COMPREHENSIVE AGREEMENT

BETWEEN

THE BEDFORD COUNTY BROADBAND AUTHORITY,

BLUE RIDGE TOWERS, INC.,

AND

BLUE RIDGE INTERNET SERVICE COMPANY, LLC

February 6 , 2019

List of Exhibits:

A. PPEA Solicitation
B. PPEA Proposal (Confidential Sections Withheld; Updated Detailed Technical Proposal)
C. Resolution Creating Selection Committee
D. Public Hearing Notice
E. Development Agreement (With Exhibits)
F. Operating Agreement

COMPREHENSIVE AGREEMENT
BETWEEN
THE BEDFORD COUNTY BROADBAND AUTHORITY,
BLUE RIDGE TOWERS, INC.,
AND
BLUE RIDGE INTERNET SERVICES COMPANY, LLC

This Comprehensive Agreement (the "Agreement") is made and entered into as of _____ ___, 2019, by and between the Bedford County Broadband Authority, a political subdivision of the Commonwealth of Virginia under the Wireless Service Authorities Act ("Authority" or "Owner"), Blue Ridge Towers, Inc., a Virginia corporation ("BRT" or "Developer"), and Blue Ridge Internet Service Company, LLC, a Virginia limited liability company ("BRISCNET").

Recitals

R-1. Virginia's Public-Private Education Facilities and Infrastructure Act of 2002 ("PPEA") as set forth in the Code of Virginia §§ 56-575.1, *et seq*., and the Bedford County Broadband Authority Guidelines to the Public-Private Education Facilities and Infrastructure Act of 2002 ("Guidelines") provide the Authority the authority and procedure required to enter into an agreement with a private entity to develop or operate certain qualified public infrastructure or government facility projects and provide certain other public services on a public-private partnership basis.

R-2. Under the Wireless Service Authorities Act, Chapter 54.1 of Title 15.2 of the Code of Virginia, 1950, as amended (the "Act"), the Authority has all necessary powers to design, construct, and operate a system of qualifying communications services, defined in Section 56-484.7:1(A) of the Code of Virginia, 1950, as amended. It has power to make and

enter contracts with others that it might deem necessary or incidental to the performance of its duties of exercise of its powers under the Act. Va. Code § 15.2-5431.12.

R-3. Pursuant to the PPEA and Guidelines, on or about June 29, 2018, the Authority solicited proposals to design, build, and operate a system to provide qualifying communications services in unserved and underserved areas of Bedford County, Virginia. The PPEA solicitation is attached hereto as **Exhibit A.**

R-4. On or about August 30, 2018, a private entity, BRT, submitted to the Authority a conceptual proposal (the "Proposal") to provide the Authority certain services related to the design, construction, and operation of a project to provide qualifying communications services (the "Project"). A copy of the Proposal, with confidential portions withheld, is attached hereto as **Exhibit B**.

R-5. The Authority also formed a selection committee to advise the county administrator on his recommendation to the Board of Directors in making the final decision on whether and to whom to award a contract under the PPEA pursuant to the Solicitation. The resolution authorizing the Solicitation and creating the selection committee is attached hereto as **Exhibit C**. On December 12, 2018, the Board of Directors held a public hearing on the Proposal, at which public comment was heard orally and in writing. The public hearing advertisement is attached hereto as **Exhibit D**. Following analysis and consideration of the Proposal and the comments submitted, the selection committee and the county administrator have recommended to the Board of Directors that it award a contract to BRT and move directly into the comprehensive phase of the PPEA Process. The county administrator has moved forward with negotiation of a draft comprehensive agreement with BRT.

R-6. In accordance with the PPEA and the Authority's Guidelines, this Comprehensive Agreement shall be posted on the Authority's website, along with the Proposal.

R-7. The Authority hereby determines that the Project as set forth in these Contract Documents serves the public purpose of the PPEA under the criteria of Virginia Code § 56-575.4(C), as amended, and the parties desire to enter into this Agreement.

NOW THEREFORE, for and in consideration of the mutual promises, conditions, and covenants herein set forth, the parties agree as follows:

1. Incorporation of Recitals. The foregoing recitals are true and correct and are incorporated herein by reference. The powers and duties of a "private entity" as set forth in §56-575.8 of the PPEA and as applicable to the contracted work hereunder are hereby incorporated into this Agreement by reference and imposed upon BRT.

2. Definitions. The following definitions apply to this Agreement:

(a) "BRISCNET" means Blue Ridge Internet Service Company, LLC or its consortium partners, subcontractors, or agents, as the context requires.

(b) "BRT" means Blue Ridge Towers, Inc., or its consortium partners, subcontractors, or agents, as the context requires.

(c) "Contract Documents" means this Agreement (together with all of its Exhibits) and any written amendments thereto. "Contract Document" means any one of these documents. In the event of any discrepancies between or among any of the Contract Documents, the document entered later shall control over the document entered earlier; if entered simultaneously, the more specific shall control.

(d) "Development Agreement" means that certain agreement providing for BRT to develop the Project, attached hereto as **Exhibit E**.

(e) "Operating Agreement" means that certain agreement providing for BRISCNET to operate the wireless internet service provider ("WISP") portion of the Project after its design and construction, subject to certain terms and conditions, attached hereto as **Exhibit F**.

3. Parts of Agreement; Intent. The intent of this Agreement is to create a Comprehensive Agreement to serve several functions:

(a) Provide for the general technical specifications and terms and conditions of the design and construction of ten new monopole wireless communications structures through a Development Agreement (**Exhibit E**); and

(b) Provide for the general technical specifications and terms and conditions of deployment and operation of a wireless communications system on the wireless communications structures through an Operating Agreement (**Exhibit F**).

4. Term. The term of this Agreement shall begin on the date of this Agreement and shall continue until its termination pursuant to Section 6 hereof, any other provision of this Agreement, or any other Contract Document, or by law.

5. Representations and Warranties.

(a) Authority Representations and Warranties. The Authority hereby represents and warrants to BRT as follows:

(i) The Authority is the responsible public entity, as that term is used in the PPEA and the Guidelines, for the Project contemplated by the Contract Documents. As such, the Authority has full power, right, and authority to execute, deliver, and perform its

obligations under, in accordance with, and subject to the terms and conditions of this Agreement and the other Contract Documents.

(ii) The Authority has taken or caused to be taken all requisite action to authorize the execution and delivery of, and the performance of its obligations under, this Agreement and the other Contract Documents, except as specifically set forth in the Contract Documents.

(iii) Each person executing this Agreement or any other Contract Document, or any other agreement, instrument, or document on behalf of the Authority to which the Authority is a party has been or at such time of execution will be duly authorized to execute each such document on behalf of the Authority.

(iv) Neither the execution and delivery by the Authority of this Agreement and the other Contract Documents executed by the Authority concurrently herewith, nor the consummation of the transactions contemplated hereby or thereby, is in conflict with or will result in a default under or violation of any other agreements or instruments to which it is a party or by which it is bound.

(v) There is no known action, suit, proceeding, investigation or litigation pending and served on the Authority which challenges the Authority's power to execute, deliver, or perform, or the validity or enforceability of, this Agreement and the other Contract Documents to which the Authority is a party, or which challenges the authority of the Authority director or official executing this Agreement or the other Contract Documents to which the Authority is a party, and the Authority has disclosed to BRT any pending and unserved or threatened action, suit, proceeding, investigation, or litigation with respect to such matters of which the Authority is aware.

(b) Private Entity Representations and Warranties (BRISCNET). BRISCNET hereby represents and warrants to the Authority as follows:

(i) BRISCNET is a duly organized limited liability company created under the laws of the Commonwealth of Virginia. It holds all licenses and certifications necessary to carry out its work as contemplated by this Agreement or the Contract Documents, and it has and will maintain throughout the term of this Agreement the requisite power and all required licenses (or it or its subcontractors will have all required licenses prior to the time activities which require licenses are undertaken) to carry on its present and proposed activities, and has full power, right, and authority to execute, deliver, and perform its obligations under, in accordance with, and subject to the terms and conditions of this Agreement and the other Contract Documents.

(ii) BRISCNET has taken or caused to be taken all requisite action to authorize the execution and delivery of, and the performance of its obligations under, this Agreement and the other Contract Documents.

(iii) Each person executing this Agreement or any other Contract Document on behalf of BRISCNET to which BRISCNET is a party has been, or at such time of execution will be, duly authorized to execute each such document on behalf of BRISCNET.

(iv) Neither the execution and delivery by BRISCNET of this Agreement and the other Contract Documents executed by BRISCNET concurrently herewith, nor the consummation of the transactions contemplated hereby or thereby, is in conflict with or will result in a default under or violation of any other agreements or instruments to which it is a party or by which it is bound.

(v) There is no action, suit, proceeding, investigation, indictment, or litigation pending or served on BRISCNET which challenges BRISCNET's authority to execute, deliver or perform, or the validity or enforceability of, this Agreement and the other Contract Documents to which BRISCNET is a party, or which challenges the authority of the BRISCNET official executing this Agreement and the other Contract Documents to which BRISCNET is a party, and BRISCNET has disclosed to the Authority any pending and unserved or threatened action, suit, proceeding, investigation, indictment or litigation with respect to such matters of which BRISCNET is aware.

(c) Private Entity Representations and Warranties (BRT). BRT hereby represents and warrants to the Authority as follows:

(i) BRT is a duly organized corporation created under the laws of the Commonwealth of Virginia. It holds all licenses and certifications necessary to carry out its work as contemplated by this Agreement or the Contract Documents, and it has and will maintain throughout the term of this Agreement the requisite power and all required licenses (or it or its subcontractors will have all required licenses prior to the time activities which require licenses are undertaken) to carry on its present and proposed activities, and has full power, right, and authority to execute, deliver, and perform its obligations under, in accordance with, and subject to the terms and conditions of this Agreement and the other Contract Documents.

(ii) BRT has taken or caused to be taken all requisite action to authorize the execution and delivery of, and the performance of its obligations under, this Agreement and the other Contract Documents.

(iii) Each person executing this Agreement or any other Contract Document on behalf of BRT to which BRT is a party has been, or at such time of execution will be, duly authorized to execute each such document on behalf of BRT.

(iv) Neither the execution and delivery by BRT of this Agreement and the other Contract Documents executed by BRT concurrently herewith, nor the consummation of the transactions contemplated hereby or thereby, is in conflict with or will result in a default under or violation of any other agreements or instruments to which it is a party or by which it is bound.

(v) There is no action, suit, proceeding, investigation, indictment, or litigation pending or served on BRT which challenges BRT's authority to execute, deliver or perform, or the validity or enforceability of, this Agreement and the other Contract Documents to which BRT is a party, or which challenges the authority of the BRT official executing this Agreement and the other Contract Documents to which BRT is a party, and BRT has disclosed to the Authority any pending and unserved or threatened action, suit, proceeding, investigation, indictment or litigation with respect to such matters of which BRT is aware.

6. Termination.

This Contract may be terminated, unless otherwise specified more specifically elsewhere in this Agreement, as follows:

(a) If a party to this Agreement defaults or fails or neglects to carry out a material obligation under this Agreement (for purposes of this section, the "Defaulting Party") and if the other party (for this purposes of this section, the "Non-Defaulting Party") is not in material breach of this Agreement at the time, the Non-Defaulting party may give written notice to the Defaulting Party that it intends to terminate this Agreement, which notice shall contain a

reasonably detailed explanation of the reasons for the proposed termination. The Defaulting Party shall correct the default, failure, or neglect within thirty (30) days after being given such notice; provided, however, if (i) the nature of such default, failure or neglect is such that it is not reasonably capable of being corrected within such thirty (30) day period and (ii) the Defaulting Party notified the Non-Defaulting Party of a reasonable alternative period reasonably acceptable to the Non-Defaulting Party with fifteen (15) days of receipt of such notice, the Defaulting Party shall be allowed such reasonable alternative period to correct the default, failure, or neglect so long as the Defaulting Party promptly commences and diligently pursues such corrections to completion. If the Defaulting Party fails to make such corrections within the thirty (30) day period or fails to commence and diligently pursue to completion such corrections within the alternative period, then the Non-Defaulting Party may, at its sole discretion and without prejudice to any other remedy, terminate this Agreement.

(b) In the event any Essential Permit (hereinafter defined) is denied for a tower site, the Authority and BRT agree to work to find an alternate site for such tower or, if no alternate site for such tower is available or practicable, to modify this Agreement in such a manner as will carry out the Parties' intent. If the denial of any Essential Permit of Permits is such that the Parties agree that the original goal of widespread wireless internet connectivity in Bedford County is unfeasible, then the Agreement may be terminated by either Party, without any further liability of the Authority to BRT other than the payment of fees in accordance with the Bedford County/Blue Ridge Towers Broadband Milestone Tracker up to the point of failure. In the event an essential permit is denied, however, the Parties agree to negotiate in good faith to find a method of achieving the manifest goals of this Agreement. An Essential permit ("Essential Permit") is any permit required to be obtained from a governmental authority without which the

placement and construction of a tower cannot progress. Except for tower sites not already contemplated by this Agreement, zoning approvals from Bedford County shall not be considered Essential Permits

(c) If not sooner terminated pursuant to the terms of subsections (a) or (b) above, or by mutual agreement, the Agreement (exclusive of warranty and indemnity obligations) shall terminate when all terms and conditions of all the Contract Documents have been satisfied and all such Contract Documents have terminated by their terms.

7. Cooperation; Resolution of Disputes, Claims, and Other Matters.

The parties agree to cooperate to achieve the objectives of this Agreement, and to use reasonable and good-faith efforts to resolve all disputes and disagreements that may arise hereunder. Each party agrees to designate representatives with the authority to make decisions binding upon such party (subject in the case of the Authority to those matters requiring an appropriate vote or legal authorization) so as to not unduly delay any obligations under the Contract Documents.

8. Records.

(a) Protected Records. If BRT or BRISCNET (both or either, a "Protected Party") believes that any Work Product or any other document or item subject to transmittal to or review by the Authority under the terms of this Agreement or any other Contract Document contain trade secrets or other information exempt or protected from disclosure pursuant to applicable law, the Protected Party shall use its reasonable efforts to identify such information prior to such transmittal or review, and the Authority shall confer with the Protected Party on an appropriate means of ensuring compliance with applicable laws prior to transmittal or review.

(b) Requests for Public Disclosure. The parties recognize that the Authority is a political subdivision and public body of the Commonwealth of Virginia, and is subject to the Virginia Freedom of Information Act (FOIA), Chapter 37 of Title 2.2 of the Code of Virginia, 1950, as amended. The Authority recognizes that certain Work Product and other documents or materials of which the Authority obtains a copy may contain trade secrets or other information exempt from disclosure under applicable law, or may include information that is otherwise subject to protection from misappropriation or disclosure. Should any such items become the subject of a request for public disclosure, the Authority shall respond as follows:

(i) The Authority shall use reasonable efforts to immediately notify the Protected Party of such request and the date by which it anticipates responding.

(ii) The Protected Party must then promptly assert in writing to the Authority any claim that such items are protected from disclosure.

(iii) If the Protected Party fails to make such assertion within three (3) business days after the Authority notifies the Protected Party of its intended response, the Authority shall have the right to disclose such Work Product as, but no more than, it and its legal counsel believe, in good faith, it is required to disclose under applicable law.

(iv) If the Protected Party makes a timely assertion that the requested items contain trade secrets or other information exempt from disclosure or otherwise protected under applicable law, the Authority and the Protected Party may seek judicial declaration of the rights of the parties. Until such declaration is made, the Authority will maintain the confidentiality of such items.

(v) If the Authority's denial of a request for disclosure of items is challenged in court, the Protected Party shall assist the Authority in its defense. If the disclosure

is denied at the request of the Protected Party and the court holds that such documents must be disclosed under FOIA, the Protected Party shall indemnify the Authority against any award of attorney's fees or fines ordered by the court.

9. Conditions Precedent to Agreement's Effectiveness. It shall be a condition precedent to this Agreement's effectiveness that:

(a) the Authority, BRT, and BRISCNET, as applicable, enter into this Comprehensive Agreement and Contract Documents between, following proper approval and under signatures of both parties with actual authority, following all legally necessary actions of their boards, commissions, or other governing bodies; and

(b) BRT has certified that all material representations, information, and data provided by BRT to the Authority in support of, or in connection with, the Proposal are true and correct in all material respects; that such certification has been made by an officer of BRT who has knowledge of the information provided in the Proposal; and that the executed certification has been delivered to the Authority; and

(c) Subject to Section 6(b), BRT and BRISCNET, as applicable, shall have responsibility, at its cost, for obtaining any necessary permits from the Federal Communications Commission (FCC), the Virginia Department of Transportation (VDOT), Bedford County, Virginia, or any other governmental authority.

10. Copy of Agreement to Auditor of Public Accounts. The Authority shall submit a copy of this Agreement to the Auditor of Public Accounts of the Commonwealth of Virginia within thirty (30) days of its effective date.

11. Miscellaneous.

(a) Successors and Assigns. Except as expressly otherwise provided, all of the terms, covenants, and conditions hereof shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

(b) Binding Effect. Subject to the limitations of subsection (a) above, this Agreement shall be binding upon and shall inure to the benefit of the parties hereto and their respective legal representatives, successors and permitted assigns, and wherever a reference in this Agreement is made to any of the parties hereto, such reference also shall be deemed to include, wherever applicable, a reference to the legal representatives, successors and assigns of such party, as if in every case so expressed.

(c) Relationship of Parties. The relationship of both BRT and BRISCNET to the Authority shall be one of an independent contractor, not an agent, partner, joint venturer, or employee, and the Authority shall have no rights to direct or control the activities of BRT and BRISCNET in its performance under this Agreement except as specifically set forth herein or in the Contract Documents.

(d) Third-Party Beneficiaries. Nothing contained in this Agreement is intended or shall be construed as creating or conferring any rights, benefits, or remedies upon, or creating any obligations of the parties hereto toward, any person or entity not a party to this Agreement, excepting those consortium partners of BRT and BRISCNET who or that have been disclosed to the Authority.

(e) Waiver. No waiver by any party of any right or remedy under this Agreement of the other Contract Documents shall be deemed to be a waiver of any other or subsequent right or remedy under this Agreement or the other Contract Documents. The consent by one party to any act by the other party requiring such consent shall not be deemed to render

unnecessary the obtaining of consent to any subsequent act for which consent is required, regardless of whether similar to the act for which consent is given. No provision of this Agreement shall be deemed to have been waived unless such waiver shall be in writing signed by the party to be charged.

(f) Severability. If any term or provision of this Agreement shall be determined to be invalid or unenforceable in any respect, such invalid provision shall be replaced with a substantially similar provision to the greatest extent possible, and the Agreement shall remain in full force and effect.

(g) Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but both of which such counterparts together shall be deemed to be one and the same instrument. It shall not be necessary in making proof of this Agreement or any counterpart hereof to produce or account for the other counterpart.

(h) Entire Agreement. This Agreement, the other Contract Documents, and the exhibits attached hereto and forming a part hereof set forth all the covenants, promises, agreements, conditions, and understandings between BRT, BRISCNET, and the Authority concerning the Project, and there are no covenants, promises, agreements, conditions, or understandings, either oral or written, between them other than are herein set forth. No alteration, amendment, change, or addition to this Agreement shall be binding upon either party unless reduced to writing and signed by each party.

(i) Litigation Cooperation. In the event the Authority is made party to any judicial, administrative, or regulatory proceeding arising out of this Agreement or any of the actions contemplated herein, BRT and BRISCNET agree to provide, at no cost to the Authority,

any necessary documentation, lay witnesses, consultation, and other non-monetary assistance as may be necessary or desirable, in the Authority's discretion, to successfully conclude such proceeding.

(j) Headings. The section and paragraph headings appearing in this Agreement are for convenience of reference only, and shall not be deemed to alter or affect the meaning or interpretation of any provision hereof.

(k) Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia. Venue and jurisdiction for any action arising out of this agreement shall be in the General District Court or Circuit Court for Bedford County, Virginia.

IN WITNESS WHEREOF, the parties have executed this Comprehensive Agreement as of the day and year first above written.

BLUE RIDGE TOWERS, INC.:

Sign

Anthony R. Smith

Name

President

Position

BEDFORD COUNTY BROADBAND AUTHORITY:

Sign

Tommy Scott

Name

Chair

Position

Approved as to legal form
Authority Counsel

[Signatures Continue on Next Page]

BLUE RIDGE INTERNET SERVICE COMPANY, LLC:

Sign

Anthony R. Smith

Name

Pres. & CEO

Position

Comprehensive Agreement
Exhibit A

June 29, 2018

NOTICE TO PUBLIC
REQUEST FOR PROPOSAL

COUNTYWIDE BROADBAND SYSTEM
PUBLIC-PRIVATE PARTNERSHIP

The Bedford County Broadband Authority (Authority) will accept conceptual proposals until 2:00 p.m. EST time on 31 August, 2018, in the Office of the County Administrator for Bedford County, Virginia, located at 122 East Main Street, Suite 202, Bedford, Virginia 24523, to form a public-private partnership with the Authority for the provision of county-wide wireless broadband internet as specified by the Scope of Services. The procurement will be administered by the County Administrator of Bedford County acting as the Authority's Agent ("Authority's Agent").

Copies of this Request for Proposal may be obtained upon request from the Authority's Agent, telephone (540) 586-7601, or they may be picked up at the above location. The request for proposals may be viewed on the County's web page: http://www.co.bedford.va.us/rfp.

The Offeror has the responsibility to identify and describe clearly the services it proposes. Offerors should take into account that not only the content but also the form and clarity of their proposal are considerations the Authority will take into account. If the Authority cannot determine what is being proposed, it is likely to reject the proposal. All information should be submitted in an organized, easy-to-understand manner.

The right is reserved, as the interest of the Authority requires, to revise or amend the specifications prior to the date set for opening proposal; the opening date may be postponed if deemed necessary by the Authority's Agent. Such revisions and amendments, if any, will be announced by written Addenda to the specifications. The Authority will reject proposals received after the date and time of closing and return them to the Offeror unopened. Timely submission of proposals is the sole responsibility of the Offeror.

Each Offeror should submit one original and seven paper copies of its proposal, signed by an official of the Offeror with actual authority to sign the proposal, together with one electronic copy, which may be submitted to the Authority's Agent in Adobe Portable Document Format by email, upon a CD- or DVD-ROM, or upon a flash drive. In the event of a discrepancy between the time of receipt of the email and the time of receipt of the paper original, the time of receipt of the paper original shall control. Proposals must be submitted to:

G. Carl Boggess
County Administrator
County of Bedford, Virginia
122 East Main Street, Suite 202
Bedford, Virginia 24523
540-586-7601
c.boggess@bedfordcountyva.gov

I. PURPOSE & GENERAL PROCESS:

This is a solicitation issued by the Bedford County Broadband Authority (the "Authority") for one or more private partner(s) to build, maintain, and operate a system of qualifying communications services[1] for Bedford County, Virginia, in accordance with feasibility studies and plans that it has already carried out. This solicitation is issued under the Authority's powers as a responsible public entity under the Public-Private Education Facilities and Infrastructure Act of 2002 (the "Act").

This solicitation covers the Conceptual Phase of the process of selecting an offeror or offerors to partner with the Authority to continue to design and to undertake construction and operation of the project as defined below. In the Conceptual Phase, the offeror should provide conceptual information as set forth in this solicitation, focusing on qualifications and experience, project characteristics, project financing, and project benefits and compatibility with the Authority's goals and the County's needs.

The Authority may, but need not, proceed to the Detail Phase with one or more offerors. In the Detail Phase, the offeror(s) will be invited to submit a detailed proposal, focusing on the development strategy and team, assumptions behind the project, necessary public and government support, the impact on the County, the project's financial feasibility, and such other and further information as the offeror may submit or the Authority may request.

Following the Detail Phase, the Authority may enter into Interim Agreement(s) with one or more offerors. At least 30 days prior to entering the Interim Agreement, the Authority will hold one or more public hearings to obtain input on the project. During the Interim Phase, the Authority and the offeror will work collaboratively to design the project, obtain real estate interests and licenses, obtain governmental permits and approvals, put in place financing, and negotiate the specifics of construction and long-term operation of the project.

The Interim Phase may be followed by the Comprehensive Phase, in which the Authority and its partner will construct and operate the project.

II. BACKGROUND:

[1] Defined as "a communications service, which shall include but is not limited to, high-speed data service and Internet access service, of general application, but excluding any cable television or other multi-channel video programming service." Section 56-484.7:1(A), Code of Virginia, 1950, as amended.

Bedford County consists of 764 square miles in the west-central portion of Virginia known as the Piedmont Plateau. The Town of Bedford, the county seat, is located in the heart of the county on the U.S. Route 460 corridor, midway between the cities of Lynchburg to the east and Roanoke to the west. The County's boundaries consist of the Blue Ridge Mountains on the west, the James River on the northeast, and Smith Mountain Lake on the south. The area has a rolling to hilly terrain with elevations from a low of 800 feet above sea level, with some mountainous areas reaching an elevation of 4,200 feet. The County's 2017 population was estimated at approximately 78,000.

Bedford County exemplifies the Digital Divide that the Federal Communications Commission (FCC) has taken on. While there are areas of the County that are very well-served with internet service, principally around the City of Lynchburg and the Town of Bedford there are also large swathes of the County with little to no internet service whatsoever.

In 2009, the Board of Supervisors of Bedford County created the Bedford County Broadband Authority, an independent political subdivision of the Commonwealth under the Virginia Wireless Service Authorities Act, with a charge to expand the availability of broadband internet in unserved and underserved areas of the County. In July 2017, the Authority commissioned the Atlantic Group of Companies to develop a report on current internet availability in Bedford County and on strategies to expand availability. On May 1, 2018, the Atlantic Group submitted *Bedford: Broadband Vision 2020* (*Vision 2020*), which is attached to this solicitation and incorporated by reference.

Vision 2020 foresees that there is no single solution or single provider that will be the "silver bullet" solution for all of Bedford County. However, covering currently underserved areas will require:

1. Installation of some fiber-optic backhaul, and identification of where microwave backhaul will be necessary.
2. Construction of nine new towers, and mounting of antenna equipment on two existing structures.
3. Network deployment. Obtaining spectrum, testing, and installation of equipment.
4. Ongoing operations. Managing and servicing the facilities and customers.

The *Vision 2020* report also lays out a strategy for meeting needs that focuses on the construction of nine new 195' wireless support structures and location of antennas on two existing structures.

III. CONCEPTUAL PROPOSAL SUBMISSION REQUIREMENTS

1. General Instructions.

Interested offerors are required to comply with the following provisions in preparing their proposals. Where instructions appear to conflict and no order of precedence is specified,

the most stringent requirement applies. Any information given to one prospective offeror will be provided promptly to all other prospective offerors who are known to have expressed interest. If the information is necessary to submit an offer, or if the lack of the information appears, in the sole judgment of the Authority, to be prejudicial to any other prospective offerors, the information will be furnished as an amendment to this solicitation. The following sections should be included in any conceptual proposal:

Section	Description	Page Limit
	Cover Letter & Executive Summary	3 pages
Part A	Background on Firm & Team Qualifications	15 pages
Part B	Project Strategy	15 pages
Part C	Project Experience & References	10 pages
Part D	Resumes of Key Staff	10 pages
Part E	Unique or Unusual Capabilities of the Firm	5 pages
Part F	Public Procurement Required Forms	N/A
Part G	Cost Proposal	N/A
Part H	Other Matters Deemed Relevant by the Firm	10 pages

2. Instructions on Part A—Background on Firm & Team Qualifications.

The Authority is seeking proposals to design, build, and operate a wireless internet system. Offerors should have a proven combination of experience, financial capacity, and expertise in the planning, design, development, and construction of similar projects. Offerors should demonstrate successful completion of similar projects either wholly within the private sector, as part of a public-private partnership, or preferably both. A successful offeror should also have experience working within the processes and culture that are characteristic of Virginia local government to form a collaborative partnership based on transparency, responsiveness to citizen needs and desires, and a commitment to balancing political needs and operational needs. History of meeting these needs successfully is highly desirable.

Each offeror must provide both background and qualifications on the firm and of key individuals in the firm who would be principal members of the team working on the project. Please indicate especially experience both of the firm and key individuals with: (1) public/private partnerships; (2) construction and operation of internet projects, with specific attention to wireless; and (3) experience with the regulatory agencies with authority over this type of project.

3. Instructions on Part B—Project Strategy.

Much of the Authority's intended strategy and schedule for achieving its project goals is contained in *Vision 2020*. However, the specifics of the construction and operational phases of the project remain very open-ended, and the Authority encourages offerors to come up with creative approaches and solutions. The project strategy should outline specific goals to be met, and clearly state and explain deviations from the *Vision 2020* strategy and timeline and the rationale for the deviations. It should also set out a proposed methodology for construction, what partners, subcontractors, and outside consultants would be necessary, and

strategies for operating the system and providing solid, responsive customer service at fair, reasonable, and uniform prices.

4. Instructions on Part C—Project Experience & References.

The offeror should provide details on not more than three previous experiences with similar projects, including a description of the scope and type of project, and the name and contact information of a person involved in the project who does not work for your firm whom the Authority can contact to discuss.

5. Instructions on Part D—Resumes of Key Staff.

The offeror should provide resumes or curricula vitae of key personnel who would be assigned to the project. Each resume should not exceed two pages in length.

6. Instructions on Part E—Unique or Unusual Capabilities of the Firm.

Describe any unusual or unique capabilities, experience, tools, or perspective the offeror has related to the project. This section may expand on items covered in previous sections or introduce new information on the firm or on team members.

7. Instructions on Part F—Public Procurement Required Forms.

Offerors must submit the forms attached to this solicitation for compliance with the Virginia Public Procurement Act. In addition, the offeror should provide:

(a) Identify any current or past relationship of the firm or the project team with the Authority or Bedford County.
(b) Describe any prior contacts of the firm or the project team with Authority or Bedford County personnel relating to the project.
(c) Provide a sworn certification for each firm in the project team that the neither the firm nor its partners on the project is currently debarred or suspended by any federal, state, or local government entity, nor have its principals operated as another entity that is so debarred or suspended.
(d) Provide a sworn certification for each firm in the project team attesting that it has not declared bankruptcy, nor operated under another entity name that declared bankruptcy, within the past 10 years.
(e) Provide an explanation of the firm's level of commitment to using small, women-owned, minority, and local businesses in developing and implementing the project.

8. Instructions on Part G—Cost Proposal.

Offerors should submit a cost proposal in a separate section of the proposal providing general, non-binding costs and costing data for the phases of the project. This should include estimates of the manhours and cost breakdowns for the tasks identified in Part B of the

proposal. The offeror should also provide information on its creditworthiness and financial history.

9. Instructions on Part H—Other Matters Deemed Relevant by the Firm.

An offeror may submit further information it considers necessary and appropriate for the consideration of the Authority.

IV. COPIES & SUBMISSION

Each offeror should submit one original and seven paper copies of its proposal, signed by an official of the offeror with actual authority to sign the proposal, together with one electronic copy, which may be submitted to the Authority's Agent in Adobe Portable Document Format by email, upon a CD- or DVD-ROM, or upon a flash drive. In the event of a discrepancy between the time of receipt of the email and the time of receipt of the paper original, the time of receipt of the paper original shall control. Proposals must be submitted to:

G. Carl Boggess
County Administrator
County of Bedford, Virginia
122 East Main Street, Suite 202
Bedford, Virginia 24523
540-586-7601
c.boggess@bedfordcountyva.gov

The Authority reminds offerors that changes to this solicitation, in the form of addenda or written clarifications, will be issued as late as 31 July 2018. Notice of the addenda will be duly posted to the Authority's website at 31 July 2018.

The offeror has the responsibility to identify and describe clearly the services it proposes. Offerors should take into account that not only the content but also the form and clarity of their proposal are considerations the Authority will take into account. If the Authority cannot determine what is being proposed, it is likely to reject the proposal. All information should be submitted in an organized, easy-to-understand manner.

No fee or bond is required to submit a proposal. The Authority reserves the right to require a fee or bond at subsequent stages in the PPEA process.

The Authority will reject proposals received after the date and time of closing and return them to the offeror unopened. Timely submission of proposals is the sole responsibility of the offeror.

V. SELECTION PROCESS AND CRITERIA

In accordance with the Authority's PPEA Guidelines, the Authority has created and appointed a selection committee of experts to advise the Board of Directors on technical aspects of proposals. The function of the PPEA Advisory Committee is to work with the Board of Directors to evaluate the evaluate PPEA proposals and to make a recommendation to the Board of Directors on whether and with whom the Board should proceed to the detail phase and possibly authorize negotiation and entry of an interim or comprehensive agreement.

The Authority's Agent shall forward proposals to the Committee members as soon as they are received. The Committee should hold at least one in-person meeting at which it will evaluate, discuss, and rank proposals. It should make memoranda of its meetings and the proceedings and any decisions made. The Committee should then interview top proposers in an effort to understand, clarify, and narrow their choices and the scope of the proposals. The number of proposers to interview is in the sound discretion of the Committee.

The Committee may recommend: (1) That the Authority not move forward with any proposer; (2) that it move forward to the detailed or interim phase with one proposer; or (3) that the Authority should choose between two or more proposers who it has qualified recommendations on to move to the detailed or interim phase. It should choose the proposal that is the "best value," that is, the proposal that represents the overall combination of quality, price, and various elements of required services that in total are optimal relative to the Authority's needs. In making its determination, it should take a holistic approach. It should consider, in making its evaluation:

Qualifications and Experience

1. Experience with similar projects;
2. Demonstration of ability to perform work;
3. Leadership structure;
4. Project manager's experience;
5. Management approach;
6. Financial condition; and
7. Project ownership.

Project Characteristics

1. Project definition;
2. Proposed project schedule;
3. Operation of the project;
4. Technology and technical feasibility;

5. Conformity to laws, regulations, and standards;
6. Environmental impacts;
7. State and local permits; and
8. Maintenance of the project.

Project Financing

1. Cost and cost benefit to the Authority and the County;
2. Financing and the impact on the debt burden of the Authority and the County;
3. Financial plan, including the degree to which the proposer has conducted due diligence investigation and analysis of the proposed financial plan and the results of any such inquiries or studies;
4. Opportunity costs assessment;
5. Estimated cost;
6. Life-cycle cost analysis; and
7. The identity, credit history, past performance of any third party that will provide financing for the project and the nature and timing of its commitment, as applicable.

Community Impacts

1. Impacts, interactions, and future plans with the County's existing providers;
2. Comments at the public hearing on the proposals;
3. Neighborhood and community development impacts, if any; and
4. Economic development impacts.

In making its final recommendation, the Committee shall provide the Board a memorandum detailing its rationale for its recommendation with reference to these criteria.

VI. TRADE SECRETS & PROPRIETARY INFORMATION

All information submitted by offerors is presumed to be open to public inspection following the deadline for submissions in accordance with the Virginia Freedom of Information Act. However, offerors may designate information that it believes is proprietary and confidential, which will not be disclosed, in accordance with applicable law. However, this is subject to the following criteria:

- The proposal must reasonably and thoughtfully differentiate confidential from non-confidential information and mark confidential pages accordingly. Proposals that are designated confidential in their entirety will not be protected from disclosure.

- The offeror must clearly invoke this protection, in writing, in its cover letter and executive summary.
- The offeror must submit a letter or memorandum stating the reasons why protection is necessary.

Upon receipt of a proposal that designates portions as confidential and proprietary, the Authority's Agent will make a determination of the applicability of the exclusions, and send a proposer a written determination of the scope and applicability of the protection. The offeror may then remove its entire proposal or the unprotected information from consideration, at its election, by taking prompt action.

VII. MISCELLANEOUS

All offerors must submit the non-collusion form attached to this proposal. Offerors are reminded that collusion, kickbacks, attempts to contact and influence decision-makers on this solicitation, and other activity designed to improperly influence the process not only will disqualify any offeror from consideration, but may be prosecuted criminally and civilly as violations of the Virginia Conflicts of Interests Act, the Virginia Governmental Frauds Act, and may be considered embezzlement or attempted embezzlement of federal funds, if they are used in any proposal. **Offerors or potential offerors should not contact or attempt to contact any member of the Advisory Committee or the Board of Directors. All such inquiries should be directed to the Authority's Agent.**

Successful offerors, upon entry of a contract in the interim or comprehensive phase of the PPEA process, will be expected to comply with all provisions of the Bedford County Standard Terms & Conditions and the provisions of the Virginia Public Procurement Act. If an offeror is not familiar with these provisions, it should contact the Authority's Agent to obtain a copy of them to ensure that the offeror can comply if its proposal is selected for negotiation.

END OF PPEA SOLICITATION

BEDFORD COUNTY BROADBAND AUTHORITY

PROPOSAL REQUIREMENTS AND NON-COLLUSION STATEMENT

My signature certifies that the accompanying proposal is not the result of, or affected by, any unlawful act of collusion with another person or company engaged in the same line business or commerce, or any act of fraud punishable under the Virginia Conflict of Interests Act, section 2.2-3100 et seq. of the *Code of Virginia*, 1950, as amended, the provisions of the Virginia Public Procurement Act on Ethics in Public Contracting, sections 2.2-4367 et seq. of the *Code of Virginia*, 1950, as amended the Virginia Governmental Frauds Act, sections 18.2-498.1 et seq. of the *Code of Virginia*, 1950, as amended. Furthermore, I understand that violations of these statutes are crimes, and can result in fines, prison sentences, and civil damage awards.

I hereby certify that I am authorized to sign, personally or as a Representative for the Firm:

Name of Firm or Individual: _____

Address: _____

_____

_____ _____
Signature Date

_____
Printed Name and Title

Telephone: _____ Fax: _____

FEI/FIN No._____ Email: _____

Comprehensive Agreement
Exhibit B

Bedford County Virginia

August 30, 2018

Turn Key Broadband Proposal

Performed by

BLUE RIDGE TOWERS

1125 1st Street

Roanoke, VA 24016

(540) 595-7060

ww.blueridgetowers.com

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Executive Summary

Blue Ridge Towers considers it an honor to have the opportunity to submit our proposal to develop and build what will be the foundation of the Bedford County high speed internet infrastructure. We believe that, the plan contained within this proposal will certainly advance Bedford County's Broadband initiatives in a strong and immediate fashion.

Over the past several months Blue Ridge Towers and Bedford County's Broadband Advisory Committee have worked closely together to clearly define the county's broadband needs, while paying close attention to the County's Broadband report/study, prepared by The Atlantic Group. Blue Ridge Towers has prepared a detail proposal that will address the construction of the 9 towers, installing nearly 21 miles of 48 strand fiber, we also propose managing and maintaining the County owned towers after construction for a period of no less than 5 years.

In addition Blue Ridge Towers has brought its partner BRISCNET, LLC to act as a turnkey Wireless Internet Provider for the County. BRISCNET will offer affordable high-speed internet throughout the entire underserved portions of Bedford County. We have utilized the Bedford County Broadband report as the roadmap to creating a comprehensive professionally engineered high speed wireless network that offers coverage to all areas of the county that are currently deemed little to no coverage hours.

Blue Ridge Towers is a strong Virginia based tower development company that is well poised to serve Bedford County, as we recently finished construction of a 195' monopole in Bedford County. We look forward to answering any questions that the County may have as it relates to this proposal.

Kindest and Best Regards,

Anthony R. Smith

Acknowledgements

The following people and companies are acknowledged for their efforts in providing guidance and support to this project:

Bedford County

Carl Boggess, Esq. (County Administrator)

Allen Boaz (Chairman Broadband Advisory Committee)

Board of Supervisors

Bill Thomason (District #1)

Edgar Tuck (District #2)

Charla Bansley (District #3)

John Sharp (District #4)

Tommy Scott (District #5)

Andy Dooley (District #6)

Kevin S Willis (District #7)

County Consultant

George N. Condyles, IV (President & COO, The Atlantic Group of Companies, Inc)

Blue Ridge Towers Partners

Max Wiegard- Gentry Locke (VA Law Firm)
Sergio Arbu- Cambium (WISP Equipment Manufacturer)
Matt Dorsey & Matt Hollinger- Coretelecom (WISP Engineer & Design Firm)
Dustin Bailey- The Foresite Group, Inc (A&E)
Michael Kiser- Froehling & Robertson (A&E)
Michael Harvey- Valmont (Tower Manufacturer/Distributor)

Special Thanks

US Congressman Bob Goodlatte
Roanoke City Mayor Sherman Lea

Towers

After working closely with Bedford County and its Consultant, George Condyles of The Atlantic Group of Companies, Blue Ridge Towers has studied the 11 site design system in great detail and would like to recommend the following:

The 11 site system requires broadcast towers/sites; two of which will be collocations on the existing Bedford County Water Authority tank (known as New London) and on the existing Self Supporting Lattice Tower owned by MBC at Montvale.

The remaining 9 new towers will all be 195' self supporting lattice towers to be placed on county owned or controlled properties. These 9 Self Supporting Towers will all be of the same design and loading for 4 additional carrier future collocation and load capacity.

The new towers are identified as the following:

Site Name	Address	Land	Height
Big Island	1200 Sunset Hill, Big Island, VA 24526	GP Big Island LLC	195'
Big Island Elem	1114 Schooldays Road, Big Island, VA 24526	BC School	195'
Wheat Valley Reservoir	6178 Wheat valley Road, Bedford, VA24523	BCWA Land	195'
Boonsboro	1100 Tamer Lane, Lynchburg, VA 24503	BCWA Land	195'
McGhee	1029 McGhee Road, Bedford, VA 24523	BWCA Land	195'
Shady Grove	101 Shady Grove Drive, Thaxton, VA 24174	Volunteer EMS	195'
Hardy Collection	1220 Bandy Mill Road, hardy, VA 24101	BCSA Land	195'
Moneta VFD	3346 Horseshoe Bend Road, Moneta, VA 24121	Volunteer VFD	195'
Huddleston Collection	2967 Fairview Church Road, Huddleston VA	BCSA Land	195'
Existing Montvale	11575 Lynchburg Salem Turnpike, Montvale, VA	MBC Tower	195'
Existing New London	1375 West London Park Drive, Forest, VA 24551	BCWA	140'

Blue Ridge Towers is proposing a complete turnkey solution to manage, develop, and construct all 9 proposed towers. As a cell tower owner and developer, Blue Ridge Towers is well versed in all aspects of tower construction and management, along with the due diligence process, and being a local tower company, Blue Ridge Towers has all the resources nearby to complete this project in a timely manner.

Big Island Proposed 195' Self Support

Big Island, Bedford, VA

Parcel ID: 17A2 7 87

Available Rad Centers: 185' 175' 165'

Address: 1200 Sunset Hill, Big Island, VA 24526

2C Lat/Long

37-32-04.66N, -79-21-39.34W, 1603' AMSL

Zoning: County of Bedford

Big Island Elem. School Proposed 195' Self Support

Big Island, Bedford, VA

Parcel ID: 15 A 47D

Available Rad Centers: 185' 175' 165'

Address: 1114 Schooldays Road, Big Island, VA 24526

2C Lat/Long

37-31-46.13N, -79-24-54.49W, 1070' AMSL

Zoning: County of Bedford

Wheat Valley Reservoir Proposed 195' Self Support

Bedford, VA 24523

Parcel ID:

Available Rad Centers: 185' 175' 165'

Address: 6178 Wheat Valley Road, Bedford, VA 24523

2C Lat/Long

37-26-36.22N, -79-33-00.71W

Zoning: County of Bedford

Boonsboro Proposed 195' Monopole

Bedford, VA

Parcel ID: 45 A 42A

Available Rad Centers: 185' 175' 165'

Address: 1100 Tamer Lane, Lynchburg, VA 24503

2C Lat/Long

37-28-07.19N, -79-15-56.26W, 799' AMSL

Zoning: County of Bedford

McGhee Proposed 195' Self Support

Bedford, VA

Parcel ID: 127B 1 17

Available Rad Centers: 185' 175' 165'

Address: 1029 McGhee Road, Bedford, VA 24523

2C Lat/Long

37-20-07.97N, -79-34-43.45W, 1004' AMSL

Zoning: County of Bedford

Shady Grove Proposed 195' Self Support

Bedford, VA

Parcel ID: 123 A 39C

Available Rad Centers: 185' 175' 165'

Address: 101 Shady Grove Road, Thaxton, VA 24174

2C Lat/Long

37-19-10.16N, -79-43-05.77W, 1105' AMSL

Zoning: County of Bedford

Hardy Collection Proposed 195' Monopole

Bedford, VA

Parcel ID: 173 A 142

Available Rad Centers: 185' 175' 165'

Address: 1220 Bandy Mill Road, Hardy, VA 24101

2C Lat/Long

37-14-11.2N, -79-48-36.2W, 1058' AMSL

Zoning: County of Bedford

Moneta Proposed 195' Self Support

Bedford, VA

Parcel ID: 208 A 29

Available Rad Centers: 185' 175' 165'

Address: 3346 Horseshoe Bend Road, Moneta, VA 24121

2C Lat/Long

37-11-44.9N, -79-41-0.6W, 1090' AMSL

Zoning: County of Bedford

Huddleston Proposed 195' Self Support

Bedford, VA

Parcel ID: 244 A 11A

Available Rad Centers: 185' 175' 165'

Address: 2967 Fairview Church Road, Huddleston, VA 24104

2C Lat/Long

37-06-31.31N, -79-32-58.66W, 1002' AMSL

Zoning: County of Bedford

Existing Montvale SST

Bedford, VA

Address:

11575 Lynchburg Salem Turnpike, Montvale VA 24122

2C Lat/Long

37-23-12.59N, -79-43-57.91W, 995' AMSL

Moneta Proposed 195' Self Support

Bedford, VA

Parcel ID: 208 A 29

Available Rad Centers: 185' 175' 165'

Address: 3346 Horseshoe Bend Road, Moneta, VA 24121

2C Lat/Long

37-11-44.9N, -79-41-0.6W, 1090' AMSL

Zoning: County of Bedford

Huddleston Proposed 195' Self Support

Bedford, VA

Parcel ID: 244 A 11A

Available Rad Centers: 185' 175' 165'

Address: 2967 Fairview Church Road, Huddleston, VA 24104

2C Lat/Long

37-06-31.31N, -79-32-58.66W, 1002' AMSL

Zoning: County of Bedford

Existing Montvale SST

Bedford, VA

Address:

11575 Lynchburg Salem Turnpike, Montvale VA 24122

2C Lat/Long

37-23-12.59N, -79-43-57.91W, 995' AMSL

Existing New London

Bedford, VA

Address:

1375 West London Park Drive, Forest, VA 24551

2C Lat/Long

37-18-32.10N, -79-20-32.71W, 922' AMSL

Tower Development

Blue Ridge Towers is proposing to project manage the entire tower development process for Bedford County. As a tower developer and owner, Blue Ridge Towers is all too familiar with the tedious steps required to complete the due diligence process. These necessary steps are required prior to the construction of any tower, and demands great attention to detail and project management to avoid any timely delays.

The planning of a tower requires the following:

Determine the Parcel of Land/ Site Acquisition
Determine/Secure Ingress/Egress
Determine Zoning/Easements/Right of ways
Determine/order utility access for power and telco
Survey property and proposed location & complete 2-C
Order NEPA
Order Phase 1/Section 106
Order FAA Air Study
Order FCC interference study
Order Geotech
Order Tower and design for additional loading
Secure ground Lease
Record Lease agreement/MOL
Record Plat/Survey
Order Title commitment on the property

While performing and managing all these processes, Blue Ridge Towers would be working simultaneously with all the major carriers within the region to collocate them on these 9 new towers. We will secure a Site Lease Agreement (SLA) or a Master Lease Agreement (MLA) between the carrier and Bedford County. Blue Ridge Towers will work through the various departments from RF, Leasing, Compliance, Legal, and Construction.
Blue Ridge Towers will also be assembling applications to obtain the necessary county approvals for these towers. We will oversee the entire application process; from filing the application, working through the legal and staff reviews, conducting public hearings, and working with the county consultant to ensure the approval/permits are obtained expeditiously.
Upon permit approval, Blue Ridge Towers would oversee the entire construction process to ensure the towers are built correctly to code and above industry standards.

Tower Construction

Blue Ridge Towers is proposing to construct each new site for the cost of $173,000 per tower. The complete construction budget would include:

Building Permits, Tower delivery and stacking, all civil work, tower foundation, Access/road work, fiber/and or MW backhaul conduits and installation, Utility order/delivery. All cabinet/generator delivery and install, Grounding, Fencing and Landscape, and final site inspection

ms13

PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
Big Island, VA

V- 19.0 195 Y24
A- 408306-02

Foundation Dimensions		
Pad width, W:	25.5	ft
Depth, D:	5.0	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_c:	3.0	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	5.0	ft
Volume, V_c:	39.27	cy

Reinforcement Design		
pad rebar qty., m_p:	35	bars*
size, s_p:	6	
pier vertical qty, m_c:	13	vertical/pier
size, s_c:	7	2.5" cage
pier tie qty., m_t:	6	ties/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 140 bars
* Use stirrups to support top rebar above bottom rebar in mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Ult. Passive P., P_p:	0.510	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	110086	Dia = 1 Length = 4

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

Tower design conforms to the following:
* 2012 International Building Code (IBC)
* ANSI TIA-222-G
* Building Code Requirements for Reinforced Concrete (ACI 318-11)

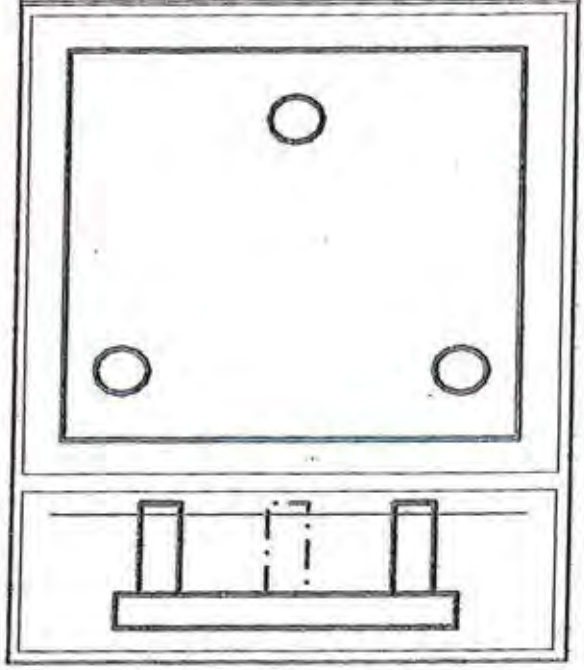
Note: The centroid of the tower is offset from the centroid of the foundation

Foundation Loading

Load Case 1		stress ratio: 96.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips

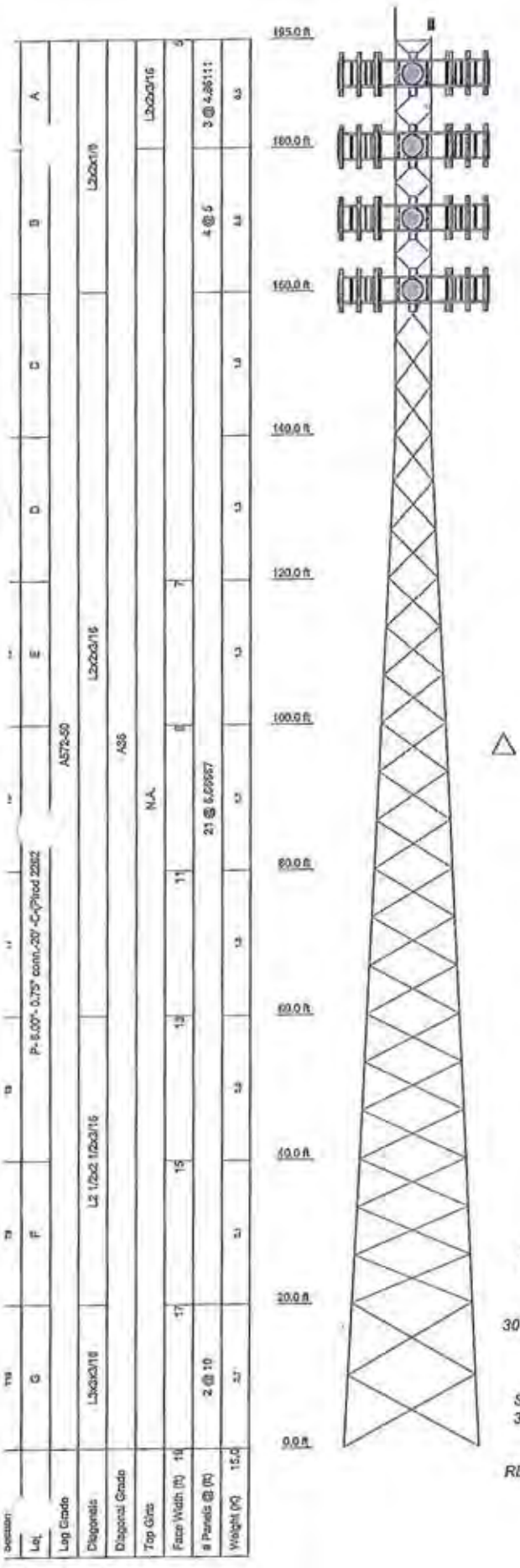
Load Case 2		stress ratio: 96.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips

Views of Foundation (not to scale)



Additional Notes:

* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1/2" x 4' lightning rod	195	P3F-52-NXA w/Radome	180
Beacon	195	(3) HWX-6516DS1-VTM	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4" x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HWX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HWX-6516DS1-VTM	170
4" x 60" Dish mount	190	P3F-52-NXA w/Radome	170
P3F-52-NXA w/Radome	190	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
SP1 VFA12-HD	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4" x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HWX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HWX-6516DS1-VTM	160
4" x 60" Dish mount	180	(3) HWX-6516DS1-VTM	160
(3) HWX-6516DS1-VTM	180	P3F-52-NXA w/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 2.50" - 0.75" conn.-15° -C-(Prod 226169)	E	P- 5.00"- 0.75" conn.-20° -C-(Prod 226192)
B	P- 2.50" - 0.75" conn.-20° -C-(Prod 226180)	F	P- 6.00"- 0.75" conn.-Trans-20° -C-(Prod 226224)
C	P- 4.00"- 0.75" conn.-20° -C-Trans-6B-4B (Prod 226184)	G	P- 8.50"- 1.00" conn.- 20° -C-(Prod 226230)

MATERIAL STRENGTH

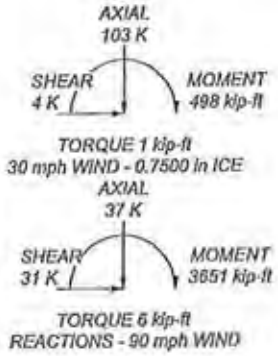
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Bedford County, Virginia.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in Ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 94.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 234 K
UPLIFT: -203 K
SHEAR: 20 K



valmont STRUCTURES
Valmont Structures, Inc. - Specialty Structures Group
Valmont Structures
1545 Pidco Drive
Plymouth, IN 46563
Phone: (574) 936-4221
FAX: (574) 936-6458

Job:	Quotation 408306-02
Project:	V-19 x 195' - Big Island, VA
Client: Blue Ridge Towers	Drawn by: CRF1 / Appd:
Code: TIA-222-G	Date: 04/11/18 / Scale:
Path:	Dwg No.

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PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
Big Island Elementary Schools, VA

V- 19.0 195 V24
A- 408307-02

Foundation Dimensions		
Pad width, W:	25.5	ft
Depth, D:	5.0	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_f:	3.0	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	5.0	ft
Volume, V_c:	39.27	cy

Reinforcement Design		
pad rebar qty., m_p:	35	bars*
size, s_p:	6	
pier vertical qty, m_c:	13	verticals/pier
size, s_c:	7	2.5" cage
pier tie qty., m_t:	6	ties/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 140 bars
* Use standees to support top rebar above bottom rebar in mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Ult. Passive P., P_p:	0.510	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	110986	(Qty.) Length = 42"

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

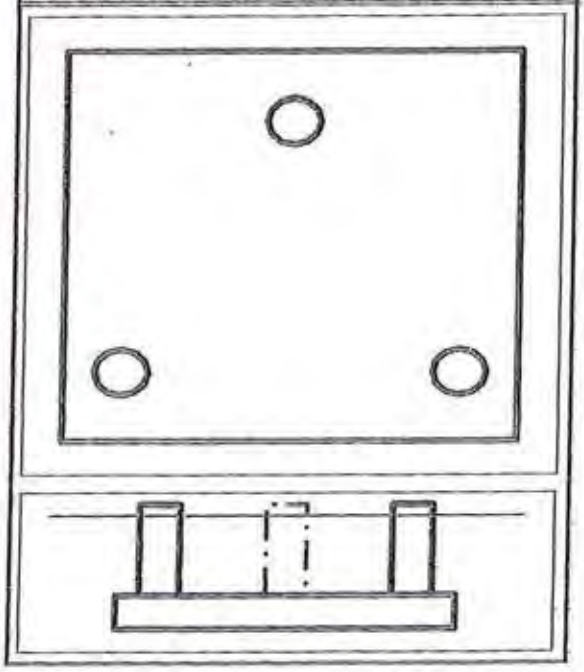
Tower design conforms to the following:
* 2012 International Building Code (IBC)
* ANSI TIA-222-G
* Building Code Requirements for Reinforced Concrete (ACI 318-11)

Note: The centroid of the tower is offset from the centroid of the foundation

Foundation Loading

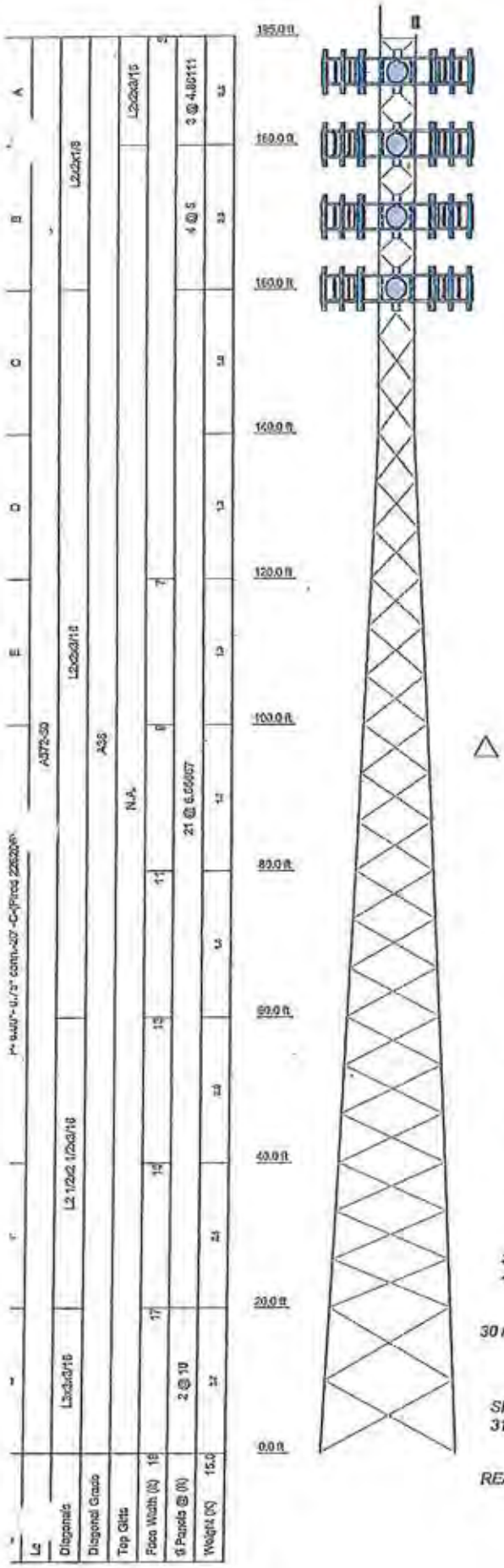
Load Case 1		stress reduc: 66.6%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips
Load Case 2		stress reduc: 66.6%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips

Views of Foundation (not to scale)



Additional Notes:

* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1/2" x 4' lightning rod	195	P3F-52-NXAw/Radome	180
Beacon	195	(3) HWX-6516DS1-VTM	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4' x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HWX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HWX-6516DS1-VTM	170
4' x 60" Dish mount	190	P3F-52-NXAw/Radome	170
P3F-52-NXAw/Radome	190	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
SP1 VFA12-HD	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4' x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HWX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HWX-6516DS1-VTM	160
4' x 60" Dish mount	180	(3) HWX-6516DS1-VTM	160
(3) HWX-6516DS1-VTM	180	P3F-52-NXAw/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 2.50" - 0.75" conn-15'-C-(Prod 226169)	E	P- 5.00"- 0.75" conn-20'-C-(Prod 226192)
B	P- 2.50" - 0.75" conn-20'-C-(Prod 226169)	F	P- 6.00"- 0.75" conn-Trans-20'-C-(Prod 226224)
C	P- 4.00"- 0.75" conn-20'-C-Trans-6B-4B-(Prod 226184)	G	P- 8.00"- 1.00" conn- 20'-C-(Prod 226230)

MATERIAL STRENGTH

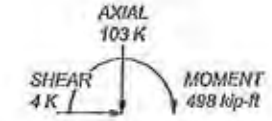
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

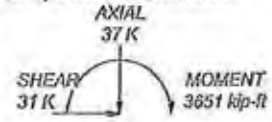
1. Tower is located in Bedford County, Virginia.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 94.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 234 K
UPLIFT: -203 K
SHEAR: 20 K



TORQUE 1 kip-ft
30 mph WIND - 0.7500 in ICE



TORQUE 6 kip-ft
REACTIONS - 90 mph WIND

ms13

PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
Boonsboro Collection, VA

V- 19.0 195 V 2.4
A- 408319-02

Foundation Dimensions		
Pad width, W:	25.5	ft
Depth, D:	5.0	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_c:	3.0	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	5.0	ft
Volume, V_c:	39.27	cy

Reinforcement Design		
pad rebar qty., m_p:	35	bars*
size, s_p:	6	
pier vertical qty, m_c:	13	vertical/pier
size, s_c:	7	2.5" clear
pier tie qty., m_t:	6	ea/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 140 bars
* Use stand-ups to support top rebar above bottom rebar in mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
Ult. Passive P_s, P_p:	0.510	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	116986	Dia = 1 Length = 42

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

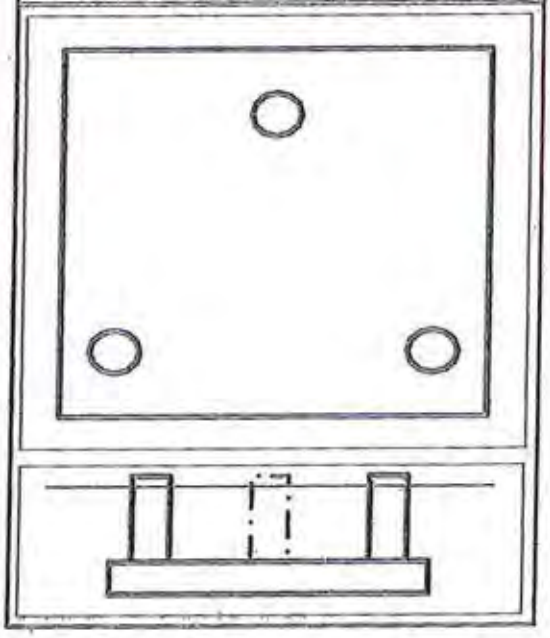
Tower design conforms to the following:
* 2012 International Building Code (IBC)
* ANSI TIA-222-G
* Building Code Requirements for Reinforced Concrete (ACI 318-11)

Note: The centroid of the tower is offset from the centroid of the foundation

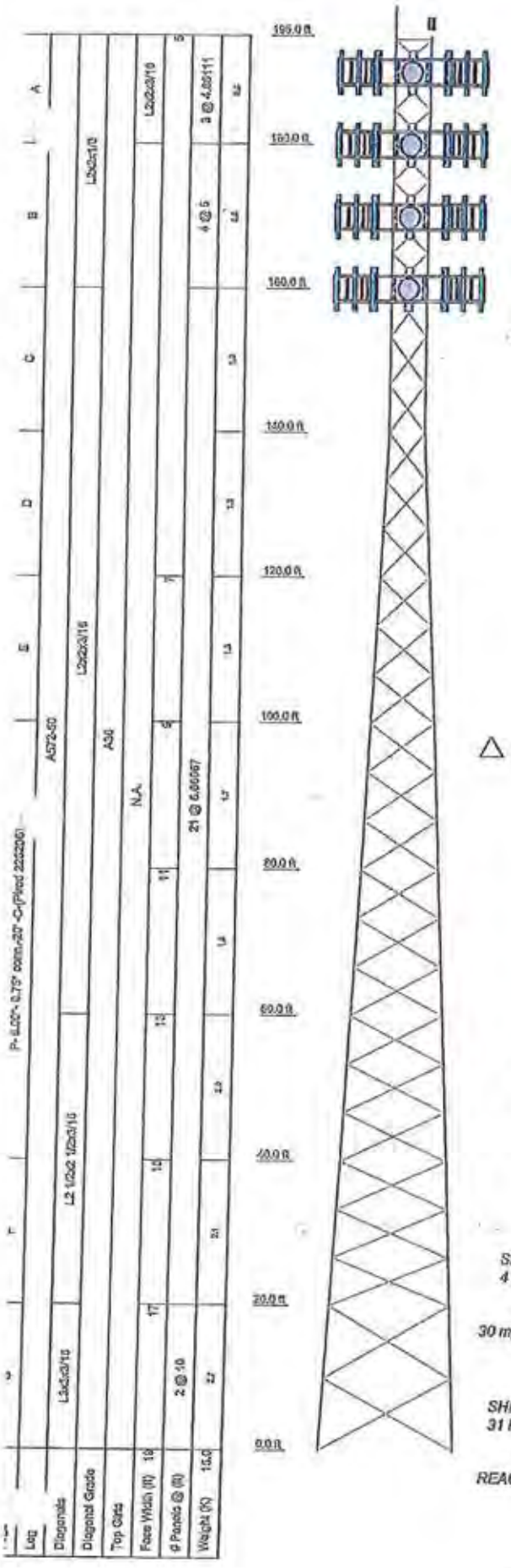
Foundation Loading

Load Case 1		stress ratio: 94.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips
Load Case 2		stress ratio: 90.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips

Views of Foundation (not to scale)



Additional Notes:
* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1/2" x 4' Lightning rod	195	P3F-52-NXAw/Radome	180
Beacon	195	(3) HWX-6516DS1-VTM	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4' x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HWX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HWX-6516DS1-VTM	170
4' x 60" Dish mount	190	P3F-52-NXAw/Radome	170
P3F-52-NXAw/Radome	190	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
SP1 VFA12-HD	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4' x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HWX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HWX-6516DS1-VTM	160
4' x 60" Dish mount	180	(3) HWX-6516DS1-VTM	160
(3) HWX-6516DS1-VTM	180	P3F-52-NXAw/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 2.50" - 0.75" conn.-15' -C-(Prod 226189)	E	P- 5.00"- 0.75" conn.-20' -C-(Prod 226192)
B	P- 2.50" - 0.75" conn.-20' -C-(Prod 226190)	F	P- 6.00"- 0.75" conn.-Trans-20' -C-(Prod 226224)
C	P- 4.00"- 0.75" conn.-20' -C-Trans-6B-4B-(Prod 226194)	G	P- 8.00"- 1.00" conn.- 20' -C-(Prod 226230)

MATERIAL STRENGTH

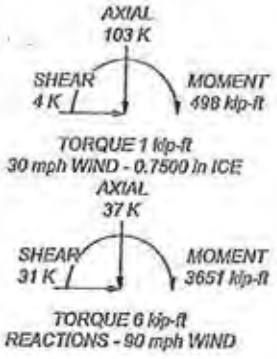
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Bedford County, Virginia.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in Ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 94.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 234 K
UPLIFT: -203 K
SHEAR: 20 K



PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
Shady Grove, VA

V- 19.0 195
A- 408327-02

V 2.4

Foundation Dimensions		
Pad width, W:	25.5	ft
Depth, D:	5.0	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_f:	3.0	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	5.0	ft
Volume, V_c:	39.27	cy

Reinforcement Design		
pad rebar qty., m_p:	35	bars *
size, s_p:	6	
pier vertical qty, m_c:	13	verticals/pier
size, s_c:	7	2.5' cage
pier tie qty., m_t:	6	ties/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 140 bars
* Use standees to support top rebar above bottom rebar in mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
Cohesion, C_a:	1.000	ksf
Friction angle, ϕ:	0.0	degrees
Ult. Passive P., P_p:	0.510	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	110986	Da = 1 Length = 42

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

Tower design conforms to the following:

* *2012 International Building Code (IBC)*
* *ANSI TIA-222-G*
* *Building Code Requirements for Reinforced Concrete (ACI 318-11)*

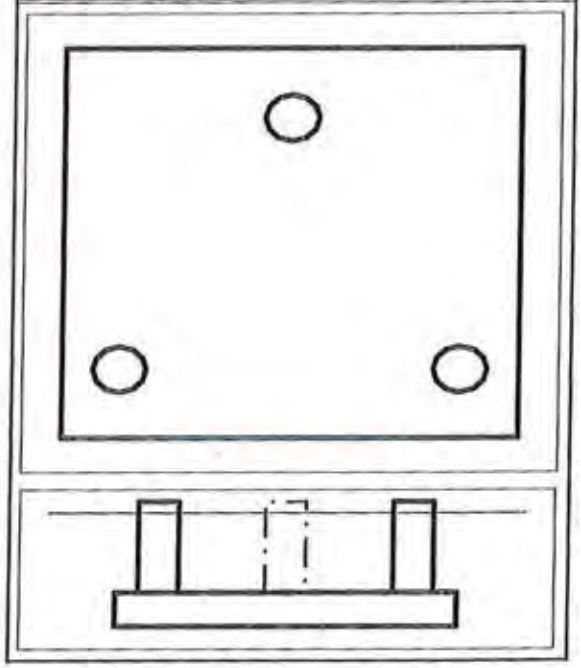
Note: The centroid of the tower is offset from the centroid of the foundation

Foundation Loading

Load Case 1		stress ratio: 96.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips
Load Case 2		stress ratio: 96.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips

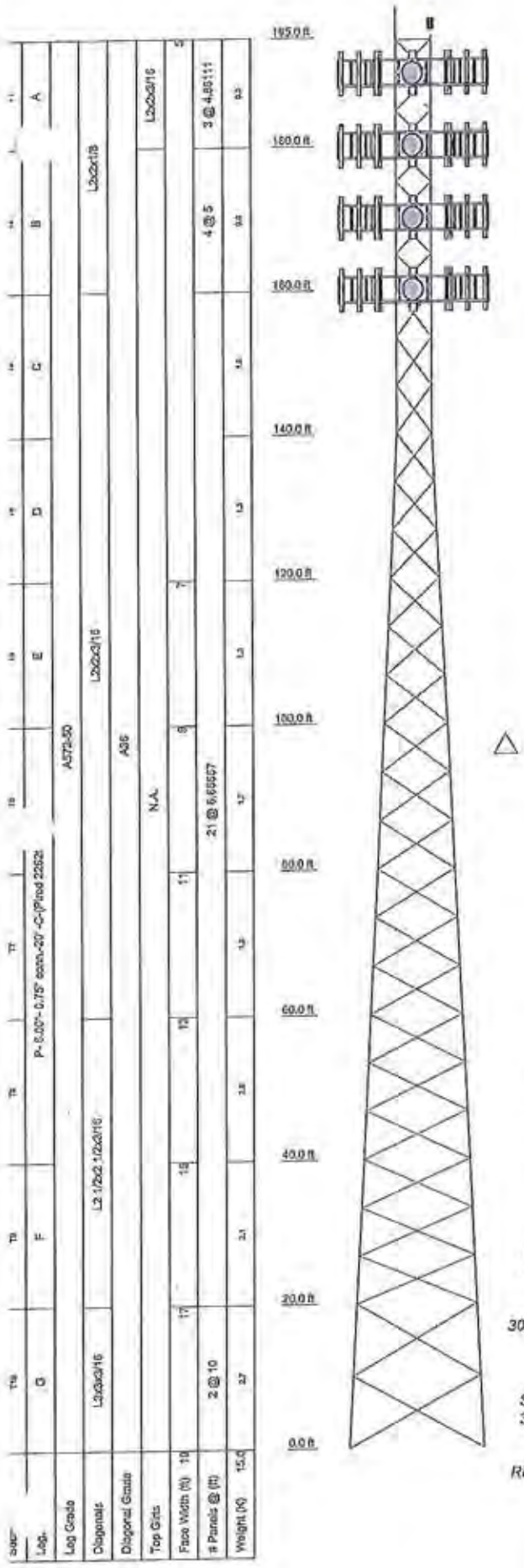
Views of Foundation

(not to scale)



Additional Notes:

* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1/2" x 4' lightning rod	195	P3F-52-NXA w/Radome	180
Beacon	195	(3) HVX-6516DS1-VTM	170
(3) HVX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HVX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HVX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4" x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HVX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HVX-6516DS1-VTM	170
4" x 60" Dish mount	190	P3F-52-NXA w/Radome	170
P3F-52-NXA w/Radome	190	(4) AirHarmony 4000	160
(3) HVX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(3) HVX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4" x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HVX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HVX-6516DS1-VTM	160
4" x 60" Dish mount	180	(3) HVX-6516DS1-VTM	160
(3) HVX-6516DS1-VTM	180	P3F-52-NXA w/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 2.50" - 0.75" conn.-15' -C-(Pinod 226169)	E	P- 5.00"- 0.75" conn.-20' -C-(Pinod 226192)
B	P- 2.50" - 0.75" conn.-20' -C-(Pinod 226160)	F	P- 6.00"- 0.75" conn.-Trans-20' -C-(Pinod 226224)
C	P- 4.00"- 0.75" conn.-20' -C-Trans-68-48-(Pinod 226184)	G	P- 8.00"- 1.00" conn.- 20' -C-(Pinod 226230)

MATERIAL STRENGTH

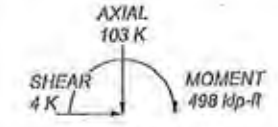
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Bedford County, Virginia.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 94.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 234 K
UPLIFT: -203 K
SHEAR: 20 K



TORQUE 1 kip-ft
30 mph WIND - 0.7500 in ICE

TORQUE 6 kip-ft
REACTIONS - 90 mph WIND

valmont STRUCTURES
Valmont Structures, Inc. - Specialty Structures Group
Valmont Structures
1545 Pidco Drive
Plymouth, IN 46563
Phone: (574) 936-4221
FAX: (574) 936-6458

Job: Quotation 408327-02			
Project: V-19 x 195' - Shady Grove, VA			
Client: Blue Ridge Towers	Drawn by: CRF1	Appd:	
Code: TIA-222-G	Date: 04/11/18	Scale:	
Path:		Dwg No.	

ms13

PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
McGhee Road, VA

V- 19.0 195 V 2.4
A- 408326-02

Foundation Dimensions		
Pad width, W:	25.5	ft
Depth, D:	5.0	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_c:	3.0	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	5.0	ft
Volume, V_c:	39.27	cy

Reinforcement Design		
pad rebar qty., m_p:	35	bars *
size, s_p:	6	
pier vertical qty, m_c:	13	verticals/pier
size, s_c:	7	2.5" cage
pier tie qty., m_t:	6	ties/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 140 bars
* Use standees to support top rebar above bottom rebar in mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
Cohesion, C_a:	1.000	ksf
Friction angle, ϕ:	0.0	degrees
Ult. Passive P., P_p:	0.510	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	110986	Dia = 1" Length = 42"

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

Tower design conforms to the following:

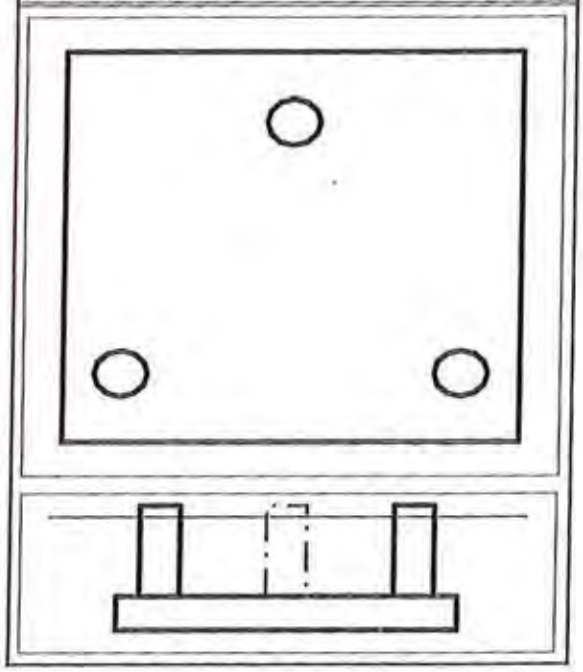
* *2012 International Building Code (IBC)*
* *ANSI TIA-222-G*
* *Building Code Requirements for Reinforced Concrete (ACI 318-11)*

Note: The centroid of the tower is offset from the centroid of the foundation

Foundation Loading

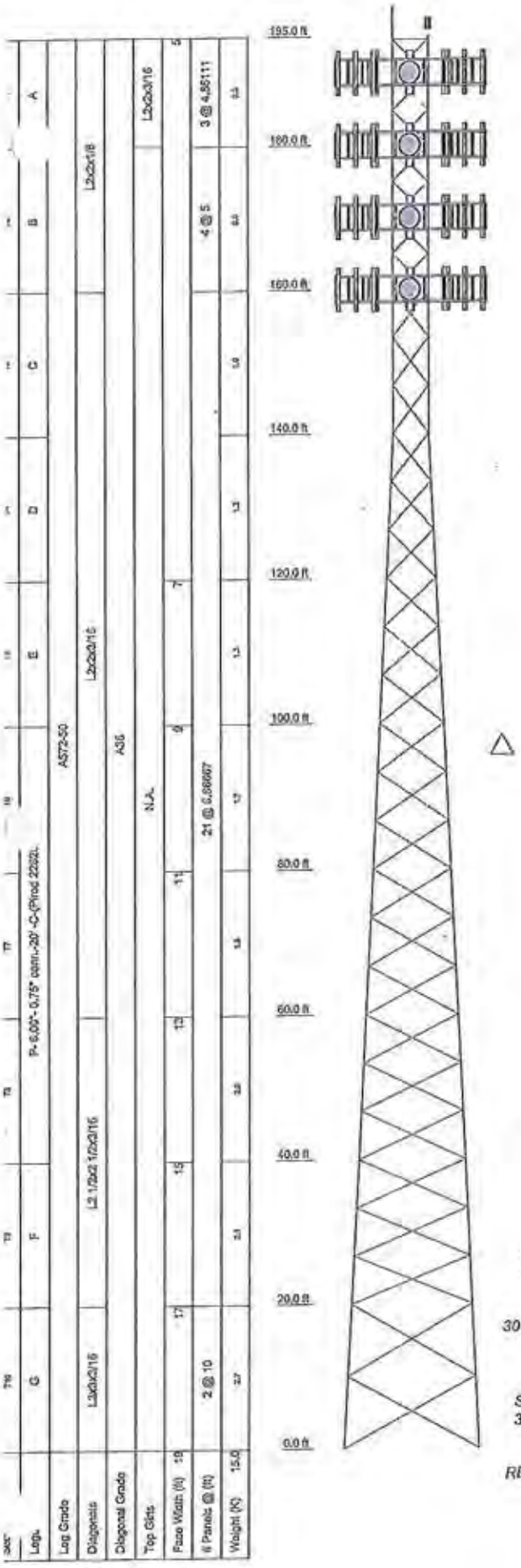
Load Case 1		stress ratio: 96.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips
Load Case 2		stress ratio: 96.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips

Views of Foundation (not to scale)



Additional Notes:

* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
4ft x 4" lightning rod	195	P3F-52-NXA w/Radome	160
Beacon	195	(3) HWX-6516DS1-VTM	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4' x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HWX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HWX-6516DS1-VTM	170
4' x 60" Dish mount	190	P3F-52-NXA w/Radome	170
P3F-52-NXA w/Radome	190	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
SP1 VFA12-HD	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4' x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HWX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HWX-6516DS1-VTM	160
4' x 60" Dish mount	180	(3) HWX-6516DS1-VTM	160
(3) HWX-6516DS1-VTM	180	P3F-52-NXA w/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 2.50" - 0.75" conn.-15' -C-(Prod 228169)	E	P- 5.00"- 0.75" conn.-20' -C-(Prod 226192)
B	P- 2.50" - 0.75" conn.-20' -C-(Prod 228160)	F	P- 6.00"- 0.75" conn.-Trans-20' -C-(Prod 226224)
C	P- 4.00"- 0.75" conn.-20' -C-Trans-68-48-(Prod 226184)	G	P- 8.00"- 1.00" conn.- 20' -C-(Prod 226230)

MATERIAL STRENGTH

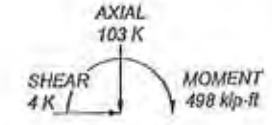
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

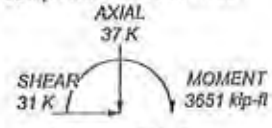
1. Tower is located in Bedford County, Virginia.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in Ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 94.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 234 K
UPLIFT: -203 K
SHEAR: 20 K



TORQUE 1 kip-ft
30 mph WIND - 0.7500 in ICE



TORQUE 6 kip-ft
REACTIONS - 90 mph WIND

valmont STRUCTURES
Valmont Structures, Inc. - Specialty Structures Group

Valmont Structures
1545 Pidco Drive
Plymouth, IN 46563
Phone: (574) 936-4221
FAX: (574) 936-6458

Job: Quotation 408326-02
Project: V-19 x 195' - McGhee Road, VA
Client: Blue Ridge Towers | Drawn by: CRF1 | App'd:
Code: TIA-222-G | Date: 04/11/18 | Scale:
Path: | Dwg No

ms13

PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
Hardy Collection, VA

V- 19.0 195 V 2.4
A- 408332-02

Foundation Dimensions		
Pad width, W:	25.5	ft
Depth, D:	5.0	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_c:	3.0	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	5.0	ft
Volume, V_c:	39.27	cy

Reinforcement Design		
pad rebar qty., m_p:	35	bars *
size, s_p:	6	
pier vertical qty, m_c:	13	verticals/pier
size, s_c:	7	2.5" cage
pier tie qty., m_t:	6	ties/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 140 bars
* Use standees to support top rebar above bottom rebar to mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
Cohesion, C_u:	1.000	ksf
Friction angle, ϕ:	0.0	degrees
Ult. Passive P_u, P_p:	0.510	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	110986	Dia = 1" Length = 42"

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

Tower design conforms to the following:

* *2012 International Building Code (IBC)*
* *ANSI TIA-222-G*
* *Building Code Requirements for Reinforced Concrete (ACI 318-11)*

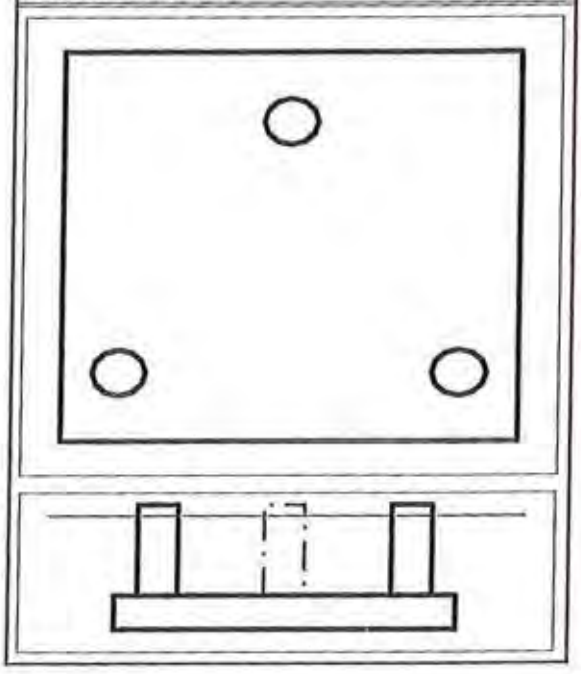
Note: The centroid of the tower is offset from the centroid of the foundation

Foundation Loading

Load Case 1		stress ratio: 96.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips
Load Case 2		stress ratio: 96.5%	mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips
Tower Weight, W_t:	37.00 kips	=	37.00 kips

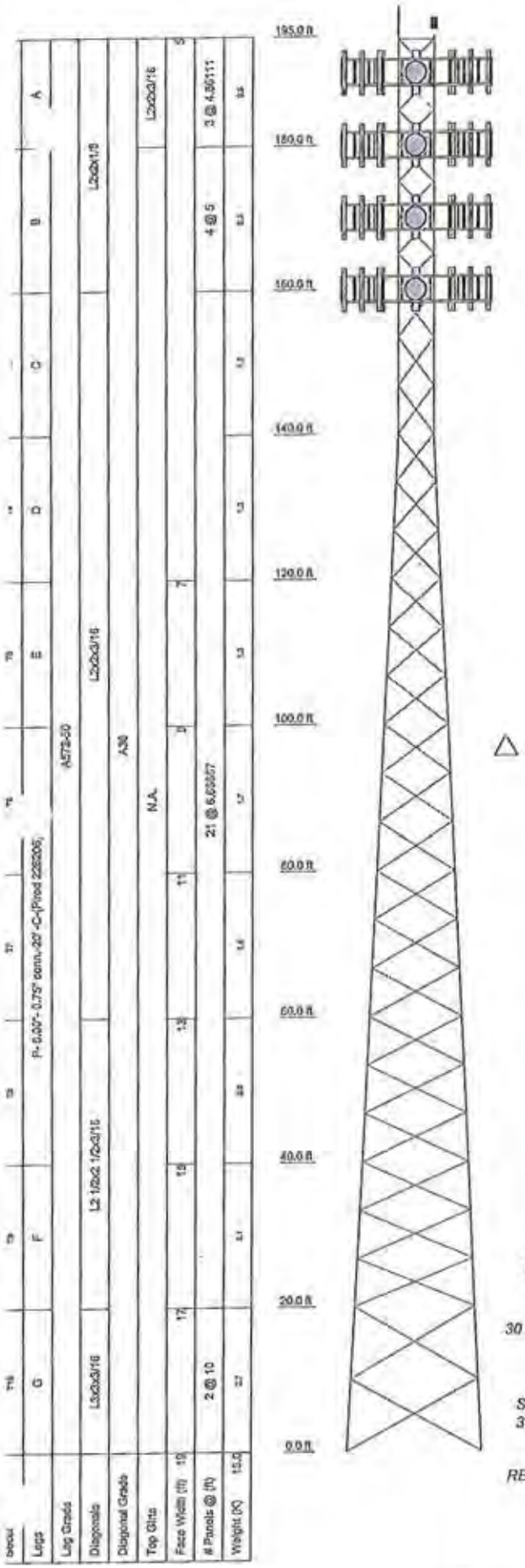
Views of Foundation

(not to scale)



Additional Notes:

* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1/2" x 4' lightning rod	195	P3F-52-NXAw/Radome	160
Beacon	195	(3) HWX-6516DS1-VTM	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4' x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HWX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HWX-6516DS1-VTM	170
4' x 60" Dish mount	190	P3F-52-NXAw/Radome	170
P3F-52-NXAw/Radome	190	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
SP1 VFA12-HD	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4' x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HWX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HWX-6516DS1-VTM	160
4' x 60" Dish mount	180	(3) HWX-6516DS1-VTM	160
(3) HWX-6516DS1-VTM	180	P3F-52-NXAw/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P= 2.50" - 0.75" conn.-15" -C-(Prod 226169)	E	P= 5.00"- 0.75" conn.-20" -C-(Prod 226192)
B	P= 2.50" - 0.75" conn.-20" -C-(Prod 226180)	F	P= 6.00"- 0.75" conn.-Trans-20" -C-(Prod 226224)
C	P= 4.00"- 0.75" conn.-20" -C-Trans-68-48-(Prod 226184)	G	P= 8.00"- 1.00" conn.- 20" -C-(Prod 226230)

MATERIAL STRENGTH

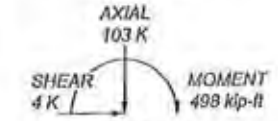
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

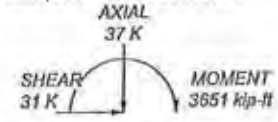
1. Tower is located in Bedford County, Virginia.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 94.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 234 K
UPLIFT: -203 K
SHEAR: 20 K



TORQUE 1 kip-ft
30 mph WIND - 0.7500 in ICE



TORQUE 6 kip-ft
REACTIONS - 90 mph WIND

valmont STRUCTURES
Valmont Structures, Inc. - Specialty Structures Group
Valmont Structures
1545 Pidco Drive
Plymouth, IN 46563
Phone: (574) 936-4221
FAX: (574) 936-6458

Job:	*Quotation 408332-02*
Project:	*V-19 x 195' - Hardy Collection, VA*
Client:	Blue Ridge Towers
Drawn by:	CRF1
Code:	TIA-222-G
Date:	04/11/18
Path:	
Appld:	
Scale:	
Dwg N	

ms13

PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
Moneta VFD, VA

V- 19.0 195 v 2.4
A- 408328-02

Foundation Dimensions		
Pad width, W:	26.0	ft
Depth, D:	6.5	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_f:	3.5	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	6.5	ft
Volume, V_e:	43.44	cy

Reinforcement Design		
pad rebar qty., m_p:	27	bars *
size, s_p:	7	
pier vertical qty, m_c:	17	vertical/pier
size, s_c:	7	3" cage
pier tie qty., m_t:	7	ties/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 108 bars
* Use standees to support top rebar above bottom rebar in mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
Cohesion, C_u:	1.000	ksf
Friction angle, ϕ:	0.0	degrees
Ult. Passive P., P_p:	0.418	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	103183	Dia = 1.25" Length = 60"

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

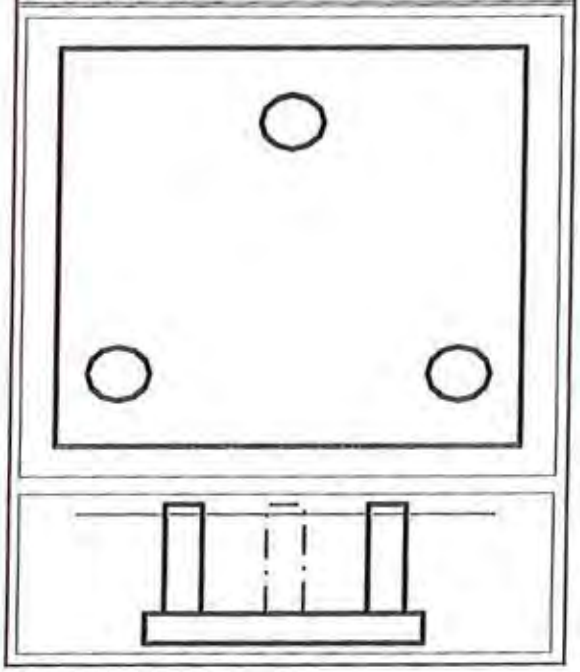
Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

Tower design conforms to the following:
* 2012 International Building Code (IBC)
* ANSI TIA-222-G
* Building Code Requirements for Reinforced Concrete (ACI 318-11)

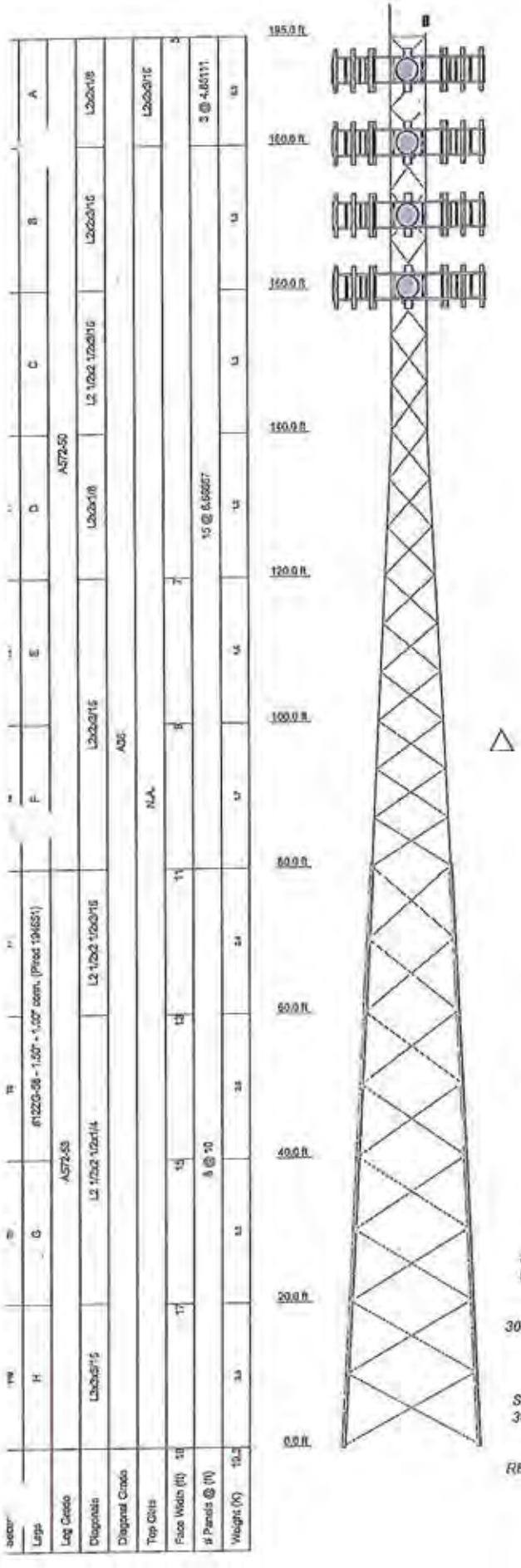
Note: The centroid of the tower is offset from the centroid of the foundation

Foundation Loading				
Load Case 1		stress ratio: 99.1%		mark up: 0.9%
Shear (total), S:	38.00 kips	x 1.009 =	38.34 kips	
Moment, M:	4561.00 ft-kips	x 1.009 =	4602.05 ft-kips	
Compression/Leg, C:	291.00 kips	x 1.009 =	293.62 kips	
Uplift/Leg, U:	255.00 kips	x 1.009 =	257.30 kips	
Tower Weight, W_t:	42.00 kips	=	42.00 kips	
Load Case 2		stress ratio: 99.1%		mark up: 0.9%
Shear (total), S:	38.00 kips	x 1.009 =	38.34 kips	
Moment, M:	4561.00 ft-kips	x 1.009 =	4602.05 ft-kips	
Compression/Leg, C:	291.00 kips	x 1.009 =	293.62 kips	
Uplift/Leg, U:	255.00 kips	x 1.009 =	257.30 kips	
Tower Weight, W_t:	42.00 kips	=	42.00 kips	

Views of Foundation (not to scale)



Additional Notes:
* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1/2" x 4' lightning rod	195	P3F-52-NXA w/Radome	180
Beacon	195	(3) HVX-6516DS1-VTM	170
(3) HVX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HVX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HVX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4' x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HVX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HVX-6516DS1-VTM	170
4' x 60" Dish mount	190	P3F-52-NXA w/Radome	170
P3F-52-NXA w/Radome	190	(4) AirHarmony 4000	160
(3) HVX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(3) HVX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
SP1 VFA12-HD	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4' x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HVX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HVX-6516DS1-VTM	160
4' x 60" Dish mount	180	(3) HVX-6516DS1-VTM	160
(3) HVX-6516DS1-VTM	180	P3F-52-NXA w/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 2.50" - 0.75" conn.-15' -C-(Prod 226169)	E	P- 8.00"- 0.75" conn.-20' -C-(Prod 226206)
B	P- 4.00"- 0.75" conn.-20' -C-Trans-68-48-(Prod 229926)	F	P- 8.00"- 0.75" conn.-HSD-Trans-20' -C-(Prod 229577)
C	P- 5.00"- 0.75" conn.-20' -C-S-(Prod 229924)	G	#122G-58 - 1.75" - 1.00" conn.-TR1-(Prod 195213)
D	P- 5.00"- 0.75" conn.-20' -C-(Prod 226192)	H	#122G-58 - 1.75" - 1.00" conn. (Prod 195217)

MATERIAL STRENGTH

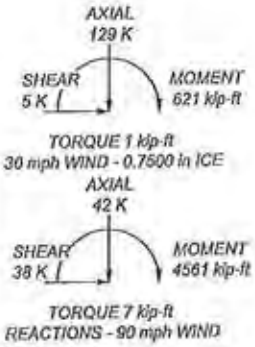
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A572-65	65 ksi	75 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in Bedford County, Virginia.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in Ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 99.1%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 291 K
UPLIFT: -255 K
SHEAR: 27 K



valmont STRUCTURES
Valmont Structures, Inc. - Specialty Structures Group
Valmont Structures
1545 Pidco Drive
Plymouth, IN 46563
Phone: (574) 936-4221
FAX: (574) 936-6458

Job:	Quotation 408328-02
Project:	V-19 x 195' - Moneta VFD, VA
Client:	Blue Ridge Towers
Drawn by:	CRF1
App'd:	
Code:	TIA-222-G
Date:	04/11/18
Scale:	
Path:	
Dwg No.	

ms13

PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
Huddleston VFD, VA

V- 19.0 195 - V 2.4
A- 408330-02

Foundation Dimensions		
Pad width, W:	25.5	ft
Depth, D:	5.0	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_p:	3.0	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	5.0	ft
Volume, V_c:	39.27	cy

Reinforcement Design		
pad rebar qty., m_p:	35	bars *
size, s_p:	6	
pier vertical qty, m_s:	13	vertical/pier
size, s_s:	7	2.5' cage
pier tie qty., m_t:	6	tie/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 140 bars
* Use standees to support top rebar above bottom rebar in mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
Cohesion, C_s:	1.000	ksf
Friction angle, ϕ:	0.0	degrees
Ult. Passive P., P_p:	0.510	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	110986	Dia = 1" Length = 42"

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

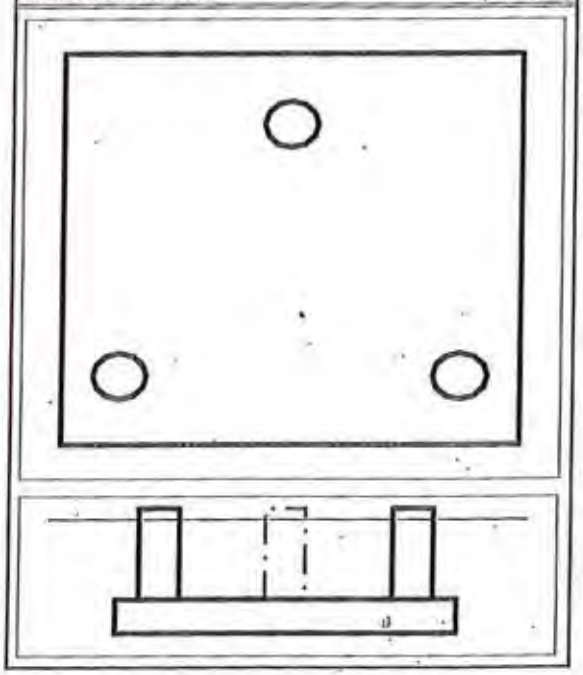
Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

Tower design conforms to the following:
* 2012 International Building Code (IBC)
* ANSI TIA-222-G
* Building Code Requirements for Reinforced Concrete (ACI 318-11)

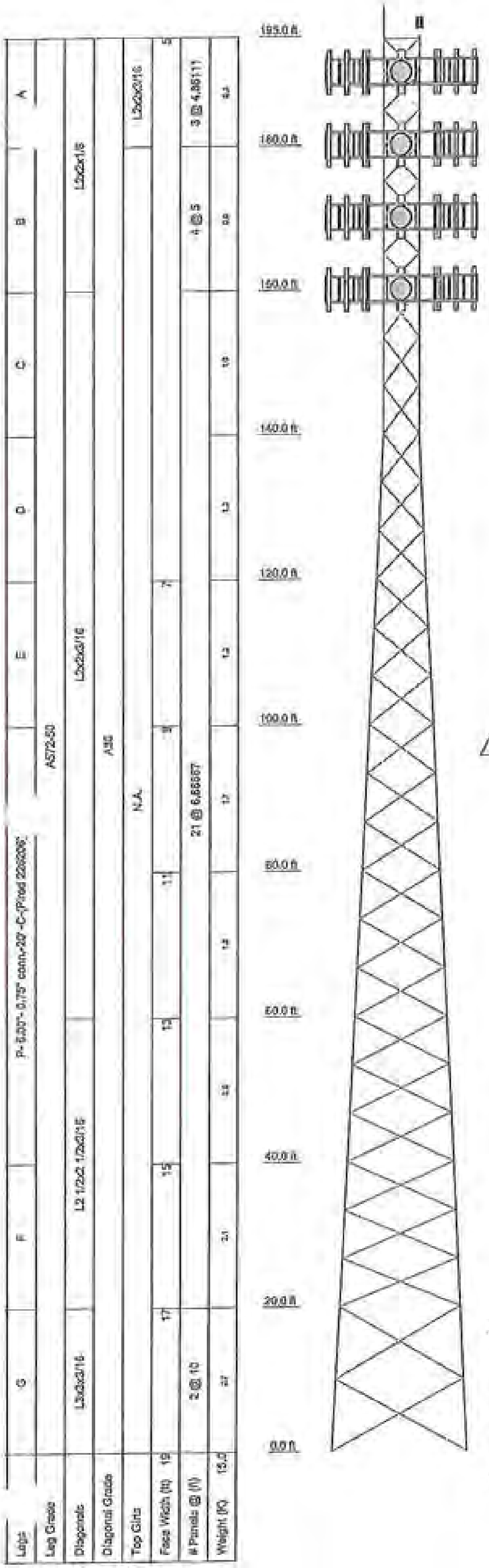
Note: The centroid of the tower is offset from the centroid of the foundation

Foundation Loading				
Load Case 1		stress ratio: 96.5%		mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips	
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips	
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips	
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips	
Tower Weight, W_t:	37.00 kips	=	37.00 kips	
Load Case 2		stress ratio: 96.5%		mark up: 3.6%
Shear (total), S:	31.00 kips	x 1.036 =	32.12 kips	
Moment, M:	3651.00 ft-kips	x 1.036 =	3782.44 ft-kips	
Compression/Leg, C:	234.00 kips	x 1.036 =	242.42 kips	
Uplift/Leg, U:	203.00 kips	x 1.036 =	210.31 kips	
Tower Weight, W_t:	37.00 kips	=	37.00 kips	

Views of Foundation (not to scale)



Additional Notes:
* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1/2" x 4' lightning rod	195	P3F-52-NXA w/Radome	180
Beacon	195	(3) HWX-6516DS1-VTM	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4" x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HWX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HWX-6516DS1-VTM	170
4" x 60" Dish mount	190	P3F-52-NXA w/Radome	170
P3F-52-NXA w/Radome	190	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
SP1 VFA12-HD	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4" x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HWX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HWX-6516DS1-VTM	160
4" x 60" Dish mount	180	(3) HWX-6516DS1-VTM	160
(3) HWX-6516DS1-VTM	180	P3F-52-NXA w/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P- 2.50" - 0.75" conn.-15' -C-(Pirod 226169)	E	P- 5.00"- 0.75" conn.-20' -C-(Pirod 226192)
B	P- 2.50" - 0.75" conn.-20' -C-(Pirod 226160)	F	P- 6.00"- 0.75" conn.-Trans-20' -C-(Pirod 226224)
C	P- 4.00"- 0.75" conn.-20' -C-Trans-6B-4B-(Pirod 226184)	G	P- 8.00"- 1.00" conn.- 20' -C-(Pirod 226230)

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Franklin County, Virginia.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 94.6%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 234 K
UPLIFT: -203 K
SHEAR: 20 K

AXIAL 103 K
SHEAR 4 K
MOMENT 498 kip-ft
TORQUE 1 kip-ft
30 mph WIND - 0.7500 in ICE

AXIAL 37 K
SHEAR 31 K
MOMENT 3651 kip-ft
TORQUE 6 kip-ft
REACTIONS - 90 mph WIND

valmont STRUCTURES	Valmont Structures 1545 Pidco Drive Plymouth, IN 46563 Phone: (574) 936-4221	Job: Quotation 408330-02		
		Project: V-19 x 195' - Huddleston VFD, VA		
		Client: Blue Ridge Towers	Drawn by: CRF1	App'd:
Valmont Structures, Inc. - Specialty Structures Group		Code: TIA-222-G	Date: 04/11/18	Scale:

ms13

PRELIMINARY DESIGN. NOT FOR CONSTRUCTION.

UNIT BASE FOUNDATION SUMMARY

Blue Ridge Towers
Wheat Valley reservoir, VA

V- 23.0 195 v 2.4
A- 408318-02

Foundation Dimensions		
Pad width, W:	33.0	ft
Depth, D:	7.0	ft
Ext. above grade, E:	0.5	ft
Pier diameter, d_f:	4.0	ft
Pad thickness, T:	1.50	ft
Depth neglected, N:	7.0	ft
Volume, V_c:	68.88	cy

Reinforcement Design		
pad rebar qty., m_p:	53	bars *
size, s_p:	8	
pier vertical qty, m_c:	21	vertical/pier
size, s_c:	8	3.5' cage
pier tie qty., m_t:	7	tie/pier
size, s_t:	4	w/ overlap

* Rebar to be equally spaced, both ways, top & bottom, for a total of 212 bars
* Use standees to support top rebar above bottom rebar in mat

Soil Information Per:
Assumed as Clay Per TIA-222-G Annex F.

Soil Parameters		
Soil unit weight, γ:	110	pcf
Ultimate Bearing, B_c:	5.000	ksf
Cohesion, C_u	1.000	ksf
Friction angle, φ	0.0	degrees
Ult. Passive P., P_p:	0.396	pcf
Base sliding, μ:	0.20	
Seismic Design Cat.:	B	
Water at:	none	ft

Anchor Steel Selection		
Part Number, P/N:	123653	Dia = 1" Length = 72"

Material Properties		
Steel tensile str, F_y:	60000	psi
Conc. Comp. str, F'_c:	4500	psi
Conc. Density, δ:	150	pcf
Clear cover, cc:	3.00	in

Backfill Compaction		
Lift thickness:	12	in
Compaction:	97	%
Standard Proctor:	ASTM	D698

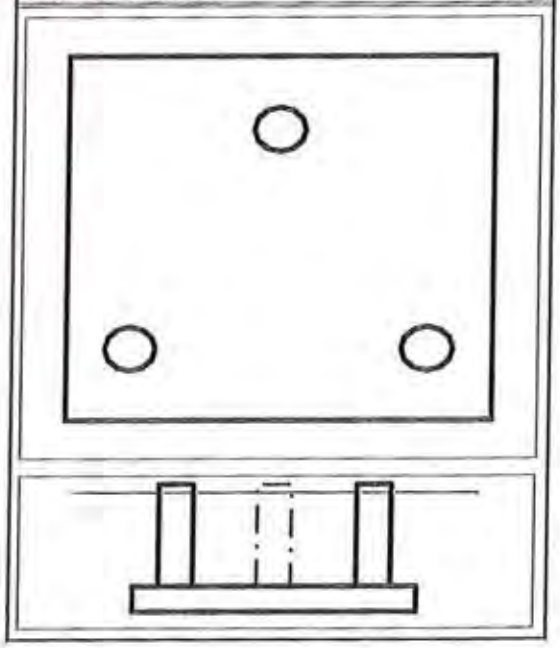
Tower design conforms to the following:
* 2012 International Building Code (IBC)
* ANSI TIA-222-G
* Building Code Requirements for Reinforced Concrete (ACI 318-11)

Note: The centroid of the tower is offset from the centroid of the foundation

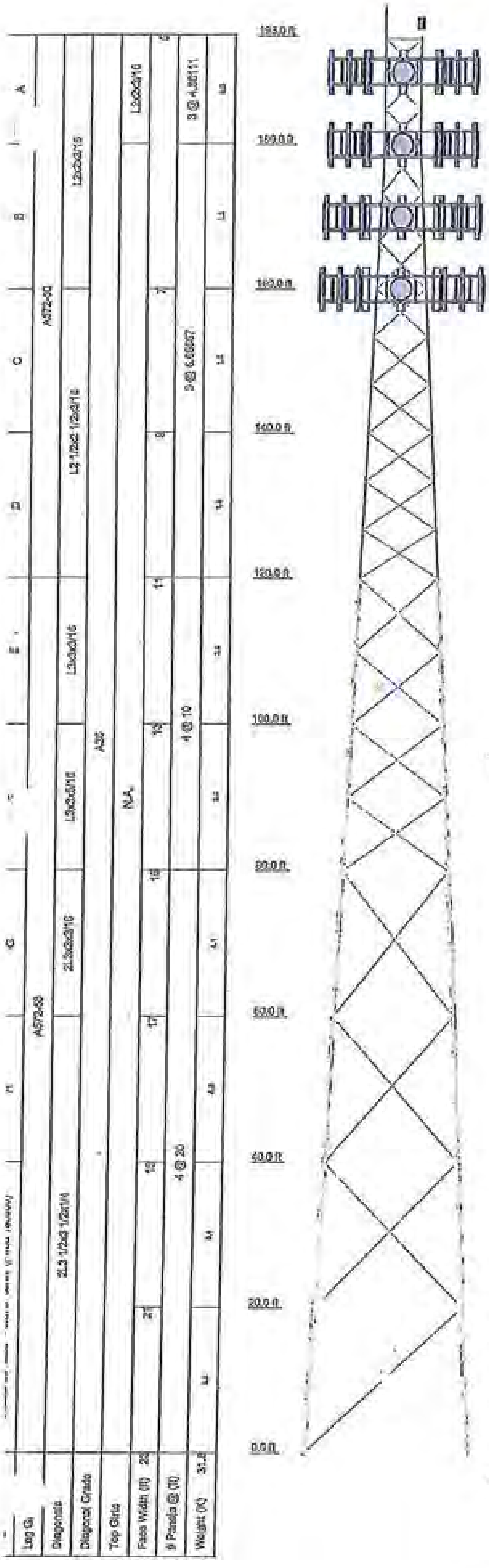
Foundation Loading

Load Case 1		stress ratio: 97.0%		mark up: 3.1%
Shear (total), S:	80.00 kips	x 1.031 =	82.48 kips	
Moment, M:	9423.00 ft-kips	x 1.031 =	9715.11 ft-kips	
Compression/Leg, C:	492.00 kips	x 1.031 =	507.25 kips	
Uplift/Leg, U:	436.00 kips	x 1.031 =	449.52 kips	
Tower Weight, W_t:	57.00 kips	=	57.00 kips	
Load Case 2		stress ratio: 97.0%		mark up: 3.1%
Shear (total), S:	80.00 kips	x 1.031 =	82.48 kips	
Moment, M:	9423.00 ft-kips	x 1.031 =	9715.11 ft-kips	
Compression/Leg, C:	492.00 kips	x 1.031 =	507.25 kips	
Uplift/Leg, U:	436.00 kips	x 1.031 =	449.52 kips	
Tower Weight, W_t:	57.00 kips	=	57.00 kips	

Views of Foundation (not to scale)



Additional Notes:
* No foundation modifications listed.
* No foundation notes given.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
1/2" x 4' lightning rod	195	PSF-52-10XA w/Radome	180
Beacon	195	(3) HWX-6516DS1-VTM	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(3) HWX-6516DS1-VTM	190	(4) AirHarmony 4000	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(4) AirHarmony 4000	190	(3) 2" x 60" Sch. 40	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
(3) 2" x 60" Sch. 40	190	SP1 VFA12-HD	170
SP1 VFA12-HD	190	Microwave Radio (12" x 12" x 12")	170
SP1 VFA12-HD	190	4" x 60" Dish mount	170
SP1 VFA12-HD	190	(3) HWX-6516DS1-VTM	170
Microwave Radio (12" x 12" x 12")	190	(3) HWX-6516DS1-VTM	170
4" x 60" Dish mount	190	PSF-52-10XA w/Radome	170
PSF-52-10XA w/Radome	190	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(3) HWX-6516DS1-VTM	180	(4) AirHarmony 4000	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(4) AirHarmony 4000	180	(3) 2" x 60" Sch. 40	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
(3) 2" x 60" Sch. 40	180	SP1 VFA12-HD	160
SP1 VFA12-HD	180	Microwave Radio (12" x 12" x 12")	160
SP1 VFA12-HD	180	4" x 60" Dish mount	160
SP1 VFA12-HD	180	(3) HWX-6516DS1-VTM	160
Microwave Radio (12" x 12" x 12")	180	(3) HWX-6516DS1-VTM	160
4" x 60" Dish mount	180	(3) HWX-6516DS1-VTM	160
(3) HWX-6516DS1-VTM	180	PSF-52-10XA w/Radome	160

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P-4.00" - 0.75" conn.-19' -C-Trans-48-48-(Pirod 220170)	E	#12ZG-58 - 1.25" - 1.00" conn.-TR1-(Pirod 195215)
		F	#12ZG-58 - 1.75" - 1.00" conn. (Pirod 195217)
B	P-5.00" - 0.75" conn.-Trans-20' -C-(Pirod 228500)	G	#12ZG-58 -2.00" - 0.875" conn.-TR3-(Pirod 195637)
C	P-5.00" - 0.75" conn.-20' -C-(Pirod 225192)	H	#12ZG-58 -2.00" - 0.875" conn. (Pirod 195639)
D	P-6.00" - 0.75" conn.-120-Trans-20' -C-(Pirod 222377)		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A572-65	65 ksi	75 ksi
A36	36 ksi	58 ksi			

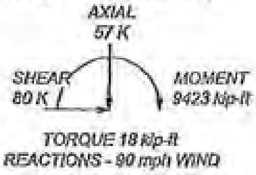
TOWER DESIGN NOTES

1. Tower is located in Bedford County, Virginia.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 90 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 30 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 4 with Crest Height of 1767.00 ft
8. TOWER RATING: 99.5%

ALL REACTIONS ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 492 K
UPLIFT: -436 K
SHEAR: 52 K

TORQUE 2 kip-ft
30 mph WIND - 0.7500 in ICE



TORQUE 18 kip-ft
REACTIONS - 90 mph WIND

Tower Management

Blue Ridge Towers would continue to manage the 11 Site design system, and market them to the appropriate wireless carriers in the region. Also, attract the regional carriers to collocate on these new towers; generating beneficial revenue to Bedford County. Blue Ridge Towers will work diligently to ensure specific site lease agreements or Master lease agreements are in place between the county and the major wireless carriers, and project manage the entire collocation process from initial application to actual collocation.

Project Timeline

The proposed timeline for the nine (9) new Bedford County sites are as follows:

September-Oct 2018

Order all due diligence paperwork and initial design for each tower site, 2-C, Survey, NEPA. SHPO, Site Plans, FAA, Geotech/Soil

Oct –Dec 2018

A-Complete all final WISP design for all 11 sites, including power/ telco and MW backhaul, order all necessary equipment and antennas, kits

B-Complete all development paperwork for the 9 new sites and apply for zoning approval and obtain all necessary permits.

Dec 2018-Jan 2019

Start construction on the following sites (Target goal 3 sites per month)

Big Island, Big Island Elementary, Boonsboro

Jan 2019-Feb 2019

Shady Grove, McGhee Road, Wheat Valley Reservior

Feb 2019-March 2019

Hardy Collection, Moneta VFD, Huddleston VFD

March2019-April 2019

Install MW/Fiber to Montvale and New London, Connect All Telco/MW Backhaul and turn up all 11 site system

Fiber

The following sites in the Bedford County 11 Site Design System will have fiber/telco available and pulled to the site

1. Big Island Elementary School:

There is existing fiber at the school, and new 12/24 pair of fiber will be ran underground to the proposed cell site (for approximately 3/10 of a mile)

2. Boonsboro Collection

There is Fiber located within 1 mile of this proposed site

3. Montvale

Fiber is located within the compound, and this site will serve as a connection point for Microwave backhaul paths.

4. Moneta VFD

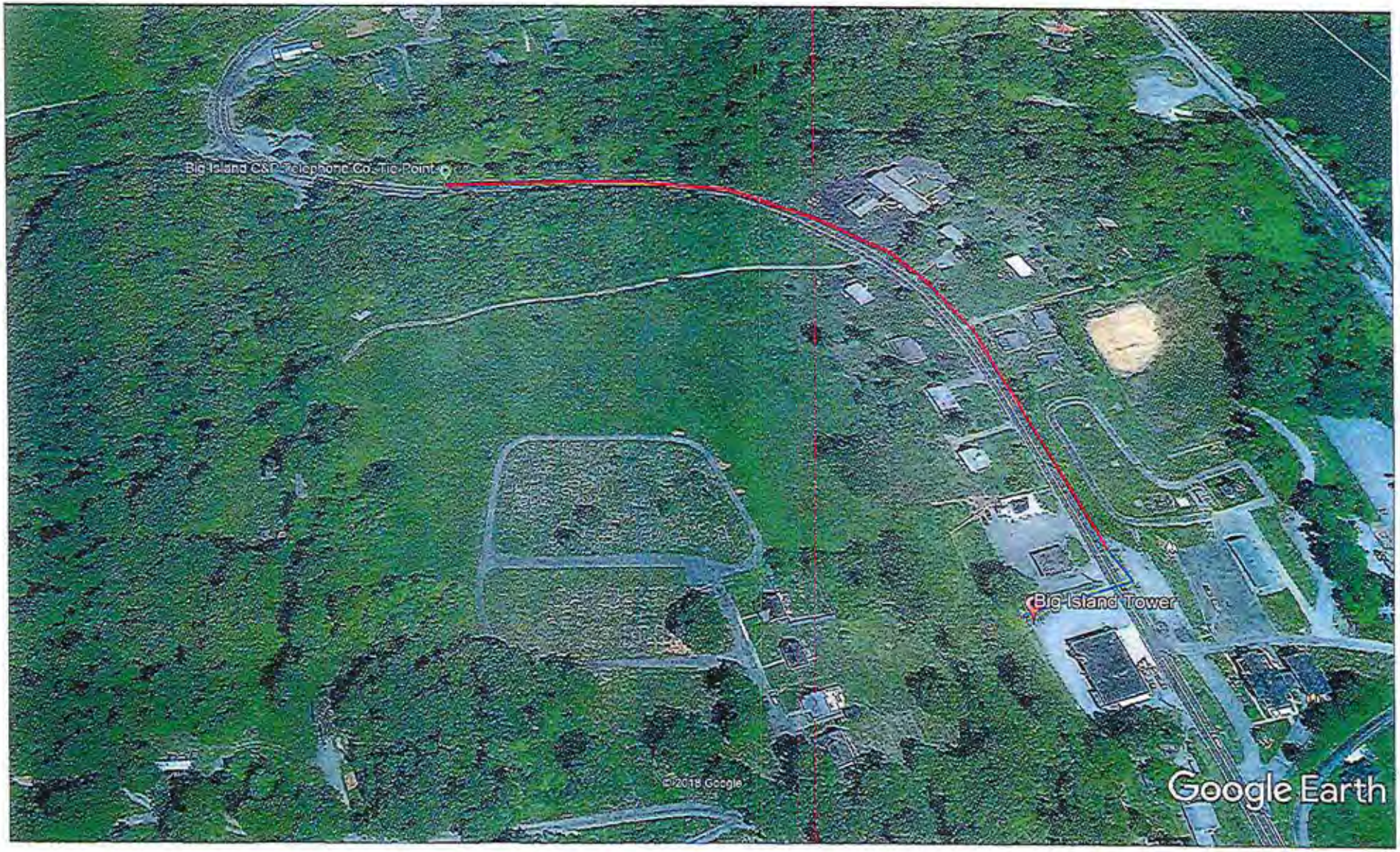
There is fiber on the adjacent road, just needs to connect to the site (overall ½ mile)

5. New London

Fiber already on site, will need new strands to complete overall MW backhaul endpoint

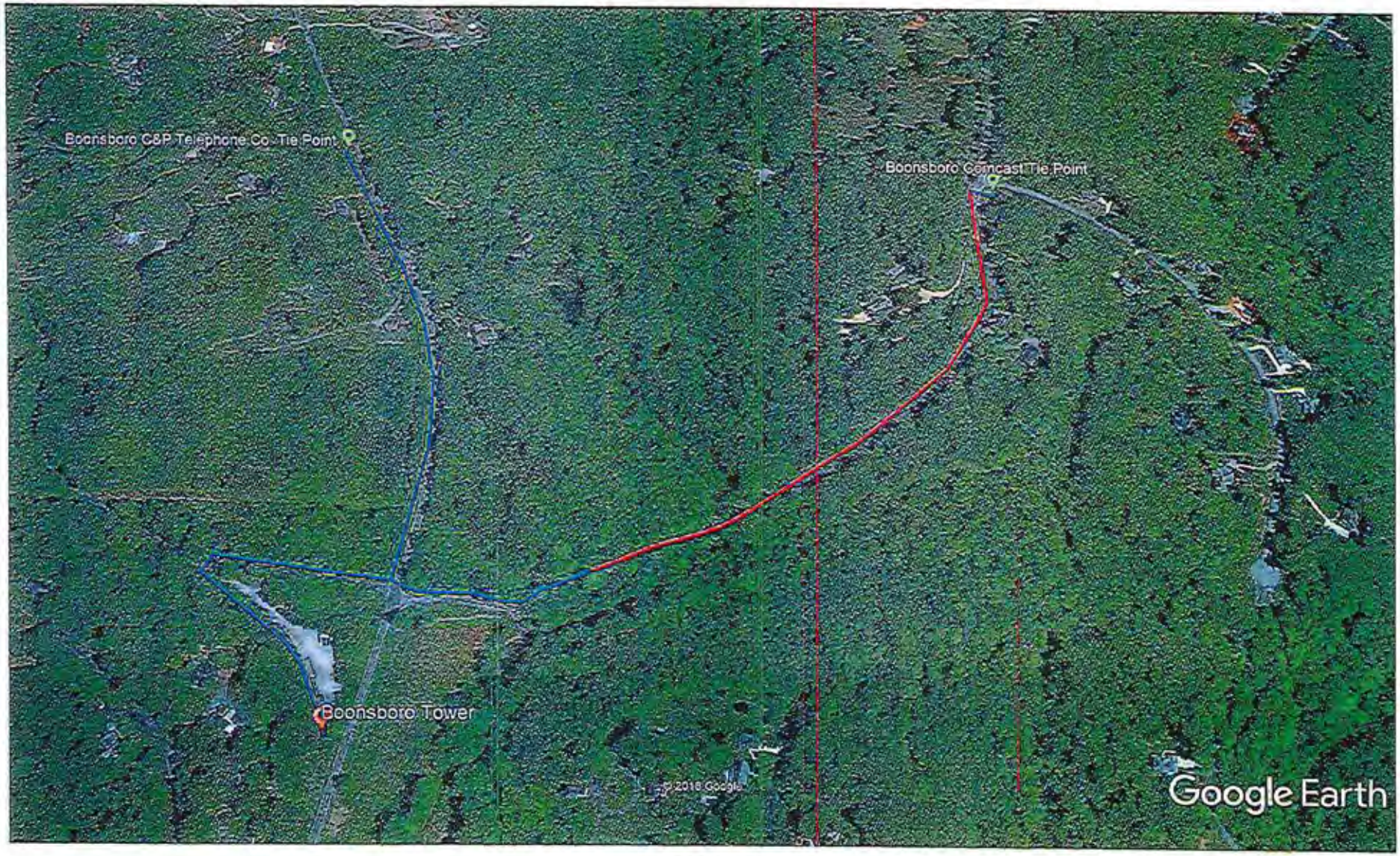
6. Huddleston Collection

The fiber pull is about 1 ½ mile run


Big Island C&P Telephone Co. Tie Point
Big Island Tower
©2018 Google
Google Earth

Big Island

Big Island Elementary


Boonsboro C&P Telephone Co. Tie Point
Boonsboro Comcast Tie Point
Boonsboro Tower
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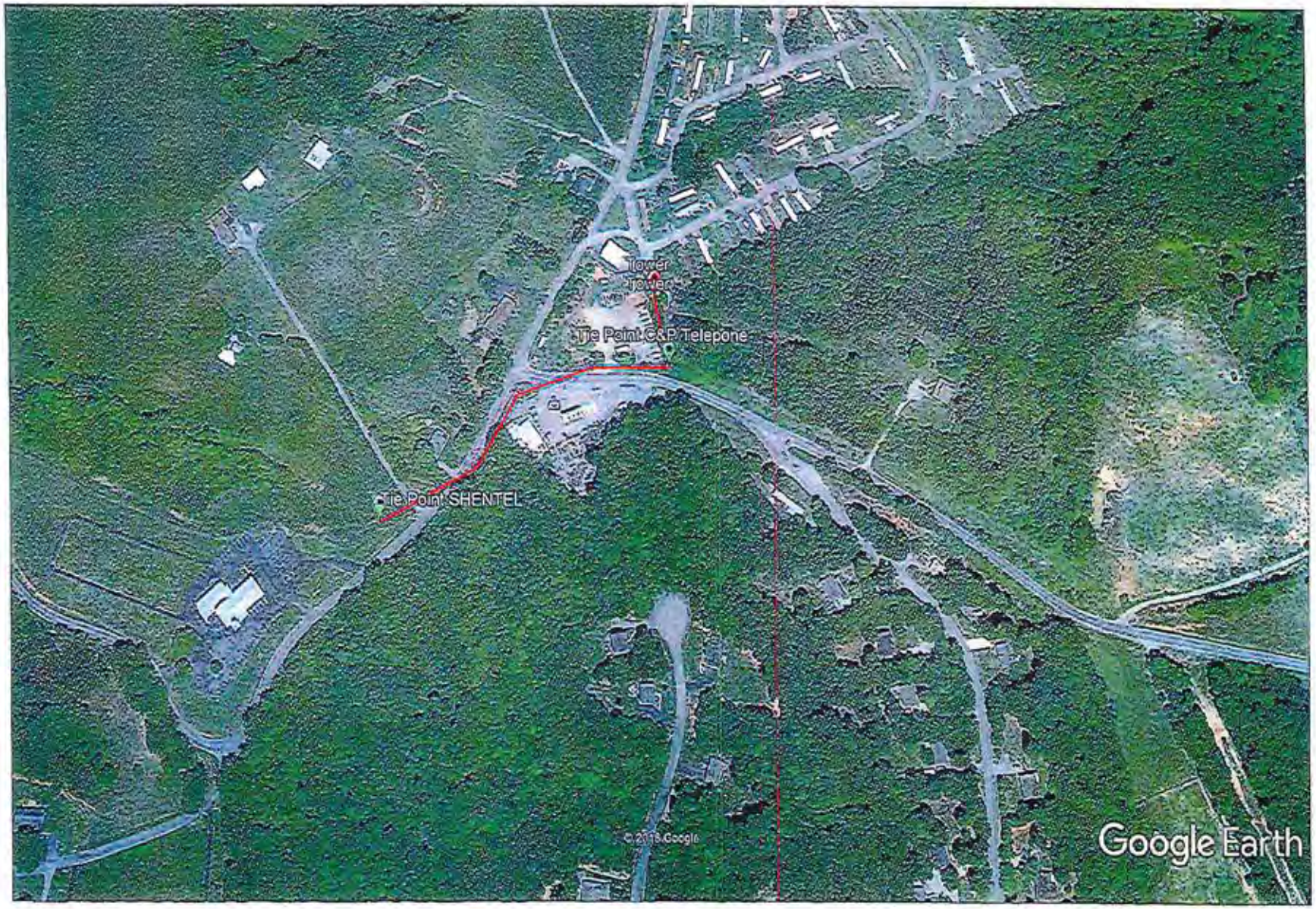
Boonsboro


Tower
Mid Atlantic Broadband Loops
Mid Atlantic Broadband Tie Point
Mid Atlantic Broadband Loops
Google Earth

Montvale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Tie Point SHENTEL
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Moneta


Tower
NTELOS Loops
NTELOS Loops - Verizon Loops
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New London

Huddleston

Microwave Backhaul

Blue Ridge Towers has carefully studied the 11 site design system for Bedford County in the last several months. Its staff along with Blue Ridge Towers' vendors visited each site and carefully designed a working Microwave Backhaul system for these 11 sites, utilizing existing fiber/telco available to connect the entire county. The following design has been completed in the last mile infrastructure study, and based on physical site visits and engineering designs, Blue Ridge Towers is proposing the following Microwave Backhaul design to save cost and timeline.

A- Big Island can be MW backed to Big Island Elem School (which has fiber ½ mile away)

B- Wheat Valley will have a 2 MW system, to connect to New London/Shady Grove

C- Existing New London Water Tank will serve as the end point for the MW design (fiber is located on site, 2 MW system will be installed on the tank)

D- Shady Grove and Thaxton- (McGhee Road alternate site) will each have a 2 MW connection point system, with Shady Grove having a total of 3 MW's

E- Hardy Road will be the last connection site of this MW system

Cambium Networks™

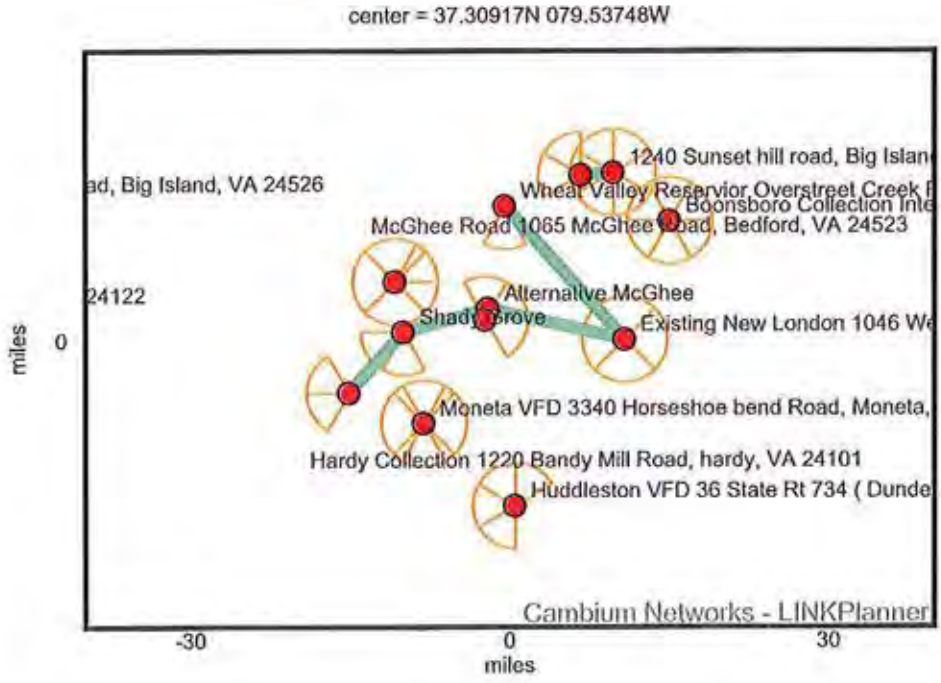
Project Bedford County 11 Tower sites updated with 820s rev6 using alt. site with updated address

LINKPlanner PTP Proposal Report

22 August 2018

Matthew Hollinger
Organization: Core Telecom Systems
Phone: 5033606118
Email: mhollinger@coretelecom.net

Cambium Networks™



Cambium Networks

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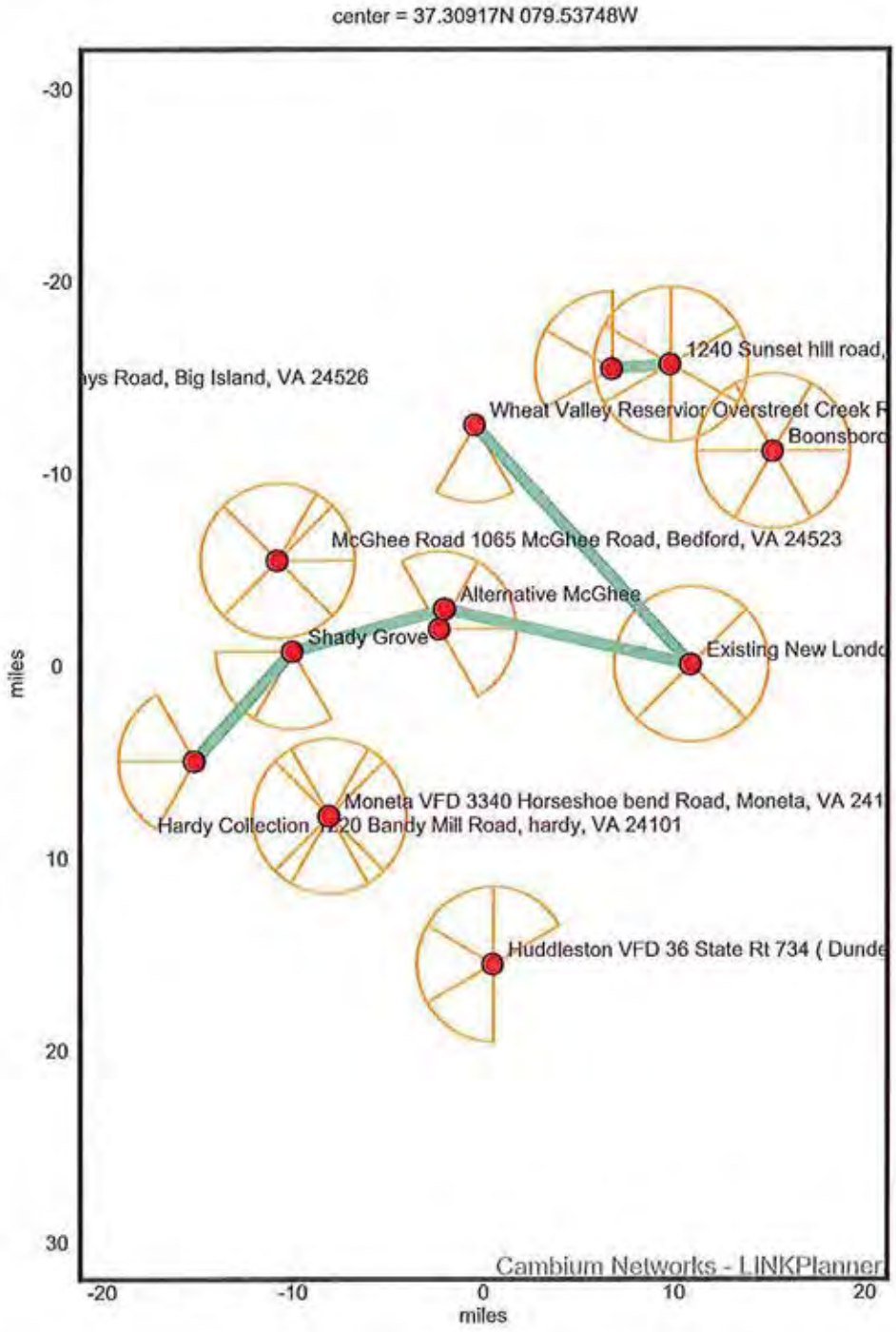
Cambium Networks

1. Project Summary

Project:	Bedford County 11 Tower sites updated with 820s rev6 using alt. site with updated address
General Information	
Customer Name	Anthony Smith
Company Name	Blue Ridge Towers
Address	1125 1st Street, Roanoke, VA 24016
Phone	(540)595-7060
Cell Phone	
Email	asmith@blueridgetowers.com

Network Map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-30
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ys Road, Big Island, VA 24526
1240 Sunset hill road,
Wheat Valley Reservior Overstreet Creek R
Boonsboro
McGhee Road 1065 McGhee Road, Bedford, VA 24523
Alternative McGhee
Shady Grove
Existing New Londo
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 241
Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101
Huddleston VFD 36 State Rt 734 (Dunde
Cambium Networks - LINKPlanner

Link name	Product	Local antenna	Remote antenna	Max aggregate IP throughput
1240 Sunset hill road, Big Island, VA to Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526	PTP18820S (Wide)	Cambium Networks 1ft Single Pol (Global) N180082D031 - Direct	Cambium Networks 1ft Single Pol (Global) N180082D031 - Direct	1191.80 Mbps
Alternative McGhee to Existing New London 1046 West London park drive, Forest, VA 24551	PTP11820S (Wide)	Cambium Networks 2ft Single Pol (Global) N110082D072 - Direct	Cambium Networks 2ft Single Pol (Global) N110082D072 - Direct	1191.53 Mbps
Alternative McGhee to Shady Grove	PTP11820S (Wide)	Cambium Networks 2ft Single Pol (Global) N110082D072 - Direct	Cambium Networks 2ft Single Pol (Global) N110082D072 - Direct	1191.86 Mbps
Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 to Shady Grove	PTP11820S (Wide)	Cambium Networks 2ft Single Pol (Global) N110082D072 - Direct	Cambium Networks 2ft Single Pol (Global) N110082D072 - Direct	1191.89 Mbps
Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523 to Existing New London 1046 West London park drive, Forest, VA 24551	PTP11820S (Wide)	Cambium Networks 3ft Single Pol (Global) N110082D073 - Direct	Cambium Networks 3ft Single Pol (Global) N110082D073 - Direct	1191.79 Mbps

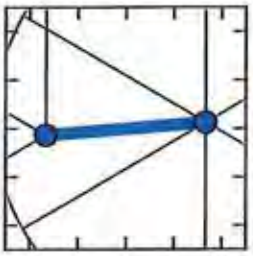
Bill of Materials : PTP Network

Part Number	Qty	Description
C000000L033	20	Gigabit Surge Suppressor (56V)
C110082B015	4	PTP 820S Radio 11WGHz,TR500,Ch1W6,Hi,11185-11485MHz. Please select a TX frequency
C110082B016	4	PTP 820S Radio 11WGHz,TR500,Ch1W6,Lo,10695-10955MHz. Please select a TX frequency
C180082B011	1	PTP 820S Radio 18WGHz,TR1560,ChAll,Hi,19259-19710MHz. Please select a TX frequency
C180082B012	1	PTP 820S Radio 18WGHz,TR1560,ChAll,Lo,17699-18150MHz. Please select a TX frequency
EW-E4PT820S-WW	10	PTP820S Extended Warranty, 4 Additional Years
N000065L001	10	AC Power Injector 56V
N000065L003	10	US Line Cord Fig 8

Bill of Materials : PTP Network (continued)

Part Number	Qty	Description
N000082L014	10	PTP 820 Glands_x5_KIT
N000082L016	10	PTP 820 CAT5E Outdoor 100m drum
N000082L017	30	PTP 820 Grounding Kit for CAT5e F/UTP 8mm cable. Add 2 additional kits per PoE Injector that is installed outdoors
N000082L034	10	PTP 820S Act.Key - Capacity 650M with ACM Enabled, per Tx Chan
N000082L073	10	PTP 820 GBE_Connector_kit
N000082L116	10	PTP 820 GROUND CABLE FOR IDU and ODU
N110082D072	6	PTP 820 2' ANT,SP,11GHz,RFU-C TYPE&Std UBR100 - Andrew. Available in all regions
N110082D073	2	PTP 820 3' ANT,SP,11GHz,RFU-C TYPE&Std UBR100 - Andrew. Available in all regions
N180082D031	2	PTP 820 1' ANT,SP,18GHz,RFU-C TYPE&Std UBR220 - Andrew. Available in all regions

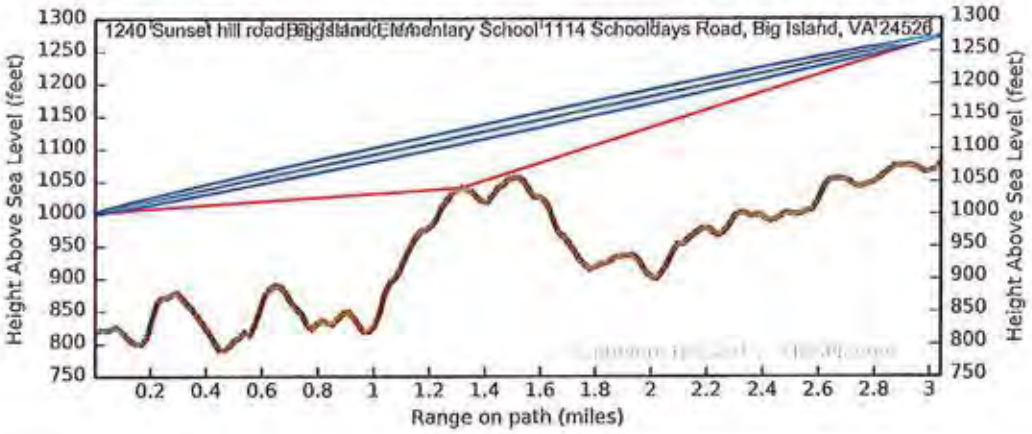
1240 Sunset hill road, Big Island, VA to Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526



Equipment: Cambium Networks PTP18820S (Wide) - 1+0

Cambium Networks 1ft Single Pol (Global)
N180082D031 - Direct @ 185 ft

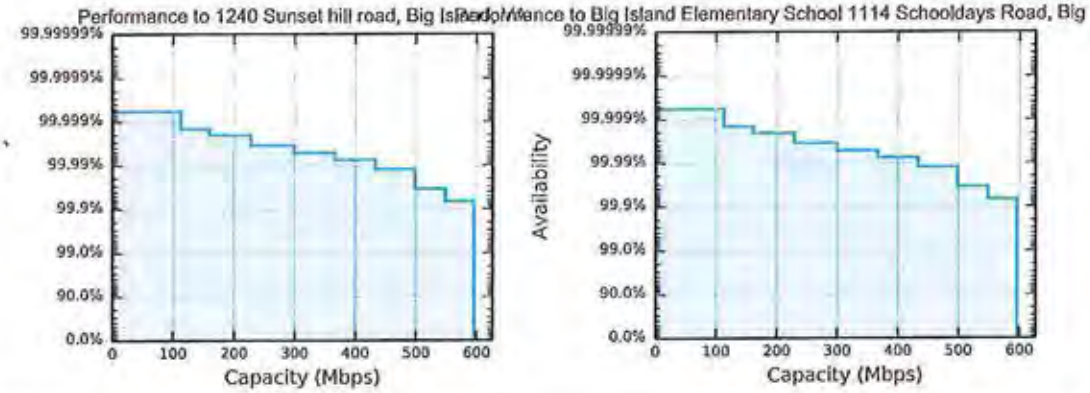
Cambium Networks 1ft Single Pol (Global)
N180082D031 - Direct @ 195 ft



	Performance to 1240 Sunset hill road, Big Island, VA	Performance to Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526
Mean IP	595.9 Mbps	595.9 Mbps
IP Availability	99.9994 % for 1.0 Mbps	99.9994 % for 1.0 Mbps

Link Summary			
Link Length	3.040 mi.	System Gain Margin	40.14 dB
Band	18 GHz	Mean Aggregate Data Rate	1191.8 Mbps
Regulation	FCC	Annual Link Availability	99.9994 %
Modulation	Adaptive	Annual Link Unavailability	3.0 mins/year
Bandwidth	80 MHz	Frame Size	1518 Bytes
Total Path Loss	132.06 dB	Prediction Model	Vigants-Barnett
System Gain	172.20 dB		

Performance Charts



Climatic Factors, Losses and Standards

Terrain Roughness	78.85 feet	Excess Path Loss	0.00 dB
Climatic Factor	1.0	Annual 2-way Availability	100.0000 %
C Factor	0.55	Annual 2-way Unavailability	1 secs/year
Temperature	53.6° F	Rain Availability	99.9994 %
Value of K Exceeded for 99.99% (ke)	0.40	Rain Unavailability	3.0 mins/year
Excess Path Loss at ke	0.00 dB	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	52.16 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	131.68 dB	Propagation	Vigants-Barnett
Gaseous Absorption Loss	0.38 dB	Rain Rate	ITU-R P.837-5
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9

Bill of Materials

Part Number	Qty	Description
C000000L033	4	Gigabit Surge Suppressor (56V)
C180082B011	1	PTP 820S Radio 18WGHz,TR1560,ChAll,Hi,19259-19710MHz. Please select a TX frequency
C180082B012	1	PTP 820S Radio 18WGHz,TR1560,ChAll,Lo,17699-18150MHz. Please select a TX frequency
EW-E4PT820S-WW	2	PTP820S Extended Warranty, 4 Additional Years
N000065L001	2	AC Power Injector 56V
N000065L003	2	US Line Cord Fig 8
N000082L014	2	PTP 820 Glands_x5_KIT
N000082L016	2	PTP 820 CAT5E Outdoor 100m drum
N000082L017	6	PTP 820 Grounding Kit for CAT5e F/UTP 8mm cable. Add 2 additional kits per PoE Injector that is installed outdoors

Bill of Materials (continued)

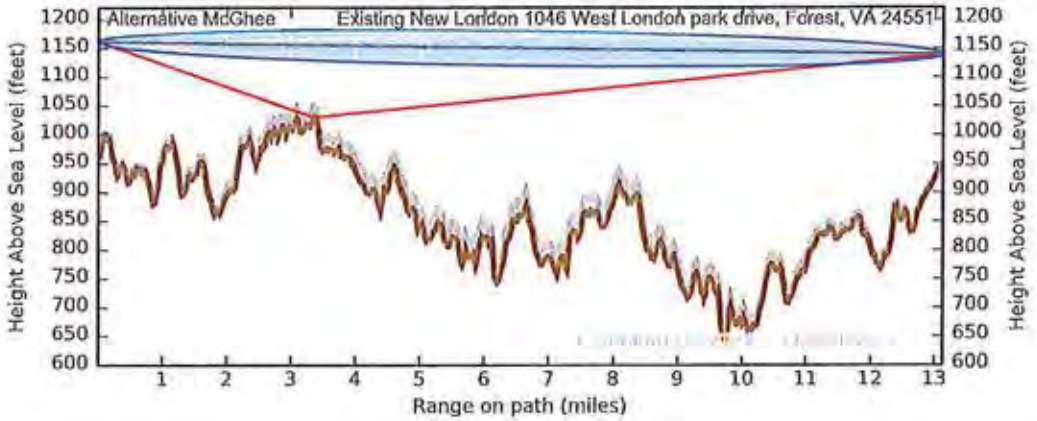
Part Number	Qty	Description
N000082L034	2	PTP 820S Act.Key - Capacity 650M with ACM Enabled, per Tx Chan
N000082L073	2	PTP 820 GBE_Connector_kit
N000082L116	2	PTP 820 GROUND CABLE FOR IDU and ODU
N180082D031	2	PTP 820 1' ANT,SP,18GHz,RFU-C TYPE&Std UBR220 - Andrew. Available in all regions

Alternative McGhee to Existing New London 1046 West London park drive, Forest, VA 24551

Equipment: Cambium Networks PTP11820S (Wide) - 1+0

Cambium Networks 2ft Single Pol (Global)
N110082D072 - Direct @ 200 ft

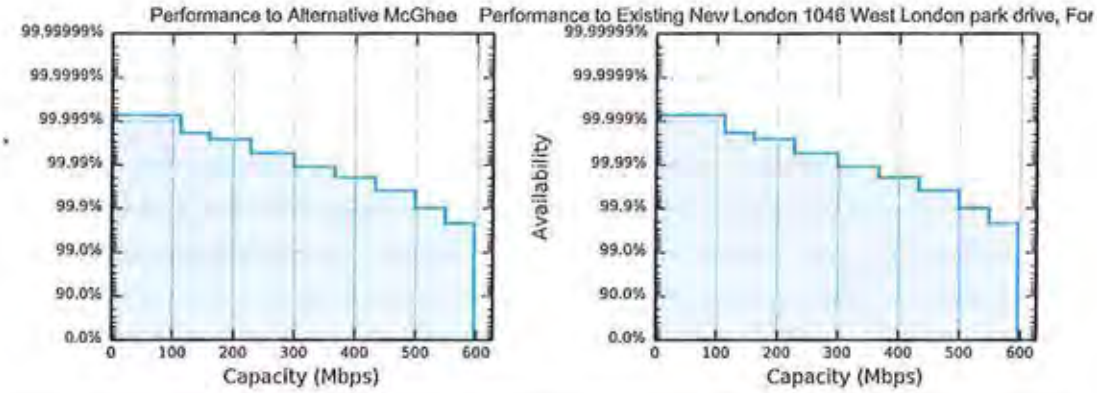
Cambium Networks 2ft Single Pol (Global)
N110082D072 - Direct @ 195 ft



	Performance to Alternative McGhee	Performance to Existing New London 1046 West London park drive, Forest, VA 24551
Mean IP	595.8 Mbps	595.8 Mbps
IP Availability	99.9993 % for 1.0 Mbps	99.9993 % for 1.0 Mbps

Link Summary			
Link Length	13.124 mi.	System Gain Margin	38.35 dB
Band	11 GHz	Mean Aggregate Data Rate	1191.5 Mbps
Regulation	FCC	Annual Link Availability	99.9991 %
Modulation	Adaptive	Annual Link Unavailability	4.9 mins/year
Bandwidth	80 MHz	Frame Size	1518 Bytes
Total Path Loss	140.29 dB	Prediction Model	Vigants-Barnett
System Gain	178.64 dB		

Performance Charts



Climatic Factors, Losses and Standards

Terrain Roughness	91.83 feet	Excess Path Loss	0.00 dB
Climatic Factor	1.0	Annual 2-way Availability	99.9998 %
C Factor	0.45	Annual 2-way Unavailability	1.2 mins/year
Temperature	53.9° F	Rain Availability	99.9993 %
Value of K Exceeded for 99.99% (ke)	0.60	Rain Unavailability	3.7 mins/year
Excess Path Loss at ke	0.00 dB	Almospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	52.52 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	139.93 dB	Propagation	Vigants-Barnett
Gaseous Absorption Loss	0.37 dB	Rain Rate	ITU-R P.837-5
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9

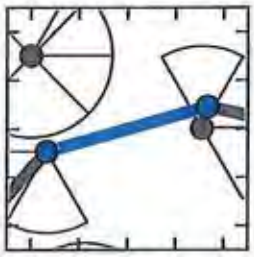
Bill of Materials

Part Number	Qty	Description
C000000L033	4	Gigabit Surge Suppressor (56V)
C110082B015	1	PTP 820S Radio 11WGHz,TR500,Ch1W6,Hi,11185-11485MHz. Please select a TX frequency
C110082B016	1	PTP 820S Radio 11WGHz,TR500,Ch1W6,Lo,10695-10955MHz. Please select a TX frequency
EW-E4PT820S-WW	2	PTP820S Extended Warranty, 4 Additional Years
N000065L001	2	AC Power Injector 56V
N000065L003	2	US Line Cord Fig 8
N000082L014	2	PTP 820 Glands_x5_KIT
N000082L016	2	PTP 820 CAT5E Outdoor 100m drum
N000082L017	6	PTP 820 Grounding Kit for CAT5e F/UTP 8mm cable. Add 2 additional kits per PoE Injector that is installed outdoors

Bill of Materials (continued)

Part Number	Qty	Description
N000082L034	2	PTP 820S Act.Key - Capacity 650M with ACM Enabled, per Tx Chan
N000082L073	2	PTP 820 GBE_Connector_kit
N000082L116	2	PTP 820 GROUND CABLE FOR IDU and ODU
N110082D072	2	PTP 820 2' ANT,SP,11GHz,RFU-C TYPE&Std UBR100 - Andrew. Available in all regions

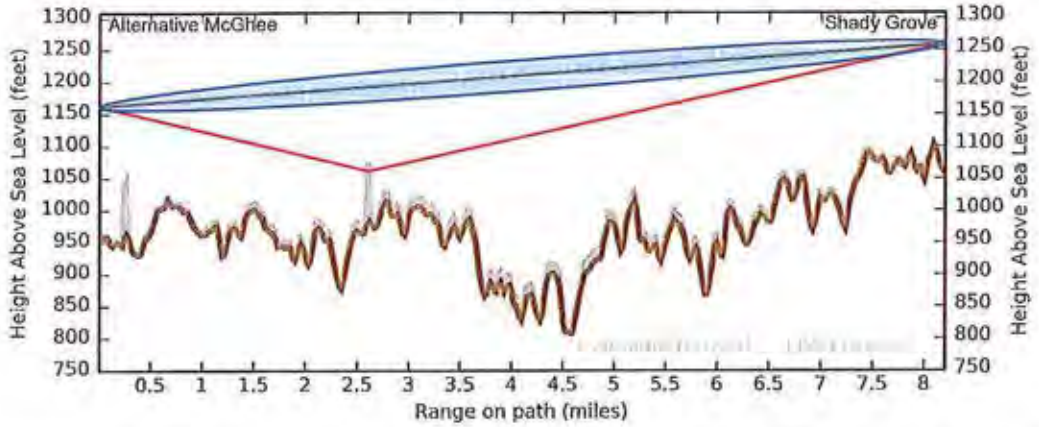
Alternative McGhee to Shady Grove



Equipment: Cambium Networks PTP11820S (Wide) - 1+0

Cambium Networks 2ft Single Pol (Global)
N110082D072 - Direct @ 200 ft

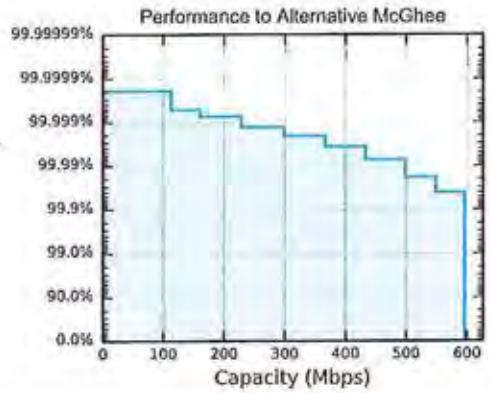
Cambium Networks 2ft Single Pol (Global)
N110082D072 - Direct @ 195 ft

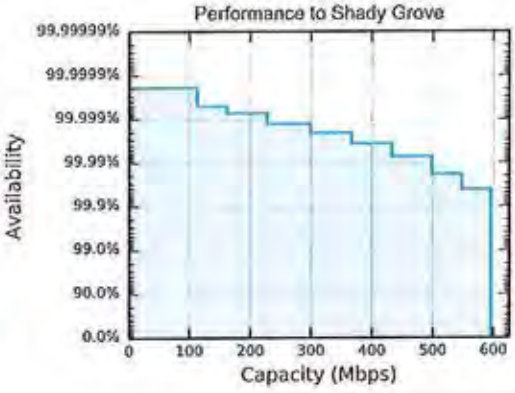


	Performance to Alternative McGhee	Performance to Shady Grove
Mean IP	595.9 Mbps	595.9 Mbps
IP Availability	99.9998 % for 1.0 Mbps	99.9998 % for 1.0 Mbps

Link Summary			
Link Length	8.205 mi.	System Gain Margin	42.56 dB
Band	11 GHz	Mean Aggregate Data Rate	1191.9 Mbps
Regulation	FCC	Annual Link Availability	99.9998 %
Modulation	Adaptive	Annual Link Unavailability	1.2 mins/year
Bandwidth	80 MHz	Frame Size	1518 Bytes
Total Path Loss	136.08 dB	Prediction Model	Vigants-Barnett
System Gain	178.64 dB		

Performance Charts





Climatic Factors, Losses and Standards

Terrain Roughness	52.65 feet	Excess Path Loss	0.00 dB
Climatic Factor	1.0	Annual 2-way Availability	100.0000 %
C Factor	0.94	Annual 2-way Unavailability	14 secs/year
Temperature	53.5° F	Rain Availability	99.9998 %
Value of K Exceeded for 99.99% (ke)	0.48	Rain Unavailability	59 secs/year
Excess Path Loss at ke	0.00 dB	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	52.31 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	135.85 dB	Propagation	Vigants-Barnett
Gaseous Absorption Loss	0.23 dB	Rain Rate	ITU-R P.837-5
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9

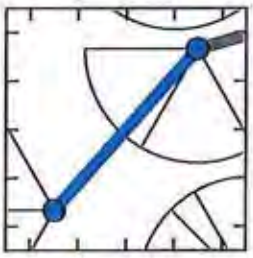
Bill of Materials

Part Number	Qty	Description
C000000L033	4	Gigabit Surge Suppressor (56V)
C110082B015	1	PTP 820S Radio 11WGHz,TR500,Ch1W6,Hi,11185-11485MHz. Please select a TX frequency
C110082B016	1	PTP 820S Radio 11WGHz,TR500,Ch1W6,Lo,10695-10955MHz. Please select a TX frequency
EW-E4PT820S-WW	2	PTP820S Extended Warranty, 4 Additional Years
N000065L001	2	AC Power Injector 56V
N000065L003	2	US Line Cord Fig 8
N000082L014	2	PTP 820 Glands_x5_KIT
N000082L016	2	PTP 820 CAT5E Outdoor 100m drum
N000082L017	6	PTP 820 Grounding Kit for CAT5e F/UTP 8mm cable. Add 2 additional kits per PoE Injector that is installed outdoors

Bill of Materials (continued)

Part Number	Qty	Description
N000082L034	2	PTP 820S Act.Key - Capacity 650M with ACM Enabled, per Tx Chan
N000082L073	2	PTP 820 GBE_Connector_kit
N000082L116	2	PTP 820 GROUND CABLE FOR IDU and ODU
N110082D072	2	PTP 820 2' ANT,SP,11GHz,RFU-C TYPE&Std UBR100 - Andrew. Available in all regions

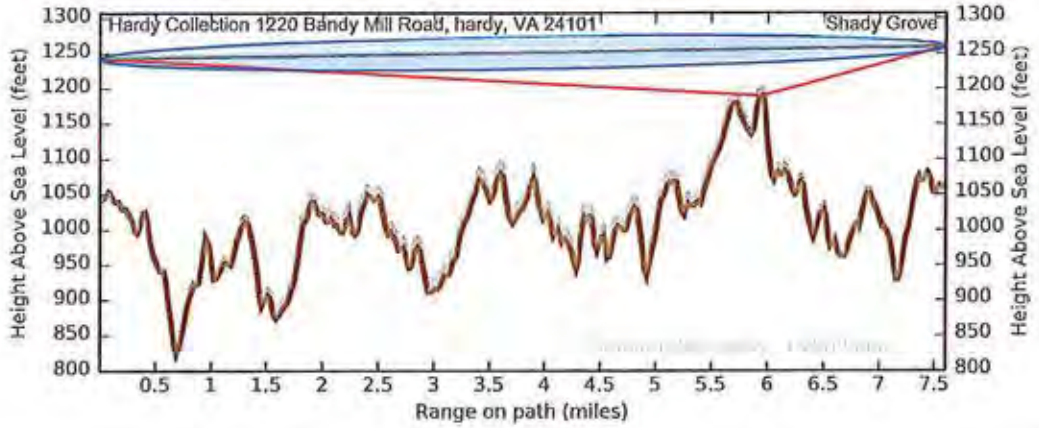
Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 to Shady Grove



Equipment: Cambium Networks PTP11820S (Wide) - 1+0

Cambium Networks 2ft Single Pol (Global)
N110082D072 - Direct @ 195 ft

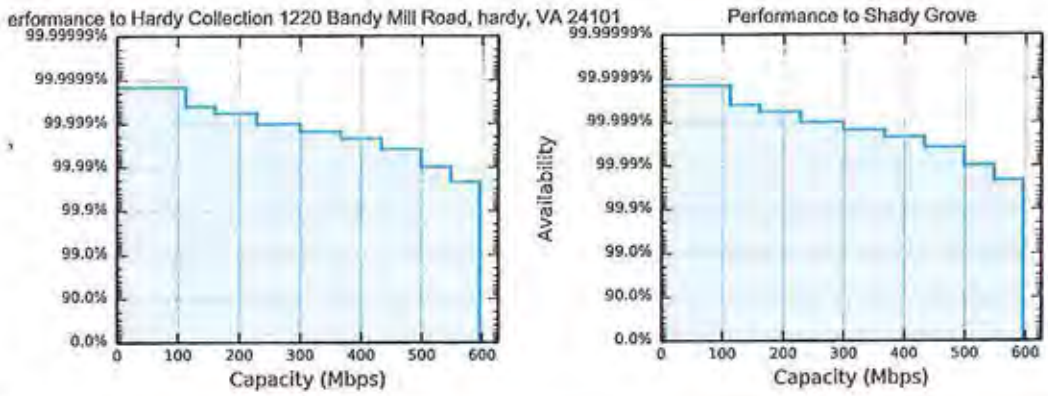
Cambium Networks 2ft Single Pol (Global)
N110082D072 - Direct @ 195 ft



	Performance to Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101	Performance to Shady Grove
Mean IP	595.9 Mbps	595.9 Mbps
IP Availability	99.9999 % for 1.0 Mbps	99.9999 % for 1.0 Mbps

Link Summary			
Link Length	7.601 mi.	System Gain Margin	43.25 dB
Band	11 GHz	Mean Aggregate Data Rate	1191.9 Mbps
Regulation	FCC	Annual Link Availability	99.9998 %
Modulation	Adaptive	Annual Link Unavailability	52 secs/year
Bandwidth	80 MHz	Frame Size	1518 Bytes
Total Path Loss	135.39 dB	Prediction Model	Vigants-Barnett
System Gain	178.64 dB		

Performance Charts



Climatic Factors, Losses and Standards

Terrain Roughness	64.31 feet	Excess Path Loss	0.00 dB
Climatic Factor	1.0	Annual 2-way Availability	100.0000 %
C Factor	0.72	Annual 2-way Unavailability	7 secs/year
Temperature	53.3° F	Rain Availability	99.9999 %
Value of K Exceeded for 99.99% (ke)	0.46	Rain Unavailability	45 secs/year
Excess Path Loss at ke	0.00 dB	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	52.30 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	135.18 dB	Propagation	Vigants-Barnett
Gaseous Absorption Loss	0.21 dB	Rain Rate	ITU-R P.837-5
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9

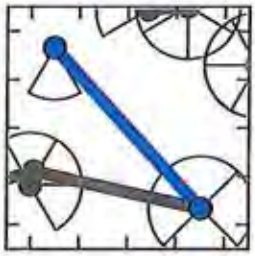
Bill of Materials

Part Number	Qty	Description
C000000L033	4	Gigabit Surge Suppressor (56V)
C110082B015	1	PTP 820S Radio 11WGHz,TR500,Ch1W6,Hi,11185-11485MHz. Please select a TX frequency
C110082B016	1	PTP 820S Radio 11WGHz,TR500,Ch1W6,Lo,10695-10955MHz. Please select a TX frequency
EW-E4PT820S-WW	2	PTP820S Extended Warranty, 4 Additional Years
N000065L001	2	AC Power Injector 56V
N000065L003	2	US Line Cord Fig 8
N000082L014	2	PTP 820 Glands_x5_KIT
N000082L016	2	PTP 820 CAT5E Outdoor 100m drum
N000082L017	6	PTP 820 Grounding Kit for CAT5e F/UTP 8mm cable. Add 2 additional kits per PoE Injector that is installed outdoors

Bill of Materials (continued)

Part Number	Qty	Description
N000082L034	2	PTP 820S Act.Key - Capacity 650M with ACM Enabled, per Tx Chan
N000082L073	2	PTP 820 GBE_Connector_kit
N000082L116	2	PTP 820 GROUND CABLE FOR IDU and ODU
N110082D072	2	PTP 820 2' ANT,SP,11GHz,RFU-C TYPE&Std UBR100 - Andrew. Available in all regions

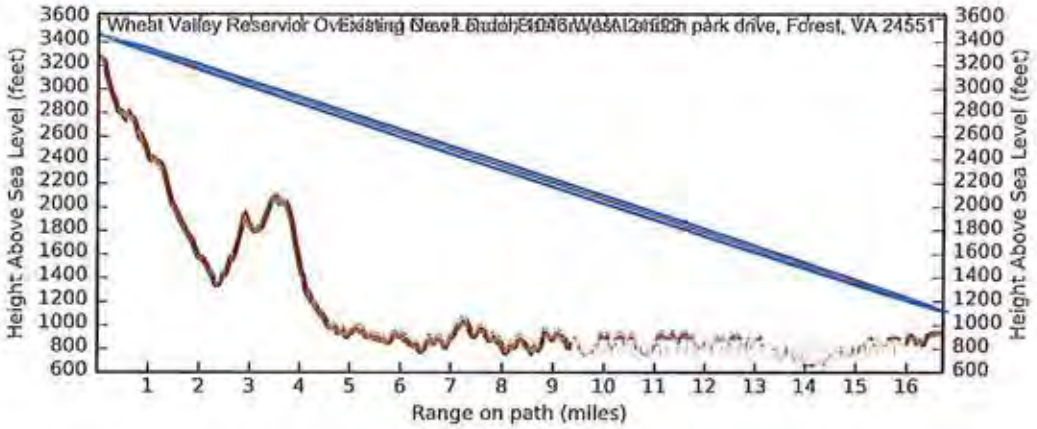
Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523 to Existing New London 1046 West London park drive, Forest, VA 24551



Equipment: Cambium Networks PTP11820S (Wide) - 1+0

Cambium Networks 3ft Single Pol (Global)
N110082D073 - Direct @ 195 ft

Cambium Networks 3ft Single Pol (Global)
N110082D073 - Direct @ 180 ft

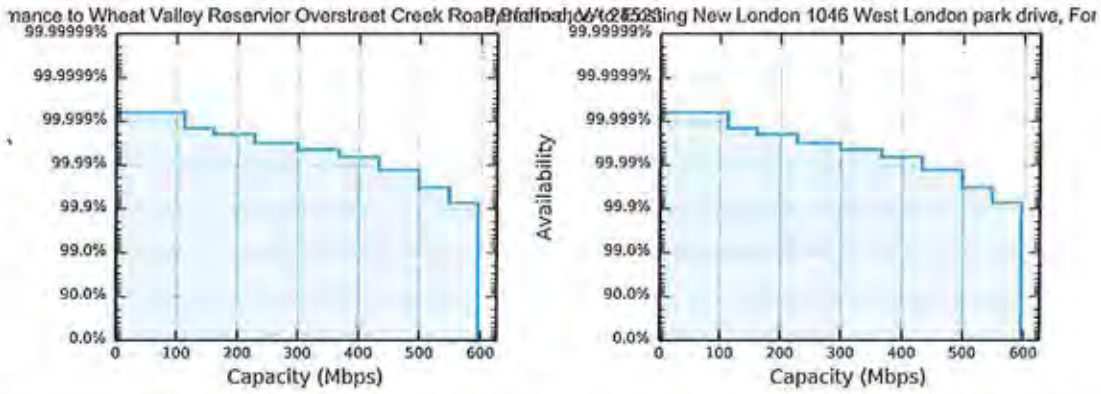


	Performance to Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523	Performance to Existing New London 1046 West London park drive, Forest, VA 24551
Mean IP	595.9 Mbps	595.9 Mbps
IP Availability	99.9994 % for 1.0 Mbps	99.9994 % for 1.0 Mbps

Link Summary

Link Length	16.713 mi.	System Gain Margin	43.80 dB
Band	11 GHz	Mean Aggregate Data Rate	1191.8 Mbps
Regulation	FCC	Annual Link Availability	99.9993 %
Modulation	Adaptive	Annual Link Unavailability	3.7 mins/year
Bandwidth	80 MHz	Frame Size	1518 Bytes
Total Path Loss	142.44 dB	Prediction Model	Vigants-Barnett
System Gain	186.24 dB		

Performance Charts



Climatic Factors, Losses and Standards

Terrain Roughness	140.00 feet	Excess Path Loss	0.00 dB
Climatic Factor	1.0	Annual 2-way Availability	99.9999 %
C Factor	0.26	Annual 2-way Unavailability	24 secs/year
Temperature	53.8° F	Rain Availability	99.9994 %
Value of K Exceeded for 99.99% (ke)	0.66	Rain Unavailability	3.3 mins/year
Excess Path Loss at ke	0.00 dB	Atmospheric Gasses	ITU-R P.676-7, ITU-R P.835-4
0.01% Rain rate	52.39 mm/hr	Diffraction Loss	ITU-R P.526-10
Free Space Path Loss	142.03 dB	Propagation	Vigants-Barnett
Gaseous Absorption Loss	0.41 dB	Rain Rate	ITU-R P.837-5
Profile Type	Line-of-Sight	Refractivity Index	ITU-R P.453-9

Bill of Materials

Part Number	Qty	Description
C000000L033	4	Gigabit Surge Suppressor (56V)
C110082B015	1	PTP 820S Radio 11WGHz,TR500,Ch1W6,Hi,11185-11485MHz. Please select a TX frequency
C110082B016	1	PTP 820S Radio 11WGHz,TR500,Ch1W6,Lo,10695-10955MHz. Please select a TX frequency
EW-E4PT820S-WW	2	PTP820S Extended Warranty, 4 Additional Years
N000065L001	2	AC Power Injector 56V
N000065L003	2	US Line Cord Fig 8
N000082L014	2	PTP 820 Glands_x5_KIT
N000082L016	2	PTP 820 CAT5E Outdoor 100m drum
N000082L017	6	PTP 820 Grounding Kit for CAT5e F/UTP 8mm cable. Add 2 additional kits per PoE Injector that is installed outdoors

Bill of Materials (continued)

Part Number	Qty	Description
N000082L034	2	PTP 820S Act.Key - Capacity 650M with ACM Enabled, per Tx Chan
N000082L073	2	PTP 820 GBE_Connector_kit
N000082L116	2	PTP 820 GROUND CABLE FOR IDU and ODU
N110082D073	2	PTP 820 3' ANT,SP,11GHz,RFU-C TYPE&Std UBR100 - Andrew. Available in all regions

Cambium Networks

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WISP

Blue Ridge Internet Service Company (BRISCNET), will be providing wireless internet service throughout Bedford County. Powered by Blue Ridge Towers, Core telecom, and Cambium Networks, BRISCNET will provide fast, reliable, and affordable wireless internet service via the 900 mhz and 5800 mhz unlicensed spectrum and through collocation on the 11 site County design system.
BRISCNET will deploy the reliable Cambium Network (Formerly Motorola) on all 11 towers/watertank to provide a solid infrastructure network for wireless internet. The Cambium equipment are both reliable, durable, and affordable to both business and individual users, and provides excellent upload/download speed for wireless internet.

BRISCNET seeks to negotiate an affordable rental agreement for collocation on these towers to install its access point/antennas for the wireless internet service by signing a collocation lease with Bedford County Broadband Authority.

The complete and detailed wireless internet design for Bedford County through the 11 site system are attached

Cambium Networks™

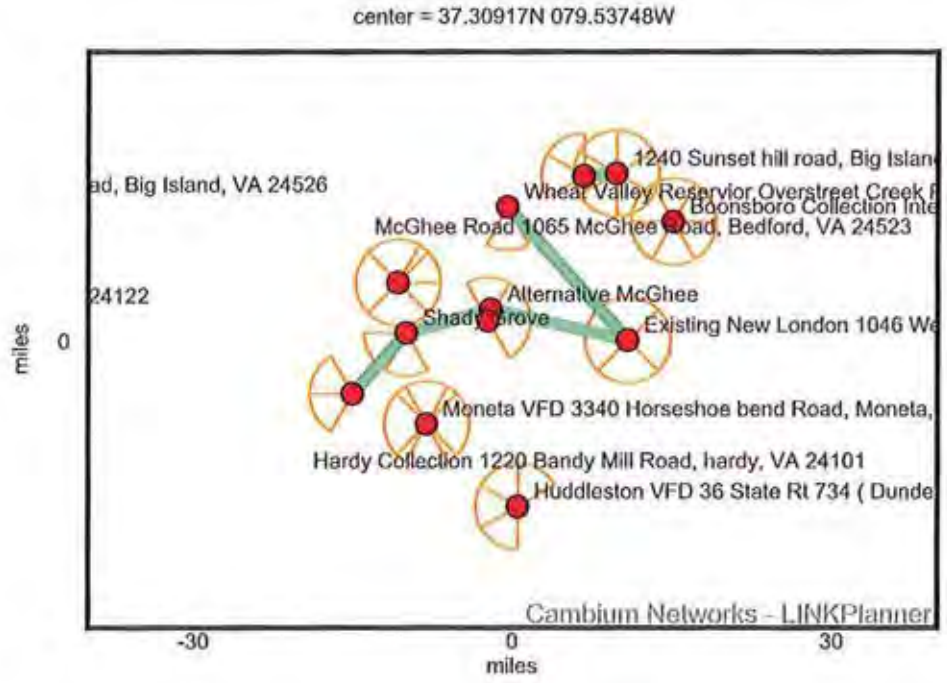
Project Bedford County 11 Tower sites updated with 820s rev6 using alt. site with updated address

LINKPlanner PMP Proposal Report

22 August 2018

Matthew Hollinger
Organization: Core Telecom Systems
Phone: 5033606118
Email: mhollinger@coretelecom.net

Cambium Networks™



Cambium Networks

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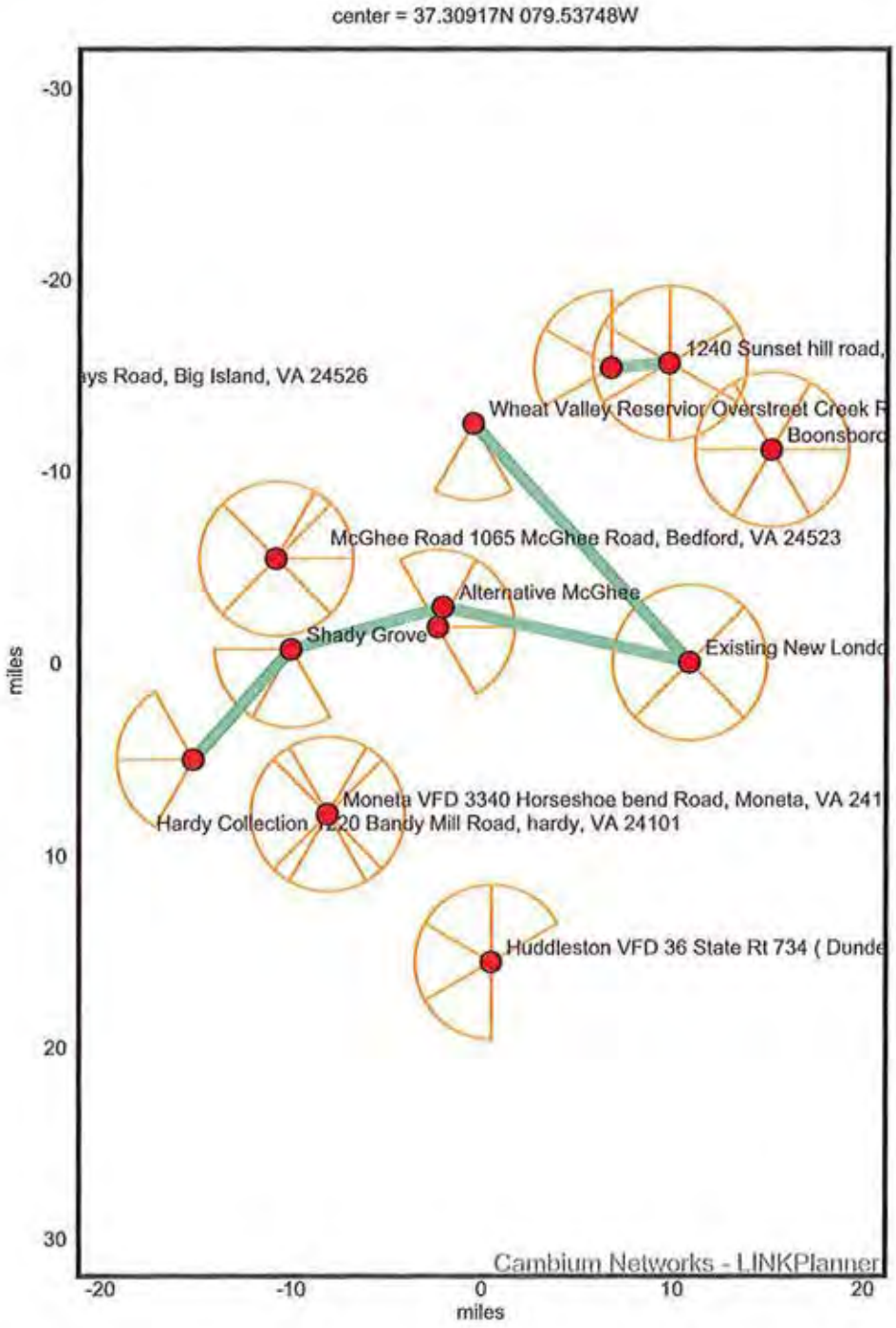
1. Project Summary

Project:	Bedford County 11 Tower sites updated with 820s rev6 using alt. site with updated address

General Information	
Customer Name	Anthony Smith
Company Name	Blue Ridge Towers
Address	1125 1st Street, Roanoke, VA 24016
Phone	(540)595-7060
Cell Phone	
Email	asmith@blueridgetowers.com

Network Map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Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101
Huddleston VFD 36 State Rt 734 (Dunde
Cambium Networks - LINKPlanner
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-10
0
10
20
miles

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
1240 Sunset hill road, Big Island, VA : 1	PMP450i	330.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 2	PMP450i	30.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 3	PMP450i	90.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 4	PMP450i	150.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 5	PMP450i	210.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 6	PMP450i	270.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526 : 1	PMP450i	330.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526 : 4	PMP450i	270.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 1	PMP450i	0.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 2	PMP450i	60.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 3	PMP450i	120.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 4	PMP450i	180.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 5	PMP450i	240.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

(continued)

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 6	PMP450i	300.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 1	PMP450i	0.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 2	PMP450i	90.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 3	PMP450i	180.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 4	PMP450i	270.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 5	PMP450i	60.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Existing New London 1046 West London park drive, Forest, VA 24551 : 1	PMP450i	0.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing New London 1046 West London park drive, Forest, VA 24551 : 2	PMP450i	90.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing New London 1046 West London park drive, Forest, VA 24551 : 3	PMP450i	180.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Existing New London 1046 West London park drive, Forest, VA 24551 : 4	PMP450i	270.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 : 1	PMP450i	300.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 : 2	PMP450i	240.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 1	PMP450i	330.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 2	PMP450i	30.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 3	PMP450i	210.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 4	PMP450i	270.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 1	PMP450i	0.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 2	PMP450i	60.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 3	PMP450i	120.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 1	PMP450i	0.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 2	PMP450i	90.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 3	PMP450i	180.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 4	PMP450i	270.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 5	PMP450i	0.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 6	PMP450i	180.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Shady Grove : 1	PMP450i	240.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Shady Grove : 2	PMP450i	180.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523 : 1	PMP450i	180.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network

Part Number	Qty	Description
01010419001	222	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	11	UNIVERSAL GPS MODULE
30009406002	58	N-to-N CABLE (16")
C000000L033	35	Gigabit Surge Suppressor (56V)
C000000L500	11	CMM5 Controller
C000000L556	14	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	41	LPU and Grounding Kit (1 kit per ODU)
C009045A001	29	900 MHz PMP 450i Connectorized Access Point
C050045A006	12	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	41	PMP450/450i Access Point Extended Warranty, 4 Additional Years

Bill of Materials : PMP Network (continued)		
Part Number	Qty	Description
N000000L034	41	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	11	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	41	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	29	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	41	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP)

Bill of Materials : Subscriber Modules		
Part Number	Qty	Description

2. 1240 Sunset hill road, Big Island, VA

Hub Summary	
Hub Name	1240 Sunset hill road, Big Island, VA
Latitude	37.53341N
Longitude	079.36137W
Number of Access Points	6
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

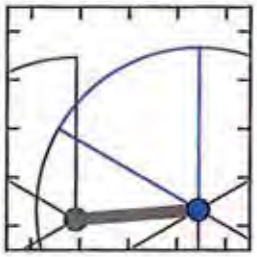
Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
1240 Sunset hill road, Big Island, VA : 1	PMP450i	330.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 2	PMP450i	30.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 3	PMP450i	90.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 4	PMP450i	150.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 5	PMP450i	210.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
1240 Sunset hill road, Big Island, VA : 6	PMP450i	270.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network		
Part Number	Qty	Description
01010419001	36	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	12	N-to-N CABLE (16")
C000065L007	6	LPU and Grounding Kit (1 kit per ODU)
C009045A001	6	900 MHz PMP 450i Connectorized Access Point

Bill of Materials : PMP Network (continued)

Part Number	Qty	Description
EW-E4PM45AP-WW	6	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	6	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	6	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	6	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	6	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

1240 Sunset hill road, Big Island, VA : 1



Access Point Summary	
AP Name	1240 Sunset hill road, Big Island, VA : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	330.00° from True North 339.15° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

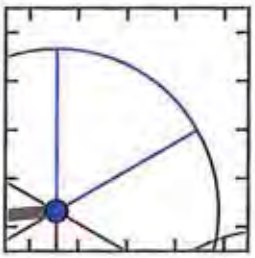
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

1240 Sunset hill road, Big Island, VA : 2



Access Point Summary	
AP Name	1240 Sunset hill road, Big Island, VA : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	30.00° from True North 39.15° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

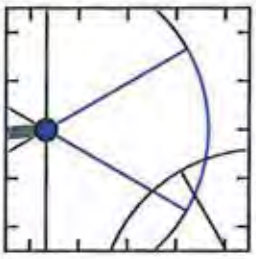
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

1240 Sunset hill road, Big Island, VA : 3



Access Point Summary	
AP Name	1240 Sunset hill road, Big Island, VA : 3
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	90.00° from True North 99.15° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

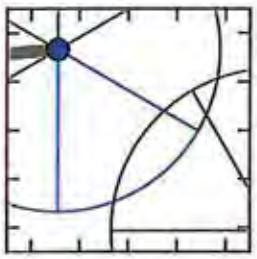
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant), Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

1240 Sunset hill road, Big Island, VA : 4



Access Point Summary	
AP Name	1240 Sunset hill road, Big Island, VA : 4
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	150.00° from True North 159.15° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

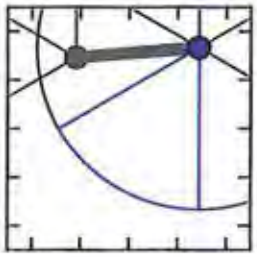
Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point

Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

1240 Sunset hill road, Big Island, VA : 5



Access Point Summary	
AP Name	1240 Sunset hill road, Big Island, VA : 5
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	210.00° from True North 219.15° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

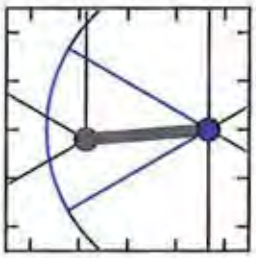
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

1240 Sunset hill road, Big Island, VA : 6



Access Point Summary	
AP Name	1240 Sunset hill road, Big Island, VA : 6
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	270.00° from True North 279.15° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

9. Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526

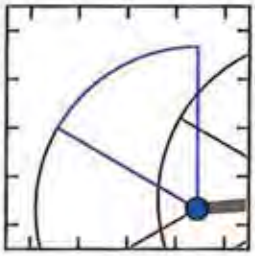
Hub Summary	
Hub Name	Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526
Latitude	37.53000N
Longitude	079.41656W
Number of Access Points	2
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526 : 1	PMP450i	330.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526 : 4	PMP450i	270.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network		
Part Number	Qty	Description
01010419001	12	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
1096	1	UNIVERSAL GPS MODULE
30009406002	4	N-to-N CABLE (16")
C000000L033	2	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054

Bill of Materials : PMP Network (continued)		
Part Number	Qty	Description
C000065L007	2	LPU and Grounding Kit (1 kit per ODU)
C009045A001	2	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	2	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	2	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	2	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	2	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	2	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526 : 1



Access Point Summary	
AP Name	Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	330.00° from True North 339.12° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

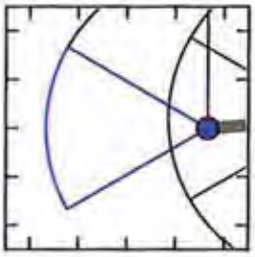
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526 : 4



Access Point Summary	
AP Name	Big Island Elementary School 1114 Schooldays Road, Big Island, VA 24526 : 4
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	270.00° from True North 279.12° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

12. Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503

Hub Summary	
Hub Name	Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503
Latitude	37.46836N
Longitude	079.26489W
Number of Access Points	6
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 1	PMP450i	0.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 2	PMP450i	60.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 3	PMP450i	120.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 4	PMP450i	180.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 5	PMP450i	240.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

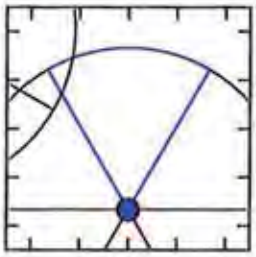
(continued)

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 6	PMP450i	300.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network

Part Number	Qty	Description
01010419001	36	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	12	N-to-N CABLE (16")
C000000L033	6	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	2	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	6	LPU and Grounding Kit (1 kit per ODU)
C009045A001	6	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	6	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	6	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	6	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	6	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	6	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 1



Access Point Summary	
AP Name	Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	0.00° from True North 9.20° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

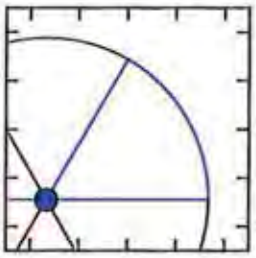
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 2



Access Point Summary	
AP Name	Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	60.00° from True North 69.20° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

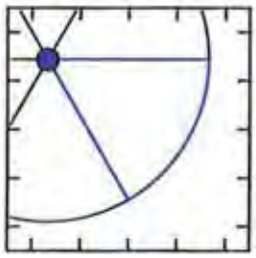
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 3



Access Point Summary	
AP Name	Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 3
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	120.00° from True North 129.20° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

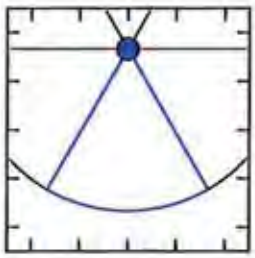
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 4



Access Point Summary	
AP Name	Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 4
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	180.00° from True North 189.20° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

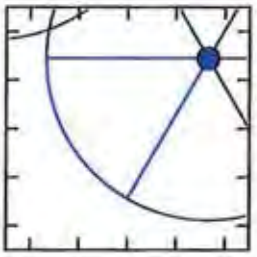
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 5



Access Point Summary	
AP Name	Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 5
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	240.00° from True North 249.20° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

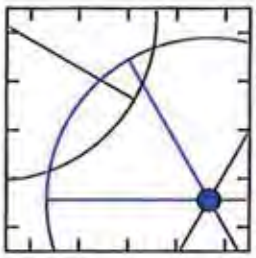
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 6



Access Point Summary	
AP Name	Boonsboro Collection Intersection of rt 761 and rt 501, Lynchburg, VA 24503 : 6
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	300.00° from True North 309.20° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

19. Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122

Hub Summary	
Hub Name	Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122
Latitude	37.38667N
Longitude	079.73275W
Number of Access Points	5
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 1	PMP450i	0.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 2	PMP450i	90.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 3	PMP450i	180.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 4	PMP450i	270.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps

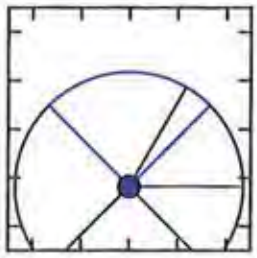
(continued)

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 5	PMP450i	60.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network

Part Number	Qty	Description
01010419001	22	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	5	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	2	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	5	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
C050045A006	4	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	5	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	5	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	5	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	5	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 1



Access Point Summary	
AP Name	Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	0.00° from True North 8.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

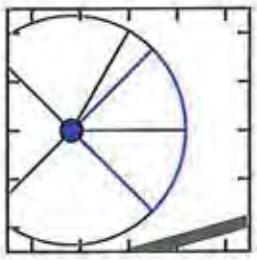
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 2



Access Point Summary	
AP Name	Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	90.00° from True North 98.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

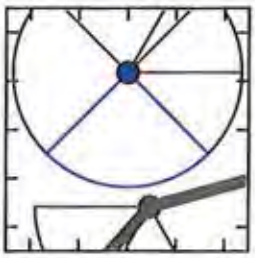
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 3



Access Point Summary	
AP Name	Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 3
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	180.00° from True North 188.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

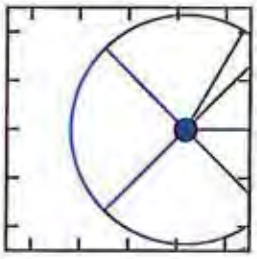
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 4



Access Point Summary	
AP Name	Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 4
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	270.00° from True North 278.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

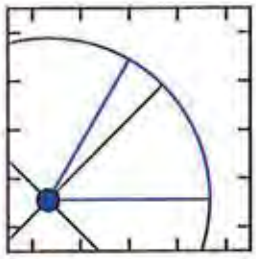
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 5



Access Point Summary	
AP Name	Existing Montvale SST 11575 Lynchburg Turnpike Road, Montvale, VA 24122 : 5
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	60.00° from True North 68.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

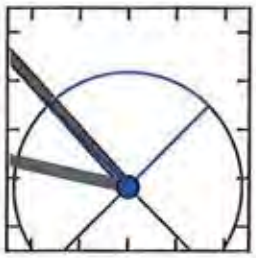
25. Existing New London 1046 West London park drive, Forest, VA 24551

Hub Summary	
Hub Name	Existing New London 1046 West London park drive, Forest, VA 24551
Latitude	37.30902N
Longitude	079.34219W
Number of Access Points	4
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Existing New London 1046 West London park drive, Forest, VA 24551 : 1	PMP450i	0.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing New London 1046 West London park drive, Forest, VA 24551 : 2	PMP450i	90.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing New London 1046 West London park drive, Forest, VA 24551 : 3	PMP450i	180.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Existing New London 1046 West London park drive, Forest, VA 24551 : 4	PMP450i	270.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network		
Part Number	Qty	Description
01010419001	16	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
C000000L033	4	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	4	LPU and Grounding Kit (1 kit per ODU)
C050045A006	4	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	4	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	4	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	4	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	4	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Existing New London 1046 West London park drive, Forest, VA 24551 : 1



Access Point Summary	
AP Name	Existing New London 1046 West London park drive, Forest, VA 24551 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	0.00° from True North 9.12° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

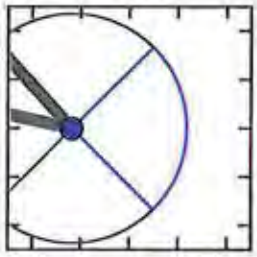
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Existing New London 1046 West London park drive, Forest, VA 24551 : 2



Access Point Summary	
AP Name	Existing New London 1046 West London park drive, Forest, VA 24551 : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	90.00° from True North 99.12° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

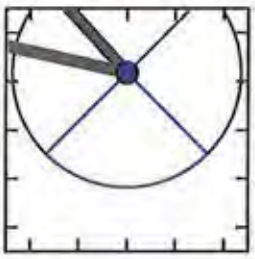
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Existing New London 1046 West London park drive, Forest, VA 24551 : 3



Access Point Summary	
AP Name	Existing New London 1046 West London park drive, Forest, VA 24551 : 3
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	180.00° from True North 189.12° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

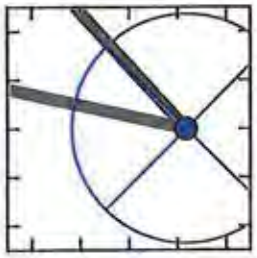
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Existing New London 1046 West London park drive, Forest, VA 24551 : 4



Access Point Summary	
AP Name	Existing New London 1046 West London park drive, Forest, VA 24551 : 4
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	270.00° from True North 279.12° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

30. Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101

Hub Summary	
Hub Name	Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101
Latitude	37.23644N
Longitude	079.81006W
Number of Access Points	2
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

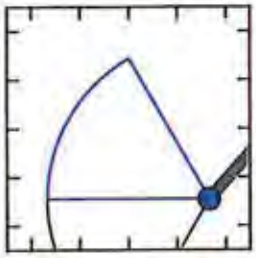
Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 : 1	PMP450i	300.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 : 2	PMP450i	240.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network		
Part Number	Qty	Description
01010419001	12	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	4	N-to-N CABLE (16")
C000000L033	2	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	2	LPU and Grounding Kit (1 kit per ODU)
C009045A001	2	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	2	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	2	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)

Bill of Materials : PMP Network (continued)

Part Number	Qty	Description
N000900L007	2	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	2	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	2	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 : 1



Access Point Summary	
AP Name	Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	300.00° from True North 308.81° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

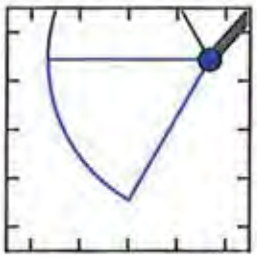
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 : 2



Access Point Summary	
AP Name	Hardy Collection 1220 Bandy Mill Road, hardy, VA 24101 : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	240.00° from True North 248.81° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

33. Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104

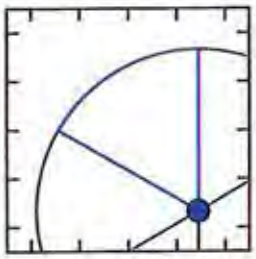
Hub Summary	
Hub Name	Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104
Latitude	37.08492N
Longitude	079.52863W
Number of Access Points	4
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 1	PMP450i	330.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 2	PMP450i	30.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 3	PMP450i	210.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 4	PMP450i	270.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network

Part Number	Qty	Description
01010419001	24	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	8	N-to-N CABLE (16")
C000000L033	4	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	4	LPU and Grounding Kit (1 kit per ODU)
C009045A001	4	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	4	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	4	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	4	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	4	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	4	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 1



Access Point Summary	
AP Name	Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	330.00° from True North 338.96° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

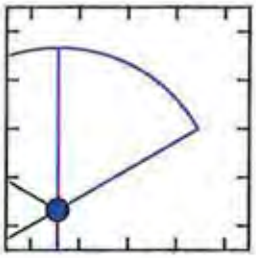
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 2



Access Point Summary	
AP Name	Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	30.00° from True North 38.96° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

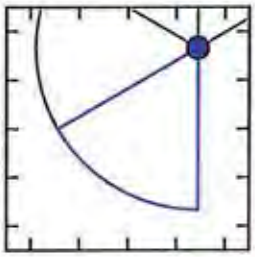
Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Cambium Networks

Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 3



Access Point Summary	
AP Name	Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 3
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	210.00° from True North 218.96° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

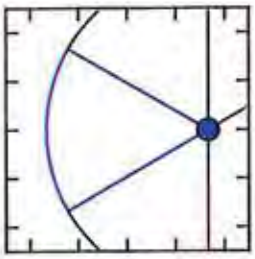
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 4



Access Point Summary	
AP Name	Huddleston VFD 36 State Rt 734 (Dundee Road), Huddleston, VA 24104 : 4
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	270.00° from True North 278.96° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

38. McGhee Road 1065 McGhee Road, Bedford, VA 24523

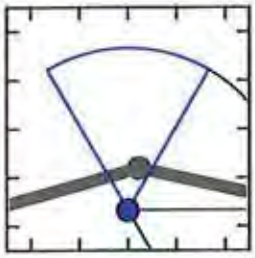
Hub Summary	
Hub Name	McGhee Road 1065 McGhee Road, Bedford, VA 24523
Latitude	37.33556N
Longitude	079.57969W
Number of Access Points	3
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 1	PMP450i	0.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 2	PMP450i	60.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 3	PMP450i	120.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network		
Part Number	Qty	Description
01010419001	18	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	6	N-to-N CABLE (16")
C000000L033	3	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054

Bill of Materials : PMP Network (continued)		
Part Number	Qty	Description
C000065L007	3	LPU and Grounding Kit (1 kit per ODU)
C009045A001	3	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	3	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	3	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	3	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	3	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	3	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 1



Access Point Summary	
AP Name	McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	0.00° from True North 8.98° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

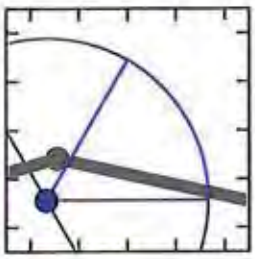
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 2



Access Point Summary	
AP Name	McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	60.00° from True North 68.98° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

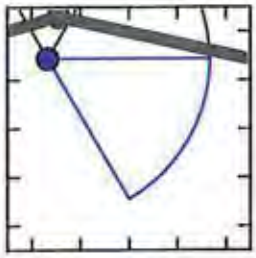
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 3



Access Point Summary	
AP Name	McGhee Road 1065 McGhee Road, Bedford, VA 24523 : 3
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	120.00° from True North 128.98° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

42. Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121

Hub Summary	
Hub Name	Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121
Latitude	37.19581N
Longitude	079.68350W
Number of Access Points	6
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 1	PMP450i	0.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 2	PMP450i	90.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 3	PMP450i	180.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 4	PMP450i	270.0°	90.0°	5.8 GHz	4 miles	0	0.00 Mbps
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 5	PMP450i	0.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

(continued)

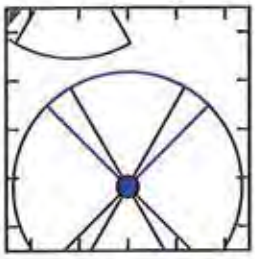
Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 :6	PMP450i	180.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network

Part Number	Qty	Description
01010419001	28	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	4	N-to-N CABLE (16")
C000000L033	6	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	2	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	6	LPU and Grounding Kit (1 kit per ODU)
C009045A001	2	900 MHz PMP 450i Connectorized Access Point
C050045A006	4	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	6	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	6	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	6	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	2	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	6	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Cambium Networks

Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 1



Access Point Summary	
AP Name	Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	0.00° from True North 8.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

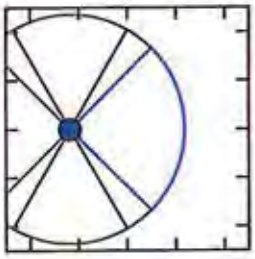
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 2



Access Point Summary	
AP Name	Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	90.00° from True North 98.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

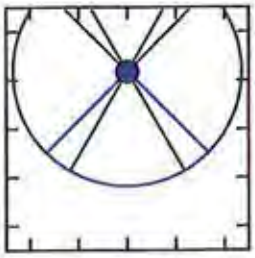
Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Cambium Networks

Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 3



Access Point Summary	
AP Name	Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 3
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	180.00° from True North 188.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

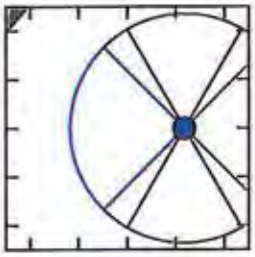
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 4



Access Point Summary	
AP Name	Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 4
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 90° 4.9 - 6 GHz, 90/120 deg Sector Antenna
Modeled Beamwidth	90°
Antenna Azimuth	270.00° from True North 278.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	5.8 GHz (5725 to 5850 MHz)
RF Channel Bandwidth	20 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

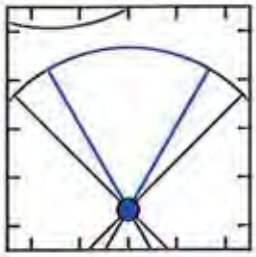
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	4	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C050045A006	1	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC). Requires suffix "B" or newer
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 5



Access Point Summary	
AP Name	Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 5
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	0.00° from True North 8.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

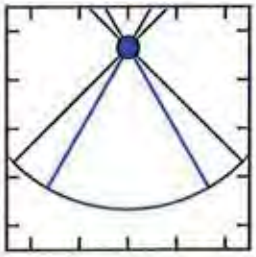
Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 6



Access Point Summary	
AP Name	Moneta VFD 3340 Horseshoe bend Road, Moneta, VA 24121 : 6
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	180.00° from True North 188.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

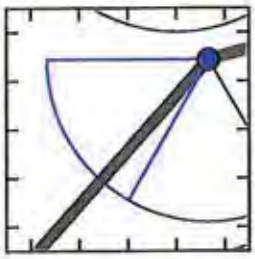
49. Shady Grove

Hub Summary	
Hub Name	Shady Grove
Latitude	37.31875N
Longitude	079.71833W
Number of Access Points	2
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Shady Grove : 1	PMP450i	240.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps
Shady Grove : 2	PMP450i	180.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network		
Part Number	Qty	Description
01010419001	12	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	4	N-to-N CABLE (16")
C000000L033	2	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	2	LPU and Grounding Kit (1 kit per ODU)
C009045A001	2	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	2	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	2	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	2	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	2	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	2	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Shady Grove : 1



Access Point Summary	
AP Name	Shady Grove : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	240.00° from True North 248.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point

Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Shady Grove : 2

Access Point Summary	
AP Name	Shady Grove : 2
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	180.00° from True North 188.89° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	66 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

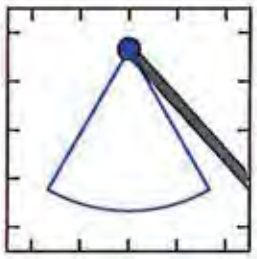
52. Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523

Hub Summary	
Hub Name	Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523
Latitude	37.48836N
Longitude	079.54650W
Number of Access Points	1
Number of Connected Subscribers	0
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Throughput	0.00 Mbps

Access Point Name	Product	Antenna Azimuth	Beamwidth	Band	Max Range	Connected Subscribers	Total Predicted Throughput
Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523 : 1	PMP450i	180.0°	60.0°	900 MHz	4 miles	0	0.00 Mbps

Bill of Materials : PMP Network		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
EW-E4PM45AP-WW	1	PMP450/450i Access Point Extended Warranty, 4 Additional Years
N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the network level

Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523 : 1



Access Point Summary	
AP Name	Wheat Valley Reservior Overstreet Creek Road,Bedford, VA 24523 : 1
Equipment Type	PMP450i (running Release 15.2)
Antenna Type	Cambium Networks 60° 0.9 GHz Sector Antenna (Dual Slant)
Modeled Beamwidth	60°
Antenna Azimuth	180.00° from True North 189.03° from Magnetic North
Antenna Tilt	0.0° (uptilt)
Connected Subscribers	0
Max Range	4 miles
RF Frequency Band	900 MHz (902 to 928 MHz)
RF Channel Bandwidth	10 MHz
Total Predicted DL Throughput	0.00 Mbps
Total Predicted UL Throughput	0.00 Mbps
Total Predicted Throughput	0.00 Mbps
Downlink Data	75 %

Subscriber Module Summary

Name	Latitude	Longitude	Product	Range	Antenna Gain

Bill of Materials : Access Point		
Part Number	Qty	Description
01010419001	6	Coaxial Cable Grounding Kits for 1/4" and 3/8" Cable
1096	1	UNIVERSAL GPS MODULE
30009406002	2	N-to-N CABLE (16")
C000000L033	1	Gigabit Surge Suppressor (56V)
C000000L500	1	CMM5 Controller
C000000L556	1	CMM5 Power and Sync Injector 56V. CMM5 supports up to 4 radios. Requires suffix 'B' or newer of N000000L054
C000065L007	1	LPU and Grounding Kit (1 kit per ODU)
C009045A001	1	900 MHz PMP 450i Connectorized Access Point
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N000000L034	1	POWER SUPPLY, 30W, 56V - Gbps support
N000000L103	1	CMM5 to uGPS Shielded Cable (20 meter)
N000900L007	1	CABLE, UL POWER SUPPLY CORD SET, US
N009045D001	1	900 MHz 60 degree Sector Antenna (Dual Slant). Includes the mounting bracket for the antenna and AP
WB3176	1	328 ft (100 m) Reel Outdoor Copper Clad CAT5E (Recommended for PTP). Total cable requirements are aggregated at the parent level

Mode	Total Mean Predicted Throughput (Mbps)	SMs per DL modulation			SMs per UL modulation		
		Quantity	Percent	Throughput (Mbps)	Quantity	Percent	Throughput (Mbps)
x8 (256QAM MIMO-B)	0	0	0	0	0	0	0
x6 (64QAM MIMO-B)	0	0	0	0	0	0	0
x4 (16QAM MIMO-B)	0	0	0	0	0	0	0
x2 (QPSK MIMO-B)	0	0	0	0	0	0	0
x4 (256QAM MIMO-A)	0	0	0	0	0	0	0
x3 (64QAM MIMO-A)	0	0	0	0	0	0	0
x2 (16QAM MIMO-A)	0	0	0	0	0	0	0
x1 (QPSK MIMO-A)	0	0	0	0	0	0	0

Cambium Networks

Disclaimer

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Proposed Business Terms

Blue Ridge Towers is proposing to turnkey each new site (for a total of 9 sites) which includes project management, construction, equipment installation, and marketing all 11 sites afterwards for the following costs per site:

Tower development	$50,000.00 x 9 sites	$450,000.00
Tower construction	$173,000.00 x 9 sites	$1,557,000.00
MW system per unit	$35,000.00 x 7 sites	$245,000.00
Tower Mgt. fee	$TBD	
Fiber Install fee	$67,800.00/mile x 10.1 miles	$684,780.00
Total project fee		**$2,936,780**

Corporate Bio

Blue Ridge Towers was started by Anthony Smith in 2014, as a company, we help to connect people, businesses, networks and devices throughout our coverage area. Our towers make coverage possible in places where coverage hasn't been possible before. We are a regional tower provider, delivering turnkey tower development and collocation opportunities in the following markets: VA/W.VA, BAWA, NC/CS, TN/KY, OH/PA, MI and IL/WI.

Blue Ridge Towers specializes in developing build-to-suit towers for our anchor tenants in the most difficult of scenarios. We have earned an outstanding reputation as a go to, turn-key resource for the major carriers in our markets.

Blue Ridge Towers has distinct advantages over our competitors as the result of longstanding relationships with the municipalities and all major consultants in our market.

Most importantly, through strategic planning and our marketing efforts, Blue Ridge Towers has become a household name as it relates to cell phone towers and wireless development in our given markets.

Corporate Bio

BLUE RIDGE TOWERS

Blue Ridge Towers was founded by Anthony Smith in 2014.

Blue Ridge Towers specializes in developing build-to-suit towers for our anchor tenants in the most difficult of scenarios. We have earned an outstanding reputation as a go to, turn-key resource for the major carriers in our markets.

Anthony Smith
(See attachment for full resumes)

Mr. Smith, 43 years old, has spent his career in site acquisition and project management, with the majority of the time in the wireless telecommunications industry. Most recently, he has worked at Mastec as a senior project manager overseeing an AT&T microwave backhaul project to provide Ethernet to portions of the network where fiber is not an option. On top of managing and forecasting day-to-day operations primarily responsible for all facets of site acquisition, including site identification, property leasing, and obtaining jurisdiction approvals. Prior to that project, he worked with NSORO and Mastec managing a multi-million dollar initiative providing turnkey key solutions including overseeing site acquisition vendors, managing zoning approvals, and organizing collocation opportunities. Mr. Smith began his career at Atlantic Tower, before transitioning to American Tower where he was a site acquisition manager over Nextel's Phase IV build-out in the Richmond and Virginia Beach markets. He has also worked for A.R. Smith and Associates and the Richmond Redevelopment and Housing Authority in real estate acquisition/development. In the telecom industry he has also worked for Motient Communication in Chicago, Illinois, and WFI and BCI in Northern Virginia. Virginia is one of the toughest states to do site acquisition work because there are numerous areas designated as historic sites. Mr. Smith has been able to successfully work through these tough regulations throughout his career by working with various municipalities and professional groups to move forward with projects in telecom and real estate. Mr. Smith is a pound alumni of Virginia Union University (Bachelor of Science/Sociology) in Richmond, Virginia where he also played football.

ANTHONY R. SMITH

401 Gainsboro Rd
Roanoke, Va.
asmith.lredev@gmail.com
Residence: (919) 571-3302
Mobile: (540) 397-6628

PROFILE

- **Wireless Telecom Real Estate professional with a diverse background in turnkey site development,** with proven strengths in project management, construction management, market development/research, strategy implementation, budget management, and executive leadership.
- **Real Estate Acquisition**: Possess thorough and detailed knowledge of real estate law, regulations and conveyances governing real estate development.
- **Negotiation: Superior negotiation skills with the ability to apply creativity, persistence, and strong problem-solving skills to achieve mutually beneficial solutions with a leading edge over the competition.**
- **Communication**: Articulate, persuasive and effective communicator who enjoys the challenge of working with diverse personalities; proven ability to establish and maintain relationships with the community, government, executives, and professional groups.

Key Areas of Expertise:

- **Project Management**
- **Site Acquisition**
- Construction Management
- **Conducting Deployments**
- Document Preparation
- **Contractor Negotiations**
- Property Management (Commercial/Multi-family)
- Commercial Leasing and Contract review
- Permitting / Zoning
- Budget/Finance/ PO's
- **Negotiation of Land Rights / Easements**
- **Partial and Full Takings**

PROFESSIONAL EXPERIENCE

Mastec Wireless Chicago, Ill 2012 – 2014

Sr. Project Manager
Midwest Regional microwave Manager
Michigan, Indiana and Minnesota

Project Manage the AT&T microwave backhaul project to provide Ethernet to portions of the network that fiber is not an option.

- **Responsible for project budget, vendor/contract management and invoices**
- **Manage Line of Site surveys**
- **Development of project/construction schedule**
- **Drive and Manage Site Acquisiton**
- **Drive and Manage Construction**
- **Track and manage all project materials/equipment**
- **Responsible for all reporting to AT&T in both deployment calls and in multiple weekly reports**
- **Update and manage CASPR**
- **Drive, Forecast and actualize all major milestones.**
- **Manage the individual site migration into the network**
- **Conduct closeout for all sites that have reached MS150, MS155 and MS160**

NSORO/Mastec Raleigh, NC 2010 – 2012
Project Manager
New Site Build Site – Site Acquisition Manager
North Carolina and South Carolina market
Project Manager for the Carolinas managing a multimillion dollar initiative. Core responsibilities include turnkey project management overseeing site acquisition vendors, zoning approvals, collocation applications, oversee project coordinators and all supporting staff.

- **Timely Professional Executive Level Reporting**
- **Manage site acquisition zoning A and E and other vendors for contract deliverables**
- **Manage forecast dates for RF engineering, zoning and building permits**
- **Conduct weekly deployment meeting and daily status meetings with vendors**
- **Manage Project Coordinators for NORAD submissions, OOMs and POs**
- **Maintain daily CASPR updates**
- **Identify staffing and budget needs**
- **Provide guidance to vendors regarding lease negotiations, site locations and accelerating permit filings**
- **Define processes and procedures**

BCI 2009-2010
Site Acquisition Manager
Served as site acquisition manger where I managed an in house site acquisition staff of 8, in order to deliver lease consents for a fiber to cell site project.

- **Manage site acquisition staff**
- **Conduct weekly client deployment meetings**
- **Give weekly market overview of project status to regional directors and higher**
- **Staff Development**
- **Working Closely with Municipalities to insure successful zoning and permitting**
- **Manage 230 + sites**
- **Implement NTP process between carrier and Fiber Optic cable installation vendor**

A. R. Smith and Associates, LLC Roanoke, VA 2006 -2009
Principal
Utilizing 13 years of diverse real estate experience to found a successful real estate development firm with a concentration in turnkey real estate consulting, Historic Tax Credit multifamily development, raw land development and single-family new construction projects.

- **Land Acquisition**
- **Budget Development**
- **Securing Project funding**
- **Project Development**
- **Working Closely with Municipalities to insure successful zoning and permitting**
- **Contract review**
- **Architectural review**
- **Legal (through consulting with lawyers, accountants and engineers)**
- **Zoning**

WFI, Reston, VA 2004 – 2006
Site Acquisition Manager
Site Acquisition manager/ Interim Project Manager. Upon completing all of the assigned sites, I was asked to be a key role player in the Fredericksburg market on a point to point microwave shot project. I served the project until its completion with high marks and great respect from upper management and fellow colleagues. While at WFI, I performed the following duties

- Always clearly defined project scope of work, timelines and financial objectives.
- Drove search rings and consulted with other tower companies databases to identify and qualify the best available sites for the installation of wireless antenna sites
- Confirm with RF Engineering, and Construction personnel to ensure that the selected sites meet the engineering, and construction requirements
- Negotiate favorable lease terms, and for the highest point available as well secure necessary ground space for client's equipment shelter.
- Complete site candidate package for client review

Richmond Redevelopment and Housing Authority (RRHA), Richmond, VA 2001 – 2004
Real Estate Officer
Responsible for managing RRHA's entire Real Estate Portfolio encompassing the acquisition and disposition of property, commercial property management, business and residential relocation in addition to overseeing the property management of multiple public housing communities.

- **Managed the acquisition of 56 parcels of property while maintaining an acquisition budget of $3.5M.**
- **Managed and coordinated entire projects from feasibility to completion, providing detailed financial and status reports to the Housing Authority's Board of Commissioners, HUD and the Richmond City Council.**
- Managed a staff of 13 employees and consultants.
- Established and maintained positive working relationship with the Housing Authority's finance department to ensure timely closings.
- **Served as a liaison between city officials, developers, and citizens of communities, tremendously improving public perception of the development process.**
- **Instrumental in providing relocation to businesses, homeowners and tenants displaced by federal guidelines (Uniform Relocation Act).**
- Oversaw the Housing Authority's commercial and retail properties including the 6th Street Market Place, and all downtown parking garages. **Represented RRHA as a member of the 6th Street Market place demolition and relocation committee.**

Motient Communications, Chicago, Illinois 2000–2001
Site Implementation Project Manager
As key corporate representative and senior level management, responsible for the acquisition of raw-land, commercial rooftops and tower space throughout the country by traveling to various regions in both rural and metropolitan areas. Played critical role in key site selection by implementing effective market research, and strategic planning. Directly involved in the leasing Process, and in presenting the recommended properties for acquisition, supervising the site construction process.

- Managed complex commercial real estate transactions including lease negotiations, budgeting, asset management, and construction management of individual sites.

- Acted as a strong intermediary between RF engineers, legal department, finance team, and the company's Federal Communication Commission (FCC) Controller, to ensure the timely activation of each individual cell site to comply with FCC regulations and deadlines.

American Tower, Williamsburg, VA 1997 - 2000
Site Acquisitions Manager
Maintained full oversight of Land Acquisition operations, including the hiring, training, scheduling, and supervision of an acquisition staff of 5.

- Served as **Site Acquisition Manager,** for Nextel's Phase IV build-out in the Richmond, VA and Virginia Beach, VA markets.
- Lead rezoning efforts in areas where stringent telecommunication restrictions existed.
- Reported to clients in weekly deployment meetings, reviewed and approved all lease agreements for raw land, tower space and rooftop co-location.

EDUCATION

Virginia Union University, Richmond, Virginia **B.S. Sociology** 1997

Mosley Flint School of Realty, Real Estate Sales Agent Licensing (Principles) **1998**

COMPUTER SKILLS

Microsoft Office: Word, Excel, PowerPoint, MS Project
CASPR: AT&T database
Geographical Information Systems (GIS): Tax Map, Assessment and Legal Description
Topo Soft: Integrated Topographic Mapping Software
Siterra: Wireless Telecom PM Soft ware
Excel: Project tracking, pivot tables and executive level reporting
Powerpoint: Used to create slides for market level reporting
AUTOCAD- Construction Drawing Software

CERTIFICATIONS

Class A Contractor MBE
HUD Certified in Acquisitions and Relocations
OSHA 10 hour certification
Red Cross First Aid/CPR certification
CPM Scheduling certified (VA Board of Contractors)

Xiaolong (Sean) Cai

306 Houston Street
Lexington, VA. 24450
1-540-793-0810 (cell) / xdragoncai@yahoo.com

Objective:

A professional management position in areas where administrative experience, initiative, and interpersonal skills will be used for maximizing productivity and promoting excellent customer relations.

Work History:

11/15-present ***Site Acquisition & Zoning Manager, Blue Ridge Towers Inc, Roanoke, VA***

Manager in both Site Acquisition & Zoning departments of Blue Ridge Towers, a small privately owned cell tower company home-based in Roanoke, VA. Working hand in hand with regional wireless carriers on Build to Suit projects and overseeing all aspects of site selection and zoning approvals, and ensuring project completion.

01/13-present ***Owner Imports and Exports of America, Inc***

Running online business dealing in Oriental Antiques, Buying/selling/trading Asian paintings, Vases, and collectable goods.

09/09-11/12 ***Personal: sold family real estate in China/ Managed/sold family restaurant***

My grandfather passed away in China in late 2009. Will left all his property to me, therefore traveled overseas multiple times (09, twice in 2010, 2011) to finalize real estate transfers to remaining family members. Returned to Lexington to manage family Chinese restaurant for remainder of the lease term.

04/08-04/09 ***Project /Construction Manager, Realcom Associates, Contractor to T-Mobile, PA/MD-DC***

Coordinate with carriers for collocation opportunities on T-Mobile Owned Towers in the Philadelphia/NJ and the BAWA market. Oversee all structural analysis and the application process on collocations from multiple carriers. Inspect and manage on-site construction of contractors and ensure construction completed to T-Mobile and industry standards. Maintain closeout documentations and generate revenue for T-Mobile in the allocated regions.

05/05- 04/1/2008 ***Site Acquisition Specialist, Wireless Facilities Inc, King of Prussia, PA& Upstate NY***

Coordinate with RF for site design, assemble and complete Site Audits, procure all necessary due diligence for leasing and zoning, including consent letters and amendments, negotiate all leases and building permit applications and assist in site visits, and completing compliance as a subcontractor to General Dynamics for the Cingular Wireless UMTS launch in Pennsylvania. Continued on the same role as a subcontractor to Verizon Wireless in the Upstate NY area and completed 50 new raw land sites from site id, leasing, NEPA, SHPO, FAA, regulatory compliance to BP.

07/05- 4/30/06 ***Site Acquisition Specialist, Tower Resource Management, Roanoke, VA***

Coordinate with RF for site design, assemble and complete SCIP packages, procure all necessary due diligence for leasing and zoning, negotiate all leases and building permit applications and assist in site visits, title reports and complete closeout books for the 2005-2006 Cingular Wireless built-out.

11/03-7/05 ***Wireless Sales, Cingular Wireless (formerly Suncom), Roanoke, VA***

Full time sales representative in Roanoke Store location promoting wireless sales of GSM and TDMA phones, voice and data services and providing daily customer service. Excels in exceeding monthly sales quota and technical support.

5/02-9/03 ***Regional Manager, General Dynamics, Albuquerque, NM***

A Project manager for the wireless built out of AT&T's Roadrunner and Liberty project on Interstate I-40, I-10 and city of Albuquerque, a project that is ahead of schedule and under budget. Responsible for turning up 100 plus cell sites, and overseeing all daily operations and

each aspects of the project from RF, site identification, leasing, zoning, construction, optimization, personnel, and overall budget. Responsible for all due diligence and compliance/regulatory filings such as, leasing, ASAC/ASR,FAA filings, Soil, NEPA/SHPO compliance, drawings/foundation designs, zoning and building permit filings and construction. Provided continuous coverage for AT&T's GSM network on two major Interstates within one year.

6/00-5/02 ***Accounts Manager, American Tower Corporation, Salem, VA***
Responsible for direct sales of antenna space on ATC's owned and managed sites to wireless carrier prospects within the state of WV, and VA. Maintained ongoing management of relationships with existing tenants, assisted in market research and identified numerous built to suit opportunities. Contributed to two major built-outs in WV and VA for Nextel Partners and Devon Mobile Communications during initial launch in 2001.

10/99-6/00 ***Commercial Accounts Manager, Horizon PCS/ SPRINT PCS affiliate,RoanokeVA***
Sales manager for the Roanoke Valley and Lexington area. Oversees all major commercial accounts and services for Sprint PCS. Help launch Sprint PCS sales in the Blue Ridge region in October and provided technical support and training.

11/98-10/99 ***Retail Representative, CFW / Intelos, Harrisonburg, VA***
Full time sales representative in newly opened Valley Mall location promoting all aspects of communication services. Specializing in sales of PCS, cellular, internet, paging, wireless cable, and long distance services on a daily basis and promoting customer relations.

5/98-9/98 ***Retail Sales Associate, GTE Wireless, Lexington, VA***
Full-time sales associate in retail store, specializing in all wireless services. Responsible for over 60% of all monthly sales as well as providing technical support and customer service.

8/97-4/98 ***Sales Counselor, Circuit City Stores, Roanoke, VA***
Sales associate in high volume department of home office/computer products. Top 5% of sales in division--Awards Excellence achievement from 9/97-12/97. President's Club award 3rd level (1/98-3/98). Ranked top 10% among store in volume and income.

1/96-8/98 ***Sales/Partnership, First Choice Auto Sales, Lexington, VA***
Recruited new clients, improved sales productivity. Followed up on customers. Purchased and maintained automobile inventory.

2/95-2/97 ***Manager/Owner of Phoenix Bar & Rest. 20 S. Randolph St. Lexington, VA***
Opened a full service bar/restaurant. Planned and designed restaurant layout and format. Maintained all inventory and supervised operations on daily basis. Responsible for all record keeping, purchases, bills, and sales. Sold restaurant as a turnkey business and grossed 10-fold profit.

1/93-11/12 ***Part-time manager, Hunan Garden Restaurant, Lexington, VA***
Family owned business. Assists in daily operations when possible. Maintains books and invoices on regular basis. Learned management skills first hand from the family business. Closed business in late 2011

EDUCATION:
Lexington High School, Lexington, VA. 1990
B.A. in Studio Art & Biology, University of Virginia, Charlottesville, VA. 1994

Personal: 44...father of one delightful 18 year old daughter…enjoys challenges, sports, and productivity.

References Available upon request.

SHERMAN P. LEA, SR.
Mayor

CITY OF ROANOKE
OFFICE OF THE MAYOR
215 CHURCH AVENUE, S.W., SUITE 452
ROANOKE, VIRGINIA 24011-1594
TELEPHONE: (540) 853-2444
FAX: (540) 853-1145
EMAIL: MAYOR@ROANOKEVA.GOV

May 24, 2018

Mr. Carl Boggess, County Administrator
County of Bedford, Virginia
122 East Main Street
Bedford, Virginia 24523

Dear Mr. Boggess:

As Mayor of the City of Roanoke and as a member of the Roanoke Valley Broadband Authority, I offer my support and recommendation for Anthony Smith and Blue Ridge Towers as an excellent choice for a private-public partner in connection with the Bedford County Broadband Project.

Blue Ridge Towers has proven itself to be a smart, experienced and capable firm to deliver the service and expertise necessary to help bring Southwest Virginia's telecommunications infrastructure up to the standards of other parts of the Country. Blue Ridge Towers has established strong relationships with key resources and firms needed to ensure success.

I have been acquainted with Mr. Smith for many years and have observed him making great strides in business, and supporting the greater Roanoke community through business development initiatives. I am confident that if awarded the project, Bedford County will gain a viable partner and one that will demonstrate excellence and extreme dedication.

If you have any additional questions or need clarification, please feel free to contact me.

Sincerely,

Sherman P. Lea Sr.

Sherman P. Lea, Sr.
Mayor

SPL:ctw

BOB GOODLATTE
6TH DISTRICT, VIRGINIA

2309 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-4606
(202) 225-5431
FAX (202) 225-9681
www.house.gov/goodlatte

CHAIRMAN, HOUSE REPUBLICAN TECHNOLOGY WORKING GROUP

CO-CHAIR, CONGRESSIONAL INTERNET CAUCUS

CONGRESSIONAL INTERNATIONAL CREATIVITY AND THEFT PREVENTION CAUCUS

CONGRESSIONAL CIVIL JUSTICE CAUCUS

Congress of the United States
House of Representatives

COMMITTEE ON THE JUDICIARY
CHAIRMAN

COMMITTEE ON AGRICULTURE

SUBCOMMITTEE ON LIVESTOCK AND FOREIGN AGRICULTURE

SUBCOMMITTEE ON COMMODITY EXCHANGES, ENERGY, AND CREDIT

DEPUTY WHIP

April 10, 2018

Mr. Anthony R. Smith
Founder/President
Blue Ridge Towers
1125 1st Street SW
Roanoke, Virginia 24016

Dear Anthony:

Enclosed please find a letter that I have received from the Blue Ridge Parkway regarding your proposal for a cell tower near the Parkway's intersection at U.S. Route 460.

I am pleased that the Parkway was able to provide you with a favorable response. I hope that this information will be helpful to you in resolving this matter.

If I may be of further assistance to you in this or any other matter, please do not hesitate to call upon me.

With kind regards.

Very truly yours,

Bob Goodlatte
Member of Congress

RWG:pl

Enclosure

P.S. If you would like to receive periodic e-mail updates from me about legislative issues, please visit my website (www.goodlatte.house.gov) and subscribe to my e-newsletter.

☐ 70 NORTH MASON STREET
HARRISONBURG, VA 22802-4126
(540) 432-2391
FAX (540) 432-6593

☐ 916 MAIN STREET
SUITE 300
LYNCHBURG, VA 24504-1608
(434) 845-8306
FAX (434) 845-8245

☒ 10 FRANKLIN ROAD, S.E.
SUITE 540
ROANOKE, VA 24011-2121
(540) 857-2672
FAX (540) 857-2675

☐ 117 SOUTH LEWIS STREET
SUITE 215
STAUNTON, VA 24401-4282
(540) 885-3861
FAX (540) 885-3930

United States Department of the Interior

NATIONAL PARK SERVICE
Blue Ridge Parkway
199 Hemphill Knob Road
Asheville, North Carolina 28803

IN REPLY REFER

A3815

APR 0 5 2018

The Honorable Bob Goodlatte
10 Franklin Road
Suite 540
Roanoke, Virginia 24011

Dear Congressman Goodlatte:

This letter is in response to an inquiry dated May 3, 2017, on behalf of your constituent Mr. Anthony R. Smith, President of Blue Ridge Tower, regarding application for a cell tower near the Blue Ridge Parkway (the Parkway) intersection with Route 460 in Roanoke, Virginia. Parkway staff has been working with Mr. Smith and Blue Ridge Towers to determine any potential effects of the proposed tower. I apologize for the delay in our response.

On December 13, 2017, we approved a proposed cellular communication structure to be constructed by the Blue Ridge Towers. A copy of the approval letter is enclosed.

Thank you for your inquiry. If you have any questions, please contact David Anderson, Blue Ridge Parkway Landscape Architect at (828) 348-3435 or by email at j_david_anderson@nps.gov.

Sincerely,

J.D. Lee
Superintendent

Enclosure

City of Danville
Office of Economic Development

May 29, 2018

Mr. Carl Boggess
County Administrator, Bedford County Virginia
122 East Main Street
Bedford, VA 24523

Dear Mr. Boggess:

Mr. Anthony Smith, President of Blue Ridge Towers, Inc., has contacted me regarding his interest in working with Bedford County to construct nine cell towers and run over fifteen miles of fiber to supply users in rural areas of your county. Mr. Smith has worked with our office to establish two cell towers in the City of Danville, and for one of those towers, he actually purchased land from the Industrial Development Authority of Danville.

Our experience in working with Mr. Smith has been very satisfactory, and I am especially impressed with how he has maintained the site that he purchased from the IDA. That tower sits on a tract of land that is adjacent to a larger tract that the IDA is offering for industrial or commercial development. We were concerned that a potential unkempt plot would detract from the larger site, but Mr. Smith has maintained his plot in excellent condition and there are no issues whatsoever with his custody of this highly visible area.

Based on our experience in working with Anthony Smith and Blue Ridge Towers, Inc., I can give you an unqualified endorsement of how he and the company have performed in Danville.

Best wishes in getting a key service in place to serve your citizens with high speed broadband internet access. This is an essential component of twenty-first century life.

Yours truly,

E. Linwood Wright
Executive Consultant

Mr. Carl Boggess
County Administrator
Bedford County, VA

Dear Mr. Boggess,

This letter is written in support of Blue Ridge Tower/BRISCNET. Core Telecom Systems has been working closely with Blue Ridge Towers to design a fixed wireless broadband service for Bedford County, VA. Core Telecom Systems is based in St Louis, MO and has over 20 years of experience designing, building, and deploying carrier class communication and data networks throughout rural America. Core Telecom Systems is uniquely positioned to help our partners with Fixed Wireless, Microwave, Fiber to the Home, Optical Transport, and Data Center solutions.

Blue Ridge Towers is uniquely qualified to start a Wireless Internet Service Provider (WISP) network. With the experience and dedication of the Blue Ridge Towers Team of building and maintaining towers and the experience and resources of Core Telecom Systems and our manufacturing partner Cambium Networks, Bedford County is in good hands. Core Telecom Systems acts as Cambium Networks most trusted Wireless System Integrator throughout North America. This allows our team (Blue Ridge Towers, Core Telecom Systems, and Cambium Networks) to bring the best possible value to Bedford County. Blue Ridge Towers provides a trusted local partner with the ability to leverage the experience and resources of Core Telecom Systems and Cambium Networks.

If I can answer any questions or be of service to Bedford County, please do not hesitate to contact me.

Regards,
Matthew Dorsey
Director of Wireless Solutions
Core Telecom Systems
620 340 7113
mdorsey@coretelecom.net

Company Introduction:

Cambium Networks is a leading global wireless communications technology provider that connects the unconnected with an extensive portfolio of reliable, scalable, and secure product offerings. Our portfolio offerings include; narrowband, WiFi, and broadband point-to-point (PTP) and point-to-multipoint (PMP) platforms managed by cloud-based software. Cambium Networks solutions enable enterprises; oil, gas and utility companies; Internet service providers; and public safety organizations to build powerful communications networks that surpass distance and geographic obstacles to reach users from across mountain tops to the last meter. Cambium Networks empowers network operators to intelligently manage their infrastructure through end-to-end network visibility and actionable analytics. Headquartered outside of Chicago and with R&D centers in the U.S., Ashburton, U.K., and Bangalore, India, Cambium Networks sells through a range of trusted global distributors.

Company Roots:

Cambium Networks was founded in 2011. It was created when Motorola Solutions sold the Canopy and Orthogon businesses to Vector Capital in August 2011. The following November, the company Cambium Networks formally began operating as an independent provider of fixed wireless broadband products.

Company Highlights:

- More than 5,000,000 modules deployed
- Installed in more than 10,000 networks around the world
- Worldwide channel comprised of more than 2,000 partner organizations
- Headquartered outside of Chicago, IL, United States (Rolling Meadows, IL)
- R&D centers in the US, Ashburton, UK, Kiev, Ukraine, and Bangalore, India
- Company Website: www.cambiumnetworks.com

End-to-end Cloud Management

cnMaestro™ is a cloud-based or on-site software platform for secure, end-to-end network control. cnMaestro wireless network manager simplifies device management by offering full network visibility. View and perform a full suite of wireless network management functions in real time. Optimize system availability, maximize throughput, and meet emerging needs of business and residential customers. Collect and display compliance with service level agreements.

Point-to-Point Backhaul

LTE, WiMAX, and public safety backhaul infrastructure need to be reliable. Cambium's PTP solutions provide carrier-grade reliability in the toughest environments. Solutions include 6–38 GHz licensed and unlicensed 5 GHz wireless backhaul options. PTP backhaul solutions enable service providers to rapidly extend past the network edge to offer new subscribers secure broadband connectivity for video, VoIP, and data connectivity.

Point-to-Multipoint Access

With a worldwide deployment record a decade strong, our Point-to-Multipoint (PMP) and ePMP™ wireless broadband service solutions connect millions of people across the world. With frequency reuse enabled by GPS Synchronization, your wireless broadband network can avoid the spectrum crunch and grow with your client base. Point to Multipoint distribution and access solutions enable network operators to provide high-speed wireless broadband service to business and residential customers. Applications supported include data and file transfer, voice, streaming video, and video surveillance. These Point-to-Multipoint wireless broadband networks scale from small deployments to connect remote areas to community-wide deployments with thousands of subscribers.

Wifi

Cambium Networks offers secure, scalable, cloud-managed WiFi solutions for home, small business, and both indoor and outdoor enterprise applications. The 802.11ac and 802.11n edge and enterprise access points ensure rapid deployment and simple operation. One-stop, intelligent remote diagnostics round out an easily managed wireless internet network, effortlessly connecting the unconnected.

High-Resiliency IIoT Wireless Communications

Promising delivery of real time monitoring, measurement, and analytics that optimize performance while establishing sustainable competitive advantage.

Cambium Networks solutions offer powerful, resilient communications infrastructure that interconnects sensors and controls across large-scale field area networks - harnessing the potential of the IIoT to transform accumulated and real-time data into insightful knowledge and critical actions.

cnReach™ provides affordable narrowband wireless connectivity for distribution automation, substation switch and circuit control, and SCADA telemetry.

For more information on Cambium Networks, visit: www.cambiumnetworks.com .

J&J Equipment Rentals

11453 U.S. Hwy 29
Chatham, Virginia

Wednesday, August 29, 2018

Carl Boggess
Bedford County Administrator
Bedford, Virginia

Dear Mr. Boggess,

Blue Ridge Towers is an outstanding company that does a lot of business with J&J Equipment Rentals. The company has been renting our equipment since 2015 and orders such pieces like a midsize excavator, dozer, skid steer loader and a compaction roller to get the job done right.

We have a great relationship with Mr. Smith and his crew and always look forward to partnering with Blue Ridge Towers on all their projects.

Like Mr. Smith and his associates take pride in their production so does J&J Equipment Rentals in regard to the equipment pieces that our owner both purchases and maintains.

We value Blue Ridge Towers and therefore do our utmost to provide the best of equipment and best of service to help keep their developments running efficiently.

Best regards,

Tray Coffey
J&J Equipment Rentals

BEDFORD COUNTY BROADBAND AUTHORITY

PROPOSAL REQUIREMENTS AND NON-COLLUSION STATEMENT

My signature certifies that the accompanying proposal is not the result of, or affected by, any unlawful act of collusion with another person or company engaged in the same line business or commerce, or any act of fraud punishable under the Virginia Conflict of Interests Act, section 2.2-3100 et seq. of the *Code of Virginia*, 1950, as amended, the provisions of the Virginia Public Procurement Act on Ethics in Public Contracting, sections 2.2-4367 et seq. of the *Code of Virginia*, 1950, as amended the Virginia Governmental Frauds Act, sections 18.2-498.1 et seq. of the *Code of Virginia*, 1950, as amended. Furthermore, I understand that violations of these statutes are crimes, and can result in fines, prison sentences, and civil damage awards.

I hereby certify that I am authorized to sign, personally or as a Representative for the Firm:

Name of Firm or Individual: Blue Ridge Towers Inc

Address: 1125 1st St SW

Roanoke, VA 24016

Signature

8/30/2016
Date

Anthony R. Smith, President
Printed Name and Title

Telephone: 540-595-7060 Fax: 540-685-4834

FEI/FIN No.47-3338098 Email: asmith@blueridgetowers.com

Comprehensive Agreement Exhibit C

At a regular meeting of the Bedford County Broadband Authority held at the Bedford County Administration Building on the 25th day of June 2018, beginning at 7:00 pm.:

MEMBERS:	VOTE:
Bill Thomasson, Chairman	Yes
Tommy W. Scott, Vice-Chairman	Yes
Edgar Tuck	Yes
Charla Bansley	Yes
John Sharp	Yes
Andrew D. Dooley	Yes
Kevin S. Willis	Yes

On motion of Supervisor Tuck, which carried by a vote of 7-0, the following was adopted:

A RESOLUTION
AUTHORIZING THE ISSUANCE OF A REQUEST FOR PROPOSAL

WHEREAS, the Authority has adopted guidelines and is a responsible public entity under the provisions of the Public-Private Education Facilities and Infrastructure Act of 2002, Va. Code §§ 56-575.1 et seq. (the "Act"); and

WHEREAS, the Authority has made public that it desires to find a private partner to work with it to develop, operate, and maintain a system to provide "qualified communications services," as that term is used in the Virginia Wireless Service Authorities Act; and

WHEREAS, the Authority expressly finds that this partnership will be for a "qualifying project," as that term is used in the Act:

NOW THEREFORE, be it resolved by the Board of Directors of the Bedford County Broadband Authority, that:

1. The Board directs the County Administrator or his designee to cause the PPEA Solicitation to be posted to the County website and advertised for 60 days in accordance with law, as soon as practicable; and

2. The Board directs the County Administrator or his designee to procure a consultant, appropriate for the purpose, to assist the County in evaluating the proposals received; and

3. The Board authorizes the County Administrator or his designee to provide public information to, and meet with, other potential proposers during the advertising period upon request; and

4. The Board expressly finds that due to (i) the probable scope, complexity, or priority of the project, risk sharing including guaranteed cost or completion guarantees, (ii) added value or debt or equity investments proposed by the private entity, or (iii) an increase in funding, dedicated revenue source or other economic benefit that would not otherwise be available, use of the competitive sealed bidding process is not advantageous or practicable; and

5. The Board authorizes the County Administrator to form an advisory committee to evaluate proposals, which shall include:

    a. Two Board members

    b. The County Administrator or designee

    The advisory committee shall meet with the consultant and review proposals. It shall rank the proposals, interview top proposer(s), if any, and make a recommendation to the Board at its earliest convenience of the proposer to enter an interim or comprehensive agreement with. The advisory committee is not a committee or subcommittee of the Board, but a selection committee to assist the County Administrator in making a recommendation to the Board, and is not a public body.

6. In evaluating the proposals, the advisory committee may consider (i) the proposed cost of the qualifying facility; (ii) the general reputation, industry experience, and financial capacity of the private entity; (iii) the proposed design of the qualifying project; (iv) the eligibility of the facility for accelerated selection, review, and documentation timelines under the responsible public entity's guidelines; (v) local citizen and government comments; (vi) benefits to the public; (vii) the private entity's compliance with a minority business enterprise participation plan or good faith effort to comply with the goals of such plan; (viii) the private entity's plans to employ local contractors and residents; (ix) public input at a public hearing on the matter; and (x) other criteria that the advisory committee deems appropriate, and make a written recommendation to the Board of its recommendation. The advisory committee shall recommend the proposal that constitutes the best value, meaning the overall combination of quality, price, and the various elements of required services that in total are optimal relative to the Authority’s needs. The criteria are set forth in more detail in Exhibit A, which is incorporated herein by reference; and

7. The County Administrator is directed to post all proposals to the County website as soon as practical following receipt; and

8. The County Administrator is authorized to take or cause to be taken such other and further administrative actions as may be necessary to ensure that the processing of this solicitation complies with law.

9. This resolution is effective upon adoption.

Exhibit A

PPEA Advisory Committee

The function of the PPEA Advisory Committee is to work with the County Administrator to evaluate the evaluate PPEA proposals and to assist the County Administrator in making a recommendation to the Board of Directors on whether and with whom the Board should authorize negotiation and entry of an interim or comprehensive agreement.

The County Procurement Officer shall forward proposals to the Committee members as soon as they are received. The Committee should hold at least one in-person meeting at which it will evaluate, discuss, and rank proposals. It should make memoranda of its meetings and the proceedings and any decisions made. The Committee should then interview top proposers in an effort to understand, clarify, and narrow their choices and the scope of the proposals. The number of proposers to interview is in the sound discretion of the Committee.

The Committee may recommend: (1) That the Authority not move forward with any proposer; (2) that it move forward to the detailed or interim phase with one proposer; or (3) that the Authority should choose between two or more proposers who it has qualified recommendations on to move to the detailed or interim phase. It should choose the proposal that is the "best value," that is, the proposal that represents the overall combination of quality, price, and various elements of required services that in total are optimal relative to the Authority's needs. In making its determination, it should take a holistic approach. It should consider, in making its evaluation:

Qualifications and Experience

1. Experience with similar projects;
2. Demonstration of ability to perform work;
3. Leadership structure;
4. Project manager's experience;
5. Management approach;
6. Financial condition; and
7. Project ownership.

Project Characteristics

1. Project definition;
2. Proposed project schedule;
3. Operation of the project;
4. Technology and technical feasibility;

5. Conformity to laws, regulations, and standards;
6. Environmental impacts;
7. Condemnation impacts;
8. State and local permits; and
9. Maintenance of the project.

Community Impacts

1. Impacts, interactions, and future plans with the County's existing providers;
2. Comments at the public hearing on the proposals;
3. Neighborhood and community development impacts, if any; and
4. Economic development impacts.

In making its final recommendation, the Committee shall provide the Board a memorandum detailing its rationale for its recommendation with reference to these criteria.

A Copy-Teste:

G. Carl. Boggess
County Administrator

Comprehensive Agreement
Exhibit D

LEGAL NOTICE
NOTICE OF PUBLIC HEARING
BY THE
BEDFORD COUNTY BROADBAND AUTHORITY

Pursuant to the provisions of Section 56-575.17 of the Code of Virginia of 1950, as amended, the Board of Directors of the Bedford County Broadband Authority will hold a public hearing on Monday, December 10, 2018, beginning at 6:30 P. M. in the Board Room located on the second floor of the County Administrator Building located at 122 East Main Street Bedford, Virginia to obtain public comment on a PPEA conceptual proposal and proposed comprehensive agreement for a system to provide fixed wireless broadband services.

The Bedford County Broadband Authority advertised for and received a solicited conceptual proposal from Blue Ridge Tower, Inc. (BRT), to enter into a public-private partnership to provide fixed wireless broadband services under the provisions of the Public-Private Education Facilities and Infrastructure Act of 2002 (PPEA), Virginia Code §§ 56-575.1 et seq. The PPEA is an alternative procurement method by which the Authority may solicit proposals or accept unsolicited proposals for creative and innovative public-private partnerships for solutions to issues of public infrastructure, planning, and provision of services.

This proposal calls for BRT to construct nine new wireless internet towers of approximately 195 feet in height, to be owned by the Authority, as well as connecting fiber optic cable. The estimated cost of design, engineering, and construction is approximately $2.9 million, with contingencies for unfavorable subsurface conditions. BRT would then locate fixed wireless communications equipment on the towers, as well as on two other existing facilities in the County, for reduced rates. Deployment is expected within two years. In return, it would provide wireless broadband internet to the general public on a nondiscriminatory basis. Broadband from the system should be available across more than 90% of Bedford County. The agreement also calls for a mechanism for resolving customer complaints, ensuring quality service, and regular replacement of facilities. Finally, BRT will provide management services to assist in finding and managing other persons who may wish to collocate their wireless facilities on the towers, thereby ensuring a long-term income stream for the Authority to partially offset construction costs.

Copies of the proposal and draft comprehensive agreement are available for review on the Authority's website www.bedfordcountyva.gov, are on file in the Bedford County Administrator's Office between the hours of 8:30 A. M. and 5:00 P. M., and in the Office of the Clerk of the Circuit Court between the hours of 8:30 A. M. and 4:30 P. M., Monday through Friday, for public viewing.

G. Carl Boggess
Secretary to the Broadband Authority

EXHIBIT E

DEVELOPMENT AGREEMENT

This **DEVELOPMENT AGREEMENT** (this "**Agreement**") is made as of the ____ day of ____ _____, 2019 (the "**Effective Date**") by and between the Bedford County Broadband Authority, a political subdivision of the Commonwealth of Virginia under the Wireless Service Authorities Act ("**Authority**" or "**Owner**") and Blue Ridge Towers, Inc. (together with its successors and assigns, "**BRT**" or "**Developer**"). Owner and Developer are each hereinafter referred to individually as a "**Party**" and collectively as the "**Parties**".

R E C I T A L S :

A. The Bedford County Broadband Authority, a political subdivision of the Commonwealth of Virginia under the Wireless Service Authorities Act, pursuant to the PPEA and the County Guidelines, is seeking to provide broadband wireless internet service access ("WIS Access") to unserved and underserved areas of Bedford County. The Authority and Developer are simultaneously entering a Comprehensive Agreement under the PPEA and County Guidelines to provide that WIS Access. The Authority intends to use existing Bedford County property to provide sites for the placement of towers to house telecommunications equipment, including wireless internet service to be provided through a separate arrangement under the Comprehensive Agreement, on the ten (10) separate project sites as shown on the site plan attached as **Exhibit 1** (collectively, the "**Project Sites**").

B. Pursuant to this Agreement, BRT will act as the developer for the design and construction ("**Developer Services**") of ten (10) new Wireless Towers on the Project Sites, and installation of Fiber and Microwaves (the "**Project**").

C. The development and construction of the Project is being financed by appropriations from the County to the Authority (the "**County Funds**").

NOW, THEREFORE, in consideration of the mutual covenants and agreements in this Agreement, the adequacy and sufficiency of which are mutually acknowledged, and intending to be legally bound hereby, the Parties agree as follows:

ARTICLE I
DEFINITIONS AND RECITALS

Defined terms not specifically defined in the body of this Agreement have the meanings ascribed to such terms in **Exhibit 2** attached hereto and made a part hereof.

The Recitals listed above and in the Comprehensive Agreement are incorporated herein and made a part of this Agreement.

ARTICLE II
PROJECT OVERVIEW AND ROLE OF DEVELOPER

2.1 **Status of Pre-Construction Items**. Prior to the Effective Date:

(a) Plans. The Developer shall prepare or cause to be prepared, for the review and approval of the Owner, any plans and specifications for the construction of the Project, which shall generally conform to the *Turn Key Broadband Proposal* attached to the Comprehensive Agreement as **Exhibit B** (the "Final Proposal"), which is incorporated herein by reference. If there are any inconsistencies or conflicts between the Final Proposal and this Agreement, the terms of this Agreement shall control.

(b) Project Budget. Developer has prepared, and Owner has reviewed and approved, the Financial Milestone Tracker, a summary form of which is set forth on **Exhibit 3** attached hereto (the "Financial Milestone Tracker" or the "Project Budget"). Upon execution of the Agreement, and before the first Application for Payment, BRT will submit the detailed Milestone Tracker spreadsheet to Owner for use as noted below. The Milestone Tracker is a spreadsheet that identifies each financial milestone activity for the Project ("Financial Milestone") and identifies a value associated with that Financial Milestone that provides the basis for the Authority's progress payments to the Developer for a portion of the Developer's Services. The Project Definitions and Key, attached as **Exhibit 5**, identifies the Financial Milestone task, event, or circumstance, the occurrence or completion of which allows Developer to bill and be paid for that Financial Milestone.

(c) Project Schedule. Developer has prepared, and Owner has reviewed and approved, the schedule for the development of the Project in the form of the Schedule Milestone Tracker spreadsheet, a summary form of which is set forth on **Exhibit 4** (the "Project Schedule"). Upon execution of the Agreement, and before commencing work under the Agreement, BRT will submit the detailed Schedule Milestone Tracker spreadsheet to Owner for use as provided in the Agreement.

(d) Permits. Developer shall be responsible to obtain, or cause others to obtain, any required Permits and will endeavor to obtain the Permits, approvals, and other entitlements that are required under Applicable Laws for the development or construction of the Project (collectively, the "Permits").

2.2 **Engagement of Developer**. Owner hereby engages Developer to perform, or cause others to perform, the development, design, and construction management services set forth in this Agreement, including, without limitation, the services described on **Exhibit 6** attached hereto and made a part hereof (collectively, the "Services" or the "Work"), subject to and in accordance with the terms and provisions of this Agreement. These Services include the design and construction, under a separate contract or contracts with licensed subcontractors and design professionals, of the ten (10) Wireless Towers, and the installation of the Fiber and Microwaves described in this Agreement.

Developer hereby accepts its engagement by Owner, and agrees to perform the Services for the benefit of and on behalf of Owner, subject to and in accordance with the terms and provisions of this Agreement. Developer agrees to diligently perform its duties, obligations, and Services in a competent manner in accordance with the standards of an experienced and qualified developer, with a scope and quality not less than those generally performed by developers of properties similar in type and quality to the Project and located in the same market area as the Project.

In exchange for the Services, Owner agrees to pay Developer the total of the costs identified on the Financial Milestone Tracker attached as **Exhibit 3**, which is $3,512,448.00, plus a fee for the Consulting provided by Developer on the VATI Grant Application in the amount of $12,000.00, identified in Section 6 below.

The current Project Budget includes the agreed price for the construction of the ten (10) Wireless Towers that are described in Final Proposal. The Wireless Towers in the Amended Proposal are nine (9) 195-foot monopoles ("Monopoles") and one (1) 195-foot self-supporting tower, of sufficient capacity to support collocated equipment for five (5) carriers, including the WIS equipment being provided under the Comprehensive Agreement.

2.3 **Status of Developer**. In the performance of its duties, obligations and Services under this Agreement, Developer is, and shall at all times during the term of this Agreement be, an independent contractor, and not an employee of Owner. Developer shall act solely as a representative of Owner in the performance of its duties, obligations, and Services under this Agreement. Nothing contained in this Agreement shall constitute or be deemed or construed to create a common-law partnership or joint venture between Owner and Developer.

2.4 **Nature of Developer's Services and Responsibilities**. Owner acknowledges that Developer is not a licensed architect, engineer or contractor and that Developer will be contracting with professionals licensed in the Commonwealth of Virginia to perform such services. Developer shall not be responsible for itself performing any design, engineering, or construction services, and Developer shall not itself have control or charge of, and shall not be responsible for, construction or construction means, methods, techniques, sequences, or procedures. However, the Developer shall be solely responsible for its services and for performing its Services competently and efficiently, devoting such attention thereto and applying or causing to be applied such skills and expertise as may be necessary to perform the Work in accordance with this Agreement; and shall be responsible to the Owner for the performance of the Work by its Vendors, including its contractors and consultants. The Developer shall not be responsible for the negligence of others in the design or selection of a specific means, method, technique, sequence, or procedure of construction where such responsibility is lodged with a Vendor under a Vendor Contract provided the third-party obligation clause required by Section 2.6 is included in such contract. Nevertheless, the Developer is solely responsible to the Owner to provide a finished, complete turnkey broadband system in accordance with this Agreement.

The Work on the overall Project will be authorized in separate work orders issued by Developer to Design-Builder (the "Work Order"). Each Work Order will: (i) authorize Design-

Builder to design and construct one (1) to three (3) towers and install the associated Fiber and Microwaves, as more particularly described in the Work Order; (ii) set the Contract Price for the overall Work Order; (iii) set the Milestones dates and compensation for the work authorized in the Work Order; and (iv) the penal sum of the performance bond and labor and material payment bond required for the Work authorized by the Work Order, such performance bond and labor and material payment bond being in the form of the performance bond and labor and material payment bond attached as Exhibit 8 to this Agreement.

2.5 **Limitations on Scope of Developer's Authority**. Notwithstanding any provisions of this Agreement to the contrary, Developer shall not undertake any of the following actions as to the Project without the express written approval of Owner, which approval will not be unreasonably withheld: (a) make any change to the Scope or Budget of the Project under this Agreement; (b) grant time extensions, waivers, or modifications to any contractual obligations of any Vendor or subcontractor if the time extensions, waivers, or modifications would: (i) require an extension of the Project Schedule; or (ii) require an increase in the Project Budget ; or (c) commence or take legal action against any Vendor to enforce a Vendor Contract.

2.6 **Vendor Contracts**. Developer may negotiate and execute contracts with third party vendors (collectively, "Vendor Contracts") to provide products and services that Developer reasonably deems to be necessary or advisable in connection with the development of the Project, provided that, unless Owner approves otherwise: (a) all Vendor Contracts shall be made in the name of Developer, and not in the name of Owner, and shall not create nor purport to create a contractual relationship between the Owner and the Vendor unless Owner has reviewed and reasonably approved the Vendor Contract; and (b) all costs under Vendor Contracts shall be covered by funds available in the Project Budget as set forth in the Financial Milestone Tracker. The Developer shall, as soon as practicable after execution of this Agreement, notify the Owner in writing of the names of the licensed General Contractor, Architect/Engineer, and any other contractors or subcontractors proposed for the principal parts of the Work ("Subcontractor List"). The Developer shall not employ any contractor, design professional, or subcontractor to which the Owner reasonably objects as unsuitable, which objection shall be provided to Developer within fourteen (14) days of Developer providing the Subcontractor List to Owner. Failure of the Authority to reply in writing within the fourteen (14) day period shall constitute notice to Developer that the Authority has no reasonable objection to a proposed person or entity in the Subcontractor List. If the Authority has a reasonable objection to a person or entity proposed by the Developer or listed in the Subcontractor List, Developer shall propose another to whom the Authority has no reasonable objection. If the rejected person or entity would qualify as a responsible bidder or offeror, as that term is used in the Virginia Public Procurement Act, the Project Budget and Project Schedule shall be increased by the difference, if any, occasioned by such change and an appropriate Change Order shall be issued before commencement of the Work by the substituted person or entity. The Owner shall not direct the Developer to contract with any particular person unless provided in the PPEA Proposal. Any Vendor Contract with a "first tier" general contractor or design professional shall expressly provide that the Authority is a third-party beneficiary of such contract. If, after submission of the Subcontractor List to Owner, Developer changes any entity on the Subcontractor List, Developer will notify Owner of the change and

Owner will have fourteen (14) days in which to notify Developer of Owner's reasonable objection, if any, to the new entity or entities.

2.7 **Mutual Cooperation.** In performing their respective responsibilities hereunder, Owner and Developer shall each act diligently and in good faith and shall reasonably cooperate with one another in all matters relating to development and construction of the Project. Owner shall act expeditiously in responding to requests by Developer for approval and execution of any agreement or other document pertaining to the Project.

2.8 **Communications Between Parties.** Owner will rely on Developer to direct and control the Project on a day-to-day basis.

ARTICLE III
PROJECT CHANGES

3.1 **Change Orders - Generally**. Developer shall review all proposals for Changes or Extras or Claims submitted by any Vendor, by the Owner, or by the Developer ("**Change Order Proposals**"), obtain pricing for such proposals from the relevant Vendor, submit recommendations to the Owner, negotiate the proposals related thereto with the Owner, and, if they are accepted by all parties whose approval is required, prepare and execute appropriate written Change Orders. Each Change Order to this Agreement will reflect the change, if any, to the Project Schedule and the Project Budget for this Agreement.

3.2 **Owner Change Directives.** Owner shall have the right to direct and require Developer to implement any Change Orders, subject only to the requirements contained in the Development Agreement and the Design Build Agreement ("**Owner Change Directives**"). Any additional Project Costs arising from the implementation of Owner Change Directives shall constitute Excusable Costs, and any delays caused by the implementation of Owner Change Directives shall constitute Excusable Delays.

3.3 **Claims**. Below are the procedures for claims and disputes under the Agreement.

Developer Claims - Contractual claims, whether for money or for other relief, shall be submitted, in writing, no later than sixty (60) days after Final Payment; however, written notice of the Developer's intention to file such claim must be given within fourteen (14) days of the time of the occurrence or beginning of the Services upon which the claim is based. Pendency of a claim shall not delay payment of amounts not in dispute. Such notice shall state that it is a "notice of intent to file a claim" and include a written statement describing the act or omission of the Owner or its agents that allegedly caused or may cause damage to the Developer and the nature of the claimed damage. The submission of a timely notice is a prerequisite to recovery under this Section. Failure to submit such notice of intent within the time and in the manner required shall be a conclusive waiver of the claim by the Developer. Oral notice, the Owner's actual knowledge, or a written notice given after the expiration of fourteen (14) days of time of the occurrence or beginning of the Work upon which the claim is based, shall not be sufficient to satisfy the requirements of this Section. The Developer is not prevented from submitting claims during the

pendency of the Work, and the Owner shall not be obligated to render a final written decision on any claim until after Final Payment. All claims shall state that they are "claims" pursuant to this Section, be submitted along with all practically available supporting evidence and documentation and the certification required by this Agreement, and request a final decision. Certificates for payment, applications for payment, vouchers, invoices and similar requests for payment submitted for work done by the Developer in accordance with the expected contract performance are routine submissions and shall not be considered claims under this Section. Proposed or requested change orders, demands for money compensation or other relief, and correspondence and c-mails to the Owner or its representatives, which do not strictly comply with the requirements of this Section, shall not be considered claims under this Section.

No written decision denying a claim or addressing issues related to the claim shall be considered a denial pursuant to this Section unless the written decision makes express reference to this Section and is signed by the Owner or his designee. The Developer may not institute legal action prior to receipt of the Owner's final written decision on the claim unless the Owner fails to render such a decision within ninety (90) days of submission of the claim, at which time the claim shall be deemed denied. The decision of the Owner on the Claim shall be final and conclusive unless the Developer within six (6) months of the date of the final decision on a claim, initiates legal action as provided in § 2.2-4364 of the Code of Virginia. Failure of the Owner to render a decision within 90 days shall not result in the Developer being awarded the relief claimed nor shall it result in any other relief or penalty. The sole result of the Owner's failure to render a decision within 90 days shall be the Developer's right to immediately institute legal action. No administrative appeals procedure pursuant to § 2.2-4365 of the Code of Virginia has been established for contractual claims under this Agreement.

In the event that a dispute, claim, or controversy between the Owner and the Developer arises regarding the requirements of the Agreement, the performance of the Services hereunder, payment due the Developer, the terms of any Change Order, or otherwise, the Developer shall not stop, suspend, or delay the Work or any part of the Work to be performed under the Agreement, or under any Change Order, or as ordered by the Owner. The Developer shall continue to diligently prosecute the Work to completion, including work required in any Change Order or as directed by the Owner. Pendency of a claim shall not delay payment of amounts not in dispute.

ARTICLE IV
PUBLIC PROCUREMENT ACT REQUIRED PROVISIONS

4.1 **Discrimination.** Section 2.2-4311 of the Code of Virginia, 1950, as amended, is applicable to this Agreement. During the term of this Agreement, the Developer agrees as follows with respect to the Work:

(a) The Developer will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a

bona fide occupational qualification reasonably necessary to the normal operation of the Developer. The Developer agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

(b) The Developer, in all solicitations or advertisements for employees placed by or on behalf of the Developer, will state that the Developer is an equal opportunity employer.

(c) Notices, advertised, and solicitations placed in accordance with federal law, rule, or regulation shall be deemed sufficient compliance for the purposes of meeting the requirements of this Section.

(d) The Developer shall include the provisions of the foregoing paragraphs a, b, and c in every Vendor Contractor or other subcontract or purchase order of over $10,000, so that the provisions will be binding upon each such subcontractor or vendor.

(e) The Virginians with Disabilities Act and the federal Americans with Disabilities Act apply to the Developer and all Vendors and subcontractors.

4.2 **Alcohol & Other Drugs.** Section 2.2-4312 of the Code of Virginia, 1950, as amended, is applicable to this Agreement. During the term of this Agreement, the Developer agrees as follows with respect to the Work:

(a) During the performance of the Work under this Agreement, the Developer agrees to: (i) provide a drug-free workplace for its employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Developer's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the Developer that the Developer maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every Vendor Contract, subcontract, or purchase order of over $10,000, so that the provisions will be binding upon each vendor or subcontractor. For the purposes of this Section, "drug-free workplace" means a site for the performance of work done in connection with this Agreement, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, or use of any controlled substance or marijuana during the performance of this Agreement.

(b) The Developer shall also establish, maintain, and enforce policies which prohibit the following acts by all personnel at any Site: (1) the manufacture, distribution, dispensation, possession, or use of alcohol, marijuana, or other drugs, except possession and medically prescribed use of prescription drugs; and (2) impairment of judgment or physical abilities due to the use of alcohol, marijuana, or other drugs, including impairment from prescription drugs.

4.3 **Prompt Payment Act.** Section 2.2-4354 of the Code of Virginia, 1950, as amended, is applicable to this Agreement. During the term of this Agreement, the Developer agrees as follows with respect to the Work:

(a) Within seven (7) days after receipt of amounts paid to the Developer by the Owner for Work performed by any Vendor, subcontractor, or supplier under this Agreement,

1. Pay such Vendor, subcontractor, or supplier for the proportionate share of the total payment received from the Owner attributable to the Work performed by the Vendor or subcontractor or the materials furnished by such Vendor or supplier under this Agreement; or

2. Notify the Vendor, subcontractor, or supplier, in writing of its intention to withhold all or part of the payment, with the reason for such nonpayment, and simultaneously provide a copy of such notice to the Owner.

(b) Pay interest to such Vendor, subcontractor, or supplier on all amounts owed by the Developer that remain unpaid after seven (7) days following receipt by the Developer of payment from the Owner for Work performed at a rate of one (1) per cent per month, except for amounts withheld under subsection a.2 of this Section.

(c) Include in every subcontract a provision requiring each subcontractor to include in each of its subcontracts a provision requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower tier subcontractor. Each subcontractor shall include with its invoice to, or required for payment from, the Developer, a certification that that subcontractor has paid each of its suppliers and lower tier subcontractors their proportionate share of previous payments received from the Developer attributable to the Work performed or the materials furnished by it under this Agreement.

The Developer's obligation to pay interest to a Vendor, subcontractor, or supplier pursuant to this Section is not an obligation of the Owner. A modification to this Agreement or to any payment provision shall not be made for the purpose of providing reimbursement for such interest charge. The Developer's cost reimbursement claims shall not include any amount for reimbursement of such interest charge.

4.4 **Registration to do Business.** This Agreement is subject to Section 2.2-4311.2 of the Code of Virginia, 1950, as amended. The Developer shall be at all times authorized to transact business in the Commonwealth of Virginia as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the Code of Virginia, 1950, as amended, or other provision. If the Developer allows its corporate existence or certificate of authority or registration to transact

business in the Commonwealth to lapse, expire, or be cancelled or revoked, the Owner may void this Agreement without further liability to the Developer.

ARTICLE V
CONSTRUCTION OF PROJECT AND PROJECT SCHEDULE

5.1 **Commencement of Construction.** Following the Effective Date, and the receipt of all necessary Permits, Developer shall commence construction of the Project, and thereafter to diligently prosecute same to Final Completion, all in accordance with the Project Schedule, the Plans, the Project Budget, and the terms and conditions of this Agreement. The Owner will issue a direction hereinafter called the "Notice to Proceed" for the Construction Phase upon notice from Developer of the receipt of all necessary Permits.

(a) **Control of Project Sites.** The Owner shall be responsible for obtaining ownership or control of Project Sites. It is understood that the Owner controls, or believes it is able to obtain control of, all Project Sites. Upon receipt of surveys from the Developer in accordance with the Milestone Tracker, the Owner shall prepare and record any necessary legal documents, at its expense.

(b) **Access to Sites**. The Owner shall provide Developer and its agents, employees, Vendors, design consultants, and contractors (collectively, for the purposes of this subsection, "Developer") free, unfettered, and unrestricted access at all times to all Project Sites through and over its properties so that Developer can fulfill its obligations under this Agreement. The Owner also agrees to provide a written license to Developer, irrevocable for the term of this Agreement, from any other property owners through whose properties the Project Sites must be accessed , that will allow company free, unfettered, and unrestricted access to all Project Sites at all times. The failure of the Owner to provide such access shall be grounds for a Change Order and modification to the Project Budget and Project Schedule, but shall not be deemed to relieve the Owner or the Developer of any of their obligations in this Agreement except as provided herein and in Section 5.2. In the event the Developer notifies the Owner promptly that available access to the Project Sites is not sufficient to comply with industry standard construction practices, the Owner shall take reasonable steps to acquire access sufficient to meet such need, and provide for a Change Order and modification to the Project Budget and Project Schedule to provide for any delay in acquiring such access. If access cannot be acquired, such Site shall be considered under Section 5.2.c.

5.2 **Completion Deadlines.** Under the Design Build Agreement, the Design Builder is obligated to commence construction upon the receipt of all necessary Permits and to thereafter diligently prosecute same to Final Completion, all in accordance with the Project Schedule, the Plans and the Project Budget. The current estimated substantial completion date for the Wireless Towers, Fiber, and Microwaves in the Project Schedule is between October 30, 2019, and April 15, 2020, which is the "On Air Milestone 19" in the Project Schedule for the Wireless Towers, Fiber, and Microwaves (the "**Substantial Completion Deadlines**"), and the current estimated Final Completion Deadline for all of the Wireless Towers, Fiber, and Microwaves is June 2020

(the "**Final Completion Deadline**"), subject to extension for Excusable Conditions and Excusable Delays under this Agreement. In the event that Excusable Conditions create an increase in the Project Budget or an extension of the Project Schedule, Developer will submit an estimate of the impact of the Excusable Conditions on the Project Schedule and/or Project Budget, which the Parties will agree upon in a Change Order.

(a) **Tower Milestone Deadlines** Each of the ten (10) Wireless Towers has individual milestone deadlines in the Project Schedule ("**Tower Milestone Deadlines**"). To the extent that the Tower Milestone Deadlines are not met for any of the Wireless Towers due to Excusable Conditions, then the Tower Milestone Deadlines for that Tower will be extended by the duration of the Excusable Delay caused by the Excusable Condition. If the final "On Air Milestone Deadline" for any of the Wireless Towers is not met due to Excusable Conditions, including delays in the installation of the Fiber and Microwaves, then the Substantial Completion Milestone for that Tower will be extended by the duration of the Excusable Delay caused by the Excusable Condition.

(b) **Tower Project Sites More Expensive** If planned construction of the Wireless Towers at any one or more of the Project Sites, or the installation of the Fiber or Microwaves will be more expensive or take longer than planned in the Project Budget and Project Schedule due to: (i) restrictions placed on the construction by any local, state, or federal government or agency or other Authority Having Jurisdiction (AHJ); (ii) geotechnical investigations or other consultant investigations that indicate the excavation or foundation will be more expensive to design and/or construct, Developer will provide the Owner with estimates of the additional costs and time involved, if any, of complying with the restricted approvals or using the alternate construction methods. The Parties will adjust the Project Schedule and Project Budget to reflect the additional costs and time for any alternate or restricted construction at the Project Site(s).

(c) **Tower Project Sites Not Feasible** If planned construction of the Wireless Towers at any one or more of the Project Sites, or the installation of the Fiber or Microwaves is not feasible due to Excusable Conditions, including, but not limited to, denial of any Permits or any other approvals required by Applicable Laws, or the results of geotechnical investigations that render the Project Site(s) unsuitable for construction of the Wireless Towers, or the installation of the Fiber or Microwaves, the Parties will cooperate in identifying alternate Project Site(s) for the placement of the Wireless Towers. Developer will provide the Owner with estimates of the additional costs and time involved, if any, of using the alternate Project Sites. The Parties will adjust the Project Schedule and Project Budget to reflect the additional costs and time for any alternate Project Site(s) by Change Order to this Agreement.

ARTICLE VI
PAYMENT OF PROJECT COSTS

6.1 **Generally**. Owner shall be responsible for paying all Project Costs within the Project Budget as set forth in the Financial Milestone Tracker, but excluding Developer Cost Overruns. Developer shall be responsible for paying all Developer Cost Overruns. To the extent that they are caused by the Owner, and to the extent that Developer's entitlement to same is established under this Agreement and any claim and dispute resolution procedures, Owner shall

be responsible for any Excusable Costs. Developer shall use commercially reasonable efforts to actively manage the Project Budget set forth in the Financial Milestone Tracker so as to mitigate and limit any Excusable Costs and Developer Cost Overruns.

6.2 **Disbursement Requests**. Owner shall secure sufficient funds to pay all Project Costs within the Project Budget, including any authorized adjustments to the Project Budget, subject to the provisions of Section 14. Owner shall be responsible for reviewing all Requests for Payment by Developer and requisitions for payment of Project Costs. Each of Developer's Requests for Payment is subject to review and approval by Owner. Owner shall review and approve or disapprove all such payment requests within 21 days after submissionFailure to do so shall be deemed an Excusable Condition and, accordingly, any delays resulting therefrom shall be considered Excusable Delays and any costs resulting therefrom shall be considered Excusable Costs. Owner will pay the approved amountsnot later than twenty-eight (28) days after the Request for Payment is submitted to Owner. Provided, however, that for the following Financial Milestones, Developer's Request for Payment and/or Owner's payment will be made within the time frames or upon the occurrence of the events noted below: (i) Financial Milestones 11, 13, 15, and 19 [Fiber, Microwaves, Routers and Towers] – These commencement Financial Milestones will be billed in a Request for Payment and will be paid by Owner in the time frame above from submission of the Request for Payment; and (ii) Financial Milestone 21 – Tower Delivery – This Financial Milestone will be included in a Request for Payment, separate from the monthly Request, at the time of delivery of the Wireless Towers, and Owner will pay the Financial Milestone amount within fifteen (15) days of Developer's submission of the Request for Payment.

(a) Requests for Payment – Developer will submit by the 25th of each month, and no more than once per month, Requests for Payment based upon the milestones identified in the Financial Milestone Tracker that were achieved by Developer during the month ("Request for Payment"). The Request for Payment will be uploaded to the Share File Site, which will constitute delivery of the Request for Payment to Owner. An email from Anthony Smith with read receipt requested shall simultaneously be sent to Infosys@bedfordcountyva.gov. Owner agrees to pay the Developer, in the time and manner outlined above, in accordance with the Request for Payment for the requested milestones achieved by Developer during the month covered by the Request for Payment.

(b) For purposes of defining the requirements to be met for the Financial Milestones and to trigger Developer's ability to submit a Request for Payment and be paid for achievement of the Financial Milestone, the Project Definitions and Key spreadsheet, attached as Exhibit 5, defines the task, event, or circumstance, the occurrence or completion of which will permit Developer to be paid for the Financial Milestone.

(c) In the event that Developer and Owner disagree on whether or not the progress of the Work is sufficiently complete such that the applicable milestone has been achieved by Developer and payment is due from Owner to Developer on the applicable milestone, the Parties agree that the Third-Party Inspector will inspect the Work and issue a written opinion determining: (i) whether the Work is sufficiently complete such that the applicable milestone has been achieved by Developer; and (ii) if the Work is not sufficiently complete so as to achieve the applicable

milestone, what is required by Developer for it to achieve the applicable milestone. The written opinion of the Third-Party Inspector shall be final and binding upon the parties.

In the event the Third-Party Inspector determines that the Work is not sufficiently complete so as to achieve the applicable milestone, Developer will complete all of the work described in the Third-Party Inspector's written opinion so as to achieve the applicable milestone. If, after Developer believes it has completed all the Work described in the Third-Party Inspector's written opinion for achievement of the applicable milestone, Owner and Developer continue to disagree on whether the Work is sufficiently complete such that Developer has achieved the applicable milestone, then the Third-Party Inspector will again review the Work and issue another written opinion as described above. Developer will continue to complete any Work described in the Third-Party Inspector's written opinion(s) and the Third-Party Inspector will continue to inspect the Work and issue written opinion(s) as described above until either (i) the Parties agree the Work is sufficiently complete such that Developer has achieved the applicable milestone and payment is due by Owner for the completion of the applicable milestone, or (ii) the Third-Party Inspector's written opinion states that the Third-Party Inspector believes the Work is sufficiently complete such that Developer has achieved the applicable milestone and payment is due by Owner for the completion of the applicable milestone.

6.3 **Changes to Project Budget**. Developer shall exert commercially reasonable efforts to manage the Project Costs pursuant to the Project Budget. Developer shall have the right, upon notice to but without the consent of Owner, to allocate any Cost Savings from one line item to other line items, so long as (a) the aggregate amount of Project Costs does not increase as a result thereof, (b) the overall function or quality of the Project is not impaired, and (c) such re-allocation is not made in connection with a Change Order that requires Owner's approval hereunder. Developer will also adjust the Project Budget in accordance with any Change Order that is permitted under this Agreement. In the event that, notwithstanding the foregoing authority to make changes to the Project Budget, Developer reasonably determines that changes to the Project Budget that are outside of Developer's scope of authority herein will be necessary to complete the Project, Developer shall promptly prepare proposed revisions to the Project Budget and submit the same to Owner for its written approval. Upon Owner's approval thereof, the revised budget shall be the Project Budget for all purposes hereunder.

6.4 **Cost Overruns and Developer Contingency**. This Agreement contains a guaranteed maximum price (GMP) for the design and construction of the Project, and the Developer has agreed to bear certain risks related to cost overruns with respect to the Project ("**Design Builder Cost Overruns**") as set out in this Agreement. Developer shall be responsible for paying costs in excess of the Project Budget that are caused by Developer's negligent acts or omissions and ("**Developer Cost Overruns**"). The Owner will be responsible to adjust the Project Budget to pay for costs in excess of the Project Budget that are the responsibility of the Owner ("**Excusable Costs**").

6.5 **Hazardous Materials**. Developer shall refrain from utilizing, producing, generating, handling, storing, or releasing hazardous materials, or authorizing or permitting another to do so, excluding Existing Conditions and any hazardous materials of a type, nature, and

quantity that is consistent with Applicable Laws and the scope of work being performed. In the event of the discovery or release of hazardous materials arising out of or resulting from the development of the Project, the Developer shall perform the following actions: (a) immediately communicate the occurrence or discovery of the release to the Owner; (b) cease and discontinue development activities in areas affected by the hazardous materials as required under Applicable Laws or to prevent further damage caused by the release; (c) make any report of such discovery or release as required under Applicable Laws, after conferring with the Owner; (d) provide information and documents reasonably requested by the Owner regarding the discovery of the release; and (e) if the hazardous material was brought onto or generated at the Project Sites by the Developer or Design Builder and was released as a result of the failure of the Developer or Design Builder to use methods and techniques compliant with Applicable Laws ("**Developer Releases**"), Developer and/or Design Builder will: (i) take all reasonable steps necessary to stop and contain the Developer Release; (ii) if authorized by the Owner, proceed with the clean-up of the Developer Release as required by the applicable governmental authority; and (iii) indemnify, protect, reimburse, hold harmless and defend the Owner from and against any and all Losses arising out of, resulting from, in connection with or relating to the Developer Release of hazardous materials. The Parties shall coordinate in the disposal of any such hazardous material. For the avoidance of doubt, Developer is not assuming legal responsibility, and shall not be liable for, the existence or release of pre-existing hazardous materials except to the extent expressly provided above with respect to Developer Releases. For pre-existing hazardous materials and releases other than Developer Releases, the Owner assumes the same obligations to Developer as Developer assumes toward Owner in the event of a Developer Release above.

ARTICLE VII
CONSULTING FEE AND REIMBURSEMENTS

7.1 **Consulting Fee.** In addition to the milestone payments under the Project Budget, Owner shall compensate Developer for performance of the Consulting Services related to the application for Grants under this Agreement. Owner agrees to pay Developer a fee (the "**Development Fee**") in an amount equal to Twelve Thousand Dollars ($12,000.00), earned and payable by Owner to Developer as follows:

(a) Twelve Thousand Dollars ($12,000.00) for the consulting and assistance with the completion of the application process for the VATI Grant for the 2018–19 funding cycle; and

(b) The Owner may elect, upon written notice to the Developer, to obtain its consulting and assistance with the preparation and completion of the application process for the Tobacco Region Revitalization Commission broadband grant for the 2018–19 funding cycle, on a time-and-material basis not to exceed Twelve Thousand Dollars ($12,000.00), the exact amount to be agreed in an appropriate change order based upon the scope of work requested.

Developer shall requisition for payment of the Consulting Fee in connection with regular Requests for Payment pursuant to Section 5.2 above.

ARTICLE VIII
DEFAULT AND REMEDIES

8.1 **Default**. A Party shall be in default under this Agreement if:

(a) such Party fails to pay any sum of money due by such Party to the other Party within ten (10) days after receipt of written notice from the other Party that such sum is overdue;

(b) such Party fails to perform any of its other duties and obligations under this Agreement (excluding delays in completing the Project, the consequences of which are addressed above) and does not cure such failure within thirty (30) days after receipt of written notice from the other Party with respect thereto; provided, however, if such failure shall require a period longer than thirty (30) days to cure, then the thirty (30) day period shall be extended for such additional period of time as is reasonably necessary to cure so long as such Party commences such cure within the thirty (30) day period and thereafter diligently and in good faith proceeds to cure;

(c) any receiver, trustee or custodian shall be appointed for all or any substantial part of the property or assets of Developer;

(d) Developer shall commence any voluntary proceeding under present or future federal bankruptcy laws or under any other bankruptcy, insolvency, or other laws respecting debtor's rights; or

(e) an order for relief or other judgment or decree by any court of competent jurisdiction is entered against Developer in any involuntary proceeding against such Developer under present or future federal bankruptcy laws or under any other bankruptcy, insolvency or other laws respecting debtor's rights, or any such involuntary proceeding shall be commenced against Developer and shall continue for a period of ninety (90) days after commencement without dismissal.

8.2 **Remedies**. Upon the occurrence of a default by any Party under this Agreement, the other Party may pursue any and all remedies available hereunder, at law or in equity, including, without limitation, one or more of the following remedies, separately, concurrently or in any combination, without further notice or demand:

(a) the non-defaulting Party may terminate this Agreement by giving the defaulting Party written notice of such termination, in which event this Agreement shall be terminated at the time designated by the non-defaulting Party in its termination notice; and/or

(b) the non-defaulting Party may bring an action against the defaulting Party for its actual damages resulting from the default.

In the event of any termination by reason of a default by Developer, Owner shall pay Developer the balance of the any Project Budget milestones achieved to the date of termination as well as any Consulting Fee that has been earned prior to the date of termination, determined on a pro-rata basis. In the event of any termination by reason of a default by Owner, Owner shall pay Developer the balance of the any Project Budget milestones achieved to the date of termination as well as any Consulting Fee that has been earned prior to the date of termination.

ARTICLE IX
TERM OF AGREEMENT

9.1 **Term.** The term of this Agreement shall commence on the Effective Date, and, unless sooner terminated as herein provided, shall continue until Final Completion of the Project has occurred and Developer has earned, and Owner has made full payment of, the Project Costs and Consulting Fees to Developer.

9.2 **Developer's Obligations**. Upon the expiration or earlier termination of this Agreement, Developer shall promptly:

(a) Deliver to Owner, or such person as Owner shall designate, all materials, supplies, equipment, keys, contracts and documents, and all records maintained for Owner pursuant to this Agreement.

(b) If terminated prior to the expiration of the Agreement, furnish all such information, take all such other reasonable action, and cooperate with Owner as Owner shall reasonably require in order to effectuate an orderly and systematic termination of Developer's Services, duties, obligations and activities hereunder.

ARTICLE X
INSURANCE

10.1 **Owner's Insurance Requirements**. Throughout the term of this Agreement, Owner shall carry and maintain in force, or cause to be carried and maintained in force, the insurance described in **Exhibit G**, at Owner's sole cost and expense.

10.2 **Developer's Insurance Requirements**. Throughout the term of this Agreement, Developer shall carry and maintain in force, or cause to be carried and maintained in force, the insurance described in **Exhibit G**, at Developer's sole cost and expense.

10.3 **Notice of Loss**. Developer shall promptly notify Owner of any fire or other damage to the Project. Owner shall arrange for an insurance adjuster to view the Project before repairs are started. In no event shall Developer settle any losses, complete loss reports, adjust losses or endorse loss drafts without Owner's approval. Developer shall also promptly notify Owner of any personal injury or property damage occurring in connection with the Project.

ARTICLE XI
LIABILITY; INDEMNITY

11.1 **Owner's Indemnity.** Owner hereby agrees, to the extent permitted by law and without waiving the doctrine of sovereign immunity, to indemnify and defend Developer and its members, officers, directors, shareholders, agents, affiliates, and employees from and against any and all Losses to the extent directly arising out of or resulting from any actions or omissions constituting gross negligence or willful misconduct directly related to any default by Owner, except in each instance to the extent such Losses are caused directly by the negligence or willful misconduct of Developer. The foregoing obligation, however, shall not extend to Losses caused by the negligence or willful misconduct of Developer or its agents, contractors and employees, and, to the extent that such Losses are caused in part by negligence or willful misconduct of Developer or its agents, Owner shall not be required to defend or indemnify Developer from that portion of the Losses that are caused by the such parties' negligence or willful misconduct.

11.2 **Developer's Indemnity.** Developer hereby agrees to indemnify, defend and hold harmless Owner and its Board of Directors from and against any and all Losses to the extent directly arising out of or resulting from any actions or omissions constituting negligence or willful misconduct directly related to any default by Developer. The foregoing obligation, however, shall not extend to Losses caused by the negligence or willful misconduct of Owner or its agents (other than Developer), contractors and employees, and, to the extent that such Losses are caused in part by negligence or willful misconduct of Owner or its agents (other than Developer), contractors and employees, Developer shall not be required to defend, indemnify, or hold harmless Owner from that portion of the Losses that are caused by the such parties' negligence or willful misconduct.

11.3 **Relationship to Insurance**. In no event shall the indemnification provisions of this Article diminish, affect, impede, or impair, in any manner whatsoever, the benefits to which any Party may be entitled under any insurance policy with respect to the Project required by this Agreement or otherwise, or under the terms of any waiver of subrogation contained therein.

11.4 **Non-Recourse Liability.** Any liability of Owner under this Agreement shall be limited to Owner's interest in the Project and the proceeds thereof. Neither Owner, nor any of the Officers or Directors of Owner, shall be personally liable for any liability of Owner hereunder.

11.5 **No Personal Liability, Etc.** No constituent members, owners, officers, managers or employees of Developer, nor any partners, members, shareholders, officers, directors, managers, employees, beneficiaries or trustees of the constituent members or owners of Developer, shall be personally liable for any liability of Developer hereunder.

11.6 **Limitation on Certain Damages.** No Party shall be liable to the other Party for special, consequential, or punitive damages, or for lost revenues or lost profits.

11.7 **Intellectual Property.** The Developer shall obtain or cause to be obtained all licenses necessary to use any invention, article, appliance, process, or technique of whatever kind and shall pay all royalties and license fees. The Developer shall hold the Owner, its officers, agents,

and employees harmless against any loss or liability for or on account of the infringement of any patent rights in connection with any invention, process, technique, article, or appliance manufactured or used in the performance of this Agreement, including its use by the Owner upon the direction or authorization of the Developer. If, before using any invention, process, technique, article, or appliance specifically named in the Proposal the Developer has or acquires information that the same is covered by letters of patent making it necessary to secure the permission of the patentee or other person for the use of the same, it shall promptly advise the Owner. The Developer may suggest a different means, which shall be endorsed by the Architect/Engineer. The Owner may authorize use of an alternative invention, process, technique, article, or appliance of substantially similar or greater quality and purpose.

11.8 **Survival.** The accrued liabilities under the provisions of this Article XI survive the expiration or earlier termination of this Agreement.

ARTICLE XII
SUBSTANTIAL COMPLETION & FINAL COMPLETION

12.1 **Substantial Completion.** The Developer shall notify the Owner, in writing, of the date upon which the Work or a designated portion thereof will be, in its opinion, substantially complete and ready for inspection and testing to determine if it has reached Substantial Completion. The notice shall be supported by and include the testing results and reports of Developer's Inspectors. The Developer's Inspectors test results and reports is for the convenience of the Owner only and shall not relieve the Developer of his responsibilities nor shall the endorsement be evidence that the Work is substantially complete and ready for inspection and testing. Inspection and testing shall take place at a time(s) mutually agreeable to the Developer, Owner, Third-Party Inspector, and Developer's Inspectors.

The inspection shall include a demonstration by the Developer that all equipment, systems, and operable components function properly and in accordance with the Contract Documents. The Developer shall furnish access to the Owner and the Third-Party Inspector for the purpose of carrying out such inspection and testing. The inspection and testing shall determine whether there remains any work to be completed or Defective Work. Such incomplete or Defective Work shall be memorialized in a punch list. The Developer must complete the punch list by finishing and correcting the items thereon prior to Final Completion and acceptance by the Owner.

12.2 **Final Completion.** The Developer shall notify the Owner, in writing, of the date upon which the Work or a designated portion thereof will be, in its opinion, finally complete and ready for final inspection, testing, and acceptance for ownership and issuance of a Notice to Proceed under the Operating Agreement. The inspection and testing shall be carried out in the same manner as the inspection and testing for Substantial Completion. When the Work is finally and totally complete, including the elimination of all defects, the Work shall be finally accepted by the Owner and final payment shall be made.

Final acceptance shall not release the Developer from any warranty or guarantee of its Work of materials contained herein.

12.3 **Final Payment.** In making partial payments under Section 6.2, five percent (5%) of each payment to the Developer shall be retained until Substantial Completion ("Retainage"). Upon achievement of Substantial Completion, one half of the Retainage will be released, reducing the Retainage to two and one-half percent (2.5%) until Final Completion and acceptance of all Work covered by this Agreement. Such Retainage shall be held to ensure completion of the punch lists, if any, developed at Substantial Completion. . Upon Final Completion and acceptance of any of the individual Sites, the Owner shall, upon written request of the Developer, release Retainage for that Site. In the event the Developer has withheld a portion of the Retainage from any Vendor, subcontractor, or supplier, Developer will release that portion of the Retainage applicable to that Vendor, subcontractor, or supplier after receipt of such Retainage from Owner.

ARTICLE XIII
REPRESENTATIONS AND WARRANTIES

13.1 **Guarantee of Work.** Developer warrants that all materials, equipment, and workmanship shall be in accordance with the terms of this Agreement and will be free from defects (including defects of workmanship), except for those inherent in the quality of the Work or otherwise expressly permitted by the Agreement, for one (1) year from the date of Substantial Completion. The Developer's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Developer, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. Where the Owner issues a Notice to Proceed to locate Equipment in accordance with the Operating Agreement, the guarantees for materials, equipment, and workmanship in that portion or phase shall begin on the date that the Owner gives the Notice to Proceed under the Operating Agreement, unless otherwise specified in a separate agreement. At six (6) months and eleven (11) months after substantial completion or issuance of the Notice to Proceed on the Operating Agreement, the Developer shall meet with the Owner to review the status of any unresolved warranty, guarantee, and outstanding punch list items.

13.2 **Representations and Warranties**. Each Party hereby represents, warrants and covenants to the other Party that:

(a) the execution, delivery and performance of this Agreement has been authorized by all necessary action, corporate or otherwise, on the part of such Party;

(b) the execution, delivery and performance of this Agreement will not result in a breach or violation of, or a default under, such Party's articles of organization, operating agreement, or any other agreement or instrument by which such Party is bound, or of any law, order or regulation; and

(c) such Party is organized, existing and in good standing under the laws of the state of its organization.

ARTICLE XIV
GENERAL PROVISIONS

14.1 **Entire Agreement**. The Agreement contains the entire understanding of the Parties with respect to the subject matter hereof, supersedes all prior or other negotiations, representations, understandings and agreements of, by or among the Parties, express or implied, oral or written, all of which are fully merged herein. The express terms of this Agreement control and supersede any course of performance and/or customary practice inconsistent with any such terms. Any agreement hereafter made shall be ineffective to change, modify, discharge, or effect an abandonment of this Agreement except in accordance with this Agreement or by a writing or action of equal dignity.

14.2 **Assignability**. This Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and permitted assigns. This Agreement may be assigned only with the approval and consent of the non-assigning Party.

14.3 **Notices**.

(a) All notices, demands, requests or other communications (collectively, "**notices**") from each Party to the other required or permitted under the terms of this Agreement shall be in writing and, unless and until otherwise specified in a written notice by the Party to whom notice is intended to be given, shall be sent to the Parties at the following respective addresses:

if intended for Developer:

Anthony Smith
Blue Ridge Towers, Inc.
1125 1st Street
Roanoke, Virginia 24016
asmith@blueridgetowers.com

with a copy to:

James R. Richards
Petty, Livingston, Dawson & Richards, P.C.
P. O. Box 1080
Lynchburg, VA 24505
925 Main Street, Suite 300
Lynchburg, VA 24504
jrrichards@pldrlaw.com

if intended for Owner:

Robert Hiss
Secretary
Bedford County Broadband Authority
Bedford County Administration Building
122 East Main Street
Bedford, Virginia 24523

rhiss@bedfordcountyva.gov

with a copy to: Patrick J. Skelley, II, Esq.
Authority Counsel
Bedford County Administration Building
122 East Main Street
Bedford, Virginia 24523
p.skelley@bedfordcountyva.gov

Notices may be given on behalf of any Party by its legal counsel.

(b) Each such notice shall be deemed to have been properly given for all purposes if (i) delivered with a written receipt of delivery, (ii) mailed by registered or certified mail of the United States Postal Services, return receipt requested, postage prepaid, (iii) delivered to a nationally recognized overnight courier service for next business day delivery, to its addressee at such Party's address as set forth above; or (iv) if delivered via electronic mail to the e-mail address listed above, with a statement in the subject line that the e-mail is a "Contract Notice."

(c) Each such notice shall be deemed to have been given upon the earlier of (i) actual receipt or refusal by the addressee, (ii) three (3) business days after deposit thereof at any main or branch United States Post Office (if sent in accordance with section (b)(ii) above), (iii) deposit thereof with the courier (if sent pursuant to section (b)(iii) above), or (iv) the date sent, if sent by electronic mail, so long as the recipient either confirms receipt by response e-mail or the sender obtains and retains an e-mail delivery receipt for the e-mail.

14.4 **Non-Exclusive Remedies**. Except as otherwise provided herein, no remedy herein conferred or reserved is intended to be exclusive of any other available remedy or remedies, and each and every such remedy shall be cumulative and shall be in addition to every such remedy given under this Agreement or now or hereafter existing at law, in equity or by statute.

14.5 **No Waiver.** Neither the failure, nor any delay, on the part of either Party to this Agreement to exercise any right, remedy, power or privilege under this Agreement shall operate as a waiver thereof, nor shall any single or partial exercise of any right, remedy, power or privilege preclude any other or further exercise of the same or of any other right, remedy, power or privilege, nor shall any waiver of any right, remedy, power or privilege be deemed to be a waiver of such right, remedy, power or privilege with respect to any other occurrence, absent an amendment or Change Order to this Agreement setting forth such waiver.

14.6 **No Third Party Beneficiaries**. This Agreement is made solely and specifically between and for the benefit of the Parties hereto, and their respective successors and permitted assigns, subject to the express provisions hereof relating to successors and assigns, and no other person, individual, corporation, or entity whatsoever shall have any rights, interests, or claims hereunder or be entitled to any benefits under or on account of this Agreement, whether as a third party beneficiary or otherwise.

14.7 **Time**. Time is of the essence of this Agreement. In computing the number of days for purposes of this Agreement, all days shall be counted, including Saturdays, Sundays, and holidays; provided, however, that if the final day of any time period provided in this Agreement shall end on a Saturday, Sunday, or legal holiday, then the final day shall extend to 5:00 p.m. on the next full business day.

14.8 **Interpretation**. No provision of this Agreement is to be interpreted for or against either Party because that Party or that Party's legal representative or counsel drafted such provision. The Parties acknowledge and agree that this Agreement has been negotiated at arm's length with the input of counsel for each Party and it is the intent of the Parties that neither Developer nor Owner shall have this Agreement or any portion thereof construed more strictly against them.

14.9 **Additional Acts**. In connection with this Agreement and the transactions contemplated hereby, Owner and Developer each agree to execute and deliver such additional documents and instruments and take all such necessary action and perform such additional acts as may be necessary or appropriate to effectuate, carry out and perform all of the terms, provisions, and conditions of this Agreement.

14.10 **Provisions Separable**. The provisions of this Agreement are independent of and separable from each other, and no provisions shall be affected or rendered invalid or unenforceable by virtue of the fact that, for any reason, any other provision may be invalid or unenforceable in whole or in part.

14.11 **Counterparts**. This Agreement may be executed in any number of counterparts, each of which shall be deemed to be an original as against any Party whose signature appears thereon, and all of which shall together constitute one and the same instrument. This Agreement shall be binding when one or more counterparts hereof, individually or taken together, shall bear the signatures of all of the Parties reflected on this Agreement as the signatories.

14.12 **Captions**. The captions in this Agreement are inserted for convenience of reference; they form no part of this Agreement and shall not affect its interpretation.

14.13 **Relationship Between the Parties**. The relationship of the Parties shall be limited to this Agreement. Nothing herein shall be deemed to create a partnership or joint venture between the Parties, nor to authorize either Party to act as general agent (as opposed to any specific agency relationship described in this Agreement) for the other Party.

14.14 **Authorized Representatives**. Any consent, approval, authorization or other action required or permitted to be given or taken under this Agreement by Owner or Developer, as the case may be, shall be given or taken by one or more of the authorized representatives of each. For purposes of this Agreement, (a) the authorized representative of Owner shall be Jeffrey Marecic, and (b) the authorized representatives of Developer shall be Anthony Smith. Any Party hereto may from time to time designate additional or replacement authorized representatives to the other Party hereto. The written statements and representatives of any authorized representative of Owner or

Developer shall be binding upon the Party for whom such person is an authorized representative, and the other Party shall have no obligation or duty whatsoever to inquire into the authority of any such representative to take any action which he proposes to take. Provided, however, that certain decisions with respect to this Agreement are non-delegable legislative functions which may only be made by the appropriate legal authorities, and for which no action of an agent of the Authority may bind it. This Section shall not apply to such functions.

14.15 **Subject to Appropriation.** The Developer understands that the source of funds for the Authority's obligations under this Agreement is funds appropriated by the Board of Supervisors of Bedford County as an intergovernmental transfer under Section 15.2-1205 of the Code of Virginia, 1950, as amended. This Agreement is not a general obligation of the full faith and credit of the Commonwealth of Virginia or Bedford County, Virginia, but a limited obligation of the Authority in accordance with the Wireless Service Authorities Act, and is not to be construed in any manner as violating Article VII Section 10 of the Virginia Constitution. In order to ensure orderly appropriation and transfer of such funds, no later than March 15 of each year, beginning March 15, 2019, the Authority shall notify the Board of Supervisors of Bedford County of the amount of funds that will be necessary to meet the Authority's financial obligations under this Agreement in the next following fiscal year. In the event that sufficient funds are not appropriated, the Authority shall give prompt notice without delay to the Developer and the Authority and the Developer shall work to "wind down" the Project and suspend work ("Suspension"). In the event of non-appropriation, the obligation of the Authority to pay the Developer shall not be less than the sum of (1) the progress payments for all Milestones achieved to the date the Developer receives notice of the event of non-appropriation; (2) the fair value for all work done by the Developer in pursuance of any further milestones not yet met; and (3) the fair value of all work done by Developer to wind down. The Suspension will continue for up to one year from the notice of non-appropriation to allow the Authority to obtain funding, if possible, for the remaining portions of the Project. In the event that funding is subsequently obtained, the Parties will execute a Change Order to modify the Project Schedule and Project Budget to reflect a new schedule for completion of the remaining Work and to adjust for increases in the cost of the labor, material, or equipment resulting from the Suspension. If the Parties agree, and if technically feasible, the Owner may issue a Notice to Proceed under the Operating Agreement for the portions of the Project that were completed prior to the non-appropriation.

14.16 **Applicable Law**. This Agreement shall be governed, construed, performed and enforced in accordance with the laws of the Commonwealth of Virginia without regard to its conflicts of laws principles.

14.17 **Confidential Information.** Confidential Information that is properly designated by a transmitting party shall be protected from disclosure by the receiving party as set forth in the definition of Confidential Information. If the Authority receives Confidential Information designated by Developer, then the Authority shall prevent the disclosure of such Confidential Information pursuant to a Virginia Freedom of Information Act (Virginia Code § 2.2-3700 *et seq.*) ("FOIA") request and as permitted by law or as otherwise set forth above.

[Remainder of page intentionally left blank.]

IN WITNESS WHEREOF, Owner and Developer have caused their respective duly authorized representatives to execute and deliver this Agreement, all as of the day and year first above written.

OWNER:

BEDFORD COUNTY BROADBAND AUTHORITY

By: _____
Name: Tommy Scott
Title: Chairman

Approved as to Legal Form:

By: _____
Name: Patrick Skelley, II
Title: Authority Counsel

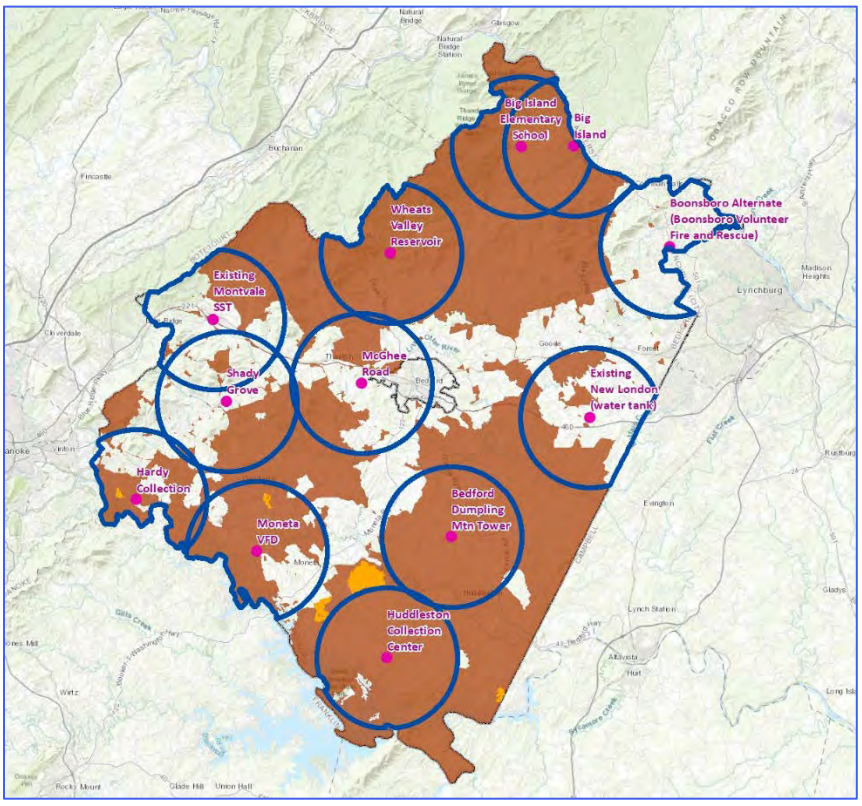
DEVELOPER:

BLUE RIDGE TOWERS, INC.:

By: _____

By: _____
Name: Anthony R. Smith
Title: President

Bedford County, Virginia
Overall Project Area



Map 2

Unserved Area / Underserved Area

Tower Coverage Areas

EXHIBIT 2
DEFINED TERMS

In addition to any other terms which are defined in the Agreement, the following terms shall have the following meanings:

"Abnormal Weather" means severe or inclement weather beyond the average of the most recent five years of weather normally occurring at the Project Site, as evidenced by information generated by the National Oceanic and Atmospheric Administration and the National Weather Service.

"Agreement" shall have the meaning set forth in the Preamble.

"Applicable Laws" means all applicable laws, statutes, ordinances, rules, regulations, orders and permits of all governmental agencies having jurisdiction over the Project Sites or the Project.

"Architect," "Engineer," "Architect/Engineer," or "A/E" means the duly Virginia-licensed person, persons, or entities designated by the Developer to perform and provide the Architectural and Engineering design and related services in connection with the Work.

"Beneficial Occupancy" means the condition after Substantial Completion but prior to Final Completion of the Project or a portion thereof at which time the Project, or a portion thereof, is sufficiently complete and operational such that the Owner could, after obtaining necessary approvals and certificates, give the Developer the Notice to Proceed under the Operating Agreement and allow its occupancy and use for its intended use. Guarantees and warranties applicable to that portion of the Work begin on the date the Owner accepts the Project, or a portion thereof, for such Beneficial Occupancy. The Owner shall issue the Notice to Proceed with the Operations Phase for each portion of the Project that is accepted for Beneficial Occupancy simultaneously with such acceptance.

"Change Order" means a written directive issues after the effective date of this Agreement which is agreed to by the Developer and the Owner, and which authorizes an addition, deletion, or revision in the Work, including any adjustment in the price and/or any milestone date. A change order, once signed by all parties, is incorporated into and becomes a part of this Agreement.

"Claim" shall mean a demand or assertion by one of the Parties seeking, as a matter of right, payment of money, a change in the Project Schedule, or other relief with respect to the terms of the Agreement.

"Comprehensive Agreement" means the Comprehensive Agreement that will be entered simultaneously with this Agreement that is required by the PPEA and the County Guidelines as part of a qualifying project under the PPEA.

"Confidential Information" means any information or documents containing confidential or business proprietary information. Confidential Information does not include information that was: (i) in the public domain prior to its transmission on this Project; (ii) independently developed by the receiving party; or (iii) previously received from a third-party. Confidential Information shall be designated in writing as "CONFIDENTIAL INFORMATION" and shall be accompanied by a statement of the reasons for why the protections under this Article are necessary which is determined to be Confidential in accordance with any applicable law or statute.

"Day" or "Days" means calendar day or calendar days unless otherwise specified.

"Design Build Agreement" shall mean the modified PPEA Design-Build Agreement that Developer has negotiated with Concrete Foundations, Inc. (the "**Design Builder**"), and Owner has reviewed and approved, and shall include any amendments, modifications, and changes thereto, and all replacements thereof. Developer will execute, in its own name, the Design Build Agreement with Design Builder.

"Design Builder Cost Overruns" shall have the meaning set forth in the Agreement above.

"Design Builder" shall have the meaning set forth in the Agreement above.

"Developer" shall have the meaning set forth in the Preamble.

"Developer Cost Overruns" shall have the meaning set forth in the Agreement above.

"Developer Releases" shall have the meaning set forth in the Agreement above.

"Developer's Inspectors" means the materials testing and geotechnical engineering firms retained by Developer to provide the following testing and inspections: (i) foundation subgrade inspection and density testing; (ii) foundation rebar placement; (iii) concrete pour inspections including slump and cylinder break tests.

"Due Diligence" means that certain due diligence regarding the financial and logistical feasibility of developing the Project, including, without limitation, title, survey, environmental, and geotechnical analyses, as well as analyses relating to land use and zoning, entitlements, and the need for the Permits.

"Effective Date" shall have the meaning set forth in the Preamble.

"Excusable Conditions" means any one or more of the following occurrences, circumstances or conditions: (a) the failure of Owner to reasonably cooperate with Developer; (b) the breach by Owner, the Design Builder or any other party (other than Developer) of any of such party's obligations under the Development Agreement, the Design Build Agreement, including, without limitation, any failure by Owner to timely pay properly requisitioned funds to Developer; (c) the failure of Owner to review and approve

(or disapprove with specific comments setting forth the manner in which such matter will gain Owner's approval) any matter for which Owner's approval is required or desirable hereunder within the time period set forth herein, or if no period is set forth herein, within five (5) business days after Owner's receipt of Developer's written request therefor; (d) the failure of Owner to timely provide free and unfettered access to the Project Sites to Developer and the Design Builder for the purposes contemplated herein and in the Design Build Agreement; (e) the occurrence or existence of Unforeseen Conditions; (g) any change in Applicable Laws; (h) the occurrence or existence of any Force Majeure Event; (i) any stop work order, suspension, injunction, lawsuit or other interruption of the Services or construction of the Project by Owner, or any other person or entity (other than Developer); (j) any Owner Change Directives; (k) the failure of Owner to have requisite title to and/or rights in the Project Sites, or across any property necessary for Developer or Design Builder to gain access to the Project Sites to deliver materials and/or construct the Towers and appurtenances, so as to permit Developer and Design Builder to perform their obligations under this Agreement and the Design Build Agreement; (l) the failure of any local, state, or federal agency or other Authority Having Jurisdiction (AHJ) to provide approval for any Permits or any other approval required under Applicable Laws; (m) the occurrence or existence of Abnormal Weather; (n) the existence of any hazardous materials on the Project Site(s).

"Excusable Costs" means any Project Costs that are incurred by reason of Excusable Conditions.

"Excusable Delays" means any delays to the construction of the Project that are caused by Excusable Conditions.

"Existing Conditions" are any and all conditions of the Project Sites or any improvements located thereon existing as of Effective Date, including, but not limited to, geological, geotechnical, archeological, paleontological and environmental conditions, the presence or absence of any hazardous materials and compliance or non-compliance with Applicable Laws.

"Fiber" means the approximately eleven (11) miles of fiber that will be furnished and installed as part of the Project.

"Final Completion" means the event in which the Owner has confirmed that all Work on the Project or a portion thereof is totally complete and all punchlists have been completed, retainage has been released as to such portion of the Project, and title for such portion of the Project passes to the Owner, or the date on which such event occurs.

"Final Completion Deadline" shall have the meaning set forth in the Agreement above.

"Force Majeure Event" means any circumstances which are reasonably beyond the ability of Developer to control, including, without limitation, acts of God, acts of war or terrorism, governmental interference, inability to obtain labor, energy, materials or supplies

(for reasons other than cash flow or other financial reasons), riot, civil commotion, strike, lockout, Abnormal Weather, Unforeseen Conditions or any other unforeseeable event.

"Grants" means grants through the Virginia Department of Housing and Community Development under its 2019 Virginia Telecommunications Initiative Program ("VATI") and the Virginia Tobacco Settlement Fund ("Tobacco Fund"). The Authority has requested that Developer provide consulting services as part of this Development Agreement to assist the Authority in obtaining the Grants.

"Losses" means losses, costs, expenses (including, without limitation, reasonable attorneys' fe es), claims, demands, suits, actions, responsibilities, liabilities or obligations.

"Microwave" means the approximately ten (10) microwave dish antennae that will be furnished and installed as part of the Project.

"Notices" shall have the meaning set forth in the Agreement above.

"Owner" shall have the meaning set forth in the Preamble.

"Owner Change Directives" shall have the meaning set forth in the Agreement above.

"Party" or **"Parties"** shall have the meaning set forth in the Preamble.

"Permits" shall mean the permits and other administrative approvals of the local, state, and federal authorities having jurisdiction ("AHJ") that are required under Applicable Laws for the development or construction of the Project over the Project, including, but not limited to: (i) Zoning approval from Bedford County Department of Community Development, Division of Planning and any other necessary division or department; (ii) National Historic Preservation Act & Virginia State Historic Preservation Office approval; (iii) National Environmental Policy Act approval; (iv) building permit issued by the Bedford County Department of Community Development, Building Inspections Office, and any other necessary division or department.

"Plans" shall mean the drawings and specifications, if any, that the Design Builder will prepare for the construction of the Project, which will be submitted for the review and approval of Developer and Owner.

"PPEA" means the Public Private Education and Facilities Infrastructure Act of 2002 found at Virginia Code §§ 56-575.1, *et seq*.

"PPEA Guidelines" means the Bedford County Broadband Authority PPEA Guidelines, as adopted and amended by the Board of Directors of the Bedford County Broadband Authority.

"Project" shall mean the planning, design and construction of ten (10) new Wireless Towers for the Authority under this Agreement and the Design Build Agreement.

"Project Budget" shall have the meaning set forth in the Agreement above.

"Project Costs" means the total of all costs and expenses for the design, construction and development of the Project, as such costs are to be set forth in the Project Budget. Project Costs shall specifically include Excusable Costs but shall exclude Developer Cost Overruns.

"Project Schedule" shall have the meaning set forth in the Agreement above.

"Project Sites" shall have the meaning set forth in the Recitals.

"Services" shall have the meaning set forth in the Agreement above and in Exhibit F.

"Share File Site" means a web portal accessible through the internet, maintained by the Owner and/or Bedford County, on which Developer will submit the documents and other information required as part of this Agreement. Developer's uploading of documents to the Share File Site will constitute delivery of the relevant documents for purposes of this Agreement, including the delivery of documents required under the Financial Milestone Tracker, and submission of applications for payment; provided, however, that notices required by this Agreement for Claims and Disputes will be submitted as required by the Section 14.3 regarding Notices.

"Substantial Completion" means the date on which the Owner can utilize the Work for its intended purpose, and the Owner can obtain certificates of occupancy. After Substantial Completion, the Owner can accept the Work on any Site for Beneficial Occupancy and issues a Notice to Proceed under the Operating Agreement.

"Substantial Completion Deadline" shall have the meaning set forth in the Agreement above.

"Third-Party Inspector" as used herein, means a qualified design professional licensed in the Commonwealth of Virginia and qualified by experience to perform such services. The identity of the Third-Party Inspector will be agreed upon between Owner and Developer, and the services of such Third Party Inspector, when required to resolve disagreements hereunder, shall be shared equally between the Parties.

"Unforeseen Conditions" means any Existing Conditions not known to Developer as of the Effective Date and indicated as a known condition in this Agreement or any other unforeseen condition that is encountered at the Project Sites. Unforeseen Conditions also means if the Developer's geotechnical and foundation structural investigations of the Project Site(s) reveal conditions at the Project Site(s) that: (i) will require additional expense to create an acceptable structural foundation for the Towers, either at the planned location for the Tower on the Project Site or at another location on the Project Site; or (ii) will require the selection of alternate Project Site(s) for the Wireless Towers excavation, Developer will provide the Owner with estimates of the additional costs and time involved, if any, of using the alternate construction methods or alternate Project Site(s). Unforeseen

Conditions also means subsurface or otherwise concealed physical conditions that differ from the assumptions of Developer in the BRT Proposal or unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Agreement. Unforeseen Conditions also means any restrictions, adjustments or modifications contained in the approvals of the Permits to: (i) the use of the Sites; (ii) the placement, foundations, design or specifications for the Wireless Towers, the Fiber, or the Microwaves; or (iii) any other restriction to the Parties' assumptions for the Project.

"Vendor Contracts" shall have the meaning set forth in the Agreement above.

"Wireless Towers" means the ten (10) new wireless communication towers being developed and constructed under this Agreement (the "**New Wireless Towers**") and the three (3) existing wireless communication towers (collectively, the "**Wireless Towers**") that may be managed by BRT under a separate management agreement.

"Work" refers to all actions necessary to carry out the obligations of this Agreement, whether carried out by Developer, its employees, agents, consortium partners, or other contractors.

EXHIBIT 3

FINANCIAL MILESTONE TRACKER

Site No.	Site Name	Development Phase Cost	Tower Construction Phase Cost	Fiber Phase Cost	Microwave Cost	
S-01	Big Island	$50,000.00	$218,000.00	-	$0.00	
S-02	Big Island Elementary	$50,000.00	$184,000.00	-	$0.00	
S-03	Montvale	$9,500.00	$0.00	-	$0.00	
S-04	Hardy Collection	$50,000.00	$184,000.00	-	$35,000.00	
S-05	Shady Grove	$50,000.00	$184,000.00	-	$35,000.00	
S-06	McGhee Road	$50,000.00	$184,000.00	-	$35,000.00	
S-07	Boonsboro Elementary School	$50,000.00	$184,000.00	-	$0.00	
S-08	Moneta VFD	$50,000.00	$184,000.00	-	$0.00	
S-09	Huddleston	$50,000.00	$184,000.00	-	$0.00	
S-10	New London	$28,500.00	$0.00	-	$30,000.00	
S-11	Wheat Valley	$50,000.00	$179,000.00	-	$35,000.00	
S-12	Dumpling Mountain	$50,000.00	$184,000.00	-	$35,000.00	
Totals:	**Whole Project**	**$538,000.00**	**$1,869,000.00**	**$745,800.00**	**$205,000.00**	**$3,362,800.00**

* Milestones for progress payments will be set forth in Project Management Milestone Tracker under Section 2.1(c).

Plus Fiber Engineering/Design	$ 20,000.00
Plus Microwave Engineering/Design	$ 13,300.00
Plus Builders Risk	$ 36,348.00
Plus P & P Bond Premium	$ 85,000.00

Total Project cost **$3,512,448.00**

EXHIBIT 4

SCHEDULE MILESTONE TRACKER

Site No.	Site Name	Development Phase Start	Development Phase Complete	Construction Phase Start	Construction Phase Complete	Fiber Start	Fiber Complete	Microwave Install
S-01	Big Island	2/1/2019	8/1/2019	8/1/2019	9/30/2019	8/15/2019	11/1/2019	N/A
S-02	Big Island Elementary	2/1/2019	8/1/2019	8/1/2019	9/30/2019	8/15/2019	11/1/2019	N/A
S-03	Montvale	2/1/2019	12/1/2019	12/1/2019	3/15/2020	8/15/2019	11/1/2019	N/A
S-04	Hardy Collection	2/1/2019	12/1/2019	12/1/2019	3/15/2010	N/A	N/A	3/15/2020
S-05	Shady Grove	2/1/2019	10/1/2019	10/1/2019	12/30/2019	N/A	N/A	12/30/2019
S-06	McGhee Road	2/1/2019	10/1/2019	10/1/2019	12/30/2019	N/A	N/A	12/30/2019
S-07	Boonsboro Elementary School	2/1/2019	8/1/2019	8/1/2019	9/30/2019	8/15/2019	11/1/2019	N/A
S-08	Moneta VFD	2/1/2019	12/1/2019	12/1/2019	3/15/2020	8/15/2019	11/1/2019	N/A
S-09	Huddleston	2/1/2019	12/1/2019	12/1/2019	3/15/2020	8/15/2019	11/1/2019	N/A
S-10	New London	2/1/2019	12/1/2019	12/1/2019	3/15/2020	8/15/2019	11/1/2019	3/15/2020
S-11	Wheat Valley	2/1/2019	10/1/2019	10/1/2019	12/30/2019	N/A	N/A	12/30/2019
S-12	Dumpling Mountain	2/1/2019	12/1/2019	12/1/2019	3/15/2020	N/A	N/A	3/15/2020

* Internal Milestones will be provided in Project Management Milestone Tracker under Section 2.1(c).

EXHIBIT 5

PROJECT DEFINITIONS & KEY

Term/Phase	General Tasks Associated
Development Phase	Site acquisition, finalization of A/E work, site work, entry of third-party contracts, and permitting. All preconstruction approvals, State, local and Federal.
Construction Phase	Laying of foundations, construction of poles, building inspections, and stacking, electrical, fencing and landscaping as required.
Fiber Phase	Running of fiber optic cable and completion of contracts with third-parties for connection to internet. Completion of pole attachment agreements.
Microwave	Installation of microwave backhaul equipment.

EXHIBIT 6
SCOPE OF SERVICES

Without limiting the general obligations of Developer contained in the Agreement, Developer shall provide the following Services to Owner in connection with the development of the Project. In the event of any direct conflict between the terms and conditions of this **Exhibit 6** and the terms and conditions of the remainder of the Agreement, the terms and conditions of the remainder of the Agreement shall apply.

1. On a regular basis throughout the term of this Agreement, with a frequency to be agreed upon between Developer and owner but not less often than monthly, Developer shall schedule and conduct meetings between Owner, Developer, the Design Builder, and the Architect/Engineer to discuss construction progress.

2. Developer shall take all commercially reasonable steps consistent with this Agreement necessary to deliver a "turnkey" Project within the specifications of the Proposal.

3. Developer shall coordinate with the Owner to develop and implement procedures for the review and processing of Requests for Payment for progress and final payments. Developer shall review and approve the amounts due relative to each such application and forward such applications to Owner for payment within the time frames required by this Agreement.

4. Developer shall inspect the Work to determine if it is being performed in accordance with the conditions and requirements of this Agreement.

5. Developer shall establish and implement procedures for expediting the processing and approval by Developer and Owner, where necessary, of shop drawings, product data, samples and other submittals.

6. Developer shall monitor the delivery, storage, protection, and security of materials, systems and equipment ordered by itself or any Vendor or subcontractor in accordance with the terms of the Design Build Agreement until such items are incorporated into the Project.

7. Developer shall coordinate with the Owner and all applicable authorities for the installation of utilities, if required, at the Project.

8. Developer shall coordinate the performance of any tests and inspections required under Applicable Laws or this Agreement.

11. Developer shall use diligence and reasonable efforts to enforce all warranties and to cause the responsible contractors to cure all defects in the construction of the Project during the applicable warranty periods.

12. Developer shall perform generally such other acts and things as may be reasonably required for the supervision, coordination, and delivery of all phases of the Project.

EXHIBIT 7
INSURANCE

1. The Developer shall neither commence Work nor authorize any other person to commence Work under this Agreement until it, its Contractor, and Architect/Engineer as appropriate, has obtained all insurance required hereunder from an insurer authorized to do business in the Commonwealth of Virginia and such insurance has been approved by the Owner.

2. The Developer, Contractor, and Architect/Engineer shall take out, and shall maintain in force at all times during the performance of the Work, Workers' Compensation and Employers' Liability Insurance for all of their employees engaged in the Work in an amount not less than the statutory minimums. The Developer, Contractor, and Architect/Engineer shall require each Vendor or subcontractor similarly to provide Workers' Compensation and Employers' Liability Insurance for all of their employees engaged in the Work.

3. During the performance of the Work under this Agreement, the Developer shall maintain commercial general liability insurance to include Premises/Operations Liability, Products, and Completed Operations Coverage, Independent Contractor's Liability, Owner's and Contractor's Protective Liability, and Personal Injury Liability, which shall insure it against claims of personal injury, including death, as well as claims for property damage, which may arise from operations under this Agreement whether such operations be by itself or by any Vendor or subcontractor, or by anyone directly or indirectly employed by either one of them. The amounts of general liability insurance shall be not less than $1,000,000 per occurrence and $2,000,000 aggregate combined limit. The Bedford County Broadband Authority, its officers, directors, employees, and agents shall be named as additional insureds with respect to the Work.

4. During the performance of the Work under this Agreement, the Developer shall maintain automobile liability insurance which shall insure it against claims of personal injury, including death, as well as against claims for property damage, which may arise from operations under this Agreement, whether such operations be by itself or by any Vendor or subcontractor, or by anyone directly or indirectly employed by either of them. The amounts of automobile insurance shall not be less than $1,000,000 combined limit for bodily injury and property damage per occurrence.

5. The Developer shall obtain and maintain in the names of the Owner and the Developer (and, at its option, its construction general contractor) "all-risk" builder's risk insurance (or fire, extended coverage, vandalism and malicious mischief insurance, if approved by the Owner) upon the entire structure or structures upon which the Work of this Agreement is to be done and upon all materials in or adjacent thereto which is intended for use thereon, to one hundred percent (100%) of the insurable value thereof (i.e., construction costs, soft costs, FF&E, and the residual value of the existing structure). The insurance may exclude the costs of excavations, backfills, foundations, underground utilities, and site work. Such insurance may include a

deductible provision as approved by the Owner. The party responsible for the loss, as between Owner and Developer, shall be liable for such deductibles, whenever a claim arises. The loss, if any, is to be made adjustable with and payable to the Owner or other party who was damages, in accordance with their interests, as they may appear. The Owner, its officers, directors, and employees and agents shall be named as additional insureds in any policy of insurance issued. Written evidence of the insurance shall be filed with the Owner no later than thirty (30) days following execution of this Agreement. In the event of cancellation of such insurance, no less than thirty (30) days' notice shall be given to the Owner. A copy of the policy shall be provided to the Owner upon demand.

6. The Owner is a member of a qualified local government self-insurance risk pool and maintains insurance coverage on its property and buildings. The Owner shall insure all of its interests in the Project Sites and its personal property, including against loss or liability, in the same manner and to the same extent as all other property owned by the Authority. Such insurance shall not cover the Developer's or any Vendor's or subcontractor's buildings, equipment, materials, tools, or supplies onsite until the Owner has accepted title thereto in accordance with this Agreement.

EXHIBIT 8

FORM OF THE CONSTRUCTION CONTRACTOR'S PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS: That _____, the Contractor ("Principal"), whose principal place of business is located at _____, and _____ ("Surety"), whose address for delivery of Notices is _____, are held and firmly bound unto Blue Ridge Towers, Inc., and the Bedford County Broadband Authority, the Developer and Owner (collectively, jointly, and severally the "Obligee") in the amount of _____ dollars ($____) for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a contract with Obligee for the design and construction of a system to provide qualifying communications services, as more specifically provided therein (the "Contract"), which contract is by reference expressly made a part hereof:

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly and faithfully perform said Contract in strict conformity with the plans, specifications, and conditions of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Provided, that any alterations which may be made in the terms of the Contract, or in the Work to be done under it, or the giving by the Obligee of any extension of time for the performance of the Contract, or any alterations, extensions, or forbearance on the part of either or both of the Obligee or the Principal to the other shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors, or assigns from their liability hereunder, notice to the Surety of any such alterations, extensions, or forbearance being hereby waived.

No action shall be brought on this bond unless brought within one year after: (a) final completion of the Contract and all work thereunder, including expiration of all warranties and guarantees, or (b) discovery of the defect or breach of warranty of guarantee if the action be for such.

The Surety represents to Principal and to Obligee that it is legally authorized to do business in the Commonwealth of Virginia.

Signed and sealed this _____ day of _____, 20__.

[NAME]:
Contractor/Principal

_____ By: _____
Witness

Name: _____

Its: _____

_____
Surety

By: _____
Attorney-in-Fact

Name: _____

AFFIDAVIT OF ATTORNEY-IN-FACT

COMMONWEALTH OF VIRGINIA)
) to wit:
CITY/COUNTY OF _____)

I, the undersigned notary public, do certify that _____, whose name is signed to the foregoing performance bond in the sum of $_____ and dated _____, and which names the Blue Ridge Towers, Inc., and the Bedford County Broadband Authority as Obligees, personally appeared before me today in the above jurisdiction and made oath that he/she is the attorney-in-fact of _____, an _____ corporation which is the Surety on the foregoing bond, that he/she is duly authorized to execute the foregoing bond on the Surety's behalf pursuant to the Power of Attorney noted above and attached hereto, and on behalf of the surety, he/she acknowledged the foregoing bond before me as the surety's act and deed.

_____
Notary Public

My commission expires: _____
Notary Registration No.: _____

APPROVED:

_____
Authority Counsel

Terms and Conditions of the Performance Bond

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the prompt and faithful performance of the Design-Build Contract, which is incorporated herein by reference.

2. If the Contractor promptly and faithfully performs the Design-Build Contract in strict conformity with the plans, specifications, and conditions of said Contract, the Surety and the Contractor shall have no obligations under this Bond.

3. In the event of Contractor's Default, and subsequent notification to the Surety, the Surety shall, within fourteen (14) days of receipt of such notice, contact the Owner in writing and arrange a meeting with the Owner to discuss methods of completing the Contract. If the Surety fails to arrange a meeting or fails to attend such meeting, the Surety shall be deemed to be in default on this Bond and the Owner may, at its sole discretion, take what measures it deems necessary to protect the Owner's interests, without further notice to the Surety, and the Owner shall be entitled to enforce any remedy available to the Owner under the Contract or any other provision of law.

4. Within thirty (30) days after such meeting, during which time the Surety may investigate and otherwise analyze the project, and which period shall not toll any time periods under the Contract nor operate as a waiver of any of the Owner's rights, the Surety shall, at its own expense, notify the Owner in writing that it is taking one of the following actions, which shall be acceptable to Owner, at the Owner's discretion:

   a. By written takeover agreement with the Owner, the Surety shall itself undertake to perform and complete the Contract, which it may do through its licensed agents or through licensed independent contractors, If the Owner, at its sole discretion, consents, the Contract may serve as the Surety's independent contractor (however, the Owner will not directly contract with the contractor produced by the Surety). However, no takeover agreement shall give the Surety any rights to succeed to the Contractor's rights under the Operating Agreement, but shall be only to those rights and obligations under this Contract.

   b. The Surety may, if acceptable to the Owner and at the Owner's sole discretion, waive its right to perform and complete the Contract, and with reasonable promptness under the circumstances:

      i. Pay to the Owner all amounts for which it may be liable to the Owner as surety on this Bond, including the damages provided in Paragraph 6 below; or

      ii. Deny liability, in whole or in part, and provide written notice thereof to the Owner, citing its reasons therefor.

5. If, after the meeting described in Paragraph 3 above, the Surety does not proceed with reasonable promptness with one of the options provided in Paragraphs 4.a or 4.b above, the Owner may send additional written notice to the Surety demanding that the Surety perform its obligations under the Bond. If the Surety does not proceed to perform its obligations under the Bond within fifteen (15) days after receipt of said notice, the Surety shall be deemed to be in

default on this Bond. Thereafter, the Owner shall be entitled to enforce any remedy available to the Owner under this Bond, the Contract, or other provision of law. If the Surety proceeds as provided in Paragraph 4.b, and the Surety and Owner are unable to agree as to the amount for which the Surety is liable to the Owner, or if the Surety has denied liability, in whole or in part, the Owner, without further notice, shall be entitled to enforce any remedy available to the Owner under the Bond, the Design-Build Contract, or other provision of law. In such event, the Owner may immediately proceed to complete the work in any manner authorized by law.

6. After the Owner has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under Paragraphs 4.a or 4.b.i above, then the responsibilities of the Surety to the Owner shall not be greater or less than those of the Contractor under the Contract, and the responsibilities of the Owner to the Surety shall not be greater or less than those of the Owner under the Contract. To the limit of the amount of this Bond, plus the increased cost of any change orders under the Design-Build Contract, provided the Owner commits the balance of the Construction Contract Price to the prompt and faithful completion of the Construction Contract, the Surety is obligated without duplication for:

a. The responsibilities of the Contractor for correction of defective work and completion of the Contract;

b. Additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

c. Liquidated damages, or, in the event liquidated damages are not specified in the Contract, actual damages caused by delayed performance or non-performance by the Contractor.

The Owner, at its sole discretion, may waive its claims for delay costs and/or liquidated damages.

7. The Surety shall not be liable to the Owner for obligations of the Contractor that are not set forth in the Contract and the Balance of the Contract Price shall not be reduced, set off, or increased by reason of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner, its officers, agencies, administrators, successors, or assigns.

8. The Surety hereby waives notice of any changes, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations. The Surety understands and agrees that the penal amount of the Bond shall be increased or decreased by any changes to time and amount incorporated by any Change Orders.

9. Any proceeding by the Owner under this Bond, legal or equitable, may be instituted only in the Circuit Court or General District Court for Bedford County, Virginia, to the jurisdiction of which the Parties irrevocably consent.

10. Notice to the Surety shall be mailed or delivered to the address shown on the face of the Bond in the space for Surety address for delivery of notices.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond under Section 2.2-4337 of the Code of Virginia, 1950, as amended, and not as a common law bond, when furnished in accordance with the statutory requirements.

12. Definitions.

a. **Balance of the Contract Price** means the total amount payable by the Owner to the Contractor under the Design-Build Contract after all proper adjustments have been made, reduced by all valid and proper payments made to or on behalf of the Contractor under the Design-Build Contract.

b. **Contract** means the agreement between the Owner and the Contract identified on the face of this Bond, and includes all of the contracts made a part thereof, and duly executed modifications, amendments, and change orders thereto.

c. **Contractor Default** means a failure of the Contractor, as defined in the Contract, to perform or otherwise comply with the terms of the Contract.

13. Nothing in these Terms and Conditions shall prevent a Surety from becoming involved in the Contract prior to termination, upon notice from the Owner of the Contractor's failure to promptly and faithfully perform the Contract in strict conformity with the plans, specifications, and conditions of the Contract.

[END OF PERFORMANCE BOND]

EXHIBIT 9
FORM OF THE CONSTRUCTION CONTRACTOR'S PAYMENT BOND

KNOW ALL MEN BY THESE PRESENTS: That _____, the Contractor ("Principal"), whose principal place of business is located at _____, and _____ ("Surety"), whose address for delivery of Notices is _____, are held and firmly bound unto Blue Ridge Towers, Inc., and the Bedford County Broadband Authority, the Developer and Owner (collectively, jointly, and severally the "Obligee") in the amount of _____ dollars ($____) for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, Principal has by written agreement dated _____ entered into a contract with Obligee for the design and construction of a system to provide qualifying communications services, as more specifically provided therein (the "Design-Build Contract"), which contract is by reference expressly made a part hereof:

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for labor performed and material furnished in the prosecution of the Work provided for in the Design-Build Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

The Principal and the Surety, jointly and severally, agree with Obligee as follows:

1. A "Claimant" is one having a direct contract with the Principal or with a subcontractor of the principal for labor, material, or both for use in the performance of the Design-Build Contract. A "subcontractor" of the Principal, for the purposes of this Bond only, includes not only those subcontractors having a direct contractual relationship with the Principal, but also any other contractor who undertakes to participate in the Work which the Principle is to perform under the aforesaid Design-Build Contract, whether there are one or more intervening subcontractors contractually positions between it and the Principal. "Labor" and "material" shall include, but not be limited to, public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the work site.

2. Any claimant who has a direct contractual relationship with the Principal and who has performed labor or furnished material in accordance with the Design-Build Contract in furtherance of the Work provided in the Design-Build Contract, who has not been paid in full therefor before the expiration of ninety (90) days after the day on which such claimant performed the last of such labor or furnished the last of such materials for which he claims payment may bring an action on this bond to recover any amount due him for such labor or material, and may prosecute such action to final judgment and have execution on the judgment. The Obligee need

not be a party to such action and shall not be liable for the payment of any costs, fees, or expenses of such suit.

3. Any claimant who has a direct contractual relationship with any subcontractor of the Principal but who has no contractual relationship, express or implied, with the Principal, may bring an action on this Bond only if he has given written notice to the Principal within ninety (90) days from the day on which the claimant performed the last of the labor or furnished the last of the materials for which he claims payment, stating with substantial accuracy the amount claimed and the name of the person for whom the Work was performed or to whom the material was furnished. Notice to the Principal shall be served by registered or certified mail, postage prepaid, in an envelope addressed to the Principal at any place where his office is regularly maintained for the transaction of business. Claims for sums withheld as retainages with respect to labor performed or material furnished shall not be subject to the time limitations stated in this Paragraph 3.

4. No suit or action shall be commenced hereunder by any claimant:

a. Unless brought within one year after the day on which the person bringing such action last performed labor or last furnished or supplied materials; it being understood, however, that if any limitation embodied in this Bond is prohibited by law controlling the construction of the Project, the limitation embodied in this Bond shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

b. Other than in the General District Court or Circuit Court for Bedford County, Virginia.

5. The amount of this Bond shall be reduced by and to the extent of any payment or payments made for labor and materials in good faith hereunder.

[SIGNATURES ON FOLLOWING PAGE]

Signed and sealed this _____ day of _____, 20__.

[NAME]:
Contractor/Principal

_____ By: _____
Witness

Name: _____

Its: _____

_____
Surety

By: _____
Attorney-in-Fact

Name: _____

AFFIDAVIT OF ATTORNEY-IN-FACT

COMMONWEALTH OF VIRGINIA)
) to wit:
CITY/COUNTY OF _____)

I, the undersigned notary public, do certify that _____, whose name is signed to the foregoing performance bond in the sum of $_____ and dated _____, and which names Blue Ridge Towers, Inc., and the Bedford County Broadband Authorities as Obligees, personally appeared before me today in the above jurisdiction and made oath that he/she is the attorney-in-fact of _____, an _____ corporation which is the Surety on the foregoing bond, that he/she is duly authorized to execute the foregoing bond on the Surety's behalf pursuant to the Power of Attorney noted above and attached hereto, and on behalf of the surety, he/she acknowledged the foregoing bond before me as the surety's act and deed.

_____
Notary Public

My commission expires: _____
Notary Registration No.: _____

APPROVED:

_____
Authority Counsel

[END OF PAYMENT BOND]

OPERATING AGREEMENT

This Operating Agreement ("Operating Agreement") is formed between the Bedford County Broadband Authority, a political subdivision of the Commonwealth of Virginia under the Wireless Service Authorities Act (the "Authority" or "Owner"), and Blue Ridge Internet Service Company, LLC, a Virginia limited liability company ("BRISCNET" or the "Contractor"; collectively, the "Parties").

RECITALS

WHEREAS, the Authority is a political subdivision of the Commonwealth of Virginia under the Virginia Wireless Service Authorities Act, Chapter 43.1 of Title 15.2 of the Code of Virginia, 1950, as amended, with the authority to participate in the provision of qualifying communications services, defined as high-speed data service and Internet access service, of general application, but excluding any cable television or other multi-channel video programming services; and

WHEREAS, BRISCNET is a wireless internet service provider (WISP) providing the infrastructure, goods, and services set forth in this Agreement, and is a "private entity" under the Act, and is capable of providing the services contemplated herein;

WHEREAS, the Parties have represented to the Virginia Department of Housing and Community Development (DHCD) Virginia Telecommunications Initiative (VATI) program with regard to their partnership under this Operating Agreement that each Tower, as hereinafter defined, will be fitted with Equipment which can propagate a 3-4 mile coverage radius depending on topography; that each access point will provide a 90 degree coverage radius and can handle 500 to 600 subscribers, unless otherwise agreed; that the project will deploy Equipment to offer 360 degrees of coverage allowing coverage of up to 2,000 subscribers/customers per tower. The estimated download speeds are: 25mbps/3mbps, 50mbps/3 mbps and 75mbps/5 mbps. In addition, the project will offer a more affordable internet service option of 15 mbps download/2 mbps upload for those that do not need or want the "high speed" internet access. However, it is contemplated by the Parties that Equipment will be replaced during the Term of this Agreement as Equipment suffers wear and tear and as newer, more capable technology becomes available in order to provide quality services to the residents of Bedford County.

WITNESSETH

NOW THEREFORE, in consideration of the premises hereof and the mutual promises set forth herein, together with other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Purpose. The purpose of this Agreement is to provide ubiquitous high-speed internet to the unserved and underserved public in Bedford County at fair, reasonable, and uniform prices.

2. Term. This Agreement shall be for a twenty-five (25) year term(the "Term").

3. Payments. BRISCNET will charge uniform rates to the public for its services consistent with industry standards for rural fixed wireless internet service providers. It will provide two main services as the Authority's partner: (1) Installation, maintenance, upkeep, and timely replacement and updating of its equipment; and (2) being an Internet service provider (ISP) to the public. BRISCNET will receive its payments through customer subscriptions. The Authority will own and

maintain the tower structures following their Final Acceptance as set forth in the Development Agreement. Deployment of BRISCNET's equipment will be performed in coordination with BRT's construction of the towers and backhaul. BRISCNET will be expected to meet reasonable reinvestment levels for replacement and updating of equipment on a regular basis.

4. Tower Deployment.

4.1. *Deployment Schedule.* The following towers (each a "Tower") will be part of Phase I rollout. Equipment chosen by BRISCNET sufficient to meet its obligations under this Agreement shall be initially deployed, with estimated deployment dates as set forth below:

Name	Location	Deployment Date
Big Island	1177 Sunset Hill Rd. Big Island, Va. 24526	10/30/2019
Big Island Elementary	1114 Schooldays Rd. Big Island, Va. 24526	10/30/2019
Montvale	11575 Lynchburg Turnpike Rd. Montvale, Va. 24122	4/15/2020
Hardy Collection	1220 Bandy Mill Rd. Hardy, Va. 24101	4/15/2020
Shady Grove	101 Shady Grove Drive Thaxton, VA. 24174	1/30/2020
McGhee Rd.	1029 McGhee Rd. Bedford, Va. 24523	1/30/2020
Boonsboro School	1065 Lee Jackson Highway Bedford, Va. 24503	10/30/2020
Moneta VFD	3340 Horeshoe Bend Rd. Moneta, Va. 24121	4/15/2020

Huddleston	2967 Fairview Church Rd, Huddleston, Va. 24104	4/15/2020
New London	1375 West London Park Drive Forest, Va. 24551	4/15/2020
Wheat Valley Reservoir	500 Overstreet Creek Rd. Bedford, Va. 24523	1/30/2020
Dumpling Mountain	1964 Headens Bridge Rd. Bedford, Va. 24523	4/15/2020

The "Deployment Date," is the date on which the Equipment on each Tower shall be fully installed, fully permitted, and in actual use providing wireless internet service to customers. In the event that the construction of the towers and backhaul is delayed from the dates in the Development Agreement Project Schedule, the estimated Deployment Dates shall be extended in the same number of days as the Development Agreement Project Schedule is delayed. If and to the extent BRISCNET is delayed at any time in the progress of the project by strikes, fires, unusual delays in transportation or unavoidable casualties, subsurface conditions that are not reasonably foreseeable, failures of federal, state, or other permitting, government shutdowns, or other causes outside the control of BRISCNET, then BRISCNET shall give the Authority written notice within 14 days after the inception of the delay. BRISCNET shall also give the Authority written notice of the termination of the delay within 14 days after such termination. The Deployment Date shall be extended for the period of any such delay.

4.2. *Propagation Testing & Engineering*. It is BRISCNET's responsibility to select and license spectrum and to choose appropriate and effective equipment to achieve the goals of this Agreement in a timely manner and as otherwise agreed. The technical specifications for a wireless network entitled "Project Bedford County 11 Tower sites updated with 820s rev6 using alt. site with updated address," dated 22 August 2018, is incorporated herein as the plans which BRISCNET agrees to implement. Nevertheless, this acceptance by the Authority does not divest BRISCNET of full and complete responsibility for the choice of technologies to achieve the goals of this Operating Agreement. In furtherance of these goals, BRISCNET shall:

4.2.1. *Prior Approval of Equipment*. All construction, installations, and alterations, including maintenance, repair, removal or relocation, except routine and/or emergency repairs and maintenance of any of BRISCNET's equipment shall require submission of plans with detail required by the Authority and the prior written approval of the Authority. In the event emergency repairs or routine maintenance is needed, plans shall be submitted as soon as practical following the

end of the emergency or maintenance; provided that any such repairs or maintenance which is consistent with the existing as-built drawings shall not require any submittals. The Authority reserves the right, consistent with good engineering practices, to reasonably and within a reasonable time period approve or disapprove the plans and the actual changes or improvements. In the event the changes or improvements are not in accordance with the approved plans or do not meet the requirements of this Agreement, the Authority shall provide written notice to BRISCNET of such non-compliance. In the event BRISCNET has not corrected such non-compliance within thirty (30) days following written notice, the Authority may remove the improvements or otherwise take the necessary action to remove the equipment and restore the premises at the expense of BRISCNET.

4.2.2. *As-builts.* Within thirty (30) days after substantial completion of construction, installation, or alteration of any of the equipment, BRISCNET shall provide the Authority with "as-built" plans for antennas and transmission equipment deployments.

4.2.3. *Utility Service & Redundancy*. All ground equipment used by BRISCNET will be located inside a secure compound. Ground equipment will be located outside of any buildings and mounted to the exterior of existing poles or buildings with the prior approval of the Authority. BRISCNET will install a battery backup system that will provide redundancy to their equipment at each tower location.

4.3. *Structural Integrity.* All Equipment installed by BRISCNET shall be installed in a manner that does not exceed the structural and wind loading specifications for the Tower.

5. Operations.

5.1. *Deployment Fee.* For each structure on which Equipment is deployed, BRISCNET shall pay to the Authority:

5.1.1. Year 1 of this Agreement: $10 per month.

5.1.2. Year 2 of this Agreement: $100 per month.

5.1.3. Year 3 of this Agreement: $150 per month.

5.1.4. Year 4 of this Agreement: $250 per month.

5.1.5. Year 5 of this Agreement: $400 per month.

5.1.6. Monthly lease fees for years subsequent to Year 5 shall increase each July 1 following Year 5 at a flat, non-compounded rate of 2% annually, for a total increase of forty (40%) percent over the Term.

5.2. *Filing of Financials.* BRISCNET shall file with the Secretary of the Authority, not less often than once annually, a statement setting forth its general financial condition with regard to its operations of the System in the context of the larger financial condition of the firm. The Parties believe that this information is and would be confidential under the Virginia Freedom of Information Act, including but not limited to Section 2.2-3705.6(19) of the Code of Virginia, 1950, as amended. The Authority agrees to exercise this exclusion with respect to such documents to the maximum extent permitted by law. In the event that

this exemption is removed by action of the General Assembly, or is held by a decision of the Supreme Court of Virginia, or is opined not to apply in this situation by a lawful opinion of the Attorney General of Virginia or the Virginia Freedom of Information Advisory Council or successor body, this requirement shall no longer apply; provided, however, that the Parties shall negotiate, in good faith, to achieve the manifest goal of this section of collaboratively exchanging financial information on BRISCNET's activities under this Agreement to ensure the long-term financial viability of their partnership.

5.3. *Customer Service.* The goal of the Parties is to provide service to all persons desiring it at fair, reasonable, and uniform pricing.

5.3.1. *Non-Discrimination.* BRISCNET shall provide service on a non-discriminatory basis to any business or resident in Bedford County that requests it without regard to race, sex, religion, alienage, disability status, age, or other reason prohibited by law. Service shall only be denied for a valid reason due to (i) capacity, (ii) coverage, (iii) limitations of current technology or deployed equipment, or (iv) any other reasonable and legitimate business reason not in conflict with the foregoing. If a request for service is made by a residence or business and service is not available, BRISCNET shall notify the Authority, indicate what would be needed to provide service to the customer, and work with the Authority to find a solution to expand coverage to the requested area.

5.3.2. *Quarterly Reports.* BRISCNET shall provide the Authority a quarterly report describing the customer base in Bedford County and demonstrating that broadband availability is being expanded into the County. Coverage areas, available services, new buildout activity, and customer success stories demonstrating the impact of the project are strongly encouraged. A list of customer complaints and their resolution status shall also be provided. Customer lists, however, should not be provided unless specifically requested; aggregated data is sufficient.

5.3.3. *Complaints.* Customer service complaints should be resolved as soon as practicable. Excessive legitimate complaints from customers regarding BRISCNET's service sent to the Authority will be considered a failure to meet performance criteria. For purposes of this Agreement "excessive" means a number of legitimate complaints that is more than 20% above industry standards for rural fixed wireless internet service providers. The Authority shall take the following steps to work with BRISCNET and resolve complaints before determining that complaints are excessive. After the Authority works with BRISCNET by following the steps below, the Authority shall have sole discretion in deciding whether issues have been resolved to the satisfaction of the Authority:

a) The Authority will forward all complaints it receives to BRISCNET, and provide BRISCNET's customer service contact information to any person from whom it receives a complaint.

b) If complaints are excessive, both parties shall meet at the Authority Offices or another mutually agreed upon location.

c) At the meeting BRISCNET will provide a report by which to determine whether complaints involve any common factors capable of adequate resolution.

d) BRISCNET shall then have a reasonable time thereafter to resolve such common factors and report to the Authority on the resolution.

e) Failure to resolve such common factors in a manner that is calculated to reduce the number of complaints in compliance with this Agreement shall be a default.

5.4. *Maintenance; Conveyance of Microwave and Fiber Backhaul Systems to BRISCNET.* Maintenance of Towers is the responsibility of the Authority; maintenance of all other equipment owned and utilized by BRISCNET to deliver the wireless internet services contemplated by this Agreement is the responsibility of BRISCNET. The Authority agrees to convey to BRISCNET, without additional consideration, as soon as installed and ready for operation, the fiber and microwave backhaul systems contemplated to be constructed under the Development Agreement. Such conveyance shall include the assignment of rights under any pole attachment agreements regarding the fiber components from the Authority or from the County of Bedford, Virginia, to BRISCNET and the execution of any other transfer documents, bills of sale, use agreements, and any other documents necessary to give BRISCNET full and unencumbered ownership and use of the fiber and microwave backhaul systems.

5.5. *BRISCNET's Right of Access*. Subject to such reasonable security-related rules and regulations as the Authority shall from time-to-time promulgate notifying BRISCNET in writing thirty (30) days in advance of the effective date, BRISCNET and BRISCNET's employees, representatives, contractors and subcontractors shall have the right of 24-hour, 7-day-a-week access to the premises for the purposes of installing, inspecting, maintaining, operating, repairing, or removing equipment and facilities used by BRISCNET in connection with its operations. BRISCNET shall give reasonable advance notice to the Authority, or to the company hired by the Authority to manage the Tower sites (the name and contact of which shall be provided to BRISCNET), when BRISCNET needs access to a site, if practicable, and BRISCNET shall provide a timeframe for access, as soon as practical and in the interest of security, but within 24 hours of the request, except in case of emergency. In the event of an emergency BRISCNET shall give prior notice to the Authority or manager, if possible, or within a reasonable time thereafter. Only those employees, representatives, contractors, and subcontractors of BRISCNET of which the Authority or manager has been informed in writing will be allowed access to the sites. The Authority has the option of assigning a representative to be present at all times when BRISCNET is present at a site. The Authority may establish additional or more or less stringent access requirements by written notification to BRISCNET. However, in no event shall BRISCNET be unreasonably denied access to the site.

5.6. *Duty to Replace Equipment in the Event of Damage or Destruction.* In the event of the damage or destruction of any piece of Equipment, BRISCNET shall repair or replace such equipment within a reasonable time following such damage or destruction. In the event such damage or destruction results in a claim on insurance made under Section

6.2.2.e of this Agreement, BRISCNET shall use all funds recovered on such claim for the purpose of replacement or improvement of such equipment.

5.7. *Replacement.* Choice of wireless communications equipment and its replacement schedule is the responsibility of BRISCNET. BRISCNET has the responsibility, consistent with the other obligations of this Agreement, to replace equipment that is superannuated, technologically obsolescent, or has become unreliable due to passage of time or wear and tear consistent with acceptable practice for rural fixed wireless internet service providers.

5.8. *Exclusive Provider.* The Authority agrees that BRISCNET's Equipment will be deployed on the top position of each tower anticipated by this Agreement and the Authority will not allow any other carriers to lease or deploy on any such position for the term of this Agreement unless BRISCNET waives, in writing, such right. The Authority further agrees that it will not lease to any other wireless internet service provider (WISP) any position on the 12 towers on which BRISCNET places its Equipment for a period of eighteen (18) months from the date of the first deployment of BRICNET Equipment on any of such towers. The Authority agrees that money damages may not be sufficient to compensate BRISCNET in any instance of default of this section 5.7 and agrees that BRISCNET may pursue equitable remedies therefor, including enjoining such leasing.

6. Public Procurement Act. BRISCNET agrees to comply with the following mandatory Public Procurement Act provisions:

6.1. *Required Terms & Conditions.* The provisions of this section apply at any site where performance of work in connection with this specific Agreement is done. Notwithstanding, if any change in the following Virginia Code sections eliminates, modifies, or adds to any of the obligations specifically set forth herein, the eliminated obligations will no longer apply and the modified obligations will apply in lieu of those specifically set forth that are modified by such changes in the law.

6.1.1. *Non-Discrimination.* BRISCNET agrees that it will (Va. Code § 2.2-4311):

a) Not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by local, state, or federal law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of BRISCNET's business;

b) Post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause;

c) State that it is an equal opportunity employer in all solicitations or advertisements for employees placed by or on behalf of SCS to perform services under this Agreement. All notices, advertisements, and solicitation placed in accordance with federal law, rule, or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section; and

d) Will include the provisions of the foregoing subparagraphs in every subcontract or purchase order exceeding $10,000 issued by BRISCNET in order to fulfill its obligations under this Agreement, so that the provisions will be binding on each subcontractor or subvendor.

6.1.2. *Drug-Free Workplace.* BRISCNET agrees that it will (Va. Code § 2.2-4312):

a) Provide a drug-free workplace for its employees;

b) Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in its workplace and specify the actions which will be taken against any employee for a violation;

c) State in all of its solicitations or advertisements for employees to perform services under this Agreement that BRISCNET maintains a drug-free workplace;

d) Include the provisions of this sub-paragraph in every subcontract or purchase order of over $10,000, so that said provisions shall be binding upon each subcontractor or subvendor.

6.1.3. *Illegal Alien Workers.* BRISCNET agrees not to employee illegal alien workers or otherwise violate the provisions of the Immigration Reform and Control Act of 1986.

6.2. *Insurance Requirements.*

6.2.1. *Liability Coverage.* BRISCNET must take out and maintain during the term of this Agreement such bodily injury, personal liability, and property damage liability insurance necessary to protect it and the Authority from claims for damages arising from personal injury, including death, as well as from claims for property damage, which might arise from BRISCNET's performance of its obligations under this Agreement. Such insurance must be issued by a company admitted to do business in the Commonwealth of Virginia and with at least an AM Best rating of A-. Within 10 days after issuance of the Notice to Proceed under this Agreement, and in no event later than the first day on which BRISCNET begins its performance, BRISCNET must provide the Authority with a certificate of insurance showing such insurance to be in force and providing that the insurer must give the Authority at least 30 days' notice prior to cancellation or other termination of or reduction in such insurance. BRISNET will be deemed in compliance with this section 6.2.1, so long as it maintains the insurance required by the following section 6.2.2.

6.2.2. *Insurance.* BRISCNET shall maintain the following insurance to protect it from claims that could arise from performance of this Agreement, including claims (i) under the Workers' Compensation Act; (ii) for personal injury, including death; and (iii) for damage to property, regardless of whether such claims arise out of

BRISCNET's actions or inactions, or those of BRISCNET's subcontractor or other persons directly or indirectly employed by either of them:

a) Worker's Compensation:
Coverage A: Statutory

Coverage B: $100,000

b) General Liability:

Per Occurrence:	$1,000,000
Personal/Advertising Injury:	$1,000,000
General Aggregate:	$2,000,000
Products/Completed Operations	$2,000,000 Aggregate
Fire Damage Legal Liability	$ 100,000

c) Automobile Liability:

Combined Single Limit:	$1,000,000

d) Professional Liability:

Per Occurrence:	$1,000,000
General Aggregate:	$1,000,000

e) Insurance on Equipment. BRISCNET shall maintain insurance on its Equipment in an amount at least equal to its present depreciated value, which amount, however, shall not be less than 100% of the replacement cost of the Equipment.

6.3. Registration to Transact Business (Va. Code § 2.2-4311.2). BRISCNET warrants and certifies that it is authorized to transact business in the Commonwealth of Virginia as a domestic or foreign business entity if so required by Title 13.1 or Title 50 of the Code of Virginia, 1950, as amended, or as otherwise required by law. BRISCNET will not allow its corporate existence to lapse or its certificate of authority or registration to do business in the Commonwealth to be revoked or cancelled at any time during the term of this Agreement. The Authority may void this Agreement if BRISCNET fails to remain in compliance with the provisions of this section.

6.4. Non-Collusion.

6.4.1. *Governmental Frauds Act.* Neither BRISCNET's proposal nor this agreement is the result of, or affected by, any unlawful act of collusion with another person or company engaged in the same line of business or commerce, or any act of fraud punishable under the Virginia Governmental Frauds Act, §§ 18.2-498.1 *et seq.* of the Code of Virginia, 1950, as amended. Furthermore, BRISCNET understands that fraud and unlawful collusion are crimes and can result in fines, prison sentences, and civil damage awards.

6.4.2. *COIA*. All aspects of BRISCNET's proposal and agreement are in compliance with the applicable provisions of the State and Local Government Conflict of Interests Act, §§ 2.2-3100 *et seq.* of the Code of Virginia, 1950, as amended. Specifically, without limitation, no employee of the Authority or member of employee's immediate family shall have any proscribed personal interest in this Agreement.

6.4.3. *Ethics in Contracting*. BRISCNET's proposal and this Agreement are in accordance with the applicable provisions of the Virginia Public Procurement Act, Art. 6, Ethics in Public Contracting, §§ 2.2-4367 *et seq.* of the Code of Virginia, 1950, as amended, and any other applicable law set forth therein.

7. Remedies.

7.1. *Right of Authority to Terminate Agreement upon Bankruptcy or Insolvency of BRISCNET.* In the event BRISCNET becomes bankrupt, either voluntarily or involuntarily, or if a receiver is appointed for it, or if it executes any bill of sale, deed of trust, or general assignment for the benefit of creditors in lieu of foreclosure, or become critically insolvent, in the sole judgment of the Authority, the Authority may terminate this Agreement, giving BRISCNET reasonable time to remove its Equipment from the Towers.

7.2. *Right of Authority to Make Payments.* In the event BRISCNET intends to default on any payment to any creditor who has or may have a lien on the Equipment, it shall give notice to the Authority at the same time as it gives notice to the creditor. The Authority has the right to advance such sums as may be necessary to make payments on behalf of BRISCNET under any lien, credit, subordination, or other agreement relating to the Equipment, including any taxes, insurance proceeds, replacements, or repairs to the Equipment, or to ensure the performance of any of the covenants included in such credit agreement or lien, which sums shall become a lien on the Equipment in favor of the Authority. All such advances may be evidenced by the Authority by a memorandum of lien, and shall bear interest from the date of payment thereof at the lawful judgment interest rate in the Commonwealth of Virginia.

7.3. *Termination for Cause.*

7.3.1. If BRISCNET should fail to perform any of its material obligations under this Agreement, or otherwise be in material violation of any provision of this Agreement, then BRISCNET shall be in default of the Agreement.

7.3.2. The Authority will give BRISCNET prompt written notice of any default and allow twenty-one (21) days during which BRISCNET may rectify the basis for the notice of default. If the default is not one that is rectifiable within twenty-one (21) days, but is rectifiable within a reasonable period of time, BRISCNET shall have such additional time to cure as is necessary, so long as it commences such cure within twenty-one (21) days and diligently pursues the same. If the default is rectified to the reasonable satisfaction of the Authority within such period of time, the Authority shall rescind its notice of default. If not, the Authority may terminate this Agreement for cause by providing written notice of termination to BRISCNET. Without limiting any other remedy available to customers or the Authority,

BRISCNET shall not charge customers, or shall abate all charges to customers, if any such default prevents it from providing service to such customers for more than twenty-four (24) consecutive hours, for the period of actual failure of service.

7.3.3. Termination of this Agreement under this Section is in addition to and without prejudice to any other right or remedy of the Authority. Any actions by the Authority permitted herein shall not be deemed a waiver of any other right or remedy of the Authority under this Agreement or under the law. The provisions of this Section shall survive termination of this Agreement.

8. Delays or Interruptions in Service Caused by Authority. To the extent that any delays, disruptions, or interruptions in BRISCNET's provision of wireless internet services to customers are caused by the acts, or failures to act, of the Authority, the Authority shall pay to BRISCNET any and all amounts that BRISCNET was unable to charge customers, or had to abate customers, in compliance with the provisions of Section 7.3.2, above. Such acts, or failures to act, will include, but not be limited to, the refusal or failure of the Authority or the County of Bedford, Virginia, to provide services through infrastructure or facilities owned by the Authority or by the County of Bedford, Virginia, without charges in addition to those set forth in the Agreement, necessary to allow BRISCNET to provide data and/or signal services to its customers, unless such acts or failures to act are for good cause or are beyond the control of the Authority or of the County of Bedford, Virginia, as the case may be. Any such payments must be paid within thirty (30) days of demand from BRISCNET to the Authority.

9. Miscellaneous.

9.1. *Integration.* This Agreement, including the exhibits hereto, constitutes the full and complete agreement of the Parties respecting its subject matter, and any prior or contemporaneous agreements or understandings, written or oral, are hereby merged into and superseded by the provisions of this Agreement. This Agreement may only be amended or supplemented by a subsequent writing of equal dignity except where expressly set forth herein. This Agreement may not be assigned by a Party without the prior written consent of the other Party.

9.2. *Assignment*. BRISCNET may assign its interests, rights, and obligations under this Agreement, in whole and not in part, to a subsidiary or a person or entity under common ownership or control with BRISCNET without need of consent from the Authority; provided, however, that BRISCNET shall provide the Authority notice of the assignment not later than the date on which it occurs. BRISCNET may assign its interests, rights, and obligations under this Agreement, in whole or in part, to any person or entity with the financial ability and technical expertise to exercise its rights and meet its obligations under this Agreement, with the consent of the Authority. BRISCNET shall request the consent not later than 21 days prior to closing, together with sufficient information for the Authority to assess the proposed assignee's financial ability and technical expertise to exercise its rights and meet its obligations under the assignment, which shall be the sole considerations the Authority shall take into account in giving its consent. Such consent shall not be unreasonably withheld, conditioned, or delayed.

9.3. *Notices*. Notices may be given to:

If to Authority:

Bedford County Broadband Authority
Attn: Patrick Skelley, II
122 East Main Street
Bedford, Virginia 24523
p.skelley@bedfordcountyva.gov

If to BRISCNET:

Blue Ridge Internet Service Company, LLC
Attn: Anthony Smith
1125 1st Street
Roanoke, Virginia 22922

Either Party may amend addresses it has set forth in this paragraph by sending notice to the other Party as set forth in this paragraph, notwithstanding the provisions of section 8.1.

9.4. *No Covenants of Officials.* No covenant, agreement or obligation contained in this Agreement shall be deemed to be a covenant, agreement or obligation of any present or future director, officer, employee, council member, supervisor or agent of the Authority in his or her individual capacity, and neither Authority officials nor any officer, employee, council member, supervisor or agent thereof executing this Agreement or any related instrument shall be liable personally on this Agreement or such instrument or be subject to any personal liability or accountability by reason of the execution and delivery thereof. No director, officer, employee, council member, supervisor or agent of the Authority shall incur any personal liability with respect to any other action taken by him or her pursuant to this Agreement or any of the transactions contemplated hereby, provided he or she acts in good faith.

9.5. *Rule of construction as to dates*. If any action is required to be performed, or if any notice, consent or other communication is given, on a day that is a Saturday or Sunday or a legal holiday in the Commonwealth of Virginia, such performance shall be deemed to be required, and such notice, consent or other communication shall be deemed to be given, on the first business day following such Saturday, Sunday or legal holiday. Unless otherwise specified herein, all references in this Agreement to a "day" or "days" shall refer to calendar days and not business days.

9.6. *Choice of law.* This Agreement shall be construed according to the laws of the Commonwealth of Virginia without regard to its principles of conflicts of laws. The Parties consent to exclusive venue and jurisdiction in the General District Court or Circuit Court for Bedford County, Virginia, and shall not file any suit in any other court.

9.7. *Drafter & Severability.* This Agreement has been jointly drafted by the Parties, and is to be construed as jointly drafted and not be construed against either of the Parties as the drafter. This Agreement is severable, and if any provision is found to be invalid by any court of competent jurisdiction, the remainder shall survive. The section and paragraph headings in this Agreement are for convenience of reference only and do not modify or

restrict any provisions hereof and shall not be used to construe any provisions of this Agreement.

9.8. *Covenant of authority.* All Parties warrant that the signatories below have full authority, and have undertaken such legal actions as may be necessary to ensure such authority, to bind the entities of which they are representatives to the full extent permitted by law. This Agreement may be executed by facsimile, electronic or original signature of the Parties and in counterparts which, assuming no modification or alteration, shall constitute an original and when taken together, shall constitute one and the same instrument.

9.9. *Time of the essence.* Time is of the essence of all obligations set forth herein for which a time is stated.

9.10. *Waiver.* The failure of either Party to this Agreement to insist upon strict compliance with any term herein shall not be construed to be a waiver of that requirement.

IN WITNESS WHEREOF, the Parties affix their signatures below:

BEDFORD COUNTY BROADBAND AUTHORITY

By:

Its: Chair

Approved as to legal form:

Patrick Skelley, II

Authority Counsel

BLUE RIDGE INTERNET SERVICE COMPANY, LLC

By: Anthony Smith

Its: Manager