

**From:** Scala, Mary Joy  
**Sent:** Tuesday, March 24, 2015 3:04 PM  
**To:** 'Wilmer, Jessica'  
**Subject:** BAR Action - 819 W Main St - March 17, 2015

March 24, 2014

Citico Realty Co/American Tower  
c/o Virginia PCS Alliance, LC (Ntelos)  
1150 Shenandoah Village Dr  
Waynesboro, VA 22980

**RE: Certificate of Appropriateness Application**

BAR 15-03-07

819 West Main Street

Tax Parcel 310184B00

Citico Realty Co/American Tower, Owner/ Virginia PCS Alliance, L.C. (NTELOS), Applicant  
Addition of NTELOS antennas and ground equipment

Dear Applicant,

The above referenced project was discussed before a meeting of the City of Charlottesville Board of Architectural Review (BAR) on March 17, 2015. The following action was taken:

**The BAR approved (6-0) the application for six new antennas and two new ground cabinets as submitted.**

In accordance with Charlottesville City Code 34-285(b), this decision may be appealed to the City Council in writing within ten working days of the date of the decision. Written appeals, including the grounds for an appeal, the procedure(s) or standard(s) alleged to have been violated or misapplied by the BAR, and/or any additional information, factors or opinions the applicant deems relevant to the application, should be directed to Paige Barfield, Clerk of the City Council, PO Box 911, Charlottesville, VA 22902.

This certificate of appropriateness shall expire in 18 months (September 17, 2016), unless within that time period you have either: been issued a building permit for construction of the improvements if one is required, or if no building permit is required, commenced the project. The expiration date may differ if the COA is associated with a valid site plan. You may request an extension of the certificate of appropriateness *before this approval expires* for one additional year for reasonable cause.

Upon completion of the project, please contact me for an inspection of the improvements included in this application. If you have any questions, please contact me at 434-970-3130 or [scala@charlottesville.org](mailto:scala@charlottesville.org).

Sincerely yours,

Mary Joy Scala, AICP  
Preservation and Design Planner

Mary Joy Scala, AICP  
Preservation and Design Planner  
City of Charlottesville  
Department of Neighborhood Development Services  
City Hall – 610 East Market Street  
P.O. Box 911  
Charlottesville, VA 22902  
Ph 434.970.3130 FAX 434.970.3359  
[scala@charlottesville.org](mailto:scala@charlottesville.org)

**CITY OF CHARLOTTESVILLE  
BOARD OF ARCHITECTURAL REVIEW  
STAFF REPORT  
March 17, 2015**



**Certificate of Appropriateness Application**

BAR 15-03-07

819 West Main Street

Tax Parcel 310184B00

Citico Realty Co/American Tower, Owner/ Virginia PCS Alliance, L.C.

(NTELOS), Applicant

Addition of NTELOS antennas and ground equipment

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**Background**

This property is located in the West Main Street ADC District. The telecommunication tower is a non-conforming use.

April 18, 2006 - The BAR approved (7-0) an Alltel emergency generator with diesel fuel tank next to the radio tower and within an existing chain link fence that marks the leased area. The application included approximately 55 feet of brown slat screening on a portion of the existing chain link fence.

November 28, 2006 - The BAR voted (9-0) to approve the Ntelos request to install an 80" x 17" x 16" antenna on an existing Norfolk Southern tower and a 25 sq. ft. concrete pad to house a 31" x 30" x 84" cabinet with ice bridge above.

December 18, 2007 - The BAR approved (9-0) the Verizon application with the condition of adding evergreen screening on three sides of the perimeter of the new chain link fencing, with the screening plan to be submitted for staff approval.

November 16, 2010 - The BAR voted (8-0) to add four new Verizon antennas at 185 feet, and adding cross bracing between 125-131 feet levels as submitted.

September 20, 2011 - The BAR approved (5-0) an Ntelos application to install nine antennas and to expand the compound as submitted on the consent agenda.

June 19, 2012 - The BAR approved (7-0) the Verizon application as submitted, finding that the new antennas satisfy the BAR's criteria and are compatible with other properties in the district, and finding that they would not result in a substantial change in physical dimensions.

**Application**

Ntelos proposes to add six new antennas to an existing, non-conforming telecommunications tower. They also propose to add two additional ground equipment cabinets on an existing equipment platform at ground level within an existing fenced enclosure.

Three antennas are currently located at the 173 feet height, each measuring 74.9" x 6.6" x 3.3"; the six new antennas will be placed at the same height. Three will measure 68.5" x 16.3" x 10.1"; the other three will measure 55" x 11.9" x 7.1". In addition, three new 1-1/2" cables will be added to run up the tower to the antennas.

## **Criteria, Standards, and Guidelines**

### **Review Criteria Generally**

*Sec. 34-284(b) of the City Code states that,*

*In considering a particular application the BAR shall approve the application unless it finds:*

- (1) That the proposal does not meet specific standards set forth within this division or applicable provisions of the Design Guidelines established by the board pursuant to Sec.34-288(6); and*
- (2) The proposal is incompatible with the historic, cultural or architectural character of the district in which the property is located or the protected property that is the subject of the application.*

### **Pertinent Standards for Review of Construction and Alterations include:**

- (1) Whether the material, texture, color, height, scale, mass and placement of the proposed addition, modification or construction are visually and architecturally compatible with the site and the applicable design control district;*
- (2) The harmony of the proposed change in terms of overall proportion and the size and placement of entrances, windows, awnings, exterior stairs and signs;*
- (3) The Secretary of the Interior Standards for Rehabilitation set forth within the Code of Federal Regulations (36 C.F.R. §67.7(b)), as may be relevant;*
- (4) The effect of the proposed change on the historic district neighborhood;*
- (5) The impact of the proposed change on other protected features on the property, such as gardens, landscaping, fences, walls and walks;*
- (6) Whether the proposed method of construction, renovation or restoration could have an adverse impact on the structure or site, or adjacent buildings or structures;*
- (8) Any applicable provisions of the City's Design Guidelines.*

### **Pertinent Design Review Guidelines**

#### **Site Design and Elements**

##### **P. 2.7 Utilities and other Site Appurtenances**

- 1. Place overhead wires, utility poles and meters, antennae, trash containers, and exterior heat exchangers in locations where they are least likely to detract from the character of the site.*
- 2. Encourage the installation of utility services underground.*
- 3. Screen utilities and other site elements with fences, walls or plantings.*
- 4. Antennae and communication dishes should be placed in inconspicuous rooftop locations.*
- 5. Screen all rooftop mechanical equipment with a wall of a material harmonious with the building or structure.*

### **Discussion and Recommendations**

The pertinent zoning section on Telecommunication Facilities states:

Sec. 34-1073. Facilities by district.

(a) Within the city's historic and entrance corridor overlay districts:

- (1) The following shall be permitted uses: *antennae or microcells mounted on existing communications towers established prior to February 20, 2001; attached communications facilities utilizing utility poles or other electric transmission facilities as the attachment structure; and other attached communications facilities if such other attached communications facilities are not visible from any adjacent street or property.*

(2) The following shall be prohibited uses: attached communications facilities where such facilities are visible from any adjacent street or property, and communications facilities utilizing alternative tower, monopole tower, guyed tower, lattice tower and self-supporting tower support structures.

This is a permitted use because the existing tower was in place prior to 2001. There are existing antennas in this location; and there is no practical way to screen the tower. Existing vegetation currently screens the fenced equipment area.

**Suggested Motion**

Having considered the standards set forth within the City Code, including City Design Guidelines for Site Design and Elements, I move to find that the proposal to add six new antennas and two cabinets satisfies the BAR's criteria and is compatible with other properties in the West Main Street ADC district, and that the BAR approves the application as submitted.

TO: Mary Joy Scala  
FROM: Richard M. Harris  
RE: Application of Verizon Wireless to BAR  
DATE: June 18, 2012

Mary Joy,

Following up on our conversation, I wanted to give you some more in-depth background on the cell tower application pending before the BAR, and the regulations surrounding it. The Federal Telecommunication Act of 1996 comprehensively addressed the then-emerging technology of cellular communications. Recognizing the public purpose served by the technology, Congress fashioned the Act in a way that provides for rapid yet orderly and controlled expansion of the necessary infrastructure. §704 of the Act, now codified at 47 USCS §332(c)(7) <sup>1</sup>, directly addresses the preservation of local zoning authority, despite the push to deploy technology. Location of new Personal Wireless Service Facilities (or “PWSFs”) are still regulated by §704 of the Telecommunications Act of 1996. Modifications to existing PWSFs, however, are now also governed by §6409 of the Middle Class Tax Relief Act, enacted in February, 2012 (the “2012 Act”). This section has the net effect of requiring a locality to approve co-location or replacement of PWSFs on existing towers or structures that do not substantially change the physical dimensions of the tower or structure.

Questions abound as to whether this section of the 2012 Act will be upheld upon challenge in court around the country— but for now, it is necessary to comply with it. I do not fully agree with the interpretation set forth by Verizon Wireless, and want to point out that there is leniency for a reviewing board that is not mentioned in their submission.

1. The BAR may make the determination as to whether the change is substantial. The suggestions of Verizon Wireless as to what constitutes “substantial changes”, while based upon relevant information, are not approved by the FCC or the Courts as the benchmarks to be used. Nonetheless, they do serve as reasonable guides, as they are incorporated into other federal rules (the “shot clock order”) affecting these types of applications. Until such time as any court decisions or FCC rulings clarify the topic, it is logical to utilize the benchmarks set forth in the shot clock order as a non-exclusive guide to analyzing whether a PWSF modification or colocation application constitutes a substantial change. As such, an application may constitute a substantial change if:

- There is an increase in height of more than 10%;
- There are additional equipment shelters installed; and/or
- A new antenna extends more than 20 feet from the tower.

If an application to modify an existing PWSF does not propose a substantial change in size to the facility, then approval is mandatory. If the BAR determines that the application is for a substantial change, then approval is NOT mandatory, and the normal review process applies.

2. Keep in mind that the locality or body thereof still retains the authority to impose reasonable conditions upon the approval, whether it is a mandatory or not – a point that an applicant will not publicize, but must acknowledge if necessary. In the pending application, based upon my review of the documents submitted, it appears that the new antenna is not protruding to any great degree, nor is there any proposed height increase. There is no mention of any new equipment shelters. This appears to be a modification contemplated by the 2012 Act requiring approval. If there are reasonable conditions that the BAR feels are appropriate in order to have this modification comply with its guidelines, the BAR is empowered to impose them, as in any application.

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<sup>i</sup> **Preservation of local zoning authority.**

**(A) General authority.** Except as provided in this paragraph, nothing in this Act shall limit or affect the authority of a State or local government or instrumentality thereof over decisions regarding the placement, construction, and modification of personal wireless service facilities.

**(B) Limitations.**

**(i)** The regulation of the placement, construction, and modification of personal wireless service facilities by any State or local government or instrumentality thereof--

**(I)** shall not unreasonably discriminate among providers of functionally equivalent services; and

**(II)** shall not prohibit or have the effect of prohibiting the provision of personal wireless services.

**(ii)** A State or local government or instrumentality thereof shall act on any request for authorization to place, construct, or modify personal wireless service facilities within a reasonable period of time after the request is duly filed with such government or instrumentality, taking into account the nature and scope of such request.

**(iii)** Any decision by a State or local government or instrumentality thereof to deny a request to place, construct, or modify personal wireless service facilities shall be in writing and supported by substantial evidence contained in a written record.

**(iv)** No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.

**(v)** Any person adversely affected by any final action or failure to act by a State or local government or any instrumentality thereof that is inconsistent with this subparagraph may, within 30 days after such action or failure to act, commence an action in any court of competent jurisdiction. The court shall hear and decide such action on an expedited basis. Any person adversely affected by an act or failure to act by a State or local government or any instrumentality thereof that is inconsistent with clause (iv) may petition the Commission for relief.



Board of Architectural Review (BAR)
Certificate of Appropriateness

RECEIVED
FEB 23 2015
NEIGHBORHOOD DEVELOPMENT SERVICES

Please Return To: City of Charlottesville
Department of Neighborhood Development Services
P.O. Box 911, City Hall
Charlottesville, Virginia 22902
Telephone (434) 970-3130 Fax (434) 970-3359

Please submit ten (10) copies of application form and all attachments.
For a new construction project, please include \$375 application fee. For all other projects requiring BAR approval, please include \$125 application fee. For projects that require only administrative approval, please include \$100 administrative fee. Make checks payable to the City of Charlottesville.
The BAR meets the third Tuesday of the month.
Deadline for submittals is Tuesday 3 weeks prior to next BAR meeting by 3:30 p.m.

Owner Name Citico Realty Co / American Tower Applicant Name Virginia PCS Alliance, LLC (NTELOS)
Project Name/Description NTELOS CV736 Starr Hill Parcel Number 310184B00
Property Address 819 West Main Street, Charlottesville

Applicant Information

Address: 1150 Shenandoah Village Dr
Waynesboro, VA 22980
Email: wilmerj@ntelos.com
Phone: (W) (540) 241-5060 (H)
FAX: (540) 941-4106

Property Owner Information (if not applicant)

Address: ECOVA Mail Stop 3326
PO Box 749058, Dallas TX 75374
Email:
Phone: (W) (H)
FAX:

Do you intend to apply for Federal or State Tax Credits for this project? NO

Signature of Applicant

I hereby attest that the information I have provided is, to the best of my knowledge, correct. (Signature also denotes commitment to pay invoice for required mail notices.)

Signature Date 2/13/15

Print Name Date Jessica L. Wilmer 2/13/15

Property Owner Permission (if not applicant)

I have read this application and hereby give my consent to its submission.

Signature Date see attached consent

Print Name Date

Description of Proposed Work (attach separate narrative if necessary): See attached

List All Attachments (see reverse side for submittal requirements):

For Office Use Only
Received by: Lisa A. Beumore
Fee paid: \$125.00 Cash/Ck. # 677905
Date Received: 2/23/2015
P15-0027
Approved/Disapproved by:
Date:
Conditions of approval:



February 20, 2015

City of Charlottesville  
Department of Neighborhood Development Services  
P.O. Box 911, City Hall  
Charlottesville, VA 22902

**RE: NTELOS Wireless Board of Architectural Review (BAR) Application  
CV736 Starr Hill – 819 West Main Street, Charlottesville**

Dear Ms. Scala;

Virginia PCS Alliance, L.C. ('NTELOS') is in the process of enhancing its existing 3G voice and data network by replacing old network equipment with 4G/LTE (Long Term Evolution) equipment at most of its wireless telecommunications facilities in the City and Albemarle County, which will provide improved call performance, expanded coverage, faster downloads and stronger indoor signals for its customers. The current 3G voice and data network utilizes the 1900 MHz spectrum only. Because of a unique partnership that NTELOS has with Sprint, NTELOS is able to have diverse spectrum available for its use. The proposed NTELOS 4G/LTE equipment upgrades will use a tri-band system that will: 1) repurpose old Nextel spectrum (800 MHz spectrum) for increased coverage and better in-building coverage, 2) use Clearwire spectrum (2.5 GHz spectrum) for increased data capacity and 3) continue to use the existing Sprint/NTELOS spectrum (1900 MHz spectrum). By using this tri-band system, NTELOS and Sprint customers will have LTE enhancement, improved call quality and diverse data capacity.

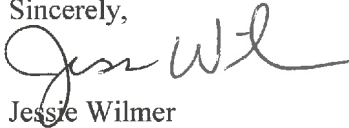
This specific application is a proposal to replace the existing antennas on an existing tower that was previously approved by the BAR on September 20, 2011. The subject parcel is an existing self-supporting wireless tower facility located on property owned by Citico Reality Co. (Norfolk Southern RR), described as tax parcel 310184B00. The existing tower is located on the north side of W. Main Street, west of the rail road tracks, at 819 W. Main Street.

Attached is a site plan of the existing tower facility. The facility is an existing 226' self-support tower with traditional antenna mounts. NTELOS' antennas are located on the tower at a radiation center of 173' with three (3) panel antennas each measuring 74.9" x 6.6" x 3.3". NTELOS is proposing to add six (6) additional tri-band antennas that will support multiple spectrum capabilities for 4G/LTE services for a total of nine (9) antennas. Three (3) of the proposed antennas will measure 68.5" x 16.3" x 10.1" and three (3) of the proposed antennas will measure 55" x 11.9" x 7.1". Remote radio head ancillary equipment will be located behind the antennas and behind the mount as shown on the site plan drawings. Photo simulations are attached as part of the BAR application. In addition to the antenna changes on the tower, NTELOS is also proposing to add additional ground equipment cabinets within the existing NTELOS lease space on the existing 12'x2' metal skid. Attached is a photograph of the existing ground equipment cabinets and metal skid.



Due to the design of the original tower and the distance of the tower from surrounding residential properties and business properties, the proposed equipment upgrades by NTELOS are compatible with the area's rural setting and will have minimal visual impact on the surrounding area as compared to its current scenario. This proposal will deliver a much improved customer communications experience and will serve the public health and safety needs to the community by providing increased wireless voice capabilities and improved high speed data services to this well-traveled area of Charlottesville. I look forward to receiving your comments regarding this proposal. Please feel free to contact me if you need additional information.

Sincerely,



Jesse Wilmer  
NTELOS  
Sr. Site Acquisition Specialist  
(540) 241-5060  
[wilmerj@ntelos.com](mailto:wilmerj@ntelos.com)

**NORFOLK SOUTHERN RAILWAY COMPANY**  
**OWNER'S CONSENT LETTER**

Norfolk Southern Railway Company, hereby grants permission to Virginia PCS Alliance, L.C., d/b/a NTELOS and its authorized contractors/agents to act as "Applicant" in the processing of all applications and permits associated with the modification and placement of NTELOS' antennas and ground equipment on the Norfolk Southern 226' tall tower located at 819 West Main Street, Charlottesville, VA 22911 (Tax ID 3101854BO0). This site is further described as the tower compound located in the Norfolk Southern right-of-way, located in the West Main Street Historic District of the City of Charlottesville.

This consent includes the permission to file all applications for any required governmental approvals necessary to modify the existing facilities installed by NTELOS on the property and to make all presentations necessary during an Board of Architectural Review, zoning, site plan and building permitting processes with regards to such approvals.

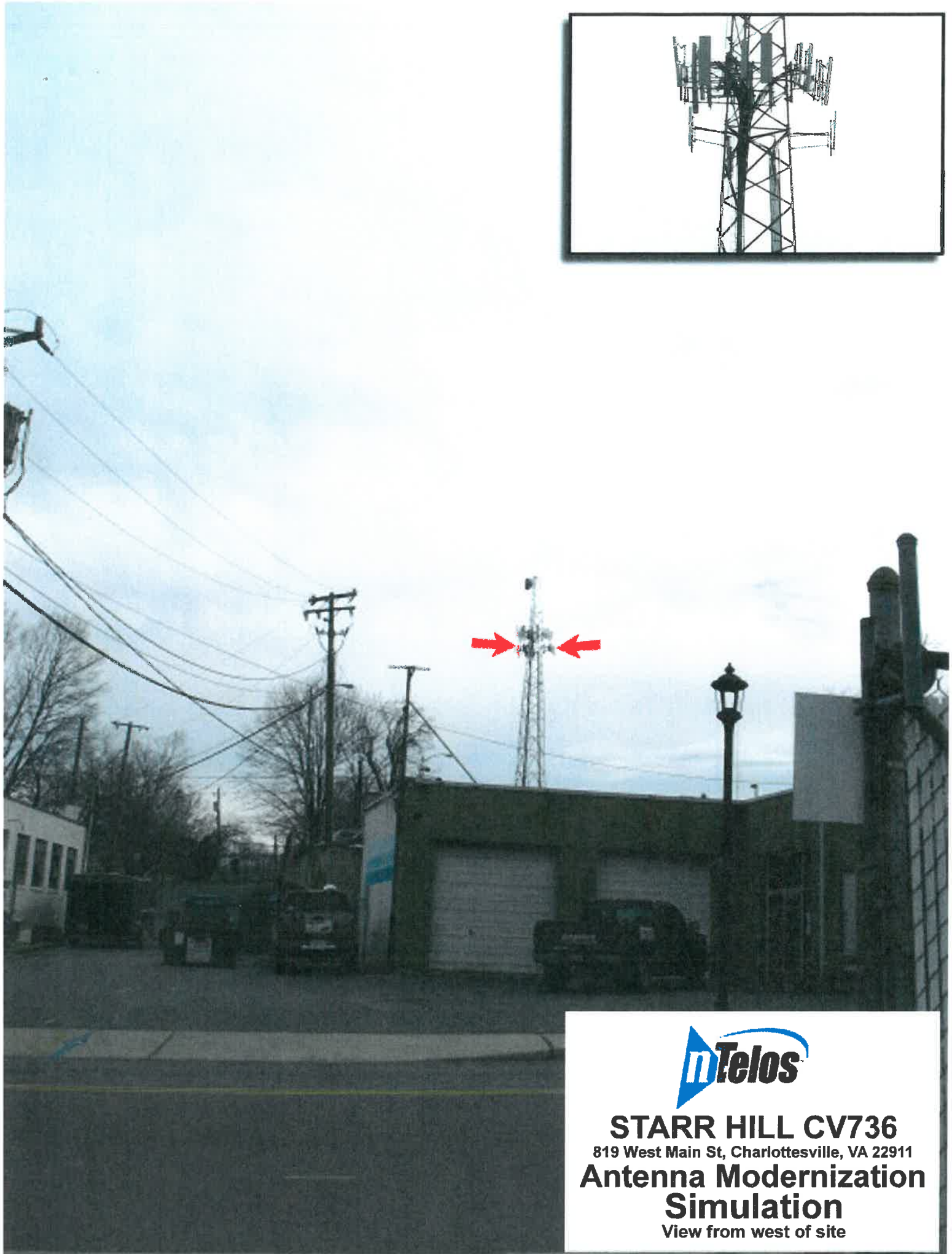
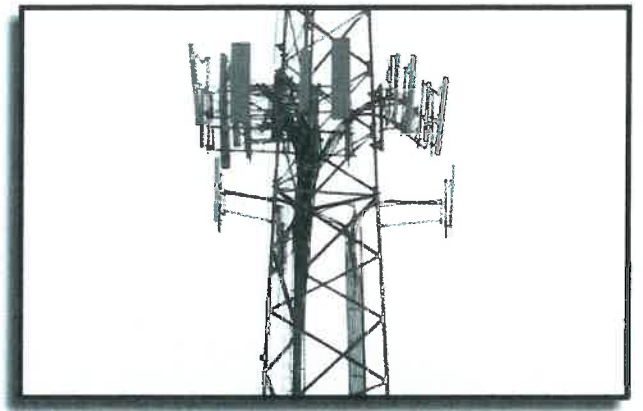
The consent granted in this letter shall expire on November 1<sup>st</sup>, 2015.

By Owner, Norfolk Southern Railway Company:

Signature: 

Title: VP-IT

Date: 2/17/15



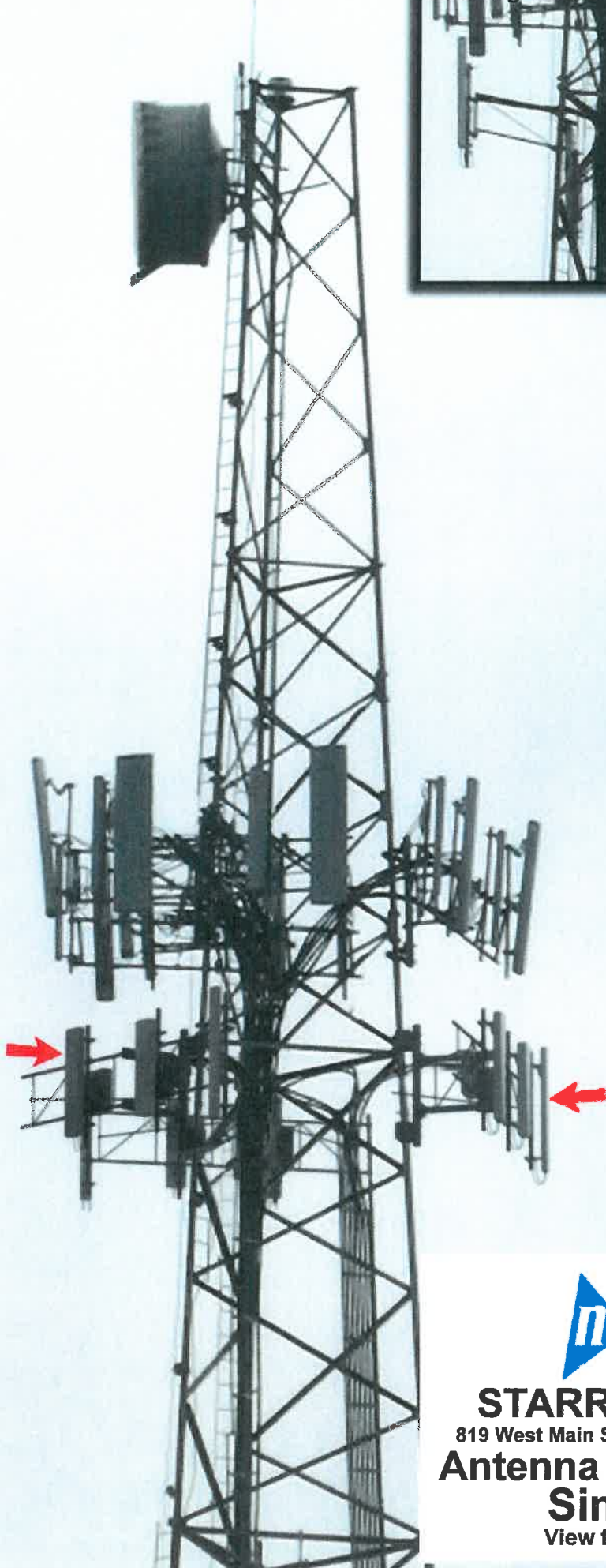
**STARR HILL CV736**

819 West Main St, Charlottesville, VA 22911

**Antenna Modernization  
Simulation**

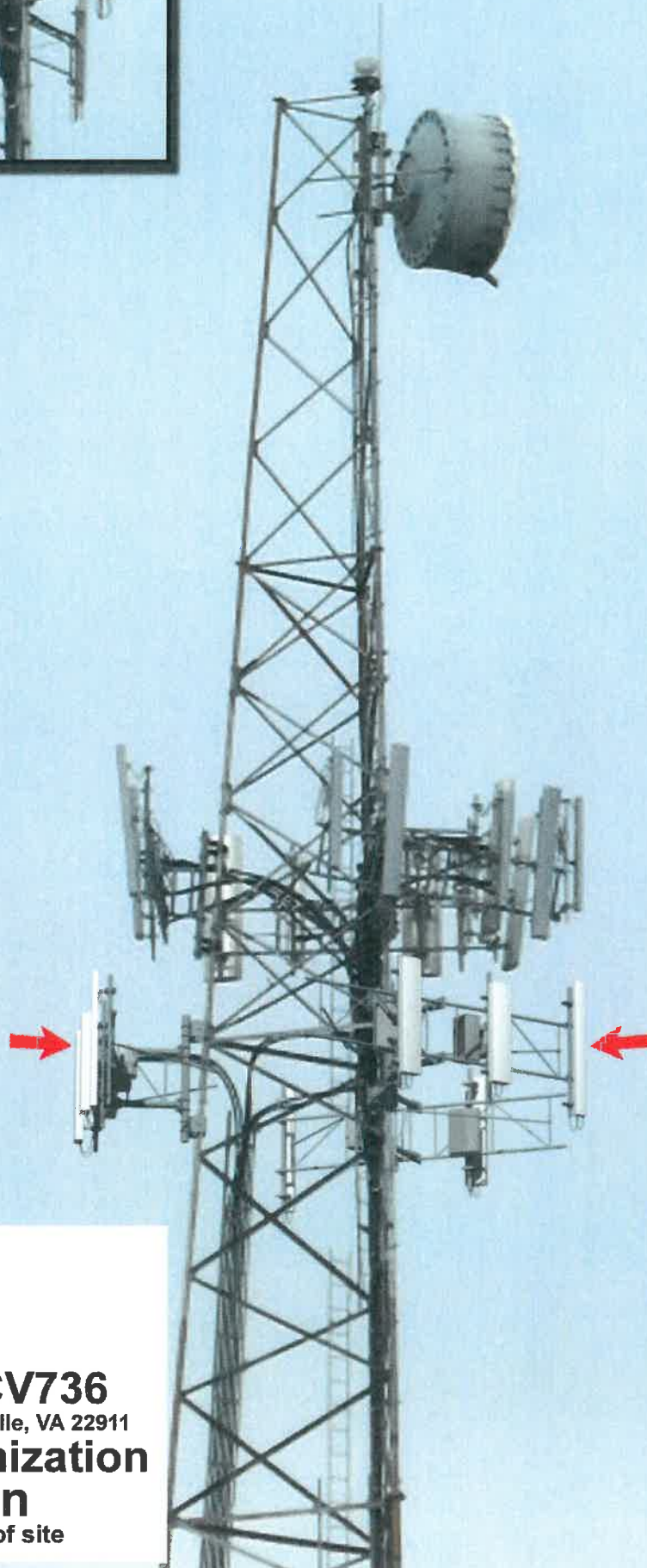
View from west of site

Existing View



**STARR HILL CV736**  
819 West Main St, Charlottesville, VA 22911  
**Antenna Modernization  
Simulation**  
View from west of site

Existing View



**STARR HILL CV736**

819 West Main St, Charlottesville, VA 22911

**Antenna Modernization  
Simulation**

View from southeast of site

Existing View



**STARR HILL CV736**

819 West Main St, Charlottesville, VA 22911

**Antenna Modernization  
Simulation**

View from southeast of site





Proposed two (2) additional NTELOS equipment cabinets on existing NTELOS equipment platform.

11/04/2014 12:27



1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

**STARR HILL  
CV736  
EXISTING 226' SELF-SUPPORT TOWER SITE  
INSTALLATION OF LTE EQUIPMENT**



1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS:  
819 WEST MAIN STREET  
CHARLOTTESVILLE, VA 22911

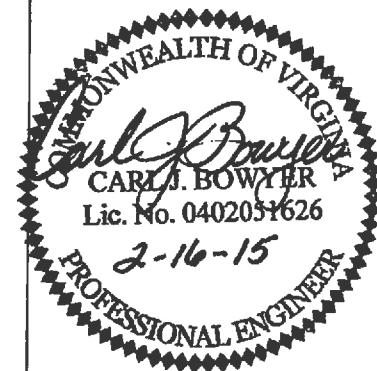
AREA:  
LEASE AREA = 399.5 SQ. FT.

TOWER OWNER:  
AMERICAN TOWERS, LLC  
10 PRESIDENTIAL WAY  
WOBBURN, MA 01801

LATITUDE: N38° 01' 56.6"

LONGITUDE: W78° 29' 30.4"

NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	12/03/14
2	ISSUE FOR APPROVAL	01/14/15
3	ISSUE FOR CONSTRUCTION	02/16/15

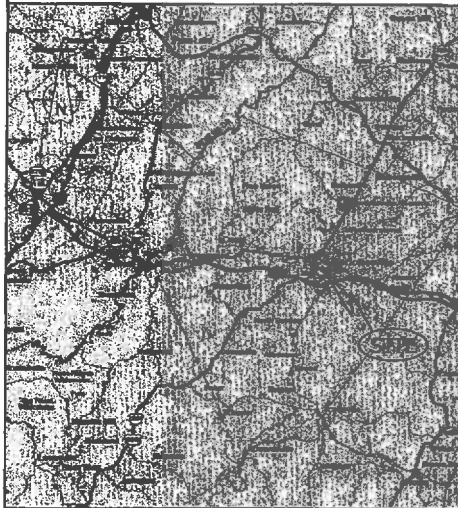


**Mead & Hunt**

400 TRACY WAY  
SUITE 200  
CHARLESTON, WV 25311  
(304) 345-6712 PHONE

PROJECT # R4022100-150054.01

TITLE SHEET	SHEET
TITLE SHEET	T-1



AREA MAP



VICINITY MAP

**SITE DIRECTIONS**  
FROM 1150 SHENANDOAH VILLAGE DRIVE, WAYNESBORO VA: HEAD SOUTHWEST ON STATE ROUTE F-209/SHENANDOAH VILLAGE DR (0.9 MI). TURN RIGHT ONTO P. BUCKLEY MOSS DR (0.1 MI). TURN RIGHT TO MERGE ONTO I-64 E TOWARD RICHMOND (25.3 MI); TAKE EXIT 120 TOWARD VA-631/5TH STREET/CHARLOTTESVILLE (0.2 MI). TURN LEFT ONTO 5TH ST EXTENDED (0.3 MI). CONTINUE ONTO 5TH ST SW (1.5 MI). TURN LEFT ONTO CHERRY AVE (0.4 MI). TURN RIGHT ONTO ROOSEVELT BROWN BLVD (0.3 MI). TURN RIGHT ONTO W MAIN ST (N 38° 01' 55.43", W 78° 29' 32.16") (0.1 MI). TURN LEFT THROUGH PARKING LOT TO SITE LOCATED ON THE RIGHT.

DIRECTIONS TO SITE

DESIGN ENGINEER  
**Mead & Hunt**  
400 TRACY WAY, SUITE 200  
CHARLESTON, WV 25311  
(304) 345-6712 PHONE  
(304) 345-6714 FAX

CONSULTANT TEAM

**SITE NAME**  
STARR HILL

**SITE NUMBER**  
CV736

**SITE ADDRESS**  
819 WEST MAIN STREET  
CHARLOTTESVILLE, VA 22911

**TOWER OWNER**  
AMERICAN TOWERS, LLC  
10 PRESIDENTIAL WAY  
WOBBURN, MA 01801

**SITE DATA**  
NAD 83 LATITUDE - N38° 01' 56.6"  
NAD 83 LONGITUDE - W78° 29' 30.4"

**LEASE AREA**  
399.5 SQUARE FEET

**PROJECT DESCRIPTION**  
INSTALLATION OF NEW ANTENNAS ON EXISTING 226' SELF-SUPPORT TOWER AND OUTDOOR EQUIPMENT ON EXISTING EQUIPMENT FRAME. NEW UTILITY RUNS TO SITE.

**JURISDICTION**  
CITY OF CHARLOTTESVILLE

**CONTACTS**  
nTELOS (CONSTRUCTION)  
BEN PIERCE  
(804) 218-5474 - PHONE  
7501 BOULDERS VIEW DR., SUITE 600  
RICHMOND, VA 23225  
nTELOS (LEASING)  
DEBBIE BALSER  
(540) 941-4220 x3071 - PHONE  
(540) 941-4106 - FAX  
MEAD & HUNT  
CURTIS PAXTON  
(304) 553-8103 - PHONE  
400 TRACY WAY, SUITE 200  
CHARLESTON, WV 25311

PROJECT INFORMATION

SHEET	TITLE
T-1	TITLE SHEET
C-1	EXISTING CONDITIONS
C-2	EQUIPMENT LAYOUT
C-3	GROUNDING PLAN
C-4	HYBRIFLEX CABLE DIAGRAM
C-5	ANTENNA CONFIGURATION
C-6	TOWER ELEVATION
C-7	ANTENNA DETAILS
D-1	MISCELLANEOUS DETAILS
D-2	MISCELLANEOUS DETAILS
D-3	MISCELLANEOUS DETAILS
D-4	MISCELLANEOUS DETAILS
D-5	GENERAL NOTES

SHEET INDEX

**POLICE/FIRE/RESCUE**  
911

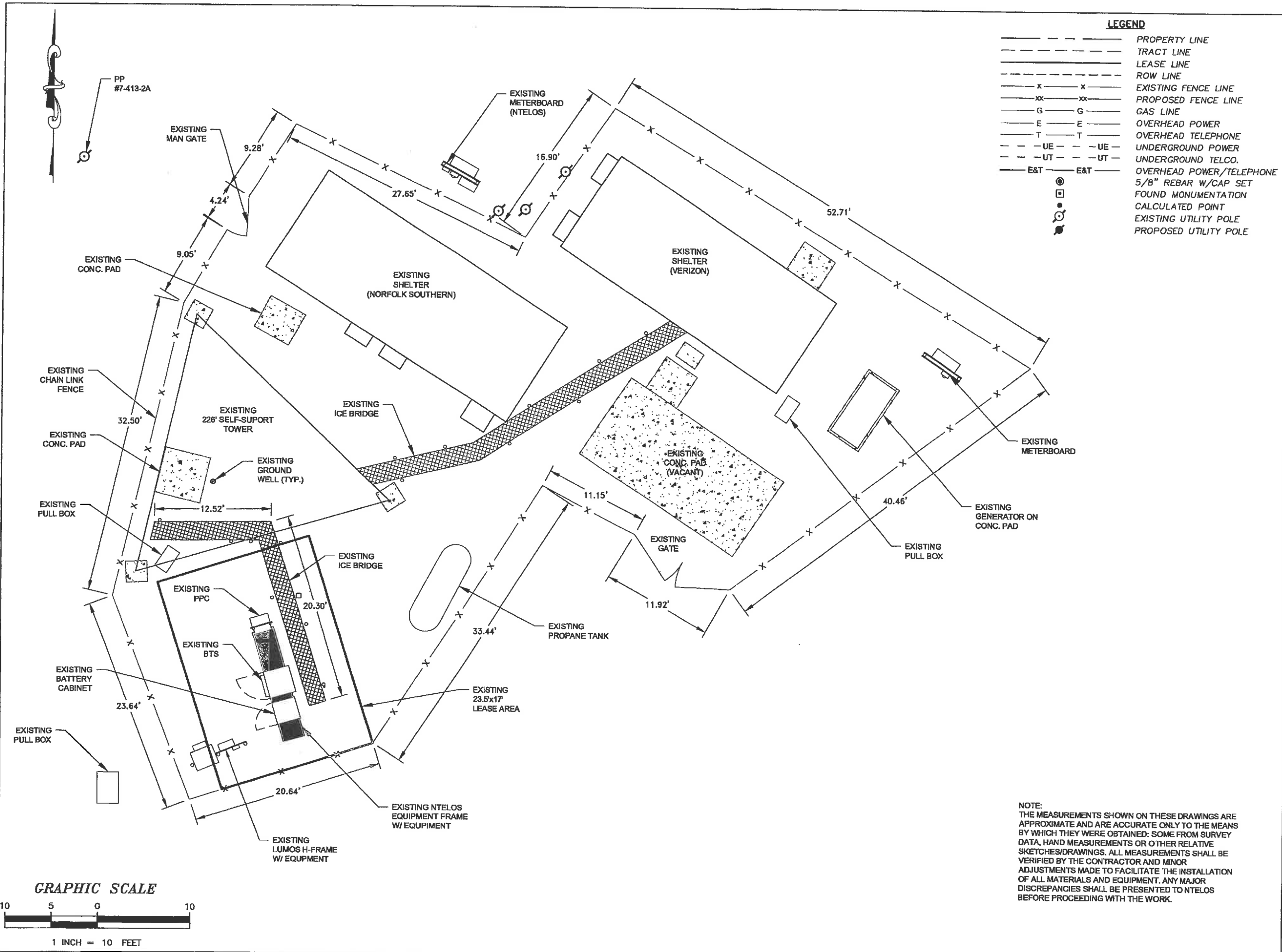
**ELECTRIC POWER**  
DOMINION VIRGINIA POWER  
CONTACT: CUSTOMER SERVICE  
PHONE#: 866-366-4357

**TELEPHONE**  
LUMOS  
CONTACT: CUSTOMER SERVICE  
PHONE#: 800-877-4646

**nTELOS NOC**  
(800) 566-9568 - PHONE

EMERGENCY AND UTILITY CONTACTS





1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS:  
819 WEST MAIN STREET  
CHARLOTTESVILLE, VA 22911

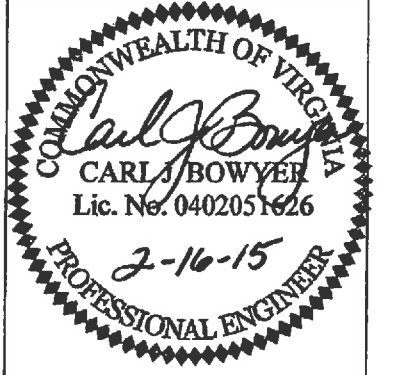
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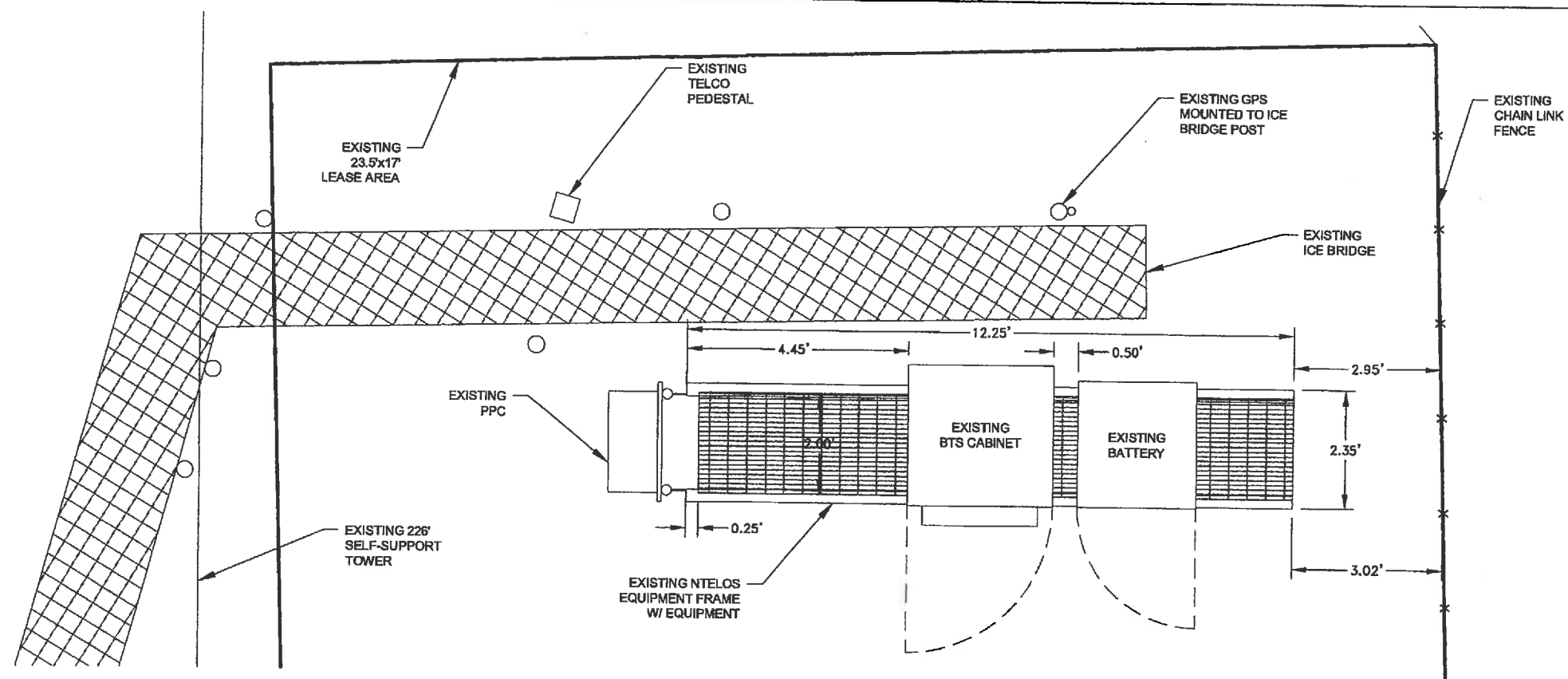
**Mead & Hunt**

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PROJECT # R4022100-150054.01

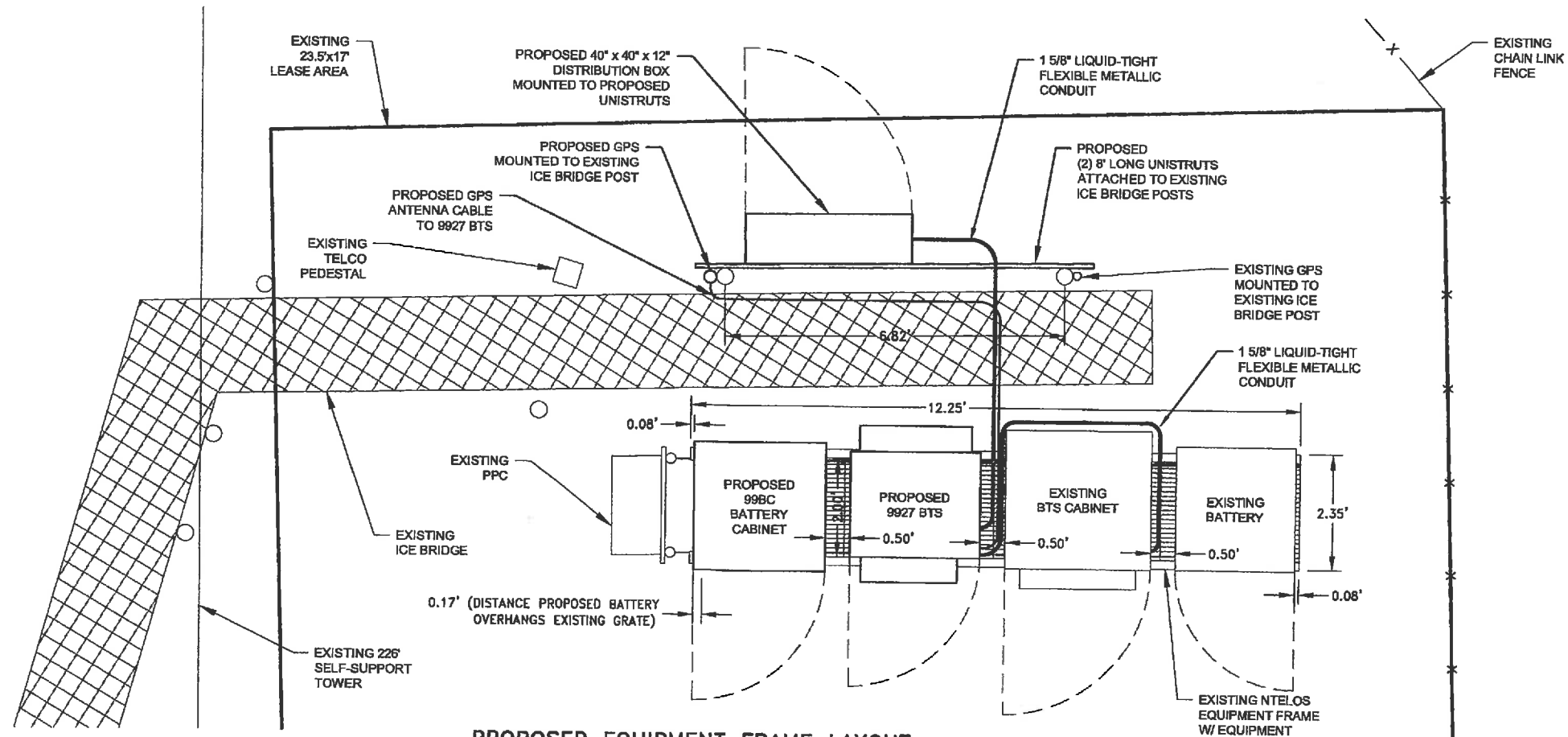
EXISTING CONDITIONS SHEET  
C-1

**NOTE:**  
THE MEASUREMENTS SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND ARE ACCURATE ONLY TO THE MEANS BY WHICH THEY WERE OBTAINED: SOME FROM SURVEY DATA, HAND MEASUREMENTS OR OTHER RELATIVE SKETCHES/DRAWINGS. ALL MEASUREMENTS SHALL BE VERIFIED BY THE CONTRACTOR AND MINOR ADJUSTMENTS MADE TO FACILITATE THE INSTALLATION OF ALL MATERIALS AND EQUIPMENT. ANY MAJOR DISCREPANCIES SHALL BE PRESENTED TO NTELOS BEFORE PROCEEDING WITH THE WORK.



**EXISTING EQUIPMENT FRAME LAYOUT**

SCALE: 1" = 3'



**PROPOSED EQUIPMENT FRAME LAYOUT**

SCALE: 1" = 3'

NOTE:  
LEAVE EXISTING BASE STATION, (3) X-POL ANTENNAS  
AND (6) CABLES IN PLACE TO SUPPORT PCS 1X/EVDO.  
ADD A 9927 BTS AND BATTERY CABINET.



1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS:  
819 WEST MAIN STREET  
CHARLOTTESVILLE, VA 22911

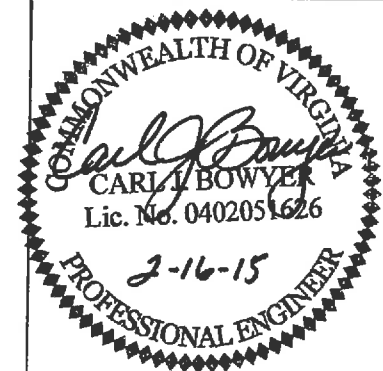
AREA:  
LEASE AREA = 399.5 SQ. FT.

TOWER OWNER:  
AMERICAN TOWERS, LLC  
10 PRESIDENTIAL WAY  
WOBBURN, MA 01801

LATITUDE: N38° 01' 56.6"

LONGITUDE: W78° 29' 30.4"

NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	12/03/14
2	ISSUE FOR APPROVAL	01/14/15
3	ISSUE FOR CONSTRUCTION	02/16/15



**Mead & Hunt**

400 TRACY WAY  
SUITE 200  
CHARLESTON, WV 25311  
(304) 345-6712 PHONE

PROJECT # R4022100-150054.01

EQUIPMENT LAYOUT SHEET  
C-2



**NOTE:**  
ALL SPARE GROUNDS ARE TO BE COILED AND HAVE 6" COVER.

**NOTE:**  
GROUND ALL PROPOSED EQUIPMENT PER MANUFACTURER'S SPECIFICATIONS AND/OR NEC REQUIREMENTS.

**GROUNDING LEGEND**

- 5/8" x 8' COPPER-CLAD STEEL GROUND ROD
- ⊙ GROUND ROD WITH PLASTIC INSPECTION SLEEVE
- COMPRESSION LUG CONNECTION
- ▶ EXOTHERMIC WELD GROUNDING CONNECTION
- P — POWER RATING
- T — TELCO WIRING
- G — GROUND WIRING

**ABBREVIATIONS**

A	AMPERE	PVC	POLYVINYL CHLORIDE
C	CONDUIT	V	VOLT
(E)	EXISTING	W	WIRE
G	GROUND	Ø	PHASE
P	POLE		



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WAYNESBORO, VA 22980

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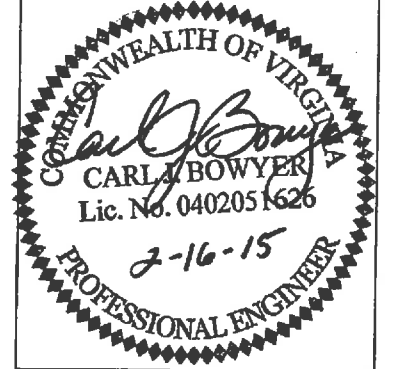
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10 PRESIDENTIAL WAY  
WOBURN, MA 01801

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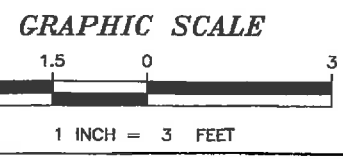
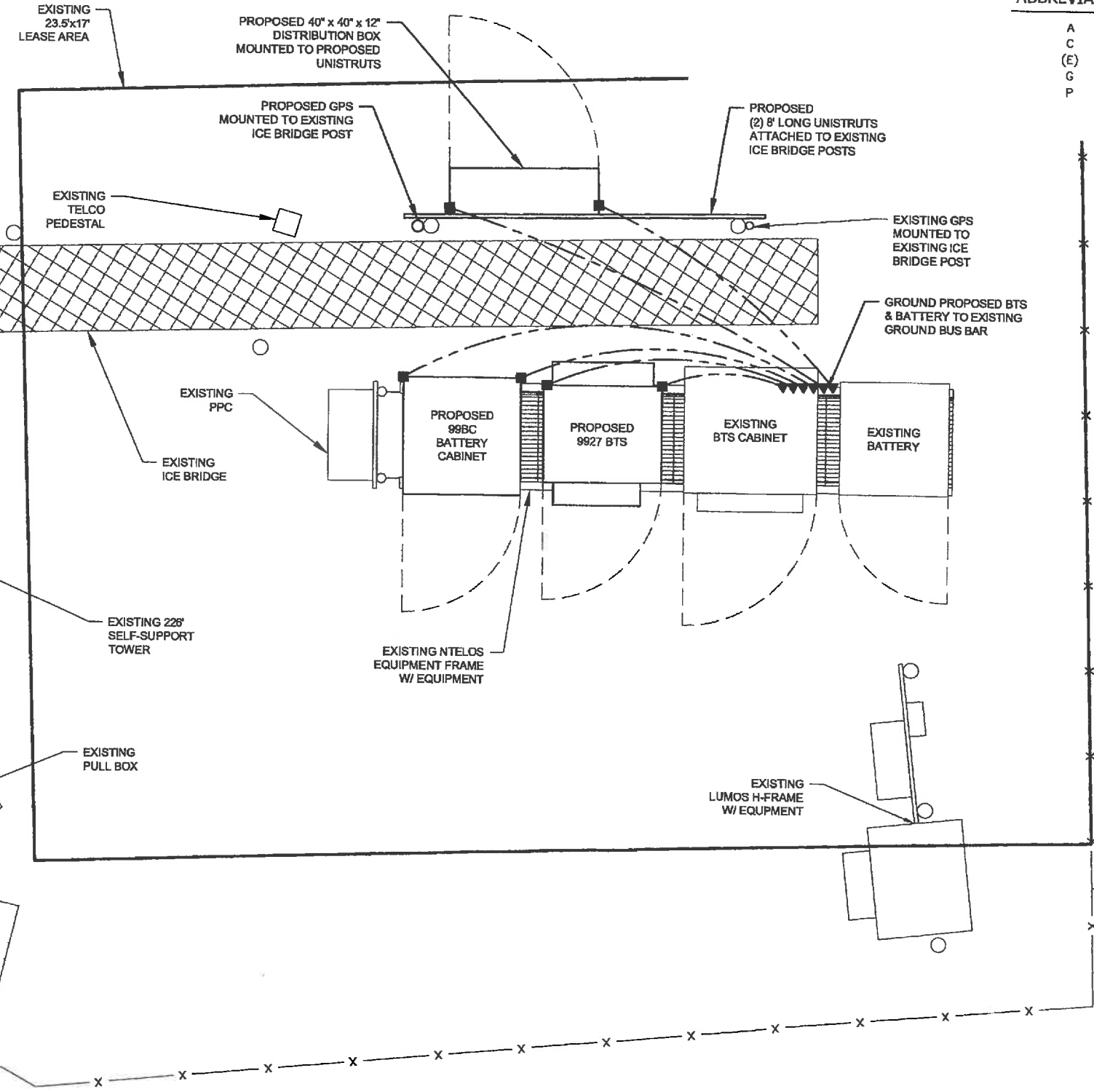
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PROJECT # R4022100-150054.01

GROUNDING PLAN SHEET  
C-3





ALPHA = RED  
 BETA = BLUE  
 GAMMA = GREEN

CABLES	
(6) EXISTING 1-5/8" COAX CABLES	
(3) HYBRIFLEX CABLES - 1 PER SECTOR	

HYBRIFLEX CABLE LENGTHS	
TOTAL CABLE LENGTH OF ALPHA SECTOR	233'
TOTAL CABLE LENGTH OF BETA SECTOR	238'
TOTAL CABLE LENGTH OF GAMMA SECTOR	215'

**LEGEND**

---	PROPERTY LINE
- - -	TRACT LINE
---	LEASE LINE
---	ROW LINE
- x - x -	EXISTING FENCE LINE
- xx - xx -	PROPOSED FENCE LINE
---	GAS LINE
---	OVERHEAD POWER
---	OVERHEAD TELEPHONE
- - -	UNDERGROUND POWER
- - -	UNDERGROUND TELCO.
- E&T -	OVERHEAD POWER/TELEPHONE
⊙	5/8" REBAR W/CAP SET
⊠	FOUND MONUMENTATION
⊙	CALCULATED POINT
⊙	EXISTING UTILITY POLE
⊙	PROPOSED UTILITY POLE



1150 SHENANDOAH VILLAGE DRIVE  
 WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS:  
 819 WEST MAIN STREET  
 CHARLOTTESVILLE, VA 22911

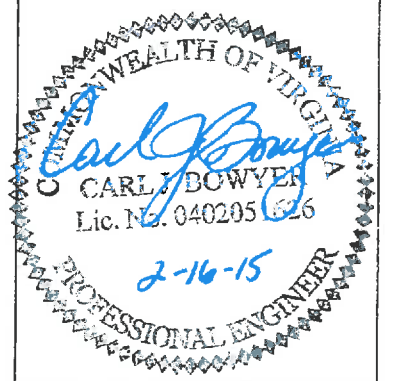
AREA:  
 LEASE AREA = 399.5 SQ. FT.

TOWER OWNER:  
 AMERICAN TOWERS, LLC  
 10 PRESIDENTIAL WAY  
 WOBURN, MA 01801

LATITUDE: N38° 01' 56.6"

LONGITUDE: W78° 29' 30.4"

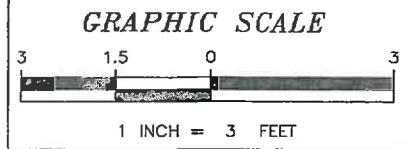
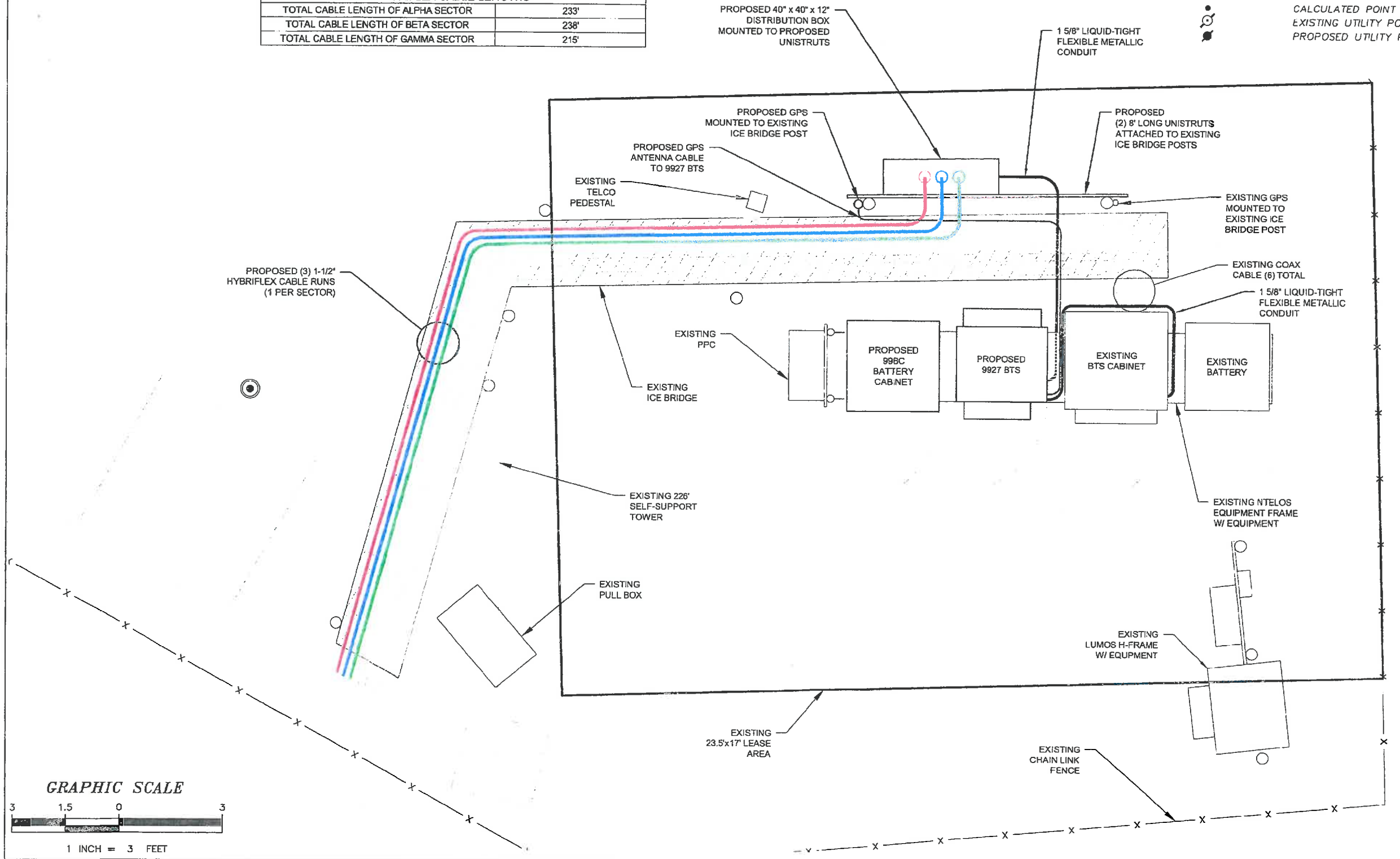
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 (304) 345-6712 PHONE

PROJECT # R4022100-150054.01

HYBRIFLEX CABLE DIAGRAM	SHEET C-4
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1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

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SITE ADDRESS:  
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CHARLOTTESVILLE, VA 22911

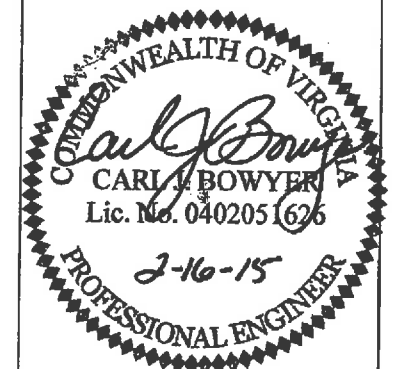
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10 PRESIDENTIAL WAY  
WOBURN, MA 01801

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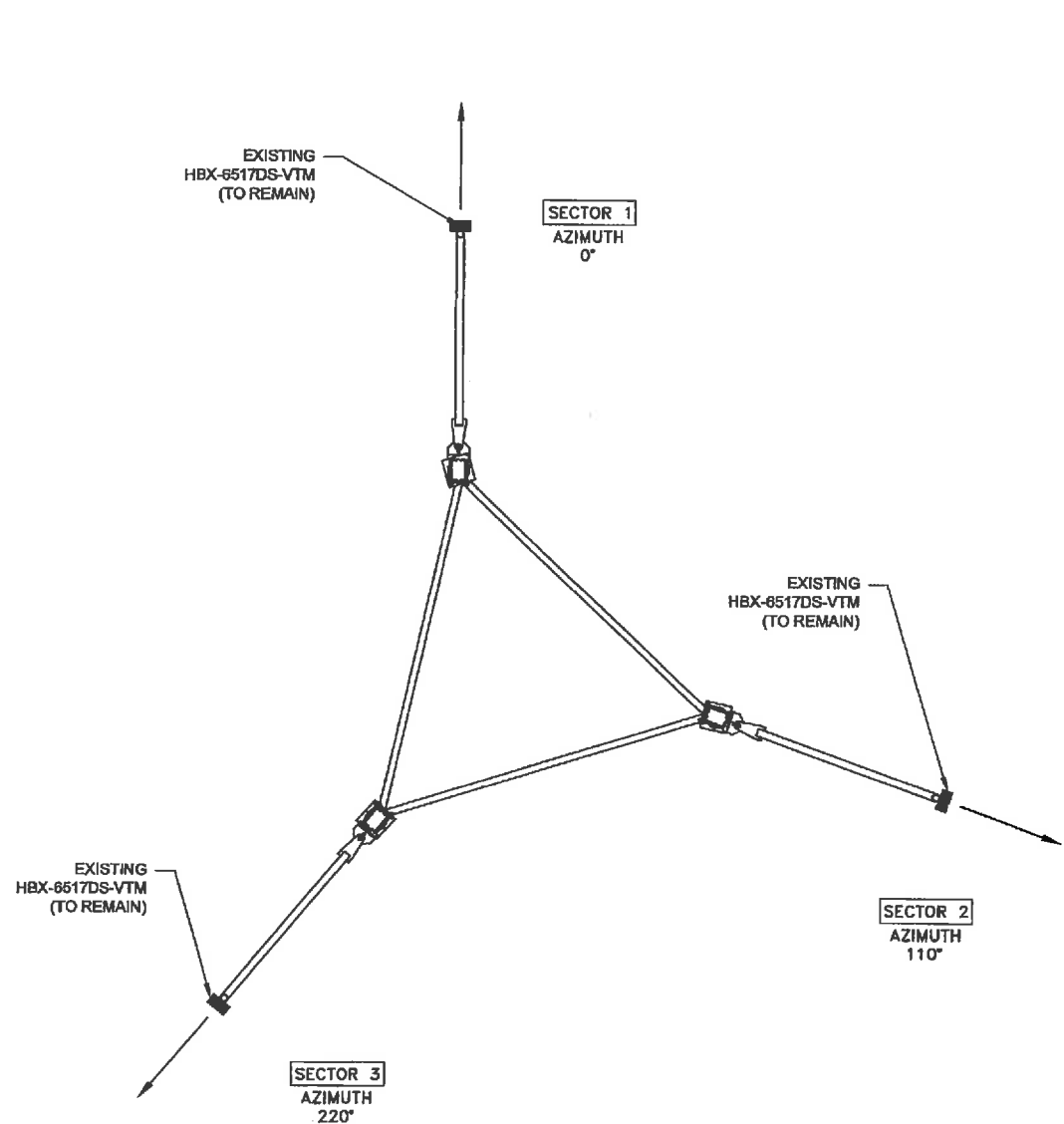


**Mead & Hunt**

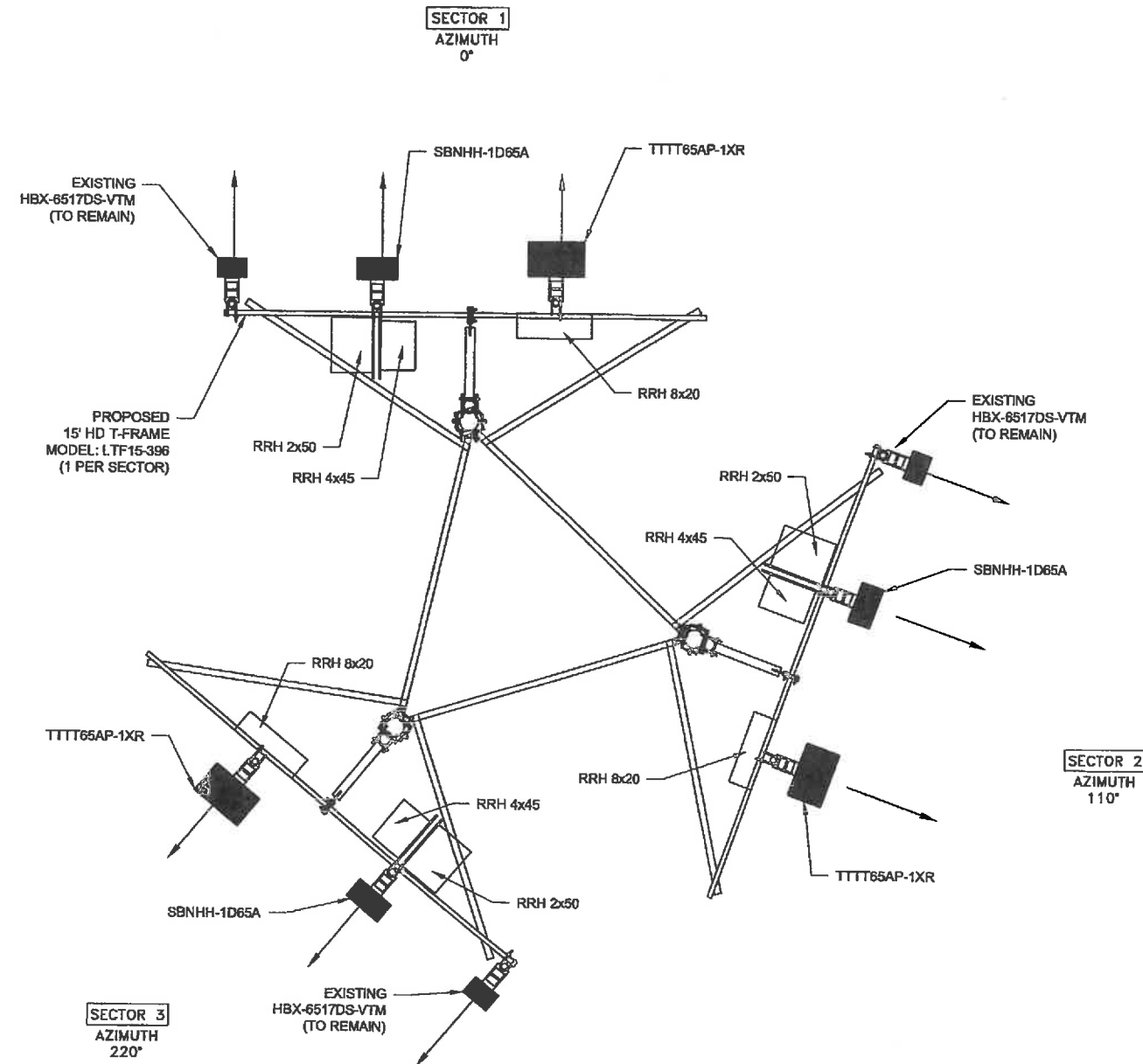
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(304) 345-6712 PHONE

PROJECT # R4022100-150054.01

ANTENNA CONFIGURATION SHEET  
C-5



**EXISTING ANTENNA CONFIGURATION**  
NOT TO SCALE



**PROPOSED ANTENNA CONFIGURATION**  
NOT TO SCALE

NOTE:  
LEAVE EXISTING BASE STATION, (3) X-POL ANTENNAS AND (6) CABLES IN PLACE TO SUPPORT PCS 1X/EVDO. ADD A 9927 BTS AND BATTERY CABINET, (3) PCS 4X45 RRHS, (3) 2X50 800 RRHS, (3) 8X20 2.5 GHZ RRHS, (3) 6 PORT ANTENNAS 800/WIDEBAND/WIDEBAND, (3) 8-PORT + CAL PORT BRS (LTE-TDD BEAMFORMING) CAPABLE ANTENNAS, AND THREE (3) HYBRIFLEX CABLES (ONE HYBRIFLEX CABLE PER SECTOR WITH A MINIMUM OF 3 POWER PAIRS AND 8 FIBER PAIRS TO SUPPORT LTE OVERLAY WITH BAND CLASSES 4, 26, AND 41).

CABLES
(6) EXISTING 1-5/8" COAX CABLES - 2 PER SECTOR
(3) HYBRIFLEX CABLES - 1 PER SECTOR

- NOTES:**
1. THE TOWER AND TOWER FOUNDATION HAS BEEN DESIGNED BY OTHERS.
  2. THE CONTRACTOR TO VERIFY THE COAX AND CABLE PLACEMENT WITH A REPRESENTATIVE OF THE OWNER AND/OR CURRENT STRUCTURAL ANALYSIS.
  3. ALL COAX LINES TO BE DOUBLED STACKED.
  4. CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE TOWER DESIGN AND/OR CURRENT STRUCTURAL ANALYSIS PERFORMED BY OTHERS.
  5. THE CONTRACTOR TO VERIFY ANTENNA INFORMATION 48 HOURS PRIOR TO INSTALLING.
  6. THIS DRAWING IS FOR GENERAL INFORMATION ONLY.



1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS:  
819 WEST MAIN STREET  
CHARLOTTESVILLE, VA 22911

AREA:  
LEASE AREA = 399.5 SQ. FT.

TOWER OWNER:  
AMERICAN TOWERS, LLC  
10 PRESIDENTIAL WAY  
WOBURN, MA 01801

LATITUDE: N38° 01' 56.6"

LONGITUDE: W78° 29' 30.4"

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FOR  
ILLUSTRATIVE  
PURPOSES  
ONLY

**Mead  
& Hunt**

400 TRACY WAY  
SUITE 200  
CHARLESTON, WV 25311  
(304) 345-6712 PHONE

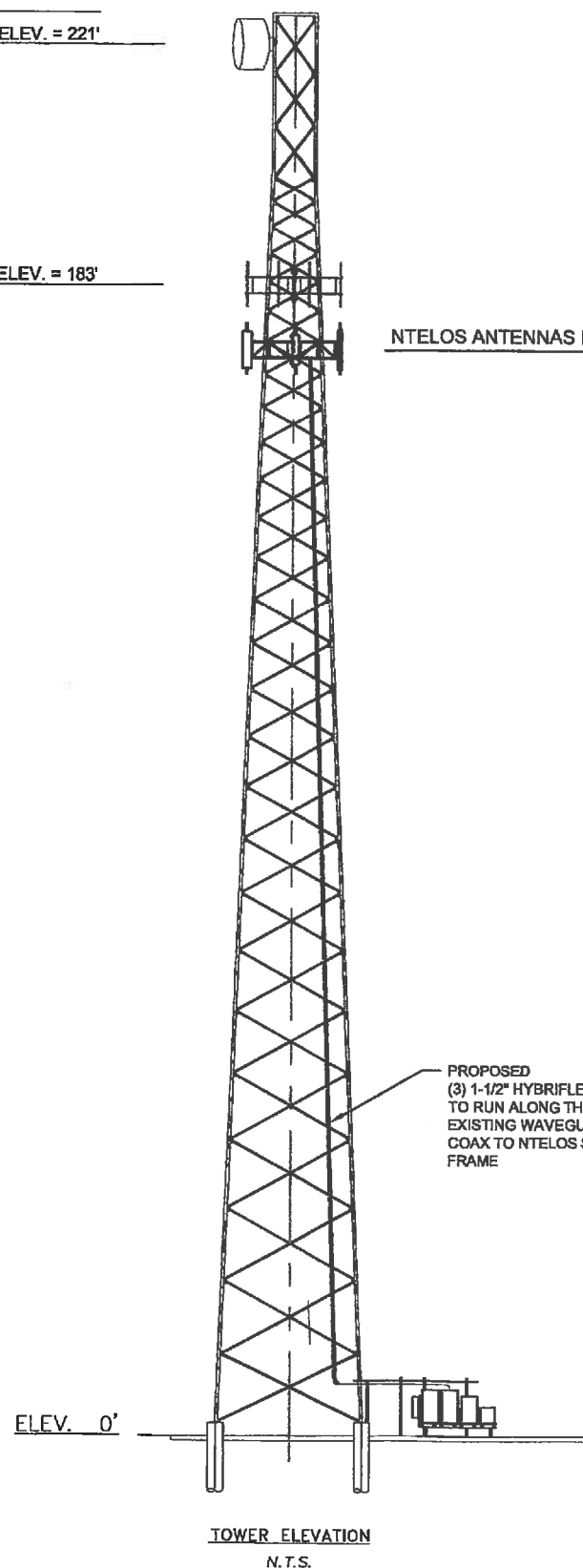
PROJECT # R4022100-150054.01

TOWER ELEVATION	SHEET
	C-6

TOP OF TOWER ELEV. = 226'  
EXISTING ANTENNAS RAD CENTER ELEV. = 221'

EXISTING ANTENNAS RAD CENTER ELEV. = 183'

NTELOS ANTENNAS RAD CENTER ELEV. = 173'



CABLES
(6) EXISTING 1-5/8" COAX CABLES - 2 PER SECTOR
(3) HYBRIFLEX CABLES - 1 PER SECTOR

**NOTES:**

1. THE TOWER AND TOWER FOUNDATION HAS BEEN DESIGNED BY OTHERS.
2. THE CONTRACTOR TO VERIFY THE COAX AND CABLE PLACEMENT WITH A REPRESENTATIVE OF THE OWNER AND/OR CURRENT STRUCTURAL ANALYSIS.
3. ALL COAX LINES TO BE DOUBLED STACKED.
4. CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE TOWER DESIGN AND/OR CURRENT STRUCTURAL ANALYSIS PERFORMED BY OTHERS.
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WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

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10 PRESIDENTIAL WAY  
WOBURN, MA 01801

LATITUDE: N38° 01' 56.6"

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FOR  
ILLUSTRATIVE  
PURPOSES  
ONLY

**Mead  
& Hunt**

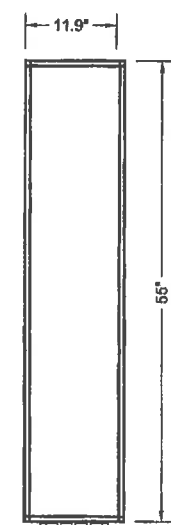
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PROJECT # R4022100-150054.01

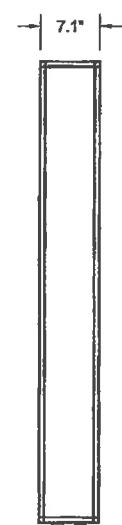
ANTENNA DETAILS	SHEET
	C-7



BOTTOM VIEW

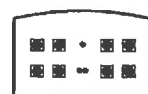


FRONT VIEW

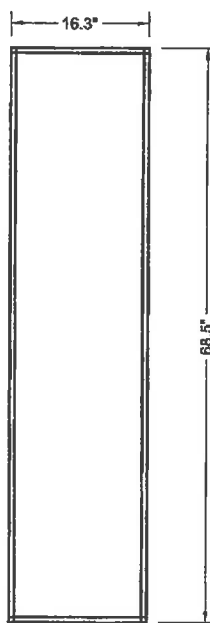


SIDE VIEW

SBNHH-1D65A  
NOT TO SCALE  
55"Lx11.9"Wx7.1"D  
33.5 LBS



BOTTOM VIEW



FRONT VIEW

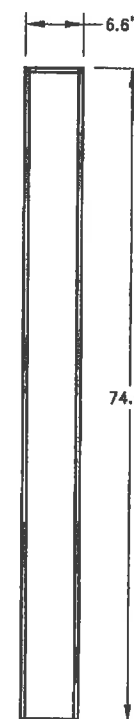


SIDE VIEW

TTT65AP-1XR  
NOT TO SCALE  
68.5"Lx16.3"Wx10.1"D  
55.4 LBS



BOTTOM VIEW



FRONT VIEW



SIDE VIEW

HBX-6517DS-VTM  
NOT TO SCALE  
74.9"Lx6.6"Wx3.3"D  
13.7 LBS





1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS:  
819 WEST MAIN STREET  
CHARLOTTESVILLE, VA 22911

AREA:  
LEASE AREA = 399.5 SQ. FT.

TOWER OWNER:  
AMERICAN TOWERS, LLC  
10 PRESIDENTIAL WAY  
WOBURN, MA 01801

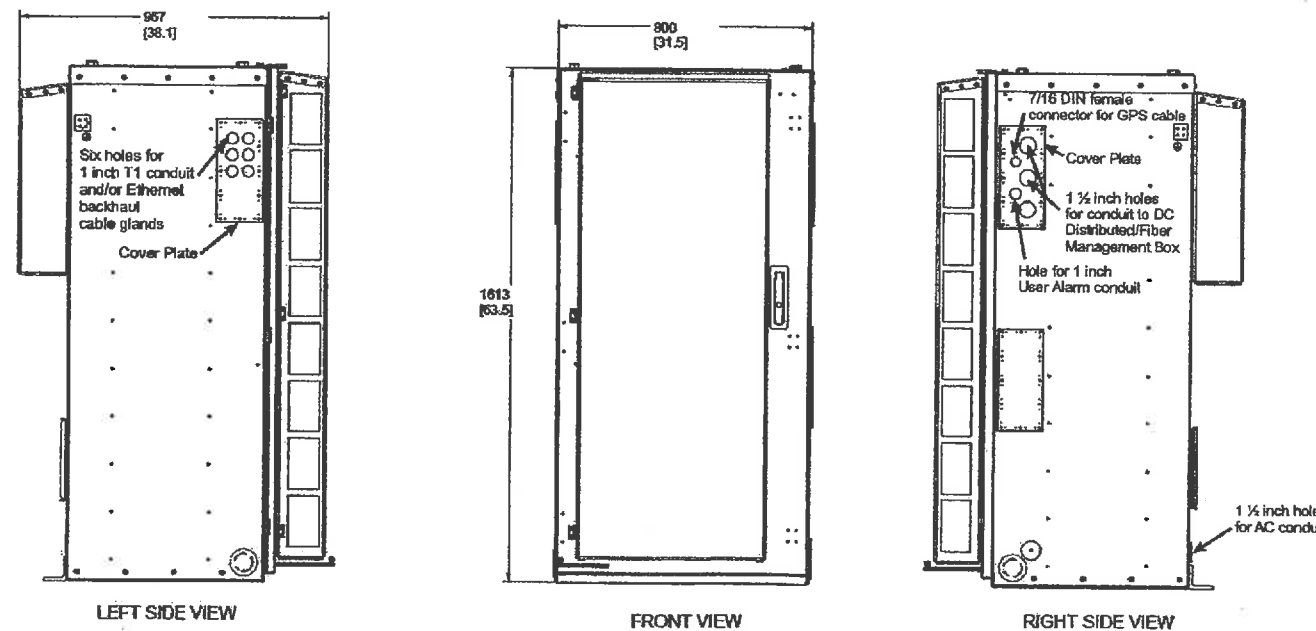
LATITUDE: N38° 01' 56.6"

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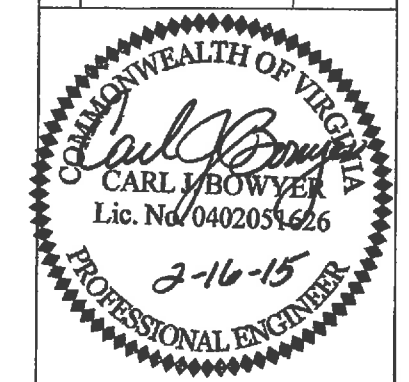
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PROPOSED EQUIPMENT DATA								
COMPONENT	MANUFACTURER	MODEL	WIDTH (INCH)	DEPTH (INCH)	HEIGHT (INCH)	QTY	WT. EACH (LBS)	TOTAL WT. (LBS)
BTS CABINET	ALCATEL LUCENT	9927	32	38	63.6	1	634	634
BATTERY CABINET	ALCATEL LUCENT	99BC	31.5	31.2	63.6	1	2640	2640
RADIO HEADS	COMMSCOPE	ALU 4x45	11.1	10.7	25.1	3	62.7	188.1
RADIO HEADS	COMMSCOPE	ALU 2x50	13	10	15.8	3	50.7	152.1
RADIO HEADS	COMMSCOPE	ALU 8x20	18.6	6.7	26.2	3	70.55	211.65
ANTENNA	COMMSCOPE	SBNHH-1065A	11.9	7.1	55	3	33.5	100.5
ANTENNA	COMMSCOPE	TTTT65AP-1XR	16.3	10.1	68.5	3	55.4	166.2

EXISTING EQUIPMENT DATA								
COMPONENT	MANUFACTURER	MODEL	WIDTH (INCH)	DEPTH (INCH)	HEIGHT (INCH)	QTY	WT. EACH (LBS)	TOTAL WT. (LBS)
ANTENNA (ALPHA)	COMMSCOPE	HBX-6517DS-VTM	6.6	3.3	74.9	1	13.7	13.7
ANTENNA (BETA)	COMMSCOPE	HBX-6517DS-VTM	6.6	3.3	74.9	1	13.7	13.7
ANTENNA (GAMMA)	COMMSCOPE	HBX-6517DS-VTM	6.6	3.3	74.9	1	13.7	13.7



9927 LTE CABINET DETAIL  
NOT TO SCALE

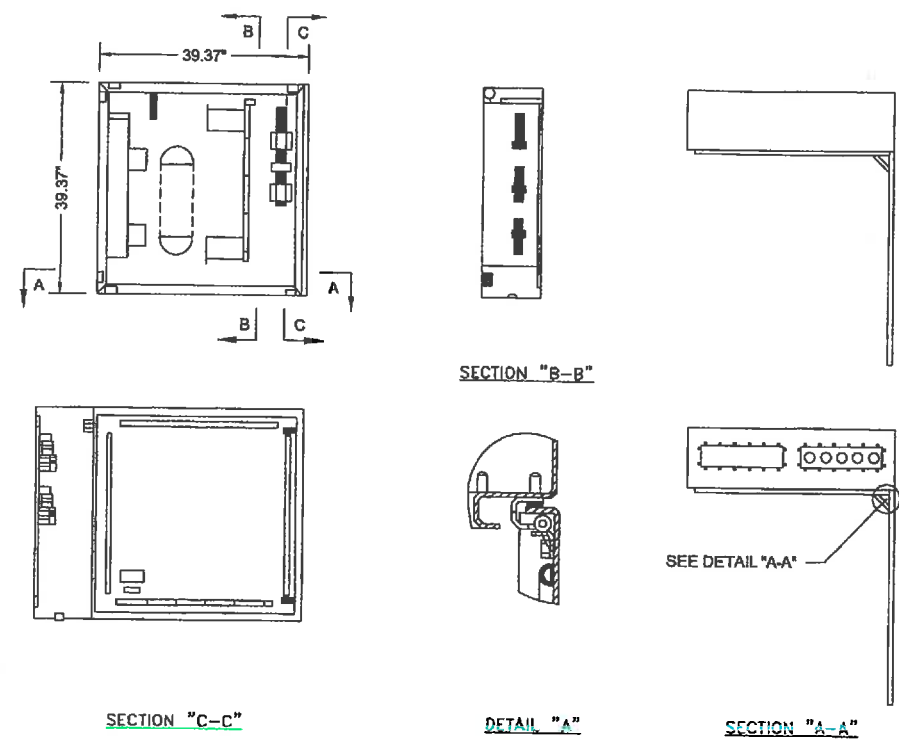


**Mead & Hunt**

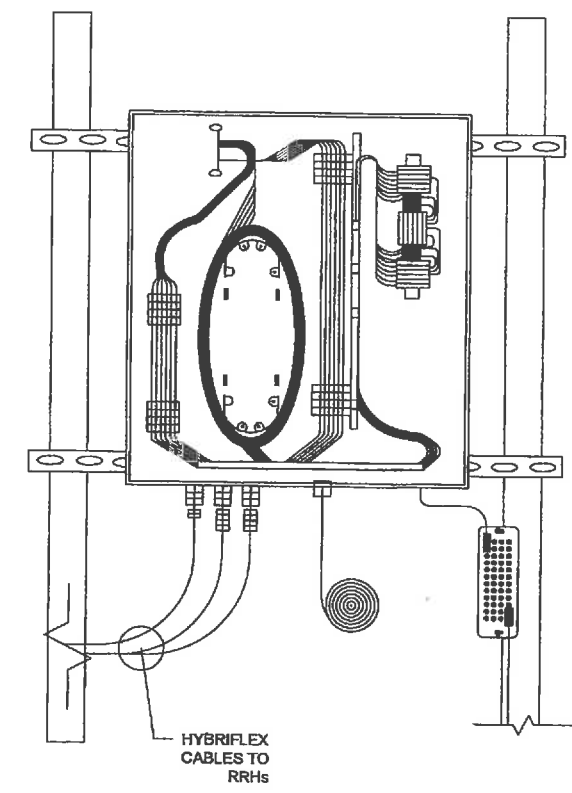
400 TRACY WAY  
SUITE 200  
CHARLESTON, WV 25311  
(304) 345-6712 PHONE

PROJECT # R4022100-150054.01

MISCELLANEOUS DETAILS SHEET D-1



**DISTRIBUTION BOX PLAN VIEW**  
NO SCALE



**DISTRIBUTION BOX ELEVATION VIEW**  
NO SCALE



1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS:  
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CHARLOTTESVILLE, VA 22911

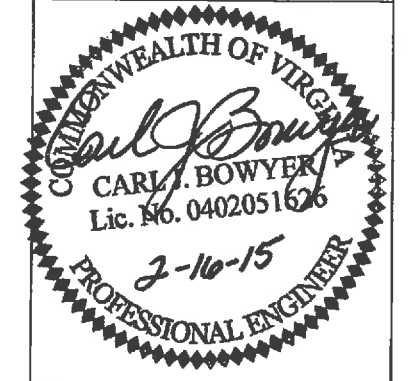
AREA:  
LEASE AREA = 399.5 SQ. FT.

TOWER OWNER:  
AMERICAN TOWERS, LLC  
10 PRESIDENTIAL WAY  
WOBBURN, MA 01801

LATITUDE: N38° 01' 56.6"

LONGITUDE: W78° 29' 30.4"

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PROJECT # R4022100-150054.01

MISCELLANEOUS DETAILS	SHEET
	D-2



1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS:  
819 WEST MAIN STREET  
CHARLOTTESVILLE, VA 22911

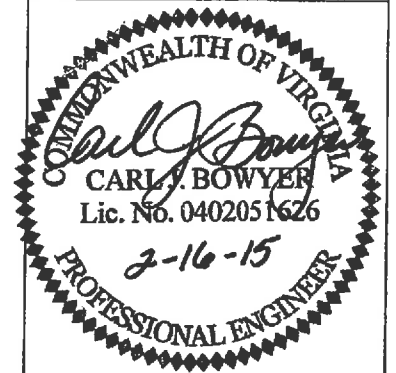
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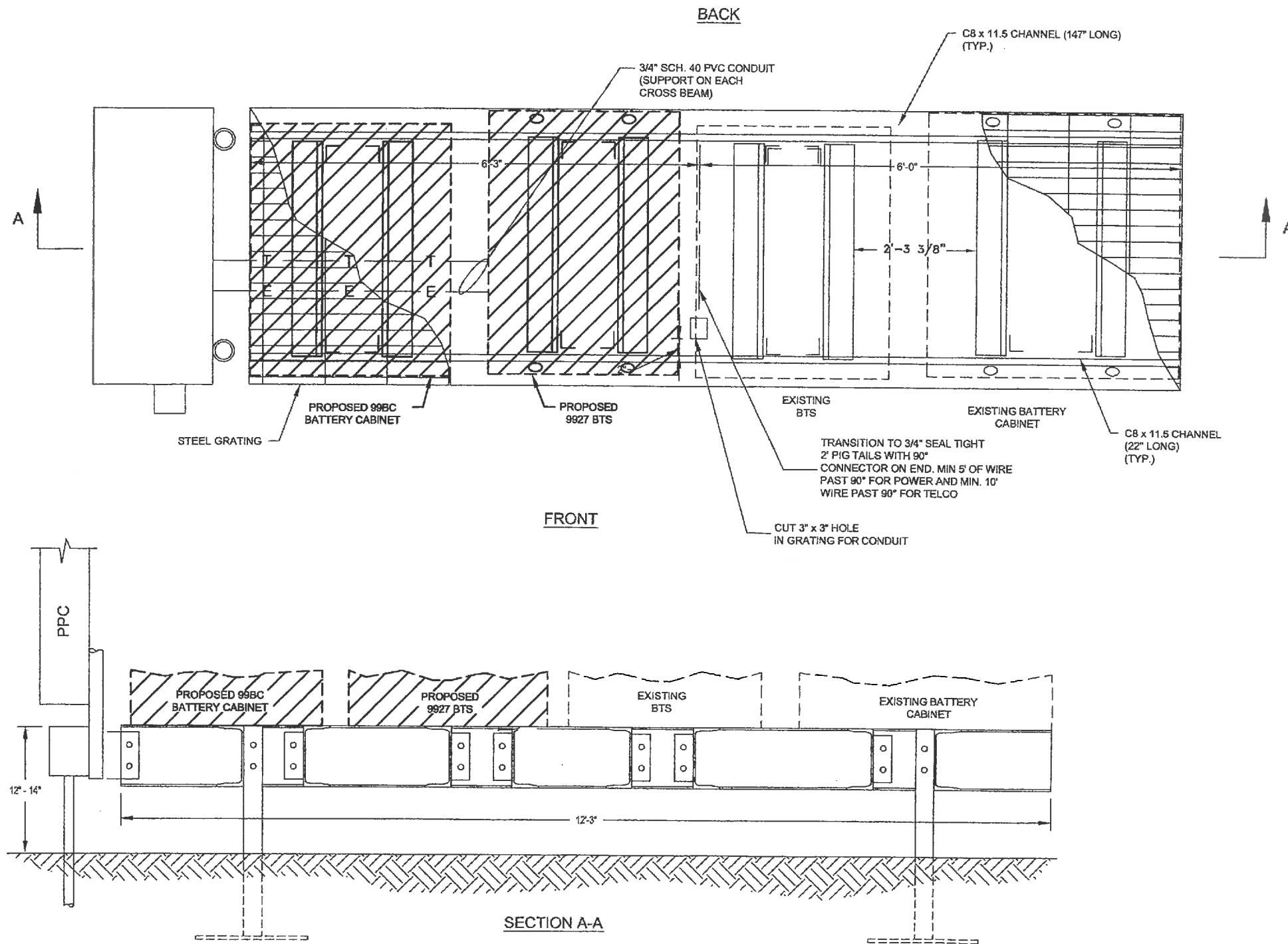


**Mead & Hunt**

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SUITE 200  
CHARLESTON, WV 25311  
(304) 345-6712 PHONE

PROJECT # R4022100-150054.01

MISCELLANEOUS SHEET  
DETAILS D-3



**NOTE:**  
EQUIPMENT FRAME AND  
FOUNDATION DESIGNED BY  
OTHERS.



1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

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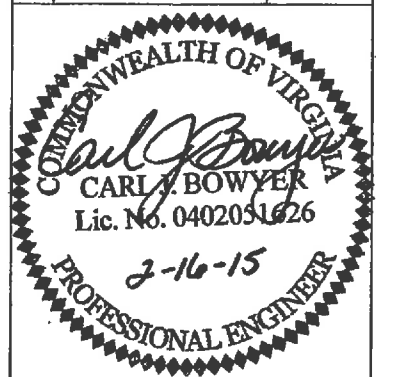
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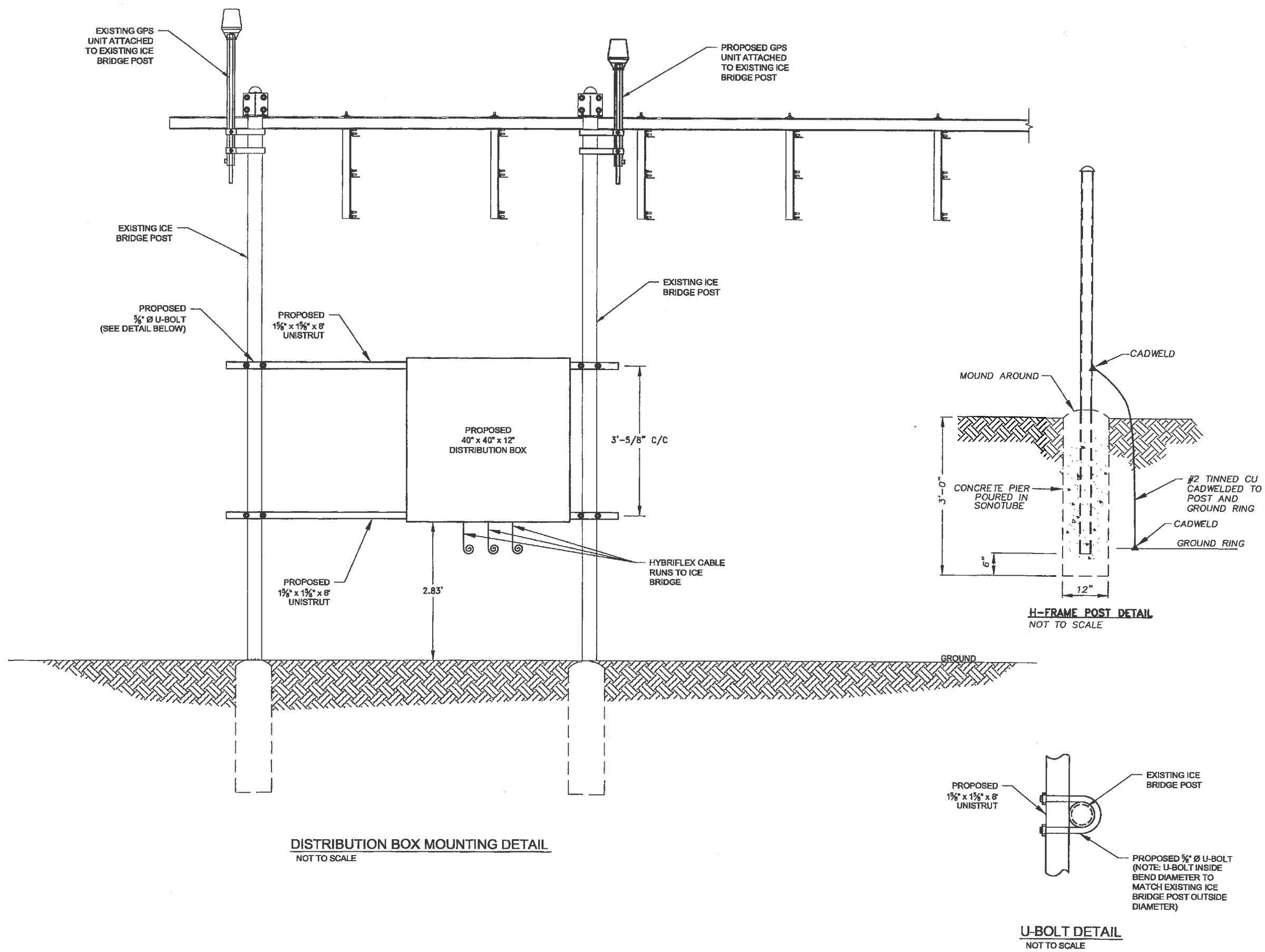
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PROJECT # R4022100-150054.01

MISCELLANEOUS DETAILS	SHEET D-4
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**DISTRIBUTION BOX MOUNTING DETAIL**  
NOT TO SCALE

**H-FRAME POST DETAIL**  
NOT TO SCALE

**U-BOLT DETAIL**  
NOT TO SCALE

**GENERAL NOTES**

1. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNMENT AGENCIES.
2. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND AT HIS EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
3. CONTRACTOR SHALL NOTIFY THE COUNTY ENGINEER 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.
4. LOCATION OF EXISTING SEWER, WATER OR GAS LINES, CONDUITS OR OTHER STRUCTURES ACROSS, UNDERNEATH, OR OTHERWISE ALONG THE LINE OF PROPOSED WORK ARE NOT NECESSARILY SHOWN ON THE PLANS, AND IF SHOWN, ARE ONLY APPROXIMATELY CORRECT. CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES (INCLUDING TEST PITS BY HAND IF NECESSARY) IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT THE OWNER'S ENGINEER IMMEDIATELY IF LOCATION OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON PLANS. IF THERE APPEARS TO BE A CONFLICT, OR UPON THE DISCOVERY OF ANY UTILITY NOT SHOWN ON THE PLANS, CALL "MISS UTILITY" FOR ASSISTANCE.
5. EXISTING PAVEMENT AND OTHER SURFACES DISTURBED BY THE CONTRACTOR (WHICH ARE NOT TO BE REMOVED) SHALL BE REPAIRED OR REPLACED IN-KIND.
6. THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL DITCHES, PIPES, AND OTHER DRAINAGE STRUCTURES FREE FROM OBSTRUCTION UNTIL WORK IS ACCEPTED BY THE OWNER. THE CONTRACTOR IS RESPONSIBLE FOR ANY AND ALL DAMAGES DUE TO FAILURE TO MAINTAIN DRAINAGE STRUCTURES IN OPERABLE CONDITION.
7. THE CONTRACTOR SHALL COORDINATE THE REQUIREMENTS FOR AND LIMITS OF OVERHEAD AND/OR UNDERGROUND ELECTRICAL SERVICE WITH NTELOS.
8. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE (1) FULL YEAR FROM THE DATE OF ACCEPTANCE.
9. THE OWNER SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE CHARGED EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY COUNTY INSPECTORS.
10. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE IN WHICH THE WORK IS TO BE PERFORMED. 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.
11. ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED EXACTLY AND SHALL SUPERCEDE ANY CONFLICTING NOTES ENCLOSED HEREIN.
12. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND ANY FIELD MODIFICATIONS THERETO, TO INSURE THE SAFETY OF THE STRUCTURE'S COMPONENT PARTS, AND EMPLOYEES DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER 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.
13. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE BEGINNING OF ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK PERFORMED ON THIS PROJECT. 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 OWNER'S ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.

14. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD WORKING 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 THE OWNER'S ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR 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.
16. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCAL BUILDING CODE.
17. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.
18. ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL CODES OR ORDINANCES. THE MOST STRINGENT CODE WILL APPLY IN THE CASE OF DISCREPANCIES OR DIFFERENCES IN THE CODE REQUIREMENTS.
19. ANY DAMAGE TO ADJACENT PROPERTIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
20. CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES WITHIN CONSTRUCTION LIMITS PRIOR TO CONSTRUCTION.
21. THE ELECTRICAL AND RF STANDARDS AND SPECIFICATIONS SHOWN ON THESE PLANS HAVE BEEN PROVIDED BY THE CLIENT. MEAD & HUNT, INC. HAS NOT DESIGNED NOR PREPARED ANY OF THE ELECTRICAL AND RF STANDARDS AND SPECIFICATIONS. THEY HAVE BEEN PROVIDED FOR INFORMATION ONLY.
22. RECORD DRAWINGS: MAINTAIN A RECORD OF ALL CHANGES, SUBSTITUTIONS BETWEEN WORK AS SPECIFIED AND INSTALLED. RECORD CHANGES ON A CLEAN SET OF CONTRACT DRAWINGS WHICH SHALL BE TURNED OVER TO THE CONSTRUCTION MANAGER UPON COMPLETION OF THE PROJECT.
23. COORDINATE THE CONSTRUCTION STAGING AREA WITH THE PROPERTY OWNER AND THE PROPERTY MANAGER WELL IN ADVANCE OF THE CONSTRUCTION START DATE.
24. THE CONTRACTOR IS TO FIELD VERIFY ALL EXISTING CONDITIONS AND PLAN DIMENSIONS, AND NOTIFY THE ARCHITECT AND ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
25. THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE WORK SITE ON A DAILY BASIS.

**GENERAL NOTES - ELECTRIC WORK**

**A. WORK INCLUDED:**

THIS SPECIFICATION AND ACCOMPANYING DRAWINGS CONTEMPLATES THE PROVISIONS AND INSTALLATION REQUIRED BY THE ELECTRICAL CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO COMPLETE THE INSTALLATION OF THE ELECTRICAL WORK IN CONNECTION WITH NTELOS TOWER SITE AND SHALL INCLUDE, BUT MAY NOT BE LIMITED TO, THE FOLLOWING:

1. THE PROVISIONS FOR THE INSTALLATION AND CONNECTION OF A GROUNDING ELECTRODE SYSTEM COMPLETE WITH A EQUIPMENT CABINET AND SECONDARY GROUNDING, EXISTING TOWER GROUNDING, AND CONNECTIONS TO THE INCOMING ELECTRICAL DISTRIBUTION EQUIPMENT.
2. THE PROVISIONS FOR THE INSTALLATION OF AN ELECTRICAL SERVICE AND ALL ASSOCIATED CONDUIT AND WIRING AS REQUIRED.
3. ALL UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC. (UNLESS OTHERWISE NOTED)
4. ALL SPARE CONDUITS INSTALLED SHALL BE LEFT WITH A PULL WIRE FOR FUTURE USE. STUB BOTH ENDS OF SPARE CONDUIT 12 INCHES ABOVE FINISHED GRADE AND INSTALL PLUGS AT BOTH ENDS.
5. THE CONTRACTOR SHALL MAKE THE CONNECTION TO THE SERVICE EQUIPMENT WITHIN THE EQUIPMENT CABINET.
6. THE CONTRACTOR SHALL FURNISH AND INSTALL A 200 lb TEST PULL LINE IN ALL SPARE CONDUIT INSTALLED.
7. IF APPLICABLE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL AND TELEPHONE SERVICE CONTACTS AT THE START OF CONSTRUCTION ALL WORK IN ACCORDANCE WITH THE RULES AND GUIDELINES OF THE LOCAL COMPANY.
8. THE ABOVE GRADE CONDUIT RISERS SHALL BE GALVANIZED STEEL WITH MATCHING FITTINGS.
9. THE CONTRACTOR SHALL PERFORM ALL WORK SHOWN ON THE EQUIPMENT DRAWINGS, NOTED FIELD WORK, AND/OR AS OTHERWISE NOTED TO BE COMPLETED IN THE FIELD.
10. ALL WIRE SHALL BE (COPPER, 600V THHW, 90°C) UNLESS NOTED OTHERWISE.
11. THE CONTRACTOR SHALL MAINTAIN A DISTANCE OF 12 INCHES BETWEEN EXISTING / NEW TELCO & ELECTRIC CONDUITS UNLESS NOTED OTHERWISE.
12. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF THE PROPOSED GROUNDING SYSTEM PRIOR TO TRENCHING.

**B. CODES, PERMITS AND FEES:**

1. ALL REQUIRED PERMITS, LICENSES, INSPECTIONS AND APPROVALS SHALL BE SECURED AND ALL ASSOCIATED FEES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
2. THE INSTALLATION SHALL COMPLY WITH ALL STATE, LOCAL, AND NATIONAL APPLICABLE CODES AND ORDINANCES RELATIVE TO THE DESIGN.
3. PERFORMANCE CHARACTERISTICS AND METHODS OF CONSTRUCTION OF ALL ITEMS AND EQUIPMENT, SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF THE VARIOUS APPLICABLE STANDARDS SPECIFICATIONS OF THE FOLLOWING RECOGNIZED AUTHORITIES:  
 A.N.S.I. - AMERICAN NATIONAL STANDARDS INSTITUTE  
 I.E.E.E. - INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS  
 N.E.C. - NATIONAL ELECTRIC CODE  
 N.E.M.A. - NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION  
 N.F.P.A. - NATIONAL FIRE PROTECTION ASSOCIATION  
 U.L. - UNDERWRITERS LABORATORIES, INC.
4. THE CONTRACTOR SHALL BE LICENSED TO PERFORM WORK IN THE STATE, CITY, OR COUNTY IN WHICH THE WORK IS TO BE PERFORMED.

**C. GROUNDING ELECTRODE SYSTEM**

**1. CONNECTIONS**

ALL GROUNDING CONNECTIONS SHALL BE MADE UTILIZING AN EXOTHERMIC WELDED PROCESS (CADWELD OR APPROVED EQUAL), UNLESS OTHERWISE SHOWN. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, TEES, X's, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES, AND LIGHTING PROTECTION SYSTEM AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE CADWELDED AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES.

**2. GROUND RODS**

ALL GROUND RODS SHALL BE 5/8" INCH STAINLESS STEEL OR COPPER CLAD STEEL COPPERWELD OR APPROVED EQUAL. THE MINIMUM NUMBER OF GROUNDING RODS REQUIRED SHALL BE THE NUMBER AS SHOWN AND AT THE LOCATIONS AS INDICATED ON THE PLANS. GROUNDING RODS SHALL BE DRIVEN VERTICALLY IN UNDISTURBED EARTH FOR ITS FULL LENGTH SO THAT THE TOP IS 24 INCHES BELOW FINISHED GRADE. ALL GROUND RODS SHALL BE AT LEAST 8 FEET APART UNLESS OTHERWISE NOTED.

**3. GROUNDING LEADS**

ALL GROUND LEADS CONNECTED TO BURIED GROUND RINGS SHALL BE #2 AWG TINNED SOLID COPPER. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 6 FEET OF #2 AWG TINNED SOLID COPPER COILED AT EACH EQUIPMENT CABINET, COAX ENTRY GROUND BAR, PIPE BRIDGE SUPPORT FOUNDATIONS, AND TOWER FOUNDATIONS FOR TERMINATION BY THE ELECTRICAL CONTRACTOR. AFTER CABINET INSTALLATION, THE ELECTRICAL CONTRACTOR SHALL SPLICE GROUND RING LEAD TO #2 AWG INSULATED STRANDED COPPER WIRE SUPPLIED WITH CABINET.

**4. GROUND RING**

THE GROUND RING REQUIRED TO GROUND THE EQUIPMENT FRAME SHALL BE #2 AWG TINNED SOLID COPPER CABLE IN DIRECT CONTACT WITH THE EARTH AT A DEPTH OF NOT LESS THAN 24 INCHES. CONDUCTOR BENDS SHALL HAVE A MINIMUM RADIUS OF 12 INCHES. A 2 FOOT CLEARANCE FROM ANY FOUNDATION OR SIDEWALK SHALL BE MAINTAINED.

**5. BACKFILL**

BACK FILL MATERIAL SHALL BE NON-CORROSIVE, LOW RESISTIVITY MATERIAL, FREE OF STONE, DEBRIS, ETC. AND TAMPED DOWN THOROUGHLY IN LAYERS NOT EXCEEDING SIX (6) INCHES IN DEPTH, AND COMPACTED TO AT LEAST 95% OF ITS ORIGINAL DENSITY BEFORE EXCAVATION.

**6. MISCELLANEOUS**

ALL EXTERIOR METAL SHALL BE CONNECTED TO THE GROUNDING SYSTEM WITH HIGH PRESSURE 2-BOLD LUG BY BURNDY OR BY THE EXOTHERMIC WELDED PROCESS (CADWELD OR APPROVED EQUAL) AS APPLICABLE. ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY THE EXOTHERMIC WELDED PROCESS (CADWELD OR APPROVED EQUAL) AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES. ALL MECHANICAL FASTENER CONNECTIONS CONNECTED TO GROUND BARS SHALL BE LUBRICATED WITH A CORROSION INHIBITOR; THOMAS AND BETTS KOPR - SHIELD.

**7. GROUND TEST**

GROUND TESTS SHALL BE PERFORMED UTILIZING A BIDDLE GROUND OHMER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS MAY BE USED AS DESCRIBED IN I.E.E.E. STANDARD No. 550, PARAGRAPH 3.42. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT. THE AUXILIARY TEST RODS MUST BE AT A SUFFICIENT DISTANCE AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCATED DOES NOT OVERLAP. THE CONTRACTOR SHALL MAINTAIN CONTINUITY OF ANY EXISTING GROUND RING BY SPLICING (VIA CADWELD) ANY CUT OR BROKEN SECTIONS WITH #2 SOLID TINNED COPPER TO THE EXISTING OR NEW GROUNDING SYSTEM.

**D. TESTING**

1. ALL TEST SHALL BE PERFORMED BY AUTHORIZED AND QUALIFIED PERSONNEL.
2. THE CONTRACTOR SHALL CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS: TESTS SHALL BE PERFORMED UNDER DRY SOIL CONDITIONS WITH THE GROUND RODS CONNECTED AND WHEN NO STANDING OR GROUND WATER HAS BEEN PRESENT FOR THE PAST TEN DAYS. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.
3. THE CONTRACTOR SHALL CALL AN NTELOS REPRESENTATIVE FOR INSPECTION OF THE GROUNDING SYSTEM 48 HOURS PRIOR TO ITS COMPLETION. THE SYSTEM SHALL BE LEFT UNCOVERED UNTIL APPROVED.
4. UPON COMPLETION OF THE GROUNDING SYSTEM, THE ELECTRICAL CONTRACTOR SHALL MEGGER TEST THE GROUND SYSTEM. THE TEST IS TO BE PERFORMED BEFORE CONNECTING IT TO THE TOWER RING AND THEN AGAIN THEREAFTER. MAXIMUM RESISTANCE LEVEL IS 5 OHMS. THE LOCATION, DATE, TIME, WEATHER CONDITIONS, AND SOIL MOISTURE CONTENT SHALL BE RECORDED. IF 5 OHMS IS EXCEEDED WITHIN THE CURRENT CONFIGURATION, THE ELECTRICAL CONTRACTOR SHALL SUBMIT A QUOTE TO THE OWNER TO LOWER THE RESISTANCE TO 5 OHMS OR LESS.

**E. ELECTRICAL LOADS**

1. THE EQUIPMENT IS SET UP FOR A 200 AMP, 120/240 VOLT, SINGLE PHASE, THREE WIRE ELECTRICAL SERVICE. THE TOTAL CONNECTED LOAD IS 10.1 KILOWOLT-AMPERES (KVA).

**SPECIAL CONTRACTOR NOTES**

**NOTE 1:**

1. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF ANY EXISTING GROUNDING GRID PRIOR TO TRENCHING.

2. CONTRACTOR SHALL MAINTAIN CONTINUITY OF EXISTING GROUND RING BY SPLICING (VIA CADWELD) ANY CUT OR BROKEN SECTIONS WITH #2 SOLID TINNED COPPER TO THE EXISTING OR NEW GROUNDING SYSTEM.

**NOTE 2:**

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UNDERGROUND UTILITY LINES PRIOR TO ANY EXCAVATION. CONTRACTOR SHALL HAND DIG IN THE VICINITY OF ALL EXISTING LINES.



1150 SHENANDOAH VILLAGE DRIVE  
WAYNESBORO, VA 22980

SITE NAME: STARR HILL

SITE NUMBER: CV736

SITE ADDRESS: 819 WEST MAIN STREET  
CHARLOTTESVILLE, VA 22911

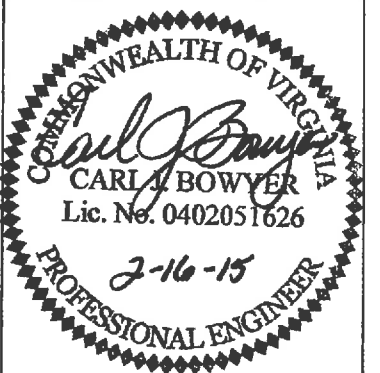
AREA: LEASE AREA = 399.5 SQ. FT.

TOWER OWNER: AMERICAN TOWERS, LLC  
10 PRESIDENTIAL WAY  
WOBURN, MA 01801

LATITUDE: N38° 01' 56.6"

LONGITUDE: W78° 29' 30.4"

NO.	REVISION/ISSUE	DATE
1	ISSUE FOR COMMENT	12/03/14
2	ISSUE FOR APPROVAL	01/14/15
3	ISSUE FOR CONSTRUCTION	02/16/15



400 TRACY WAY  
SUITE 200  
CHARLESTON, WV 25311  
(304) 345-6712 PHONE

PROJECT # R4022100-150054.01

GENERAL NOTES	SHEET D-5
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