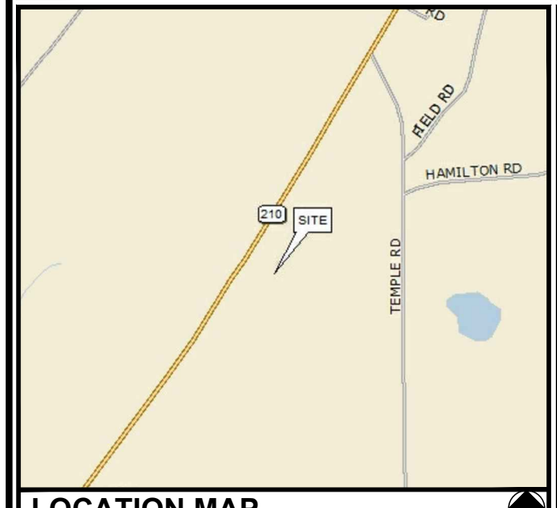
AT&T SITE NUMBER :	**368-215**
PROJECT DESCRIPTION:	**LTE 2C UPGRADE**
TOWER TYPE:	**288' GUYED**
SITE ADDRESS:	**5091 HWY 210 SOUTH BUNNLEVEL, NC 28323 (HARNETT COUNTY)**
JURISDICTION:	**HARNETT COUNTY**
PRESENT OCCUPANCY TYPE:	**TELECOMMUNICATIONS FACILITY**
CURRENT ZONING:	**UNKNOWN**
PARCEL ID #:	**0547-16-2440.000**

PROJECT INFORMATION

LATITUDE:	**N 35° 20' 02.76" (35.3341000)***
LONGITUDE:	**W 78° 51' 33.54" (-78.8593167)***
GROUND ELEV. (AMSL) =	**247'± ***

***INFORMATION PROVIDED BY AT&T**

TOWER COORDINATES



LOCATION MAP

FROM RALEIGH: HEAD WEST ON E SOUTH ST TOWARD S SALISBURY ST. TAKE THE 1ST LEFT ONTO S SALISBURY ST. CONTINUE ONTO S WILMINGTON ST. CONTINUE STRAIGHT ONTO US-401 S/FAYETTEVILLE RD. CONTINUE TO FOLLOW US-401 S. TURN RIGHT ONTO N MAIN ST. TURN RIGHT ONTO N CAROLINA 210 S. SITE WILL BE ON THE LEFT.

DRIVING DIRECTIONS

PROJECT INFORMATION:

5091 HIGHWAY 210 SOUTH
BUNNLEVEL, NC 28323
(HARNETT COUNTY)

AT&T SITE #: 368-215
FA LOCATION CODE: 10017387

TOWER OWNER:

NAME:	**AMERICAN TOWER CORPORATION**
ADDRESS:	**3500 REGENCY PKWY, STE 100**
CITY, STATE, ZIP:	**CARY, NC 27518**
CONTACT:	**GREG CSAPO**
PHONE:	**(919) 749-6927**
SITE #:	**21271**
SITE NAME:	**HARMONY**

APPLICANT/LESSEE:

NAME:	**AT&T MOBILITY**
ADDRESS:	**2002 PISGAH CHURCH ROAD, STE 300**
CITY, STATE, ZIP:	**GREENSBORO, NC 27455**
CONTACT:	**KEN WELKER**
PHONE:	**(336) 549-9987**
NOC #:	**(800) 638-2822**

SITE PROJECT MANAGER:

NAME:	**MASTEC NETWORK SOLUTIONS**
ADDRESS:	**1000 CENTRE GREEN WAY, SUITE 300**
CITY, STATE, ZIP:	**CARY, NC 27513**
CONTACT:	**MATT HOLMES**
PHONE:	**(919) 674-5846**

CIVIL ENGINEER:

NAME:	**TOWER ENGINEERING PROFESSIONALS**
ADDRESS:	**326 TRYON ROAD**
CITY, STATE, ZIP:	**RALEIGH, NC 27603**
CONTACT:	**KIMBERLY S. MARTIN, P.E.**
PHONE:	**(919) 661-6351**

ELECTRICAL ENGINEER:

NAME:	**TOWER ENGINEERING PROFESSIONALS**
ADDRESS:	**326 TRYON ROAD**
CITY, STATE, ZIP:	**RALEIGH, NC 27603**
CONTACT:	**MARK S. QUAKENBUSH, P.E.**
PHONE:	**(919) 661-6351**

CONTACT INFORMATION

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:

1. **NORTH CAROLINA BUILDING CODE (2012 EDITION)**
2. **NORTH CAROLINA CODE COUNCIL**
3. **ANSI/TIA-222-G-2009**
4. **NCEC 2014 (NEC 2014 + NC ADDENDUM)**
5. **LOCAL BUILDING CODE**
6. **CITY/COUNTY ORDINANCES**

CODE COMPLIANCE

UTILITIES:

POWER COMPANY:	**PROGRESS ENERGY**
CONTACT:	**CUSTOMER SERVICE**
PHONE:	**(800) 452-2777**
METER # NEAR SITE:	**13114542**
TELEPHONE COMPANY:	**CENTURYLINK**
CONTACT:	**CUSTOMER SERVICE**
PHONE:	**(800) 786-6272**
PHONE # NEAR SITE:	**(910) 893-6491**
PEDESTAL # NEAR SITE:	**UNKNOWN**

APPLICANT/LESSEE:

at&t

2002 PISGAH CHURCH ROAD, SUITE 300
GREENSBORO, NC 27455
OFFICE: (336) 545-2137
NOC #: (800) 638-2822

PLANS PREPARED FOR:

MasTec
Network Solutions

1000 CENTRE GREEN WAY, SUITE 300
CARY, NC 27513
OFFICE: (919) 674-5846

SHEET	DESCRIPTION	REV
T1	TITLE SHEET	1
T2	NC APPENDIX B I	1
T3	NC APPENDIX B II	1
T4	NC APPENDIX B III	1
T5	NC APPENDIX B IV	1
N1	GENERAL NOTES	1
C1	SITE PLAN	1
C2	EXISTING TOWER ELEVATION & ANTENNA SCHEDULE	1
C2A	EXISTING ANTENNA ORIENTATION	1
C2B	PROPOSED TOWER ELEVATION & ANTENNA LAYOUT	1
C2C	PROPOSED ANTENNA/CABLE SCHEDULE	1
C3	EQUIPMENT PLAN	1
E1	ELECTRICAL NOTES	1
E2	TYPICAL LTE ONE-LINE DIAGRAM	1
E3	TYPICAL LTE RISER DIAGRAM	1

INDEX OF SHEETS

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603-5263
OFFICE: (919) 661-6351
www.tepgroup.net

N.C. LICENSE # C-1794

REV	DATE	ISSUED FOR:
1	11-08-17	CONSTRUCTION
0	10-30-17	PRELIMINARY

DRAWN BY: BSE | CHECKED BY: CSN

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 027920 ENGINEER KIMBERLY S. MARTIN

November 8, 2017

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 042109 ENGINEER MARK S. QUAKENBUSH

November 8, 2017

SHEET NUMBER: **T-1**

REVISION: **1**

TEP #: 32795.84802

2012 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: AT&T 368-215
Address: 5091 Highway 210 South, Bunnlevel, NC Zip Code 28323
Proposed Use: Telecommunications Facility
Owner/Authorized Agent: KEN WELKER Phone # (336) 549 - 9987 E-Mail _____
Owned By: ☐ City/County ☒ Private ☐ State
Code Enforcement Jurisdiction: ☐ City_____ ☒ County Harnett ☐ State

LEAD DESIGN PROFESSIONAL: Kimberly S. Martin 037920 (919) 661-6351 ksmartin@tepgroup.net

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural				( )	
Civil	Tower Engineering Professionals	Kimberly S. Martin	037920	(919)661-6351	ksmartin@tepgroup.net
Electrical	Tower Engineering Professionals	Mark S. Quakenbush	042109	(919)661-6351	mquakenbush@tepgroup.net
Fire Alarm				( )	
Plumbing				( )	
Mechanical				( )	
Sprinkler-Standpipe				( )	
Structural				( )	
Retaining Walls >5' High				( )	
Other				( )	

2012 EDITION OF NC CODE FOR: ☐ New Construction ☐ Addition ☐ Upfit
EXISTING: ☐ Reconstruction ☐ Alteration ☐ Repair ☐ Renovation
CONSTRUCTED: (date) _____ **ORIGINAL USE(S) (Ch. 3):** _____
RENOVATED: (date) _____ **CURRENT USE(S) (Ch. 3):** _____
PROPOSED USE(S) (Ch. 3): _____

EXISTING EQUIPMENT NO CHANGE

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ I-B ☐ II-A ☐ II-B ☐ III-A ☐ III-B ☐ IV ☐ V-A ☐ V-B
(check all that apply)
Sprinklers: ☐ No ☐ Partial ☐ Yes ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☐ No ☐ Yes ☐ Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Fire District: ☐ No ☐ Yes (Primary) **Flood Hazard Area:** ☐ No ☐ Yes
Building Height: (feet) _____
Gross Building Area:

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	SUB-TOTAL
6th Floor			
5th Floor			
4th Floor			
3rd Floor			
2nd Floor			
Mezzanine			
1st Floor			
Basement			
TOTAL			

ALLOWABLE AREA

Occupancy:
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 ☐ I-2 ☐ I-3 ☐ I-4
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
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 Occupancies:
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 ☐ I-2 ☐ I-3 ☐ I-4
I-3 Condition ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5
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 ☐

Incidental Uses (Table 508.2.5):
☐ Furnace room where any piece of equipment is more than 400,000 Btu per hour input
☐ Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
☐ Refrigerant machine room
☐ Hydrogen cutoff rooms, not classified as Group H
☐ Incinerator rooms
☐ Paint shops, not classified as Group H, located in occupancies other than Group F
☐ Laboratories and vocational shops, not classified as Group H, located in a Group E or I-2 occupancy
☐ Laundry rooms over 100 square feet
☐ Group I-3 cells equipped with padded surfaces
☐ Group I-2 waste and linen collection rooms
☐ Waste and linen collection rooms over 100 square feet
☐ Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons, or a lithium-ion capacity of 1,000 pounds used for facility standby power, emergency power or uninterrupted power supplies
☐ Rooms containing fire pumps
☐ Group I-2 storage rooms over 100 square feet
☐ Group I-2 commercial kitchens
☐ Group I-2 laundries equal to or less than 100 square feet
☐ Group I-2 rooms or spaces that contain fuel-fired heating equipment

Special Uses: ☐ 402 ☐ 403 ☐ 404 ☐ 405 ☐ 406 ☐ 407 ☐ 408 ☐ 409 ☐ 410 ☐ 411 ☐ 412 ☐ 413 ☐ 414 ☐ 415 ☐ 416 ☐ 417 ☐ 418 ☐ 419 ☐ 420 ☐ 421 ☐ 422 ☐ 423 ☐ 424 ☐ 425 ☐ 426 ☐ 427

Special Provisions: ☐ 509.2 ☐ 509.3 ☐ 509.4 ☐ 509.5 ☐ 509.6 ☐ 509.7 ☐ 509.8 ☐ 509.9

Mixed Occupancy: ☐ No ☐ Yes Separation: _____ Hr. Exception: _____
☐ Incidental Use Separation (508.2.5)

EXISTING EQUIPMENT NO CHANGE

2012 NC Administrative Code and Policies

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at&t
2002 PISGAH CHURCH ROAD, SUITE 300
GREENSBORO, NC 27455

PLANS PREPARED FOR:
MasTec Network Solutions
1000 CENTRE GREEN WAY, SUITE 300
CARY, NC 27513

PROJECT INFORMATION:
AT&T #: 368-215
5091 HIGHWAY 210 SOUTH
BUNNLEVEL, NC 28323
(HARNETT COUNTY)

PLANS PREPARED BY:
TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603-5263
OFFICE: (919) 661-6351
www.tepgroup.net
N.C. LICENSE # C-1794

SEAL:
NORTH CAROLINA PROFESSIONAL SEAL 037920 ENGINEER KIMBERLY S. MARTIN
November 8, 2017

REV	DATE	ISSUED FOR:
1	11-08-17	CONSTRUCTION
0	10-30-17	PRELIMINARY

DRAWN BY: BSE CHECKED BY: CSN

SHEET TITLE:
NC APPENDIX B I

SHEET NUMBER: **T-2**
REVISION: 1
TEP#: 32795.84802

This separation is not exempt as a Non-Separated Use (see exceptions).

☐ 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.

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

_____ + _____ + ... = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 503[5] AREA	(C) AREA FOR FRONTAGE INCREASE[1]	(D) AREA FOR SPRINKLER INCREASE[2]	(E) ALLOWABLE AREA OR UNLIMITED[3]	(F) MAXIMUM BUILDING AREA[4]

[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 = _____ (F)
b. Total Building Perimeter = _____ (P)
c. Ratio (F/P) = _____ (F/P)
d. W = Minimum width of public way = _____ (W)
e. Percent of frontage increase I_f = 100 [F/P - 0.25] W/30 = _____ (%)

[2] The sprinkler increase per Section 506.3 is as follows:
a. Multi-story building I_s = 200 percent
b. Single story building I_s = 300 percent

[3] Unlimited area applicable under conditions of Section 507.

[4] Maximum Building Area = total number of stories in the building x E (506.4).

[5] The maximum area of open parking garages must comply with Table 406.3.5. The maximum area of air traffic control towers must comply with Table 412.1.2.

EXISTING EQUIPMENT NO CHANGE

ALLOWABLE HEIGHT

	ALLOWABLE (TABLE 503)	INCREASE FOR SPRINKLERS	SHOWN ON PLANS	CODE REFERENCE
Type of Construction	Type _____		Type _____	
Building Height in Feet		Feet = H + 20' = _____		
Building Height in Stories		Stories + 1 = _____		

FIRE PROTECTION REQUIREMENTS

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

* Indicate section number permitting reduction

EXISTING EQUIPMENT NO CHANGE

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 #: _____

☐ Fire and/or smoke rated wall locations (Chapter 7)
☐ Assumed and real property line locations

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PROJECT INFORMATION:
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326 TRYON ROAD
RALEIGH, NC 27603-5263
OFFICE: (919) 661-6351
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N.C. LICENSE # C-1794

SEAL:
NORTH CAROLINA PROFESSIONAL SEAL 037920 ENGINEER KIMBERLY S. MARTIN
November 8, 2017

REV	DATE	ISSUED FOR:
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0	10-30-17	PRELIMINARY

DRAWN BY: BSE | CHECKED BY: CSN

SHEET TITLE:
NC APPENDIX B II

SHEET NUMBER: **T-3**
REVISION: 1
TEP#: 32795.84802

- ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
- ☐ Existing structures within 30' of the proposed building
- ☐ Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.1)
- ☐ Occupant loads for each area
- ☐ Exit access travel distances (1016)
- ☐ Common path of travel distances (1014.3 & 1028.8)
- ☐ Dead end lengths (1018.4)
- ☐ Clear exit widths for each exit door
- ☐ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.1)
- ☐ 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 (1008.1.10)
- ☐ Location of doors with delayed egress locks and the amount of delay (1008.1.9.7)
- ☐ Location of doors with electromagnetic egress locks (1008.1.9.8)
- ☐ Location of doors equipped with hold-open devices
- ☐ Location of emergency escape windows (1029)
- ☐ The square footage of each fire area (902)
- ☐ The square footage of each smoke compartment (407.4)
- ☐ 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

EXISTING EQUIPMENT NO CHANGE

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	
TOTAL						

STRUCTURAL DESIGN

DESIGN LOADS:

Importance Factors: Wind (I_W) _____
Snow (I_S) _____
Seismic (I_E) _____

Live Loads: Roof _____ psf
Mezzanine _____ psf
Floor _____ psf

Ground Snow Load: _____ psf

2012 NC Administrative Code and Policies

Wind Load: Basic Wind Speed _____ mph (ASCE-7)
Exposure Category _____
Wind Base Shears (for MWFRS) Vx = _____ Vy = _____

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☐ C ☐ D

Provide the following Seismic Design Parameters:
Occupancy Category (Table 1604.5) ☐ I ☐ II ☐ III ☐ IV
Spectral Response Acceleration S_S _____ %g S_1 _____ %g
Site Classification (Table 1613.5.2) ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F
Data Source: ☐ Field Test ☐ Presumptive ☐ Historical Data
Basic structural system (check one)
☐ Bearing Wall ☐ Dual w/Special Moment Frame
☐ Building Frame ☐ Dual w/Intermediate R/C or Special Steel
☐ Moment Frame ☐ Inverted Pendulum
Seismic base shear: V_X = _____ V_Y = _____
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) _____ psf
Presumptive Bearing capacity _____ psf
Pile size, type, and capacity _____

SPECIAL INSPECTIONS REQUIRED: ☐ Yes ☐ No

EXISTING EQUIPMENT NO CHANGE

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATERCLOSETS		URINALS	LAVATORIES		SHOWERS/ TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE		MALE	FEMALE		REGULAR	ACCESSIBLE
SPACE	EXISTING								
	NEW								
	REQUIRED								

SPECIAL APPROVALS

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

_____

_____

_____

2012 NC Administrative Code and Policies

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DRAWN BY: BSE CHECKED BY: CSN

SHEET TITLE:
NC APPENDIX B III

SHEET NUMBER: **T-4**
REVISION: 1
TEP#: 32795.84802

ENERGY SUMMARY

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.

Climate Zone: ☐ 3 ☐ 4 ☐ 5

Method of Compliance:

- ☐ Prescriptive (Energy Code)
- ☐ Performance (Energy Code)
- ☐ Prescriptive (ASHRAE 90.1)
- ☐ Performance (ASHRAE 90.1)

THERMAL ENVELOPE

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: _____

MECHANICAL SUMMARY

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:

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

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

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 Prescriptive Compliance
☐ 506.2.1 More Efficient Mechanical Equipment
☐ 506.2.2 Reduced Lighting Power Density
☐ 506.2.3 Energy Recovery Ventilation Systems
☐ 506.2.4 Higher Efficiency Service Water Heating
☐ 506.2.5 On-Site Supply of Renewable Energy
☐ 506.2.6 Automatic Daylighting Control Systems

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PLANS PREPARED FOR:
MasTec Network Solutions
1000 CENTRE GREEN WAY, SUITE 300
CARY, NC 27513

PROJECT INFORMATION:
AT&T #: 368-215
5091 HIGHWAY 210 SOUTH
BUNNLEVEL, NC 28323
(HARNETT COUNTY)

PLANS PREPARED BY:
TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603-5263
OFFICE: (919) 661-6351
www.tepgroup.net
N.C. LICENSE # C-1794

SEAL:
NORTH CAROLINA PROFESSIONAL SEAL 037920 ENGINEER KIMBERLY S. MARTIN
November 8, 2017

REV	DATE	ISSUED FOR:
1	11-08-17	CONSTRUCTION
0	10-30-17	PRELIMINARY

DRAWN BY: BSE | CHECKED BY: CSN

SHEET TITLE:
NC APPENDIX B IV

SHEET NUMBER: **T-5**
REVISION: 1
TEP#: 32795.84802

1. ALL REFERENCES MADE TO OWNER IN THESE DOCUMENTS SHALL BE CONSIDERED AT&T OR IT'S DESIGNATED REPRESENTATIVE.

2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING TO HAVE SUFFICIENT EXPERIENCE AND ABILITY, IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF NORTH CAROLINA.

3. THE STRUCTURE SHALL BE DESIGNED IN ACCORDANCE WITH ANSI/TIA-222-G-2-2009. THIS CONFORMS TO THE REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE, 2012 EDITION.

4. WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE NORTH CAROLINA BUILDING CODE, 2012 EDITION.

5. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.

6. ALL HARDWARE ASSEMBLY MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERSEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.

7. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.

8. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. CONTRACTOR SHALL NOT SCALE CONTRACT DRAWINGS IN LIEU OF FIELD VERIFICATION. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE PROCEDURES.

9. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK. RENTAL CHARGES, SAFETY, PROTECTION AND MAINTENANCE OF RENTED EQUIPMENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

11. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE AT&T PROJECT MANAGER.

12. BILL OF MATERIALS AND PART NUMBERS LISTED ON CONSTRUCTION DRAWINGS ARE INTENDED TO AID CONTRACTOR/OWNER. CONTRACTOR/OWNER SHALL VERIFY PARTS AND QUANTITIES WITH MANUFACTURER PRIOR TO BIDDING AND/OR ORDERING MATERIALS.

13. ALL PERMITS THAT MUST BE OBTAINED ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.

14. 24 HOURS PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, THE CONTRACTOR MUST NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER.

15. THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC.) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. AFTER REWORKING, IF THE MATERIAL REMAINS UNSUITABLE, THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL. ALL SUBGRADES SHALL BE PROOFROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFT MATERIAL SHALL BE REWORKED OR REPLACED.

16. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL PIPES, DITCHES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES CAUSED BY FAILURE TO MAINTAIN DRAINAGE STRUCTURE IN OPERABLE CONDITION.

17. THE OWNER SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHILE WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.

18. ANY BUILDINGS ON THIS SITE ARE INTENDED TO SHELTER EQUIPMENT WHICH WILL ONLY BE PERIODICALLY MAINTAINED AND ARE NOT INTENDED FOR HUMAN OCCUPANCY.

19. TEMPORARY FACILITIES FOR PROTECTION OF TOOLS AND EQUIPMENT SHALL CONFORM TO LOCAL REGULATIONS AND SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

20. THE CONTRACTOR AND ITS SUBCONTRACTORS SHALL CARRY LIABILITY INSURANCE IN THE AMOUNTS AND FORM IN ACCORDANCE WITH AT&T SPECIFICATIONS. CERTIFICATES DEMONSTRATING PROOF OF COVERAGE SHALL BE PROVIDED TO AT&T PRIOR TO THE START OF THE WORK ON THE PROJECT.

21. THE CONTRACTOR SHALL CONTACT ALL APPLICABLE UTILITY SERVICES TO VERIFY LOCATIONS OF EXISTING UTILITIES AND REQUIREMENTS FOR NEW UTILITY CONNECTIONS PRIOR TO EXCAVATING.

22. THE CONTRACTOR SHALL MAINTAIN THE JOB CLEAR OF TRASH AND DEBRIS. ALL WASTE MATERIALS SHALL BE REMOVED FROM THE SITE PRIOR TO SUBSTANTIAL COMPLETION AND PRIOR TO FINAL ACCEPTANCE. THE CONTRACTOR SHALL FURNISH ONE 55 GALLON BARREL, AND TRASH BAGS, AND SHALL REMOVE TRASH, DEBRIS, ETC., ON A DAILY BASIS.

23. THE CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL CONDITIONS PRIOR TO SUBMITTING A PROPOSAL. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS SHOWN ON THESE DRAWINGS WITH THOSE AT THE SITE. ANY VARIATION WHICH REQUIRES PHYSICAL CHANGE SHALL BE BROUGHT TO THE ATTENTION OF THE AT&T PROJECT ENGINEER FOR FACILITIES/CONSTRUCTION.

24. THE CONTRACTOR SHALL GUARANTEE THE WORK PERFORMED ON THE PROJECT BY THE CONTRACTOR AND ANY OR ALL OF THE SUBCONTRACTORS WHO PERFORMED WORK FOR THE CONTRACTOR ON THIS PROJECT. THE GUARANTEE SHALL BE FOR A FULL YEAR FOLLOWING ISSUANCE OF THE FINAL PAYMENT OF RETAINAGE. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.

GENERAL NOTES

PLANS PREPARED FOR:

at&t

2002 PISGAH CHURCH ROAD, SUITE 300
GREENSBORO, NC 27455

PLANS PREPARED FOR:

MasTec
Network Solutions

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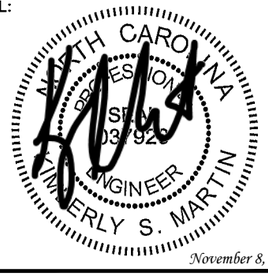
SEAL:



November 8, 2017

REV	DATE	ISSUED FOR:
1	11-08-17	CONSTRUCTION
0	10-30-17	PRELIMINARY

DRAWN BY: AAK | CHECKED BY: CSN

SHEET TITLE:

GENERAL NOTES

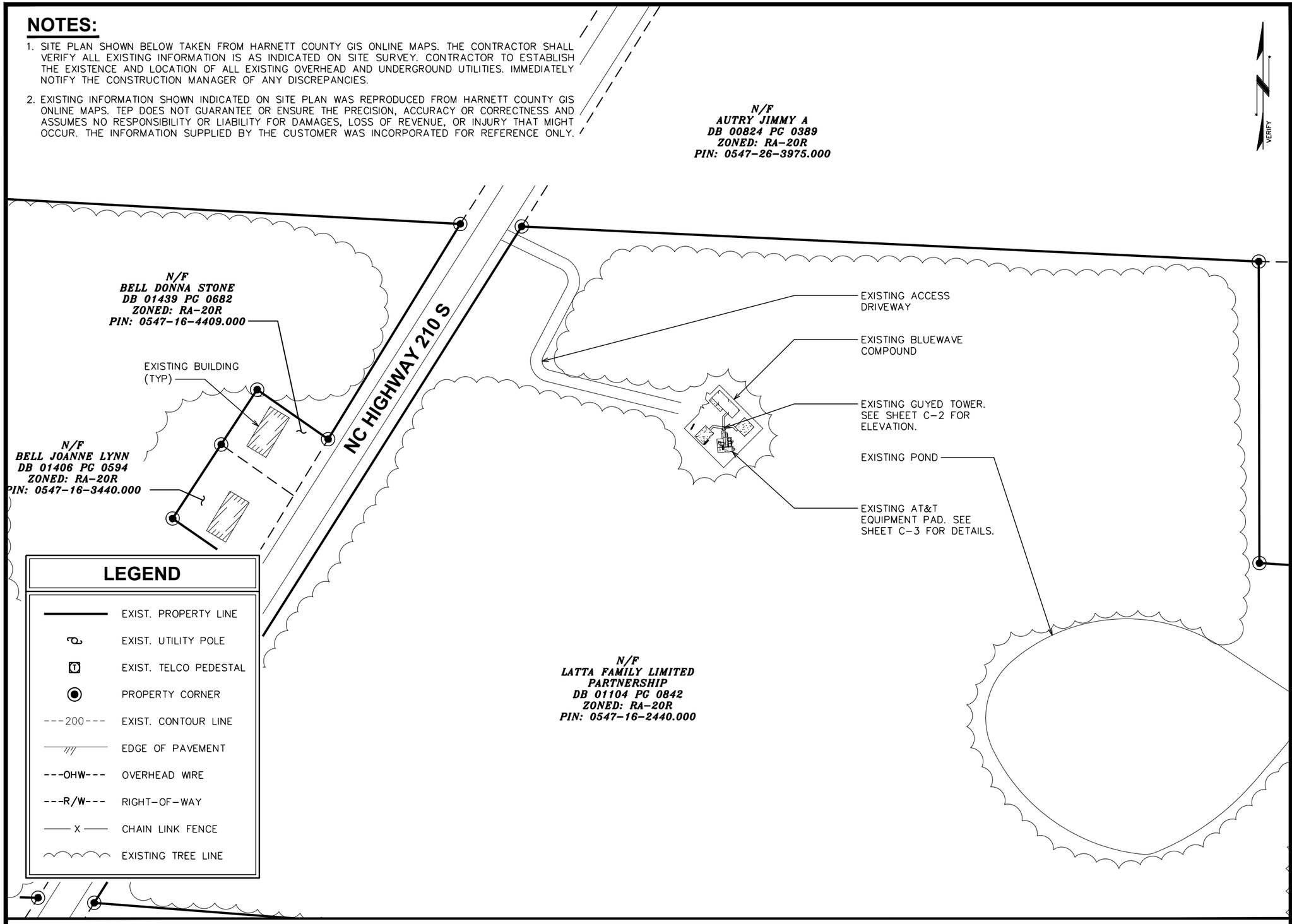
SHEET NUMBER: **N-1**

REVISION: 1

TEP#: 32795.84802

NOTES:

1. SITE PLAN SHOWN BELOW TAKEN FROM HARNETT COUNTY GIS ONLINE MAPS. THE CONTRACTOR SHALL VERIFY ALL EXISTING INFORMATION IS AS INDICATED ON SITE SURVEY. CONTRACTOR TO ESTABLISH THE EXISTENCE AND LOCATION OF ALL EXISTING OVERHEAD AND UNDERGROUND UTILITIES. IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES.
2. EXISTING INFORMATION SHOWN INDICATED ON SITE PLAN WAS REPRODUCED FROM HARNETT COUNTY GIS ONLINE MAPS. TEP DOES NOT GUARANTEE OR ENSURE THE PRECISION, ACCURACY OR CORRECTNESS AND ASSUMES NO RESPONSIBILITY OR LIABILITY FOR DAMAGES, LOSS OF REVENUE, OR INJURY THAT MIGHT OCCUR. THE INFORMATION SUPPLIED BY THE CUSTOMER WAS INCORPORATED FOR REFERENCE ONLY.



SITE PLAN

SCALE: 1" = 100'

0 100 200

SCALE IN FEET

PLANS PREPARED FOR:

at&t

2002 PISGAH CHURCH ROAD, SUITE 300
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PLANS PREPARED FOR:

MasTec
Network Solutions

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SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 037920 ENGINEER KIMBERLY S. MARTIN

November 8, 2017

REV	DATE	ISSUED FOR:
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0	10-30-17	PRELIMINARY

DRAWN BY: JTC | CHECKED BY: CWB

SHEET TITLE:

SITE PLAN

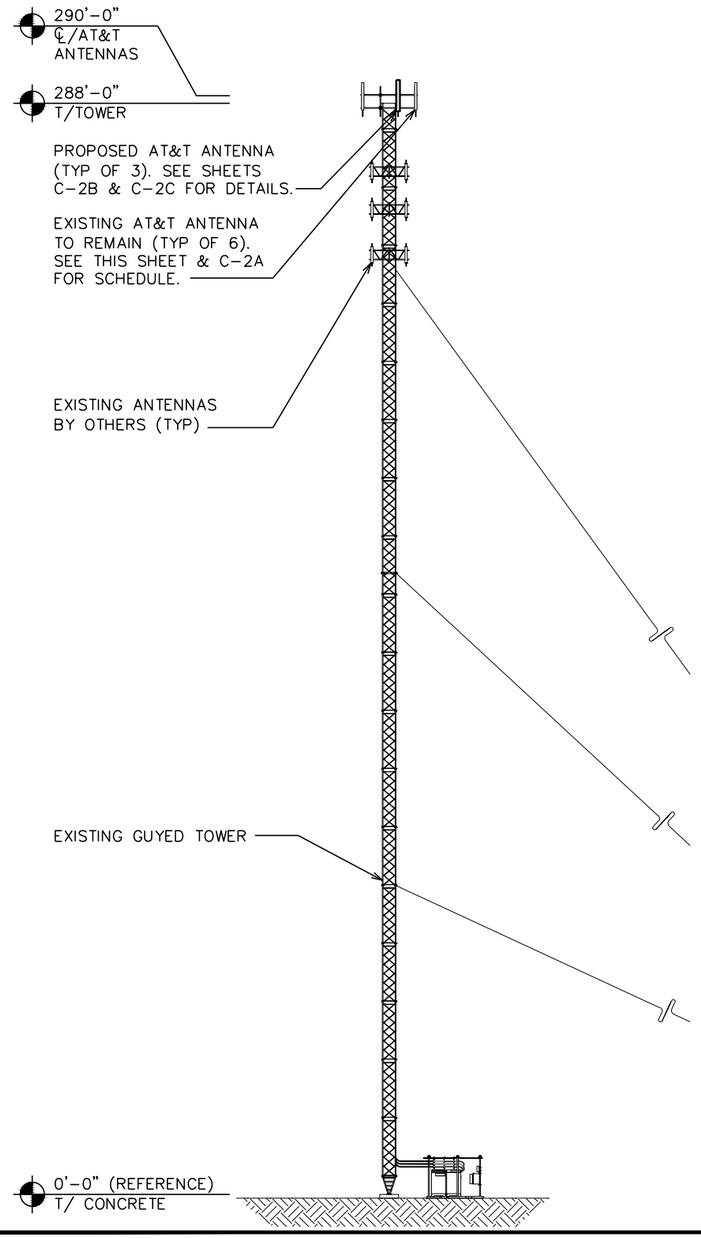
SHEET NUMBER: **C-1**

REVISION: 1

TEP#: 32795.84802

NOTES:

1. PROPOSED CABLES TO BE ROUTED PER SPECIFICATIONS OF STRUCTURAL ANALYSIS.
2. THE TOWER DRAWING IS ONLY A GRAPHIC REPRESENTATION OF THE STRUCTURE. THE ACTUAL TOWER IN THE FIELD MAY VARY.



TOWER ELEVATION

SCALE: 1" = 40'

0 40 80

SCALE IN FEET

GENERAL NOTES:

1. THIS ANTENNA ORIENTATION PLAN IS A SCHEMATIC. THE CONTRACTOR SHALL VERIFY TOWER ORIENTATION AND FIELD COORDINATE REQUIRED ADJUSTMENTS TO ACHIEVE THE DESIRED ANTENNA AZIMUTHS.
2. ANTENNA CENTERLINE HEIGHT BASED ON TOP OF FOOTING ELEVATION.
3. ALL ANTENNAS, CABLES AND MOUNTS SHALL BE INSTALLED IN ACCORDANCE WITH THE STRUCTURAL ENGINEER'S RECOMMENDATIONS IN A MANNER CONSISTENT WITH THE STRUCTURAL ANALYSIS REPORT.
4. ALL ANTENNA BRACKETS PER ANTENNA MANUFACTURER, OR EQUAL. CONTRACTOR TO COORDINATE REQUIRED MECHANICAL DOWN TILT WITH AT&T.
5. ALL ANTENNA INFORMATION TO BE CONFIRMED WITH AT&T RF DESIGN PRIOR TO INSTALLATION.
6. TEP DID NOT PERFORM A STRUCTURAL ANALYSIS ON THE MOUNT OR THE TOWER. IT IS THE CARRIER'S RESPONSIBILITY TO ENSURE MOUNT AND TOWER CAN SUPPORT ADDITIONAL LOADS.
7. EXISTING LOADING INFORMATION PROVIDED BY MASTEC NETWORK SOLUTIONS, AT&T RFDS ID: 1748176.

EXISTING ANTENNA/CABLE SCHEDULE

ANT. MARK	SECTOR	TECH.	MANUFACTURER/ MODEL #	AZIMUTH (TN)	RAD CENTER	ELEC. D-TILT	TMA MODEL	COAX/ CABLE	SURGE PROTECTION	RRU MODEL
A1	ALPHA	*GSM 1900	*KATHREIN 742-213	355°	290'	2°	*(1) RFS ATM192012-0	*(2) 2¼" COAX		
A3	ALPHA	LTE 700	**ANDREW SBNH-1D6565C	355°	290'	3°		(1) FIBER$_{18}$ (2) DC POWER	(1) DC6-48-80-18-8C	(1) RRUS-11
A4	ALPHA	UMTS 1900	KATHREIN 742-213	355°	290'	2°	(1) RFS ATM192012-0	(1) ⅜" RET (2) 2¼" COAX		
B1	BETA	*GSM 1900	*KATHREIN 741-989	115°	290'	2°	*(1) RFS ATM192012-0	*(2) 2¼" COAX		
B3	BETA	LTE 700	**ANDREW SBNH-1D6565C	115°	290'	3°				(1) RRUS-11
B4	BETA	UMTS 1900	KATHREIN 741-989	115°	290'	2°	(1) RFS ATM192012-0	(2) 2¼" COAX		
C1	GAMMA	*GSM 1900	*KATHREIN 741-989	235°	290'	2°	*(1) RFS ATM192012-0	*(2) 2¼" COAX		
C3	GAMMA	LTE 700	**ANDREW SBNH-1D6565C	235°	290'	3°				(1) RRUS-11
C4	GAMMA	UMTS 1900	KATHREIN 741-989	235°	290'	2°	(1) RFS ATM192012-0	(2) 2¼" COAX		

* – EXISTING GSM TECHNOLOGY & EQUIPMENT TO REMAIN INACTIVE; GSM TMA TO BE RELOCATED TO UMTS ANTENNA
** – EXISTING AT&T ANTENNA TO BE REPLACED

EXISTING ANTENNA/CABLE SCHEDULE

SCALE: N.T.S.

PLANS PREPARED FOR:

at&t

2002 PISGAH CHURCH ROAD, SUITE 300
GREENSBORO, NC 27455

PLANS PREPARED FOR:

MasTec Network Solutions

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N.C. LICENSE # C-1794

SEAL:

November 8, 2017

REV	DATE	ISSUED FOR:
1	11-08-17	CONSTRUCTION
0	10-30-17	PRELIMINARY

DRAWN BY: SSB CHECKED BY: CSN

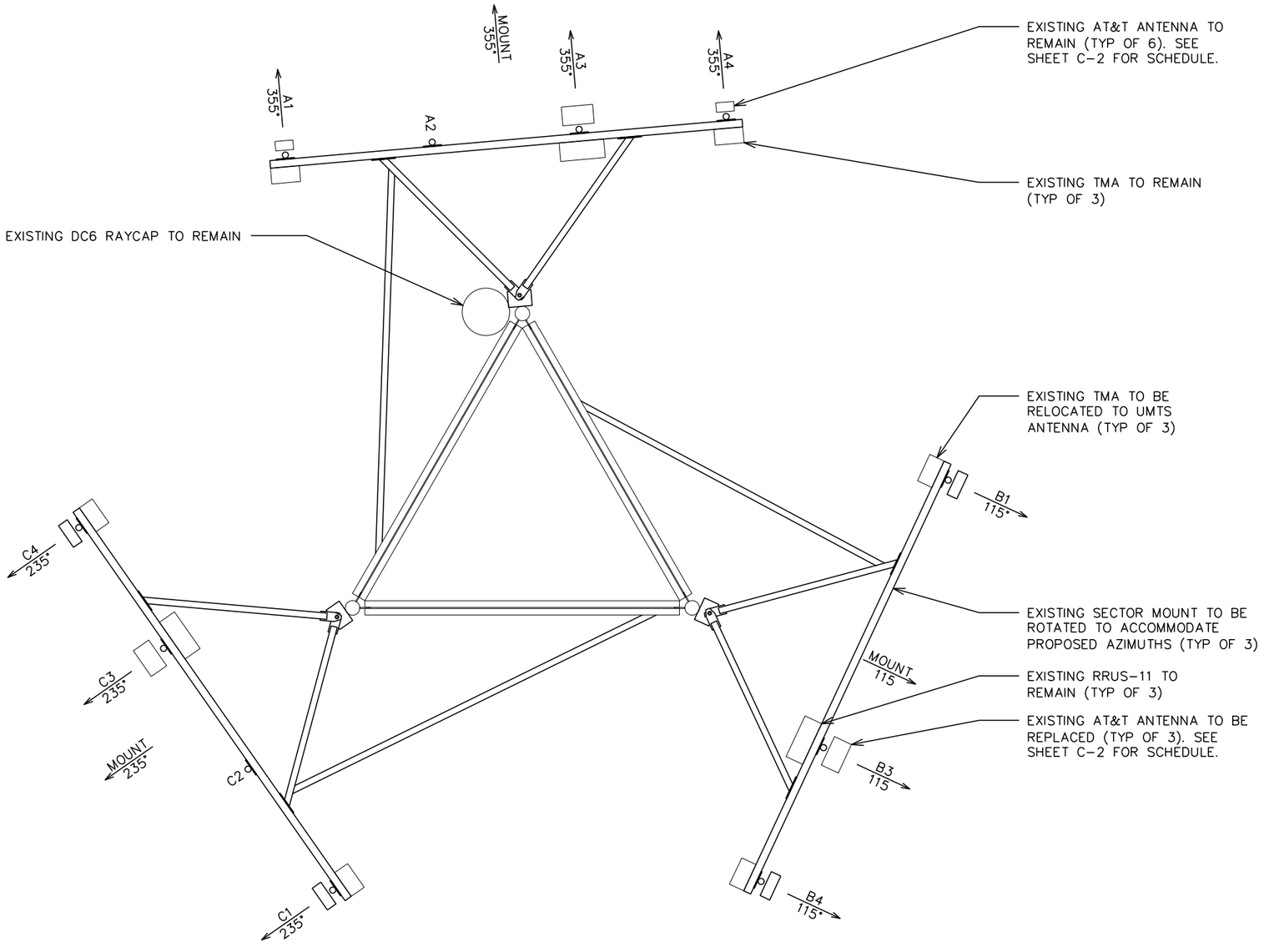
SHEET TITLE:

TOWER ELEVATION & EXISTING ANTENNA SCHEDULE

SHEET NUMBER: **C-2**

REVISION: 1

TEP#: 32795.84802



EXISTING ANTENNA ORIENTATION

SCALE: ¼" = 1'-0"

0 4 8

SCALE IN FEET

TRUE NORTH

PLANS PREPARED FOR:

at&t

2002 PISGAH CHURCH ROAD, SUITE 300
GREENSBORO, NC 27455

PLANS PREPARED FOR:

MasTec
Network Solutions

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SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 037920 ENGINEER RAVERLY S. MARTIN

November 8, 2017

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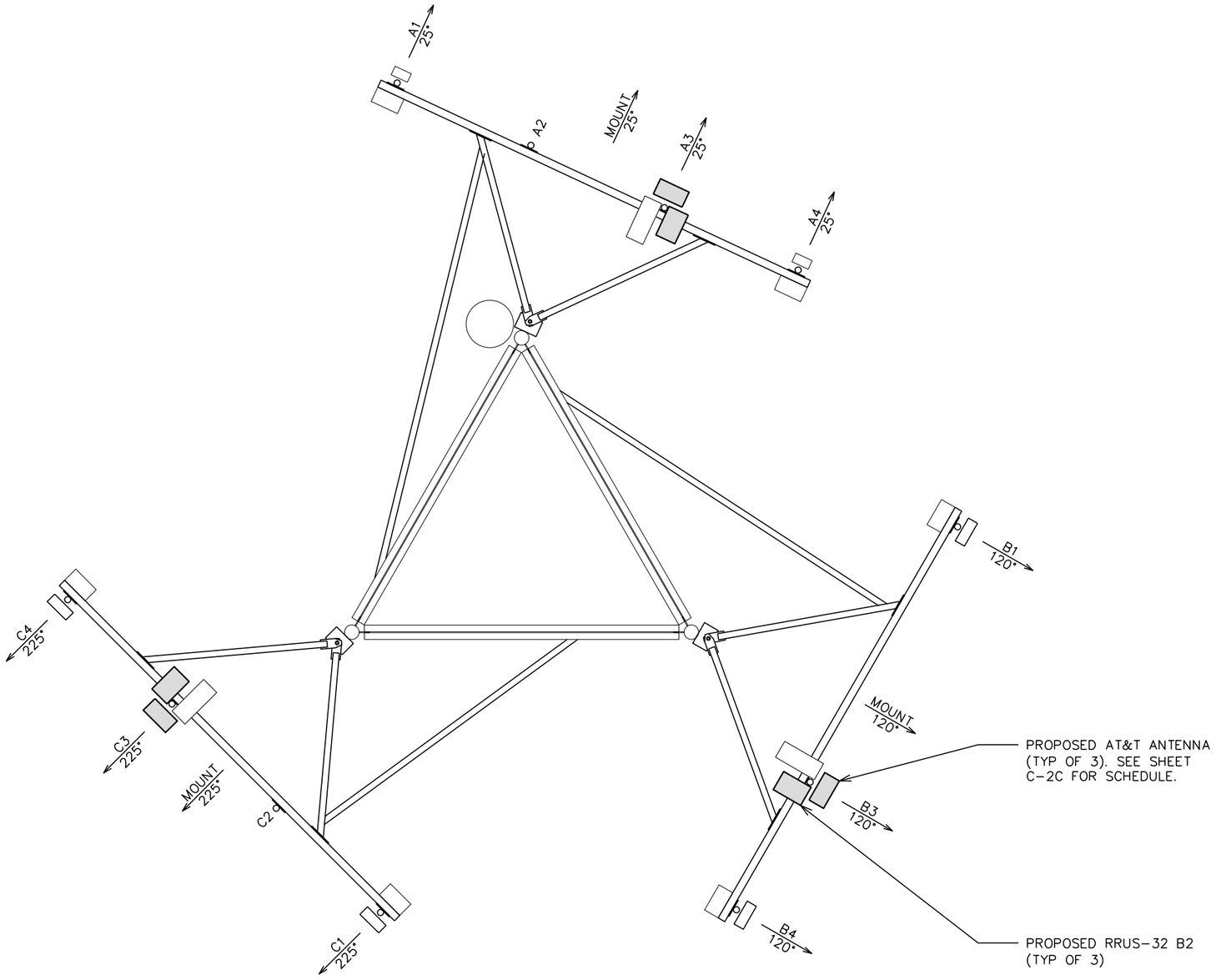
0	10-30-17	PRELIMINARY

DRAWN BY:	SSB	CHECKED BY:	CSN

SHEET TITLE:

EXISTING ANTENNA ORIENTATION

SHEET NUMBER:	REVISION:
C-2A	1
	TEP#: 32795.84802



PROPOSED ANTENNA ORIENTATION

SCALE: ¼" = 1'-0"

0 4 8

SCALE IN FEET

TRUE NORTH

PLANS PREPARED FOR:

at&t

2002 PISGAH CHURCH ROAD, SUITE 300
GREENSBORO, NC 27455

PLANS PREPARED FOR:

MasTec
Network Solutions

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PROJECT INFORMATION:

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SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 037920 ENGINEER KIMBERLY S. MARTIN

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REV	DATE	ISSUED FOR:
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DRAWN BY: SSB | CHECKED BY: CSN

SHEET TITLE:

PROPOSED ANTENNA ORIENTATION

SHEET NUMBER: **C-2B**

REVISION: **1**

TEP#: 32795.84802

GENERAL NOTES:

1. THIS ANTENNA ORIENTATION PLAN IS A SCHEMATIC. THE CONTRACTOR SHALL VERIFY TOWER ORIENTATION AND FIELD COORDINATE REQUIRED ADJUSTMENTS TO ACHIEVE THE DESIRED ANTENNA AZIMUTHS.
2. ANTENNA CENTERLINE HEIGHT BASED ON TOP OF FOOTING ELEVATION.
3. ALL ANTENNAS, CABLES AND MOUNTS SHALL BE INSTALLED IN ACCORDANCE WITH THE STRUCTURAL ENGINEER'S RECOMMENDATIONS IN A MANNER CONSISTENT WITH THE STRUCTURAL ANALYSIS REPORT.
4. ALL ANTENNA BRACKETS PER ANTENNA MANUFACTURER, OR EQUAL. CONTRACTOR TO COORDINATE REQUIRED MECHANICAL DOWN TILT WITH AT&T.
5. ALL ANTENNA INFORMATION TO BE CONFIRMED WITH AT&T RF DESIGN PRIOR TO INSTALLATION.
6. TEP DID NOT PERFORM A STRUCTURAL ANALYSIS ON THE MOUNT OR THE TOWER. IT IS THE CARRIER'S RESPONSIBILITY TO ENSURE MOUNT AND TOWER CAN SUPPORT ADDITIONAL LOADS.
7. EXISTING LOADING INFORMATION PROVIDED BY MASTEC NETWORK SOLUTIONS, AT&T RFDS ID: 1748176.
8. CABLE LENGTH TAKEN FROM AT&T RFDS. CONTRACTOR TO VERIFY LENGTH PRIOR TO ORDERING MATERIALS.
9. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM PROPOSED ANTENNAS AND MOUNT BRACKERS WILL FIT WITHIN THE CONCEALMENT SHROUD.

PROPOSED ANTENNA/CABLE SCHEDULE

ANT. MARK	SECTOR	TECH.	STATUS	MANUFACTURER/ MODEL #	AZIMUTH (TN)	RAD CENTER	ELEC. D-TILT	TMA MODEL	COAX/ CABLE	CABLE LENGTH	SURGE PROTECTION	RRU MODEL
A1	ALPHA	(X) GSM 1900	INACTIVE	(X) KATHREIN 742-213	25°	290'	2°		(2) 2¼" COAX (X)	±315.08'		
A3	ALPHA	(E) LTE 700 (P) LTE 1900	PROPOSED	(P) KMW EPBQ-652L8H8	25°	290'	3° 2°		(1) $FIBER_{18}$ (E) (2) DC POWER (E)	±315.08'	(1) DC6-48-60-18-8C (E)	(1) RRUS-11 (E) (1) RRUS-32 B2 (P)
A4	ALPHA	(E) UMTS 1900	EXISTING	(E) KATHREIN 742-213	25°	290'	2°	(2) RFS ATM192012-0 (E)	(1) ⅜" RET (E) (2) 2¼" COAX (E)	±315.08'		
B1	BETA	(X) GSM 1900	INACTIVE	(X) KATHREIN 741-989	120°	290'	2°		(2) 2¼" COAX (X)	±315.08'		
B3	BETA	(E) LTE 700 (P) LTE 1900	PROPOSED	(P) KMW EPBQ-652L8H8	120°	290'	3° 1°					(1) RRUS-11 (E) (1) RRUS-32 B2 (P)
B4	BETA	(E) UMTS 1900	EXISTING	(E) KATHREIN 741-989	120°	290'	2°	(2) RFS ATM192012-0 (E)	(2) 2¼" COAX (E)	±315.08'		
C1	GAMMA	(X) GSM 1900	INACTIVE	(X) KATHREIN 741-989	225°	290'	2°		(2) 2¼" COAX (X)	±315.08'		
C3	GAMMA	(E) LTE 700 (P) LTE 1900	PROPOSED	(P) KMW EPBQ-652L8H8	225°	290'	3° 1°					(1) RRUS-11 (E) (1) RRUS-32 B2 (P)
C4	GAMMA	(E) UMTS 1900	EXISTING	(E) KATHREIN 741-989	225°	290'	2°	(2) RFS ATM192012-0 (E)	(2) 2¼" COAX (E)	±315.08'		

(E) – EXISTING AT&T EQUIPMENT & TECHNOLOGY
(P) – PROPOSED AT&T EQUIPMENT & TECHNOLOGY
(X) – INACTIVE AT&T EQUIPMENT & TECHNOLOGY

PROPOSED ANTENNA/CABLE SCHEDULE

SCALE: N.T.S.

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at&t
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SEAL:
NORTH CAROLINA PROFESSIONAL SEAL 037020 ENGINEER KIMBERLY S. MARTIN
November 8, 2017

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DRAWN BY: SSB | CHECKED BY: CSN

SHEET TITLE:
PROPOSED ANTENNA/CABLE SCHEDULE

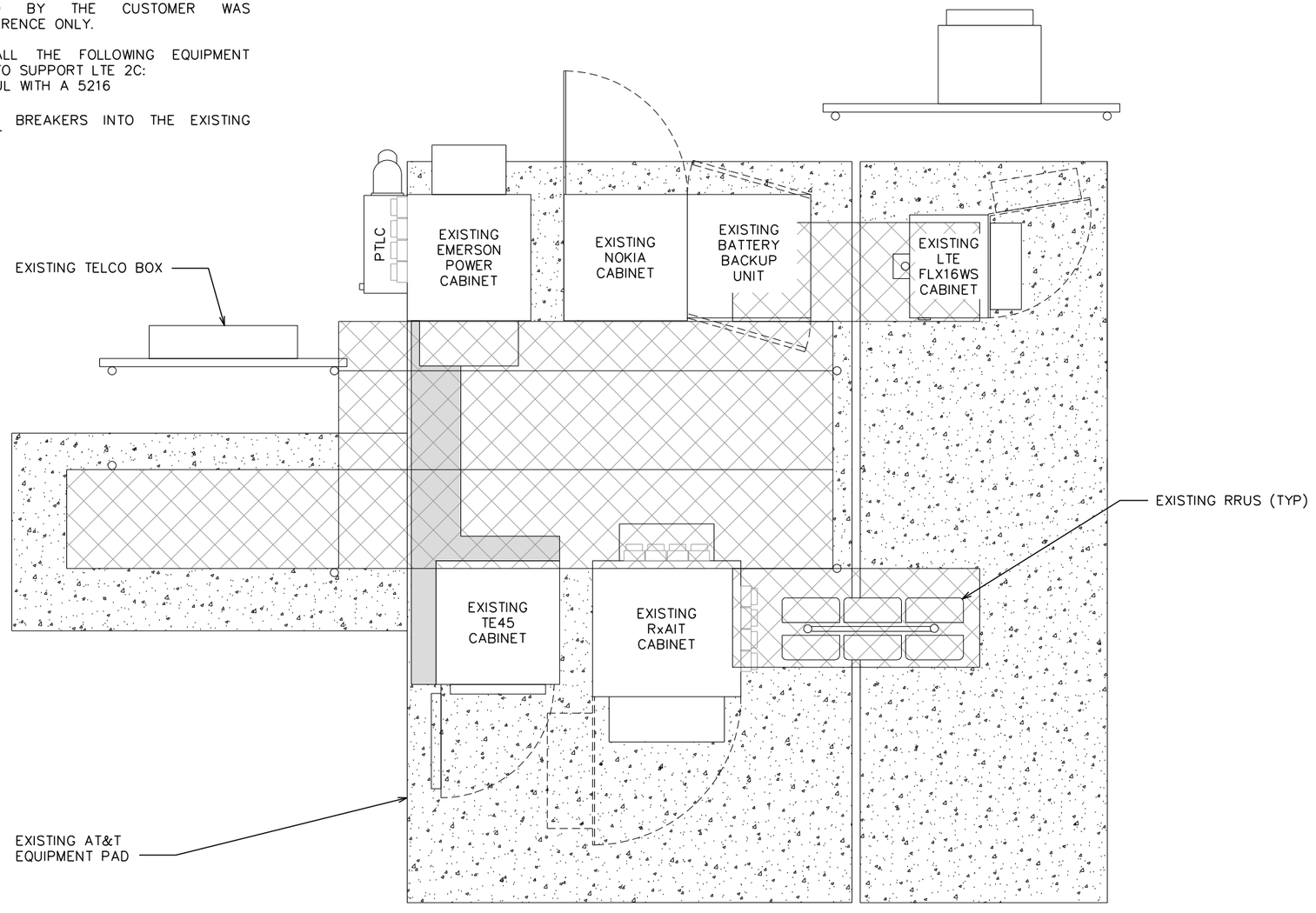
SHEET NUMBER: **C-2C**
REVISION: 1
TEP#: 32795.84802

NOTES:

1. EQUIPMENT PAD DRAWN FROM INFORMATION PROVIDED BY MASTEC. CONTRACTOR TO VERIFY ALL EXISTING INFORMATION IS AS INDICATED ON EQUIPMENT PAD DETAIL. IMMEDIATELY NOTIFY TEP OF ANY DISCREPANCIES.

2. TEP DID NOT VISIT THIS SITE AND INFORMATION WAS REPRODUCED FROM SKETCHES PROVIDED BY MASTEC. TEP DOES NOT GUARANTEE, OR ENSURE THE PRECISION, ACCURACY, OR CORRECTNESS AND ASSUMES NO RESPONSIBILITY OR LIABILITY FOR DAMAGES, LOSS OF REVENUE, OR INJURY THAT MIGHT OCCUR. THE INFORMATION SUPPLIED BY THE CUSTOMER WAS INCORPORATED FOR REFERENCE ONLY.

3. CONTRACTOR TO INSTALL THE FOLLOWING EQUIPMENT INSIDE EXISTING RACKS TO SUPPORT LTE 2C:
   - SWAP OUT DUL WITH A 5216
   - (1) XMU03
   - (3) 30 AMP BREAKERS INTO THE EXISTING TE45 CABINET



EXISTING EQUIPMENT LAYOUT

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

0 2 4

SCALE IN FEET

PLANS PREPARED FOR:

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GREENSBORO, NC 27455

PLANS PREPARED FOR:

MasTec
Network Solutions

1000 CENTRE GREEN WAY, SUITE 300
CARY, NC 27513

PROJECT INFORMATION:

AT&T #: 368-215

5091 HIGHWAY 210 SOUTH
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(HARNETT COUNTY)

PLANS PREPARED BY:

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N.C. LICENSE # C-1794

SEAL:

NORTH CAROLINA PROFESSIONAL SEAL 37920 ENGINEER KIMBERLY S. MARTIN

November 8, 2017

REV	DATE	ISSUED FOR:
1	11-08-17	CONSTRUCTION
0	10-30-17	PRELIMINARY

DRAWN BY: CRM | CHECKED BY: KSM

SHEET TITLE:

EQUIPMENT PLAN

SHEET NUMBER: **C-3**

REVISION: 1

TEP#: 32795.84802

SCOPE:

1. PROVIDE LABOR, MATERIALS, INSPECTION, AND TESTING TO PROVIDE CODE COMPLIANCE FOR ELECTRIC, TELEPHONE, AND GROUNDING/LIGHTNING SYSTEMS.

CODES:

1. THE INSTALLATION SHALL COMPLY WITH APPLICABLE LAWS AND CODES. THESE INCLUDE BUT ARE NOT LIMITED TO THE LATEST ADOPTED EDITIONS OF:
   A. THE NATIONAL ELECTRICAL SAFETY CODE
   B. THE NATIONAL ELECTRIC CODE – NFPA–70
   C. REGULATIONS OF THE SERVING UTILITY COMPANY
   D. LOCAL AND STATE AMENDMENTS
   E. THE INTERNATIONAL ELECTRIC CODE – IEC (WHERE APPLICABLE)
2. PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR.
3. AFTER COMPLETION AND FINAL INSPECTION OF THE WORK, THE OWNER SHALL BE FURNISHED A CERTIFICATE OF COMPLETION AND APPROVAL.

TESTING:

1. UPON COMPLETION OF THE INSTALLATION, OPERATE AND ADJUST THE EQUIPMENT AND SYSTEMS TO MEET SPECIFIED PERFORMANCE REQUIREMENTS. THE TESTING SHALL BE DONE BY QUALIFIED PERSONNEL.

GUARANTEE:

1. IN ADDITION TO THE GUARANTEE OF THE EQUIPMENT BY THE MANUFACTURER, EACH PIECE OF EQUIPMENT SPECIFIED HEREIN SHALL ALSO BE GUARANTEED FOR DEFECTS OF MATERIAL OR WORKMANSHIP OCCURRING DURING A PERIOD OF ONE (1) YEAR FROM FINAL ACCEPTANCE OF THE WORK BY THE OWNER AND WITHOUT EXPENSE TO THE OWNER.
2. THE WARRANTEE CERTIFICATES & GUARANTEES FURNISHED BY THE MANUFACTURERS SHALL BE TURNED OVER TO THE OWNER.

UTILITY CO-ORDINATION:

1. CONTRACTOR SHALL COORDINATE WORK WITH THE POWER AND TELEPHONE COMPANIES AND SHALL COMPLY WITH THE SERVICE REQUIREMENTS OF EACH UTILITY COMPANY.

EXAMINATION OF SITE:

1. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE JOB AND SHALL BECOME FAMILIAR WITH THE CONDITIONS AFFECTING THE PROPOSED ELECTRICAL INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. FAILURE TO COMPLY WITH THE INTENT OF THIS SECTION WILL IN NO WAY RELIEVE THE CONTRACTOR OF PERFORMING THE WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM OR SYSTEMS.

CUTTING, PATCHING AND EXCAVATION:

1. COORDINATION OF SLEEVES, CHASES, ETC., BETWEEN SUBCONTRACTORS WILL BE REQUIRED PRIOR TO THE CONSTRUCTION OF ANY PORTION OF THE WORK. CUTTING AND PATCHING OF WALLS, PARTITIONS, FLOORS, AND CHASES IN CONCRETE, WOOD, STEEL OR MASONRY SHALL BE DONE AS PROVIDED ON THE DRAWINGS.
2. NECESSARY EXCAVATIONS AND BACKFILLING INCIDENTAL TO THE ELECTRICAL WORK SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWING.
3. SEAL PENETRATIONS THROUGH RATED WALLS, FLOORS, ETC., WITH APPROVED METHOD AS LISTED BY UL.

RACEWAYS / CONDUITS GENERAL:

1. CONDUCTORS SHALL BE INSTALLED IN LISTED RACEWAYS. CONDUIT SHALL BE RIGID STEEL, EMT, SCH40 PVC, OR SCH80PVC AS INDICATED ON THE DRAWINGS. THE RACEWAY SYSTEM SHALL BE COMPLETE COMPLETE BEFORE INSTALLING CONDUCTORS.
2. EXTERIOR RACEWAYS AND GROUNDING SLEEVES SHALL BE SEALED AT POINTS OF ENTRANCE AND EXIT. THE RACEWAY SYSTEM SHALL BE BONDED PER NEC.

EXTERIOR CONDUIT:

1. EXPOSED CONDUIT SHALL BE NEATLY INSTALLED AND RUN PARALLEL OR PERPENDICULAR TO STRUCTURAL ELEMENTS. SUPPORTS AND MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED STEEL.
2. THE CONDUIT SHALL BE RIGID STEEL AT GRADE TRANSITIONS OR WHERE EXPOSED TO DAMAGE.
3. UNDERGROUND CONDUITS SHALL BE RIGID STEEL, SCH40 PVC, OR SCH80 PVC AS INDICATED ON THE DRAWINGS.
4. BURIAL DEPTH OF CONDUITS SHALL BE AS REQUIRED BY CODE FOR EACH SPECIFIC CONDUIT TYPE AND APPLICATION, BUT SHALL NOT BE LESS THAN THE FROST DEPTH AT THE SITE.
5. CONDUIT ROUTES ARE SCHEMATIC. CONTRACTOR SHALL FIELD VERIFY ROUTES BEFORE BID. COORDINATE ROUTE WITH WIRELESS CARRIER AND/OR BUILDING OWNER.

INTERIOR CONDUIT:

1. CONCEALED CONDUIT IN WALLS OR INTERIOR SPACES ABOVE GRADE MAY BE EMT OR PVC.
2. CONDUIT RUNS SHALL USE APPROVED COUPLINGS AND CONNECTORS. PROVIDE INSULATED BUSHING FOR ALL CONDUIT TERMINATIONS. CONDUIT RUNS IN A WET LOCATION SHALL HAVE WATERPROOF FITTINGS.
3. PROVIDE SUPPORTS FOR CONDUITS IN ACCORDANCE WITH NEC REQUIREMENTS. CONDUITS SHALL BE SIZED AS REQUIRED BY NEC.

EQUIPMENT:

1. DISCONNECT SWITCHES SHALL BE SERVICE ENTRANCE RATED, HEAVY DUTY TYPE.
2. CONTRACTOR SHALL VERIFY MAXIMUM AVAILABLE FAULT CURRENT AND COORDINATE INSTALLATION WITH THE LOCAL UTILITY BEFORE STARTING WORK. CONTRACTOR WILL VERIFY THAT EXISTING CIRCUIT BREAKERS ARE RATED FOR MORE THAN AVAILABLE FAULT CURRENT AND REPLACE AS NECESSARY.
3. NEW CIRCUIT BREAKERS SHALL BE RATED TO WITHSTAND THE MAXIMUM AVAILABLE FAULT CURRENT AS DETERMINED BY THE LOCAL UTILITY.

CONDUCTORS:

1. FURNISH AND INSTALL CONDUCTORS SPECIFIED IN THE DRAWINGS. CONDUCTORS SHALL BE COPPER AND SHALL HAVE TYPE THWN (MIN) (75° C) INSULATION, RATED FOR 600 VOLTS.
2. THE USE OF ALUMINUM CONDUCTORS SHALL BE LIMITED TO THE SERVICE FEEDERS INSTALLED BY THE UTILITY.
3. CONDUCTORS SHALL BE PROVIDED AND INSTALLED AS FOLLOWS:
   A. MINIMUM WIRE SIZE SHALL BE #12 AWG.
   B. CONDUCTORS SIZE #8 AND LARGER SHALL BE STRANDED. CONDUCTORS SIZED #10 AND #12 MAY BE SOLID OR STRANDED.
   C. CONNECTION FOR #10 AWG #12 AWG SHALL BE BY TWISTING TIGHT AND INSTALLING INSULATED PRESSURE OR WIRE NUT CONNECTIONS.
   D. CONNECTION FOR #8 AWG AND LARGER SHALL BE BY USE OF STEEL CRIMP–ON SLEEVES WITH NYLON INSULATOR.
3. CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH NEC STANDARDS.

UL COMPLIANCE:

1. ELECTRICAL MATERIALS, DEVICES, CONDUCTORS, APPLIANCES, AND EQUIPMENT SHALL BE LABELED/LISTED BY UL OR ACCEPTED BY JURISDICTION (I.E., LOCAL COUNTY OR STATE) APPROVED THIRD PARTY TESTING AGENCY.

GROUNDING:

1. ELECTRICAL NEUTRALS, RACEWAYS AND NON–CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT AND ASSOCIATED ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250. THIS SHALL INCLUDE NEUTRAL CONDUCTORS, CONDUITS, SUPPORTS, CABINETS, BOXES, GROUND BUSSES, ETC. THE NEUTRAL CONDUCTOR FOR EACH SYSTEM SHALL BE GROUNDED AT A SINGLE POINT.
2. PROVIDE GROUND CONDUCTOR IN RACEWAYS PER NEC.
3. PROVIDE BONDING AND GROUND TO MEET NFPA 780 – "LIGHTNING PROTECTION" AS A MINIMUM.
4. PROVIDE GROUNDING SYSTEM AS INDICATED ON THE DRAWINGS, AS REQUIRED BY THE NATIONAL ELECTRIC CODE, RADIO EQUIPMENT MANUFACTURERS, AND MOTOROLA R56 (AS APPLICABLE).

ABBREVIATIONS AND LEGEND

A	–	AMPERE
AFG	–	ABOVE FINISHED GRADE
ATS	–	AUTOMATIC TRANSFER SWITCH
AWG	–	AMERICAN WIRE GAUGE
BCW	–	BARE COPPER WIRE
BFG	–	BELOW FINISHED GRADE
BKR	–	BREAKER
C	–	CONDUIT
CKT	–	CIRCUIT
DISC	–	DISCONNECT
EGR	–	EXTERNAL GROUND RING
EMT	–	ELECTRIC METALLIC TUBING
FSC	–	FLEXIBLE STEEL CONDUIT
GEN	–	GENERATOR
GPS	–	GLOBAL POSITIONING SYSTEM
GRD	–	GROUND
IGB	–	ISOLATED GROUND BAR
IGR	–	INTERIOR GROUND RING (HALO)
KW	–	KILOWATTS
NEC	–	NATIONAL ELECTRIC CODE
PCS	–	PERSONAL COMMUNICATION SYSTEM
PH	–	PHASE
PNL	–	PANEL
PNLBD	–	PANELBOARD
PVC	–	RIGID NON–METALLIC CONDUIT
RGS	–	RIGID GALVANIZED STEEL CONDUIT
SW	–	SWITCH
TGB	–	TOWER GROUND BAR
UL	–	UNDERWRITERS LABORATORIES
V	–	VOLTAGE
W	–	WATTS
XFMR	–	TRANSFORMER
XMTR	–	TRANSMITTER

----E----	UNDERGROUND ELECTRICAL CONDUIT
----T----	UNDERGROUND TELEPHONE CONDUIT
	KILOWATT–HOUR METER
---------	UNDERGROUND BONDING AND GROUNDING CONDUCTOR.
⌀	GROUND ROD
●	CADWELD
⊠	GROUND ROD WITH INSPECTION WELL

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SEAL:

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042109 MARK S. QUAKENBUSH

November 8, 2017

REV	DATE	ISSUED FOR:
1	11-08-17	CONSTRUCTION
0	10-30-17	PRELIMINARY

DRAWN BY: RCL | CHECKED BY: CSN

SHEET TITLE:

ELECTRICAL NOTES

SHEET NUMBER: **E-1**

REVISION: 1

TEP#: 32795.84802

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE INCOMING SERVICES WITH LOCAL UTILITIES PRIOR TO TRENCHING.
2. ALL CONDUCTORS SHALL BE COPPER, 75 DEGREES C RATED, AND CONDUCTOR INSULATION SHALL BE THWN OR THHN
3. ALL TERMINATIONS SHALL BE LISTED AND IDENTIFIED FOR USE WITH 75°C RATED CONDUCTORS OPERATING AT 75°C.
4. GROUND FAULT PROTECTION REQUIRED FOR UTILITY RECEPTACLES.
5. SERVICE NEUTRAL SHALL BE GROUNDED AT ONE LOCATION ONLY.
6. WHITE/NEUTRAL, GREEN/GROUND SHALL BE MAINTAINED THROUGHOUT THE SITE ELECTRICAL SYSTEM (TAPE WILL NOT BE ACCEPTABLE).
7. EQUIPMENT LOCATED OUTSIDE OR EXPOSED TO MOISTURE SHALL BE NEMA 3R RATED.
8. CONTRACTOR SHALL USE SCHEDULE 80 PVC CONDUIT THROUGHOUT, UNLESS OTHERWISE NOTED.
9. ALL NEWLY INSTALLED EQUIPMENT SHALL BE RATED AT 10K AIC MINIMUM. HIGHER RATINGS SHALL BE REQUIRED WHERE AVAILABLE FAULT CURRENT EXCEEDS THIS VALUE. EXACT FAULT CURRENT AVAILABLE SHALL BE COORDINATED WITH LOCAL UTILITY BASED ON EXACT CONDITIONS (XFMR SIZE, PERCENT IMPEDANCE, LENGTH OF CONDUCTORS, ETC).
10. CONTRACTOR TO VERIFY REPLACEMENT EQUIPMENT DOES NOT EXCEED SYSTEM CAPABILITY.

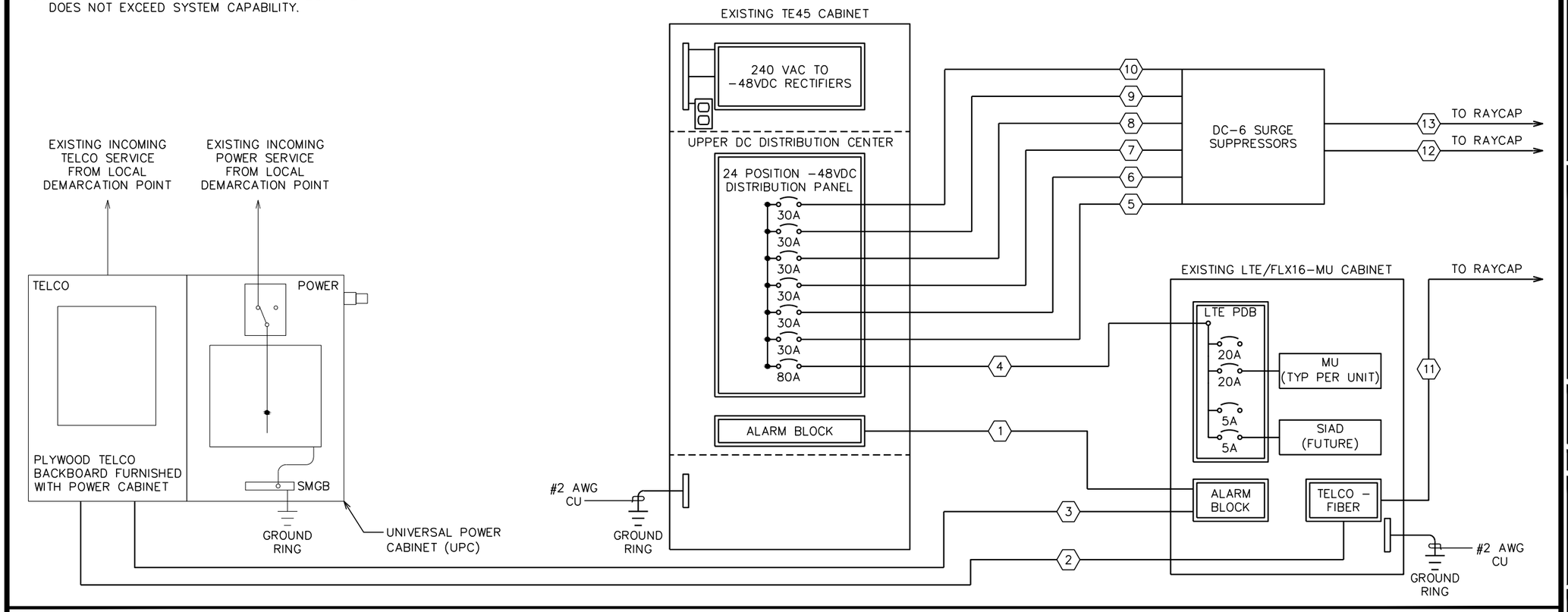
ELECTRICAL SCOPE:

1. NEW ANTENNA's. SEE SHEET E-3 FOR DETAILS.
2. NEW RRU's. SEE SHEET E-3 FOR DETAILS.
3. CONNECT 30 AMP BREAKERS TO DC6 SURGE SUPPRESSOR. SEE MARK 5-7 ON THE CONDUIT SCHEDULE.
4. CONTRACTOR TO INSTALL THE FOLLOWING EQUIPMENT TO SUPPORT LTE 2C:
   - SWAP OUT DUL WITH A 5216
   - (1) XMU03
   - (3) 30 AMP BREAKERS INTO THE EXISTING TE45 CABINET

*CABLE AND CONDUIT SCHEDULE

MARK	CONDUIT		CABLE			REMARKS
	QUANT.	SIZE	QUANT.	SIZE	GROUND SIZE	
1	1	2"	BELDIN CABLES			ALARM CONTROL FROM TE45 TO LTE/FLX16-MU. IMC REQUIRED.
2	1	2"	FIBER 12-PAIR			FIBER FROM UPC TO LTE/FLX16-MU.
3	1	2"	BELDIN CABLES			ALARM CONTROL FROM UPC TO LTE/FLX16-MU. IMC REQUIRED.
4	1	2"	1	#2	#2	DC POWER FROM TE45 TO LTE PDB
5	1	2"	1	#8	#8	DC POWER FROM TE45 TO DC-6 SURGE SUPPRESSOR
6			1	#8	#8	DC POWER FROM TE45 TO DC-6 SURGE SUPPRESSOR
7			1	#8	#8	DC POWER FROM TE45 TO DC-6 SURGE SUPPRESSOR
8	1	2"	1	#8	#8	DC POWER FROM TE45 TO DC-6 SURGE SUPPRESSOR
9			1	#8	#8	DC POWER FROM TE45 TO DC-6 SURGE SUPPRESSOR
10			1	#8	#8	DC POWER FROM TE45 TO DC-6 SURGE SUPPRESSOR
11	1	2"	FIBER 18-PAIR			FIBER FROM LTE/FLX16-MU TO RAYCAP
12	1	2"	3PR DC #8 AWG			DC POWER FROM DC-6 SURGE SUPPRESSOR TO RAYCAP
13	1	2"	3PR DC #8 AWG			DC POWER FROM DC-6 SURGE SUPPRESSOR TO RAYCAP

*ALL CIRCUITS AND CABLES IN CHART EXISTING UNLESS OTHERWISE NOTED.



TYPICAL LTE ONE-LINE DIAGRAM

SCALE: N.T.S.

PLANS PREPARED FOR:

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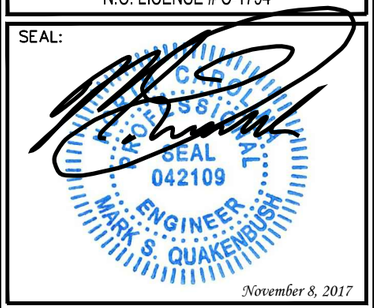

November 8, 2017

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1	11-08-17	CONSTRUCTION
0	10-30-17	PRELIMINARY

DRAWN BY: BSE | CHECKED BY: MSQ

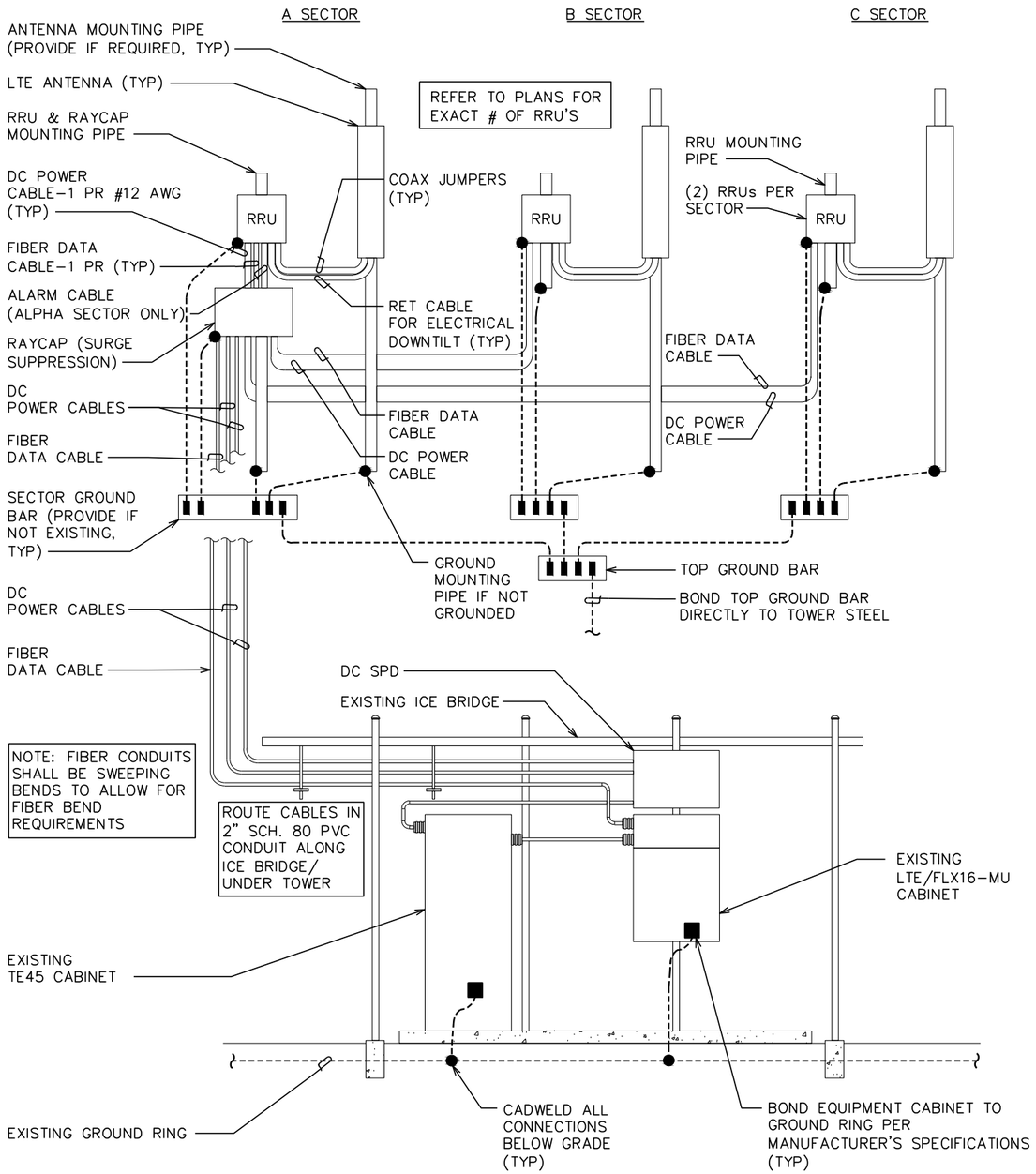
SHEET TITLE:

TYPICAL LTE ONE-LINE DIAGRAM

SHEET NUMBER: **E-2**

REVISION: 1

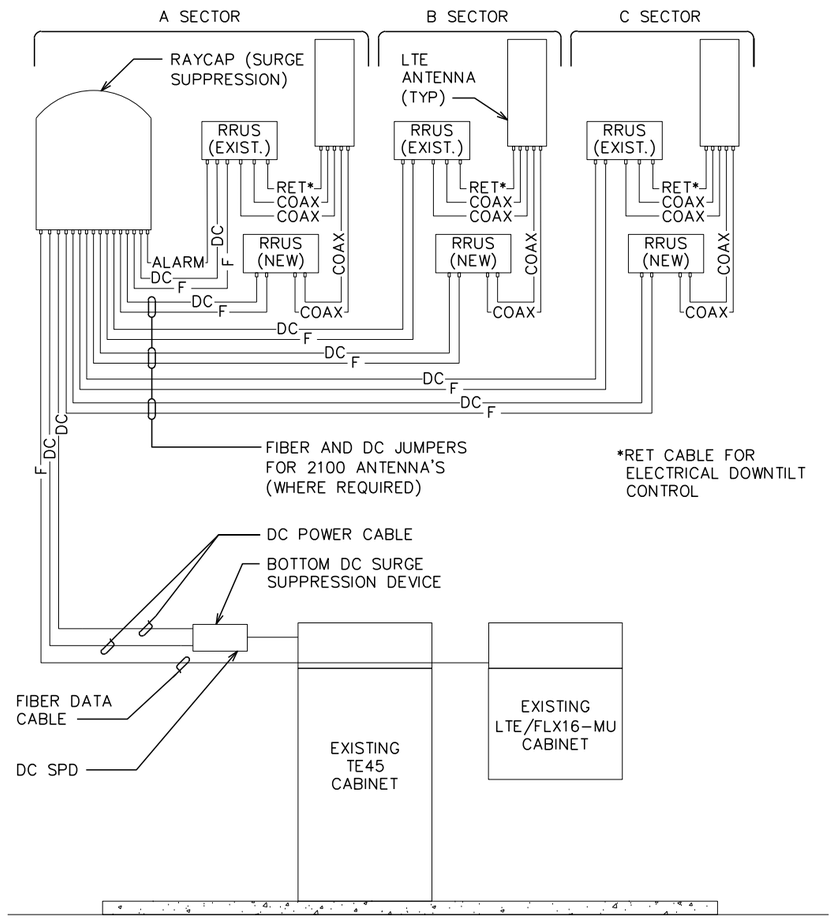
TEP#: 32795.84802



TYPICAL LTE CABLE AND GROUNDING RISER DIAGRAM

SCALE: N.T.S.

NOTE: REFER TO SHEET C–2C FOR ADDITIONAL ANTENNA INFORMATION REGARDING POSSIBLE ADDITIONAL AND FUTURE ANTENNAS AND RRUS



TYPICAL LTE RF RISER DIAGRAM

SCALE: N.T.S.

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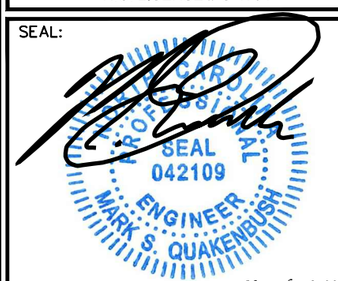

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DRAWN BY: SSB | CHECKED BY: CSN

SHEET TITLE:

TYPICAL LTE RISER DIAGRAM

SHEET NUMBER: **E-3**

REVISION: 1

TEP#: 32795.84802