

## Memorandum Department of Planning and Public Works

- To: Planning and Public Works Committee
- From: Kristian Corbin, Project Planner
- Date: September 8, 2011
- **Re: T.S.P. 33-2011 AT&T (14845 Olive Boulevard):** A request to obtain approval to amend a Telecommunications Siting Permit for the purpose of upgrading existing facilities to accommodate and provide 4G LTE data service on an existing telecommunications tower on a .427 acre lease area zoned "R3" Residence District located at 14845 Olive Boulevard (17R430053).

### Summary

AT&T has requested an amendment to a telecommunications siting permit to allow for the location of upgraded antennas to facilitate 4G LTE data service on an existing tower located north of the intersection of Ladue Bluffs Crossing Drive and Olive Boulevard.

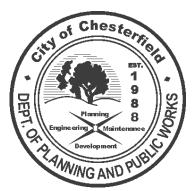
City of Chesterfield Ordinance 2391, which governs telecommunications and facilities siting, permits applications for equipment upgrades to be submitted for sites that currently hold a telecommunications siting permit without the need for a public hearing. Staff has reviewed the request by AT&T and has determined that the proposed addition of the 4G LTE antennas are indeed an upgrade to an existing and permitted site and may amend said existing permit without the need for a public hearing.

Attached are copies of the site plan, elevations, boundary plat, and propagation study.

Respectfully Submitted,

Kristion Corlin

Kristian Corbin Project Planner



CC: Michael G. Herring, City Administrator Rob Heggie, City Attorney Michael O. Geisel, Director of Planning & Public Works Aimee Nassif, Planning & Development Services Director

Attachments: AT&T 4G LTE Upgrade Packet





June 24, 2011

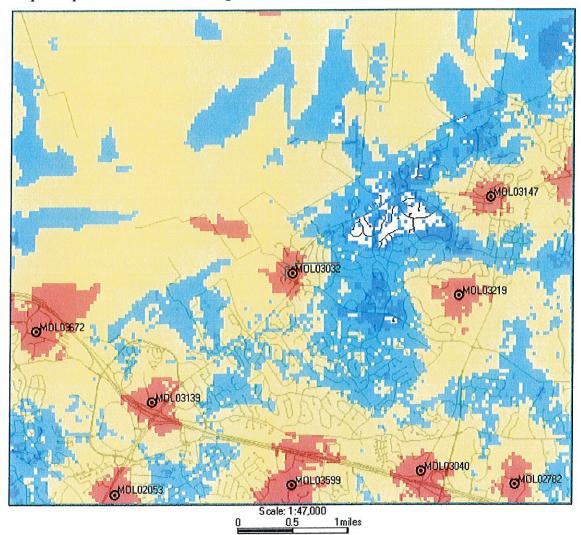
The following is a brief explanation of why AT&T Mobility is proposing to have the current wireless communication facility at 14847 Olive Street Road modified. This facility is labeled as MOL03032 on Map 1. Currently this facility is only capable of broadcasting our older technologies.

This facility currently is broadcasting our "2G" technology (called GSM) and our "3G" technology (called UMTS). Each technology uses its own antennas and equipment. The modification we are proposing is to add our "4G" technology (called LTE). Perhaps you have seen all the television commercials from various wireless carriers talking about their 4G systems. 4G, short for 4<sup>th</sup> generation of wireless technology, allows wireless carriers to provide much faster data speeds than our current networks. 4G is only for data at this point. All voice calls will still be served on older technologies. Currently AT&T still has the fastest data network. Although as other carriers implement and optimize their 4G networks we expect to lose that advantage and eventually fall behind other carriers unless we also launch our 4G network. The proposed modifications will allow us to implement our 4G technology by using additional antennas and equipment.

Because of national E911 requirements, this site needs to run all technologies. The 4G technology is not capable of handling voice calls at this time and all 911 calls made from a wireless device will be routed through our older technologies. These technologies require that we use a total of 3 antennas for each direction covered. This site, like most of our locations, serves three directions creating a need for 9 antennas. This requires us to add 3 additional antennas for this location.

This plan will have no effect on our coverage for current technologies. Map 1 below shows the proposed coverage for our 4G network in the area. AT&T Mobility has acceptable coverage in most of the surrounding area. Because 4G is a data only service the different signal levels don't indicate whether service exists or not. In general on 4G the stronger the signal (to a point) the faster the data rates will be. It is expected that red, yellow and light blue will have data speeds faster than our 3G technology. The dark blue will likely have data speeds nearly identical to the 3G technology.

Map 1 Proposed AT&T "4G" coverage



Ron Humphrey

Radio Frequency Design Engineer AT&T Mobility Division

# **MO3032 CHESTERFIELD**

### ENGINEERING

2009 INTERNATIONAL BUILDING CODE 2011 NATIONAL ELECTRIC CODE ANSI/TIA-222-G OR LATEST EDITION

### **GENERAL NOTES**

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

### **PROJECT DESCRIPTION**

THE PROJECT CONSISTS OF THE INSTALLATION AND OPERATION OF ANTENNAS AND ASSOCIATED EQUIPMENT CABINETS FOR AT&7's CONDUCTORLESS TELECOMMUNICATIONS NETWORK. INSTALLATION OF (3) RRHs, (1) FIBER CABLE, (2) DC POWER CABLES, (1) RAYCAP SURGE PROTECTOR, (1) LTE RACK, (3) PIPE MOUNTED LTE PANEL ANTENNAS INCLUDING (1) LTE GPS ANTENNA ARE PROPOSED.

### SITE INFORMATION

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PROPERTY OWNER: ADDRESS:	ST. LOUIS COUNTY, MISSOURI NA	
TOWER OWNER: SITE NAME: SITE NUMBER:	st. Louis County, Missouri Na Na	
SITE CONTACT:	BRUCE KOTHE (314) 615~8124	
SITE ADDRESS:	14847 OLIVE STREET CHESTERFIELD, MO 63017	
COUNTY:	ST. LOUIS	
LATITUDE (NAD 83):	38' 40' 15.10" N 38.67086	
LONGITUDE (NAD 83):	90' 32' 6.40" W ~90.53511	
GROUND ELEVATION:	663' AMSL	
RAD CENTER:	77' AGL	
ZONING JURISDICTION:	CITY OF CHESTERFIELD, MO	
ZONING DISTRICT:	Z-3	
PARCEL #:	17R430053	
OCCUPANCY GROUP:	U	
CONSTRUCTION TYPE:	V-B	
POWER COMPANY:	AMEREN MO	
TELEPHONE COMPANY:	AT&T	
SITE ACQUISITION CONTACT:	DOUG KONRATH (314) 605–7542	
RF ENGINEER:	RON HUMPHREY	
CONSTRUCTION MANAGER:	KEN SHAW (314) 210-8629	
IF USING 11"X17" PLOT, DRAWINGS WILL BE HALF SCALE		

### CONTACT INFORMATION

DIRECTIONS FROM NEAREST AT&T OFFICE:

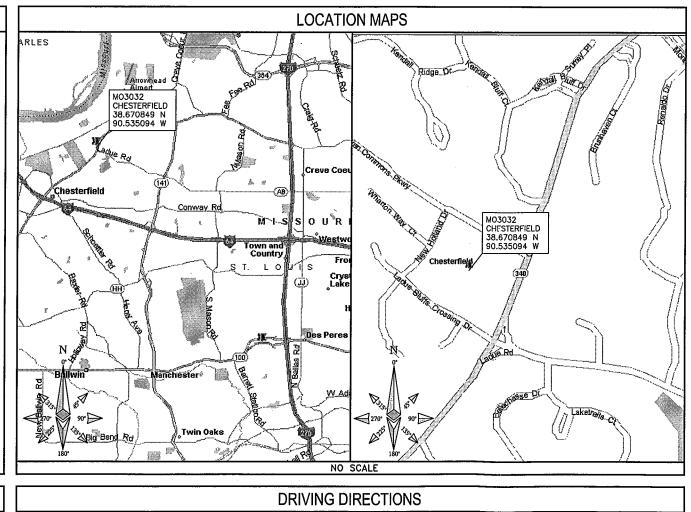
LOCAL ROAD FOR 87 YDS.

15450 S OUTER FORTY DR, SUITE 200 ENGINEER: CHESTERFIELD, MO 63017

CONTACT: GEORGE P. XENOS PHONE: (913) 687-9233



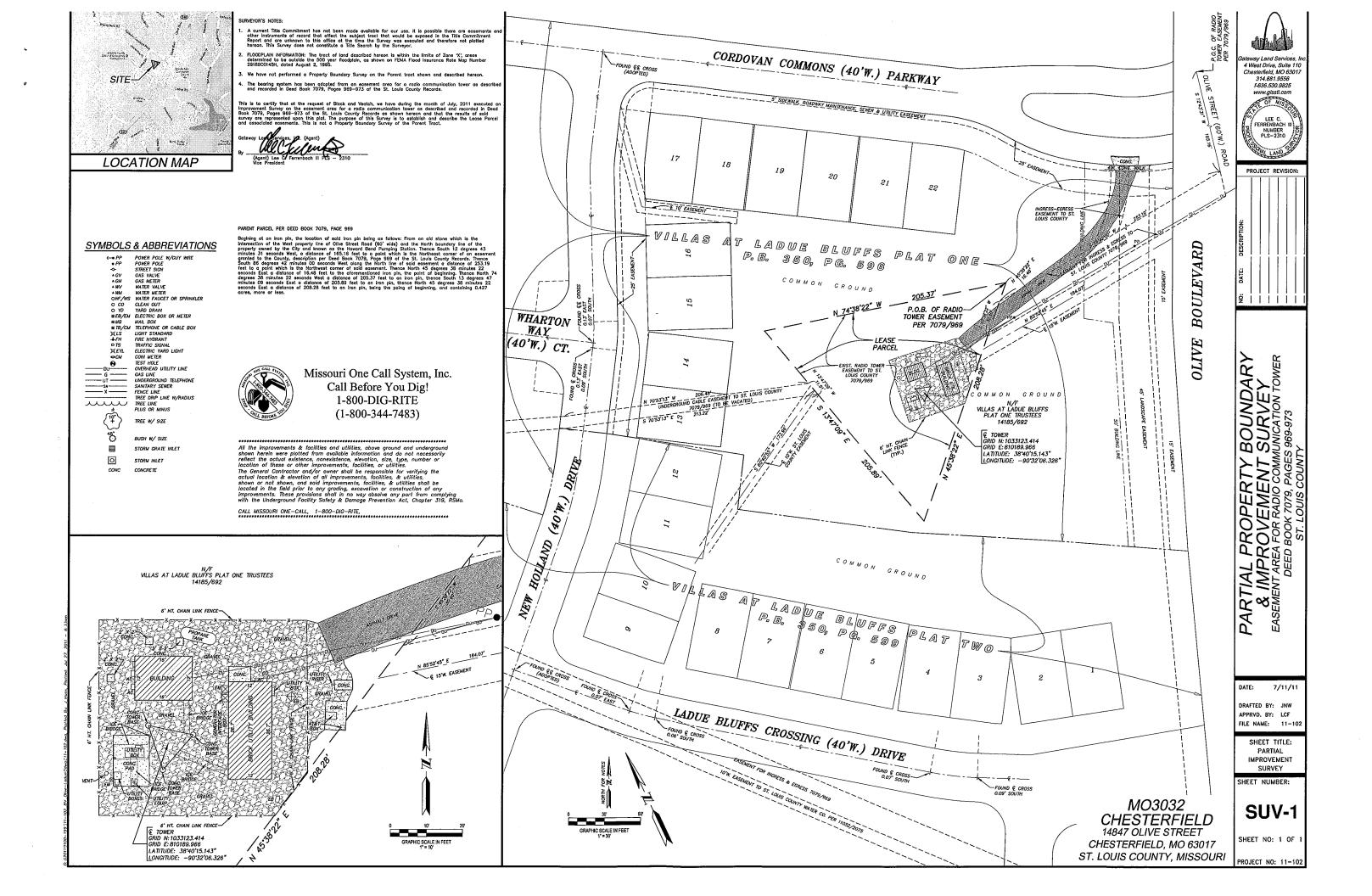
## LTE **150' - SELF SUPPORT TOWER**

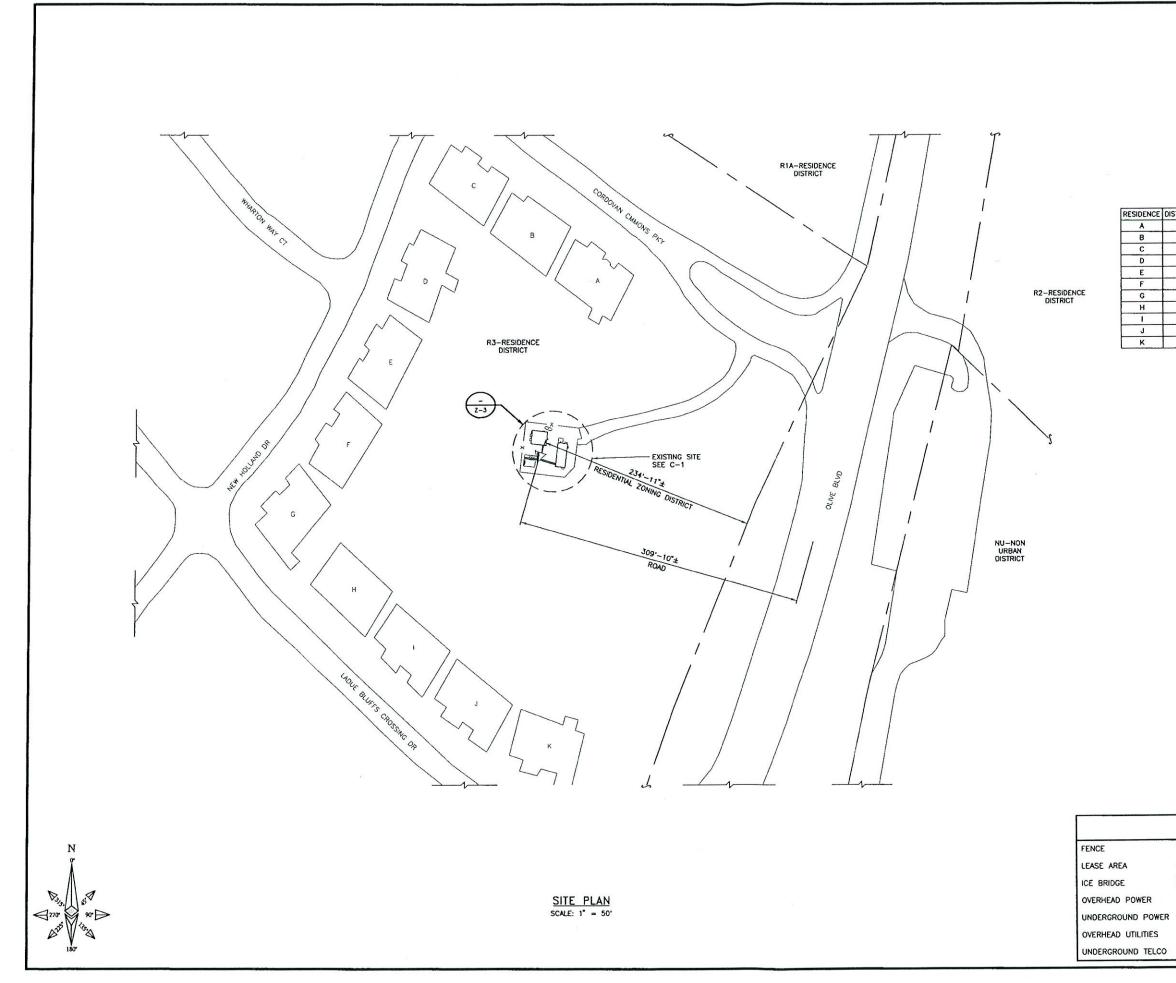


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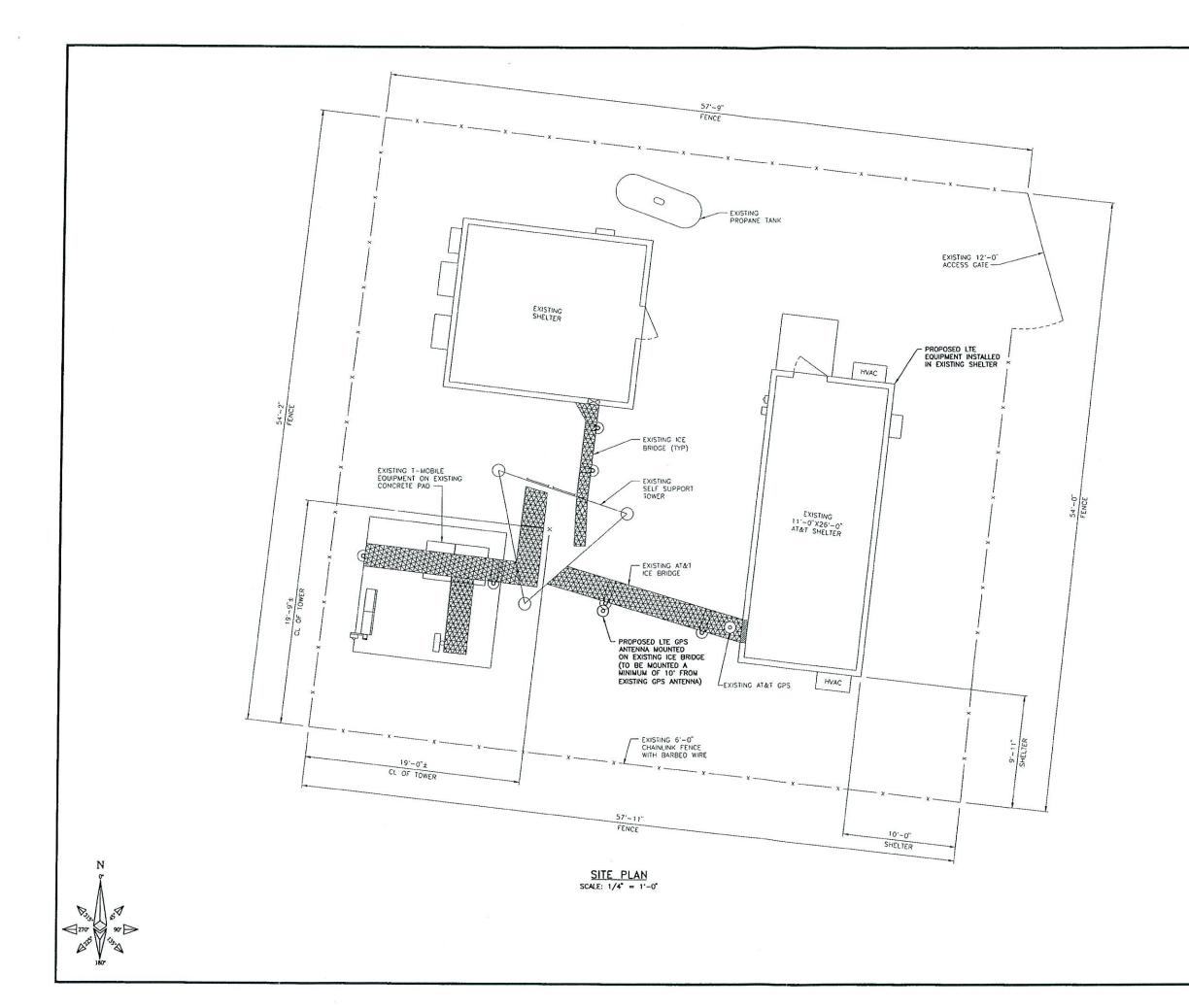
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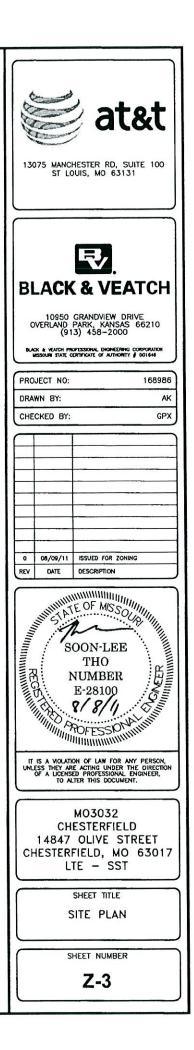


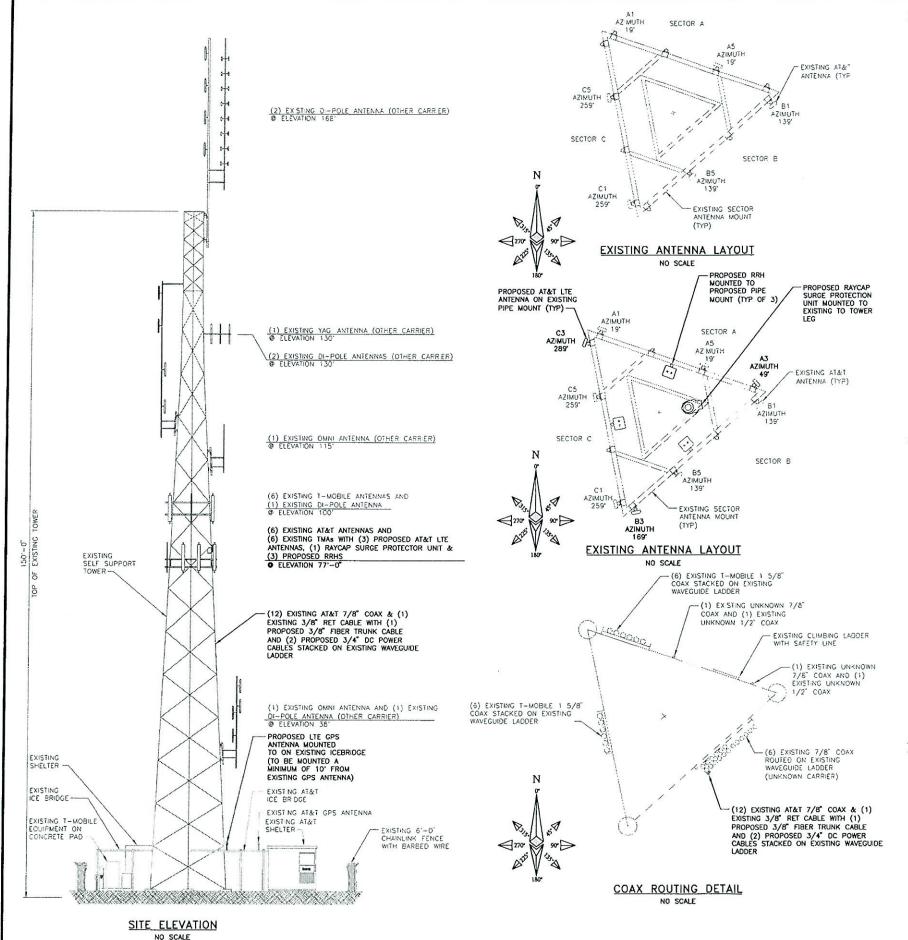




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STANCE FROM CL OF SELF SUPPORT TOWER 144'-0"± 210'-0"± 257'-0"±	BLACK & VEATCH
169'-0"± 155'-0"± 188'-0"±	10950 GRANDVIEW DRIVE OVERLAND PARK, KANSAS 66210 (913) 458-2000
224'-0'± 119'-0'± 183'-0'±	BUCK & WATCH PROFESSIONL DISREDIENC CONFORMACCE
241'-0"± 281'-0"±	PROJECT NO: 168986
	DRAWN BY: AK CHECKED BY: GPX
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### NOTES

- ALL MAIN CABLES WILL BE GROUNDED W/ COAXIAL CABLE GROUNDING KITS AT: A. THE ANTENNA LEVEL. B. MID LEVEL IF TOWER IS OVER 200'. C. BASE OF TOWER PRIOR TO TURNING HORIZONTAL. D. OUTSIDE THE EQUIPMENT SHELTER AT ENTRY PORT

- E. INSIDE THE EQUIPMENT SHELTER AT THE ENTRY PORT.
  - ALL PROPOSED GROUNDING BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUNDING BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-O' BELOW GROUNDING BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
  - 3. THE CONTRACTORS SHALL BE RESPONSIBILE FOR VERIFYING THE ANTENNA AND THE COAX CONFIGURATION, MAKE AND MODELS, PRIOR TO INSTALLATION.
  - 4. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S STANDARD DETAILS.
  - 5. THE EXISTING TOWER IS CURRENTLY BEING ANALYZED BY OTHERS TO DETERMINE ITS STRUCTURAL CAPACITY TO CARRY THE PROPOSED NEW COAX AND ANTENNAS. THESE DRAWINGS HAVE BEEN CREATED BASED ON THE ASSUMPTION THE STRUCTURAL ANALYSIS WILL SHOW THAT THE TOWER HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED NEW LOADS. INSTALLATION OF THE COAX AND ANTENNAS SHALL NOT COMMENCE UNTIL AN APPROVED STRUCTURAL ANALYSIS HAS BEEN RECEIVED BY THE OWNER OR AT&T AND HAS BEEN REVIEWED BY BLACK AND VEATCH.
  - 6. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS AND DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.

### COAXIAL ANTENNA CABLE NOTES

- 1. TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
- 2. CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
- CONTRACTOR TO CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027 REFER TO THE LATEST VERSION.
- 4. ALL JUMPERS TO THE ANTENNAS FROM THE RRH LINE WILL BE 1/2" DIA. LDF AND SHALL NOT EXCEED A DIFFERENTIAL OF 12'-0".
- 5. ALL COAXIAL CABLE WILL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-O" OC.
- 6. CONTRACTOR MUST FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.

### ANTENNA/RRH MOUNTING NOTES

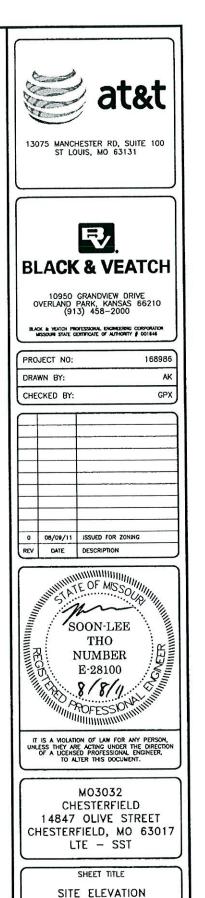
- DESIGN AND CONSTRUCTION OF ANTENNA/RRH SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 STANDARDS OR APPLICABLE LOCAL CODES. 1.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- 4. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- 5. ALL ANTENNA/RRH MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS..
- 6. CONTRACTOR SHALL ENSURE ALL ANTENNA/RRH MOUNTING PIPES ARE PLUMB AND LEVEL.
- 8. CONTRACTOR SHALL RECORD THE SERIAL ₩, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE DOCUMENTATION TO AT&T.
- 9. LINES 1 & 2 TO HAVE TMA'S MOUNTED ON PIPE BELOW ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE PREFERABLY IN A VERTICAL POSITION.
- 10. CONTRACTOR SHALL INSTALL ANTENNA/RRH PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND
- FIBER & POWER CABLE MOUNTING NOTES
- 1. CABLE TO BE SUPPORTED USING 7/8" SNAP INS (ROSENBERGER PART# CX603-HA0711, CX604-HA1117, TH413-U78 OR TH426-570) OR APPROVED EQUAL.
- 2. CABLE TO BE SUPPORTED EVERY 3'.

### TORQUE REQUIREMENTS

- 1. ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
- ALL RF CONNECTIONS, GROUNDING HAROWARE AND ANTENNA HAROWARE SHALL HAVE A TOROUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
  A. RF CONNECTION BOTH SIDES OF THE CONNECTOR
  B. GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET WETAL
- 3. ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
- 4. ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
- 5. ALL GROUND GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
- 6. ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 29.8 NM)
- 7. ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 2.3 NM)

WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF ANALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH AT&T STANDARDS.

MULTI PORT ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY, JUMPERS FROM THE TMA'S MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.



SHEET NUMBER

Z-4

