GROUND SHALL BE 2-HOLE, 1/4" ON 5/8" CENTER.
6. WHEN DISTRIBUTION BOX IS NOT USED, INSTALL 3 RUNS OF (2) 2/C CABLES IN CONDUIT, 1 EACH FROM DC SURGE SHELF TO DC6S.
7. A JUNCTION BOX IS REQUIRED WHEN FIBER OPTIC CABLES ARE INSTALLED IN CONDUIT AS SCOPED BY MARKET.
8. CONVERTER REFERENCE GROUND IS NOT REQUIRED WHEN CONVERTER AND 24V DC POWER PLANT ARE ON THE SAME RACK OR ENCLOSURE.
9. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE AND DRAIN WIRE WHEN A SHIELDED CABLE IS USED, SHALL BE CONNECTED TO THE EQUIPMENT CABINET GROUND BAR.
10. SEE ALARM BLOCK ASSIGNMENT DETAIL FOR ALARM CABLE CONNECTIONS.
11. PROVIDE A JUNCTION BOX, AS SCOPED BY MARKET, TO COIL EXCESS DC POWER AND OPTICAL FIBER CABLES (FIBER CALES NOT SHOWN FOR CLARITY)
12. NOTED EQUIPMENT MAY BE COMMON TO LTE AND UMTS SYSTEMS.
13. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRH.
14. WHEN AN RRH IS USED INSTEAD OF AN AWS RRH CABLE, LABELS SHOULD REFLECT CORRECT FREQUENCY BAND.

GROUND NOTES:
1) #2 SOLID TINNED FOR ALL GROUND LEVEL GROUND WIRES
2) #2 COPPER TINNED GREEN JACKETED UV RATED GROUND WIRE FOR ALL TOWER APPLICATIONS
3) #2 COPPER TINNED GREEN JACKETED UV RATED GROUND WIRE IS USED IN ALL OUTSIDE APPLICATIONS WHERE #2 SOLID IS NOT SPEC'D OUT.

TYPICAL PER SECTOR

1 / E-4 DC WIRING DIAGRAM
NTS

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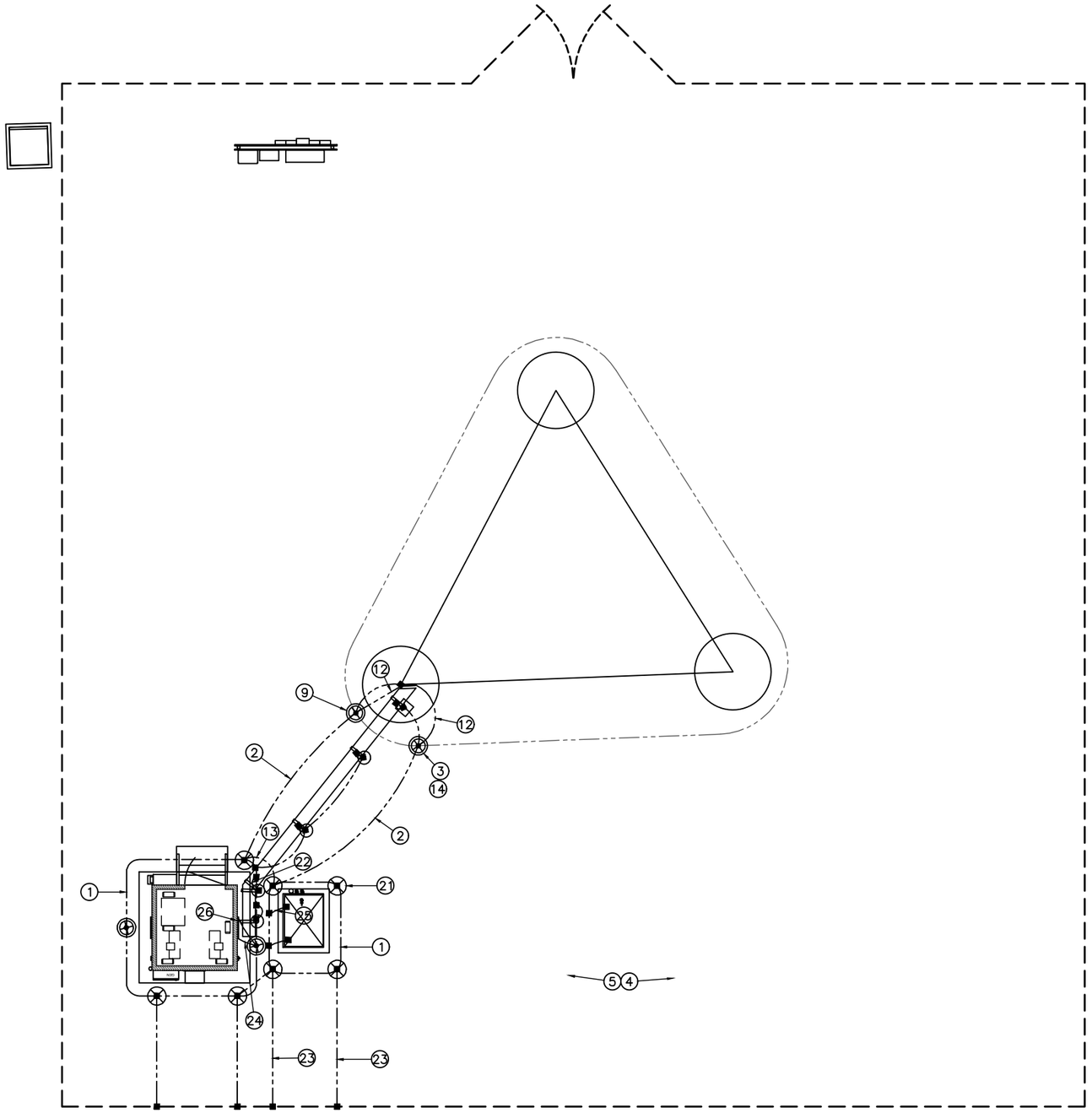
368-712

DC WIRING DIAGRAM

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

E-4

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020



1 G-1 GROUND PLAN
SCALE: 1" = 10' (22"x34" PRINTS)

GROUNDING NOTES

1. BURIED GROUND RING FOR GENERATOR AND WIC SHALL BE #2 AWG, SOLID, TINNED COPPER CONDUCTOR INSTALLED 30" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED. AN ANTI-OXIDE COMPOUND SHALL BE APPLIED TO ALL EXTERIOR, ABOVE GRADE GROUND CONNECTIONS. .
2. BURIED GROUND RING SHALL BE #2 AWG, SOLID, TINNED COPPER CONDUCTOR INSTALLED 18" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED. AN ANTI-OXIDE COMPOUND SHALL BE APPLIED TO ALL EXTERIOR, ABOVE GRADE GROUND CONNECTIONS.
3. INSPECTION GROUND RODS SHALL BE 5/8" DIA. X 10' LONG, COPPER CLAD TYPE. TOP OF ROD SHALL BE 18" BELOW FINISHED GRADE, GROUND RODS SHALL BE FURNISHED WITH AN INSPECTION SLEEVE. SEE "GROUND INSPECTION SLEEVE DETAIL" ON SHEET E-3. ALL GROUND RODS SHALL BE DRIVEN STRAIGHT DOWN, PERPENDICULAR TO FINISHED GRADE. SUITABLE PROTECTION SHALL BE PROVIDED ON END OF RODS TO PREVENT MUSHROOMING DURING INSTALLATION.
4. GROUND CONNECTIONS TO TOWER, COMMUNITY H-FRAME, ETC., SHALL BE MADE WITH THE SAME TYPE AND SIZE CONDUCTOR AS THE BURIED GROUND RING CONDUCTOR UNLESS OTHERWISE NOTED.
5. ALL MATERIALS AND LABOR REQUIRED FOR THE GROUNDING SYSTEM AS INDICATED ON THE PLANS AND DETAILS, AND AS DESCRIBED HEREIN AND IN THE SPECIFICATIONS, SHALL BE FURNISHED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.

#6, #7 AND 8 ARE NOT USED

9. EXACT LOCATION OF GROUND RODS AND GROUND CONNECTION POINTS SHALL BE DETERMINED IN FIELD, BUT WILL GENERALLY BE INSTALLED EVERY 10 FEET. ADJUST LOCATIONS INDICATED ON PLANS ACCORDING TO ACTUAL EQUIPMENT AND BUILDING COMPONENT LOCATIONS TO KEEP THE GROUND CONNECTION CABLES AS SHORT AS PRACTICAL. GROUND CONDUCTORS SHALL HAVE 9" MIN. BENDING RADIUS AND 90" MAXIMUM BEND.
10. NOT USED
11. NOT USED
12. CONNECTION TO TOWER EXIT GROUND BAR. INSTALL GROUND CONDUCTOR IN 3/4" P-/C CONDUIT FROM GROUND BAR TO 12" ABOVE FINISHED GRADE. GROUND CONDUCTOR CONNECTION TO GROUND BAR SHALL BE MADE USING EXOTHERMIC WELD PROCESS (CADWELD OR EQUAL). SEE TOWER EXIT GROUND BAR DETAIL ON SHEET E-3.
13. ICE BRIDGE GROUND CONNECTION (CADWELD OR EQUAL). ALL METALLIC COMPONENTS ON ICE BRIDGE, INCLUDING EXTERIOR HATCH PLATE AND SUPPORT LEGS, SHALL BE BONDED TOGETHER WITH GROUND CONDUCTORS,
14. FRICTION ACCESS COVERS FOR GROUND INSPECTION SLEEVE SHALL BE BROUGHT FLUSH WITH STONE, FINISHED GRADE, OR CONCRETE (TYPICAL ALL LOCATIONS). SEE "GROUND INSPECTION SLEEVE DETAIL" ON SHEET. E-3.

#15 TO 20 NOT USED

21. GROUND RODS SHALL BE 5/8" DIA. X 10' LONG, COPPER CLAD TYPE. TOP OF ROD SHALL. BE 18" BELOW FINISHED GRADE.
22. GROUND TO ICE BRIDGE POST
23. GROUND TO FENCE POST TO GENERATOR AND WIC GROUND RING.
24. GROUND WIC BUSS BAR TO GROUND RING PER MANUFACTURERS SPECS.
25. GROUND GENERATOR TO GROUND RING PER MANUFACTURERS SPECS.
26. WIC BUSS BAR

GROUNDING LEGEND

■	EXOTHERMIC WELD CONNECTION
●	COMPRESSION FITTING CONNECTION
◉	5/8"X10' COPPER-CLAD STEEL GROUND ROD
◉	5/8"X10' COPPER-CLAD STEEL GROUND ROD WITH INSPECTION WELL
———	PROPOSED GROUND WIRING
- - - -	EXISTING GROUND WIRING
▬	TINNED COPPER GROUND BAR 1/4"X4"X12" OR 1/4"X4"X20"
CGB	COLLECTOR GROUND BAR
MGB	MAIN GROUND BAR

GRAPHIC SCALE

10 0 5 10 20 40

(IN FEET)
1 INCH = 10 FEET
FOR 22"X34" PRINTS

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368-712

GROUNDING PLAN

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

G-1

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

GROUNDING NOTES:

1. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
2. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
3. ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
4. GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. WHERE GROUND WIRES ARE CADWELDED TO GALVANIZED SURFACES, SPRAY CADWELD WITH GALVANIZING PAINT.
5. GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDING SCREW SET) CLEAN GROUND BAR TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTIOXIDANT COATING.
6. GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
7. ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
8. INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
9. REFER TO GROUNDING PLAN FOR GROUND BAR LOCATIONS. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO ANTENNA MOUNTS AND GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
10. THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS POSITION ACCORDING TO GROUNDING PLAN. THE GROUND RODS SHALL BE 5/8"X10'-0" COPPER CLAD STEEL INTERCONNECTED WITH #2 BARE TINNED COPPER WIRE BURIED 36" BELOW GRADE. BURY GROUND RODS A MAXIMUM OF 15' APART, AND A MINIMUM OF 8' APART.
11. IF ROCK IS ENCOUNTERED GROUND RODS SHALL BE PLACED AT AN OBLIQUE ANGLE NOT TO EXCEED 45°.
12. EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-AT.
13. CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO THE VERIZON WIRELESS CONSTRUCTION MANAGER.
14. ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2 BARE TINNED COPPER WIRE. ALL EXTERIOR GROUND BARS TINNED COPPER.
15. PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.). PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
16. ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED FIVE OHMS TO GROUND BY MEANS OF "FALL OF POTENTIAL TEST". TEST SHALL BE WITNESSED BY A METROPCS REPRESENTATIVE, AND RECORDED ON THE "GROUND RESISTANCE TEST" FORM.
17. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
18. PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
19. ANY SITE WHERE THE EQUIPMENT (BTS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 6 FEET OF METAL FENCING, THE GROUND RING SHALL BE BONDED TO THE NEAREST FENCE POST USING (3) RUNS OF #2 BARE TINNED COPPER WIRE.

CABLE COLOR CODING NOTES:

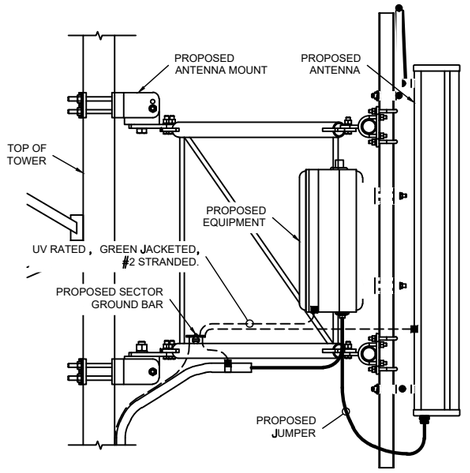
1. SECTOR ORIENTATION/AZIMUTH WILL VARY FROM REGION AND IS SITE SPECIFIC. REFER TO RF REPORT FOR EACH SITE TO DETERMINE THE ANTENNA LOCATION AND FUNCTION OF EACH TOWER SECTOR FACE.
2. THE ANTENNA SYSTEM CABLES SHALL BE LABELED WITH VINYL TAPE EXCEPT IN LOCATIONS WHERE ENVIRONMENTAL CONDITIONS CAUSE PHYSICAL DAMAGE, THEN PHYSICAL TAGS ARE PREFERRED.
3. THE STANDARD IS BASED ON EIGHT COLORED TAPES - RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE & 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 SUBCONTRACTOR ON SITE.
4. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLES BY SECTOR AND NUMBER AS SHOWN ON "CABLE MARKING COLOR CONVENTION TABLE".
5. WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN GSM/3G AND IS-136 TDMA IS ENCOUNTERED, THE SUBCONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING AND TAGGING STANDARD THAT IS OUTLINED IN THE CURRENT VERSION OF ND-00027. IN THE ABSENCE OF AN EXISTING COLOR CODING TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
6. ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE A MINIMUM OR (3) WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
7. ALL COLOR BANDS INSTALLED AT THE TOP OF TOWER SHALL BE A MINIMUM OF 3" WIDE AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE IN BETWEEN EACH COLOR.
8. ALL COLOR CODES SHALL BE INSTALLED AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE TO SIDE.
9. IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE GSM TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

CABLE MARKING TAGS:

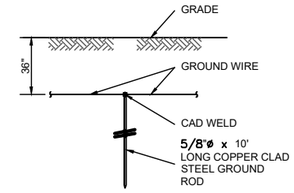
WHEN USING THE ALTERNATIVE LABELING METHOD, EACH RF CABLE SHALL BE IDENTIFIED WITH A METAL ID TAG MADE OF STAINLESS STEEL OR BRASS. THE TAG SHALL BE 1-1/2" IN DIAMETER WITH 1/4" STAMPED LETTERS AND NUMBERS INDICATION THE SECTOR, ANTENNA POSITION AND CABLE NUMBER. ID MARKING LOCATIONS SHOULD BE AS PER "CABLE MARKING LOCATIONS TABLE". THE TAG SHOULD BE ATTACHED WITH CORROSION PROOF WIRE AROUND THE CABLE AT THE SAME LOCATION AS DEFINED ABOVE. THE TAG SHOULD BE LABELED AS SHOWN ON THE "GSM AND UMTS LINE TAG" DETAIL.

CABLE MARKING LOCATIONS TABLE

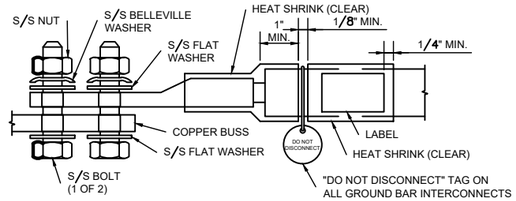
NO.	LOCATIONS
1	EACH JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS AT THE TOP JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS PRIOR TO ENTERING THE BTS OR SHELTER.
3	CABLE ENTRY PORT ON THE INTERIOR OF SHELTER.
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.



2 G-2 ANTENNA & CABLE GROUNDING
SCALE: NOT TO SCALE

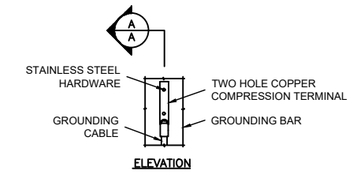


3 G-2 GROUNDING ROD DETAIL
SCALE: NOT TO SCALE



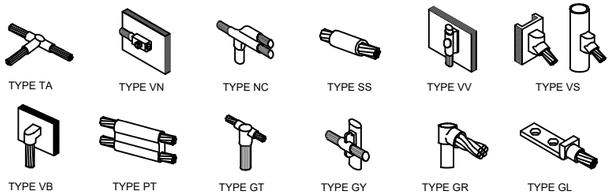
NOTES:
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND.
3. COAT ALL BARRELS WITH ANTI-OXIDATION COMPOUND BEFORE CRIMPING.

4 G-2 GENERAL LUG DETAIL
SCALE: NOT TO SCALE

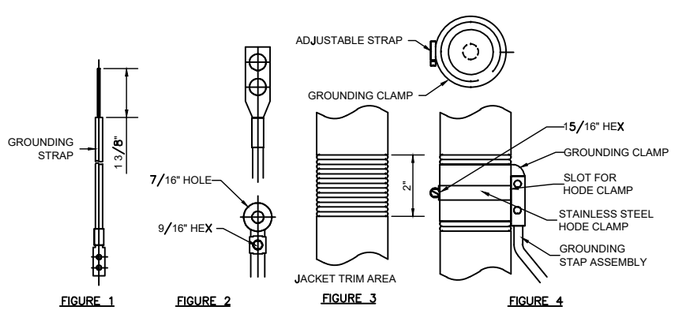


NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

6 G-2 TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: NOT TO SCALE



1 G-2 CADWELD GROUNDING CONNECTION DETAILS
NTS



5 G-2 GROUNDING STRAP WEATHERPROOFING DETAIL
SCALE: NOT TO SCALE

DETAILS BY OTHERS NOTE:
DETAILS SHOWN ON THIS PAGE WERE PROVIDED BY OTHERS AND ARE NOT CARRIED UNDER THE SIGNATURE AND SEAL OF SMW AND/OR IT'S ENGINEERS.

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

SMW ENGINEERING GROUP, N.C., PLLC
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-320-1504

SMW #: 20-0570.1

at&t mobility corp.

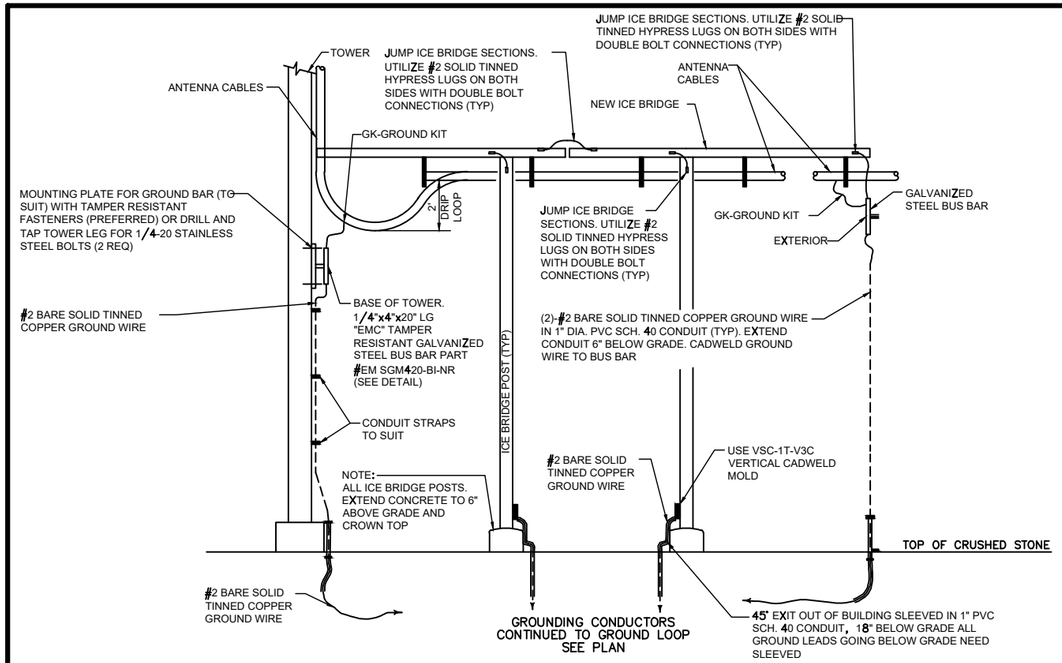
#	DATE	DESCRIPTION:
0	09/10/20	ISSUED FOR CLIENT REVIEW
1	09/14/20	REV. PER CLIENT COMMENTS
2	10/06/20	REV. PER CLIENT COMMENTS
3	10/14/20	ISSUED FOR CONSTRUCTION

368-712

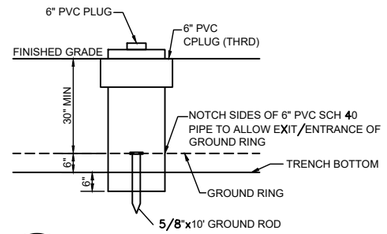
GROUNDING DETAILS & NOTES (SST & SELF-SUPPORT TOWER)

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

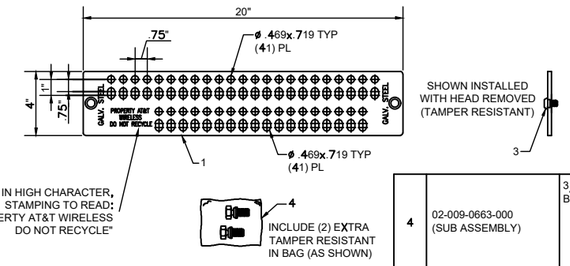
G-2



1 G-3 COAXIAL GROUNDING AT ICE BRIDGE
NOT TO SCALE

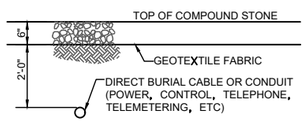


2 G-3 INSPECTION WELL DETAIL
NOT TO SCALE



ITEM	PART NO.	DESCRIPTION	REQ
4	02-009-0663-000 (SUB ASSEMBLY)	3/8-16x5/8" TORQUE SHEAR HEAD BOLT IN A STANDARD 4x6 BAG INCLUDES: (2) 3/8-16x5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRSEAL; STAINLESS STEEL (303) P/N 02-009-0603-000 (1) STANDARD 4"x6" BAG (P/N 03-009-0209-00)	1
3	02-009-0633-000	3/8-16x5/8" TORQUE SHEAR HEAD BOLT (NON-REMOVABLE) WITH VIBRSEAL; STAINLESS STEEL (303)	2
2	-	NOT USED	2
1	02-009-0672-000	20" GROUND BAR; STEEL; GALVANIZED	1

4 G-3 TOWER LEG BUS BAR DETAIL
NOT TO SCALE



INSTALLATION
1. THE TAPE SHALL BE LAID DIRECTLY ABOVE THE CABLE OR CONDUIT UNDER RIGID TYPE AND OIL MAT PAVEMENTS, AND DIRECTLY ON TOP OF THE COMPACTED EARTH SUBGRADE IMMEDIATELY BEFORE RESTORING THE PAVEMENT.
2. IN OPEN AREAS, THE TAPE SHALL BE LAID DURING THE BACKFILLING OPERATION ON SMOOTH, COMPACTED BACKFILL AT A DISTANCE OF 8" BELOW THE SURFACE OF THE AREA.
3. THE ENDS OF THE TAPE SHALL BE LAPPED APPROXIMATELY SIX (6) INCHES.
4. TAPE SHALL BE THE COLOR AS INDICATED AND HAVE THE FOLLOWING MARKINGS:

RED	CAUTION BURIED ELECTRIC LINE BELOW	CAUTION	CAUTION
ORANGE	CAUTION BURIED TELEPHONE LINE BELOW	CAUTION	CAUTION

6 G-3 STANDARD MARKER TAPE DETAIL
NOT TO SCALE

ELECTRIC MOTION CO., INC.
110 GROPPO DR./ BOX 626
WINSTED, CT 06098
PART #EM SGM420-BI-NR

DETAILS BY OTHERS NOTE:
DETAILS SHOWN ON THIS PAGE WERE PROVIDED BY OTHERS AND ARE NOT CARRIED UNDER THE SIGNATURE AND SEAL OF SMW AND/OR IT'S ENGINEERS.

NC CA#: P-1497
NORTH CAROLINA PROFESSIONAL SEAL 023757 ENGINEER V. G. DUVALL, JR.
10/14/2020

SMW ENGINEERING GROUP, N.C., PLLC
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL. 205-252-6985 FAX: 205-320-1504

SMW #: 20-0570.1

at&t mobility corp.

#	DATE	DESCRIPTION:
0	09/10/20	ISSUED FOR CLIENT REVIEW
1	09/14/20	REV. PER CLIENT COMMENTS
2	10/06/20	REV. PER CLIENT COMMENTS
3	10/14/20	ISSUED FOR CONSTRUCTION

368-712

GROUNDING DETAILS

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206

G-3

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	ECL02120	DATE:	06/10/2020	RF DESIGN ENG:	SHOHEL CHOWDHURY
ISSUE:		Approved? (Y/N):	Yes	RF DESIGN PHONE:	
REVISION:		RF MANAGER:	JONES, JERRY O	RF DESIGN EMAIL:	sc3730@att.com
INITIATIVE /PROJECT:					

RF PERF ENG:		RFDS PROGRAM TYPE:	2020 New Site		
RF PERF PHONE:		RFDS TECHNOLOGY:	LTE 5C		
RF PERF EMAIL:		STATE/STATUS:	Preliminary/Approved		
ADDITIONAL WORKFLOW NOTIFICATIONS:		RFDS ID:	4001668		
RFDS VERSION:	1.00	Created By:	au844f	Updated By:	au844f
UMTS FREQUENCY:		Date Created:	6/10/2020 2:46:59 PM	Date Updated:	6/17/2020 12:17:26 PM
LTE FREQUENCY:		EXPIRATION DATE:			
5G FREQUENCY:		ESTIMATED SQIN:		Calculation ID:	
I-PLAN JOB # 1:	SER-RVWN-18-04951	IPLAN PRD GRP || SUB GRP #1:	New Site || LTE Only 1C		
I-PLAN JOB # 2:	NER-RVWN-20-03306	IPLAN PRD GRP || SUB GRP #2:	LTE Next Carrier || LTE 2C		
I-PLAN JOB # 3:	NER-RVWN-20-03307	IPLAN PRD GRP || SUB GRP #3:	LTE Next Carrier || LTE 3C		
I-PLAN JOB # 4:	NER-RVWN-20-03308	IPLAN PRD GRP || SUB GRP #4:	LTE Next Carrier || LTE 4C		
I-PLAN JOB # 5:	NER-RVWN-20-03309	IPLAN PRD GRP || SUB GRP #5:	LTE Next Carrier || LTE 5C		
I-PLAN JOB # 6:		IPLAN PRD GRP || SUB GRP #6:			
I-PLAN JOB # 7:		IPLAN PRD GRP || SUB GRP #7:			
I-PLAN JOB # 8:		IPLAN PRD GRP || SUB GRP #8:			

Section 2 - LOCATION INFORMATION

USID:	142592	FA LOCATION CODE:	12682206	LOCATION NAME:	368-712
REGION:	SOUTHEAST	MARKET CLUSTER:	NORTH CAROLINA/SOUTH CAROLINA	MARKET:	RALEIGH
ADDRESS:	1754 OAK GROVE CHURCH ROAD	CITY:	ANGIER	STATE:	NC
ZIP CODE:	27501	COUNTY:	HARNETT	LONG (DEC. DEG.):	-78.7096640
LATITUDE (D-M-S):	35d 27m6.3s	LONGITUDE (D-M-S):	-78d -42m-34.7904s	LAT (DEC. DEG.):	35.4517500
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	FROM RALEIGH: US-401S TO NC-42E/NC-55E. TAKE LEFT ONTO NC-42E/NC-55E FOR 9.7 MILES. RIGHT ONTO OAK GROVE CHURCH ROAD FOR 1 MILE. LEFT ONTO HOMESTEAD LANE. TOWER IS APPROXIMATELY 0.4 MILES ON LEFT.				

ORACLE PTN # 1:	2301A0HFYP	PACE JOB # 1:	MRCAR033595
ORACLE PTN # 2:	2301A0W826	PACE JOB # 2:	MRVWN005694
ORACLE PTN # 3:	2301A0W82K	PACE JOB # 3:	MRVWN005668
ORACLE PTN # 4:	2301A0W83K	PACE JOB # 4:	MRVWN005681
ORACLE PTN # 5:	2301A0W848	PACE JOB # 5:	MRVWN005680
ORACLE PTN # 6:		PACE JOB # 6:	
ORACLE PTN # 7:		PACE JOB # 7:	
ORACLE PTN # 8:		PACE JOB # 8:	
BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:	
AM STUDY REQ'D (Y/N):	No	SEARCH_RING_ID:	
FREQ COORD:		BTA:	MSA / RSA:
		LAC(UMTS):	
RF DISTRICT:	Raleigh		
RF ZONE:	1	RNC(UMTS):	
		MME POOL ID(LTE):	FF10
PARENT NAME(UMTS):			

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:	
CGSA - MINOR FILING NEEDED (Yes/No)::	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:	
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:			

CGSA CALL SIGNS:	

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):		STRUCTURE TYPE:	SELF SUPPORT
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):	250	FCC ASR NUMBER:	1289615
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	250.00		
LIGHTING TYPE:	DUAL-RED AND MEDIUM INTENSITY				

MARKET LOCATION 700 MHz Band:			
MARKET LOCATION 850 MHz Band:			
MARKET LOCATION 1900 MHz Band:			
MARKET LOCATION AWS Band:			
MARKET LOCATION WCS Band:			
MARKET LOCATION Future Band:			

Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A E-911				TCS_PHOENIX		0				
SECTOR B				TCS_PHOENIX		0				
SECTOR C				TCS_PHOENIX		0				
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A E-911				TCS_PHOENIX		0				
SECTOR B				TCS_PHOENIX		0				
SECTOR C				TCS_PHOENIX		0				
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

SECTION 6/7 - BBU INFORMATION - existing

	BBU 1	BBU 2							
BBU RBS ID:	448049	448051							
TECHNOLOGY:	UMTS	LTE							
BBU NAME:	NCRAU0712	ECL02120							
CELL ID / BCF:	NCRAU0712	ECL02120							
BTA/TID:	368W	368L							
4-9 DIGIT SITE ID:	0712	0712							
COW OR TOY?:	No	No							
CELL SITE TYPE:	SECTORIZED	SECTORIZED							
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL							
BTS LOCATION ID:	GROUND	GROUND							
BASE STATION TYPE:	BASE	BASE							
EQUIPMENT NAME:	368-712 NSB	368-712 NSB							
DISASTER PRIORITY:	1	1							
EQUIPMENT VENDOR:	ERICSSON	ERICSSON							
EQUIPMENT TYPE (Model):	6601 MAIN UNIT UMTS	6601 INDOOR MU							
BASEBAND CONFIGURATION:									
MARKET STATE CODE:		EC							
NODE B NUMBER:	0	2120							
SIDEHAUL SWITCH VENDOR:									
SIDEHAUL SWITCH MODEL:									
SIDEHAUL SWITCH NAME:									
CSS - CTS COMMON ID:	NCRAU0712	ECL02120							
CSS - SECONDARY FUNCTION ID:									

SECTION 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2							
BBU RBS ID:	RFDS_60601152	RFDS_60601153							
TECHNOLOGY:	LTE	LTE							
BBU NAME:	ECL02120	ECL09120R							
CELL ID / BCF:	ECL02120	ECL09120R							
BTA/TID:	368L	368L							
4-9 DIGIT SITE ID:	0212	0912							
COW OR TOY?:	No	No							
CELL SITE TYPE:	SECTORIZED	SECTORIZED							
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL							
BTS LOCATION ID:	GROUND	GROUND							
BASE STATION TYPE:	BASE	BASE							
EQUIPMENT NAME:	ECL02120	ECL09120R							
DISASTER PRIORITY:	1	1							
EQUIPMENT VENDOR:	ERICSSON	ERICSSON							
EQUIPMENT TYPE (Model):	BASEBAND 6630	BASEBAND 6630							
BASEBAND CONFIGURATION:	xxxxx / 1x6630 / xxxxx + IDLe	xxxxx / 1x6630 / xxxxx							
MARKET STATE CODE:	EC	EC							
NODE B NUMBER:	2120	9120							
SIDEHAUL SWITCH VENDOR:									
SIDEHAUL SWITCH MODEL:									
SIDEHAUL SWITCH NAME:									
CSS - CTS COMMON ID:	ECL02120								
CSS - SECONDARY FUNCTION ID:									

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2																					
CTS Common ID	NCRAU0712	ECL02120																					
Soft Sector IDs	NCRAU07124	ECL02120_7A_1																					
	NCRAU07125	ECL02120_7B_1																					
	NCRAU07126	ECL02120_7C_1																					
	NCRAU07127																						
	NCRAU07128																						
	NCRAU07129																						

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2																					
CTS Common ID	ECL02120	ECL09120R																					
Soft Sector IDs	ECL02120_2A_1	ECL09120_7A_1																					
	ECL02120_2A_2	ECL09120_7A_2_F																					
	ECL02120_2A_3	ECL09120_7B_1																					
	ECL02120_2B_1	ECL09120_7B_2_F																					
	ECL02120_2B_2	ECL09120_7C_1																					
	ECL02120_2B_3	ECL09120_7C_2_F																					
	ECL02120_2C_1																						
	ECL02120_2C_2																						
	ECL02120_2C_3																						
	ECL02120_3A_1																						
	ECL02120_3B_1																						
	ECL02120_3C_1																						
	ECL02120_9A_1																						
	ECL02120_9B_1																						
	ECL02120_9C_1																						

Section 9 - SOFT SECTOR ID - existing

	UMTS 1ST 1900	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS																
USEID (excluding Hard Sector)	142592.1900.3G.1	142592.1900.3G.2																							
SECTOR A **SOFT SECTOR ID**	NCRAU07127	NCRAU07124	ECL02120_7A_1																						
SECTOR B	NCRAU07128	NCRAU07125	ECL02120_7B_1																						
SECTOR C	NCRAU07129	NCRAU07126	ECL02120_7C_1																						
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - SOFT SECTOR ID - final

	UMTS 1ST 1900	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS																
USEID (excluding Hard Sector)																									
SECTOR A **SOFT SECTOR ID**			ECL09120_7A_1	ECL02120_9A_1	ECL02120_2A_1	ECL02120_3A_1	ECL09120_7A_2_F	ECL02120_2A_2	ECL02120_2A_3																
SECTOR B			ECL09120_7B_1	ECL02120_9B_1	ECL02120_2B_1	ECL02120_3B_1	ECL09120_7B_2_F	ECL02120_2B_2	ECL02120_2B_3																
SECTOR C			ECL09120_7C_1	ECL02120_9C_1	ECL02120_2C_1	ECL02120_3C_1	ECL09120_7C_2_F	ECL02120_2C_2	ECL02120_2C_3																
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - Cell Number - existing

	UMTS 1ST 1900	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS																
USEID (excluding Hard Sector)	142592.1900.3G.1	142592.1900.3G.2																							
SECTOR A **CELL NUMBER**	0	0	15																						
SECTOR B	0	0	16																						
SECTOR C	0	0	17																						
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 9 - Cell Number - final

	UMTS 1ST 1900	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS																
USEID (excluding Hard Sector)																									
SECTOR A **CELL NUMBER**			15	8	22	149	172	179	193																
SECTOR B			16	9	23	150	173	180	194																
SECTOR C			17	10	24	151	174	181	195																
SECTOR D																									
SECTOR E																									
SECTOR F																									
OMNI																									

Section 10 - CID/SAC - existing

	UMTS 1ST 1900	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS																		
SECTOR A CID/SAC	07127	07124																									
SECTOR B	07128	07125																									
SECTOR C	07129	07126																									
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 10 - CID/SAC - final

	UMTS 1ST 1900	UMTS 2ND 1900	LTE 1ST 700	LTE 1ST 1900	LTE 1ST AWS	LTE 1ST WCS	LTE 2ND 700	LTE 2ND AWS	LTE 3RD AWS																		
SECTOR A CID/SAC																											
SECTOR B																											
SECTOR C																											
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Commscope		Commscope			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		0		0			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		245		245			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12		1 4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 1	142592.A.700.4G.tmp1		ECL09120_7A_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER										
	PORT 5	142592.A.1900.4G.tmp1		ECL02120_9A_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER										
	PORT 9	142592.A.AWS.4G.tmp1,142592.A.AWS.4G.tmp2,142592.A.AWS.4G.tmp3		ECL02120_2A_1, ECL02120_2A_2, ECL02120_2A_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER										
ANTENNA POSITION 4	PORT 1	142592.A.700.4G.tmp2		ECL09120_7A_2_F			LTE 700	NNH4-65C-R6-	15.79		2	TOP	FIBER										

								V3_766MHz_02DT															
	PORT 5	142592.A.WCS.4G.tmp1		ECL02120_3A_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER										

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Commscope		Commscope			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		120		120			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		245		245			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12		1 4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 1	142592.B.700.4G.tmp1		ECL09120_7B_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER										
	PORT 5	142592.B.1900.4G.tmp1		ECL02120_9B_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER										
	PORT 9	142592.B.AWS.4G.tmp1,142592.B.AWS.4G.tmp2,142592.B.AWS.4G.tmp3		ECL02120_2B_1, ECL02120_2B_2, ECL02120_2B_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER										
ANTENNA POSITION 4	PORT 1	142592.B.700.4G.tmp2		ECL09120_7B_2_F			LTE 700	NNH4-65C-R6-	15.79		2	TOP	FIBER										

								V3_766MHz_02DT															
	PORT 5	142592.B.WCS.4G.tmp1		ECL02120_3B_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER										

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
Existing Antenna?							
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Commscope		Commscope			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		240		240			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		245		245			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12		1 4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 1	142592.C.700.4G.tmp1		ECL09120_7C_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER										
	PORT 5	142592.C.1900.4G.tmp1		ECL02120_9C_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER										
	PORT 9	142592.C.AWS.4G.tmp1,142592.C.AWS.4G.tmp2,142592.C.AWS.4G.tmp3		ECL02120_2C_1, ECL02120_2C_2, ECL02120_2C_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER										
ANTENNA POSITION 4	PORT 1	142592.C.700.4G.tmp2		ECL09120_7C_2_F			LTE 700	NNH4-65C-R6-	15.79		2	TOP	FIBER										

								V3_766MHz_02DT															
	PORT 5	142592.C.WCS.4G.tmp1		ECL02120_3C_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER										

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Commscope		Commscope			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		0		0			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		245		245			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12		1 4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 1	142592.A.700.4G.tmp1		ECL09120_7A_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER										
	PORT 5	142592.A.1900.4G.tmp1		ECL02120_9A_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER										
	PORT 9	142592.A.AWS.4G.tmp1,142592.A.AWS.4G.tmp2,142592.A.AWS.4G.tmp3		ECL02120_2A_1, ECL02120_2A_2, ECL02120_2A_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER										
ANTENNA POSITION 4	PORT 1	142592.A.700.4G.tmp2		ECL09120_7A_2_F			LTE 700	NNH4-65C-R6-V3_766MHz_02DT	15.79		2	TOP	FIBER										

	PORT 5	142592.A.WCS.4G.tmp1		ECL02120_3A_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER										

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Commscope		Commscope			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		120		120			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		245		245			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12		1 4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 1	142592.B.700.4G.tmp1		ECL09120_7B_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER										
	PORT 5	142592.B.1900.4G.tmp1		ECL02120_9B_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER										
	PORT 9	142592.B.AWS.4G.tmp1,142592.B.AWS.4G.tmp2,142592.B.AWS.4G.tmp3		ECL02120_2B_1, ECL02120_2B_2, ECL02120_2B_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER										
ANTENNA POSITION 4	PORT 1	142592.B.700.4G.tmp2		ECL09120_7B_2_F			LTE 700	NNH4-65C-R6-V3_766MHz_02DT	15.79		2	TOP	FIBER										

	PORT 5	142592.B.WCS.4G.tmp1		ECL02120_3B_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER										

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL		NNH4-65C-R6-V3		NNH4-65C-R6-V3			
ANTENNA VENDOR		Commscope		Commscope			
ANTENNA SIZE (H x W x D)							
ANTENNA WEIGHT							
AZIMUTH		240		240			
MAGNETIC DECLINATION							
RADIATION CENTER (feet)		245		245			
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT		0		0			
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)				36			
Antenna RET Motor (QTY/MODEL)							
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)		1 4449 B5/B12		1 4478 B14			
RRH - 850 band (QTY/MODEL)							
RRH - 1900 band (QTY/MODEL)		1 4415 B25					
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)				1 4415 B30			
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1							
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 2	PORT 1	142592.C.700.4G.tmp1		ECL09120_7C_1			LTE 700	NNH4-65C-R6-V3_725MHz_02DT	15.79		2	TOP	FIBER										
	PORT 5	142592.C.1900.4G.tmp1		ECL02120_9C_1			LTE 1900	NNH4-65C-R6-V3_1950MHz_02DT	15.79		2	TOP	FIBER										
	PORT 9	142592.C.AWS.4G.tmp1,142592.C.AWS.4G.tmp2,142592.C.AWS.4G.tmp3		ECL02120_2C_1, ECL02120_2C_2, ECL02120_2C_3			LTE AWS	NNH4-65C-R6-V3_2130MHz_02DT	15.79		2	TOP	FIBER										
ANTENNA POSITION 4	PORT 1	142592.C.700.4G.tmp2		ECL09120_7C_2_F			LTE 700	NNH4-65C-R6-V3_766MHz_02DT	15.79		2	TOP	FIBER										

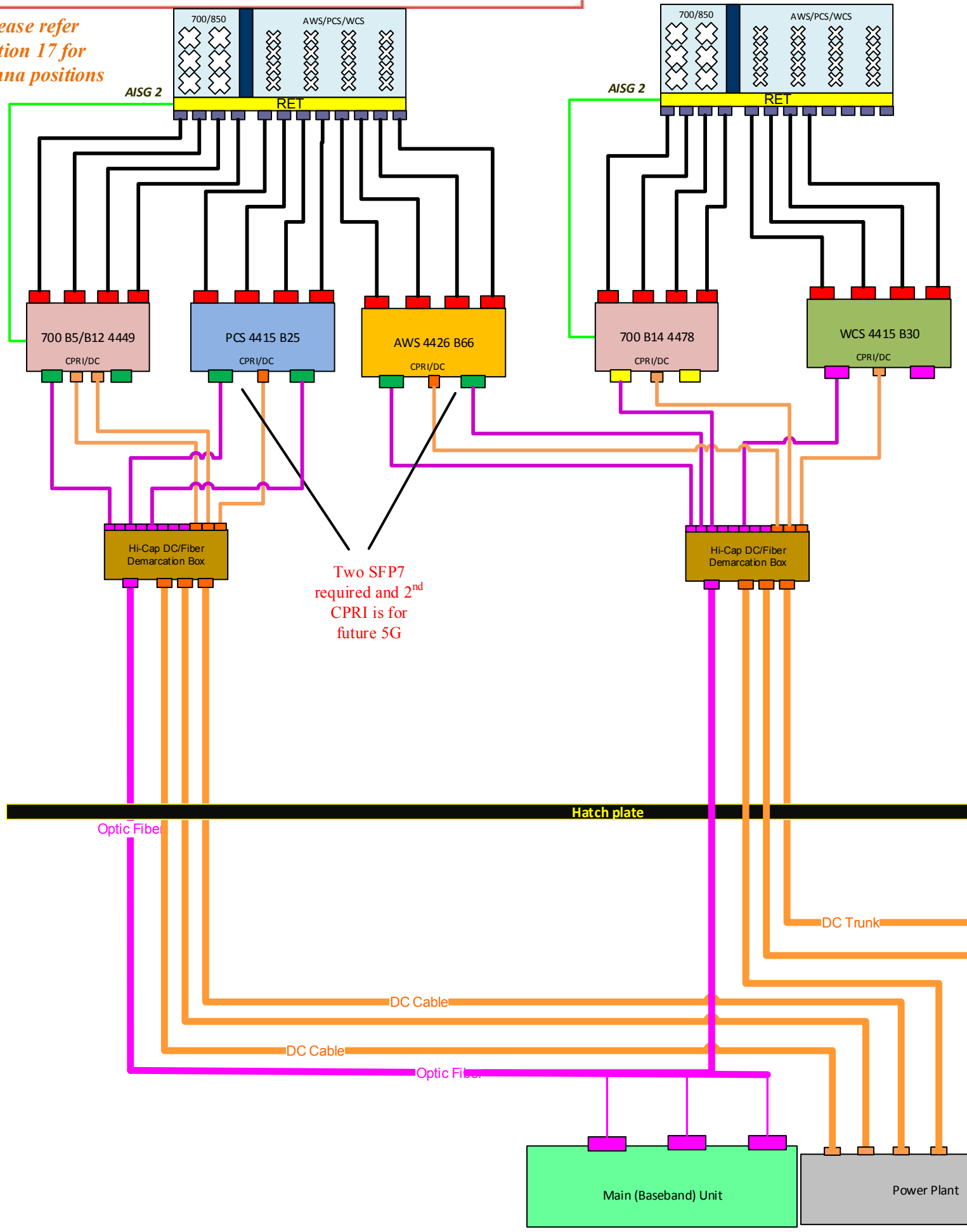
	PORT 5	142592.C.WCS.4G.tmp1		ECL02120_3C_1			LTE WCS	NNH4-65C-R6-V3_2350MHz_02DT	15.79		2	TOP	FIBER										

Diagram - Sector	A	Diagram File Name - 368-712_ALPHA_BETA_GAMMA_12Port_700-B17-4449_PCS-4415_AWS-4426_12Port_700-B14-4T4R-Top_WCS-4415-B30.vsd					
Atoll Site Name -	ECL02120	Location Name -	368-712	Market -	RALEIGH	Market Cluster -	NORTH CAROLINA/SOUTH CAROLINA
Comm							

Alpha/Beta/Gamma Sector

Important Note:
For detailed radio to antenna wiring refer to the latest 4T4R Antenna/Radio Port Connections Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook

Please refer section 17 for Antenna positions



WORKFLOW SUMMARY							
Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments	PACE Status
06/17/2020	Preliminary In Progress	au844f	Preliminary Submitted for Approval	SH0548	Promote	NSB RFDSs	SER-RVWN-18-04951 FAILURE 06/17/2020 12:13:25 PM NER-RVWN-20-03306 MRVWN005694 SUCCESS 06/17/2020 12:13:25 PM NER-RVWN-20-03307 MRVWN005668 SUCCESS 06/17/2020 12:13:25 PM NER-RVWN-20-03308 MRVWN005681 SUCCESS 06/17/2020 12:13:25 PM NER-RVWN-20-03309 MRVWN005680 SUCCESS 06/17/2020 12:13:25 PM
06/18/2020	Preliminary Submitted for Approval	SH0548	Preliminary Approved	CA130Y	Promote		