From: Scala, Mary Joy
Sent: Tuesday, April 25, 2017 4:19 PM
To: 'Schweller, Lori H.'; 'Stephen Waller'
Cc: Robertson, Lisa
Subject: BAR Action - 1605 Gordon Avenue - April 18, 2017

April 25, 2017

R&I Buildings CO, LC
400 Locust Avenue, Suite 3
Charlottesville, VA 22902

Verizon Wireless – C/O Stephen Waller, AICP
8159 Cancun Court
Gainesville, VA 20155

RE: Certificate of Appropriateness Application
BAR 17-04-04
1605 Gordon Avenue
Tax Parcel 050070000
R & I Buildings CO, LC, Owner/ Verizon, Applicant
Proposed cell antenna

Dear Applicant,

The above referenced project was discussed before a meeting of the City of Charlottesville Board of Architectural Review (BAR) on April 18, 2017. The following action was taken:

Schwarz moved to approve a COA for BAR 17-04-04, proposing installation of wireless communication transmission equipment on the roof of a building located at 1605 Gordon Avenue, because the proposed installation is architecturally compatible with the character of this property and of the Rugby Road-University Circle-Venable Neighborhood ADC District. This approval is subject to the following conditions:

(1)All communications/ transmission equipment, and related facilities, shall be installed in accordance with a coordinated Concealment Plan approved by this BAR. The Concealment Plan hereby approved for this property as follows:

- **Communications/ transmission equipment, and related facilities, shall be disguised by, or disguised as, architectural features, fixtures, or building appurtenances. Concealment elements created for the sole purpose of disguising or hiding such equipment and facilities shall be treated, considered and reviewed in the same manner as the architectural features, fixtures or appurtenances they mimic.**
- **In the aggregate, all architectural features, fixtures and appurtenances shall not exceed such number, and shall be of such massing, type and appearance, as may be compatible with similar features, fixtures and appurtenances on other building(s) within this ADC District. Approval of a concealment element for one installation does not guarantee approval of the same concealment element(s) for all future installations.**

- **All future installations of communications/ transmission equipment shall be in accordance with this Concealment Plan.**

(2)The current application proposes only one (1) antenna/data node, and related equipment and facilities, to be installed on the roof of the existing commercial building. Consistent with the above-referenced Concealment Plan, this proposed installation shall be installed and disguised as follows:

- **The proposed antenna/data node shall be enclosed within a stealth concealment sleeve ("vent pipe sleeve") installed solely for the purpose of concealing the antenna/ data node.**
- **The vent pipe sleeve shall be a color that is a neutral, light-gray tone similar to other vent pipes that extend above roofs within the ADC District. The vent pipe sleeve shall not be more than 12" inches in diameter, nor shall it extend more than 4'-5" above the parapet. No portion of the antenna/ data node within the vent pipe sleeve shall extend above the top of the vent pipe sleeve.**
- **The proposed antenna/ data node shall be mounted on a non-penetrating, ballasted sled placed in the southeastern corner of the roof of the building. No portion of the sled shall be visible from any adjacent street or property, unless it is within the vent pipe sleeve.**
- **The equipment cabinet (approximately 24 inches (L) x 20 inches (W) x 11 inches (D)), two remote radio heads, fiber optic coupler, and all other equipment and facilities supporting the operation of the antenna/ data node, shall be mounted on a rooftop equipment frame that, itself, is approximately six (6) feet wide and five (5) feet tall. The equipment frame shall be set back at least 13 feet from the adjacent building facades, or such greater setback as necessary to preclude any portion of the equipment frame from being visible at ground level from any adjacent street or property. Conduit for the equipment shall be designed to mimic the existing downspouts on the building.**

Mohr seconded. Motion passed (6-1, with Miller opposed).

This certificate of appropriateness shall expire in 18 months (October 18, 2018), unless within that time period you have either: been issued a building permit for construction of the improvements if one is required, or if no building permit is required, commenced the project. The expiration date may differ if the COA is associated with a valid site plan. You may request an extension of the certificate of appropriateness *before this approval expires* for one additional year for reasonable cause.

If you have any questions, please contact me at 434-970-3130 or scala@charlottesville.org.

Sincerely yours,

Mary Joy Scala, AICP
Preservation and Design Planner

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

CITY OF CHARLOTTESVILLE
BOARD OF ARCHITECTURAL REVIEW
STAFF REPORT
April 18, 2017

Certificate of Appropriateness Application
BAR 17-04-04
1605 Gordon Avenue
Tax Parcel 050070000
R & I Buildings CO, LC, Owner/ Verizon, Applicant
Proposed cell antenna

Background

1605 Gordon Avenue is a non-contributing structure in the Rugby Road-University Circle-Venable Neighborhood ADC District. It is located within the Rugby Road –University Corner National Register District.

The original, plain, frame house, built c 1920, was demolished in 2003 and a new 3-story apartment building was constructed without BAR review, probably in 2004, prior to the ADC District that was adopted in 2006.

Application

The applicant is requesting approval the installation of a new attached, concealed, wireless telecommunications facility to be installed on the roof of an apartment building located at 1605 Gordon Avenue. This data node facility will consist of a 12"(Diameter) x 28.7"(L) cylindrical, omnidirectional antenna that will be mounted on a ballasted base near the southeastern corner of the apartment building's roof, enclosed within a stealth concealment element designed to look like a vent pipe. The antenna concealment box will be colored a neutral light gray tone to look like a vent pipes that extend above various roofs throughout the City of Charlottesville, according to the applicant.

The supporting base station transmitting equipment will consist of a radio cabinet that is approximately 23.4"(L) x 19.4"(W) x 10.8"(D), two remote radio heads, and a diplexer, which will be mounted on a separate equipment frame that is 6' wide with a top height of 4.9" from the point at which it will be installed on the rooftop. This equipment, which according to the applicant is like various types of other electrical equipment in the area, will be set back far enough from the building's walls to prevent visibility from the adjacent street.

Criteria and Guidelines

Review Criteria Generally

Sec. 34-284(b) of the City Code states that,
In considering a particular application the BAR shall approve the application unless it finds:
(1) That the proposal does not meet specific standards set forth within this division or applicable provisions of the Design Guidelines established by the board pursuant to Sec.34-288(6); and
(2) The proposal is incompatible with the historic, cultural or architectural character of the district in which the property is located or the protected property that is the subject of the application.

Pertinent Standards for Review of Construction and Alterations include:

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

Pertinent Design Review Guidelines for Site Design and Elements

H. Utilities and Other Site Appurtenances

Site appurtenances, such as overhead utilities, fuel tanks, utility poles and meters, antennae, exterior mechanical units, and trash containers, are a necessary part of contemporary life. However, their placement may detract from the character of the site and building.

1. *Plan the location of overhead wires, utility poles and meters, electrical panels, antennae, trash containers, and exterior mechanical units where they are least likely to detract from the character of the site.*
2. *Screen utilities and other site elements with fences, walls or plantings*
3. *Encourage the installation of utility services underground.*
4. *Antennae and communication dishes should be placed in inconspicuous rooftop locations, not in a front yard.*
5. *Screen all rooftop mechanical equipment with a wall of material harmonious with the building or structure.*

Discussion and Recommendations

In 2012, congress enacted the "Spectrum Act" to facilitate expansion of wireless broadband services. Localities cannot deny, and must approve, the proposed placement of antennas on existing towers and base stations, if the physical dimensions of the tower or base station will not be substantially changed.

The Telecommunication Facilities section of the City's zoning ordinance was changed in September of 2016, due to the 2012 federal "Spectrum Act." Pertinent sections are:

Sec. 34-1073. Design control districts.

(a) *Within the city's historic* and entrance corridor *overlay districts* attached communications facilities that are visible from any adjacent street or property are prohibited; provided, however, that by special use permit city council may authorize such facilities on a specific lot.

Sec. 34-1080

(a) Attached communications facilities that are permitted to be visible from adjacent streets or properties shall comply with the following standards:

(1) Such facilities shall be designed and located so as to blend in with the existing support structure. The facilities shall be attached to the support structure in the least visible location that is consistent with proper functioning of equipment. The colors of the facility and the attachment structure will be coordinated, and compatible neutral colors shall be utilized.

(b) Attached communications facilities that are permitted only if not visible from adjacent streets or properties shall comply with the following standards:

(1) Such facilities must be concealed by an architectural feature or lawful appurtenance of the support structure, provided that ground-level equipment may be concealed by landscape screening.

Currently, there is not any existing telecommunications equipment on the roof of 1605 Gordon Avenue. The BAR should read the attached September 24, 2015 memo sent by the City Attorney on telecommunication issues, and decide if adding this proposed equipment and its screening will adversely affect the character of this property within the ADC District.

In a subsequent communication regarding 1605 Gordon Avenue, she writes: "*The attached facility is not visible from an adjacent street. However, per 34-1080(b), concealment is required and, in an ADC District a COA is required for a concealment feature. ...action on both the COA application and zoning verification will be completed within 60 days (this is not an eligible facilities request).*"

Staff would like to add while there may be little aesthetic impact on the overall property, putting telecommunications equipment on this roof will open up the property to the additions of more antennas in the future. The city attorney writes, "**Upon approval of even a single antenna to be located on an existing building, the City creates an "existing base station". Therefore, collocations of new or replacements antennas cannot be denied if federal criteria are met.**"

In staff opinion, the supporting equipment should also be screened appropriately on all sides. The BAR may want further clarification of the appearance of the conduits that will run along the side of the building to make sure they will not have unexpected impacts.

Suggested Motion

Having considered the standards set forth within the City Code, including City Design Guidelines for Site Design and Elements, I move to find that the proposed cell antenna and additional telecommunications equipment satisfy/do not satisfy the BAR's criteria and are compatible/ not compatible with this property and other properties in the Rugby Road-University Circle-Venable Neighborhood ADC District, and that the BAR approves/denies the application as submitted, (or with the following modifications...).

From: Robertson, Lisa
Sent: Thursday, September 24, 2015 4:47 PM
To: BAR; Lahendro, Jody; Dowell, Taneia; Keller, Genevieve; Rosensweig, Dan; Santoski, John
Cc: Ikefuna, Alexander; Creasy, Missy; Haluska, Brian; Gore, Andrew
Subject: Telecomm Issues

Members of the BAR and ERB,

I am writing to call to your attention two circumstances in which applications seeking approval for installation of telecommunications equipment will not be subject to BAR/ ERB review. Staff has two pending applications that must be approved per federal law, but we wanted to provide you with the following information before approval letters are sent out.

1. **"Eligible Facilities Requests" pursuant to the Federal Spectrum Act.**

You may or may not be aware that, in 2012, as part of the Middle Class Tax Relief and Job Creation Act, Congress enacted the "Spectrum Act" in order to (among other things) facilitate the expansion of wireless broadband services. Pursuant to Section 6409 of the Spectrum Act (codified at 47 U.S.C. Sec. 1455(a)) localities cannot deny, and must approve, the proposed placement of antennas on existing towers and base stations, if the physical dimensions of the tower or base station will not be substantially changed. The FCC regulations implementing the Spectrum Act requirements are attached to this e-mail.

In a nutshell: in cases where **(i)** an existing building currently serves as the support for any "transmission equipment", including any antenna (together, the building and transmission equipment are referred to as an "existing base station"), **(ii)** the existing base station was reviewed and approved under the local zoning process, or an applicable state review process, **(iii)** the installation as proposed will not defeat any concealment element(s) of the building/ support structure, and **(iv)** the physical dimensions of the existing base station will not be substantially changed, then federal law prohibits the City from doing anything other than approving the application. Upon approval of even a single antenna to be located on an existing building, the City creates an "existing base station". Thereafter, collocations of new or replacement antennas cannot be denied if federal criteria are met. Localities cannot make applicants comply with general submission requirements for site plans or other development reviews—for "Eligible Facilities", the City may only require the submission of a minimal amount of information, as necessary to demonstrate that the federal criteria are met. The City is required to make a decision on an Eligible Facilities request within 60 days of the day on which the application is received. **Therefore, going forward, when NDS receives "Eligible Facilities" Requests, I am recommending that those requests be reviewed by staff in relation to the applicable criteria, and then approved by the Director of NDS without review by either the BAR or the Entrance Corridor Board.**

At the existing Monticello Hotel Building (500 Court Square) there are two pending applications (*see attached draft correspondence*). We have reached the 60-day deadline, and the applicants' attorney is requesting a decision. For each: **(i)** the existing building serves as the support for numerous items of transmission equipment, including antennas; **(ii)** one or more of the existing equipment items located on the rooftop was previously approved by the City, either upon original installation, or subsequent replacement; **(iii)** none of the existing equipment is concealed by any feature of the building, so there are no existing "concealment elements" that could be defeated by additional [unconcealed] antennas, and **(iv)** we have two applications which, according to plans and the

certification of an attorney, propose installation of antennas in a manner that will not substantially change the physical dimensions of the existing base station. **It is my opinion that these two applications must be approved administratively by the Director, without going through zoning review procedures, because there are no local limitations or requirements (other than USBC requirements) that can be imposed on these installations.**

2. **Certain "attached communications facilities" within historic and entrance corridor districts**

Under Sec. 34-1073 of the City's Zoning Ordinance, certain attached communications facilities are permitted uses within the City's historic and entrance corridor districts. These permitted facilities, so long as they comply with certain height and dimensional requirements, are not subject to the requirement for a certificate of appropriateness—only a building permit is required. *See* City Code 34-1083. The facilities are as follows:

- Attached communications facilities that utilize utility poles, or other electric transmission facilities, as the attachment structure (subject to certain visibility requirements of Sec. 34-1080), and

- Other attached communications, e.g., antennas mounted on an existing building, <u>if they are invisible</u> ("not visible from any adjacent street or property"). Examples: antennas concealed within existing exterior light fixtures; antennas concealed within an existing chimney structure.

For these facilities, compliance with the visibility, placement and dimensional requirements of the Code must be verified by zoning staff administratively, prior to the building official's issuance of a building permit.

Note: I will qualify the above by saying that, in the event a NEW structure is proposed to be added onto an existing building—to serve as the concealment mechanism for an antenna—(for example, a fake chimney) then a certificate of appropriateness would need to be obtained for the new structure. (As part of that review, the BAR/ ERB should <u>also</u> address how subsequent antennas added to the same site will be concealed).

Recommendation: I recommend that, when the BAR or ERB receives an application seeking approval of the <u>first</u> antenna proposed on a building, the applicable review board (or staff granting administrative approval, if applicable) should consider requiring a comprehensive concealment plan demonstrating how that first, and each potential subsequent antenna, will be and remain concealed in the future. (See Paragraph 1, preceding above). If you don't establish concealment requirements with the very first approval, then the new federal regulations don't allow you to require concealment at the time when additional antennas are later proposed to be added.

We are planning to send the letters out tomorrow. Feel free to contact me with any questions.

Lisa

Lisa A. Robertson, Esq.
Chief Deputy City Attorney
City of Charlottesville| Office of The City Attorney

Board of Architectural Review (BAR)
Certificate of Appropriateness

RECEIVED
MAR 27 2017
NEIGHBORHOOD DEVELOPMENT SERVICES

Please Return To: City of Charlottesville
Department of Neighborhood Development Services
P.O. Box 911, City Hall
Charlottesville, Virginia 22902
Telephone (434) 970-3130 Email scala@charlottesville.org

Please submit ten (10) hard copies and one (1) digital copy of application form and all attachments.
Please include application fee as follows: New construction project $375; Demolition of a contributing structure $375; Appeal of BAR decision $125; Additions and other projects requiring BAR approval $125; Administrative approval $100.
Make checks payable to the City of Charlottesville.
The BAR meets the third Tuesday of the month.
Deadline for submittals is Tuesday 3 weeks prior to next BAR meeting by 3:30 p.m.

Owner Name R&I Buildings CO, LC Applicant Name Verizon

Project Name/Description Verizon - UVA MC N003 (1605 Gordon Avenue) Parcel Number 050070000

Project Property Address 1605 Gordon Avenue

Applicant Information

Address: Verizon - C/O Stephen Waller, AICP
8159 Cancun Court, Gainesville, VA 20155
Email: stephen.waller@gdnsites.com
Phone: (W) 434-825-9617 (C) _____

Property Owner Information (if not applicant)

Address: R&I Buildings CO, LC
400 Locust Avenue, Suite 3, Charlottesville, VA 22902
Email: _____
Phone: (W) 434-977-6400 (C) _____

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

Signature of Applicant

I hereby attest that the information I have provided is, to the best of my knowledge, correct.

Signature March 24, 2017
Date

Stephen Waller, AICP March 24, 2017
Print Name Date

Property Owner Permission (if not applicant)

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

Signature Date

Print Name Date

For Office Use Only

Received by: J. Barnore
Fee paid: $125.00 Cash/Ck. # 1513
Date Received: 3/27/2017
Revised 2016

P17-0034

Approved/Disapproved by: _____
Date: _____
Conditions of approval: _____

SITE NAME: UVA MC N003
SITE NUMBER: 20151235583
ATTY/DATE: L. Schweller/2-16-16, rev'd 2-19-16

LEASE AGREEMENT

This Lease Agreement (the "Agreement") made this 3rd day of November 2016, between **R & I Buildings Co., LC**, a Virginia limited liability company, with its principal offices located at 400 Locust Ave., Suite 3 Charlottesville, VA 22902, hereinafter designated LESSOR and **Cellco Partnership d/b/a Verizon Wireless** with its principal offices at One Verizon Way, Mail Stop 4AW100, Basking Ridge, New Jersey 07920 (telephone number 866-862 4404), hereinafter designated LESSEE. LESSOR and LESSEE are at times collectively referred to hereinafter as the "Parties" or individually as the "Party."

WITNESSETH

In consideration of the mutual covenants contained herein and intending to be legally bound hereby, the Parties hereto agree as follows:

1. PREMISES. LESSOR hereby leases to LESSEE approximately twenty five (5' x 5') square feet of space for an equipment cabinet and electric panel within an existing storage closet (the "Floor Space") and approximately two hundred (two 10' x 10' areas) square feet on the roof (the "Rooftop Space") of the building (the "Building") located at 1605 Gordon Avenue, Charlottesville, VA, current Tax Map parcel number 050070000 in the City of Charlottesville, Commonwealth of Virginia (the Building and such real property are hereinafter sometimes collectively referred to as the "Property"), for the installation, operation and maintenance of communications equipment; together with such additional space on the roof of the Building sufficient for the installation, operation and maintenance of antennas (the "Antenna Space"); together with such additional space within the Building and on the roof of the Building for the installation, operation and maintenance of wires, cables, conduits and pipes (the "Cabling Space") running between and among the Floor Space, Rooftop Space and Antenna Space and to all necessary electrical and telephone utility sources located within the Building or on the Property; together with the non-exclusive right of ingress and egress from a public right-of-way, seven (7) days a week, twenty four (24) hours a day, over the Property and in and through the Building to and from the Premises (as hereinafter defined) for the purpose of installation, operation and maintenance of LESSEE's communications facility. Prior to entering onto the Property, LESSEE shall notify to LESSOR by email, telephone or notice letter. The Floor Space, Rooftop Space, Antenna Space and Cabling Space are hereinafter collectively referred to as the "Premises" and are as shown on Exhibit "A" attached hereto and made a part hereof. In the event there are not sufficient electric and telephone, cable or fiber utility sources located within the Building or on the Property, LESSOR agrees to grant LESSEE or the local utility provider the right to install such utilities on, over and/or under the Property and through the Building necessary for LESSEE to operate its communications facility, provided the location of such utilities shall be as reasonably designated by LESSOR. LESSEE shall be responsible for all installation costs for the communications facility and shall be responsible for repairing any damage to the Building that LESSEE may cause during installation, maintenance, or operation of the communications facility.

2. TERM; RENTAL;

This Agreement shall be effective as of the date of execution by both Parties, provided, however, the initial term shall be for five (5) years and shall commence on the first day of the month following the day that LESSEE commences installation of the equipment on the Premises (the

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"Commencement Date") at which time rental payments shall commence and be due at a total annual rental of [redacted] to be paid in equal monthly payments of [redacted] to **The Building Management Co at address 400 Locust Avenue, Suite 3, Charlottesville, VA 22902** or to such other person, firm or place as LESSOR may, from time to time, designate in writing at least thirty (30) days in advance of any rental payment date by notice given in accordance with Paragraph 15 below. LESSOR and LESSEE acknowledge and agree that initial rental payment shall not actually be sent by LESSEE until ninety (90) days after the Commencement Date. LESSOR and LESSEE agree that they shall acknowledge in writing the Commencement Date.

[redacted]

Upon agreement of the Parties, LESSEE may pay rent by electronic funds transfer and in such event, LESSOR agrees to provide to LESSEE bank routing information for such purpose upon request of LESSEE.

LESSOR hereby agrees to provide to LESSEE certain documentation (the "Rental Documentation") including without limitation: (i) documentation evidencing LESSOR's good and sufficient title to and/or interest in the Property and right to receive rental payments and other benefits hereunder; (ii) a completed Internal Revenue Service Form W-9, or equivalent for any party to whom rental payments are to be made pursuant to this Agreement; and (iii) other documentation requested by LESSEE and within fifteen (15) days of obtaining an interest in the Property or this Agreement, any assignee(s), transferee(s) or other successor(s) in interest of LESSOR shall provide to LESSEE such Rental Documentation, All documentation shall be acceptable to LESSEE in LESSEE's reasonable discretion. Delivery of Rental Documentation to LESSEE shall be a prerequisite for the payment of any rent by LESSEE and notwithstanding anything to the contrary herein, LESSEE shall have no obligation to make any rental payments until Rental Documentation has been supplied to LESSEE as provided herein.

Within thirty (30) days of a written request from LESSEE, LESSOR or any assignee(s) or transferee(s) of LESSOR agrees to provide updated Rental Documentation. Delivery of Rental Documentation to LESSEE shall be a prerequisite for the payment of any rent by LESSEE to such party and notwithstanding anything to the contrary herein, LESSEE shall have no obligation to make any rental payments until Rental Documentation has been supplied to LESSEE as provided herein.

3. ELECTRICAL. LESSEE shall furnish and install an electrical meter at the Premises for the measurement of electrical power used by LESSEE's installation and shall pay the cost of its actual electricity consumption directly to the electricity provider.

4. EXTENSIONS. This Agreement shall automatically be extended for four (4) additional five (5) year terms unless LESSEE terminates it at the end of the then current term by giving LESSOR written notice of the intent to terminate at least three (3) months prior to the end of the then current term. The initial term and all extensions shall be collectively referred to herein as the "Term."

5. USE; GOVERNMENTAL APPROVALS: LESSEE shall use the Premises for the purpose of constructing, maintaining, repairing and operating a communications facility and uses incidental thereto. LESSEE shall have the right to replace, repair, add or otherwise modify its utilities, equipment, antennas and/or conduits or any portion thereof and the frequencies over which the equipment operates, whether the equipment, antennas, conduits or frequencies are specified or not on any exhibit attached hereto, during the Term. It is understood and agreed that LESSEE's ability to use the Premises is contingent upon its obtaining after the execution date of this Agreement all of the certificates,

permits and other approvals (collectively the "Governmental Approvals") that may be required by any Federal, State or Local authorities as well as a satisfactory building structural analysis which will permit LESSEE use of the Premises as set forth above. LESSOR shall cooperate with LESSEE in its effort to obtain such approvals and shall take no action which would adversely affect the status of the Property with respect to the proposed use thereof by LESSEE. In the event that (i) any of such applications for such Governmental Approvals should be finally rejected; (ii) any Governmental Approval issued to LESSEE is canceled, expires, lapses, or is otherwise withdrawn or terminated by governmental authority; or (iii) LESSEE determines that such Governmental Approvals may not be obtained in a timely manner, LESSEE shall have the right to terminate this Agreement. Notice of LESSEE's exercise of its right to terminate shall be given to LESSOR in accordance with the notice provisions set forth in Paragraph 15 and shall be effective upon the mailing of such notice by LESSEE, or upon such later date as designated by LESSEE. All rentals paid to said termination date shall be retained by LESSOR. Upon such termination, this Agreement shall be of no further force or effect except to the extent of the representations, warranties and indemnities made by each Party to the other hereunder. Otherwise, the LESSEE shall have no further obligations for the payment of rent to LESSOR.

6. INDEMNIFICATION. Subject to Paragraph 7, below, each Party shall indemnify and hold the other harmless against any claim of liability or loss from personal injury or property damage resulting from or arising out of the negligence or willful misconduct of the indemnifying Party, its employees, contractors or agents, except to the extent such claims or damages may be due to or caused by the negligence or willful misconduct of the other Party, or its employees, contractors or agents.

7. INSURANCE.

a. The Parties hereby waive and release any and all rights of action for negligence against the other which may hereafter arise on account of damage to the Premises or to the Property, resulting from any fire, or other casualty of the kind covered by standard fire insurance policies with extended coverage, regardless of whether or not, or in what amounts, such insurance is now or hereafter carried by the Parties, or either of them. These waivers and releases shall apply between the Parties and they shall also apply to any claims under or through either Party as a result of any asserted right of subrogation. All such policies of insurance obtained by either Party concerning the Premises or the Property shall waive the insurer's right of subrogation against the other Party.

b. LESSOR and LESSEE each agree that at its own cost and expense, each will maintain commercial general liability insurance with limits not less than $1,000,000 for injury to or death of one or more persons in any one occurrence and $500,000 for damage or destruction to property in any one occurrence. LESSOR and LESSEE each agree that it will include the other Party as an additional insured.

8. LIMITATION OF LIABILITY. Except for indemnification pursuant to Paragraphs 6 and 17, neither Party shall be liable to the other, or any of their respective agents, representatives, employees for any lost revenue, lost profits, loss of technology, rights or services, incidental, punitive, indirect, special or consequential damages, loss of data, or interruption or loss of use of service, even if advised of the possibility of such damages, whether under theory of contract, tort (including negligence), strict liability or otherwise

9. ANNUAL TERMINATION. Notwithstanding anything to the contrary contained herein, provided LESSEE is not in default hereunder beyond applicable notice and cure periods, LESSEE shall

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have the right to terminate this Agreement (a) at any time prior to the Commencement Date and (b) upon any annual anniversary of the Commencement Date provided that three (3) months prior notice is given to LESSOR.

10. INTERFERENCE. LESSEE agrees to install equipment of the type and frequency which will not cause harmful interference which is measurable in accordance with then existing industry standards to any equipment of LESSOR or other lessees of the Property which existed on the Property prior to the date this Agreement is executed by the Parties. In the event any after-installed LESSEE's equipment causes such interference, and after LESSOR has notified LESSEE in writing of such interference, LESSEE will take all commercially reasonable steps necessary to correct and eliminate the interference, including but not limited to, at LESSEE's option, powering down such equipment and later powering up such equipment for intermittent testing. In no event will LESSOR be entitled to terminate this Agreement or relocate the equipment as long as LESSEE is making a good faith effort to remedy the interference issue. LESSOR agrees that LESSOR and/or any other tenants of the Property who currently have or in the future take possession of the Property will be permitted to install only such equipment that is of the type and frequency which will not cause harmful interference which is measurable in accordance with then existing industry standards to the then existing equipment of LESSEE. The Parties acknowledge that there will not be an adequate remedy at law for noncompliance with the provisions of this Paragraph and therefore, either Party shall have the right to equitable remedies, such as, without limitation, injunctive relief and specific performance.

11. REMOVAL AT END OF TERM. LESSEE shall, upon expiration of the Term, or within ninety (90) days after any earlier termination of the Agreement, remove its equipment, conduits, fixtures and all personal property and restore the Premises to its original condition, reasonable wear and tear and casualty damage excepted. LESSOR agrees and acknowledges that all of the equipment, conduits, fixtures and personal property of LESSEE shall remain the personal property of LESSEE and LESSEE shall have the right to remove the same at any time during the Term, whether or not said items are considered fixtures and attachments to real property under applicable laws. If such time for removal causes LESSEE to remain on the Premises after termination of this Agreement, LESSEE shall pay rent at the then existing monthly rate or on the existing monthly pro-rata basis if based upon a longer payment term, until such time as the removal of the building, antenna structure, fixtures and all personal property are completed.

12. RIGHTS UPON SALE. Should LESSOR, at any time during the Term decide (i) to sell or transfer all or any part of the Property or the Building thereon to a purchaser other than LESSEE, or (ii) to grant to a third party by easement or other legal instrument an interest in and to that portion of the Building and or Property occupied by LESSEE, or a larger portion thereof, for the purpose of operating and maintaining communications facilities or the management thereof, such sale or grant of an easement or interest therein shall be under and subject to this Agreement and any such purchaser or transferee shall recognize LESSEE's rights hereunder under the terms of this Agreement.

13. QUIET ENJOYMENT AND REPRESENTATIONS. LESSOR covenants that LESSEE, on paying the rent and performing the covenants herein, shall peaceably and quietly have, hold and enjoy the Premises. LESSOR represents and warrants to LESSEE as of the execution date of this Agreement, and covenants during the Term that LESSOR is seized of good and sufficient title and interest to the Property and has full authority to enter into and execute this Agreement. LESSOR further covenants during the Term that there are no liens, judgments or impediments of title on the Property, or affecting LESSOR's title to the same and that there are no covenants, easements or restrictions which prevent or adversely affect the use or occupancy of the Premises by LESSEE as set forth above.

14. ASSIGNMENT. This Agreement may be sold, assigned or transferred by the LESSEE without any approval or consent of the LESSOR to the LESSEE's principal, affiliates, subsidiaries of its principal or to any entity which acquires all or substantially all of LESSEE's assets in the market defined by the Federal Communications Commission in which the Property is located by reason of a merger, acquisition or other business reorganization. As to other parties, this Agreement may not be sold, assigned or transferred without the written consent of the LESSOR, which such consent will not be unreasonably withheld, delayed or conditioned. No change of stock ownership, partnership interest or control of LESSEE or transfer upon partnership or corporate dissolution of LESSEE shall constitute an assignment hereunder.

15. NOTICES. All notices hereunder must be in writing and shall be deemed validly given if sent by certified mail, return receipt requested or by commercial courier, provided the courier's regular business is delivery service and provided further that it guarantees delivery to the addressee by the end of the next business day following the courier's receipt from the sender, addressed as follows (or any other address that the Party to be notified may have designated to the sender by like notice):

LESSOR: R & I Buildings Co., LC
400 Locust Avenue, Suite 3
Charlottesville, VA 22902

LESSEE: Cellco Partnership
d/b/a Verizon Wireless
180 Washington Valley Road
Bedminster, New Jersey 07921
Attention: Network Real Estate

Notice shall be effective upon actual receipt or refusal as shown on the receipt obtained pursuant to the foregoing.

16. DEFAULT. In the event there is a breach by a Party with respect to any of the provisions of this Agreement or its obligations under it, the non-breaching Party shall give the breaching Party written notice of such breach within fifteen (15) days. After receipt of such written notice, the breaching Party shall have thirty (30) days in which to cure any breach, provided the breaching Party shall have such extended period as may be required beyond the thirty (30) days if the breaching Party commences the cure within the thirty (30) day period and thereafter continuously and diligently pursues the cure to completion. The non-breaching Party may not maintain any action or effect any remedies for default against the breaching Party unless and until the breaching Party has failed to cure the breach within the time periods provided in this Paragraph. Notwithstanding the foregoing to the contrary, it shall be a default under this Agreement if LESSOR fails, within five (5) days after receipt of written notice of such breach, to perform an obligation required to be performed by LESSOR if the failure to perform such an obligation interferes with LESSEE's ability to conduct its business in the Building; provided, however, that if the nature of LESSOR's obligation is such that more than five (5) days after such notice is reasonably required for its performance, then it shall not be a default under this Agreement if performance is commenced within such five (5) day period and thereafter diligently pursued to completion.

17. ENVIRONMENTAL. LESSOR represents and warrants that no lead-based paint, asbestos or other hazardous substance as defined by any applicable state, federal or local law or regulation, is

present at any portion of the Property. Each Party shall hold the other harmless and indemnify the other from and assume all duties, responsibility and liability at its sole cost and expense, for all duties, responsibilities and liability (for payment of penalties, sanctions, forfeitures, losses, costs or damages) and for responding to any action, notice, claim, order, summons, citation, directive, litigation, investigation or proceeding which is in any way related to: a) failure to comply with any environmental or industrial hygiene law, including without limitation any regulations, guidelines, standards or policies of any governmental authorities regulating or imposing standards of liability or standards of conduct with regard to any environmental or industrial hygiene concerns or conditions as may now or at any time hereafter be in effect; and b) any environmental conditions arising out of or in any way related to the condition of the Premises, in the case of the LESSEE, or related to the Property, in the case of the LESSOR, or activities conducted thereon, unless such environmental or industrial hygiene conditions are caused by the other Party.

18. MISCELLANEOUS. This Agreement contains all agreements, promises and understandings between the LESSOR and the LESSEE regarding this transaction, and no oral agreement, promises or understandings shall be binding upon either the LESSOR or the LESSEE in any dispute, controversy or proceeding. This Agreement may not be amended or varied except in a writing signed by all parties. This Agreement shall extend to and bind the heirs, personal representatives, successors and assigns hereto. The failure of either party to insist upon strict performance of any of the terms or conditions of this Agreement or to exercise any of its rights hereunder shall not waive such rights and such party shall have the right to enforce such rights at any time. This Agreement and the performance thereof shall be governed interpreted, construed and regulated by the laws of the state in which the Premises is located without reference to its choice of law rules.

[REMAINDER OF PAGE LEFT BLANK; SIGNATURE PAGE FOLLOWS.]

IN WITNESS WHEREOF, the Parties hereto have set their hands and affixed their respective seals the day and year first above written.

LESSOR:

R & I BUILDINGS CO., LC,
a Virginia limited liability company

By: _____

Its: Manager

Date: 2/29/16

WITNESS

_____

LESSEE:

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

By: _____
~~Aparna Khurjekar~~ Carrie Spencer

Its: ~~Vice President – Field Network~~
Director-Network Field Engineering

Date: 11/3/16

WITNESS

_____

EXHIBIT "A"

SITE PLAN OF ROOFTOP SPACE, FLOOR SPACE ANTENNA SPACE AND CABLING SPACE

NOTES:

1 SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.

2 ANTENNA, AND EQUIPMENT SUBJECT TO CHANGE.

PARCEL INFORMATION:

OWNER:	R & I BUILDING CO, LC
PARCEL ID:	050070000
ZONING:	UMDH
ACREAGE:	0.179 ACRES

OVERALL SITE PLAN (1)

SCALE 1"=50'

0' 50'

Dewberry
Dewberry Engineers, Inc.
4805 Lake Brook Drive, Suite 200
Glen Allen, VA 23060
Phone 804.290.7957
Fax 804.290.7928
www.dewberry.com

SUBMITTALS		
REV	DATE	B
A	12/28/15	KKB
B	02/03/16	BAR

PROJECT

UVA MC N003

ADDRESS

1605 GORDON AVE
CHARLOTTESVILLE VA 22903

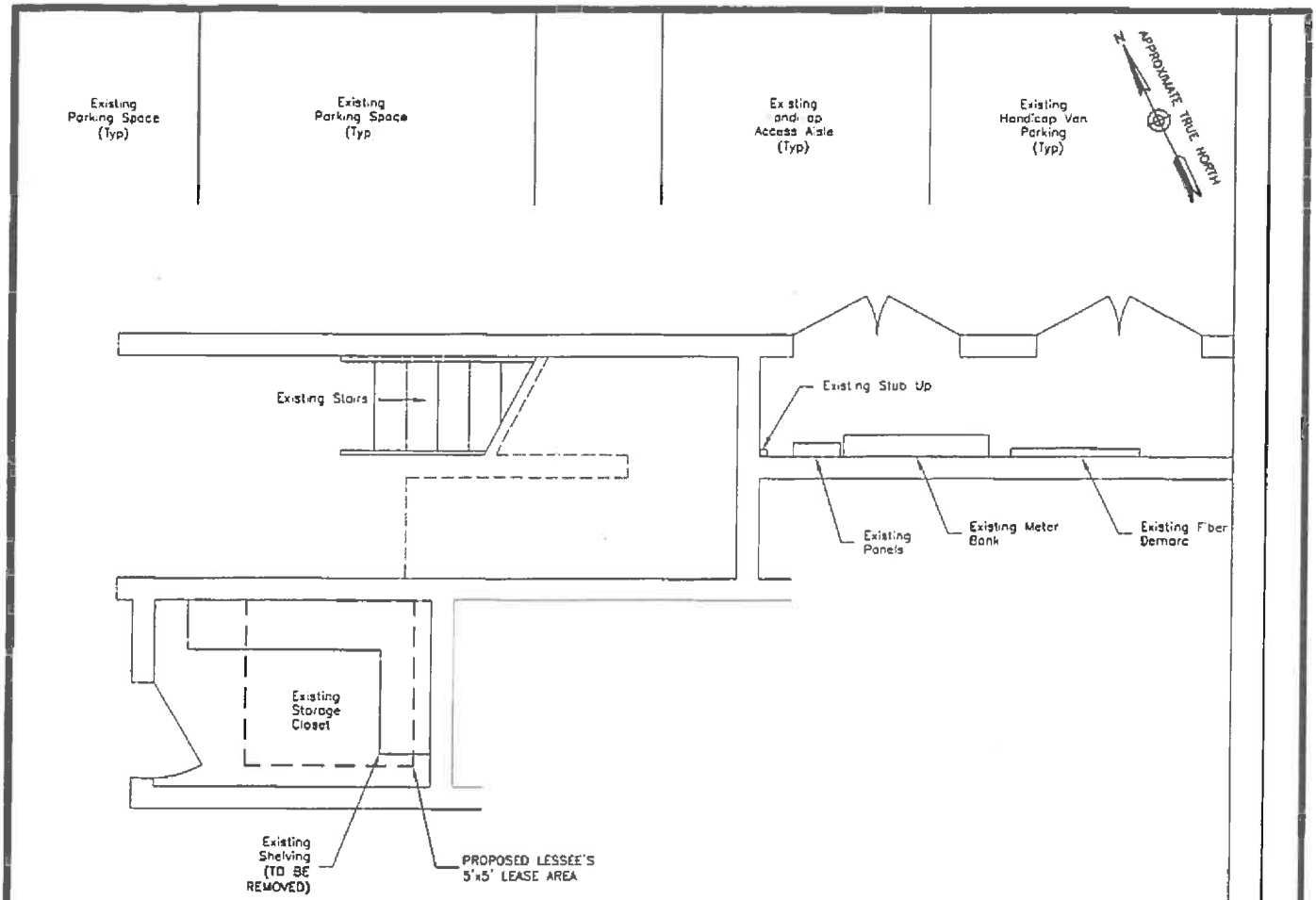
SITE INFORMATION

GOOGLE EARTH
(NAD 83)
LAT 38° 02' 25.02" N
LONG 78° 29' 56.65" W

PROJECT NO. 50074594

SHEET NO.

LE-1



NOTES:

1. SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
2. ANTENNA, EQUIPMENT, AND EASEMENTS SUBJECT TO CHANGE.

PARTIAL GROUND LEVEL PLAN (1)

SCALE: 1"=5'

0' 5'

Dewberry

Dewberry Engineers, Inc.

4805 Lake Brook Drive, Suite 200
Glen Allen, VA 23060
Phone 804.290.7957
Fax 804.290.7928
www.dewberry.com

SUBMITTALS		
REV	DATE	BY
A	12/28/15	KKB
B	02/03/16	BAR

PROJECT

UVA MC N003

ADDRESS:

1605 GORDON AVE
CHARLOTTESVILLE VA 22903

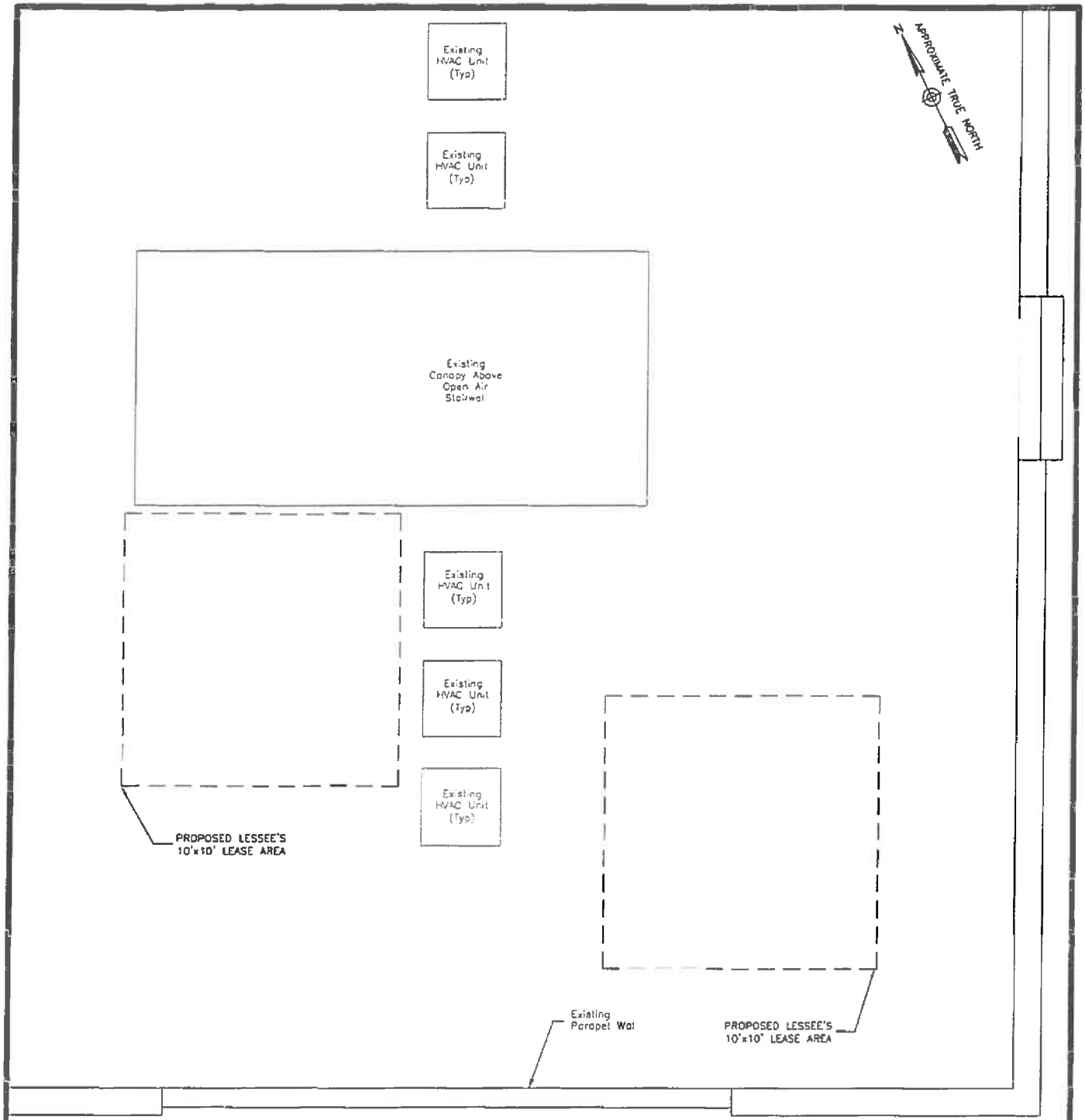
SITE INFORMATION

GOOGLE EARTH
(NAD 83)
LAT 38° 02' 25.02" N
LONG 78° 29' 56.65" W

PROJECT NO. 50074594

SHEET NO.

LE-2



NOTES:

1. SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
2. ANTENNA, EQUIPMENT, AND EASEMENTS SUBJECT TO CHANGE.

PARTIAL ROOF PLAN 1

SCALE: 1"=5'

0' 5'

Dewberry

Dewberry Engineers, Inc.

4805 Lake Brook Drive, Suite 200
Glen Allen, VA 23060
Phone: 804.290.7957
Fax: 804.290.7328
www.dewberry.com

SUBMITTALS		
REV	DATE	BY
A	12.28.15	KKB
B	02.03.16	BAR

PROJECT

UVA MC N003

ADDRESS

1605 GORDON AVE
CHARLOTTESVILLE VA 22903

SITE INFORMATION

GOOGLE EARTH
(NAD 83)
LAT.: 38° 02' 25.02" N
LONG: 78° 29' 56.66" W

PROJECT NO. 50074594

SHEET NO.

LE-3

LECLAIRRYAN

March 27, 2017

VIA HAND DELIVERY

Mary Joy Scala, AICP, Preservation and Design
Planner
City of Charlottesville
Department of Neighborhood Development Services
City Hall - 610 East Market Street
P.O. Box 911
Charlottesville, VA 22902

Re: Board of Architectural Review Application for Attached Communications Facility
UVA N003

Dear Ms. Scala:

On behalf of Cellco Partnership d/b/a Verizon Wireless, Stephen Waller and I submit to you ten (10) copies of each of the following documents in support of a Certificate of Appropriateness, required pursuant to City Code §34-1080(b)(3), for an attached communications facility proposed for installation on the rooftop of an apartment building, located at 1605 Gordon Avenue, Charlottesville, Virginia:

1. BAR application;
2. Descriptive narrative;
3. Proposed final site plan;
4. Photosimulations of the installation;
5. Structural Analysis Report;
6. Redacted lease evidencing applicant's authority to submit applications for governmental approvals (zoning, BAR) for the communications facility; and
7. A check for $125.00.

E-mail: Lori.Schweller@leclairryan.com
Direct Phone: (434) 245-3448
Direct Fax: (434) 296-0905

123 East Main Street, Suite 800
Charlottesville, Virginia 22902
Phone: 434.245.3444 \ Fax: 434.296.0905

The proposed attached communications facility will not be visible from any adjacent street or property as it will be screened within a stealth architectural feature with the appearance of a vent pipe. This "small cell" data node facility will consist of a small cylindrical antenna that will be mounted within the cylindrical concealment element on the rooftop of the apartment building. Associated mechanical equipment will be roof-mounted so as not to be visible from the ground. The proposed facility meets applicable requirements of the zoning ordinance for a new attached communications facility. We are submitting an application for a Certificate of Appropriateness for the stealth architectural element and we request action on the submission within sixty (60) days of our submittal.

Please contact me if you have questions or need additional information or clarification. Thank you for your consideration.

Very truly yours,

Lori H. Schweller

Attachments

cc: Lisa Robertson, Deputy City Attorney
Stephen Waller, GDNsites

VERIZON WIRELESS SITE NAME: "UVA NODE N003"
SMALL CELL ANTENNA NODE INSTALLATION ON AN APARTMENT BUILDING
1605 GORDON AVENUE

Project Description:

Verizon Wireless respectfully requests approval of Zoning Verification and a Certificate of Appropriateness for a new concealed, attached wireless communications facility to be attached to the rooftop of an apartment building located at 1605 Gordon Avenue. This property is identified as Parcel ID# 050070000 in the City of Charlottesville's tax records and GIS mapping and contains 0.179 acres zoned Residential - University Medium Density (UMDH). In the UMDH zoning district, attached facilities not visible from any adjacent street or property are permitted by right. The proposed attached facility will not be visible from any adjacent street or property as it will be screened within a stealth architectural feature. A Certificate of Appropriateness is also required for the concealment feature since the property is located within an Historic and Architectural Design Control District.

This "small cell" data node facility will consist of a 12" (Diameter) x 28.7" (L) cylindrical, omni-directional antenna that will be mounted on a ballasted base near the southeastern corner of the apartment building's roof, and enclosed within a "Stealth" concealment element designed to look like a vent pipe. The top of the building's roof is 30.8 feet high and a 1.5' parapet wall extends to a height of 32.3 feet. The top of the proposed vent pipe will be 36.8 feet, which places it only 4.5 feet above the top of the parapet wall. The antenna concealment box will be colored a neutral light gray tone to look like the vent pipes that extend above various roofs throughout the City of Charlottesville.

Supporting base station transmitting equipment will consist of a radio cabinet that is approximately 23.4" (L) x 19.4" (W), and 10.8" (D), two remote radio heads, and a diplexer, which will be mounted on a separate equipment frame that is 6' wide with a top height of 4.9' from the point at which it will be installed on the rooftop. This equipment is similar to the various types of electrical, telephone and communications equipment that is often seen attached to similar buildings and structures by the other communications and power companies. The equipment mounting stands will be set back far enough from the building's walls to prevent visibility from the adjacent street. This point is demonstrated by the fact that an existing canopy extending above the rooftop is not visible from the street, even though it is higher than all of the proposed components of Verizon's facility.

Character of the Area:

The structure proposed for this installation is a 3-story apartment building located on Gordon Avenue between the intersections with 16th Street NW and 17th Street NW. The properties surrounding this building consist of other student-oriented rental apartments and fraternity housing units to the north, east and west, with a mixture of religious and educational uses. The property is located within the Rugby Road - University Circle - Venable Architectural Design Control District and it is also in the Rugby Road - University Corner Historic District. The building on the opposite / southern side of Gordon Avenue (Tax Parcel ID# 0910013000), currently occupied by the Montessori School of Charlottesville, is identified as an Individually Protected Property otherwise known as Dabney-Thompson House. The special designations of the architectural design control and historic overlay districts require the issuance of a Certificate of Appropriateness as part of the City's review and approval process.

Network Improvements:

The deployment of this node and similar facilities throughout the area will help Verizon further improve its state-of-the-art, high-speed wireless data services that are being provided over its 4G LTE (Long-Term Evolution) network for the residents, visitors, business owners and consumers throughout the City of Charlottesville. Slow data transmission due to greater distances from existing facilities and/or a high number of users during peak hours can directly impact citizens' ability to perform various tasks that range from doing business and schoolwork at their homes, communicating with family and friends, and even receiving messages regarding emergencies, weather, traffic and other local issues that may impact the quality of our daily lives.

Verizon is working across Virginia to increase the capacity for data transmission on its wireless networks to handle the increased demands for service by the company's growing customer base. These small cell/node facilities are much smaller in scale than the more traditional "macro" facilities (such as a cell towers), which typically use multiple antennas that are six to eight feet (6'-8') tall. Small cell facilities often use a single and very inconspicuous antenna approximately two feet (2') tall that is supported by compact base station equipment meant to provide improved coverage in more densely-populated urban areas such as multi-unit residential developments, shopping centers, sports fields, entertainment venues and community centers where data usage tends to be high. The placement of small cell nodes within the dense areas that are currently covered by existing macro sites allows network traffic to be offloaded from those macro sites to the small cells within their specifically targeted areas. This offloading helps to increase data speeds for users across the network, thus providing more reliable access to high-speed data transmissions and overall service improvements and seamless coverage for all users.

In addition to using the measurable data that is compiled by the company's Network Traffic Engineers, Verizon has also taken input it receives from the local community into consideration when designing and locating these small cell nodes. Customers who have filed reports of slower data speeds, spotty coverage and complete loss of service at certain times and locations throughout this area will benefit from the installation of this proposed facility.

With the addition of these new small cell sites, area residents and businesses will be able to benefit greatly from the technological advances that have taken place in the wireless industry since the introduction of smartphones and wireless broadband services. With the increased usage of smartphones, tablets, laptops and similar devices that allow users to work, research, shop and communicate, the needs for access to high speed, high quality wireless networks will only continue to grow. In fact, wireless networks have become such an integral part of our lives and our economy that access to the highest levels of service has in many cases allowed consumers to save money by eliminating their subscriptions to landline telephone service and/or other hardline communication utilities, such as cable and internet. To that end, the addition of this proposed data node antenna will allow Verizon to provide another high quality option for data access and information streaming services within the City of Charlottesville.

Service Objectives:
Verizon is licensed by the Federal Communications Commission ("FCC") to provide state-of-the-art wireless communication services to citizens, businesses and visitors within City of Charlottesville. To that end, Verizon currently provides service in the area using multiple existing and more traditional towers along with other macro facilities collocated on structures such as power towers and rooftops. However, Verizon is also constantly seeking ways to improve these services through the deployment of state-of-the-art technologies and increasing capacity to support the growing needs for data. Today's citizens expect to be able to stream information, demonstrations and data through their tablets, and stay in constant contact with friends and family. While the existing wireless macro sites have supported network voice services for many years, the ability to meet the escalating demands for larger capacity data transfer is requiring that these small cells and data node antennas be located closer to the customers in areas with higher user intensity so that data service can meet the ever-increasing demand.

It should also be noted in most cases that these needs for access to higher capacity levels and the best data services are largely being experienced in the most densely developed areas that offer the fewest (if any) options and insufficient land area for the construction of traditional macro wireless facilities. On the other hand, these small cell nodes sites are being designed as unobtrusive and low-powered options that are installed to meet the specific coverage requirements for those smaller geographical areas that are being targeted.

The compact antennas and smaller ground equipment footprint of this proposed installation will help to expand services into the surrounding neighborhood, which is densely developed with a mix of residential and institutional uses. This design, which conceals the antennas to look like a standard vent pipe will also being sensitive to the goals and guidelines that are established for the purpose of preserving certain historic and architectural characteristics within the overlay district. This solution will result in far less visual impact than that of a traditional macro cellular facility with visible antennas.

The most clear and unobstructed view of the building and its rooftop is from directly from across the street. But, when travelling in either direction on Gordon Avenue, most views of the apartment building are obscured and/or fully screened by the other buildings, tall trees and utility poles along the street. The top of proposed antenna concealment element will be slightly shorter than the height of an existing stairwell canopy on the rooftop of this building, and that canopy cannot be seen from most points on the road. The proposed vent pipe concealment element will not increase the diameter of the hidden antenna and would be less visually obtrusive than a large-scaled architectural element that would draw unwanted attention to the rooftop. Therefore, this pipe feature should be regarded as a viable solution for the proposed small cell /data node antenna in this neighborhood.

Compatibility with Design Guidelines for Historic and Architectural Design Districts:
Antennas and wireless facilities that are not visible from adjacent streets and properties are allowed to be attached to existing buildings and similar structures by-right in the UMD Zoning District. Chapter II: Site Design & Elements - Section H. Utilities & Other Site Appurtenances, acknowledges that antennas and similar items are a "necessary part of contemporary life. However, their placement may detract from the character of the site and building." Data nodes

such as the ones proposed for City of Charlottesville and the urban ring of Albemarle County are designed to have very minimal visual impacts while reliably deploying the latest technologies in data services with increased capacity and peak usage capacity to improve service for the residents, employees and visitors in this area. Five guidelines have been set forth in order to achieve this goal, and Verizon will address them below (**in bold type**):

1. "Plan the location of overhead wires, utility poles and meters, electrical panels, antennae, trash containers, and exterior mechanical units where they are least likely to detract from the character of the site."

The proposed antenna will be screened within a concealment element that to look like a vent pipe on the rooftop of this 3-story apartment building.

2. "Screen utilities and other site elements with fences, walls or plantings."

Supporting base station transmitting equipment will be installed on a separate mounting sled, just to the south of an existing stairwell canopy on the building's rooftop in a location that will not be visible from the ground.

3. "Encourage the installation of utility services underground."

The main power and fiber optic lines serving this facility will all be run underground from main utility sources. The conduit feeding the base station equipment must run along the outer wall of the building on the back side near the parking area.

4. "Antennae and communication dishes should be placed in inconspicuous rooftop locations, not in a front yard."

The proposed antenna will be concealed from view using design elements that are meant to make it look like a standard, rooftop vent pipe. It should be noted that there are similar pipes and chimney features attached to the rooftops of other buildings along Gordon Avenue, including one building (1702 Gordon Avenue) that has two separate and larger vents pipes running from the ground, up its northern wall (facing the street), and above the roof lines.

5. Screen all rooftop mechanical equipment with a wall of material harmonious with the building or structure.

The rooftop base station equipment to be mounted on a sled will be approximately 6' above the roof and 4'-5" higher than the parapet wall. However, the equipment will be set back far enough from the parapet walls to ensure that it will be afforded an adequate level of screening that is similar to that of the views from street level for the taller stairwell canopy.

Conclusions:

A Zoning Verification and Certificate of Appropriateness are requested to permit the addition of a concealed antenna and its supporting equipment, which will not be visible to neighboring streets and property, in order to improve data capacity and wireless coverage for customers near the Gordon Avenue Brach of the Jefferson-Madison Regional Library and intersections of Gordon Avenue with 16th Street NW and 17th Street NW. The installation of a small cell node facilities for the use and enjoyment of Charlottesville residents and visitors will contribute to quality of life enhancements by providing increased availability of high speed, high quality wireless network services. Verizon is confident that the proposed small cell facility should be deemed as acceptable under the City's Architectural Design Guidelines for the antennas and similar utilities and appurtenances, and this is further supported by the favorable factors that are listed below:

1. The provision of more reliable wireless and broadband services supports citizens and businesses greater access to a wide range of educational, recreational, economic tools and public service information that are important to achieving various goals and objectives that are set forth in the City's Comprehensive Plan.
2. Small cells, such as the one proposed in this application, are smaller and less visually obtrusive than many other types of utilities and appurtenances that do not require BAR review in other areas outside of Historic and Architectural Design Control Districts.
3. The proposed antenna and supporting equipment will have very minor, if any, visual impacts upon the historic district at-large or the individual structures that are situated within it.

Please contact me if you should have any comments, questions or needs for additional information.

Sincerely,

Stephen Waller, AICP
GDNsites
Site Development Consultants to Verizon


N
SITE LOCATION
PHOTO 1
16th St NW
Gordon Ave
verizon
WIRELESS
UVA MC N003
1605 Gordon Ave
Charlottesville, VA 22903
(Page 1 of 3)
Dewberry

verizon WIRELESS

UVA MC N003
Photo 1A
View Facing Northeast
From Gordon Ave
(Page 2 of 3)

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verizon WIRELESS

UVA MC N003

Photo 1B

View Facing Northeast
From Gordon Ave
(Page 3 of 3)

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Dewberry

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Glen Allen, VA 23060
804.290.7957
804.290.7928 fax
www.dewberry.com

Structural Analysis Report and Design Calculations For a Wireless Telecommunications Upgrade

Site Name: UVA MC N003
Site Address: 1605 Gordon Ave
Charlottesville, VA 22903

Prepared for:
Verizon Wireless
1831 Rady Court
Richmond, VA 23222

February 2, 2016

Prepared by:
Dewberry Engineers Inc.
4805 Lake Brook Drive,
Suite 200
Glen Allen, VA 23060
Dewberry Project Number: 50074594

Prepared by: Brandon Buchner

Brandon Buchner

Brandon Buchner, P.E.
Project Designer

Reviewed by: Derek Marshall

Derek Marshal, P.E.
Virginia Professional Engineer
License No.: 0402048810

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Verizon Wireless
Site Name: UVA MC N003
February 2, 2016

1.0 INTRODUCTION AND PROJECT SUMMARY

The objective of this report is to assess the installation of new telecommunications equipment on an existing roof.

The existing structure is a multi-story 31 foot tall building in Charlottesville, VA. A proposed antenna will mount to a non-penetrating sled with a proposed RF transparent false stovepipe surrounding it. A portion of the proposed equipment will mount to a custom ballasted sled on the rooftop. The remaining equipment will mount inside an existing storage closet.

2.0 PROPOSED ANTENNAS & EQUIPMENT

The following antennas and equipment are proposed:

- One (1) Commscope NH series antenna measuring 28.7"H x 12.0"ϕ. and weighing 26.7 lb.
- One (1) RRH2x60-AWS measuring 37"H x 11"W x 6.0"D and weighing 55 lb.
- One (1) B25 RRH4x30-4R measuring 21.4"H x 12.0"W x 7.2"D and weighing 51 lb.
- One (1) Charles RF Cabinet measuring 50.3"H x 19.4"W x 10.8"D and weighing 100 lb.
- One (1) AC Panel measuring 20.9"H x14.3"W x 3.8"D and weighing 22.4 lb.
- Two (2) diplexers measuring 6.3"H x 4.4"W x 3.0"D and weighing 5.5 lb each.

3.0 CODES, STANDARDS, AND REFERENCES

The structure was analyzed and the proposed installation designed per the provisions of the following Codes and standards:

- *International Building Code (IBC) 2012,* International Code Council
- American Society of Civil Engineers *ASCE 7-10 Minimum Design Loads for Buildings and Other Structure*
- American Institute of Steel Construction *AISC 360-10, Specifications for Structural Steel Buildings*
- *TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas*

4.0 LOADING AND PERFORMANCE CRITERIA

The following Code-specified serviceability load combination was considered in the overturning analysis of the ballasted antenna mount:

1. 1.0D+1.0W

Where:
D = dead load of mount and new equipment.
W= design wind load for site location on mount and new equipment

The following site-specific design parameters were considered in this analysis per the provisions of *TIA-222-G:*

- Class: II *Table 2-1*
- Exposure: B

- Basic Wind Speed.: 90 mph *Annex B*

This assessment is founded on the premise that pursuant to *2012 International Building Code* Sections "3403.3 Existing structural elements carrying gravity load" and "3403.4 Existing structural elements carrying lateral load," if the proposed installation causes an increase in design gravity loads by more than 5% and or increases the demand-capacity ratio by more than 10% in the lateral load-carrying structural elements then these elements shall be strengthened, supplemented, replaced, or otherwise altered as needed to carry the increase in load as required by the Code for new structures.

5.0 CALCULATIONS

Calculations for this analysis and the design of the installation are included in Appendices of this report.

6.0 CONCLUSIONS, COMMENTARY, AND RECOMMENDATIONS

Antenna Mount
The proposed antenna will be mounted to a pipe mast supported by a shop-built non-penetrating ballasted sled. An 18" diameter x 5'-8"H non-penetrable shroud has been assumed to be mounted to the provided shroud frame at 0'-6" above the roofline. Based on our analysis, the sled would require a total of 90 lb of ballast per side (360 lb total) to prevent overturning for the configuration described above. This may be achieved with two (2) hollow 8x8x16 CMU blocks at 45 lb each per side.

Over its footprint, the proposed ballasted antenna mount would exert a total of approximately 13.5 psf to the roof over the equipment frame footprint. This loading is less than the 20 psf assumed roof live load. The roof structure is judged to adequately support the proposed non-penetrating antenna mount as described above without additional analysis of the existing building roof structure. Additionally, ballast tie-down kits are recommended to prevent the removal of ballast by others.

Equipment Mount
The proposed equipment will be mounted to a custom 6 ft x 6 ft non-penetrating ballasted rack sitting on the roof membrane. Based on our analysis, the sled would require a total of 90 lb of ballast per side (180 lb total) for the configuration described above. This may be achieved with two (2) hollow 8x8x16 CMU blocks at 45 lb each per side.

The proposed ballasted equipment rack would exert a total of approximately 14.1 psf to the roof over the equipment frame footprint. This loading is less than the assumed live load of 20 psf for this structure. The roof structure is judged to adequately support the proposed equipment rack as described above without additional analysis of the existing building roof structure. Additionally, ballast tie-down kits are recommended to prevent the removal of ballast by others.

The global impact of the antenna mounts on the existing structure as a whole is negligible. Existing supporting members need not be investigated. Therefore, the proposed installation may be installed as planned. Please see details for the proposed installation included in the final construction drawings.

Dewberry Engineers Inc. reserves the right to add to or modify this report if more information becomes available. The conclusions reached by Dewberry Engineers Inc. in this report are only applicable to the previously mentioned existing structural elements supporting the proposed wireless telecommunications installation. The results of this report are based on the assumption that existing structural elements have been installed per the original design documents, have been well maintained, and are uncompromised. This report does not imply that a thorough inspection of the existing structure has been performed. Any deviation of the support condition,

loading, location, placement, equipment configuration, etc., will require Dewberry Engineers Inc. to generate an additional structural analysis. Further, no structural qualification is made or implied by this report of any existing structural elements.

APPENDIX A - DESIGN CRITERIA

Table A-1 - General information from TIA-222-G-1-2007

Item	Value	Description	Comments
V_{max}=	90.00	Charlottesville City VA	From TIA/222-G Annex B
V_{serv} =	60.00	Servicability Design Wind Speed	TIA 2.8.3
V_{work}=	25.00	Safe Maintenance Wind Speed	Maximum safe wind speed for tower climber
Class =	II	Table 2-1	Building Classification
K_d=	0.95	Table 2-2	TIA/222-G
K_{dserv} =	0.85	Section 2.8.3	Serviceability Directionality Factor
I_w=	1.00	Table 2-3	Wind w/o Ice Importance Factor
I_i=	1.00	Table 2-3	Ice thickness Importance Factor
I_{wserv} =	1.00	Section 2.8.3	Wind Serviceability Importance Factor
z=h=	35.00	AGL (ft)	Centerline of Proposed Antenna
Exp. Cat.	B	Exposure Category	Due to open fields to the west
z_g=	1200.00	Table 2-4	
α =	7.00	Table 2-4	
Kz (min)=	0.70	Table 2-4	
K_e=	0.90	Table 2-4	Terrain constant
K_t=	N/A	Table 2-5 (N/A if Topo Cat. = 1)	Topographic constant
K_z=	0.73	2.01(z/zg)^(2/a) (Section 2.6.5.2)	Velocity Pressure constant
Topo Cat.	1.00	Topographic Category (1-5)	Section 2.6.6.2
e=	2.72	Natural Logarithmic base	
f=	N/A	Table 2-5 (N/A if Topo Cat. = 1)	Height attenuation factor
H=	N/A	(ft) Height of crest above surrounding terrain	
K_h=	N/A	e^((f*z)/H)	Height reduction factor
K_{zt}=	1.00	[1+((Ke*Kt)/Kh)]^2 (Section 2.6.6.4)	Topographic Factor= 1.0 for Cat. 1
G_h=	1.00		Gust Effect Factor for appurtenances
G_h=	1.10		Gust Effect Factor for pole structures
V_{imax}=	30.00	Charlottesville City VA	From Annex B (Wind Loading w/Ice)
t_{imax}=	0.75	Charlottesville City VA	From Annex B (Ice Thickness)(Inch)
γ_i =	56		TIA 2.6.8 (pcf)
t_{iz}=	1.51	Design Ice Thickness	TIA 2.6.8 (inch)

APPENDIX B – EQUIPMENT INFORMATION

Table A-2 - Geometric Properties for Appurtenances

Members	Dimensions (Ft.)			Area (Aa)n (Normal) (sf)	Area (Aa)t (Side) (sf)	Aspect Ratio (front)	Aspect Ratio (side)	Ca (front) Table 2-8	Ca (side) Table 2-8
	Length (Normal Face)	Width (Tangent Face)	Height (or span)						
False Stovepipe	1.50	1.50	5.67	8.51	8.51	3.78	3.78	0.60	0.60
2" Std Pipe	0.20	0.20	4.75	0.95	0.95	23.75	23.75	1.20	1.20
P1000 Unistrut	0.14	0.14	6.67	0.93	0.93	47.64	47.64	2.00	2.00
Commscope NH Series	1.00	1.00	2.39	2.39	2.39	2.39	2.39	0.53	0.53
2100 MHz RRH2x60-2100	0.92	0.50	3.08	2.83	1.54	3.35	6.16	1.24	1.36
B25 RRH4x30-4R	1.00	0.60	1.78	1.78	1.07	1.78	2.97	1.20	1.22
AC Panel	1.19	0.32	1.74	2.07	0.56	1.46	5.44	1.20	1.33
Charles Cabinet	1.62	0.90	4.19	6.79	3.77	2.59	4.66	1.20	1.30
Diplexer - LGP21903	0.37	0.25	0.53	0.20	0.13	1.43	2.12	1.20	1.20

Table A-3 - Self Weight & Wind Loading Criteria

Calculation of Design Forces / Members	Weight (lbs)	$F_{(a)n}$= Normal Wind Force	$F_{(a)t}$= Tangent Wind Force	Number or Length of Supports	Gravity Load Per Support	$F_{(a)n}$ Per Support	$F_{(a)t}$ Per Support
False Stovepipe	RISA	**73.42**	**73.42**	5.67	Appendix E	**12.95**	**12.95**
2" Std Pipe	RISA	**16.39**	**16.39**	4.75	Appendix E	**3.45**	**3.45**
P1000 Unistrut	RISA	**26.75**	**26.75**	6.67	Negligible	**4.01**	**4.01**
Commscope NH Series	26.70	**18.22**	**18.22**	1.00	26.70	**18.22**	**18.22**
2100 MHz RRH2x60-2100	55.00	**50.46**	**30.12**	1.00	55.00	**50.46**	**30.12**
B25 RRH4x30-4R	51.00	**30.72**	**18.77**	1.00	51.00	**30.72**	**18.77**
AC Panel	22.40	**35.72**	**10.71**	1.00	22.40	**35.72**	**10.71**
Charles Cabinet	100.00	**117.17**	**70.48**	1.00	100.00	**117.17**	**70.48**
Diplexer - LGP21903	5.50	**3.45**	**2.24**	1.00	5.50	**3.45**	**2.24**

APPENDIX C - LOAD CALCULATIONS

1) DESIGN WIND FORCE:

Section 2.6.9.2 F(a)=qz*Gh*(EPA)a

F= Horizontal wind force on the appurtenance in the direction of the wind

q_z= Velocity pressure from Section 2.6.9.6

(EPA)a= effective projected area of the appurtenance

-Wind load on Equipment:

(EPA)a=(EPA)n (Conservatively)= $\sum$(CaAa)n (Front of Cabinet)

(EPA)a=(EPA)t (Conservatively)= $\sum$(CaAa)t (Side of Cabinet)

Section 2.6.9.6 $q_z=0.00256(K_z)(K_{zt})(K_d)(V^2)(I_w)$ (psf)

Summary/Calculated From Above:

K_z=	0.73
K_{zt}=	1.00
K_d=	0.95
V Max=	90.00
V service=	60.00
I_w=	1.00
V w/ice=	30.00
V work=	25.00

q_z Max=	14.38 (psf)

$q_{zserv}=0.00256(K_z)(K_{zt})(K_{dserv})(V_{serv}^2)(I_{wserv})$ (psf)

q_{zserv}=	5.72 (psf)
q_z w/ice=	1.60 (psf)
q_{z_work}=	1.11 (psf)

APPENDIX D – ANTENNA SHROUD DETAILS

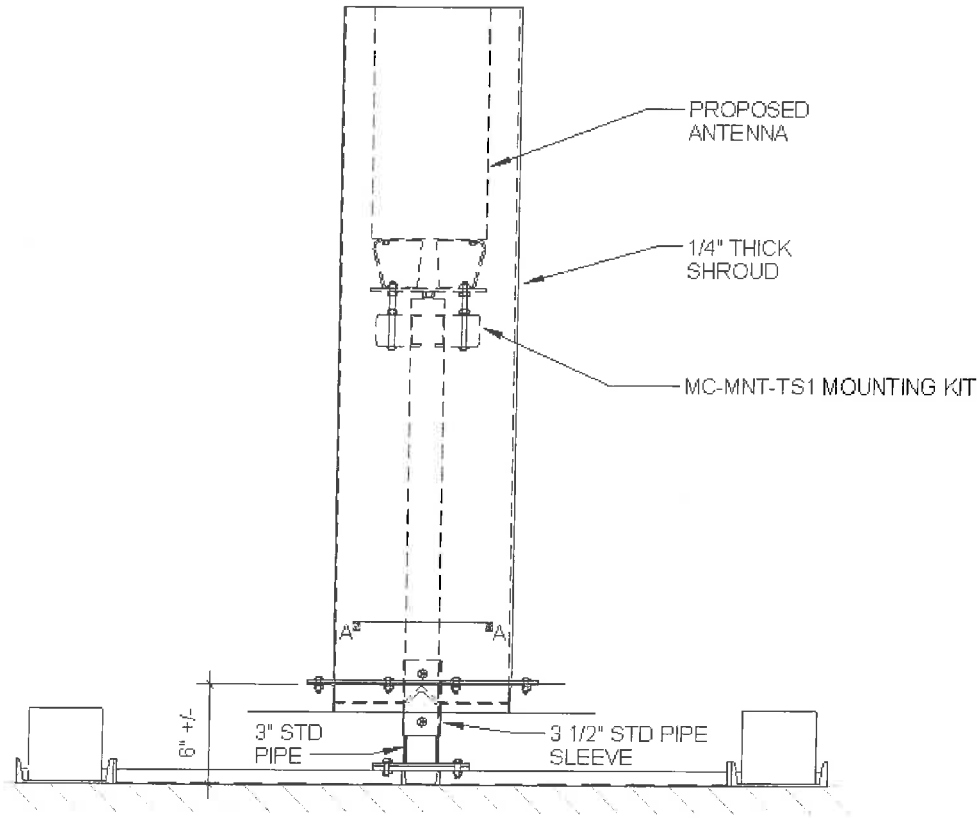


Figure D.1 – Antenna Sled Elevation

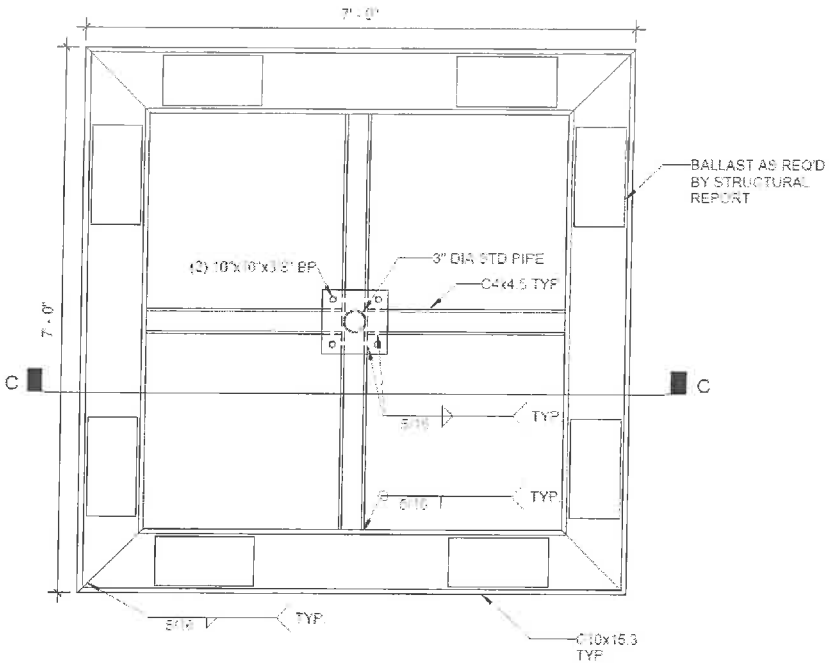


Figure D.2 – Antenna Sled Plan

Dewberry

APPENDIX E – OVERTURNING CALCULATIONS

BALLAST CALCULATIONS

Wind Forces

Max wind force on concealment shroud from Excel; F_a = 73.4 lb;

Weights

Antenna weight from Excel;	W_a = 26.7 lb;	*Commscope NH series*
Shroud diameter;	d_s = 1.5 ft	
Shroud height;	h_s = 5.666 ft	
Fiberglass weight per ¼" thickness;	γ = 3.38 psf	
Shroud surface area;	$SA = \pi \times d_s \times h_s + \pi \times d_s^2/4$ = **28.5** ft^2	
Concealment shroud weight;	$W_C = SA \times \gamma$ = **96.2** lb	
Pipe weight;	W_p = 30 lbs	
Frame weight;	W_F = **150.0** lbs	
Total weight ;	$W_t = W_a + W_C + W_p + W_F$ = **302.92** lbs	

SQUARE BASE

Weights

Assumed ballast weight per side;	$W_b = 2 \times 45$ lb = **90** lb;	*2 hollow 8x8x16 CMU @ 45 lb ea*

Heights & Distances

Assume origin point at the exterior edge of the ballast		*Geometry based on 7'x7' sled*
Antenna eccentricity;	e_a = **0.0** ft	
Concealment shroud eccentricity;	e_C = **0.0** ft	
Height to CL concealment shroud;	h_a = 3.5 ft	
Sled width;	b = 7 ft	
Sled length;	L = 7 ft	
Distance to ballast 1;	D_{b1} = **.666** ft	
Distance to pipe centerline;	$D_p = b/2$ = **3.5** ft	
Distance to ballast 2;	$D_{b2} = b - D_{b1}$ = **6.334** ft	
Distance to side ballast;	$D_{bs} = b/2$ = **3.5** ft;	*Side ballast at two locations*

Overturning Check

Overturning moment;	$M_O = F_a \times h_a + W_a \times e_a + W_C \times e_C$ = **0.26** kip_ft
Resisting moment;	$M_R = (W_a + W_C + W_p + W_F) \times D_p + W_b \times (D_{b1} + D_{b2} + 2 \times D_{bs})$ = **2.32** kip_ft
Factor of Safety;	$FS = M_R/M_O$ = **9.03**;**"> 1.5 Check OK"**

EXISTING ROOF CHECK

Total structure & equipment weight;;	W_t = **302.92** lbs
Total ballast weight;	$W_{bt} = 4 \times W_b$ = **360** lbs
Total weight;	$W = W_t + W_{bt}$ = **662.92** lbs
Base area;	$A = b \times L$= **49.0** ft^2;
Distributed load;	$W_{dist} = W/A$ = **13.53** psf; < **20** psf verified live roof load ***OK***

EQUIPMENT BALLAST CALCULATIONS

Wind Forces – All wind forces taken from Table A-3

Wind force on B25 RRH	F_{B25} = 30.7 lb	
Wind force on AWS RRH	F_{AWS} = 50.5 lb	
Wind force on Diplexers	F_d = 2×3.5 lb = **7.0** lb	
Wind force on vertical members	F_v = 33 lb	*Two (2) 2" Std Pipe verticals @ 4'-9"*
Wind force on horizontal members	F_h = 107 lb	*Four (4) P1000 horizontals @ 6'-8"*

Weights – All weights taken from Table A-3

Total equipment weight	W_e = 55 lb + 51 lb + 2×5.5 lb = **117.0** lb	
Assumed ballast weight	W_b = 2 × 45 lb = **90.0** lb	*2 hollow 8x8x16 CMU @ 45 lb ea*
Width of ballast frame	b = 6 ft	
Depth of ballast frame	d = 6 ft	
Frame weight	W_f = 210 lb	

Heights & Distances

Assume origin point at the rear edge of the ballast

Height to B25 RRH	h_{B25} = 3.5 ft
Height to AWS RRH	h_{AWS} = 3.5 ft
Height to Diplexers	h_d = 2.0 ft
Height to centerline verts	h_v = 2.5 ft
Height to centerline horiz	h_h = 2.5 ft
Distance to front ballast	D_{bf} = 0.6667 ft
Distance to rear ballast	D_{br} = d – 0.6667 ft = **5.333** ft
Distance to sled centroid	D_a = b/2 = **3.0** ft

Overturning Check

Overturning moment	$M_O = F_{B25}\times h_{B25} + F_{AWS}\times h_{AWS} + F_d\times h_d + F_v\times h_v + F_h\times h_h$ = **0.648** kip_ft	
Resisting moment	$M_R = W_e\times D_a + W_b\times(D_{br}+D_{bf}) + W_f\times D_a$ = **1.521** kip_ft	
Factor of safety	FS = M_R/M_O = **2.35 > 1.5**	***Overturning Check OK***

Existing Roof Check

Total equipment weight	W_e = **117** lb
Total ballast weight	$W_{bt} = 2\times W_b$ = **180** lb
Total frame weight	W_f = **210** lb
Total weight	$W = W_f + W_e + W_{bt}$ = **507** lb
Base area	A = b×d= **36.0** ft^2
Distributed load	W_{dist} = W/A = **14.1** psf < 20 psf assumed live load - ***Check OK***

verizon

RECEIVED
MAR 27 2017
NEIGHBORHOOD DEVELOPMENT SERVICES

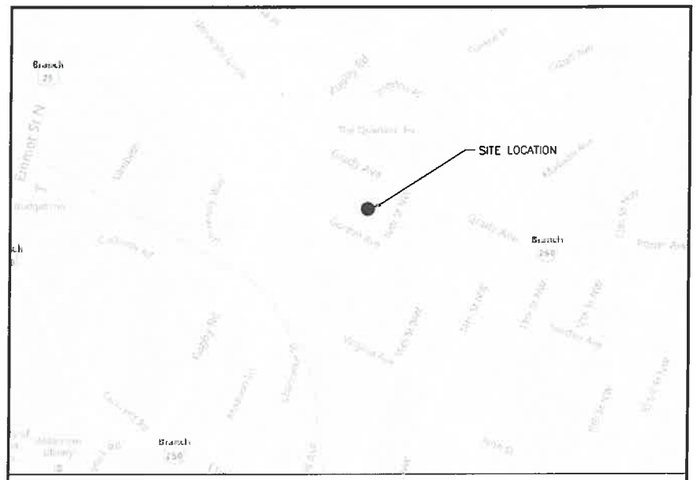
UVA MC N003
1605 GORDON AVE
CHARLOTTESVILLE, VA 22903

E911 ADDRESS YES ☒ NO ☐

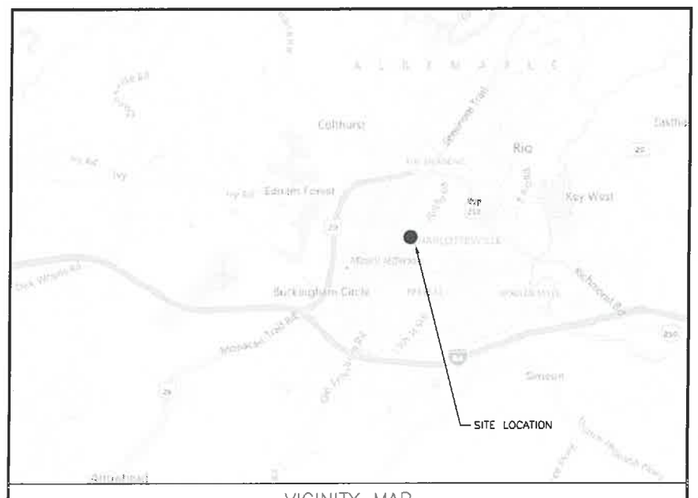
PROJECT DESCRIPTION
INSTALLATION AND OPERATION OF A SMALL CELL NODE AND ASSOCIATED EQUIPMENT ON AN EXISTING BUILDING

DIRECTIONS FROM GOODES BRIDGE SWITCH (2501 GOODES BRIDGE RD., RICHMOND, VA 23224):
START GOING OUT NORTH ON GOODES BRIDGE RD TOWARD ELK RD. 0.39 MI. TAKE THE 2ND RIGHT ONTO HULL STREET RD/US-360 E. 0.24 MI. MERGE ONTO VA-150 N/CHIPPENHAM PKWY N TOWARD I-95 N. 3.26 MI. MERGE ONTO VA-76 N/POWHITE PKWY N. 2.69 MI. KEEP LEFT TO TAKE VA-76 N TOWARD I-195/I-64 W/I-95 N. 0.97 MI. VA-76 N BECOMES I-195 N. 2.72 MI. I-195 N BECOMES I-64 W. 61.68 MI. TAKE EXIT 124 TOWARD CHARLOTTESVILLE/SHADWELL. 0.28 MI. TURN RIGHT ONTO RICHMOND RD/US-250 W. CONTINUE TO FOLLOW US-250 W. 2.90 MI. TURN LEFT ONTO MCINTIRE RD. 0.82 MI. TAKE THE 1ST RIGHT ONTO PRESTON AVE. 0.52 MI. TURN LEFT ONTO GRADY AVE. 0.44 MI. TURN LEFT ONTO 16TH ST NW. 0.07 MI. TAKE 1ST RIGHT ONTO GORDON AVE. 0.02 MI. DESTINATION IS ON THE RIGHT.

DIRECTIONS



LOCAL MAP N.T.S.



VICINITY MAP N.T.S.

APPROX. TRUE NORTH

UTILITIES INFO:
POWER: DOMINION
866.366.4357
TELEPHONE: VERIZON
877.798.2941

2 WORKING DAYS BEFORE YOU DIG
811
TOLL FREE
MISS UTILITY

EMERGENCY INFO:
JURISDICTION:
CITY OF CHARLOTTESVILLE
LOCAL FIRE AND RESCUE:
434.970.3245
LOCAL POLICE:
434.970.3280

PROJECT TEAM

REAL ESTATE:	CHAD FRECKMANN	PHONE NUMBER:	434.996.4473
ZONING:	JOSIE LODDER	PHONE NUMBER:	704.560.1422
CONSTRUCTION:	RICHARD ROSS	PHONE NUMBER:	504.903.0212
UTILITIES:	RICHARD ROSS	PHONE NUMBER:	504.903.0212

REV. NO.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	BAR	03/17/16
1	FOR CONSTRUCTION	KKB	05/23/16
2	FOR CONSTRUCTION	RJR	08/04/16
3	FOR CONSTRUCTION	KKB	01/11/17
4	REVISED FAUX STOVE PIPE DESIGN	BAR	02/02/17
5	ADDED STEALTH DRAWINGS	KKB	03/01/17
6	REVISED FIBER DEMARC.	BAR	03/22/17

A & E CONSULTING TEAM

ARCHITECTURE AND ENGINEERING:
DEWBERRY ENGINEERS INC.
4805 LAKE BROOK DRIVE, SUITE 200
GLEN ALLEN, VA 23060
PHONE # 804.205.3337
CONTACT: DEREK MARSHALL, PE, LEED AP

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE GOVERNING AUTHORITIES.
- 2012 INTERNATIONAL BUILDING CODE (IBC)
- 2011 NATIONAL ELECTRIC CODE (NEC)
- 2009 NFPA 101, LIFE SAFETY CODE
- MANUAL OF STEEL CONSTRUCTION, 13th EDITION
- AMERICAN CONCRETE INSTITUTE
- ANSI/TIA-222-G
- ANTENNA SUPPORTING STRUCTURES AND ANTENNAS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE IBC 2012 SECTION 1609 WIND LOADS, EXCEPTION #5 REFERENCING TIA-222

PROJECT SUMMARY

PROPERTY OWNER:
R & I BUILDING CO, LC
400 LOCUST AVE STE 3
CHARLOTTESVILLE, VA 22902

PROJECT INFO:
LOCATION NAME: UVA MC N003

APPLICANT INFO:
VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222
PHONE: 704.560.1422
CONTACT: JOSIE LODDER

PROJECT DATA:
ZONING: UMDH
PARCEL ID: 050070000
ACREAGE: 0.179
JURISDICTION: CITY OF CHARLOTTESVILLE
SITE TYPE: ROOFTOP
SITE TYPE: SMALL CELL
OVERALL HEIGHT: 36.8'±
STRUCTURE HEIGHT: 32.3'±
LEASE AREA: 225 SF
AREA OF DISTURBANCE: 0 SF

CENTER OF PROPOSED ANTENNA*:
LATITUDE: 38° 02' 25.02" N
LONGITUDE: 78° 29' 56.66" W
ELEVATION: 578' AMSL
*PER GOOGLE EARTH

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

A.D.A. COMPLIANCE:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

INDEX OF DRAWINGS

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
C-1	SITE PLAN
C-2	GROUND LEVEL PLAN
C-3	ROOF PLAN
C-4	ELEVATION
C-5	CONSTRUCTION DETAILS
C-6	CONSTRUCTION DETAILS
C-7	ANTENNA WIRING DIAGRAM
S-1	STRUCTURAL DETAILS
S-2	STRUCTURAL DETAILS
S-3	STRUCTURAL LETTERS
E-1	ELECTRICAL NOTES AND ONE LINE DIAGRAM
E-2	GROUNDING PLAN
E-3	GROUNDING DETAILS
	STEALTH DRAWINGS - JOB#VZ16-01655W-17R1
T1	TITLE SHEET
N1-N2	NOTES & SPECIFICATIONS
S1-S4	ASSEMBLY-ELEVATIONS
A1	ASSEMBLY-BOM
D1-D4	STEEL DETAILS
D5-D6	RADOME DETAILS

verizon
VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222

UVA MC N003

CONSTRUCTION DRAWINGS

6	03/22/17	FOR CONSTRUCTION
5	03/01/17	FOR CONSTRUCTION
4	02/02/17	FOR CONSTRUCTION
3	01/11/17	FOR CONSTRUCTION
2	08/04/16	FOR CONSTRUCTION
1	05/23/16	FOR CONSTRUCTION

Dewberry
Dewberry Engineers Inc.
4805 Lake Brook Drive, Suite 200
Glen Allen, VA 23060
Phone: 804.290.7957
Fax: 804.290.7929
www.dewberry.com

COMMONWEALTH OF VIRGINIA
DEREK R. MARSHALL
Lic. No. 48810
03/22/17
PROFESSIONAL ENGINEER

DRAWN BY: BAR
REVIEWED BY: BAR
CHECKED BY: DRM
PROJECT NUMBER: 50074594
SITE ADDRESS:

1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK IN ORDER TO BECOME FAMILIARIZE WITH THE FIELD CONDITIONS AND TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
2. CONTRACTOR SHALL CONTACT "MISS UTILITY" (1-800-552-7001) FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE VERIZON WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR WILL NOTIFY ENGINEER, CONSTRUCTION MANAGER, AND LANDLORD IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. ALL ROOF WORK SHALL BE DONE BY A QUALIFIED AND EXPERIENCED ROOFING CONTRACTOR IN COORDINATION WITH ANY CONTRACTOR WARRANTING THE ROOF TO ENSURE THAT THE WARRANTY IS MAINTAINED.
17. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
18. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
19. CONTRACTOR SHALL FURNISH THE CARRIER WITH THREE AS-BUILT SETS OF DRAWINGS UPON COMPLETION OF WORK.
20. ANTENNAS AND CABLES ARE TYPICALLY PROVIDED BY VERIZON WIRELESS. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON WIRELESS PROJECT MANAGER TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED BY VERIZON WIRELESS. ALL ITEMS NOT PROVIDED BY VERIZON WIRELESS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED BY VERIZON WIRELESS.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR WILL COORDINATE WITH VERIZON WIRELESS PROJECT MANAGER TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY VERIZON WIRELESS. ALL REQUIRED PERMITS NOT OBTAINED BY VERIZON WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
22. IF APPLICABLE, THE GENERAL CONTRACTOR SHALL HAVE A LICENSED HVAC CONTRACTOR START THE HVAC UNITS, SYNCHRONIZE THE THERMOSTATS, ADJUST ALL SETTINGS ON EACH UNIT ACCORDING TO VERIZON WIRELESS CONSTRUCTION MANAGER'S SPECIFICATIONS, AND THOROUGHLY TEST AND BALANCE EACH UNIT TO ENSURE PROPER OPERATION PRIOR TO TURNING THE SITE OVER TO OWNER.
23. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
24. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO VERIZON WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
25. CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS IN ADVANCE PRIOR TO CONSTRUCTION START, MORE SPECIFICALLY BEFORE; SEALING ANY FLOOR, WALL OR ROOF PENETRATION, FINAL UTILITY CONNECTIONS, POURING CONCRETE, BACKFILLING UTILITY TRENCHES AND STRUCTURAL POST OR MOUNTING CONNECTIONS, FOR ENGINEERING REVIEW AND INSPECTION.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
27. DETECTION WIRE SHALL BE BURIED DIRECTLY ABOVE NON-METALLIC PIPING AT A DISTANCE NOT TO EXCEED TWELVE (12) INCHES ABOVE THE TOP OF PIPE. THE WIRE SHALL EXTEND CONTINUOUSLY AND UNBROKEN FROM POINT OF ACCESS TO POINT OF ACCESS. THE ENDS OF THE WIRE SHALL TERMINATE WITH A MINIMUM OF THREE (3) FEET OF WIRE, COILED, REMAINING ACCESSIBLE AT TERMINATION POINTS. DETECTION WIRE SHALL BE 12 GAUGE FOR A BURIED DEPTH OF LESS THAN 4 FEET AND 4 GAUGE FOR A BURIED DEPTH GREATER THAN OR EQUAL TO 4 FEET.
28. THE CONTRACTOR SHALL GIVE ALL NOTICES AND REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
29. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CONSTRUCTION MANAGER OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES, THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
30. THE SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ALL OTHER MATERIALS AND LABOR DEEMED NECESSARY TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
31. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.
32. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDORS SPECIFICATIONS UNLESS OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.
33. THE CONTRACTOR SHALL PROVIDE A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS AVAILABLE FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.
34. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
35. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
36. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVEMENTS, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
37. THE CONTRACTOR SHALL MAINTAIN THE GENERAL WORK AREA AS CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
38. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
39. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE CONSTRUCTION MANAGER.
40. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
41. ALL CONSTRUCTION AND DESIGN FOR THE PROPOSED ANTENNA MOUNTS SHALL CONFORM IN ACCORDANCE WITH THE CURRENT STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES.
42. CONTRACTOR TO VERIFY ANTENNA ELEVATION AND AZIMUTH WITH RF ENGINEERING PRIOR TO INSTALLATION.
43. THE CONTRACTOR SHALL POST ALL SIGNS REQUIRED BY THE LATEST VERSION OF THE VERIZON WIRELESS "RADIO FREQUENCY COMPLIANCE SIGNAGE & DEMARCATION POLICY" THIS MAY INCLUDE BUT ARE NOT LIMITED TOO:
    - A. NOTICE SIGNS TO DISTINGUISH THE BOUNDARY BETWEEN GENERAL POPULATION/UNCONTROLLED AREAS AND OCCUPATIONAL AREAS
    - B. CAUTION SIGNS TO DISTINGUISH THE CONTROLLED AREAS WHERE RADIO FREQUENCY (RF) EXPOSURE CAN EXCEED THE OCCUPATIONAL/CONTROLLED MAXIMUM PERMISSIBLE EXPOSURE (MPE) LIMIT.
    - C. WARNING SIGNS TO DISTINGUISH THE BOUNDARY OF AREAS WITH RF LEVELS SUBSTANTIALLY ABOVE THE FCC LIMITS, GREATER THAN TEN (10) TIMES THE OCCUPATIONAL/CONTROLLED MPE LIMIT.
    - D. NOTICE-GUIDELINES FOR WORKING IN RADIOFREQUENCY ENVIRONMENTS: THIS SIGN IS TO BE POSTED ANYTIME SIGNAGE IS REQUIRED TO ACHIEVE FCC COMPLIANCE. IT MUST BE POSTED ON EVERY ACCESS POINT WHERE VERIZON IS EXPECTED TO EXCEED THE FCC GENERAL POPULATION EXPOSURE LIMIT AND ON EVERY ANTENNA ARRAY IN ACCESSIBLE AREAS.

verizon

VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222

UVA MC N003

CONSTRUCTION DRAWINGS

6	03/22/17	FOR CONSTRUCTION
5	03/01/17	FOR CONSTRUCTION
4	02/02/17	FOR CONSTRUCTION
3	01/11/17	FOR CONSTRUCTION
2	08/04/16	FOR CONSTRUCTION
1	05/23/16	FOR CONSTRUCTION

Dewberry

Dewberry Engineers Inc.
4805 Lake Brook Drive, Suite 200
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www.dewberry.com

COMMONWEALTH OF VIRGINIA
DEREK R. MARSHALL
Lic. No. 48810
03/22/17
PROFESSIONAL ENGINEER

DRAWN BY:	BAR
REVIEWED BY:	BAR
CHECKED BY:	DRM
PROJECT NUMBER:	50074594
SITE ADDRESS:	

1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

G-1

APPROXIMATE TRUE NORTH

NOTES:

1. SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
2. ANTENNA, EQUIPMENT, AND EASEMENTS SUBJECT TO CHANGE.
3. EXISTING PROPERTY PARCELS AND LEASE AREA BASED ON INFORMATION PROVIDED BY CITY OF CHARLOTTESVILLE GIS. DEWBERRY HAS NOT PERFORMED A SURVEY OR RESEARCHED THIS PARCEL.

SITE PLAN 1

SCALE: 1"=40' FOR 11x17
1"=20' FOR 22x34

0' 20' 40'

verizon

VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222

UVA MC N003

CONSTRUCTION DRAWINGS

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COMMONWEALTH OF VIRGINIA
DEREK R. MARSHALL
Lic. No. 48810
03/22/17
PROFESSIONAL ENGINEER

DRAWN BY:	BAR
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PROJECT NUMBER:	50074594
SITE ADDRESS:	

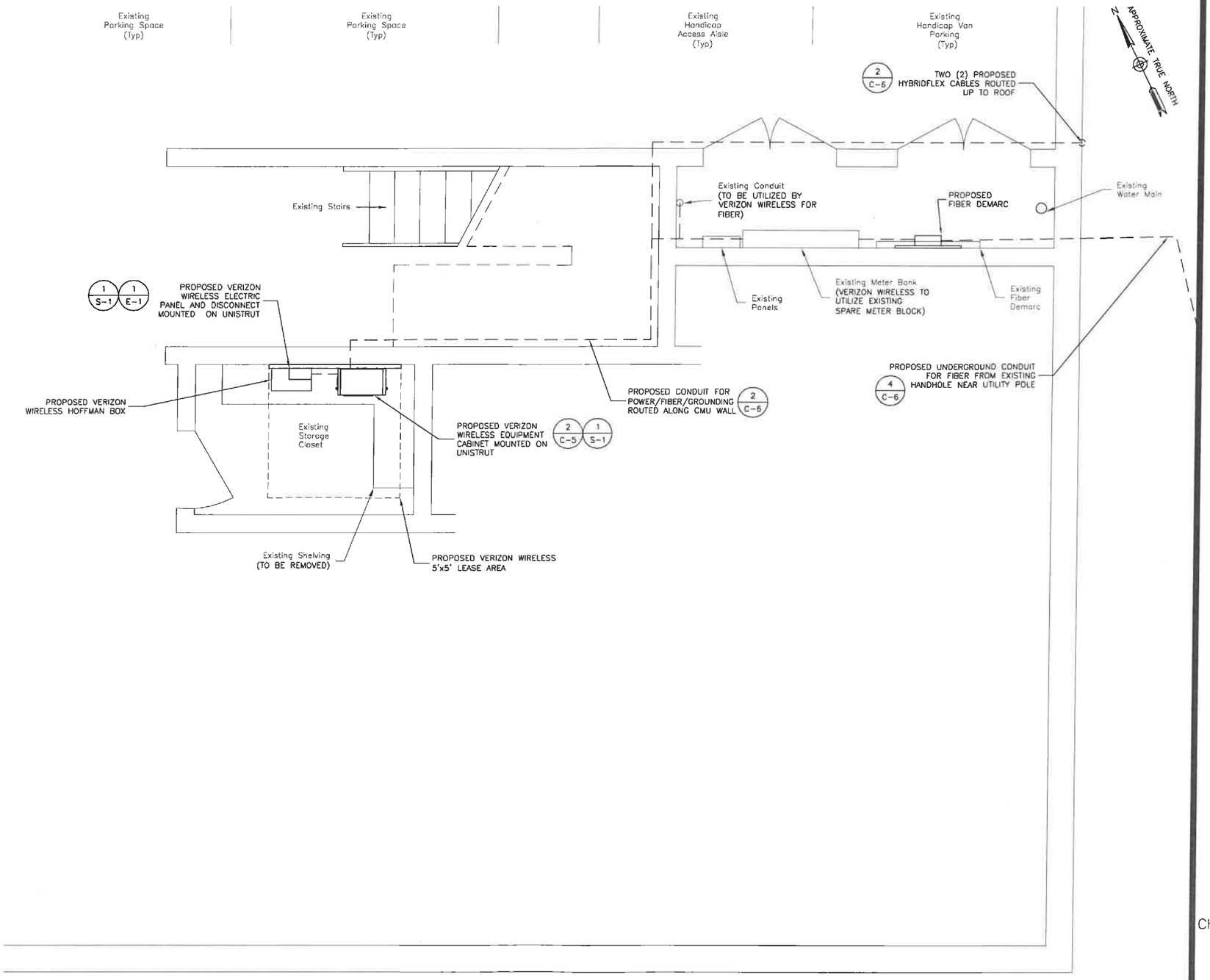
1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

SHEET TITLE

SITE PLAN

SHEET NUMBER

C-1



NOTES:

1. SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
2. ANTENNA, EQUIPMENT, AND EASEMENTS SUBJECT TO CHANGE.

GROUND LEVEL PLAN 1

SCALE: 1"=4' FOR 11x17
1"=2' FOR 22x34

0' 2' 4'

verizon

VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222

UVA MC N003

CONSTRUCTION DRAWINGS

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COMMONWEALTH OF VIRGINIA
DEREK R. MARSHALL
Lic. No. 48810
03/22/17
PROFESSIONAL ENGINEER

DRAWN BY: BAR
REVIEWED BY: BAR
CHECKED BY: DRM
PROJECT NUMBER: 50074594
SITE ADDRESS:

1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

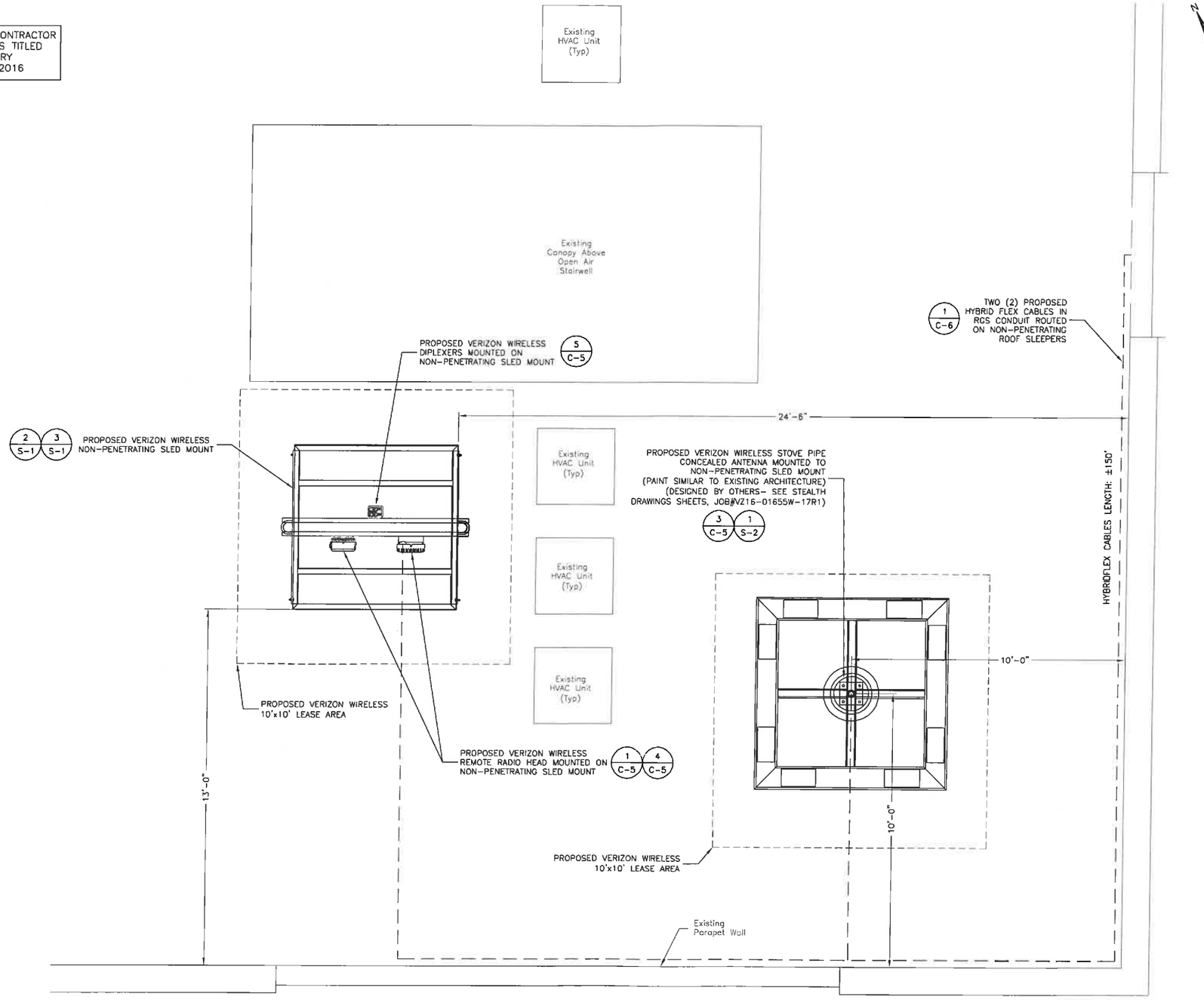
SHEET TITLE

GROUND LEVEL PLAN

SHEET NUMBER

C-2

PRIOR TO BEGINNING CONSTRUCTION CONTRACTOR SHALL REFER TO STRUCTURAL ANALYSIS TITLED UVA MC N003 COMPLETED BY DEWBERRY ENGINEERS INC. DATED, FEBRUARY 2, 2016



ROOF PLAN

SCALE: 1"=4' FOR 11x17
1"=2' FOR 22x34

0' 2' 4'

1

NOTES:

1. SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
2. ANTENNA, EQUIPMENT, AND EASEMENTS SUBJECT TO CHANGE.

verizon

VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222

UVA MC N003

CONSTRUCTION DRAWINGS

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COMMONWEALTH OF VIRGINIA
DEREK R. MARSHALL
Lic. No. 48810
03/22/17
PROFESSIONAL ENGINEER

DRAWN BY:	BAR
REVIEWED BY:	BAR
CHECKED BY:	DRM
PROJECT NUMBER:	50074594
SITE ADDRESS:	

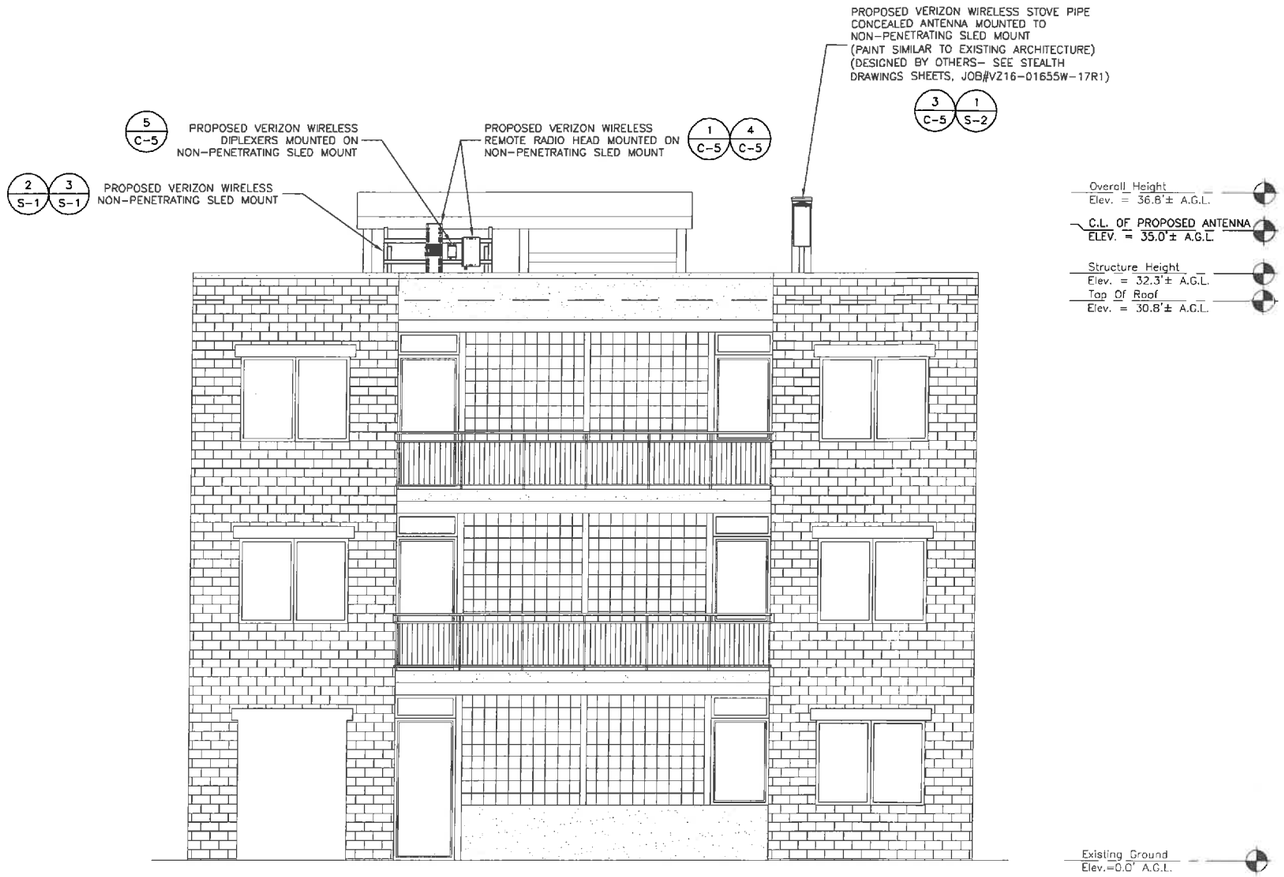
1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

SHEET TITLE

ROOF PLAN

SHEET NUMBER

C-3



EQUIPMENT WILL NOT BE VISIBLE FROM THE STREET

NOTES:

1. SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
2. ANTENNA, EQUIPMENT, AND EASEMENTS SUBJECT TO CHANGE.
3. EXISTING PROPERTY PARCELS AND LEASE AREA BASED ON INFORMATION PROVIDED BY ???? COUNTY GIS. DEWBERRY HAS NOT PERFORMED A SURVEY OR RESEARCHED THIS PARCEL.

ELEVATION 1

SCALE: 1/8"=1' FOR 11x17
1/4"=1' FOR 22x34

0' 1' 3' 6' 9'

verizon

VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222

UVA MC N003

CONSTRUCTION DRAWINGS

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Lic. No. 48810
03/22/17
PROFESSIONAL ENGINEER

DRAWN BY: BAR
REVIEWED BY: BAR
CHECKED BY: DRM
PROJECT NUMBER: 50074594
SITE ADDRESS:

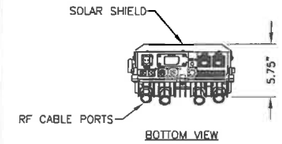
1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

SHEET TITLE

ELEVATION

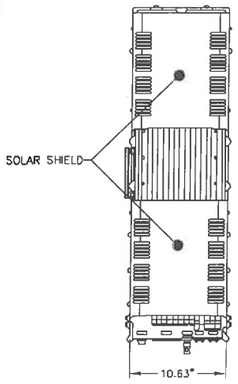
SHEET NUMBER

C-4

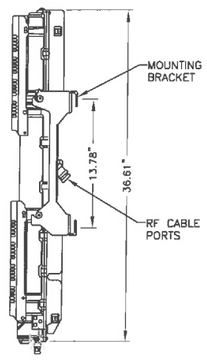


BOTTOM VIEW

WIEGHT = **55 LBS**

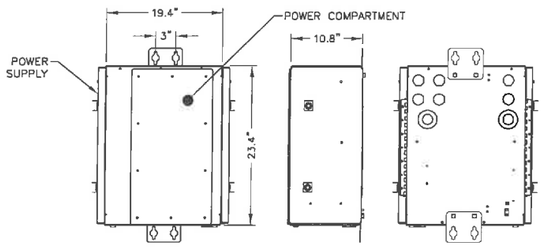


FRONT VIEW

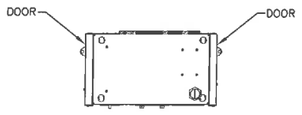


SIDE VIEW

TOP VIEW



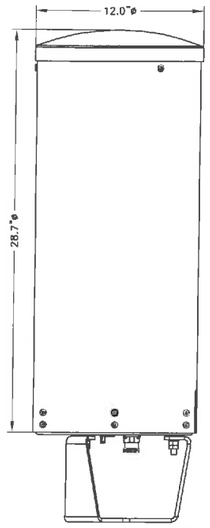
FRONT VIEW | SIDE VIEW | REAR VIEW



BOTTOM VIEW

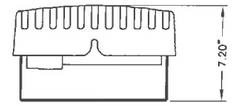
AWS RRH 2x60 (REMOTE RADIO HEAD) 1

SCALE: N.T.S.

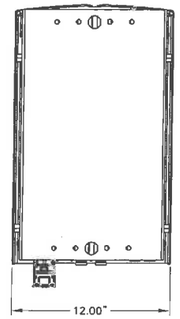


CUBE-SC1041NNNE EQUIPMENT CABINET 2

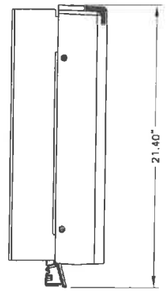
SCALE: N.T.S.



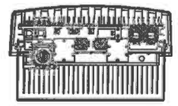
TOP VIEW



FRONT VIEW



SIDE VIEW



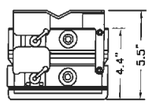
BOTTOM VIEW

NH180QS-DG-FOM DETAIL 3

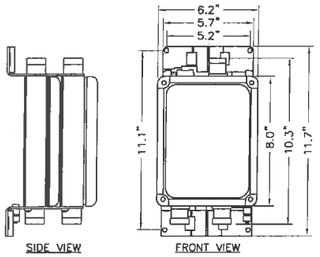
SCALE: N.T.S.

PCS RRH4x30-B25 (REMOTE RADIO HEAD) 4

SCALE: N.T.S.



TOP VIEW



SIDE VIEW | FRONT VIEW

BOTTOM VIEW

DIPLEXER DETAIL 5

SCALE: N.T.S.

RF SYSTEM SCHEDULE								
ANTENNA SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	RAD CENTER	ANTENNA AZIMUTH	DOWN TILT	RRH QUANTITY & MODEL	CABLE SIZE AND QUANTITY
ALPHA	PROPOSED	ANDREW	NH180QS-DG-FOM	35'	150°	0°	(1) PCS RRH4x30-B25 (1) AWS RRH2x60	(2) - 1/2"ø
NOTE:	1. ALL CHANGES TO THIS SCHEDULE SHOULD BE APPROVED BY VERIZON RF ENGINEERING.							

NOTES:

1. CONTRACTOR TO VERIFY ANTENNA INFORMATION WITH CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
2. CONTRACTOR TO VERIFY PROPOSED ANTENNA INFORMATION IS THE MOST CURRENT DATA AT TIME OF CONSTRUCTION.
3. CONTRACTOR TO CONFIRM CABLE LENGTHS PRIOR TO CONSTRUCTION.
4. CONTRACTOR IS RESPONSIBLE TO BUILD FROM THE LATEST RF SHEET.

verizon

VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222

UVA MC N003

CONSTRUCTION DRAWINGS		
6	03/22/17	FOR CONSTRUCTION
5	03/01/17	FOR CONSTRUCTION
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COMMONWEALTH OF VIRGINIA
DEREK R. MARSHALL
Lic. No. 48510
03/22/17
PROFESSIONAL ENGINEER

DRAWN BY:	BAR
REVIEWED BY:	BAR
CHECKED BY:	DRM
PROJECT NUMBER:	50074594
SITE ADDRESS:	

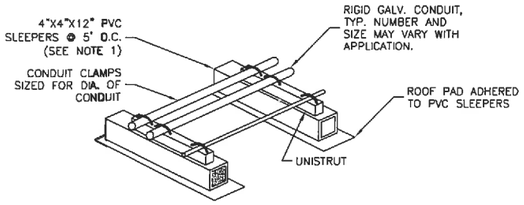
1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

SHEET TITLE

CONSTRUCTION DETAILS

SHEET NUMBER

C-5

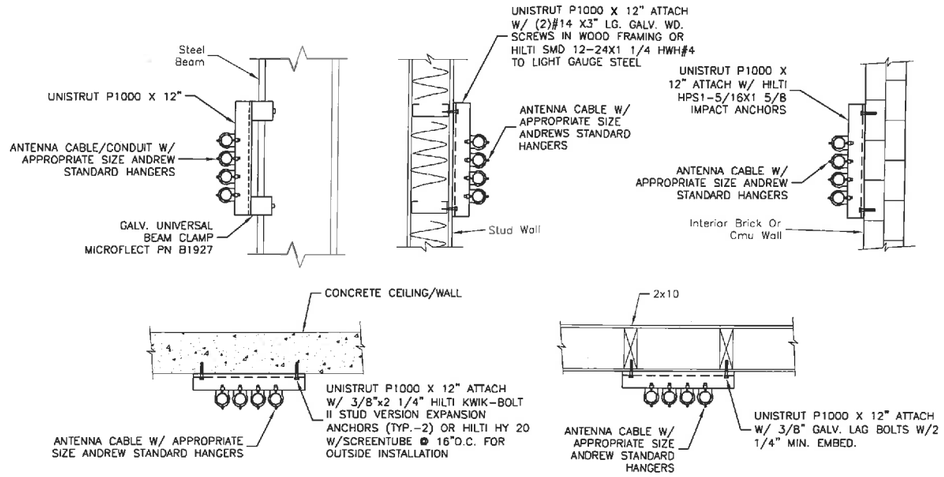


NOTE:

1. PVC SLEEPERS TO BE FILLED WITH CONCRETE EVERY 5'-0".

CONDUIT ON PVC SLEEPERS 1

SCALE: N.T.S.

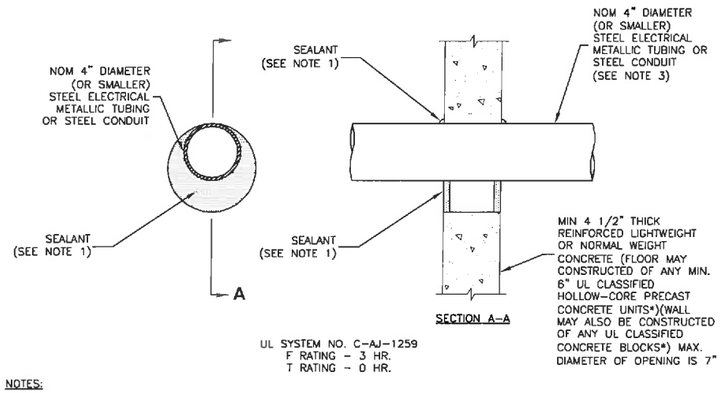


NOTES:

1. ALL COAX CABLE SUPPORT SPACING: 4'-0" MAX.
2. ALL CONDUIT SUPPORT SPACING: 10' MAX.

CABLE CONDUIT SUPPORT 2

SCALE: N.T.S.



SECTION A-A

UL SYSTEM NO. C-AJ-1259
F RATING - 3 HR.
T RATING - 0 HR.

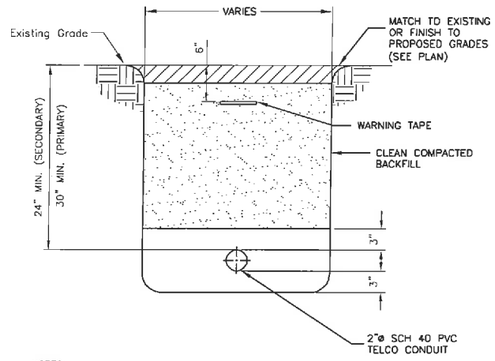
NOTES:

1. FILL, VOID OR CAVITY MATERIAL* - SEALANT - MIN. 1/2" THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF FLOOR OR WALL. AT THE POINT CONTACT LOCATION BETWEEN PENETRATING ITEM AND CONCRETE, A MIN. 1/4" THICK BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE/ PENETRATING ITEM INTERFACE ON BOTH SIDES OF FLOOR OR WALL.
2. FORMING MATERIAL - (OPTIONAL, NOT SHOWN) - MINERAL WOOL BATT PACKING MATERIAL OR POLYURETHANE BACKER ROD FRICTION FITTED INTO OPENING AND RECESSED FROM FLOOR OR WALL SURFACES AS REQUIRED TO ACCOMMODATE THICKNESS OF FILL MATERIAL.
3. ONE CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN THE CONDUIT AND THE PERIPHERY OF THE OPENING SHALL BE A MIN. OF 0" (POINT OF CONTACT) TO A MAX. OF 3". CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

* BEARING THE UL CLASSIFICATION MARK.

CORING DETAIL 3

SCALE: N.T.S.



NOTES:

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL.
2. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. SUBCONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
3. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE SUBCONTRACTOR SHALL HAND DIG U/G TRENCHING.
4. DETECTION WIRE SHALL BE BURIED DIRECTLY ABOVE NON-METALLIC PIPING AS INDICATED IN THE CONSTRUCTION DOCUMENTS AND AS DIRECTED BY THE CONSTRUCTION MANAGER.

TELCO/FIBER SERVICE TRENCH CONDUIT 4

SCALE: N.T.S.

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CONSTRUCTION DRAWINGS

6	03/22/17	FOR CONSTRUCTION
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COMMONWEALTH OF VIRGINIA
DEREK R. MARSHALL
Lic. No. 48810
03/22/17
PROFESSIONAL ENGINEER

DRAWN BY:	BAR
REVIEWED BY:	BAR
CHECKED BY:	DRM
PROJECT NUMBER:	50074594
SITE ADDRESS:	

1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

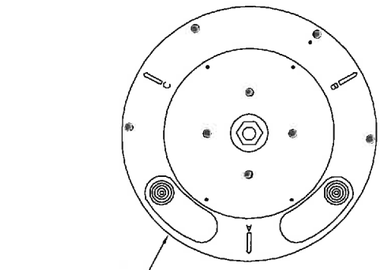
SHEET TITLE

CONSTRUCTION DETAILS

SHEET NUMBER

C-6

NH180QS-DG-F0M



ANTENNA BOTTOM VIEW

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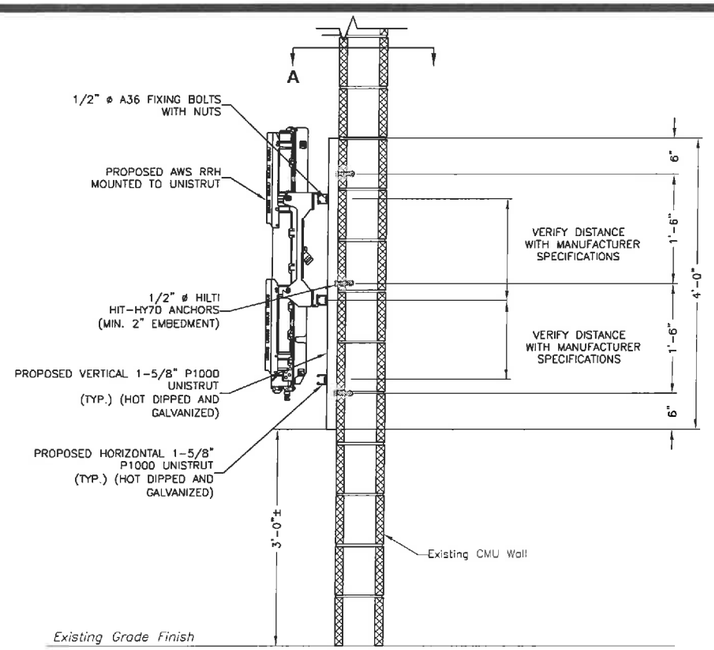
SHEET TITLE

ANTENNA WIRING DIAGRAM

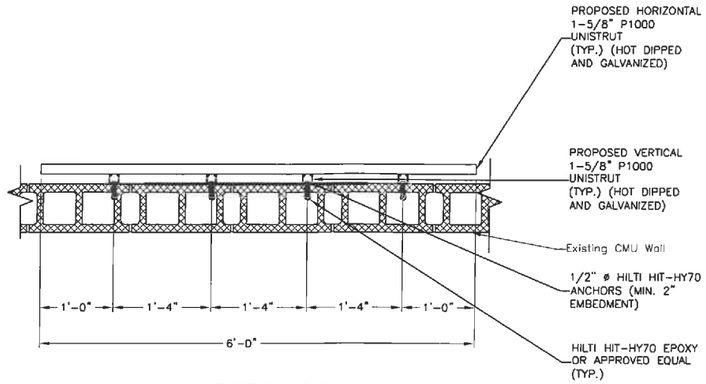
SHEET NUMBER

C-7



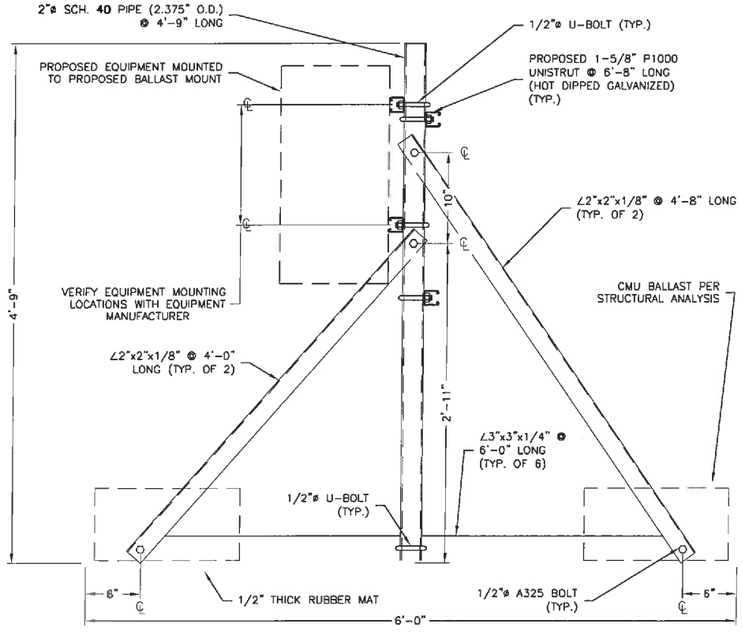
EQUIPMENT WALL MOUNTING DETAIL SECTION (1)

SCALE: N.T.S.



SECTION A-A

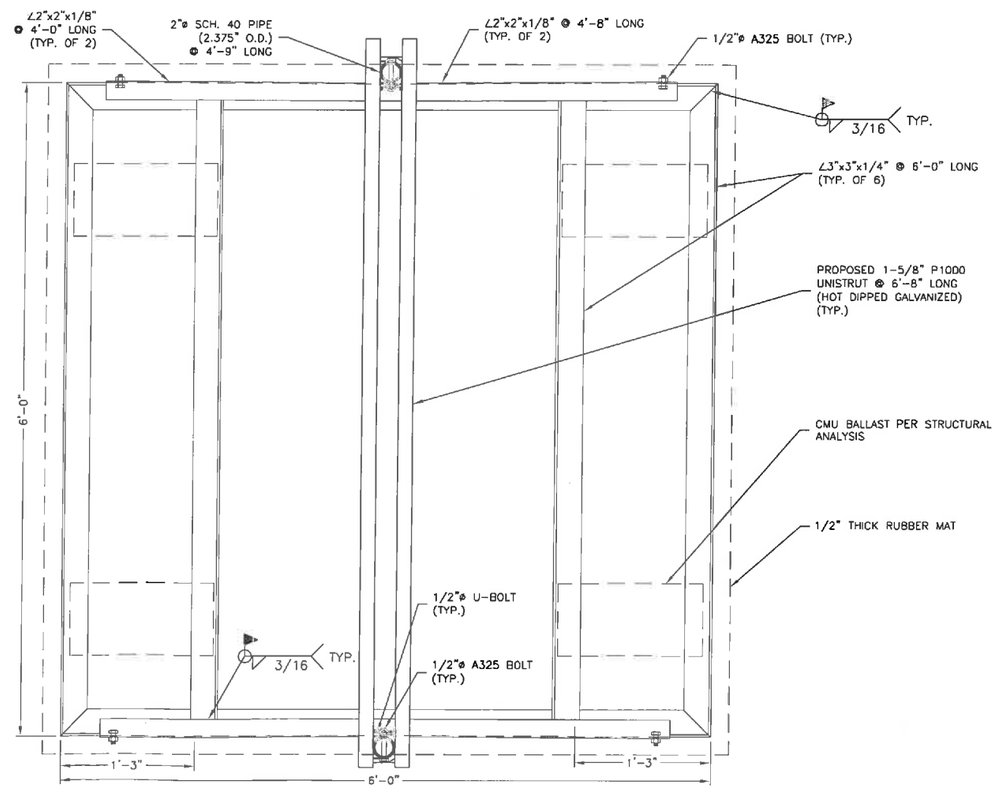
SCALE: N.T.S.



6'x6' EQUIPMENT BALLAST MOUNT ELEVATION (2)

SCALE: N.T.S.

PROVIDE BALLAST AS INDICATED IN THE STRUCTURAL ANALYSIS.



6'x6' EQUIPMENT BALLAST MOUNT PLAN VIEW (3)

SCALE: N.T.S.

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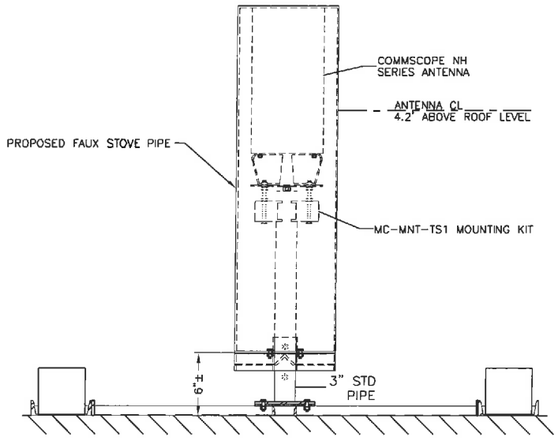
SHEET TITLE

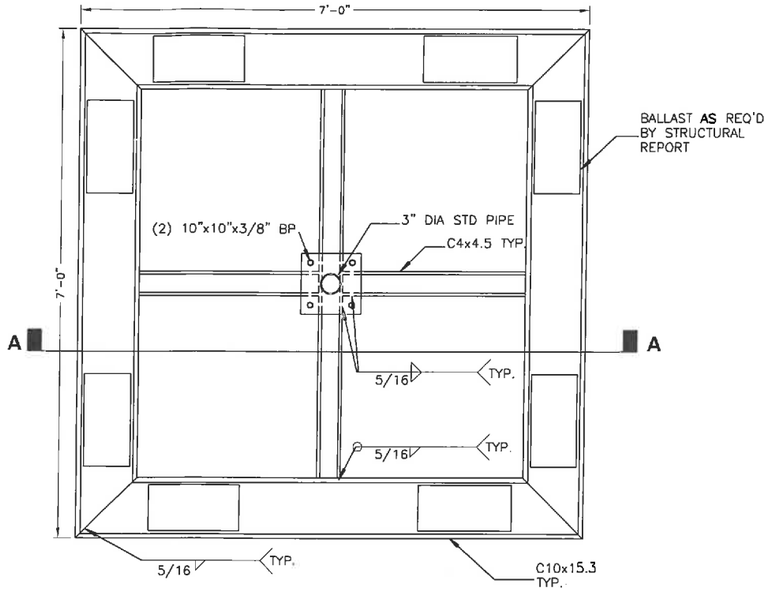
STRUCTURAL DETAILS

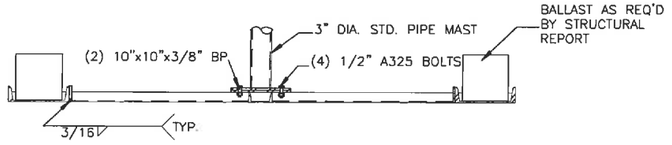
SHEET NUMBER

S-1



ANTENNA MOUNT DETAIL (1)
SCALE: N.T.S.





SECTION A-A

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STRUCTURAL DETAILS

SHEET NUMBER

S-2

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Structural Analysis Report and Design Calculations For a Wireless Telecommunications Upgrade

Site Name: UVA MC N003
Site Address: 1605 Gordon Ave
Charlottesville, VA 22903

Prepared for:
Verizon Wireless
1831 Rady Court
Richmond, VA 23222

February 2, 2016

Prepared by:
Dewberry Engineers Inc.
4805 Lake Brook Drive,
Suite 200
Glen Allen, VA 23060
Dewberry Project Number: 50074594

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Prepared by: Brandon Buchner

Brandon Buchner, P.E.
Project Designer

Reviewed by: Derek Marshall

Derek Marshall, P.E.
Virginia Professional Engineer
License No.: 0402048810

1.0 INTRODUCTION AND PROJECT SUMMARY

The objective of this report is to assess the installation of new telecommunications equipment on an existing roof.

The existing structure is a multi-story 31 foot tall building in Charlottesville, VA. A proposed antenna will mount to a non-penetrating sled with a proposed RF transparent false stovepipe surrounding it. A portion of the proposed equipment will mount to a custom ballasted sled on the rooftop. The remaining equipment will mount inside an existing storage closet.

2.0 PROPOSED ANTENNAS & EQUIPMENT

The following antennas and equipment are proposed:

- One (1) Commscope NH series antenna measuring 28.7"H x 12.0"ϕ and weighing 26.7 lb.
- One (1) RRH2x60-AWS measuring 37"H x 11"W x 6.0"D and weighing 55 lb.
- One (1) B25 RRH4x30-4R measuring 21.4"H x 12.0"W x 7.2"D and weighing 51 lb.
- One (1) Charles RF Cabinet measuring 50.3"H x 19.4"W x 10.8"D and weighing 100 lb.
- One (1) AC Panel measuring 20.9"H x14.3"W x 3.6"D and weighing 22.4 lb.
- Two (2) diplexers measuring 6.3"H x 4.4"W x 3.0"D and weighing 5.5 lb each.

3.0 CODES, STANDARDS, AND REFERENCES

The structure was analyzed and the proposed installation designed per the provisions of the following Codes and standards:

- *International Building Code (IBC) 2012*, International Code Council
- American Society of Civil Engineers *ASCE 7-10 Minimum Design Loads for Buildings and Other Structure*
- American Institute of Steel Construction *AISC 360-10, Specifications for Structural Steel Buildings*
- *TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas*

4.0 LOADING AND PERFORMANCE CRITERIA

The following Code-specified serviceability load combination was considered in the overturning analysis of the ballasted antenna mount:

1. 1.0D+1.0W

Where:
D = dead load of mount and new equipment.
W= design wind load for site location on mount and new equipment

The following site-specific design parameters were considered in this analysis per the provisions of *TIA-222-G*:

- Class: II
- Exposure: B

Table 2-1

- Basic Wind Speed.: 90 mph *Annex B*

This assessment is founded on the premise that pursuant to *2012 International Building Code* Sections "3403.3 Existing structural elements carrying gravity load" and "3403.4 Existing structural elements carrying lateral load," if the proposed installation causes an increase in design gravity loads by more than 5% and or increases the demand-capacity ratio by more than 10% in the lateral load-carrying structural elements then these elements shall be strengthened, supplemented, replaced, or otherwise altered as needed to carry the increase in load as required by the Code for new structures.

5.0 CALCULATIONS

Calculations for this analysis and the design of the installation are included in Appendices of this report.

6.0 CONCLUSIONS, COMMENTARY, AND RECOMMENDATIONS

Antenna Mount
The proposed antenna will be mounted to a pipe mast supported by a shop-built non-penetrating ballasted sled. An 18" diameter x 5'-8"H non-penetrable shroud has been assumed to be mounted to the provided shroud frame at 0'-6" above the roofline. Based on our analysis, the sled would require a total of 90 lb of ballast per side (360 lb total) to prevent overturning for the configuration described above. This may be achieved with two (2) hollow 8x8x16 CMU blocks at 45 lb each per side.

Over its footprint, the proposed ballasted antenna mount would exert a total of approximately 13.5 psf to the roof over the equipment frame footprint. This loading is less than the 20 psf assumed roof live load. The roof structure is judged to adequately support the proposed non-penetrating antenna mount as described above without additional analysis of the existing building roof structure. Additionally, ballast tie-down kits are recommended to prevent the removal of ballast by others.

Equipment Mount
The proposed equipment will be mounted to a custom 6 ft x 6 ft non-penetrating ballasted rack sitting on the roof membrane. Based on our analysis, the sled would require a total of 90 lb of ballast per side (180 lb total) for the configuration described above. This may be achieved with two (2) hollow 8x8x16 CMU blocks at 45 lb each per side.

The proposed ballasted equipment rack would exert a total of approximately 14.1 psf to the roof over the equipment frame footprint. This loading is less than the assumed live load of 20 psf for this structure. The roof structure is judged to adequately support the proposed equipment rack as described above without additional analysis of the existing building roof structure. Additionally, ballast tie-down kits are recommended to prevent the removal of ballast by others.

The global impact of the antenna mounts on the existing structure as a whole is negligible. Existing supporting members need not be investigated. Therefore, the proposed installation may be installed as planned. Please see details for the proposed installation included in the final construction drawings.

Dewberry Engineers Inc. reserves the right to add to or modify this report if more information becomes available. The conclusions reached by Dewberry Engineers Inc. in this report are only applicable to the previously mentioned existing structural elements supporting the proposed wireless telecommunications installation. The results of this report are based on the assumption that existing structural elements have been installed per the original design documents, have been well maintained, and are uncompromised. This report does not imply that a thorough inspection of the existing structure has been performed. Any deviation of the support condition,

loading, location, placement, equipment configuration, etc., will require Dewberry Engineers Inc. to generate an additional structural analysis. Further, no structural qualification is made or implied by this report of any existing structural elements.

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SITE ADDRESS:	

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CHARLOTTESVILLE, VA 22903

SHEET TITLE

STRUCTURAL LETTERS

SHEET NUMBER

S-3

ELECTRICAL GENERAL NOTES

A. GENERAL

1. SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT. CONTRACTOR IS RESPONSIBLE FOR ALL FIELD VERIFICATION.
2. THESE PLANS ARE DIAGRAMMATIC ONLY, AND NOT TO BE SCALED.
3. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, AND NBFU.
4. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF NO LESS THAN ONE YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL, OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION AT THE EXPENSE OF THE CONTRACTOR.
5. PROVIDE ALL LABOR, MATERIAL, EQUIPMENT, INSURANCE AND SERVICES TO COMPLETE THIS PROJECT IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND PRESENT IT AS FULLY OPERATIONAL TO THE SATISFACTION OF THE OWNER.
6. THE CONSTRUCTION MANAGER WILL COORDINATE POWER AND TELCO WORK WITH THE LOCAL UTILITY COMPANY AS IT MAY APPLY TO THIS SITE. ALL WORK IS TO COMPLY WITH THE RULES AND REGULATIONS OF THE UTILITIES INVOLVED.
7. FABRICATION AND INSTALLATION OF THE COMPLETE ELECTRICAL SYSTEM SHALL BE DONE WITH FIRST CLASS WORKMANSHIP PER NECA STANDARD 1-2000 BY QUALIFIED PERSONNEL, LICENSED AND EXPERIENCED IN SUCH WORK AND SHALL SCHEDULE THE WORK IN AN ORDERLY MANNER SO AS TO NOT IMPEDE THE PROGRESS OF THE PROJECT.
8. DURING PROGRESS OF THE WORK, MAINTAIN AN ACCURATE RECORD OF THE INSTALLATION OF THE ELECTRIC SYSTEMS, LOCATING EACH CIRCUIT PRECISELY AND DIMENSIONING EQUIPMENT, CONDUIT AND CABLE LOCATIONS. UPON COMPLETION OF THE INSTALLATION, TRANSFER ALL RECORD DATA TO RED LINE PRINTS OF THE ORIGINAL DRAWINGS AND SUBMIT THESE DRAWINGS AS RECORD DRAWINGS TO THE CONSTRUCTION MANAGER.
9. THE CONTRACTOR SHALL NOTIFY MISS UTILITY A MINIMUM OF TWO (2) WORKING DAYS PRIOR TO ANY CONSTRUCTION OR EXCAVATION. THE CONTRACTOR SHALL ALSO NOTIFY A PRIVATE UTILITY CONTRACTOR FOR ALL ON-SITE UTILITY LOCATIONS.
10. COORDINATE ALL METER WORK WITH LOCAL UTILITY COMPANY.

B. BASIC MATERIALS AND METHODS

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE EDITION OF THE NEC ACCEPTED BY THE LOCAL JURISDICTION AND TO THE APPLICABLE LOCAL CODES AND REGULATIONS.
2. ALL MATERIALS AND EQUIPMENT SHALL BE NEW. MATERIALS AND EQUIPMENT SHALL BE THE STANDARD PRODUCTS OF MANUFACTURER'S CURRENT DESIGN. ANY FIRST-CLASS PRODUCT MADE BY A REPUTABLE MANUFACTURER MAY BE USED PROVIDING IT CONFORMS TO THE CONTRACT REQUIREMENTS AND MEET THE APPROVAL OF THE CONSULTANT AND OWNER.
3. ARRANGE CONDUIT, WIRING, EQUIPMENT, AND OTHER WORK GENERALLY AS SHOWN, PROVIDING ALL APPROPRIATE CLEARANCE AND ACCESS. CAREFULLY EXAMINE ALL CONTRACT DRAWINGS AND FIT THE WORK IN EACH LOCATION WITHOUT SUBSTANTIAL ALTERATION. WHERE DEPARTURES ARE PROPOSED BECAUSE OF FIELD CONDITIONS OR OTHER CAUSES PREPARE AND SUBMIT DETAILED DRAWINGS FOR ACCEPTANCE.
4. THE CONTRACT DRAWINGS ARE GENERALLY DIAGRAMMATIC AND ALL OFFSETS, BENDS, FITTINGS, AND ACCESSORIES ARE NOT SHOWN. PROVIDE ALL SUCH ITEMS AS MAY BE REQUIRED TO FIT THE WORK TO THE CONDITIONS.
5. MAINTAIN ALL CLEARANCES AS REQUIRED BY THE NATIONAL ELECTRICAL CODE (NEC).

C. CONDUCTORS AND CONNECTORS

1. UNLESS NOTED OTHERWISE, ALL CONDUCTORS SHALL BE COPPER, MINIMUM SIZE #12 AWG WITH THERMOPLASTIC INSULATION CONFORMING TO NEMA WC5 OR CROSS-LINKED POLYETHYLENE INSULATION CONFORMING TO NEMA WC7 (TYPES THHN OR THWN). INSULATION SHALL BE RATED FOR 90°C. CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH THE NEC.
2. ALL CONDUCTORS USED FOR CIRCUIT GROUNDING SHALL BE COPPER AND SHALL HAVE GREEN INSULATION.
3. FOR COPPER CONDUCTORS #6 AWG AND SMALLER, USE 3M SCOTCH LOK OR T&B STA-KON COMPRESSION TYPE CONNECTORS WITH INTEGRAL OR SEPARATE INSULATION CAPS. FOR COPPER CONDUCTORS LARGER THAN #6 AWG, USE SOLDERLESS IDENT HEX SCREW OR BOLT TYPE PRESSURE CONNECTORS OR DOUBLE COMPRESSION C-CLAMP CONNECTORS, UNLESS NOTED OTHERWISE ON DRAWINGS.
4. UNLESS NOTED OTHERWISE ALL LUGS SHALL BE TIN PLATED COPPER, TWO-HOLE LONG BARREL COMPRESSION TYPE.
5. CONDUCTOR LENGTHS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION WITHOUT SPLICES. SPLICES ARE NOT ACCEPTABLE. IF SPLICES ARE UNAVOIDABLE, PRIOR APPROVAL FROM CINGULAR'S REPRESENTATIVE MUST BE OBTAINED.

E. RACEWAYS AND BOXES

1. ALL CONDUIT SHALL BE UL LABELED.
2. ALL EMPTY CONDUITS INSTALLED FOR FUTURE USE SHALL HAVE A PULL CORD.
3. SHEET METAL BOXES SHALL BE NEMA 3R AND CONFORM TO NEMA OS1. CAST-METAL BOXES SHALL BE NEMA 3R AND CONFORM TO NEMA 81 AND SHALL BE SIZED IN ACCORDANCE WITH NEC UNLESS OTHERWISE NOTED.

E. CONDUIT

1. RIGID CONDUIT SHALL BE U.L. LABEL, GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH THE EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
2. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL. FITTINGS TO BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
3. LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECTIFIERS AND WHERE PERMITTED BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZED GROUND CONDUCTOR.
4. CONDUIT RUNS SHALL BE SURFACE MOUNTED ON WALLS AND CEILINGS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, CEILING, OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLING.
5. PVC CONDUIT MAY ONLY BE PROVIDED WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS. PROVIDE UV-RESISTANT CONDUIT WHERE EXPOSED TO THE ATMOSPHERE. PROVIDE GROUND CONDUCTOR IN ALL PVC RUNS; EXCEPT WHERE PERMITTED BY CODE TO OMIT.

F. GROUNDING

1. ALL SAFETY GROUNDING OF THE ELECTRICAL EQUIPMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT EDITION OF THE NEC.
2. GROUND LUGS ARE SPECIFIED UNDER SECTION "C. CONDUCTORS AND CONNECTORS"
3. ALL GROUND LUG AND COMPRESSION CONNECTIONS SHALL BE COATED WITH AN ANTI-OXIDENT AGENT SUCH AS NO-OX, NOALOZ, PENETROZ, OR KOPRSHIELD.
4. PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE STAINLESS STEEL HARDWARE THROUGHOUT.
5. DO NOT INSTALL GROUND RING (IF REQUIRED) OUTSIDE OF PROPERTY LINE.
6. REMOVE ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTIONS. REPAINT TO MATCH AFTER CONNECTIONS ARE MADE TO MAINTAIN CORROSION RESISTANCE.
7. ALL EXTERIOR GROUNDING CONDUCTORS INCLUDING EXTERIOR GROUND RING (IF REQUIRED) SHALL BE #2 AWG SOLID BARE TINNED COPPER. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID ANY SHARP BENDS. THE RADIUS OF ANY BEND SHALL NOT BE LESS THAN 8" AND THE ANGLE OF ANY BEND SHALL BE EXCEED 90°. GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD THE BURIED GROUND RING.
8. ALL GROUND CONNECTIONS SHALL BE APPROVED FOR THE METALS BEING CONNECTED.
9. ALL EXTERNAL GROUND CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. ALL EXOTHERMIC WELDS TO THE EXTERIOR GROUND RING SHALL BE TEE TYPE LOCATED ON TOP OF GROUND RODS. REPAIR ALL GALVANIZED SURFACES THAT HAVE BEEN DAMAGED BY EXOTHERMIC WELDING USING SPRAY CONTAINING 95% ZINC (Z.R.C. "GALVANITE OR EQUIVALENT).
11. IF A NEW GROUND RING IS REQUIRED, CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER WHEN THE BURIED RING IS INSTALLED SO THE MANAGER CAN INSPECT THE GROUND RING BEFORE IT IS BACKFILLED WITH SOIL.
12. WHERE MECHANICAL CONNECTORS (TWO-HOLE OR CLAMP) ARE USED, APPLY A LIBERAL PROTECTIVE COATING OF AN ANTI-OXIDANT COMPOUND SUCH AS "NO OXIDE A" BY DEARBORN CHEMICAL COMPANY ON ALL CONNECTORS.
13. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY REPRESENTATIVE AT THE SITE TO DISCONNECT THE UTILITY NEUTRAL FROM GROUNDING SYSTEM DURING FINAL INSPECTION SO THE REQUIRED TESTING ON THE GROUND SYSTEM CAN BE PERFORMED. IF THE CONTRACTOR FAILS TO HAVE THE UTILITY REPRESENTATIVE PRESENT DURING FINAL RESISTANCE TESTING, THE CONTRACTOR SHALL PAY THE COST FOR AN INDEPENDENT GROUNDING CONSULTANT TO PERFORM THE GROUND RESISTANCE TEST. GROUNDING CONSULTANT TO BE SELECTED BY THE CONSTRUCTION MANAGER. IF THE UTILITY REPRESENTATIVE FAILS TO APPEAR AT NO FAULT OF THE CONTRACTOR, NO PENALTY SHALL APPLY.
14. PAINT, ENAMEL, LACQUER AND OTHER ELECTRICALLY NON-CONDUCTIVE COATINGS SHALL BE REMOVED FROM THREADS AND SURFACE AREAS WHERE CONNECTIONS ARE MADE TO ENSURE GOOD ELECTRICAL CONTINUITY.
15. CONNECTIONS BETWEEN DISSIMILAR METALS SHALL NOT BE MADE UNLESS THE CONDUCTORS ARE SEPARATED BY A SUITABLE MATERIAL THAT IS PART OF THE ATTACHMENT DEVICE. ONLY ATTACHMENT DEVICES LISTED AND APPROVED FOR DISSIMILAR METALS MAY BE USED.

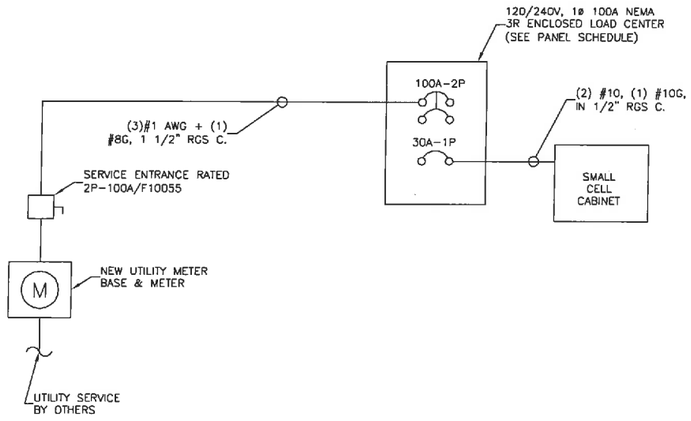
LOAD CENTER

VOLTS:	120/240	WIRE:	3	AIC:	*	NEUTRAL BAR:	YES
PHASE:	1	AMP:	100	MAIN CB AMP:	100	GROUND BAR:	YES
BRANCH CB:	6	NEMA TYPE:	NEMA 1			MFR:	SQUARE "D"
KEY LOCK:	NO	MOUNTING:	SURFACE				

WATTS A	WATTS B	CIRCUIT DESCRIPTION	CONDUCTOR	POLES	BRK	CKT
1388		EQUIPMENT CABINET	#10	1	30	1
	180	EXTERIOR GFCI OUTLET	#12	1	20	2
-		SPACE	-	1		3
	-	SPACE	-	1		4
		SPACE	-	1		5
	-	SPACE	-	1		6

* AS REQUIRED TO MEET AVAILABLE FAULT CURRENT

PANEL SCHEDULE



ELECTRICAL ONE LINE DIAGRAM

SCALE: N.T.S.

verizon

VERIZON WIRELESS
1831 RADY COURT
RICHMOND, VA 23222

UVA MC N003

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03/22/17
PROFESSIONAL ENGINEER

DRAWN BY:	BAR
REVIEWED BY:	BAR
CHECKED BY:	DRM
PROJECT NUMBER:	50074594
SITE ADDRESS:	

1605 GORDON AVE.
CHARLOTTESVILLE, VA 22903

SHEET TITLE

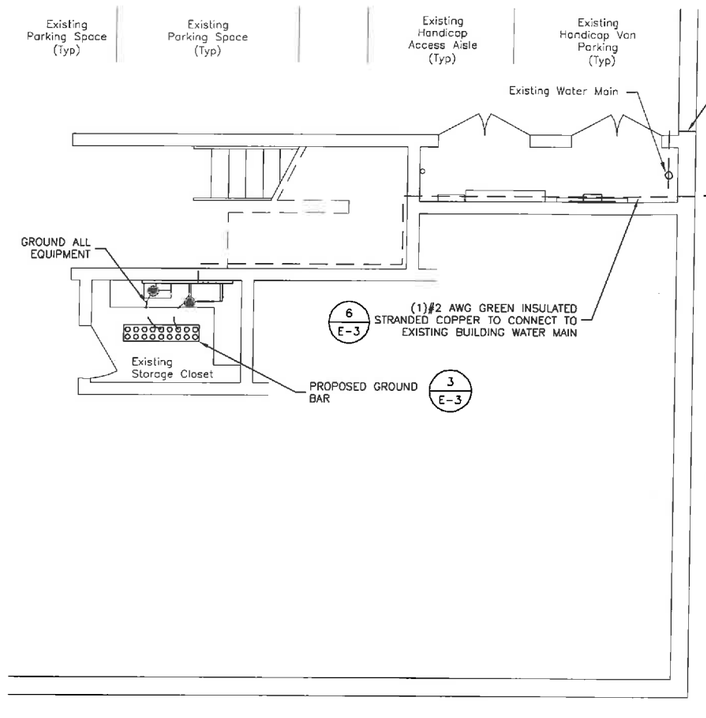
ELECTRICAL NOTES AND ONE LINE DIAGRAM

SHEET NUMBER

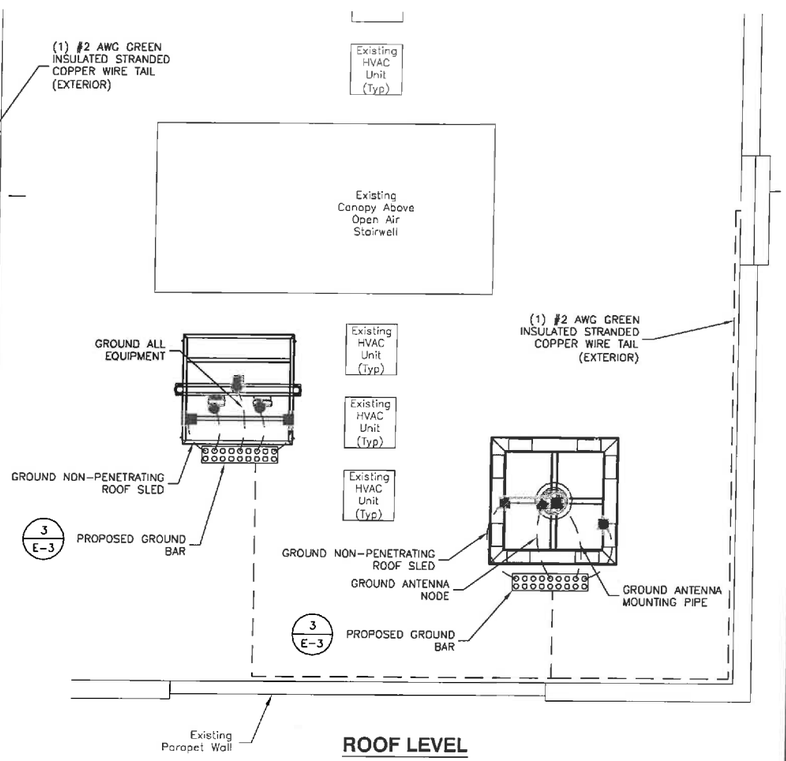
E-1

GROUNDING NOTES

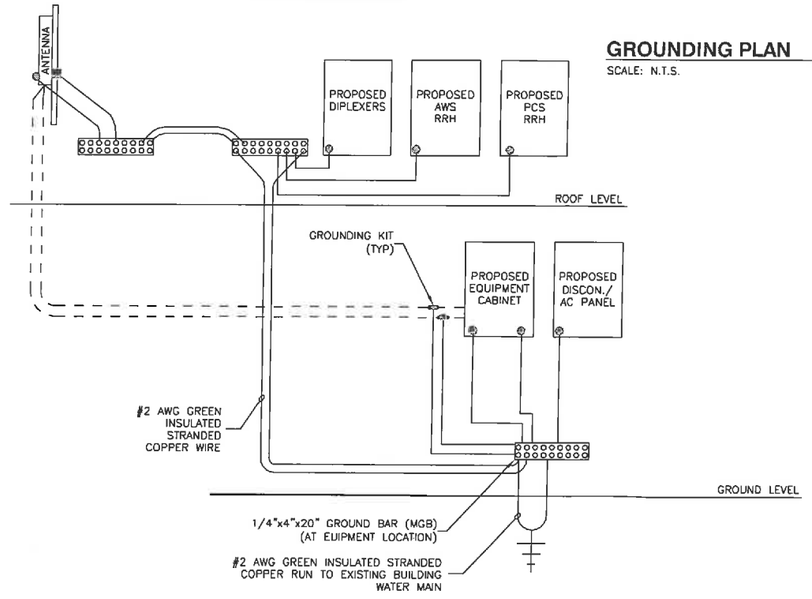
1. WHERE MECHANICAL CONNECTIONS ARE SPECIFIED, BOLTED, COMPRESSION-TYPE, CLAMPS OR SPLIT-BOLT TYPE CONNECTORS SHALL BE USED.
2. INSTALL GROUNDING KITS AT ANTENNA CENTERLINE. GROUND COAX LINES. EXOTHERMICALLY WELD #2 DOWN CONDUCTOR TO PLATES, RUN DOWN BUILDING AND TIE INTO GROUNDING SYSTEM.
3. PRIOR TO THE START OF GROUNDING WORK, THE CONTRACTOR SHALL OBTAIN THE LATEST COPY OF THE VERIZON SOUTHERN VIRGINIA REGION GROUNDING STANDARDS. ANY OMISSION OF INFORMATION ON THIS DOCUMENT DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY. ALL VERIZON GROUNDING REQUIREMENTS SHALL BE MET AS OUTLINED IN VERIZON'S GROUNDING STANDARDS. ALL GROUNDING WORK SHALL COMPLY WITH VERIZON WIRELESS SPECIFICATIONS AND STANDARDS. FOLLOWING COMPLETION OF WORK, GROUND SYSTEM MUST BE TESTED AND SHALL HAVE A RESISTANCE OF 5 OHMS OR LESS (SUBMIT AN INDEPENDENT "FALL POTENTIAL" TESTING REPORT).
4. NOTIFY CONSTRUCTION MANAGER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
5. GROUNDING RING IS SHOWN AS SCHEMATIC ONLY. IT IS DESIGNED WITHOUT BENEFIT OF RESISTIVITY TESTING AND DOES NOT NECESSARILY REPRESENT A GROUNDING SYSTEM TO MEET ANY SPECIFIC GROUND RESISTANCE.
6. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
7. ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
8. ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
9. INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 TINNED SOLID COPPER WIRE FOR BELOW GRADE GROUNDING, UNLESS OTHERWISE NOTED.
10. THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS POSITIONED ACCORDING TO GROUNDING PLAN. THE GROUND RODS SHALL BE 5/8"x10'-0" COPPER CLAD STEEL INTERCONNECTED WITH #2 TINNED SOLID COPPER WIRE BURIED 36" BELOW GRADE. BURY GROUND RODS A MAXIMUM OF 15' APART AND A MINIMUM OF 10' APART.
11. WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1" BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
12. PROPOSED VERIZON GROUNDING NEEDS TO CONNECT TO ALL EXISTING COMMON GROUNDING ELECTRODES. IT IS POSSIBLE THAT MORE THAN ONE COMMON GROUNDING ELECTRODE EXISTS.
13. GROUND RODS MUST BE OFFSET A MINIMUM OF SIX (6) FEET. IT IS RECOMMENDED THAT THEY ARE SPACED APART AT A DISTANCE TO MATCH THEIR BURIAL DEPTH. GROUND RODS MUST BE BURIED 8 FT BELOW THE FROST DEPTH.
14. GROUNDING INSIDE A CONDUIT IS NOT REQUIRED UNLESS THE SITE HAS SPECIFIC SECURITY OR VANDALISM CONCERNS. IF CONDUIT IS USED, IT MUST BE NON-METALLIC.
15. ALL GROUND WIRE BONDS AND CONNECTIONS SHALL BE EXOTHERMIC WELDS. CONNECTIONS OF GROUND WIRES TO EQUIPMENT SHALL BE HIGH PRESSURE CRIMPED LONG BARREL 2-HOLE LUG OR EXOTHERMIC WELD.
16. IF COMMON BUILDING ELECTRODE IS A COLDWATER MAIN, GROUNDING NEEDS TO BE SUPPLEMENTED WITH EXTERIOR GROUND RODS, EXISTING BUILDING STEEL OR EXISTING BUILDING GROUND RING.
17. ELECTRICAL CONTRACTOR TO VERIFY IS EXISTING BUILDING GROUNDING HAS A RESISTANCE OF 25 OHMS OR LESS. IF 25 OHMS OR LESS, THEN BUILDING GROUNDING IS SUFFICIENT. IF NOT, THEN GROUNDING MUST BE SUPPLEMENTED WITH (2) GROUND RODS TO ENHANCE EXISTING GROUNDING ELECTRODE.
18. IF THE LANDLORD BUILDING HAS TENANT SPACES, VERIZON MUST HAVE ACCESS TO SPACES CONTAINING THE COMMON BUILDING GROUNDING ELECTRODES.
19. GROUNDING EXTERIOR TO THE BUILDING IS NOT REQUIRED TO BE IN A CONDUIT UNLESS THE SITE HAS SPECIFIC SECURITY OR VANDALISM CONCERNS OR AS DIRECTED BY THE CONSTRUCTION MANAGER. GROUNDING INTERIOR TO THE BUILDINGS SHALL BE INSTALLED IN CONDUIT.
20. IF NO EXTERIOR GROUND RODS CAN BE FOUND WITH THE EXISTING ELECTRICAL METERS, NEW GROUND RODS (TYP OF 2) MUST BE PLACED.



GROUND LEVEL



ROOF LEVEL



GROUNDING PLAN 1
SCALE: N.T.S.

GROUNDING RISER DIAGRAM 2
SCALE: N.T.S.

GROUNDING LEGEND

- GROUND BAR
- GROUND COPPER WIRE, SIZE AS NOTED
- MECHANICAL CONNECTION
- EXOTHERMIC (CADWELL) CONNECTION
- 5/8"X10' COPPER CLAD STEEL GROUND ROD

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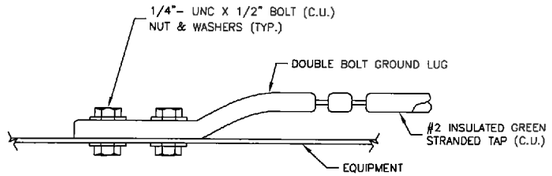
SHEET TITLE

GROUNDING PLAN

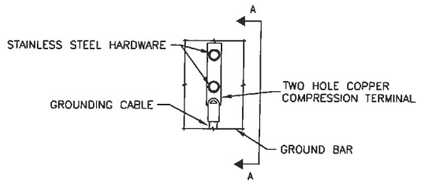
SHEET NUMBER

E-2

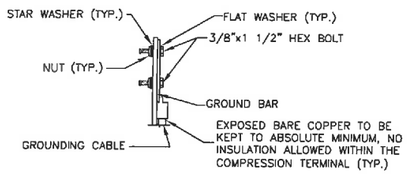


CONNECTION TO EQUIPMENT DETAIL 1

SCALE: N.T.S.



ELEVATION



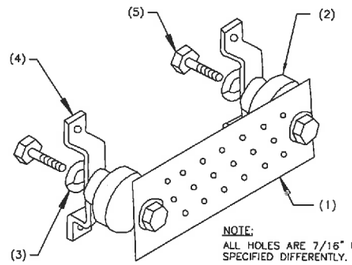
SECTION 'A–A'

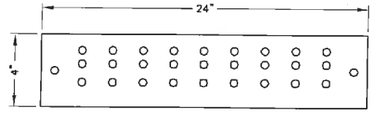
NOTES:

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

TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL 2

SCALE: N.T.S.





THE GROUND BAR IS 1/4" THICK, 4" WIDE, 24" LONG. IT HAS A UNIVERSAL HOLE PATTERN.

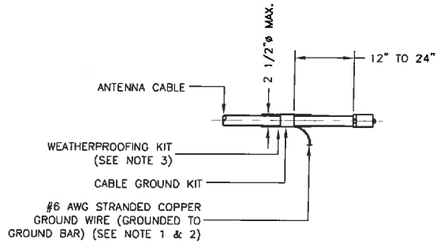
NOTE:
ALL HOLES ARE 7/16" UNLESS SPECIFIED DIFFERENTLY.

LEGEND

1. GALVANIZED GROUND BAR, 1/4"x4"x24", SITE PRO P/N HDG42463–K. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. STANDOFF INSULATORS (INCLUDED IN KIT).
3. GALVANIZED WASHER.
4. STAINLESS STEEL MOUNTING BRACKET (INCLUDED IN KIT).
5. TAMPER RESISTANT SS BOLT FOR GROUND BARS, SITE PRO P/N TRHK.

GROUND BAR DETAIL 3

SCALE: N.T.S.

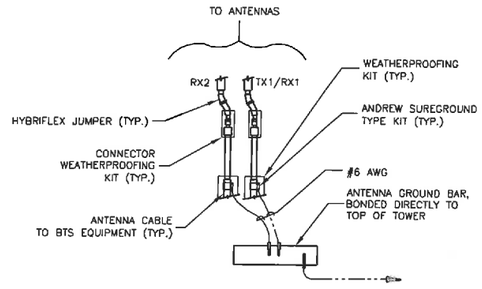


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE ANDREW SUREGROUND TYPE KIT WITH TWO–HOLE LUG.
3. WEATHER PROOFING SHALL BE ANDREW TWO–PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

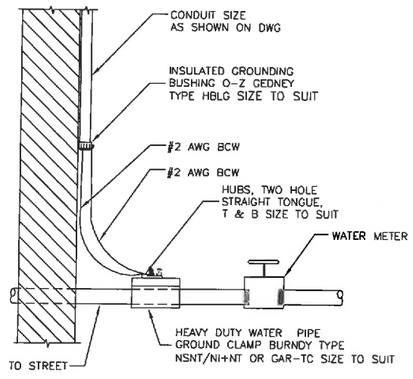
CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE DETAIL 4

SCALE: N.T.S.



CONNECTION OF GROUND WIRE TO GROUNDING BAR DETAIL 5

SCALE: N.T.S.



NOTE:

1. BURNDY TYPE GROUND CLAMP SHOULD BE ATTACHED ON STREET SIDE OF WATER CUT–OFF. VALVE IS INSULATED BETWEEN WATER METER & STREET GROUNDING CLAMP SHOULD BE ATTACHED TO STREET SIDE.

WATER METER GROUNDING 6

SCALE: N.T.S.

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GROUNDING DETAILS

SHEET NUMBER

E–3