PLANNING BOARD APPLICATION

INSTRUCTIONS AND PROCEDURES

- Regular meetings of the Planning Board are held on the 2nd Monday of each month at 6:30 P.M. at the Town of Barre Town Hall, or such other time or place as the Chairman of the Board may determine from time to time.

- All pertinent questions on the application must be answered, and all information required shall be concisely stated. Additional statements may be added if needed on the back of the application or on a separate sheet of paper.

- The final date for filing applications shall be ten (10) days before the date of the regular meeting.

- Applications for a Special Use Permit and/or Site Plan Review shall be accompanied by 5 copies of a proposed site plan* showing the information required for site plan approval as described in Article X of the Town of Barre Zoning Regulations (attached herein) and the appropriate fee. Checks should be made payable to *Town of Barre*.

  The Code Enforcement Officer shall provide the Applicant a copy of the relevant Section of the Town of Barre Zoning Regulations, describing the standards and provisions required for the Special Use Permit requested.

*A pre-application conference may be held between the Planning Board and applicant to review the basic site design concept and to determine the information to be submitted with the site plan.

SPECIAL USE PERMIT AND SITE PLAN REVIEW INFORMATION

SPECIAL USE PERMIT

The Town of Barre Zoning Regulations uses Special Use Permits to control the impact of certain uses upon areas where they will be incompatible unless conditioned in a manner suitable to a particular location. Special Use Permits bring needed flexibility and individuality to the otherwise rigid controls of zoning regulations

A "Special Use" is a use which is specifically permitted in a given District only when conditioning criteria enumerated in the Town of Barre Zoning Regulations are met. All such uses are declared to possess characteristics of such unique and special forms that each specific use shall be considered as an individual case.

- In approving an application, the Planning Board may impose any modifications or conditions it deems necessary to conform to the goals and objectives of the Town of Barre's Comprehensive Plan and its principles of land use and development. and to protect the health, safety or general welfare of the public.
- A Special Use Permit shall authorize only one particular special use. The Permit shall expire if the use shall cease for more than one (1) year for any reason.
- The Code Enforcement Officer shall inspect the premises of a use authorized and approved with a Special Use Permit on an annual basis. The purpose of the Inspection is to determine that the use is being operated consistent with the terms and conditions established by the Town Planning Board in approving the Permit.
- In addition, fees for a Special Use Permit are due annually.

SITE PLAN REVIEW

Applications for a Special Use Permit for any structure, building or use shall be referred to the Planning Board for Site Plan review with the following exceptions:

- One or two-family dwellings
- Permitted accessory uses for one or two-family dwellings
- Any addition to a single-family dwelling
- Ann addition to a general farming use

The intent of a Site Plan Review is to set forth additional general standards applying to certain uses and activities, the nature of which require special consideration of their impacts upon surrounding properties, the environmental, community character and the ability of the Town of Barre to accommodate development consistent with the objectives of our Zoning Regulations.

OPTIONAL PUBLIC HEARING

The Town Planning Board may conduct a Public Hearing of the Site Plan Review and Special Use Permit if considered desirable by a majority of the members.

Expiration Of a Site Plan Approval

Site Plan approval shall automatically terminate one (1) year after the same is granted unless significant work has been done on the project.

TOWN OF BARRE
APPLICANT ACKNOWLEDGEMENT

Date: 10/18/2022

Applicant: Name: RTO WIRELESS LLC AGENT, GEORGE CHIANIS

Address: 271 CHELMSFORD ST, CHELMSFORD, MA 01824

Telephone: 202-595-4034

Subject Property: Address: 13310 HEMLOCK RIDGE ROAD

Tax Lot No. 115.-1-13

Referred to Planning Board for:

[ ] xxSpecial Use Permit Modification [ ] xxSite Plan Review

Applicant shall reimburse the Town of Barre for all engineering, legal, or other extraordinary or unanticipated expenses incurred by the Town in review of the proposed action. The applicant shall reimburse the Town as expenses are incurred.

Where such expenses are estimated to be greater than $1,000.00, the Planning Board will require an escrow account be established in an amount determined by such Board. The escrow account will be replenished as expenses are paid by the Town.

All monies due the Town of Barre shall be paid in full before issuance of any required permit OR within thirty (30) days of final action taken by the Planning Board.

I, GEORGE CHIANIS have read the above statement and agree to the terms and conditions thereof.

George Chianis
Applicant's Signature

10/18/2022
Date

[ ] Fee's paid

April, 2022

TOWN OF BARRE
PLANNING BOARD

APPLICATION
(See Instructions and Procedures Attached)

Date Received: _____

1. I (we) hereby apply to the Town Planning Board:

☐ XX for Site Plan Review ☐ XX for a Special Use Permit

Pursuant to Section for the Town of Barre Zoning Regulations: ARTICLE IX, ARTICLE X

~~SECTION 719~~ ARTICLE VII Section 350.63

2. LOCATION: Address 13310 HEMLOCK RIDGE ROAD Tax Lot No. 115.-1-13

Current Zoning: AGRICULTURAL/RESIDENTIAL

3. OWNER: RONALD L. CARR/SUSAN O. CARR-AMERICAN TOWER Telephone: 919-466-0112

Address: 13310 HEMLOCK RIDGE ROAD, BARRE NY Zip: 14411

APPLICANT: RTO WIRELESS LLC Telephone: 202-595-4034

Address: 271 CHELMSFORD ST, CHELMSFORD, MA Zip: 01824

AGENT: GEORGE CHIANIS Telephone: 202-595-4034

Address: 271 CHELMSFORD ST, CHELMSFORD, MA Zip: 01824

If the applicant is not the owner or if there is an applicant/agent, please explain:

RTO WIRELESS LLC HAS A LEASE WITH THE TOWER OWNER, AMERICAN TOWER CORP.

4. DESCRIBE BRIEFLY THE DETAILS OF THIS REQUEST: TO CO-LOCATE ON THE EXISTING TOWER STRUCTURE WITH 3 PANEL ANTENNAS AND 1 PARABOLIC DISH

AND A RADIO STATION EQUIPMENT CABINET LOCATED AT THE BASE OF THE STRUCTURE.

SIGNATURE(s): George Chianis DATE: 10/18/2022

_____ DATE: _____

AGRICULTURAL DATA STATEMENT

Per § 305-a of the New York State Agriculture and Markets Law, any application for a special use permit, site plan approval, use variance, or subdivision approval requiring municipal review and approval that would occur on property within a New York State Certified Agricultural District containing a farm operation or property with boundaries within 500 feet of a farm operation located in an Agricultural District shall include an Agricultural Data Statement.

A. Name of applicant: RTO WIRELESS LLC

Mailing address: 271 CHELMSFORD STREET

CHELMSFORD, MA 01824

B. Description of the proposed project: Broadband Service Facility co-locating on existing 195' Tower Structure with 3 panel antennas and 1 parabolic dish mounted at a height of 150' with a Radio Station Equipment Cabinet enclosed with existing fence/locked gate accessed by existing access road.

C. Project site address: 13310 HEMLOCK RIDGE ROAD Town: BARRE

D. Project site tax map number: 115.-1-15

E: The project is located on property:

☐ within an Agricultural District containing a farm operation, or

X ☐ with boundaries within 500 feet of a farm operation located in an Agricultural District.

F. Number of acres affected by project: .00457 ACRES

G. Is any portion of the project site currently being farmed?

☐ Yes. If yes, how many acres_____or square feet _____?

☐ X No.

H. Name and tax parcel identification number or address of any owner of land containing farm operations within the Agricultural District and is located within 500 feet of the boundary of the property upon which the project is proposed.

MICHAEL R. PRESTON 13219 HEMLOCK RIDGE ROAD, BARRE NY 14411

TAX ID #115.-1-10

I. Attach a copy of the current tax map showing the site of the proposed project relative to the location of farm operations identified in Item H above. Web-mapping available at **tinyurl.com/MapOrleans**.

FARM NOTE

Prospective residents should be aware that farm operations may generate dust, odor, smoke, noise, vibration and other conditions that may be objectionable to nearby properties. Local governments shall not unreasonably restrict or regulate farm operations within State Certified Agricultural Districts unless it can be shown that the public health or safety is threatened.

GEORGE CHIANIS, AGENT — Name and Title of Person Completing Form

10/18/2022 — Date

ArcGIS Web Map

9/16/2022, 1:00:56 PM

Municipal Boundaries

Parcels

1:2,257

0 0.01 0.03 0.05 mi

0 0.02 0.04 0.08 km

New York State, Maxar, Microsoft

Web AppBuilder for ArcGIS

New York State, Maxar, Microsoft

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

RTO Wireless, LLC

Name of Action or Project:

Pine Hill / 0060017

Project Location (describe, and attach a location map):

13310 Hemlock Ridge Road, Barre, Orleans County, New York 14411 (43.15522222222222, -78.26811111111111)

Brief Description of Proposed Action:

RTO Wireless LLC proposes to collocate antennas at a centerline height of 150 feet above ground level on the existing 195-foot-tall self-support tower. The installation includes three panel antennas, three mounts, one dish antenna, three RRHs, and associated cables. In addition, ground work includes the installation of an equipment cabinet installed on a proposed 4-foot by 4-foot concrete pad within an existing gravel covered and fenced compound. Cables will be routed from the tower to the proposed equipment location via a proposed ice bridge. Electrical conduit will be installed underground from an existing utility meter to the equipment location within the compound.

Name of Applicant or Sponsor:	Telephone: (617)834-1025; (207)240-7997
RTO Wireless LLC	E-Mail: dave@rtowireless.com

Address:

45 Concord Street

City/PO:	State:	Zip Code:
Framingham	MA	01701

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval:	☐	☑

3. a. Total acreage of the site of the proposed action? < 0.01 acres
   b. Total acreage to be physically disturbed? < 0.01 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? < 0.01 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

☐ Urban ☑ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☐ Residential (suburban)
☑ Forest ☑ Agriculture ☐ Aquatic ☑ Other(Specify): Telecommunications
☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify:	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☑	☐
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies:		
The proposed action meets state energy code requirements	☐	☑

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water:		
N/A - unmanned facility	☑	☐

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment:		
N/A - unmanned facility	☑	☐

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☐	☑

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres:		
An intermittent riverine streambed is located approximately 600 feet south of the Subject Property, adjoining the parcel on which the telecommunications facility is located. There will be no alteration on this feature.		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☑ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☐ Urban ☑ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered? Northern Harrier (Project area is gravel covered; surrounding area is agricultural land)	☐	☑
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☑	☐
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☐	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☐
If Yes, briefly describe:		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)?	☑	☐
If Yes, explain the purpose and size of the impoundment:		
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility?	☑	☐
If Yes, describe:		
20.Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste?	☑	☐
If Yes, describe:		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: RTO Wireless LLC Date: 09/28/2022

Signature: Elizabeth Yount Title: Consultant for Applicant

PRINT FORM

October 18, 2022

VIA HAND DELIVERY

Town of Barre NY
Planning Board
14317 West Barre Road
Barre, NY 14411

Re:	**Application for Special Use Permit/Site Plan Review**
Applicant:	**RTO Wireless, LLC**
Property Address:	**13310 Hemlock Ridge Road**
Property Tax ID:	**115.-1-13**
Zone:	**Agricultural/Residential**
Proposed Use:	**Broadband Service Facility**
Zoning Regulations:	**Section 719, Article IX, Article X**

CEO Shellye Dale-Hall,

As agent for and on behalf of RTO Wireless LLC ("RTO"), the Applicant, we are hereby submitting this correspondence in support of the above-referenced application for a Special Use Permit/ Site Plan Review from the Town of Barre Planning Board (the "Board"). The Applicant seeks to install and operate a Broadband Service Facility (the "Facility") on the American Tower Corporation Tower ("the Tower"). The Property is in the Agricultural/Residential District and the Facility is permitted upon approval by the Board in this district.

The applicant seeks to install and operate the Facility consisting of three (3) panel antennas and one (1) parabolic dish and coaxial cables mounted to the Tower. Further the proposal also includes a Radio Station Equipment Cabinet (the "Cabinet") located at the base of the Tower. The Applicant's facilities are shown on the plans attached hereto and incorporated herein by reference (the "Plans").

I. Background

The Applicant, RTO Wireless LLC ("RTO") builds and operates wireless broadband services in rural markets. RTO was recently awarded a contract by Orleans County to deploy broadband services throughout the entire county. RTO is a member of Microsoft Airband consortium of companies that aims to eliminate the broadband deficiencies in rural markets. RTO supported Barre during Covid by providing a free public WiFi network for residents at the front of Town Hall on West Barre Road.

II. The Facility

The Applicant proposes to install three(3) panel antennas and one (1) parabolic dish, which consists of a dish 3 feet (3'diameter) to the proposed one hundred ninety foot (190') Tower at a centerline height of one hundred fifty feet (150'). The Applicant's Facility will also include a radio equipment cabinet located on a concrete pad, four feet by four feet (4'x4'). The equipment cabinet will be located within and surrounded by an existing fence and locked gate.

After installation, the Facility will be unmanned and will only require occasional maintenance visits. The only utilities required to operate this Facility are standard 100-amp service. (See attached "Plans"). Other specifics regarding the proposed Facility are as follows:

1. The proposed Facility will be in the Agricultural/Residential District which is in the targeted coverage area.
2. The Facility will comply in all respects with radio frequency emission standards established by the FCC.
3. The proposed Facility will not have any adverse effect on the value of land and buildings in the neighborhood or on the amenities thereof. The proposed use is passive, requires no employees on the premises, and has no characteristics that are incompatible with the underlying zoning. Specifically, it will generate only an occasional vehicle trip by a service technician for routine maintenance, will be served by standard electrical and requires no water, septic, or other town services.
4. The proposed Facility will promote and conserve the convenience and general welfare of the inhabitants of the Town by enhancing Broadband services within the Town.
5. The proposed Facility will not create overcrowding of land or undue

concentration of population because it is an unmanned Facility.

6. The proposed Facility will preserve and increase the amenities of the Town by enhancing Broadband services.
7. The proposed Facility will not create adverse effects on public and private water supplies and indeed will utilize no water at all.
8. The proposed Facility will not create adverse effects on drainage, schools, parks, open space, or other public requirements.
9. The proposed Facility will not create excessive noise or pollution to the environment.
10. The proposed Facility will not create adverse effects on historic sites.

The Facility will comply with all applicable local, state, and federal safety codes.

Brief to the Barre Planning Board
In Support of the Application for a
Broadband Service Facility (Co-Location) at
13310 Hemlock Ridge Road
Barre, NY

RTO Wireless, LLC. ("RTO") the applicant, has submitted an application for Special Use Permit and Site Plan Review for a Broadband Service Facility, Special Use Permit/Site Plan Submittal Requirements of the Town of Barre Zoning Regulations. RTO respectfully submits that its application is consistent with the intent and purpose of the Site Plan Review criteria and meets the criteria of the Site Plan Submittal Requirements, in addition to meeting the purpose and goals of Article IX and Article X.

Specifically RTO is seeking all necessary approvals for the proposed Broadband Service Facility which includes co-locating on the existing 195 feet Tower structure (See attached plans). RTO's installation includes three (3) panel antennas and one (1) parabolic dish mounted to the existing Tower Structure at a center line height of 150 feet with an unmanned Radio Station Equipment Cabinet (See attached Plans). The Radio Station Equipment Cabinet will be enclosed with an existing chain-link fence accessed by a locked gate and will be accessed by the existing access road.

The proposed facility will require an occasional maintenance visit, thus, avoiding any traffic to the site. No sewer, septic or water are required. Other specifics regarding the proposed site are as follows:

- Surface Water Drainage. The proposed installation will have no impact on surface water drainage.
- Circulation. The proposed installation will have no impact on circulation.
- Utility Service. The proposed installation requires only 100 amp service.
- Advertising Features. The proposed installation will have no sign or other advertising features.
- Safety. All equipment is self-contained, and access is limited.
- Microclimate. The proposed installation will not emit heat, vapor or fumes nor will it impact lights, air, or water resources or on noise and temperature levels or immediate environment.

The proposed facility will comply with all applicable local, state, and federal safety codes.

Article IX Standards

Basic Requirements

1 Ingress and Egress

The proposed facility will require an occasional visit thus avoiding any traffic to the site.

2 Noise

There will be no excessive noise at unreasonable hours. There will be no emissions of dust, fly ash, fumes, vapors, or gases. The proposed Broadband Service Facility will not produce any light or reflections or that light beyond its lot lines.

3 Refuse/Service Areas

The proposal will have no impact.

4 Utilities

The proposed installation requires a 100-amp service (see Plans).

5 Storm Drainage

The proposed installation has no effect on storm drainage as the equipment cabinet is located in the existing compound. (See Plans).

6 Screening/Buffering

See Plans.

7 Signs/Lighting

There will be no signage or exterior lighting (see Plans for contact signage).

8 Yards/Open Space

Not applicable (see Plans).

9 Compatibility

The proposed installation is on an existing Tower Structure (see Plans).

SECTION 719 Telecommunication Facility

The applicant will conform with all building setback provisions as the proposal includes co-location on an existing Tower Structure. The height of the existing Tower Structure will not increase, nor will it violate the terms or conditions of any previous local approval.

The proposal encompasses the intent and purpose of the supplemental regulations by encouraging the use of existing telecommunication towers to minimize the visual effects of telecommunication towers and to minimize the total number of telecommunication towers in the community.

*RTO was recently awarded a contract by New Orleans County to deploy Broadband Services throughout the entire county.

*The proposal conforms with all applicable regulations promulgated by the Federal Communications Commission, Federal Aviation Administration, and all other federal agencies.

*The proposed installation is designed and constructed in a manner which minimizes visual impact to the extent practical.

*The proposal complies with the necessary requirements of this Ordinance

*The proposed site is the most technically feasible structure.

SECTION 1003 APPLICATION FOR SITE PLAN APPROVAL

An application for site plan approval shall be made in writing to the Code Enforcement Officer and shall be accompanied by information drawn from the following checklist. The Planning Board may require additional information, if necessary, to complete its review.

A. Plan Checklist for all Site Plans:

1. Title of drawing, including name and address of applicant and person responsible for preparation of such drawing.
   See Plans.

2. North arrow, scale and date.
   See Plans.

3. Boundaries of the property plotted to scale.
   The Applicant respectfully requests a waiver.

4. Existing watercourses and bodies of water.
   Not Applicable

5. Location of any slopes of five percent (5%) or greater.
   Not Applicable

6. Existing and proposed grading and drainage.
   Not Applicable

7. Location, proposed use, and height of all buildings and site improvements including culverts, drains, retaining walls and fences.
   See Plans.

8. Location, design and construction materials of all parking and truck loading areas, showing points of entry and exit from the site.
   Not Applicable

9. Location of outdoor storage, if any.
   Not Applicable

10. Description of the method of sewage disposal and location of the facilities.
    Not Applicable

11. Identification of water source; if well, locate on drawing.
    Not Applicable

12. Location, size and design and construction materials of all proposed signs.
See Plans

13. Location and proposed development of all buffer areas, including existing vegetation cover.
Not Applicable

14. Location and design of outdoor lighting facilities.
Not Applicable

15. General landscaping plan.
Not Applicable

16. American Tower Corporation and RTO Wireless have an executed Lease.

RTO Wireless
Rural Technology Operators

SITE NAME:
PINE HILL

SITE NUMBER:
060017

SITE ADDRESS:
13310 HEMLOCK RIDGE
BARRE, NY 14411

GENERAL NOTES

CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO ANY FABRICATION OR CONSTRUCTION. HE SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

UNAUTHORIZED ALTERATIONS OR ADDITIONS TO A DOCUMENT BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LAND SURVEYOR IS A VIOLATION OF SECTION 7209 SUBSECTION 2OF THE NEW YORK STATE EDUCATION LAW.

THIS DRAWING AND ALL THE INFORMATION CONTAINED HEREIN IS AUTHORIZED FOR USE ONLY BY THE PARTY FOR WHOM THE WORK WAS CONTRACTED OR TO WHOM IT IS CERTIFIED. THIS DRAWING MAY NOT BE REUSED, COPIED, DISCLOSED, DISTRIBUTED OR RELIED UPON FOR ANY OTHER PURPOSE WITHOUT THE EXPRESS WRITTEN CONSENT OF ALBUL ENGINEERING LLC.

SCOPE OF WORK

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE.
THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

TOWER SCOPE OF WORK:
- INSTALLATION OF (3) PROPOSED MOUNT
- INSTALLATION OF (3) PROPOSED PANEL ANTENNAS (1 PER SECTOR)
- INSTALLATION OF (1) PROPOSED DISH ANTENNAS
- INSTALLATION OF (3) PROPOSED RRHS (1 PER SECTOR)
- INSTALLATION OF (4) PROPOSED CABLES

GROUND SCOPE OF WORK:
- INSTALLATION OF (1) PROPOSED EQUIPMENT CABINET
- INSTALLATION OF (1) PROPOSED ICE BRIDGE
- INSTALLATION OF (1) PROPOSED 4'X4' CONCRETE PAD
- INSTALLATION OF (1) PROPOSED GPS UNIT

NEW YORK CODE OF COMPLIANCE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES

CODE TYPE	CODE
BUILDING	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2017 NEC

UNDERGROUND SERVICE ALERT - NEW YORK 811
UTILITY NOTIFICATION CENTER OF NEW YORK
(800) 272-4480
WWW.NEWYORK-811.COM

CALL 2 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

SITE INFORMATION

PROPERTY OWNER:	RONALD L CARR / SUSAN O CARR
ADDRESS:	13310 HEMLOCK RIDGE ROAD ALBION, NY 14411
SITE ADDRESS:	13310 HEMLOCK RIDGE BARRE, NY 14411
COUNTY:	ORLEANS
ZONING JURISDICTION:	TOWN OF BARRE
PROPERTY TAX ID:	113.-1-13
ZONING DISTRICT:	AGRICULTURAL/RESIDENTIAL
LATITUDE (NAD 83):	43° 9' 18.8" N 43.156223
LONGITUDE (NAD 83):	78° 16' 8.2" W -78.268111
ELEVATION:	±641' (PER GOOGLE EARTH)
TOWER TYPE:	195' SELF SUPPORT TOWER
CURRENT USE:	TELECOMMUNICATIONS
PROPOSED USE:	TELECOMMUNICATIONS

PROJECT DIRECTORY

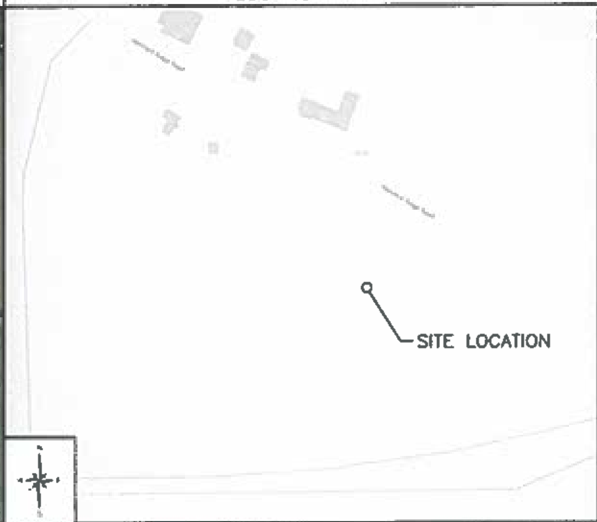
APPLICANT:	RTO WIRELESS 945 CONCORD STREET FRAMINGHAM, MA 01701
TOWER OWNER:	AMERICAN TOWER CORPORATION 3500 REGENCY PARKWAY CARY, NC 27518 (919)468-0112
SITE DESIGNER:	ALBUL ENGINEERING 3840 E. ROBINSON ROAD AMHERST, NY 14228 (716) 800-6147
RTO CONTACT:	RTO WIRELESS, LLC GEORGE CHANG (303) 868-4034

SHEET INDEX

SHEET NO.	SHEET TITLE
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	OVERALL SITE PLAN
A-2	ENLARGED SITE PLAN
A-3	TOWER ELEVATION AND ANTENNA PLAN
A-4	CONSTRUCTION DETAILS - I
A-5	CONSTRUCTION DETAILS - II
G-1	GROUNDING DETAILS - I
G-2	GROUNDING DETAILS - II
E-1	ELECTRICAL DETAILS

VICINITY MAP

LOCATION MAP



11"x17" PLOT WILL BE HALF SCALE UNLESS OTHERWISE NOTED

CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS, AND CONDITIONS ON THE JOB SITE, AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

PREPARED FOR:

RTO Wireless
Rural Technology Operators

945 CONCORD STREET
FRAMINGHAM, MA 01701
P:(617) 934-1025

PREPARED BY:

ALBUL ENGINEERING

3840 E. ROBINSON ROAD
AMHERST, NY 14228
WWW.ALBULENG.COM

STATE OF NEW YORK · DMITRIY V. ALBUL · 089075 · LICENSED PROFESSIONAL ENGINEER

09-16-22

DMITRIY ALBUL
NY LICENSE NO.089075

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:
AK	AAN

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS

REV	DATE	DESCRIPTION
A	[illegible]	ISSUED FOR REVIEW

PROJECT NUMBER
10712.RTO.CDN.W52353.0

PROJECT INFORMATION
PINE HILL
SITE NUMBER: 060017
13310 HEMLOCK RIDGE
BARRE, NY 14411

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

CODES AND STANDARDS

CONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

BUILDING CODE: NEW YORK STATE UNIFORM CODE -2020 (2018 IBC)

ELECTRICAL CODE: NEW YORK CITY ELECTRICAL CODE - 2017

FIRE/LIFE SAFETY CODE: NEW YORK CITY FIRE CODE - 2018

LIGHTNING PROTECTION CODE. NFPA 780-2014 LIGHTNING PROTECTION CODE

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC), MANUAL OF STEEL CONSTRUCTION, 15TH EDITION

ANSI/TIA (TELECOMMUNICATIONS INDUSTRY ASSOCIATION) TIA-222-H, STRUCTURAL STANDARDS FOR ANTENNA SUPPORTING STRUCTURES AND SMALL WIND TURBINE SUPPORT STRUCTURES.

TIA 607, COMMERCIAL BUILDING GROUNDING AND BONDING REQUIREMENTS FOR TELECOMMUNICATIONS.

INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) 81, GUIDE FOR MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE, AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM
IEEE 1100 (1999) RECOMMENDED PRACTICE FOR POWERING AND GROUNDING OF ELECTRONIC EQUIPMENT

IEEE C2, NATIONAL ELECTRIC SAFETY CODE - LATEST VERSION.

TELCORDIA GR-1275, GENERAL INSTALLATION REQUIREMENTS

ANSI T1.311, FOR TELECOM - DC POWER SYSTEMS - TELECOM, ENVIRONMENTAL PROTECTION

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

GENERAL NOTES

1. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
2. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
3. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION.
5. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
6. ALL EXISTING UTILITY CONDUITS OR IMPROVEMENTS THAT INTERFERE WITH THE CONSTRUCTION OF THE INSTALLATION SHALL BE REVIEWED BY THE CONTRACTOR, PROJECT MANAGEMENT AND LANDLORD TO DETERMINE FINAL STATUS.
7. CONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT AND CABLING. CONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. CONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH PROJECT MANAGEMENT.
8. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, ROOFS AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
9. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
10. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
11. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
12. CONTRACTOR SHALL NOTIFY ENGINEER 48 HOURS IN ADVANCE OF CONSTRUCTION FOR ENGINEER OR SPECIAL INSPECTOR INSPECTION.
13. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY CONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
14. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
15. CONTRACTOR AND ANY SITE SPECIFIC PART/PRODUCT/CONCEALMENT MANUFACTURER TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO MANUFACTURING, FABRICATION OR CONSTRUCTION.
16. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH WIRELESS CARRIER AND LOCAL AHJ SPECIFICATIONS AND REQUIREMENTS.
17. CONTRACTOR SHALL CONTACT ALL LOCAL ACTIVE UTILITES PRIOR TO CONSTRUCTION.
18. ADA COMPLIANCE: THE FACILITY IS NORMALLY UNOCCUPIED WIRELESS CELLULAR SITE. THE SITE IS VISITED APPROXIMATELY ONCE PER MONTH FOR SERVICE.
19. ALL GROUT, ANCHORS AND OTHER MANUFACTURER MATERIALS USED ON SITE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
20. ALL WORK TO BE PERFORMED IN ACCORDANCE WITH THE LATEST VERSION OF THE CD MASTER FORMAT.
21. THE APPLICANT, OR HIS REPRESENTATIVE, IS TO DESIGNATE AN INDIVIDUAL AS RESPONSIBLE FOR CONSTRUCTION SITE SAFETY DURING THE COURSE OF SITE IMPROVEMENTS PURSUANT TO N.J.A.C. 5:23-2.21 (E) OF THE NJ UNIFORM CONSTRUCTION CODE AND THE CRT 1926.32 (F) OSHA COMPETENT PERSON.
22. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING FIELD CONDITIONS BEFORE ORDERING ANY MATERIALS OR PROCEEDING WITH CONSTRUCTION. DETERMINE EXACT LOCATIONS OF EXISTING UTILITIES, GROUNDS, DRAIN PIPES AND VENTS BEFORE COMMENCING WORK. CONTRACTOR SHALL NOTIFY ENGINEER IF ACTUAL CONDITIONS DIFFER SIGNIFICANTLY FROM WHAT IS SHOWN ON DRAWINGS.
23. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION AND CONFIGURATION OF PROPOSED CABINETS, ANTENNA'S, RADIOS AND ANY OTHER APPURTENANCES AS PER THE CLIENT'S FINAL EQUIPMENT CONFIGURATION

STRUCTURAL NOTES

1. THE STRUCTURE HAS BEEN DESIGNED IN CONFORMANCE WITH THE "ALLOWABLE STRENGTH DESIGN SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC).
2. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING UNLESS OTHERWISE NOTED:

   ASTM A572, GRADE 50 ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE.
   ASTM A36 ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   ASTM A500, GRADE B HSS SECTION (SQUARE AND RECTANGULAR).
   ASTM A500, GRADE B HSS SECTION (ROUND).
   ASTM A501 OR A53 TYPE E OR S STEEL PIPE.
   ASTM A307 U-BOLTS FOR CONNECTING STRUCTURAL MEMBERS.
   ASTM F307 ALL ANCHOR BOLTS AND THREADED ROD, UNLESS NOTED OTHERWISE.

4. BOLTS SHALL COMPLY WITH ASTM A325 OR A490. NUTS AND WASHERS SHALL BE COMPATIBLE WITH THE BOLT GRADE, HOLE SIZE, CONNECTION TYPE AND INSTALLATION METHOD AS INDICATED IN "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
5. CONNECTIONS SHALL BE BOLTED WITH 1/2 INCH DIAMETER A325-X HIGH STRENGTH BOLTS OR WELDED U.N.O.
6. WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY (AWS) "STRUCTURAL WELDING CODE - STEEL". WELDING SHALL BE DONE BY QUALIFIED WELDERS CERTIFIED IN ACCORDANCE WITH AWS D1.1, "STRUCTURAL WELDING CODE - STANDARD QUALIFICATION PROCEDURE" AND AWS D1.3, "STRUCTURAL WELDING CODE - STRUCTURAL STEEL". WELDING ELECTRODES SHALL BE E70XX. FILLET WELDS SHALL BE NO LESS THAN MINIMUM SIZE REQUIRED PER AISC TABLE J2.4.
7. STEEL SHOP DRAWINGS AND FABRICATION SHALL CONFORM TO THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES.
8. STRUCTURAL STEEL SHOP DRAWINGS, INCLUDING CONNECTIONS, SHALL BE PREPARED UNDER THE DIRECTION OF A PROFESSIONAL STRUCTURAL ENGINEER, REGISTERED IN THE STATE WHERE THE CONSTRUCTION IS LOCATED. THE ENGINEER, EMPLOYED BY THE CONTRACTOR, SHALL PREPARE A SIGNED AND SEALED LETTER OF CERTIFICATION STATING THAT THE STRUCTURAL STEEL SHOP DRAWINGS, INCLUDING CONNECTIONS, HAVE BEEN PREPARED UNDER THEIR DIRECTION.
9. STRUCTURAL STEEL FABRICATION SHALL BE PERFORMED BY AN ORGANIZATION EXPERIENCED IN STRUCTURAL FABRICATION OF EQUIVALENT MAGNITUDE TO THIS PROJECT, AND HAS AN AISC CERTIFICATION FOR STRUCTURAL STEELWORK. PROVIDE, WITH THE BID, A COPY OF THE AISC CERTIFICATE INDICATING THAT THE FABRICATION PLANT MEETS AISC CATEGORY STD CERTIFICATION. IN LIEU OF AN AISC CERTIFICATION, THE FABRICATOR MAY SUBMIT DOCUMENTATION OF EQUIVALENT EXPERIENCE IN THE FABRICATION OF THE ITEM OR ITEMS IN QUESTION.
10. STRUCTURAL STEEL EXPOSED TO WEATHER SHALL BE PREPPED BY COMMERCIAL BLAST CLEANING THEN HOT-DIPPED GALVANIZED.
11. SPLICING OF STRUCTURAL STEEL SECTIONS, NOT INDICATED ON CONTRACT DOCUMENTS, IS PROHIBITED WITHOUT PRIOR WRITTEN APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD.
12. ORIENT MILL CAMBER UPWARD DURING FABRICATION AND ERECTION.
13. PROVIDE 3/8 INCH THICK MINIMUM WELDED STIFFENER PLATE ON BOTH SIDES OF THE WEB OF BEAMS AT POINT OF CONCENTRATED LOADS SUCH AS BEAMS SUPPORTING COLUMNS/POSTS OR RUNNING OVER TOPS OF COLUMNS, POSTS, OR OTHER BEAMS.
14. ALUMINUM AND STEEL MEMBERS SHALL BE TREATED OR PROPERLY SEPARATED TO PREVENT GALVANIC AND CORROSIVE EFFECTS.
15. STEEL FABRICATOR IS SOLELY RESPONSIBLE FOR SURVEYING AND VERIFICATION OF EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING WALLS AND FRAMING.
16. ALL STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS OTHERWISE NOTED.

PREPARED FOR:

RTO Wireless
Rural Technology Operators

945 CONCORD STREET
FRAMINGHAM, MA 01701
P:(617) 934-1025

PREPARED BY:

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3840 E. ROBINSON ROAD
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09-16-22

DMITRIY ALBUL
NY LICENSE NO.089075

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

DRAWN BY:	CHECKED BY:
AJK	AAN

RFDS REV #: ---

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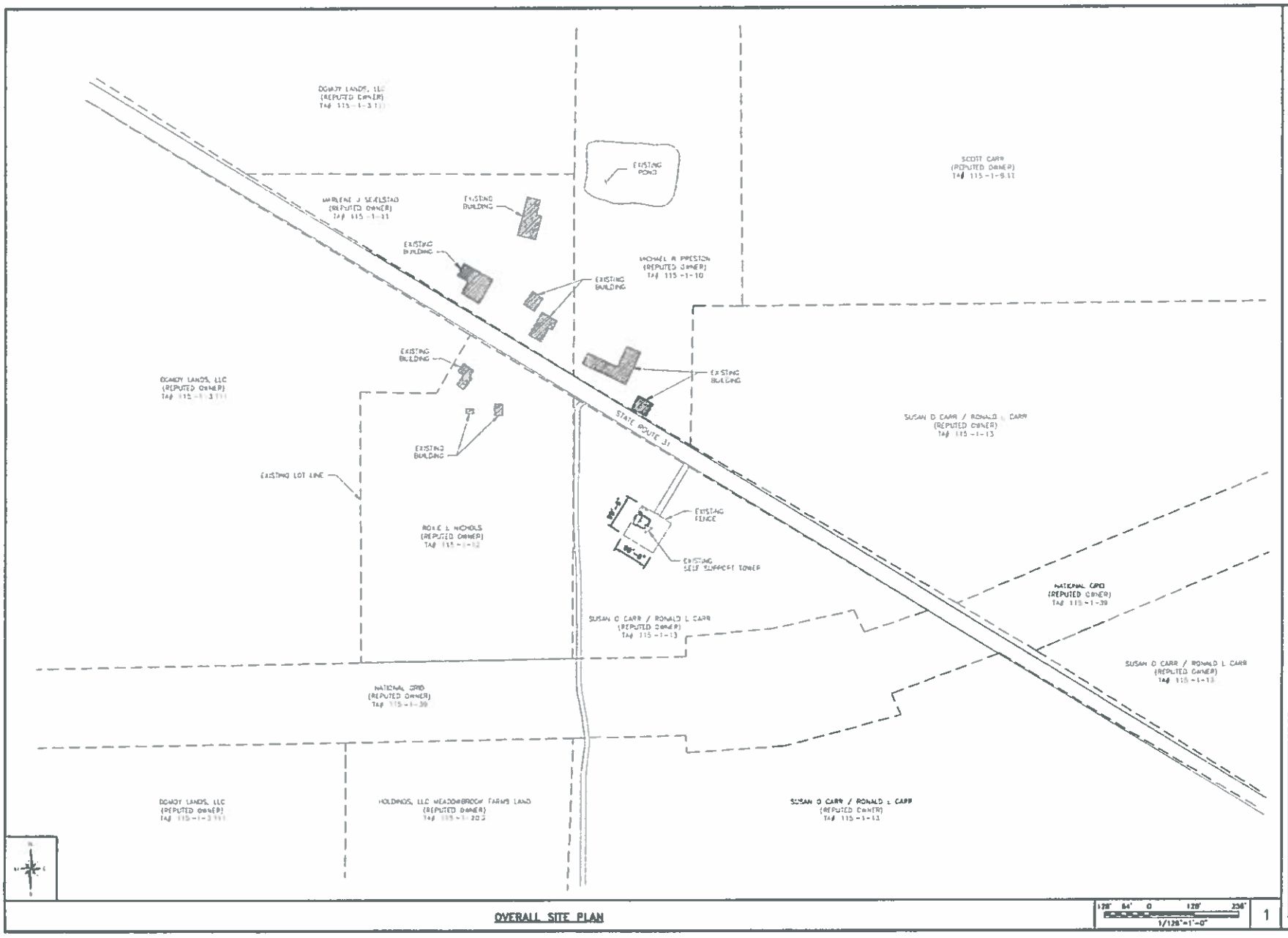
PINE HILL
SITE NUMBER: 060017
13310 HEMLOCK RIDGE
BARRE, NY 14411

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-1



OVERALL SITE PLAN

1/128"=1'-0"

1

PREPARED FOR:

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DRAWN BY:	CHECKED BY:
AK	AAN

RFDS REV #: ---

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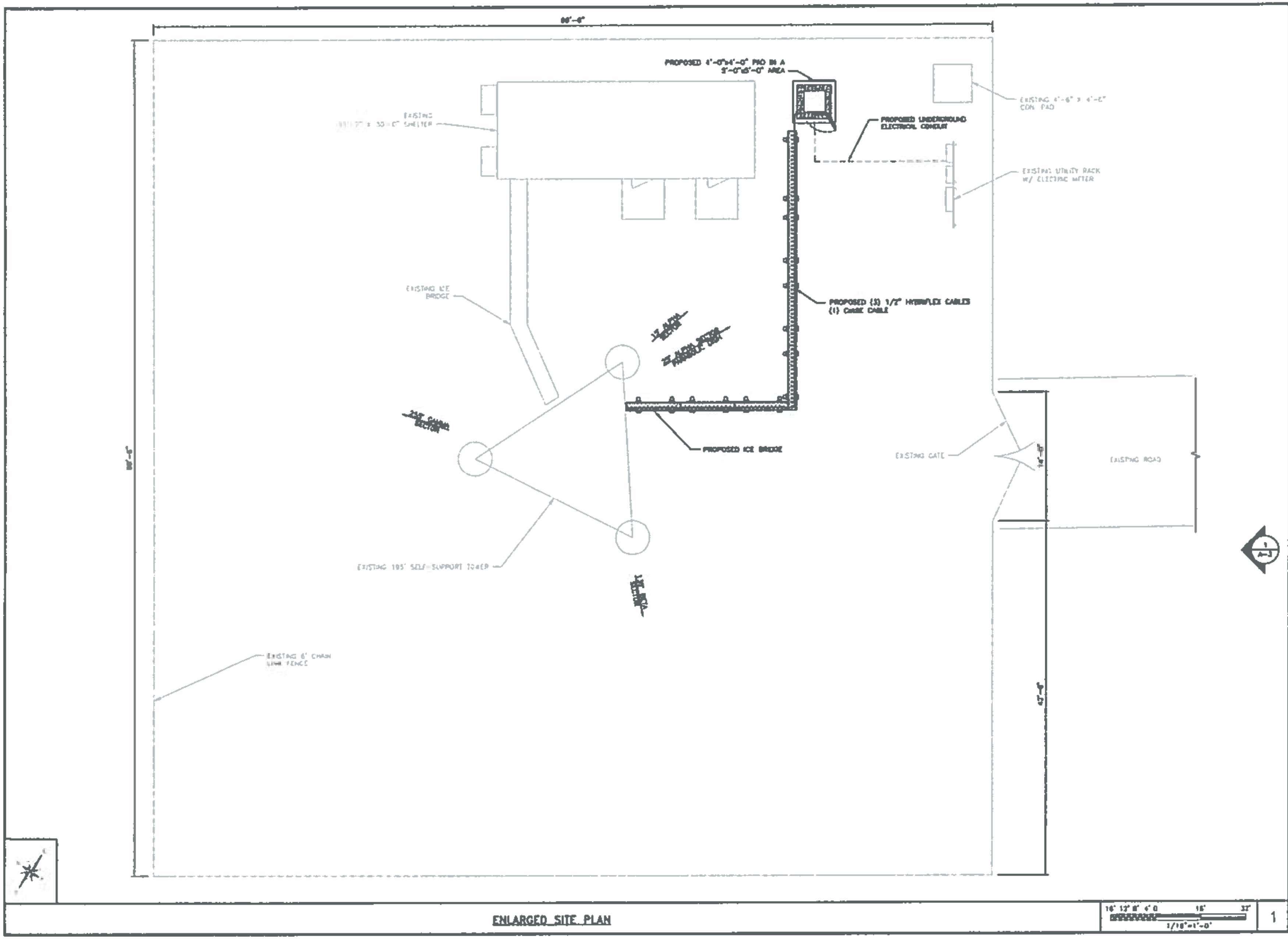
SITE NUMBER: 060017
13310 HEMLOCK RIDGE
BARRE, NY 14411

SHEET TITLE

OVERALL SITE PLAN

SHEET NUMBER

A-1



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PROJECT INFORMATION

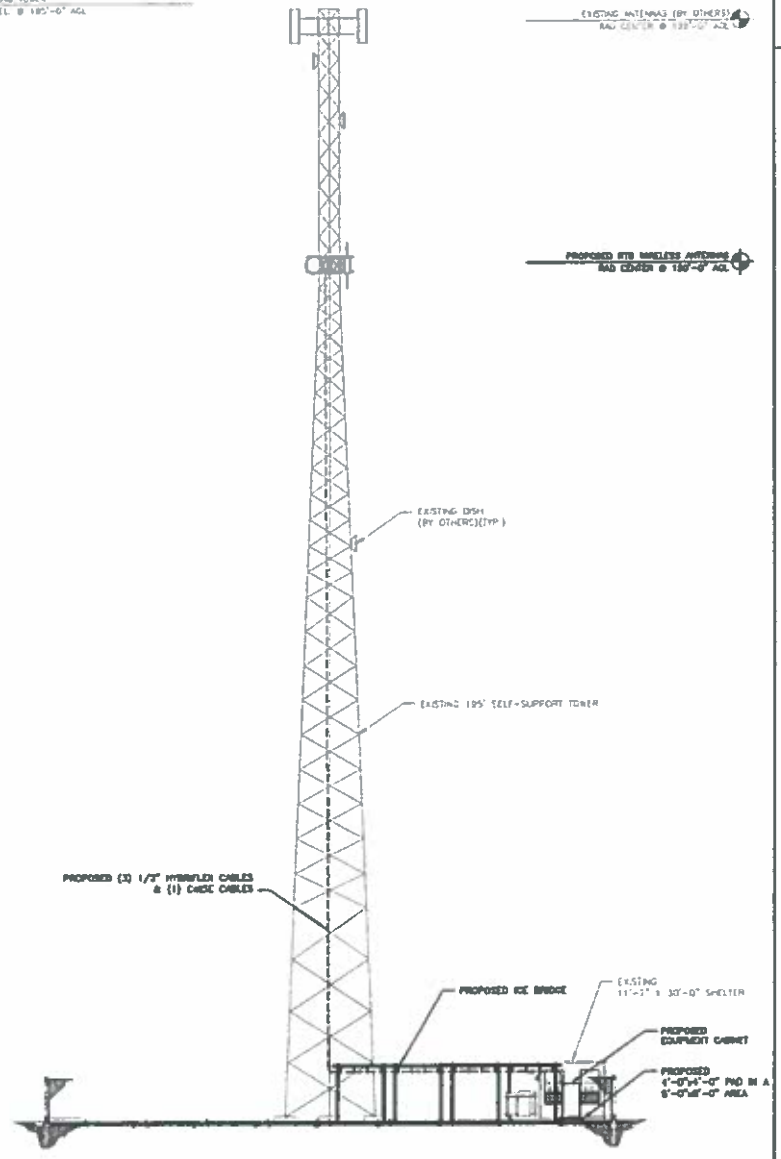
PINE HILL
SITE NUMBER: 060017
13310 HEMLOCK RIDGE
BARRE, NY 14411

SHEET TITLE

ENLARGED SITE PLAN

SHEET NUMBER

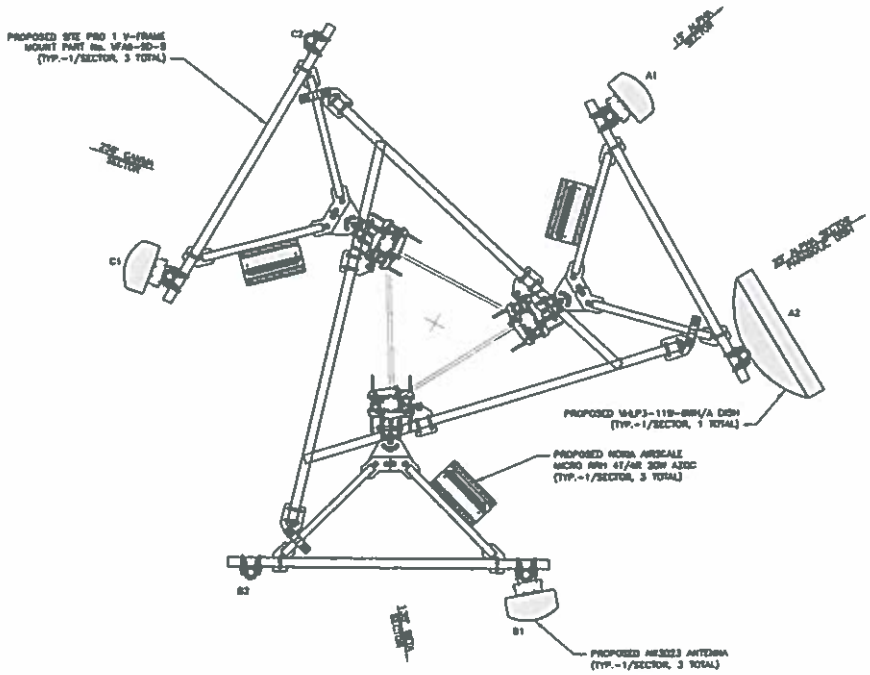
A-2



TOWER ELEVATION

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1



ANTENNA PLAN

NO SCALE

2

PREPARED FOR:

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Rural Technology Operators

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089075
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DRAWN BY:	CHECKED BY:
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PROJECT INFORMATION

PINE HILL
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13310 HEMLOCK RIDGE
BARRE, NY 14411

SHEET TITLE

TOWER ELEVATION
AND ANTENNA PLAN

SHEET NUMBER

A-3

ANTENNA AND TRANSMISSION LINE B.O.M.								
SECTOR	ANTENNA	AZIMUTH	RAD CL	RRH'S	TRANSMISSION LINES			
					QTY	LF	TYPE	STATUS
A1	(NEW) AW3223	15°	150'-0"	47/4R 20W AZGC	1	245'	1/2"	PROPOSED
A2	(NEW) VHLP3-11W-6WH/A	25°	150'-0"	-	1	245'	CNDXE	PROPOSED
B1	-	-	-	-	-	-	-	-
B2	(NEW) AW3223	135°	150'-0"	47/4R 20W AZGC	1	245'	1/2"	PROPOSED
C1	(NEW) AW3223	255°	150'-0"	47/4R 20W AZGC	-	-	-	-
C2	-	-	-	-	1	245'	1/2"	PROPOSED

NOTES

1. ALL PROPOSED CABLE LENGTHS INCLUDE 20% FOR ERROR. CONTRACTOR TO V.I.F. LENGTH PRIOR TO ORDERING.

ANTENNA MOUNTING NOTES

1. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
2. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
3. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
4. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
5. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
7. ALL UNUSED PORTS ON ANY ANTENNAS SHALL BE TERMINATED WITH A 50-OHM LOAD TO ENSURE ANTENNAS PERFORM AS DESIGNED.
8. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO NB-00016.
9. JUMPERS FROM THE RAYS MUST TERMINATE TO OPPOSITE POLARIZATION'S IN EACH SECTOR.
10. CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO RTO WIRELESS.
11. TMA'S SHALL BE MOUNTED ON PIPE DIRECTLY BEHIND ANTENNAS AS CLOSE TO ANTENNA AS FEASIBLE IN A VERTICAL POSITION.
12. ANTENNAS SHALL HAVE A 4'-6" MIN CENTER TO CENTER HORIZONTAL SEPARATION.

TORQUE REQUIREMENTS

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

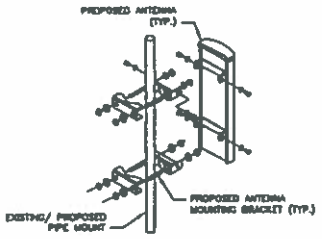
FIBER & POWER CABLE MOUNTING NOTES

1. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INNER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INNER DUCT IN ORDER TO SEPARATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
2. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
3. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

GENERAL NOTES

1. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ANTENNA, TMA, DIPLEXERS, AND COAX CONFIGURATION, BANDS AND MODELS PRIOR TO INSTALLATION.
2. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER TOWER MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL REFERENCE THE TOWER STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
4. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
5. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
   A. TEMPERATURE SHALL BE ABOVE 50° F.
   B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
   C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
   D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.

ANTENNA LENGTH	PIPE LENGTH	DIAMETER
4'	8'	2 1/2"
5'	6'	2 1/2"
6'	7'	2 1/2"
7'	8'	3"
8'	9'	3"



NOTES

1. INSTALL ANTENNAS PER MANUFACTURER REQUIREMENTS

1/A-4 ANTENNA MOUNT DETAIL
SCALE: N.T.S.

SAF DISH
VHLP3-11W-6WH/A

NOTES

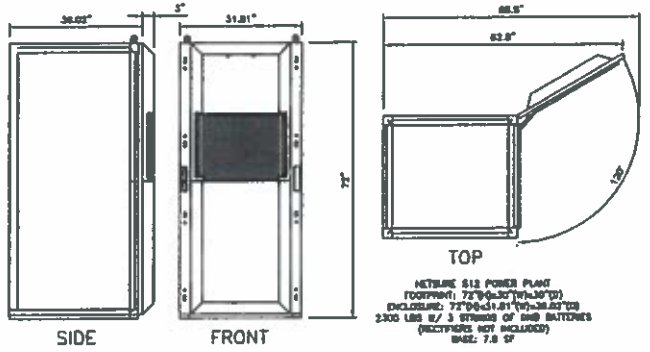
1. INSTALL PER MANUFACTURER REQUIREMENTS

2/A-4 DISH MOUNT DETAIL
SCALE: N.T.S.

NOTES

1. INSTALL PER MANUFACTURER REQUIREMENTS

3/A-4 RRH MOUNT DETAIL
SCALE: N.T.S.



NETSURE 512 POWER PLANT
(DEPTH): 72"(D)x30"(H)x30"(D)
(ENCLOSURE): 72"(D)x31.81"(H)x30.03"(D)
2300 LBS W/ 3 STRINGS OF 8MB BATTERIES
(RECTIFIERS NOT INCLUDED)
BASE: 7.8 SF

4/A-4 NETSURE 512 POWER PLANT DETAIL

NOTES

1. INSTALL CABINET PER MANUFACTURER REQUIREMENTS
2. CONTRACTOR TO CONFIRM NUMBER OF BATTERY STRINGS
3. ALL INSTALLATION HARDWARE IS TO BE GALVANIZED
4. CABINET MUST BE ANCHORED TO PLATFORM IN 4 LOCATIONS

PREPARED FOR:

RTO Wireless
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LICENSED PROFESSIONAL ENGINEER

03-18-22

DMITRIY ALBUL
NY LICENSE NO.089075

DRAWN BY:	CHECKED BY
AK	AAN

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITTALS

REV.	DATE	DESCRIPTION
A	03/18/2022	ISSUED FOR REVIEW

PROJECT NUMBER

10712.RTO.CDN.W52353.0

PROJECT INFORMATION

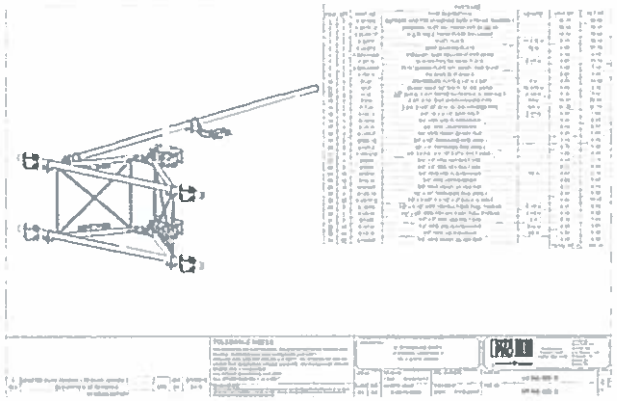
PINE HILL
SITE NUMBER: 060017
3310 HEMLOCK RIDGE
BARRE, NY 14411

SHEET TITLE

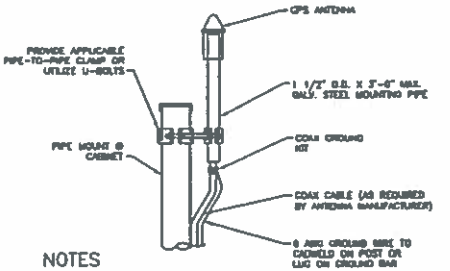
CONSTRUCTION DETAILS - 1

SHEET NUMBER

A-4



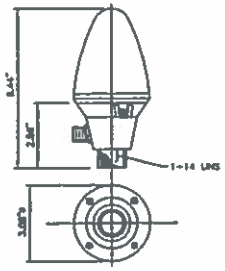
1 A-5 PROPOSED MOUNT DETAIL
SCALE: N.T.S.



NOTES

1. GROUND ANTENNAS & MOUNTS PER MANUFACTURERS RECOMMENDATIONS & CARRIER STANDARDS
2. LOCATION OF ANTENNA MUST HAVE A CLEAR VIEW OF THE SOUTHERN SKY AND CANNOT HAVE ANY BLOCKAGES EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA
3. ALL GPS ANTENNA LOCATIONS MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. VERIFY WITH HANDHELD GPS BEFORE FINAL LOCATION OF GPS ANTENNA

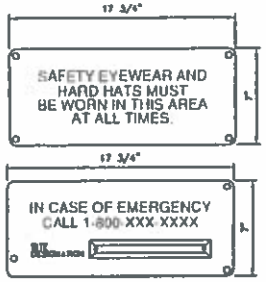
2 A-5 GPS ANTENNA DETAIL
SCALE: N.T.S.



NOTES

1. PROVIDE 1/2" COAX CABLE FOR CONNECTION

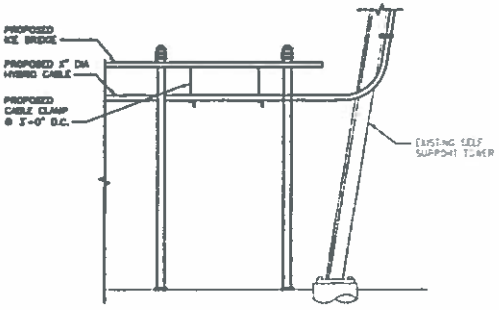
3 A-5 GPS ANTENNA DETAIL
SCALE: N.T.S.



NOTES

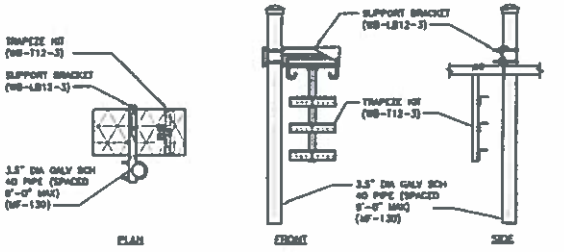
1. SIGN SHALL BE MOUNTED AT ROOF DOOR
2. MOUNTING HEIGHT SHALL BE 5' A.R.L. TO SIGN CENTERLINE

4 A-5 SAFETY SIGN DETAIL
SCALE: N.T.S.

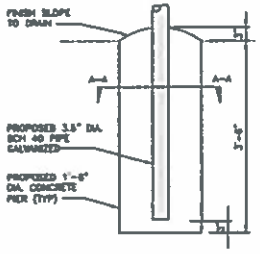


5 A-5 HYBRID CABLE RUN
SCALE: N.T.S.

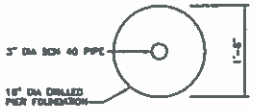
COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT		INCLUDED PRODUCTS	WB-T12-3 TRAPEZE KIT, 3 RUNGS WB-LB12-3 SUPPORT BRACKET MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"
DIMENSIONS (wxL)	180"x10'		
WEIGHT/ VOLUME	338.0 LBS		
CABLE RUN (QTY)	12		



6 A-5 ICE BRIDGE DETAIL
SCALE: N.T.S.

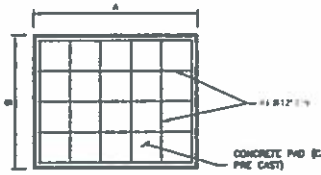


CONCRETE PIER



A-A SECTION

7 A-5 TYPICAL ICE BRIDGE CONCRETE PIER DETAIL
SCALE: N.T.S.



CONCRETE PAD			
	A	B	T (THICKNESS)
CABINET PAD	6'	4'	8"

NOTES:

1. USE GALVANIZED HILTI EXPANSION ANCHORS OR, APPROVED EQUAL FOR EQUIPMENT ANCHORAGE.
2. FOR SIZE AND LOCATION OF ANCHORS AND OTHER REQUIREMENTS, SEE EQUIPMENT VENDOR DRAWINGS.
3. CONCRETE SHALL HAVE A COMPRESSIVE STRENGTH OF 4000 PSI.

8 A-6 CONCRETE PAD DETAIL
SCALE: N.T.S.

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03-16-22

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NY LICENSE NO.089075

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DRAWING.

DRAWN BY:	CHECKED BY:
AIK	AAN

RFDS REV #: ---

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BARRE, NY 14411

SHEET TITLE

CONSTRUCTION DETAILS - II

SHEET NUMBER

A-5

GROUNDING GENERAL NOTES

1. ALL DOWN CONDUCTORS AND THE GROUND RING CONDUCTOR SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNLESS OTHERWISE NOTED. ALL CONNECTIONS TO GROUND RING SHALL BE EXOTHERMICALLY WELDED. CONDUCTOR SHALL BE AT A MINIMUM DEPTH BELOW GRADE OF 18 INCHES OR TO LEDGE. MINIMUM BEND RADIUS SHALL BE 8 INCHES. CONDUCTOR SHALL BE AT LEAST 24 INCHES FROM ANY FOUNDATION, UNLESS OTHERWISE NOTED.
2. GROUND RODS SHALL BE 5/8" DIAMETER COPPER CLAD, HARGER, TABB, ERICO, OR EQUIVALENT. TOP OF ROD SHALL BE A MINIMUM OF 18" BELOW GRADE. IF LEDGE IS ENCOUNTERED, INSTALL GROUND ROD AT AN ANGLE. ELECTRICAL METER GROUND ROD EXCEPTED.
3. WHERE MECHANICAL CONNECTIONS ARE SPECIFIED, BOLTED, COMPRESSION-TYPE, CLAMPS OR SPLIT-BOLT TYPE CONNECTORS SHALL BE USED.
4. GRIND OFF GALVANIZING IN AFFECTED AREA EXOTHERMICALLY WELD #2 CONDUCTOR AT 6" ABOVE GRADE OR FOUNDATION, WHICHEVER IS HIGHER, COLD-GALV AFTER EXOTHERMICALLY WELD OTHER END TO GROUND RING.
5. INSTALL GROUNDING KITS AT ANTENNA CENTERLINE, AND TOWER EXIT POINTS. GROUND COAX LINES. EXOTHERMICALLY WELD #2 DOWN CONDUCTOR TO PLATES, RUN DOWN TOWER, AND TIE INTO GROUNDING SYSTEM.
6. ALL GROUNDING WORK SHALL COMPLY WITH AT&T CONSTRUCTION CONTRACT 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.
7. ALL GROUNDING CONDUCTORS ON EXTERIOR WALL OF SHELTER SHALL BE INSTALLED IN 3/4" SCH 40 PVC CONDUIT TO 12" BELOW GRADE. ATTACH PVC WITH GALVANIZED "C" CLAMPS.
8. CONTRACTOR SHALL HAND-DIG IN AREAS AROUND EXISTING UTILITIES.
9. NOTIFY CONSTRUCTION ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
10. 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.
11. PRIOR TO POURING CONCRETE, ALL REBAR LOCATED NEAR THE BOTTOM OF THE FOUNDATION SHALL BE BONDED TOGETHER TO FORM A SINGLE GROUNDING ELECTRODE, BY STEEL TIES OR OTHER EFFECTIVE MEANS APPROVED BY NEC 2011 AND STRUCTURAL ENGINEER, AND BONDED TO THE GROUND RING AS DETAILED IN THESE PLANS. (INSPECTION MAY BE REQUIRED PRIOR TO POURING CONCRETE AND MUST BE COORDINATED BY CONTRACTOR.)
12. IN ACCORDANCE WITH NEC 2011 REQUIREMENTS, ALL GROUNDING ELECTRODES PRESENT ON SITE SHALL BE BONDED TOGETHER (REFERENCE 2011 NEC ARTICLE 250.50).
13. CAULK AND SEAL ALL NON-FACTORY SHELTER PENETRATIONS.

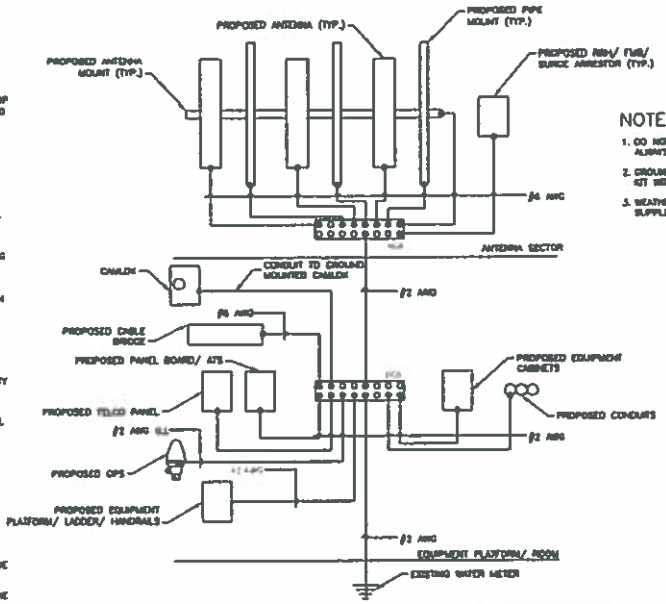
INSTALLATION NOTES

1. CUT AND REMOVE A 3" SECTION OF CABLE JACKET SHOWN IN FIGURE #1. USE CARE NOT TO GOUGE OR CRUSH THE CABLE.
2. CLEAN THE EXPOSED SURFACE OF THE OUTER CONDUCTOR WITH BRONZE OR STEEL WOOL UNTIL THE SURFACE IS CLEAN AND BRIGHT. ALSO CLEAN 1" OF THE JACKET EACH SIDE OF THE CUT SURFACE WITH A CLEAN CLOTH.
3. WRAP THE COPPER GROUNDING CLAMP AROUND THE EXPOSED OUTER CONDUCTOR. SECURE THE GROUNDING CLAMP WITH THE STAINLESS STEEL HOSE CLAMP AS SHOWN IN FIGURE #1 AND #2.
4. ATTACH THE TWO HOLE GROUNDING LUG TO THE CABLE GROUNDING CLAMP WITH 1/4"-20 HARDWARE. SEE FIGURE #2.
5. CLEAN THE SURFACE THOROUGHLY WHERE THE SINGLE HOLE GROUNDING LUG IS TO BE CONNECTED. THE GROUNDING SURFACE MUST BE CLEAN OF ANY PAINT, GREASE, RUST OR OXIDATION FOR A GOOD ELECTRICAL CONTACT. THE GROUNDING SURFACE SHOULD BE A METAL TOWER MEMBER OR DOWN CONDUCTOR LOCATED BELOW THE GROUNDING CLAMP. THE GROUNDING WIRE SHOULD BE RUN STRAIGHT DOWN - NO DRIP LOOP. SEE FIGURE #2.
6. BOLT THE GROUNDING LUG ONTO THE PREPARED SURFACE WITH A 3/8" - 16 HARDWARE. AFTER TIGHTENING, PAINT THE GROUNDING LUG AND SURROUNDING AREA WITH A ZINC BASED CORROSION CONTROL PAINT.
7. WRAP THE GROUNDING LUG AND WIRE AT THE CLAMP ASSEMBLY WITH SEVERAL TURNS OF PUTTY TAPE AS SHOWN IN FIGURE #3. FORM THE PUTTY BY HAND AROUND THE LUG. WRAP THE REMAINDER OF THE PUTTY AROUND THE ENTIRE GROUNDING CLAMP AND LUG INCLUDING ONE INCH OF CABLE JACKET ON EACH SIDE OF THE CLAMP. FORM THE PUTTY AROUND THE GROUNDING CLAMP AND JACKET BY HAND TO ASSURE A WEATHERPROOF SEAL. SEE FIGURE #4. TO COMPLETE WEATHERPROOFING, APPLY FOUR LAYERS OF ELECTRICAL TAPE OVER THE PUTTY COVERED CONNECTION. OVERLAP EACH TURN, STRETCHING THE TAPE SLIGHTLY WHILE APPLYING THE FIRST TWO LAYERS AND LIGHTLY STRETCHING THE LAST TWO LAYERS. COMPRESS THE WRAPPINGS WITH BOTH HANDS TO ASSURE COMPLETE CONTACT WITH ALL LAYERS OF TAPE.

TESTING NOTES

1. ALL TESTING SHALL HAVE RESISTANCE OF 5 OHMS OR LESS.
2. FOR TESTING SHALL BE 5 OHMS OR LESS. IF A READING OF 5 OHMS OR LESS IS UNATTAINABLE, CONTACT T-MOBILE/ERI AN ACCEPTABLE SOLUTION. ANY READING GREATER THEN 5 OHMS WILL BE REVIEWED AND CAN BE ACCEPTED IN WRITING BY CLIENT. THE CONTRACTOR WILL BE HELD ACCOUNTABLE FOR ANY UNACCEPTABLE GROUNDING PRACTICES.
3. TEST TO BE PERFORMED *CHECK WITH CLIENT FOR ADDITIONAL TEST THAT MAY BE REQUIRED IN ADDITION TO THE FOLLOWING:
   a. CONTINUITY FROM MGB TO EGR
   b. CONTINUITY TO GROUND RODS

   SUBMIT AN INDEPENDENT "FALL-OF-POTENTIAL METHOD" TESTING REPORT. THREE SETS OF TEST DATA TO BE RECORDED AND SUBMITTED TO CELL SITE CARRIER.



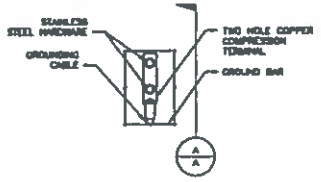
CABLE SIZE	LUG #	BOLT SIZE
1/2"	53207	1/4" - 20 INCH x 1/2" S.S. BOLT & NUT WITH LOCKWASHER
#6	53205	

* USE EXOTHERMIC WHERE WELD IS NOT CALLED FOR.

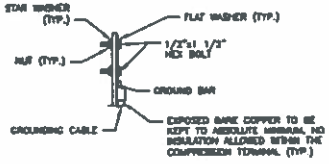
NOTES

1. GROUND DIAGRAM IS SCHEMATIC ONLY. ALL WIRE SIZES AND CONNECTIONS TO BE MADE PER CLIENT SPECIFICATIONS
2. SCHEMATIC GROUNDING DIAGRAM IS FOR EACH SECTOR

1 G-1 GROUNDING SCHEMATIC – NSB
SCALE: N.T.S.



ELEVATION

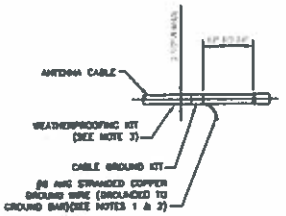


SECTION A–A

NOTES

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

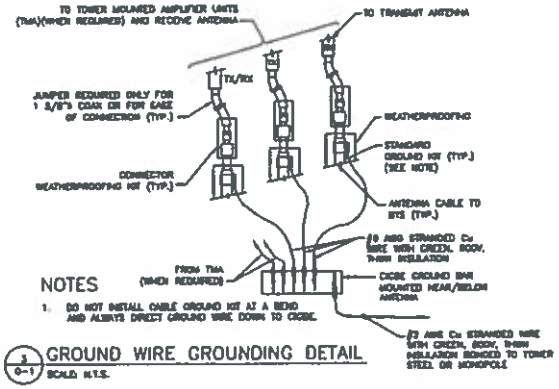
4 G-1 MECHANICAL CONNECTION DETAIL
SCALE: N.T.S.



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 SURE GROUND TYPE KIT WITH TWO-HOLE LUG.
3. WEATHER PROOFING SHALL BE ANDREW TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

2 G-1 ANTENNA GROUND KIT DETAIL
SCALE: N.T.S.



NOTES

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

3 G-1 GROUND WIRE GROUNDING DETAIL
SCALE: N.T.S.

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13310 HEMLOCK RIDGE
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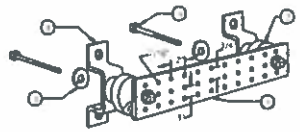
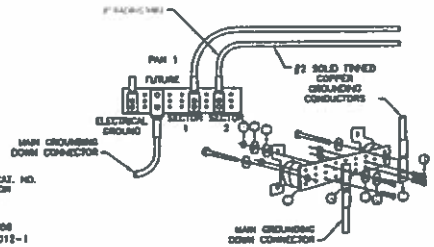
SHEET TITLE
GROUNDING DETAILS – 1

SHEET NUMBER
G-1



LEGEND

① COPPER GROUND BAR, 1/4"X 4"X 20", NEWTON INSTRUMENT CO. CAT. NO. B-8143. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
② INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
③ 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
④ WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-8058
⑤ 5/8-11 X 1" H.H.C.S.BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1



NOTES

1. THERE ARE ADDIRONAL CONNECTIONS TO THE MASTER GROUND BAR THAT ARE NOT SHOWN IN THIS DETAIL.

KEY NOTES

① ALL COAXIAL CABLES LEAVING THE COMMUNICATION CABINET SHALL BE GROUNDED AT THIS POINT VIA CABLE GROUND KITS. NEWTON INSTRUMENT COMPANY OR EQUAL.
(B-8143 (GROUND BAR 20" x 4" x 1/4");
(3061-4 (INSULATORS);
(3013-8 (5/8" LOCKWASHERS);
(A-8058 (WALL MOUNTING BRACKETS); AND
(3013-1 (5/8"-11 X 1" H.H.C.S. BOLTS).

② HYDRAULICALLY COMPRESSED LONG BARREL 2-HOLE GROUNDING LUG FOR GROUNDING CONDUCTORS BETWEEN CABLE AND THE MASTER GROUND BAR TERMINAL THOMAS & BETTS #54811BE OR EQUAL.

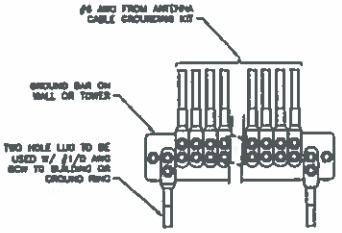
③ HYDRAULICALLY COMPRESSED LONG BARREL 2-HOLE GROUNDING LUG FOR THE MAIN GROUNDING DOWN CONDUCTOR BETWEEN THE MASTER GROUND BAR TERMINAL AND THE MAIN GROUNDING ELECTRODE. THOMAS & BETTS #54811BE OR EQUAL.

④ 3/8" STAINLESS STEEL DIAMETER BOLTS TO CONNECT GROUNDING LUG TO THE GROUND BAR (TYPICAL).

⑤ 3/8" STAINLESS STEEL DIAMETER FLAT WASHER (TYPICAL).

⑥ 3/8" STAINLESS STEEL DIAMETER LOCK WASHER (TYPICAL).

⑦ 3/8" HEX HEAD STAINLESS STEEL NUT (TYPICAL).



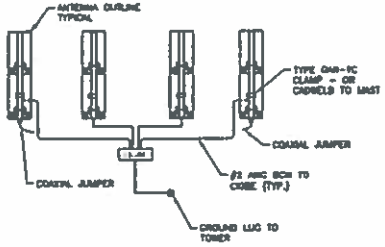
NOTE:

1. CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS.

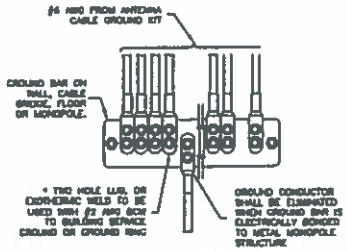
1/G-2 GROUND BAR DETAIL
SCALE: N.T.S.

2/G-2 MASTER GROUND BAR DETAIL
SCALE: N.T.S.

3/G-2 GROUND WIRE INSTALLATION DETAIL
SCALE: N.T.S.



4/G-2 ANTENNA MOUNT GROUND DETAIL
SCALE: N.T.S.



* GROUND BARS AT THE BOTTOM OF TOWER SHALL ONLY USE EXOTHERMIC WELDS.

5/G-2 GROUND WIRE INSTALLATION DETAIL
SCALE: N.T.S.

6/G-2 EQUIPMENT GROUNDING DETAIL
SCALE: N.T.S.

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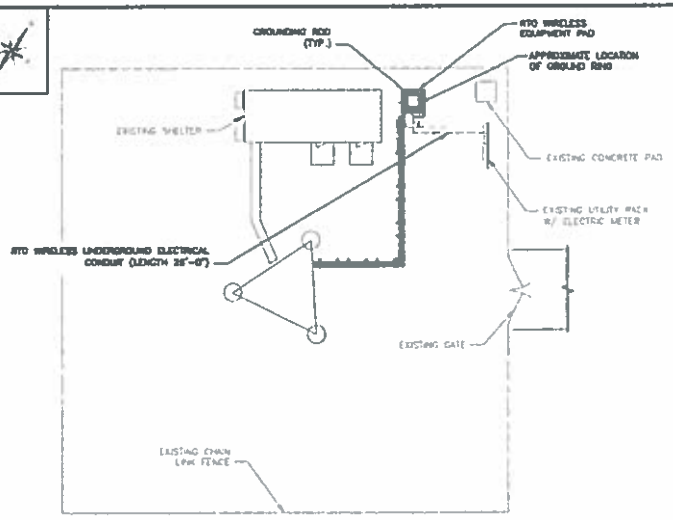
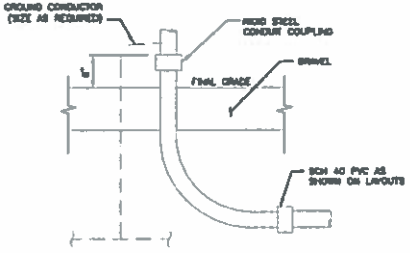


NOTES:

1. TGB AND BGB SHALL NOT BE ISOLATED FROM TOWER
2. GROUNDING INSTALLATION SHALL BE IN ACCORDANCE WITH TIA SPECIFICATIONS.
3. CONNECT TO EXISTING GROUNDING SYSTEM AT SITE. GROUND BAR. EXISTING RADIAL CONDUCTORS SHALL REMAIN UNDISTURBED.
4. LOCATION OF EXISTING RING IN COMPOUND TO BE LOCATED BY CONTRACTOR BEFORE BEGINNING WORK.

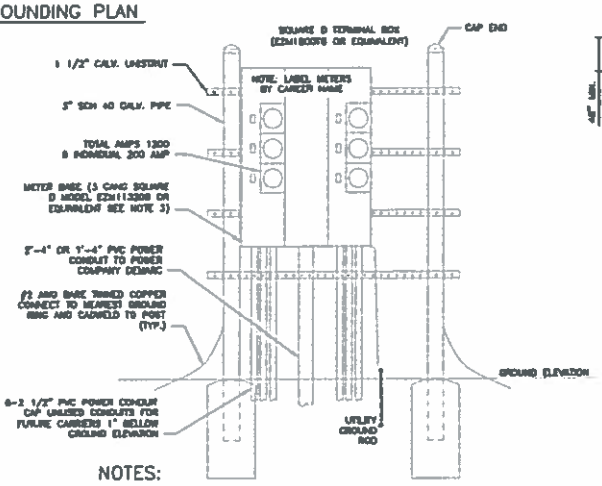
1 / E-1 TYPICAL GROUNDING PLAN
SCALE: N.T.S.



NOTES:

1. ALL UNDERGROUND CONDUITS TO BE STUBBED UP 6" ABOVE FINISHED GRADE AND "SEAL TIGHT" TO CACAO, POWER CABINET & LIGHTING CONTROL PANEL.
2. FINAL TERMINATION TO TELCO SHALL BE IN 2" FLEX CONDUIT.
3. FINAL TERMINATION TO TOWER SHALL BE IN 1 1/4" FLEX CONDUIT.

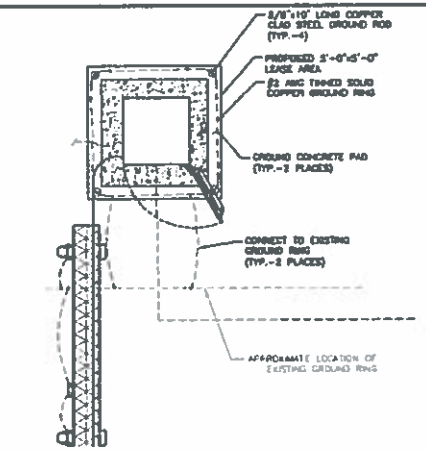
4 / E-1 TYPICAL UNDERGROUND CONDUIT STUB-UP
SCALE: N.T.S.



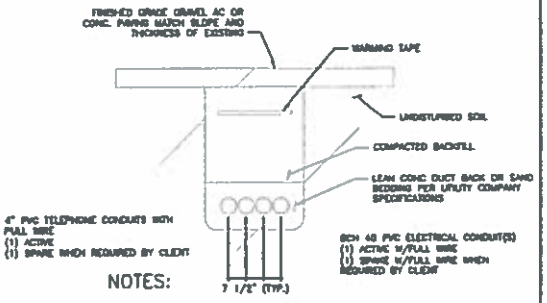
NOTES:

1. ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE AND THE LOCAL BUILDING CODES. ALL COMPONENTS SHALL BE U.L. APPROVED.
2. ALL COMPONENTS TO BE AS SPECIFIED OR EQUIVALENTS APPROVED BY CCSM.
3. ALL BREAKERS SUPPLIED BY CARRIERS.
4. SPECTRA SITE METER AND 60 AMP SERVICE FOR LIF SITES ONLY.

POWER DISTRIBUTION PANEL TYPICAL INSTALLATION FRONT VIEW TOWARD FENCE
3 / E-1 SCALE: N.T.S.



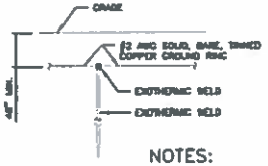
2 / E-1 ENLARGED GROUNDING PLAN
SCALE: N.T.S.



NOTES:

1. BACKFILL SHALL BE CLEAN FILL WITHOUT STONES AND SHALL BE THOROUGHLY COMPACTED IN 12" LAYERS BY TAMPING OR APPROVED EQUAL METHOD. NO SETTLING OF TRENCH SHALL BE ALLOWED.
2. SCH 40 PVC CONDUIT SHALL BE USED BELOW GRADE.
3. SCH 80 PVC CONDUIT SHALL BE USED UNDER ROADWAY.

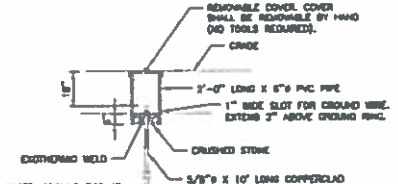
3 / E-1 TYPICAL ELECTRIC/TELEPHONE TRENCH DETAIL
SCALE: N.T.S.



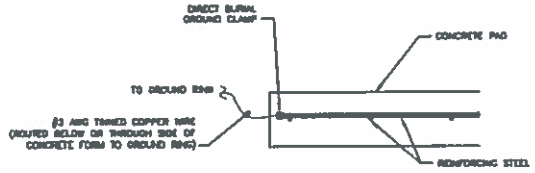
NOTES:

1. WHERE ROCK IS ENCOUNTERED, ROCK WILL BE DRILLED, FILLED W/ CONDUCTIVE SOIL &RODS INSTALLED TO FULL DEPTH.
2. GROUND RODS SHALL BE INSTALLED IN ACCORDANCE W/ NEC REQUIREMENTS.

6 / E-1 GROUND ROD
SCALE: NONE



7 / E-1 GROUND ROD INSPECTION WELL
SCALE: N.T.S.



8 / E-1 CONCRETE PAD GROUND DETAIL
SCALE: NONE

PREPARED FOR:

RTOWireless
Rural Technology Operators

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STATE OF NEW YORK · DMITRIY V. ALBUL · LICENSED · 089075 · PROFESSIONAL ENGINEER

09-16-22

DMITRIY ALBUL
NY LICENSE NO.089075

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DRAWN BY:	CHECKED BY:
AM	AAH

RFDS REV #: ---

PRELIMINARY DOCUMENTS

SUBMITALS

REV	DATE	DESCRIPTION
A	09/14/2022	ISSUED FOR REVIEW

PROJECT NUMBER

10712.RTO.CDN.W52353.0

PROJECT INFORMATION

PINE HILL
SITE NUMBER: 060017
13310 HEMLOCK RIDGE
BARRE, NY 14411

SHEET TITLE

ELECTRICAL DETAILS

SHEET NUMBER

E-1

AMERICAN TOWER®
CORPORATION

This report was completed by EOR and commissioned for American Tower Corporation by

POD
POWER OF DESIGN

Structural Analysis Report

Structure	:	**195 ft Self Support Tower**
ATC Site Name	:	**BARRE - HELOCK RIDGE NY,NY**
ATC Site Number	:	**414486**
Engineering Number	:	**OAA780238_C3_02**
Proposed Carrier	:	**RTO WIRELESS, LLC**
Carrier Site Name	:	**Pine Hill**
Carrier Site Number	:	**060017**
Site Location	:	**13310 Hemlock Ridge Road** **Albion, NY 14411-9333** **43.1552, -78.2681**
County	:	**Orleans**
Date	:	**August 15, 2022**
Max Usage	:	**53%**
Result	:	**Pass**

Prepared By:

Raya Alhamzeh
POD

Reviewed By:

8/15/22

STATE OF NEW YORK
JASON GEORGE CHERONIS
LICENSED PROFESSIONAL ENGINEER
100266

This report was commissioned for American Tower Corporation by

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Standard Conditions....6
Calculations....Attached

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 195 ft Self Support tower to reflect the change in loading by RTO WIRELESS, LLC.

Supporting Documents

Tower Drawings	Sabre Job #06-08272, dated December 2, 2005
Foundation Drawing	Sabre Job #06-08272, dated December 2, 2005
Geotechnical Report	Tectonic Project #2248.05322, dated June 17, 2005

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	109 mph (3-second gust)
Basic Wind Speed w/ Ice:	40 mph (3-second gust) w/ 2.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2018 IBC / 2020 New York Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	S_s = 0.18, S_1 = 0.05
Site Class:	D - Stiff Soil - Default

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact EOR via email at bsmith@podgrp.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

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Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
192.0	3	Samsung B5/B13 RRH-BR04C	Sector Frame	(6) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Samsung B2/B66A RRH-BR049			
	2	Raycap RC3DC-3315-PF-48			
	6	Commscope NHH-65C-R2B			
	6	CSS SA15-86			
158.0	1	VZW Unused Reserve (5184 sqin)	-	-	
109.0	1	VZW Unused Reserve (5184 sqin)			
105.0	1	VZW Unused Reserve (5184 sqin)			

Equipment to be Removed

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

Proposed Equipment

Elev.[1] (ft)	Qty	Equipment	Mount Type	Lines	Carrier
150.0	3	KP Performance Antennas KP-3SX4-90	Sector Frame	(1) 0.38" (9.7mm) Cat 5e (3) 0.51" (13mm) Hybrid	RTO WIRELESS, LLC
	1	Andrew VHLP3-11W			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed lines on the tower face with the least amount of existing lines.

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Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Legs	53%	Pass
Diagonals	46%	Pass
Horizontals	7%	Pass
Anchor Bolts	31%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	169.3	44%
Download (kips)	200.8	11%
Moment (Kips-Ft)	3439.0	15%
Shear (Kips)	19.4	30%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Twist (°)	Sway (Rotation) (°)
150.0	Andrew VHLP3-11W KP Performance Antennas KP-3SX4-90	RTO WIRELESS, LLC	0.231	0.012	0.212

***Deflection, Twist and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H**

Standard Conditions

All engineering services performed by EOR are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of EOR

It is the responsibility of the client to ensure that the information provided to EOR and used in the performance of our engineering services is correct and complete.

EOR assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

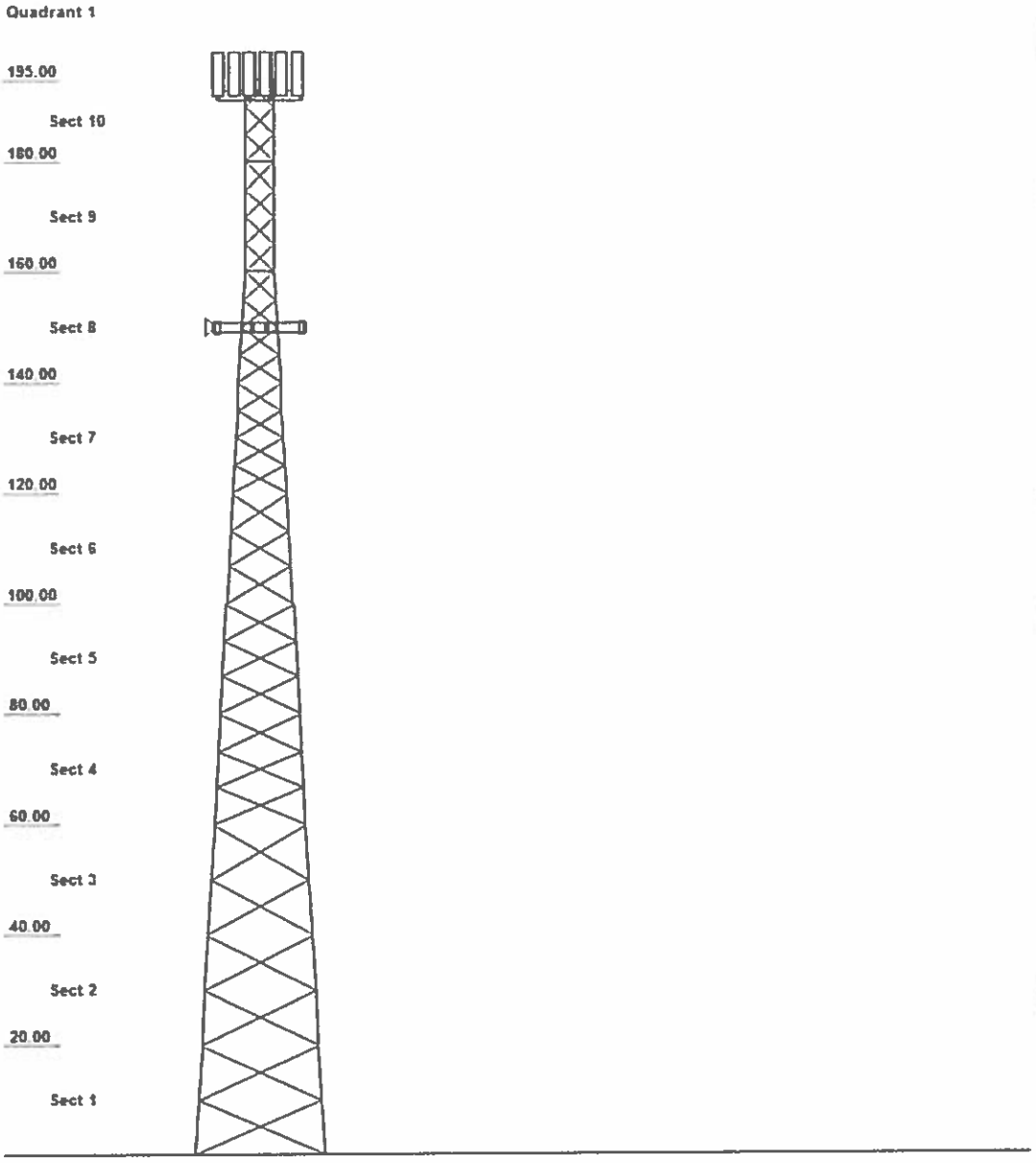
Unless explicitly agreed by both the client and EOR, all services will be performed in accordance with the current revision of ANSI/TIA-222.

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. EOR is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

JOB INFORMATION

Asset:	414486, BARRE - HELOCK RIDGE NY	Height :	195 ft
Client	RTO WIRELESS, LLC	Base Width :	21 ft
Code:	ANSI/TIA-222-H	Shape :	Triangle



SITE PARAMETERS

Nominal Wind : 109 mph wind with no ice — Exposure : C — Site Class : D

Ice Wind: 40 mph wind with 2" radial — Topo Method: Method 1 — Risk Cat : II

Service Wind : 60 mph Serviceability — Topo Feature : — S_s : 0.179 — S_1 : 0.048

SECTION PROPERTIES

Section	Leg Members	Diagonal Members	Horizontal Members
1	PX 50 ksi 8" DIA PIPE	SAE 36 ksi 3.5x3.5x0.25	
2	PST 50 ksi 8" DIA PIP	SAE 36 ksi 3.5x3.5x0.25	
3	PX 50 ksi 6" DIA PIPE	SAE 36 ksi 3X3X0.25	
4	PX 50 ksi 6" DIA PIPE	SAE 36 ksi 3X3X0.1875	
5	PX 50 ksi 5" DIA PIPE	SAE 36 ksi 3X3X0.25	
6	PSP 50 ksi 4.5" OD x	SAE 36 ksi 2.5X2.5X0.1875	
7	PX 50 ksi 4" DIA PIPE	SAE 36 ksi 2X2X0.25	
8	PST 50 ksi 4" DIA PIP	SAE 36 ksi 1.75X1.75X0.1875	SAE 36 ksi 1.75X1.75X0.1875
9	PX 50 ksi 2-1/2" DIA	SAE 36 ksi 1.75X1.75X0.25	SAE 36 ksi 1.75X1.75X0.25
10	PST 50 ksi 2-1/2" DIA	SAE 36 ksi 1.75X1.75X0.1875	SAE 36 ksi 1.75X1.75X0.1875

REDUNDANT SECONDARY BRACING

Section	Sub Diag 1	Sub Horiz 1	Sub Diag 2	Sub Horiz 2	Sub Diag 3	Sub Horiz 3
1 - 10	-	-	-	-	-	-

DISCRETE APPURTENANCE

Elev (ft)	Type	Qty	Description
192.00	BOB/SSB	2	Raycap RC3DC-3315-PF-48
192.00	PANEL	6	Commscope NHH-65C-R2B
192.00	PANEL	6	CSS SA15-86
192.00	RRU/RRH	3	Samsung B5/B13 RRH-BR04C
192.00	RRU/RRH	3	Samsung B2/B66A RRH-BR049
192.00	Sector Frame	3	Flat Light Sector Frame
158.00	Other	1	VZW Unused Reserve (5184 sqin)
150.00	DISH-HP	1	Andrew VHLP3-11W
150.00	PANEL	3	KP Performance Antennas KP-3SX
150.00	Sector Frame	3	Generic Flat Light Sector Fram
109.00	Other	1	VZW Unused Reserve (5184 sqin)
105.00	Other	1	VZW Unused Reserve (5184 sqin)

LINEAR APPURTENANCE

Elev (ft) From	To	Qty	Description
0.00	195.00	1	Waveguide
0.00	195.00	1	Climbing Ladder
0.00	192.00	2	1 5/8" Hybriflex
0.00	192.00	6	1 5/8" Coax
0.00	150.00	3	0.51" (13mm) Hybrid
0.00	150.00	1	0.38" (9.7mm) Cat 5e

GLOBAL BASE FOUNDATION DESIGN LOADS

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL+WL	3439.03	35.04	31.12

JOB INFORMATION

Asset:	414486, BARRE - HELOCK RIDGE NY	Height :	195 ft
Client	RTO WIRELESS, LLC	Base Width :	21 ft
Code:	ANSI/TIA-222-H	Shape :	Triangle

GLOBAL BASE FOUNDATION DESIGN LOADS

Load Case	Moment (k-ft)	Vertical (kip)	Horizontal (kip)
DL+WL+IL	918.66	100.69	8.33

INDIVIDUAL BASE FOUNDATION DESIGN LOADS

	Vertical (kip)	Uplift (kip)	Horizontal (kip)
	200.78	169.32	19.41

ASSET:	# 414486, BARRE - HELOCK RIDGE NY	STANDARD	ANSI/TIA-222-H
CUSTOMER	RTO WIRELESS, LLC	ENG NO.	OAA780238_C3_02

ANALYSIS PARAMETERS

Location:	Orleans County, NY	**Height:**	195 ft
Type and Shape:	Self Support, Triangle	**Base Elevation:**	0.00 ft
Manufacturer:	Sabre	**Bottom Face Width:**	21.00 ft
Kd	0.85	**Top Face Width:**	5.00 ft
Ke:	0.98	**Anchor Bolt Detail Type:**	d

ICE & WIND PARAMETERS

Exposure Category:	C	**Design Wind Speed Without Ice:**	109 mph
Risk Category:	II	**Design Wind Speed with Ice:**	40 mph
Topographic Factor Procedure:	Method 1	**Operational Windspeed:**	60 mph
Topographic Category:	Flat	**Design Ice Thickness:**	2.00 in
Crest Height:	0 ft	**HMSL:**	648 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil			**Period Based on Rayleigh Method (sec):**	0.85
T_L (sec):	6	**P:**	1.3	**C_s:**	0.030
S_s:	0.179	**S_1:**	0.048	**C_s Max:**	0.030
F_a:	1.600	**F_v:**	2.400	**C_s Min:**	0.030
S_{ds}:	0.191	**S_{d1}:**	0.077		

LOAD CASES

1.2D + 1.0W Normal	109 mph wind with no ice
1.2D + 1.0W 60°	109 mph wind with no ice
1.2D + 1.0W 90°	109 mph wind with no ice
0.9D + 1.0W Normal	109 mph wind with no ice
0.9D + 1.0W 60°	109 mph wind with no ice
0.9D + 1.0W 90°	109 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	40 mph wind with 2" radial ice
1.2D + 1.0Di + 1.0Wi 60°	40 mph wind with 2" radial ice
1.2D + 1.0Di + 1.0Wi 90°	40 mph wind with 2" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
1.2D + 1.0Ev + 1.0Eh 60°	Seismic
1.2D + 1.0Ev + 1.0Eh 90°	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 60°	Seismic (Reduced DL)
0.9D - 1.0Ev + 1.0Eh 90°	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice
1.0D + 1.0W Service 60°	60 mph Wind with No Ice
1.0D + 1.0W Service 90°	60 mph Wind with No Ice

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
192.0	Samsung B5/B13 RRH-BR04C	3	70	1.9	1.3	15.0	8.1	0.80	0.50	0.0	0.00	36.67	70	253
192.0	Samsung B2/B66A RRH-BR049	3	84	1.9	1.3	15.0	10.0	0.80	0.50	0.0	0.00	36.67	70	304
192.0	Raycap RC3DC-3315-PF-48	2	32	3.8	2.4	15.7	10.3	0.80	0.77	0.0	0.00	36.67	145	77
192.0	Commscope NHH-65C-R2B	6	52	11.4	8.0	11.9	7.1	0.80	0.70	2.0	2,390.51	36.75	1195	372
192.0	CSS SA15-86	6	43	13.0	8.0	14.0	9.0	0.80	0.70	2.0	2,730.12	36.75	1365	306
192.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	36.67	941	1440
158.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	35.19	1077	0
150.0	KP Performance Antennas KP-3SX	3	22	2.6	2.4	11.0	3.5	0.80	0.67	0.0	0.00	34.81	124	79
150.0	Andrew VHLP3-11W	1	53	10.7	3.3	39.4	24.3	0.80	1.00	0.0	0.00	34.81	253	64
150.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	34.81	894	1440
109.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	32.55	996	0
105.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	32.29	988	0
	Totals	33	3,612	399.1									8,118	4,334

TOWER LOADING

Discrete Appurtenance Properties 0.9D + 1.0W

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
192.0	Samsung B5/B13 RRH-BR04C	3	70	1.9	1.3	15.0	8.1	0.80	0.50	0.0	0.00	36.67	70	190
192.0	Samsung B2/B66A RRH-BR049	3	84	1.9	1.3	15.0	10.0	0.80	0.50	0.0	0.00	36.67	70	228
192.0	Raycap RC3DC-3315-PF-48	2	32	3.8	2.4	15.7	10.3	0.80	0.77	0.0	0.00	36.67	145	58
192.0	Commscope NHH-65C-R2B	6	52	11.4	8.0	11.9	7.1	0.80	0.70	2.0	2,390.51	36.75	1195	279
192.0	CSS SA15-86	6	43	13.0	8.0	14.0	9.0	0.80	0.70	2.0	2,730.12	36.75	1365	230
192.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	36.67	941	1080
158.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	35.19	1077	0
150.0	KP Performance Antennas KP-3SX	3	22	2.6	2.4	11.0	3.5	0.80	0.67	0.0	0.00	34.81	124	59
150.0	Andrew VHLP3-11W	1	53	10.7	3.3	39.4	24.3	0.80	1.00	0.0	0.00	34.81	253	48
150.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	34.81	894	1080
109.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	32.55	996	0
105.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	32.29	988	0
	Totals	33	3,612	399.1									8,118	3,251

TOWER LOADING

Discrete Appurtenance Properties 1.2D + 1.0Di + 1.0Wi

Elev (ft)	Description	Qty	Ice Wt (lb)	Ice EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert Ecc (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
192.0	Samsung B5/B13 RRH-BR04C	3	148	3.1	1.3	15.0	8.1	0.80	0.50	0.0	0.00	4.94	16	488
192.0	Samsung B2/B66A RRH-BR049	3	172	3.1	1.3	15.0	10.0	0.80	0.50	0.0	0.00	4.94	16	565
192.0	Raycap RC3DC-3315-PF-48	2	181	5.6	2.4	15.7	10.3	0.80	0.77	0.0	0.00	4.94	29	376
192.0	Commscope NHH-65C-R2B	6	364	15.8	8.0	11.9	7.1	0.80	0.70	2.0	446.63	4.95	223	2245
192.0	CSS SA15-86	6	493	15.3	8.0	14.0	9.0	0.80	0.70	2.0	432.13	4.95	216	3011
192.0	Flat Light Sector Frame	3	811	38.5	0.0	0.0	0.0	0.75	0.75	0.0	0.00	4.94	273	2674
158.0	VZW Unused Reserve (5184 sqin)	1	0	69.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	4.74	280	0
150.0	KP Performance Antennas KP-3SX	3	96	4.2	2.4	11.0	3.5	0.80	0.67	0.0	0.00	4.69	27	302
150.0	Andrew VHLP3-11W	1	343	13.2	3.3	39.4	24.3	0.80	1.00	0.0	0.00	4.69	42	354
150.0	Generic Flat Light Sector Fram	3	802	38.1	0.0	0.0	0.0	0.75	0.75	0.0	0.00	4.69	256	2646
109.0	VZW Unused Reserve (5184 sqin)	1	0	68.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	4.38	255	0
105.0	VZW Unused Reserve (5184 sqin)	1	0	68.5	0.0	0.0	0.0	1.00	1.00	0.0	0.00	4.35	253	0
	Totals	33	11,937	678.3									1885	12,660

TOWER LOADING

Discrete Appurtenance Properties 1.0D + 1.0W Service

ASSET:	# 414486, BARRE - HELOCK RIDGE NY	STANDARD	ANSI/TIA-222-H
CUSTOMER	RTO WIRELESS, LLC	ENG NO.:	OAA780238_C3_02

Elev (ft)	Description	Qty	Wt. (lb)	EPA (sf)	Length (ft)	Width (in)	Depth (in)	K_a	Orient Factor	Vert E_{cc} (ft)	M_u (lb-ft)	Q_z (psf)	F_a (WL) (lb)	P_a (DL) (lb)
192.0	Samsung B5/B13 RRH-BR04C	3	70	1.9	1.3	15.0	8.1	0.80	0.50	0.0	0.00	11.11	21	211
192.0	Samsung B2/B66A RRH-BR049	3	84	1.9	1.3	15.0	10.0	0.80	0.50	0.0	0.00	11.11	21	253
192.0	Raycap RC3DC-3315-PF-48	2	32	3.8	2.4	15.7	10.3	0.80	0.77	0.0	0.00	11.11	44	64
192.0	Commscope NHH-65C-R2B	6	52	11.4	8.0	11.9	7.1	0.80	0.70	2.0	724.34	11.13	362	310
192.0	CSS SA15-86	6	43	13.0	8.0	14.0	9.0	0.80	0.70	2.0	827.24	11.13	414	255
192.0	Flat Light Sector Frame	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	11.11	285	1200
158.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	10.66	326	0
150.0	KP Performance Antennas KP-3SX	3	22	2.6	2.4	11.0	3.5	0.80	0.67	0.0	0.00	10.55	37	66
150.0	Andrew VHLP3-11W	1	53	10.7	3.3	39.4	24.3	0.80	1.00	0.0	0.00	10.55	77	53
150.0	Generic Flat Light Sector Fram	3	400	17.9	0.0	0.0	0.0	0.75	0.75	0.0	0.00	10.55	271	1200
109.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	9.86	302	0
105.0	VZW Unused Reserve (5184 sqin)	1	0	36.0	0.0	0.0	0.0	1.00	1.00	0.0	0.00	9.78	299	0
	Totals	33	3,612	399.1									2,460	3,612

TOWER LOADING

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Description	Qty	Width (in)	Weight (lb/ft)	% In Wind	Spread On Faces	Bundling	Cluster Dia (in)	Out of Zone	Spacing (in)	Orient Factor	K_a Override
0.0	195.0	Climbing Ladder	1	2.00	6.90	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	195.0	Waveguide	1	2.00	6.00	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	192.0	1 5/8" Hybriflex	2	1.98	1.30	100	1	Individual	0.00	N	1.00	1.00	0.00
0.0	192.0	1 5/8" Coax	6	1.98	0.82	50	1	Block	0.00	N	0.00	1.00	0.00
0.0	150.0	0.38" (9.7mm) Cat 5e	1	0.38	0.09	100	2	Individual	0.00	N	1.00	1.00	0.00
0.0	150.0	0.51" (13mm) Hybrid	3	0.51	0.14	100	2	Individual	0.00	N	1.00	1.00	0.00

SECTION FORCES

1.2D + 1.0W Normal
109 mph wind with no ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{at} (lb)	F_a (lb)	Force (lb)
10	188	36.48	6.620	7.188	0.00	0.176	2.68	1.00	1.00	0.0	10.72	28.73	0.00	1012	0	891	440	1331
9	170	35.74	8.613	9.583	0.00	0.174	2.69	1.00	1.00	0.0	14.08	37.82	0.00	1652	0	1149	658	1807
8	150	34.81	9.302	15.025	0.00	0.191	2.63	1.00	1.00	0.0	17.49	45.94	0.00	1787	0	1359	675	2034
7	130	33.78	11.998	15.025	0.00	0.161	2.73	1.00	1.00	0.0	20.13	54.96	0.00	2444	0	1578	688	2266
6	110	32.61	14.446	15.025	0.00	0.142	2.80	1.00	1.00	0.0	22.58	63.25	0.00	2917	0	1753	664	2417
5	90	31.26	19.781	18.574	0.00	0.154	2.76	1.00	1.00	0.0	29.23	80.58	0.00	3446	0	2141	636	2778
4	70	29.65	22.329	22.120	0.00	0.153	2.76	1.00	1.00	0.0	32.88	90.81	0.00	3800	0	2289	604	2892
3	50	27.62	18.188	22.120	0.00	0.122	2.88	1.00	1.00	0.0	28.81	82.93	0.00	3885	0	1947	562	2510
2	30	24.81	23.048	28.798	0.00	0.138	2.81	1.00	1.00	0.0	35.59	100.17	0.00	4271	0	2112	505	2617
1	10	21.47	25.123	28.798	0.00	0.130	2.85	1.00	1.00	0.0	36.90	105.01	0.00	5490	0	1916	437	2353
														30,705	0			23,005

1.2D + 1.0W 60°
109 mph wind with no ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{at} (lb)	F_a (lb)	Force (lb)
10	188	36.48	6.620	7.188	0.00	0.176	2.68	0.80	1.00	0.0	9.40	25.18	0.00	1012	0	781	440	1221
9	170	35.74	8.613	9.583	0.00	0.174	2.69	0.80	1.00	0.0	12.36	33.19	0.00	1652	0	1008	658	1666
8	150	34.81	9.302	15.025	0.00	0.191	2.63	0.80	1.00	0.0	15.63	41.05	0.00	1787	0	1215	675	1890
7	130	33.78	11.998	15.025	0.00	0.161	2.73	0.80	1.00	0.0	17.73	48.41	0.00	2444	0	1390	688	2078
6	110	32.61	14.446	15.025	0.00	0.142	2.80	0.80	1.00	0.0	19.69	55.16	0.00	2917	0	1529	664	2193
5	90	31.26	19.781	18.574	0.00	0.154	2.76	0.80	1.00	0.0	25.27	69.67	0.00	3446	0	1851	636	2488
4	70	29.65	22.329	22.120	0.00	0.153	2.76	0.80	1.00	0.0	28.42	78.48	0.00	3800	0	1978	604	2581
3	50	27.62	18.188	22.120	0.00	0.122	2.88	0.80	1.00	0.0	25.18	72.46	0.00	3885	0	1701	562	2264
2	30	24.81	23.048	28.798	0.00	0.138	2.81	0.80	1.00	0.0	30.98	87.20	0.00	4271	0	1839	505	2344
1	10	21.47	25.123	28.798	0.00	0.130	2.85	0.80	1.00	0.0	31.87	90.71	0.00	5490	0	1655	437	2092
														30,705	0			20,816

1.2D + 1.0W 90°
109 mph wind with no ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{at} (lb)	F_a (lb)	Force (lb)
10	188	36.48	6.620	7.188	0.00	0.176	2.68	0.85	1.00	0.0	9.73	26.07	0.00	1012	0	808	440	1249
9	170	35.74	8.613	9.583	0.00	0.174	2.69	0.85	1.00	0.0	12.79	34.35	0.00	1652	0	1044	658	1702
8	150	34.81	9.302	15.025	0.00	0.191	2.63	0.85	1.00	0.0	16.09	42.28	0.00	1787	0	1251	675	1926
7	130	33.78	11.998	15.025	0.00	0.161	2.73	0.85	1.00	0.0	18.33	50.05	0.00	2444	0	1437	688	2125
6	110	32.61	14.446	15.025	0.00	0.142	2.80	0.85	1.00	0.0	20.42	57.18	0.00	2917	0	1585	664	2249
5	90	31.26	19.781	18.574	0.00	0.154	2.76	0.85	1.00	0.0	26.26	72.40	0.00	3446	0	1924	636	2560
4	70	29.65	22.329	22.120	0.00	0.153	2.76	0.85	1.00	0.0	29.53	81.56	0.00	3800	0	2055	604	2659
3	50	27.62	18.188	22.120	0.00	0.122	2.88	0.85	1.00	0.0	26.09	75.08	0.00	3885	0	1763	562	2325
2	30	24.81	23.048	28.798	0.00	0.138	2.81	0.85	1.00	0.0	32.14	90.44	0.00	4271	0	1907	505	2412
1	10	21.47	25.123	28.798	0.00	0.130	2.85	0.85	1.00	0.0	33.13	94.28	0.00	5490	0	1720	437	2157
														30,705	0			21,363

0.9D + 1.0W Normal
109 mph wind with no ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{at} (lb)	F_a (lb)	Force (lb)
10	188	36.48	6.620	7.188	0.00	0.176	2.68	1.00	1.00	0.0	10.72	28.73	0.00	759	0	891	440	1331
9	170	35.74	8.613	9.583	0.00	0.174	2.69	1.00	1.00	0.0	14.08	37.82	0.00	1239	0	1149	658	1807

ASSET:	# 414486, BARRE - HELOCK RIDGE NY	STANDARD	ANSI/TIA-222-H
CUSTOMER	RTO WIRELESS, LLC	ENG NO.	OAA780238_C3_02

SECTION FORCES

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{at} (lb)	F_a (lb)	Force (lb)
8	150	34.81	9.302	15.025	0.00	0.191	2.63	1.00	1.00	0.0	17.49	45.94	0.00	1340	0	1359	675	2034
7	130	33.78	11.998	15.025	0.00	0.161	2.73	1.00	1.00	0.0	20.13	54.96	0.00	1833	0	1578	688	2266
6	110	32.61	14.446	15.025	0.00	0.142	2.80	1.00	1.00	0.0	22.58	63.25	0.00	2188	0	1753	664	2417
5	90	31.26	19.781	18.574	0.00	0.154	2.76	1.00	1.00	0.0	29.23	80.58	0.00	2584	0	2141	636	2778
4	70	29.65	22.329	22.120	0.00	0.153	2.76	1.00	1.00	0.0	32.88	90.81	0.00	2850	0	2289	604	2892
3	50	27.62	18.188	22.120	0.00	0.122	2.88	1.00	1.00	0.0	28.81	82.93	0.00	2914	0	1947	562	2510
2	30	24.81	23.048	28.798	0.00	0.138	2.81	1.00	1.00	0.0	35.59	100.17	0.00	3204	0	2112	505	2617
1	10	21.47	25.123	28.798	0.00	0.130	2.85	1.00	1.00	0.0	36.90	105.01	0.00	4118	0	1916	437	2353
														23,028	0			23,005

0.9D + 1.0W 60°
109 mph wind with no ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{at} (lb)	F_a (lb)	Force (lb)
10	188	36.48	6.620	7.188	0.00	0.176	2.68	0.80	1.00	0.0	9.40	25.18	0.00	759	0	781	440	1221
9	170	35.74	8.613	9.583	0.00	0.174	2.69	0.80	1.00	0.0	12.36	33.19	0.00	1239	0	1008	658	1666
8	150	34.81	9.302	15.025	0.00	0.191	2.63	0.80	1.00	0.0	15.63	41.05	0.00	1340	0	1215	675	1890
7	130	33.78	11.998	15.025	0.00	0.161	2.73	0.80	1.00	0.0	17.73	48.41	0.00	1833	0	1390	688	2078
6	110	32.61	14.446	15.025	0.00	0.142	2.80	0.80	1.00	0.0	19.69	55.16	0.00	2188	0	1529	664	2193
5	90	31.26	19.781	18.574	0.00	0.154	2.76	0.80	1.00	0.0	25.27	69.67	0.00	2584	0	1851	636	2488
4	70	29.65	22.329	22.120	0.00	0.153	2.76	0.80	1.00	0.0	28.42	78.48	0.00	2850	0	1978	604	2581
3	50	27.62	18.188	22.120	0.00	0.122	2.88	0.80	1.00	0.0	25.18	72.46	0.00	2914	0	1701	562	2264
2	30	24.81	23.048	28.798	0.00	0.138	2.81	0.80	1.00	0.0	30.98	87.20	0.00	3204	0	1839	505	2344
1	10	21.47	25.123	28.798	0.00	0.130	2.85	0.80	1.00	0.0	31.87	90.71	0.00	4118	0	1655	437	2092
														23,028	0			20,816

0.9D + 1.0W 90°
109 mph wind with no ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{at} (lb)	F_a (lb)	Force (lb)
10	188	36.48	6.620	7.188	0.00	0.176	2.68	0.85	1.00	0.0	9.73	26.07	0.00	759	0	808	440	1249
9	170	35.74	8.613	9.583	0.00	0.174	2.69	0.85	1.00	0.0	12.79	34.35	0.00	1239	0	1044	658	1702
8	150	34.81	9.302	15.025	0.00	0.191	2.63	0.85	1.00	0.0	16.09	42.28	0.00	1340	0	1251	675	1926
7	130	33.78	11.998	15.025	0.00	0.161	2.73	0.85	1.00	0.0	18.33	50.05	0.00	1833	0	1437	688	2125
6	110	32.61	14.446	15.025	0.00	0.142	2.80	0.85	1.00	0.0	20.42	57.18	0.00	2188	0	1585	664	2249
5	90	31.26	19.781	18.574	0.00	0.154	2.76	0.85	1.00	0.0	26.26	72.40	0.00	2584	0	1924	636	2560
4	70	29.65	22.329	22.120	0.00	0.153	2.76	0.85	1.00	0.0	29.53	81.56	0.00	2850	0	2055	604	2659
3	50	27.62	18.188	22.120	0.00	0.122	2.88	0.85	1.00	0.0	26.09	75.08	0.00	2914	0	1763	562	2325
2	30	24.81	23.048	28.798	0.00	0.138	2.81	0.85	1.00	0.0	32.14	90.44	0.00	3204	0	1907	505	2412
1	10	21.47	25.123	28.798	0.00	0.130	2.85	0.85	1.00	0.0	33.13	94.28	0.00	4118	0	1720	437	2157
														23,028	0			21,363

1.2D + 1.0Di + 1.0Wi Normal
40 mph wind with 2" radial ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00
Ice Importance Factor: 1.00
Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{at} (lb)	F_a (lb)	Force (lb)
10	188	4.91	6.620	37.753	30.57	0.525	1.87	1.00	1.00	2.4	33.00	61.70	30.57	4272	3259	258	131	389
9	170	4.81	8.613	49.332	39.75	0.514	1.88	1.00	1.00	2.4	42.79	80.54	39.75	6102	4450	329	195	524
8	150	4.69	9.302	56.610	41.59	0.487	1.92	1.00	1.00	2.3	47.70	91.44	41.59	6945	5158	364	241	605
7	130	4.55	11.998	59.013	43.99	0.405	2.05	1.00	1.00	2.3	49.68	102.02	43.99	8252	5809	394	315	709
6	110	4.39	14.446	57.006	41.98	0.332	2.21	1.00	1.00	2.3	49.20	108.91	41.98	8854	5937	407	320	726
5	90	4.21	19.781	63.522	44.95	0.325	2.23	1.00	1.00	2.2	58.34	130.24	44.95	10198	6753	466	304	770
4	70	3.99	22.329	69.806	47.69	0.309	2.27	1.00	1.00	2.2	64.34	146.20	47.69	10936	7136	496	287	783
3	50	3.72	18.188	62.090	39.97	0.238	2.48	1.00	1.00	2.1	54.33	134.49	39.97	10015	6130	425	275	700
2	30	3.34	23.048	69.067	40.27	0.242	2.46	1.00	1.00	2.0	63.32	155.91	40.27	10925	6654	443	238	680
1	10	2.89	25.123	66.982	38.18	0.219	2.53	1.00	1.00	1.8	63.84	161.74	38.18	11535	6045	397	194	591

SECTION FORCES

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
														88,035	57,330			6,479

1.2D + 1.0Di + 1.0Wi 60° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
40 mph wind with 2" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	188	4.91	6.620	37.753	30.57	0.525	1.87	0.80	1.00	2.4	31.68	59.23	30.57	4272	3259	247	131	378
9	170	4.81	8.613	49.332	39.75	0.514	1.88	0.80	1.00	2.4	41.07	77.30	39.75	6102	4450	316	195	511
8	150	4.69	9.302	56.610	41.59	0.487	1.92	0.80	1.00	2.3	45.84	87.87	41.59	6945	5158	350	241	591
7	130	4.55	11.998	59.013	43.99	0.405	2.05	0.80	1.00	2.3	47.28	97.09	43.99	8252	5809	375	315	690
6	110	4.39	14.446	57.006	41.98	0.332	2.21	0.80	1.00	2.3	46.31	102.51	41.98	8854	5937	383	320	703
5	90	4.21	19.781	63.522	44.95	0.325	2.23	0.80	1.00	2.2	54.38	121.41	44.95	10198	6753	434	304	739
4	70	3.99	22.329	69.806	47.69	0.309	2.27	0.80	1.00	2.2	59.87	136.05	47.69	10936	7136	462	287	749
3	50	3.72	18.188	62.090	39.97	0.238	2.48	0.80	1.00	2.1	50.69	125.48	39.97	10015	6130	397	275	672
2	30	3.34	23.048	69.067	40.27	0.242	2.46	0.80	1.00	2.0	58.71	144.56	40.27	10925	6654	410	238	648
1	10	2.89	25.123	66.982	38.18	0.219	2.53	0.80	1.00	1.8	58.82	149.01	38.18	11535	6045	366	194	560
														88,035	57,330			6,240

1.2D + 1.0Di + 1.0Wi 90° — Gust Response Factor (Gh): 0.85 — Ice Importance Factor: 1.00
40 mph wind with 2" radial ice — Wind Importance Factor (Iw): 1.00 — Ice Dead Load Factor: 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	188	4.91	6.620	37.753	30.57	0.525	1.87	0.85	1.00	2.4	32.01	59.85	30.57	4272	3259	250	131	381
9	170	4.81	8.613	49.332	39.75	0.514	1.88	0.85	1.00	2.4	41.50	78.11	39.75	6102	4450	320	195	515
8	150	4.69	9.302	56.610	41.59	0.487	1.92	0.85	1.00	2.3	46.30	88.76	41.59	6945	5158	354	241	595
7	130	4.55	11.998	59.013	43.99	0.405	2.05	0.85	1.00	2.3	47.88	98.32	43.99	8252	5809	380	315	695
6	110	4.39	14.446	57.006	41.98	0.332	2.21	0.85	1.00	2.3	47.03	104.11	41.98	8854	5937	389	320	709
5	90	4.21	19.781	63.522	44.95	0.325	2.23	0.85	1.00	2.2	55.37	123.62	44.95	10198	6753	442	304	747
4	70	3.99	22.329	69.806	47.69	0.309	2.27	0.85	1.00	2.2	60.99	138.59	47.69	10936	7136	470	287	757
3	50	3.72	18.188	62.090	39.97	0.238	2.48	0.85	1.00	2.1	51.60	127.73	39.97	10015	6130	404	275	679
2	30	3.34	23.048	69.067	40.27	0.242	2.46	0.85	1.00	2.0	59.86	147.40	40.27	10925	6654	419	238	656
1	10	2.89	25.123	66.982	38.18	0.219	2.53	0.85	1.00	1.8	60.08	152.19	38.18	11535	6045	374	194	568
														88,035	57,330			6,300

1.0D + 1.0W Service Normal — Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice — Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	188	11.05	6.620	7.188	0.00	0.176	2.68	1.00	1.00	0.0	10.72	28.73	0.00	844	0	270	133	403
9	170	10.83	8.613	9.583	0.00	0.174	2.69	1.00	1.00	0.0	14.08	37.82	0.00	1377	0	348	199	548
8	150	10.55	9.302	15.025	0.00	0.191	2.63	1.00	1.00	0.0	17.91	47.05	0.00	1489	0	422	204	626
7	130	10.23	11.998	15.025	0.00	0.161	2.73	1.00	1.00	0.0	20.54	56.09	0.00	2037	0	488	208	696
6	110	9.88	14.446	15.025	0.00	0.142	2.80	1.00	1.00	0.0	22.96	64.32	0.00	2431	0	540	201	741
5	90	9.47	19.781	18.574	0.00	0.154	2.76	1.00	1.00	0.0	30.33	83.63	0.00	2871	0	673	193	866
4	70	8.98	22.329	22.120	0.00	0.153	2.76	1.00	1.00	0.0	34.89	96.35	0.00	3167	0	736	183	919
3	50	8.37	18.188	22.120	0.00	0.122	2.88	1.00	1.00	0.0	30.69	88.34	0.00	3238	0	628	170	799
2	30	7.52	23.048	28.798	0.00	0.138	2.81	1.00	1.00	0.0	39.28	110.53	0.00	3559	0	706	153	859
1	10	6.50	25.123	28.798	0.00	0.130	2.85	1.00	1.00	0.0	40.29	114.65	0.00	4575	0	634	132	766
														25,587	0			7,224

1.0D + 1.0W Service 60° — Gust Response Factor (Gh): 0.85
60 mph Wind with No Ice — Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_f	D_r	T_{iz} (in)	A_e (sf)	EPA_a (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	188	11.05	6.620	7.188	0.00	0.176	2.68	0.80	1.00	0.0	9.40	25.18	0.00	844	0	237	133	370

ASSET:	# 414486, BARRE - HELOCK RIDGE NY	STANDARD	ANSI/TIA-222-H
CUSTOMER	RTO WIRELESS, LLC	ENG NO.:	OAA780238_C3_02

SECTION FORCES

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_i	D_r	T_{iz} (in)	A_e (sf)	EPA_e (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
9	170	10.83	8.613	9.583	0.00	0.174	2.69	0.80	1.00	0.0	12.36	33.19	0.00	1377	0	306	199	505
8	150	10.55	9.302	15.025	0.00	0.191	2.63	0.80	1.00	0.0	16.05	42.16	0.00	1489	0	378	204	582
7	130	10.23	11.998	15.025	0.00	0.161	2.73	0.80	1.00	0.0	18.14	49.54	0.00	2037	0	431	208	639
6	110	9.88	14.446	15.025	0.00	0.142	2.80	0.80	1.00	0.0	20.07	56.22	0.00	2431	0	472	201	673
5	90	9.47	19.781	18.574	0.00	0.154	2.76	0.80	1.00	0.0	26.37	72.72	0.00	2871	0	585	193	778
4	70	8.98	22.329	22.120	0.00	0.153	2.76	0.80	1.00	0.0	30.42	84.01	0.00	3167	0	642	183	824
3	50	8.37	18.188	22.120	0.00	0.122	2.88	0.80	1.00	0.0	27.05	77.87	0.00	3238	0	554	170	724
2	30	7.52	23.048	28.798	0.00	0.138	2.81	0.80	1.00	0.0	34.67	97.56	0.00	3559	0	623	153	776
1	10	6.50	25.123	28.798	0.00	0.130	2.85	0.80	1.00	0.0	35.26	100.35	0.00	4575	0	555	132	687
														25,587	0			6,561

1.0D + 1.0W Service 90°
60 mph Wind with No Ice

Gust Response Factor (Gh): 0.85
Wind Importance Factor (Iw): 1.00

Sect #	Elev (ft)	Q_z (psf)	A_f (sf)	A_r (sf)	Ice A_r (sf)	e	C_f	D_i	D_r	T_{iz} (in)	A_e (sf)	EPA_e (sf)	EPA_{ai} (sf)	Wt. (lb)	Ice Wt (lb)	F_{st} (lb)	F_a (lb)	Force (lb)
10	188	11.05	6.620	7.188	0.00	0.176	2.68	0.85	1.00	0.0	9.73	26.07	0.00	844	0	245	133	378
9	170	10.83	8.613	9.583	0.00	0.174	2.69	0.85	1.00	0.0	12.79	34.35	0.00	1377	0	316	199	516
8	150	10.55	9.302	15.025	0.00	0.191	2.63	0.85	1.00	0.0	16.51	43.38	0.00	1489	0	389	204	593
7	130	10.23	11.998	15.025	0.00	0.161	2.73	0.85	1.00	0.0	18.74	51.18	0.00	2037	0	445	208	654
6	110	9.88	14.446	15.025	0.00	0.142	2.80	0.85	1.00	0.0	20.79	58.25	0.00	2431	0	489	201	690
5	90	9.47	19.781	18.574	0.00	0.154	2.76	0.85	1.00	0.0	27.36	75.45	0.00	2871	0	607	193	800
4	70	8.98	22.329	22.120	0.00	0.153	2.76	0.85	1.00	0.0	31.54	87.10	0.00	3167	0	665	183	848
3	50	8.37	18.188	22.120	0.00	0.122	2.88	0.85	1.00	0.0	27.96	80.48	0.00	3238	0	573	170	743
2	30	7.52	23.048	28.798	0.00	0.138	2.81	0.85	1.00	0.0	35.82	100.80	0.00	3559	0	644	153	797
1	10	6.50	25.123	28.798	0.00	0.130	2.85	0.85	1.00	0.0	36.52	103.93	0.00	4575	0	575	132	707
														25,587	0			6,727

EQUIVALENT LATERAL FORCE METHOD

Spectral Response Acceleration for Short Period (S_S):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v:	2.40
Response Modification Coefficient (R):	3.00
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.08
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_S:	0.03
Lower Limit C_S:	0.03
Period based on Rayleigh Method (sec):	0.85
Redundancy Factor (ρ):	1.30
Seismic Force Distribution Exponent (k):	1.17
Total Unfactored Dead Load:	29.20 k
Seismic Base Shear (E):	1.14 k

SEISMIC

Load Case: 0.9D - 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	Cvx	Horizontal Force (lb)	Vertical Force (lb)
10	187.50	844	394,978	0.067	76	727
9	170.00	1,377	574,438	0.097	111	1,186
8	150.00	1,489	536,376	0.090	103	1,283
7	130.00	2,037	620,042	0.105	120	1,755
6	110.00	2,431	608,193	0.103	117	2,095
5	90.00	2,871	567,561	0.096	109	2,475
4	70.00	3,167	465,879	0.079	90	2,729
3	50.00	3,238	320,794	0.054	62	2,790
2	30.00	3,559	193,532	0.033	37	3,068
1	10.00	4,575	68,428	0.012	13	3,943
Samsung B5/B13 RRH-BR04C	192.00	211	101,524	0.017	20	182
Samsung B2/B66A RRH-BR049	192.00	253	121,887	0.021	24	218
Raycap RC3DC-3315-PF-48	192.00	64	30,809	0.005	6	55
Commscope NHH-65C-R2B	192.00	310	149,037	0.025	29	267
CSS SA15-86	192.00	255	122,753	0.021	24	220
Flat Light Sector Frame	192.00	1,200	577,663	0.097	111	1,034
VZW Unused Reserve (5184 sqin)	158.00	0	0	0.000	0	0
KP Performance Antennas KP-3SX4-90	150.00	66	23,773	0.004	5	57
Andrew VHLP3-11W	150.00	53	19,090	0.003	4	46
Generic Flat Light Sector Frame	150.00	1,200	432,236	0.073	83	1,034
VZW Unused Reserve (5184 sqin)	109.00	0	0	0.000	0	0
VZW Unused Reserve (5184 sqin)	105.00	0	0	0.000	0	0
Totals		29,199	5,928,995	1.000	1,144	25,164

SEISMIC

Load Case: 1.2D + 1.0Ev + 1.0Eh

Seismic

Section	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	Cvx	Horizontal Force (lb)	Vertical Force

						(lb)
10	187.50	844	394,978	0.067	76	1,045
9	170.00	1,377	574,438	0.097	111	1,705
8	150.00	1,489	536,376	0.090	103	1,844
7	130.00	2,037	620,042	0.105	120	2,522
6	110.00	2,431	608,193	0.103	117	3,010
5	90.00	2,871	567,561	0.096	109	3,555
4	70.00	3,167	465,879	0.079	90	3,921
3	50.00	3,238	320,794	0.054	62	4,009
2	30.00	3,559	193,532	0.033	37	4,407
1	10.00	4,575	68,428	0.012	13	5,665
Samsung B5/B13 RRH-BR04C	192.00	211	101,524	0.017	20	261
Samsung B2/B66A RRH-BR049	192.00	253	121,887	0.021	24	314
Raycap RC3DC-3315-PF-48	192.00	64	30,809	0.005	6	79
Commscope NHH-65C-R2B	192.00	310	149,037	0.025	29	383
CSS SA15-86	192.00	255	122,753	0.021	24	316
Flat Light Sector Frame	192.00	1,200	577,663	0.097	111	1,486
VZW Unused Reserve (5184 sqin)	158.00	0	0	0.000	0	0
KP Performance Antennas KP-3SX4-90	150.00	66	23,773	0.004	5	82
Andrew VHLP3-11W	150.00	53	19,090	0.003	4	66
Generic Flat Light Sector Frame	150.00	1,200	432,236	0.073	83	1,486
VZW Unused Reserve (5184 sqin)	109.00	0	0	0.000	0	0
VZW Unused Reserve (5184 sqin)	105.00	0	0	0.000	0	0
Totals		29,199	5,928,995	1.000	1,144	36,154

FORCE/STRESS SUMMARY

Section 1 – Base 0.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PX - 8" DIA PIPE	-196.30	1.2D + 1.0W N	9.766	100	100	100	40.69	50.0	510.32	0.00	0.00	0	0	38	Member X
D SAE - 3.5x3.5x0.25	-5.24	1.2D + 1.0W 90°	21.815	50	50	50	190.24	36.0	13.36	24.85	20.88	1	1	39	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_l P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PX - 8" DIA PIPE	167.63	1.2D + 1.0W 60°	50.0	65	576.00	0.00	0.00		0	0	29	Member
D SAE - 3.5x3.5x0.25	5.18	1.2D + 1.0W 90°	36.0	58	48.51	24.85	12.62	16.04	1	1	41	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	156.34	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	170.29	0.9D + 1.0W 60°	548.05	31	8	1.5" A572-50
Bot Compression	201.20	1.2D + 1.0W N	0.00	0	0	

Section 2 – Base 20.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 8" DIA PIPE	-178.39	1.2D + 1.0W N	9.766	100	100	100	39.86	50.0	336.54	0.00	0.00	0	0	53	Member X
D SAE - 3.5x3.5x0.25	-5.02	1.2D + 1.0W 90°	20.903	50	50	50	182.29	36.0	14.56	24.85	20.88	1	1	34	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_l P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 8" DIA PIPE	156.59	0.9D + 1.0W 60°	50.0	65	378.00	0.00	0.00		0	0	41	Member
D SAE - 3.5x3.5x0.25	4.94	1.2D + 1.0W 90°	36.0	58	48.51	24.85	12.62	16.04	1	1	39	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	141.27	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	156.34	0.9D + 1.0W 60°	0.00	0	0	

Section 3 – Base 40.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PX - 6" DIA PIPE	-159.57	1.2D + 1.0W N	9.766	100	100	100	53.39	50.0	306.88	0.00	0.00	0	0	51	Member X
D SAE - 3X3X0.25	-4.72	1.2D + 1.0W 90°	19.157	50	50	50	194.16	36.0	10.93	24.85	20.88	1	1	43	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_l P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PX - 6" DIA PIPE	141.52	0.9D + 1.0W 60°	50.0	65	378.00	0.00	0.00		0	0	37	Member
D SAE - 3X3X0.25	4.74	1.2D + 1.0W 90°	36.0	58	40.35	24.85	12.62	13.32	1	1	37	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	125.46	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	141.27	0.9D + 1.0W 60°	0.00	0	0	

Section 4 – Base 60.0 (ft) and Height 20.00 (ft)

FORCE/STRESS SUMMARY

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Φc Pn (kip)	Shear ΦRnv (kip)	Bear ΦRn (kip)	# Bolt	# Hole	Use %	Controls
L PX - 6" DIA PIPE	-141.46	1.2D + 1.0W N	6.511	100	100	100	35.59	50.0	344.56	0.00	0.00	0	0	41	Member X
D SAE - 3X3X0.1875	-4.24	1.2D + 1.0W 90°	16.028	50	50	50	161.36	36.0	11.98	24.85	15.66	1	1	35	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	ΦcPn (kip)	Shear ΦRnv (kip)	Bear ΦRn (kip)	Blk Shear Φt Pn (kip)	# Bolt	# Hole	Use %	Controls
L PX - 6" DIA PIPE	125.69	0.9D + 1.0W 60°	50.0	65	378.00	0.00	0.00		0	0	33	Member
D SAE - 3X3X0.1875	4.19	1.2D + 1.0W 90°	36.0	58	30.59	24.85	9.46	9.99	1	1	44	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	ΦRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	108.69	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	125.46	0.9D + 1.0W 60°	0.00	0	0	

Section 5 – Base 80.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Φc Pn (kip)	Shear ΦRnv (kip)	Bear ΦRn (kip)	# Bolt	# Hole	Use %	Controls
L PX - 5" DIA PIPE	-121.01	1.2D + 1.0W N	6.511	100	100	100	42.46	50.0	240.60	0.00	0.00	0	0	50	Member X
D SAE - 3X3X0.25	-4.11	1.2D + 1.0W 90°	13.081	50	50	50	132.58	36.0	23.45	17.26	17.40	1	1	23	Bolt Shear

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	ΦcPn (kip)	Shear ΦRnv (kip)	Bear ΦRn (kip)	Blk Shear Φt Pn (kip)	# Bolt	# Hole	Use %	Controls
L PX - 5" DIA PIPE	107.59	1.2D + 1.0W 60°	50.0	65	274.50	0.00	0.00		0	0	39	Member
D SAE - 3X3X0.25	4.00	1.2D + 1.0W 90°	36.0	58	41.37	17.26	10.44	13.19	1	1	38	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	ΦRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	90.70	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	108.69	0.9D + 1.0W 60°	0.00	0	0	

Section 6 – Base 100.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Φc Pn (kip)	Shear ΦRnv (kip)	Bear ΦRn (kip)	# Bolt	# Hole	Use %	Controls
L PSP - 4.5" OD x 0.531"	-99.74	1.2D + 1.0W N	6.511	100	100	100	55.18	50.0	238.45	0.00	0.00	0	0	41	Member X
D SAE - 2.5X2.5X0.1875	-3.67	1.2D + 1.0W 90°	12.478	50	50	50	151.25	36.0	11.28	17.26	13.05	1	1	32	Member Z

Max Tension Member	Pu (kip)	Load Case	Fy (ksi)	Fu (ksi)	ΦcPn (kip)	Shear ΦRnv (kip)	Bear ΦRn (kip)	Blk Shear Φt Pn (kip)	# Bolt	# Hole	Use %	Controls
L PSP - 4.5" OD x 0.531"	89.86	1.2D + 1.0W 60°	50.0	65	297.90	0.00	0.00		0	0	30	Member
D SAE - 2.5X2.5X0.1875	3.62	1.2D + 1.0W 90°	36.0	58	25.22	17.26	7.83	8.87	1	1	46	Bolt Bear

Max Splice Forces	Pu (kip)	Load Case	ΦRnt (kip)	Use %	Num Bolts	Bolt Type
Top Tension	73.74	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	90.70	0.9D + 1.0W 60°	0.00	0	0	

Section 7 – Base 120.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'y (ksi)	Φc Pn (kip)	Shear ΦRnv (kip)	Bear ΦRn (kip)	# Bolt	# Hole	Use %	Controls
L PX - 4" DIA PIPE	-81.58	1.2D + 1.0W N	4.883	100	100	100	39.59	50.0	176.96	0.00	0.00	0	0	46	Member X
D SAE - 2X2X0.25	-2.64	1.2D + 1.0W 90°	10.001	50	50	50	153.47	36.0	11.42	17.26	17.40	1	1	23	Member Z

FORCE/STRESS SUMMARY

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PX - 4" DIA PIPE	73.87	0.9D + 1.0W 60°	50.0	65	198.45	0.00	0.00		0	0	37	Member
D SAE - 2X2X0.25	2.77	1.2D + 1.0W 90°	36.0	58	25.06	17.26	10.44	9.11	1	1	30	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	55.89	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	73.74	0.9D + 1.0W 60°	0.00	0	0	

Section 8 – Base 140.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 4" DIA PIPE	-61.25	1.2D + 1.0W N	4.946	100	100	100	39.30	50.0	127.41	0.00	0.00	0	0	48	Member X
H SAE - 1.75X1.75X0.1875	-0.08	1.2D + 1.0W 60°	5	100	100	100	174.93	36.0	5.81	13.81	13.05	1	1	1	Member Z
D SAE - 1.75X1.75X0.1875	-2.62	1.2D + 1.0W 90°	8.347	50	50	50	146.01	36.0	8.34	17.26	13.05	1	1	31	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 4" DIA PIPE	55.98	0.9D + 1.0W 60°	50.0	65	142.65	0.00	0.00		0	0	39	Member
H SAE - 1.75X1.75X0.1875	0.02	1.2D + 1.0W N	36.0	58	16.05	13.81	7.83	5.81	1	1	0	Blk Shear
D SAE - 1.75X1.75X0.1875	2.58	1.2D + 1.0W 90°	36.0	58	16.05	17.26	7.83	5.81	1	1	44	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	35.93	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	55.89	0.9D + 1.0W 60°	0.00	0	0	

Section 9 – Base 160.0 (ft) and Height 20.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PX - 2-1/2" DIA PIPE	-37.72	1.2D + 1.0W N	4.938	100	100	100	64.12	50.0	74.96	0.00	0.00	0	0	50	Member X
H SAE - 1.75X1.75X0.25	-0.15	1.2D + 1.0W N	5	100	100	100	175.95	36.0	7.49	13.81	17.40	1	1	2	Member Z
D SAE - 1.75X1.75X0.25	-3.03	1.2D + 1.0W N	7.027	50	50	50	123.64	36.0	15.14	17.26	17.40	1	1	20	Member Z

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_t P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PX - 2-1/2" DIA PIPE	35.74	1.2D + 1.0W 60°	50.0	65	101.25	0.00	0.00		0	0	35	Member
H SAE - 1.75X1.75X0.25	0.33	1.2D + 1.0W N	36.0	58	20.82	13.81	10.44	7.75	1	1	4	Blk Shear
D SAE - 1.75X1.75X0.25	3.05	1.2D + 1.0W 90°	36.0	58	20.82	17.26	10.44	7.75	1	1	39	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Top Tension	9.33	0.9D + 1.0W 60°	0.00	0	0	
Bot Tension	35.93	0.9D + 1.0W 60°	0.00	0	0	

Section 10 – Base 180.0 (ft) and Height 15.00 (ft)

Max Compression	Pu (kip)	Load Case	Len (ft)	Bracing % X	Y	Z	KL/R	F'_y (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	# Bolt	# Hole	Use %	Controls
L PST - 2-1/2" DIA PIPE	-10.85	1.2D + 1.0W N	4.917	100	100	100	62.30	50.0	57.73	0.00	0.00	0	0	18	Member X
H SAE - 1.75X1.75X0.1875	-0.43	1.2D + 1.0W N	5	100	100	100	174.93	36.0	5.81	13.81	13.05	1	1	7	Member Z
D SAE - 1.75X1.75X0.1875	-2.40	1.2D + 1.0W 90°	7.012	50	50	50	122.67	36.0	11.78	17.26	13.05	1	1	20	Member Z

FORCE/STRESS SUMMARY

Max Tension Member	Pu (kip)	Load Case	F_y (ksi)	F_u (ksi)	$\Phi_c P_n$ (kip)	Shear ΦR_{nv} (kip)	Bear ΦR_n (kip)	Blk Shear $\Phi_l P_n$ (kip)	# Bolt	# Hole	Use %	Controls
L PST - 2-1/2" DIA PIPE	9.42	0.9D + 1.0W 60°	50.0	65	76.68	0.00	0.00		0	0	12	Member
H SAE - 1.75X1.75X0.1875	0.45	1.2D + 1.0W 60°	36.0	58	16.05	13.81	7.83	5.81	1	1	7	Blk Shear
D SAE - 1.75X1.75X0.1875	2.39	1.2D + 1.0W 90°	36.0	58	16.05	17.26	7.83	5.81	1	1	41	Blk Shear

Max Splice Forces	Pu (kip)	Load Case	ΦR_{nt} (kip)	Use %	Num Bolts	Bolt Type
Bot Tension	9.33	0.9D + 1.0W 60°	0.00	0	0	

DETAILED REACTIONS

Load Case	Radius (ft)	Elevation (ft)	Azimuth (deg)	Node	*(-) Uplift and (+) Down *Fx (kip)	*Fy (kip)	*Fz (kip)
1.2D + 1.0W Normal	12.12	0.00	0	1	0.00	200.78	-19.41
	12.12	0.00	120	1a	6.62	-82.87	-5.86
	12.12	0.00	240	1b	-6.62	-82.87	-5.86
1.2D + 1.0W 60°	12.12	0.00	0	1	-1.57	101.02	-9.45
	12.12	0.00	120	1a	-8.96	100.60	3.37
	12.12	0.00	240	1b	-14.54	-166.58	-8.39
1.2D + 1.0W 90°	12.12	0.00	0	1	-1.87	11.68	-0.72
	12.12	0.00	120	1a	-14.40	168.18	7.25
	12.12	0.00	240	1b	-13.21	-144.83	-6.53
0.9D + 1.0W Normal	12.12	0.00	0	1	0.00	197.67	-19.22
	12.12	0.00	120	1a	6.77	-85.69	-5.95
	12.12	0.00	240	1b	-6.77	-85.69	-5.95
0.9D + 1.0W 60°	12.12	0.00	0	1	-1.57	98.01	-9.26
	12.12	0.00	120	1a	-8.80	97.59	3.27
	12.12	0.00	240	1b	-14.69	-169.32	-8.48
0.9D + 1.0W 90°	12.12	0.00	0	1	-1.88	8.76	-0.53
	12.12	0.00	120	1a	-14.23	165.11	7.15
	12.12	0.00	240	1b	-13.37	-147.59	-6.62
1.2D + 1.0Di + 1.0Wi Normal	12.12	0.00	0	1	0.00	84.08	-4.16
	12.12	0.00	120	1a	2.68	8.31	-2.08
	12.12	0.00	240	1b	-2.68	8.31	-2.08
1.2D + 1.0Di + 1.0Wi 60°	12.12	0.00	0	1	-0.44	58.42	-1.60
	12.12	0.00	120	1a	-1.60	58.34	0.42
	12.12	0.00	240	1b	-4.99	-16.07	-2.88
1.2D + 1.0Di + 1.0Wi 90°	12.12	0.00	0	1	-0.52	33.56	0.85
	12.12	0.00	120	1a	-3.08	76.52	1.48
	12.12	0.00	240	1b	-4.56	-9.39	-2.33
1.2D + 1.0Ev + 1.0Eh Normal	12.12	0.00	0	1	0.00	19.75	-1.45
	12.12	0.00	120	1a	-0.37	7.64	0.18
	12.12	0.00	240	1b	0.37	7.64	0.18
1.2D + 1.0Ev + 1.0Eh 60°	12.12	0.00	0	1	-0.03	15.71	-1.11
	12.12	0.00	120	1a	-0.98	15.71	0.52
	12.12	0.00	240	1b	0.06	3.60	0.03
1.2D + 1.0Ev + 1.0Eh 90°	12.12	0.00	0	1	-0.04	11.67	-0.76
	12.12	0.00	120	1a	-1.19	18.67	0.66
	12.12	0.00	240	1b	0.13	4.68	0.10
0.9D - 1.0Ev + 1.0Eh Normal	12.12	0.00	0	1	0.00	16.19	-1.22
	12.12	0.00	120	1a	-0.17	4.09	0.06
	12.12	0.00	240	1b	0.17	4.09	0.06
0.9D - 1.0Ev + 1.0Eh 60°	12.12	0.00	0	1	-0.03	12.16	-0.88
	12.12	0.00	120	1a	-0.78	12.16	0.41
	12.12	0.00	240	1b	-0.14	0.06	-0.08
0.9D - 1.0Ev + 1.0Eh 90°	12.12	0.00	0	1	-0.04	8.13	-0.53
	12.12	0.00	120	1a	-0.99	15.11	0.55
	12.12	0.00	240	1b	-0.07	1.14	-0.02
1.0D + 1.0W Service Normal	12.12	0.00	0	1	0.00	67.57	-6.40
	12.12	0.00	120	1a	1.70	-19.19	-1.63
	12.12	0.00	240	1b	-1.70	-19.19	-1.63
1.0D + 1.0W Service 60°	12.12	0.00	0	1	-0.51	37.16	-3.33
	12.12	0.00	120	1a	-3.13	37.03	1.22
	12.12	0.00	240	1b	-4.17	-44.99	-2.41
1.0D + 1.0W Service 90°	12.12	0.00	0	1	-0.60	9.73	-0.61
	12.12	0.00	120	1a	-4.81	57.63	2.43
	12.12	0.00	240	1b	-3.76	-38.16	-1.82

Max Uplift:	169.32 (kip)	Moment Ice:	918.66 (kip-ft)	Moment:	3439.03 (kip-ft)
Max Down:	200.78 (kip)	Total Down Ice:	100.69 (kip)	Total Down:	35.04 (kip)
Max Shear:	19.41 (kip)	Total Shear Ice:	8.33 (kip)	Total Shear:	31.12(kip)

1.2D + 1.0W Normal

DEFLECTIONS AND ROTATIONS

Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.2D + 1.0W Normal 109 mph wind with no ice	106.75	0.3574	0.0158	0.4062	0.4066
1.2D + 1.0W Normal 109 mph wind with no ice	150.13	0.7612	0.0228	0.6997	0.6997
1.2D + 1.0W Normal 109 mph wind with no ice	160.00	0.8885	0.0258	0.8102	0.8102
1.2D + 1.0W Normal 109 mph wind with no ice	190.08	1.363	0.0265	1.2160	1.2163
1.2D + 1.0W 60° 109 mph wind with no ice	106.75	0.3387	0.0389	0.3876	0.3877
1.2D + 1.0W 60° 109 mph wind with no ice	150.13	0.7232	0.0827	0.6659	0.6688
1.2D + 1.0W 60° 109 mph wind with no ice	160.00	0.844	0.0971	0.7710	0.7745
1.2D + 1.0W 60° 109 mph wind with no ice	190.08	1.2912	0.2422	0.8214	0.8564
1.2D + 1.0W 90° 109 mph wind with no ice	106.75	0.3426	-0.0171	0.3911	0.3915
1.2D + 1.0W 90° 109 mph wind with no ice	150.13	0.7302	-0.0242	0.6682	0.6683
1.2D + 1.0W 90° 109 mph wind with no ice	160.00	0.8518	-0.0273	0.7716	0.7717
1.2D + 1.0W 90° 109 mph wind with no ice	190.08	1.3	-0.0273	0.6610	0.6615
0.9D + 1.0W Normal 109 mph wind with no ice	106.75	0.3569	0.0158	0.4056	0.4059
0.9D + 1.0W Normal 109 mph wind with no ice	150.13	0.76	0.0228	0.6984	0.6984
0.9D + 1.0W Normal 109 mph wind with no ice	160.00	0.8871	0.0257	0.8087	0.8087
0.9D + 1.0W Normal 109 mph wind with no ice	190.08	1.3605	0.0265	1.2137	1.214
0.9D + 1.0W 60° 109 mph wind with no ice	106.75	0.3383	0.0388	0.3870	0.3871
0.9D + 1.0W 60° 109 mph wind with no ice	150.13	0.7221	0.0825	0.6646	0.6675
0.9D + 1.0W 60° 109 mph wind with no ice	160.00	0.8426	0.0969	0.7692	0.7728
0.9D + 1.0W 60° 109 mph wind with no ice	190.08	1.2889	0.2417	0.8195	0.8544
0.9D + 1.0W 90° 109 mph wind with no ice	106.75	0.3421	-0.0171	0.3905	0.3909
0.9D + 1.0W 90° 109 mph wind with no ice	150.13	0.7291	-0.0242	0.6669	0.667
0.9D + 1.0W 90° 109 mph wind with no ice	160.00	0.8505	-0.0272	0.7699	0.77
0.9D + 1.0W 90° 109 mph wind with no ice	190.08	1.2976	-0.0272	0.6589	0.6595
1.2D + 1.0Di + 1.0Wi Normal 40 mph wind with 2" radial ice	106.75	0.0955	0.0041	0.1073	0.1074
1.2D + 1.0Di + 1.0Wi Normal 40 mph wind with 2" radial ice	150.13	0.2008	0.0056	0.1805	0.1805
1.2D + 1.0Di + 1.0Wi Normal 40 mph wind with 2" radial ice	160.00	0.2335	0.0062	0.2055	0.2056
1.2D + 1.0Di + 1.0Wi Normal 40 mph wind with 2" radial ice	190.08	0.3529	0.0057	0.2868	0.2868
1.2D + 1.0Di + 1.0Wi 60° 40 mph wind with 2" radial ice	106.75	0.0947	0.0048	0.1059	0.106
1.2D + 1.0Di + 1.0Wi 60° 40 mph wind with 2" radial ice	150.13	0.1983	0.0077	0.1774	0.1774
1.2D + 1.0Di + 1.0Wi 60° 40 mph wind with 2" radial ice	160.00	0.2304	0.0088	0.2058	0.2058
1.2D + 1.0Di + 1.0Wi 60° 40 mph wind with 2" radial ice	190.08	0.3471	0.0146	0.2215	0.2216
1.2D + 1.0Di + 1.0Wi 90° 40 mph wind with 2" radial ice	106.75	0.0943	-0.0046	0.1057	0.1058
1.2D + 1.0Di + 1.0Wi 90° 40 mph wind with 2" radial ice	150.13	0.1975	-0.0063	0.1763	0.1763
1.2D + 1.0Di + 1.0Wi 90° 40 mph wind with 2" radial ice	160.00	0.2294	-0.0069	0.2033	0.2034
1.2D + 1.0Di + 1.0Wi 90° 40 mph wind with 2" radial ice	190.08	0.3451	-0.0065	0.1941	0.1941
1.2D + 1.0Ev + 1.0Eh Normal Seismic	106.75	0.016	0.0006	0.0190	0.019
1.2D + 1.0Ev + 1.0Eh Normal Seismic	150.13	0.0352	0.0008	0.0338	0.0338
1.2D + 1.0Ev + 1.0Eh Normal Seismic	160.00	0.0413	0.0009	0.0390	0.0391
1.2D + 1.0Ev + 1.0Eh Normal Seismic	190.08	0.0641	0.0007	0.0465	0.0465
1.2D + 1.0Ev + 1.0Eh 60° Seismic	106.75	0.016	0.0006	0.0190	0.019
1.2D + 1.0Ev + 1.0Eh 60° Seismic	150.13	0.0351	0.0008	0.0335	0.0335
1.2D + 1.0Ev + 1.0Eh 60° Seismic	160.00	0.0413	-0.0009	0.0400	0.04
1.2D + 1.0Ev + 1.0Eh 60° Seismic	190.08	0.0641	0.0007	0.0469	0.0469
1.2D + 1.0Ev + 1.0Eh 90° Seismic	106.75	0.016	-0.0007	0.0190	0.019
1.2D + 1.0Ev + 1.0Eh 90° Seismic	150.13	0.0352	-0.0009	0.0337	0.0337
1.2D + 1.0Ev + 1.0Eh 90° Seismic	160.00	0.0413	-0.0010	0.0397	0.0397
1.2D + 1.0Ev + 1.0Eh 90° Seismic	190.08	0.0641	-0.0008	0.0468	0.0468
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	106.75	0.016	0.0006	0.0189	0.0189
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	150.13	0.0351	0.0008	0.0337	0.0337
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	160.00	0.0412	0.0009	0.0389	0.0389
0.9D - 1.0Ev + 1.0Eh Normal Seismic (Reduced DL)	190.08	0.064	0.0007	0.0463	0.0463
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	106.75	0.0159	0.0006	0.0189	0.019
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	150.13	0.0351	0.0008	0.0335	0.0335
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	160.00	0.0412	-0.0009	0.0398	0.0398
0.9D - 1.0Ev + 1.0Eh 60° Seismic (Reduced DL)	190.08	0.064	0.0007	0.0465	0.0465
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	106.75	0.016	-0.0007	0.0190	0.019
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	150.13	0.0351	-0.0009	0.0336	0.0336
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	160.00	0.0412	-0.0010	0.0395	0.0395
0.9D - 1.0Ev + 1.0Eh 90° Seismic (Reduced DL)	190.08	0.064	-0.0008	0.0465	0.0465
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	106.75	0.1089	0.0047	0.1233	0.1234
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	150.13	0.2314	0.0066	0.2119	0.2119
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	160.00	0.2698	0.0075	0.2448	0.2448
1.0D + 1.0W Service Normal 60 mph Wind with No Ice	190.08	0.4133	0.0072	0.3683	0.3683

DEFLECTIONS AND ROTATIONS

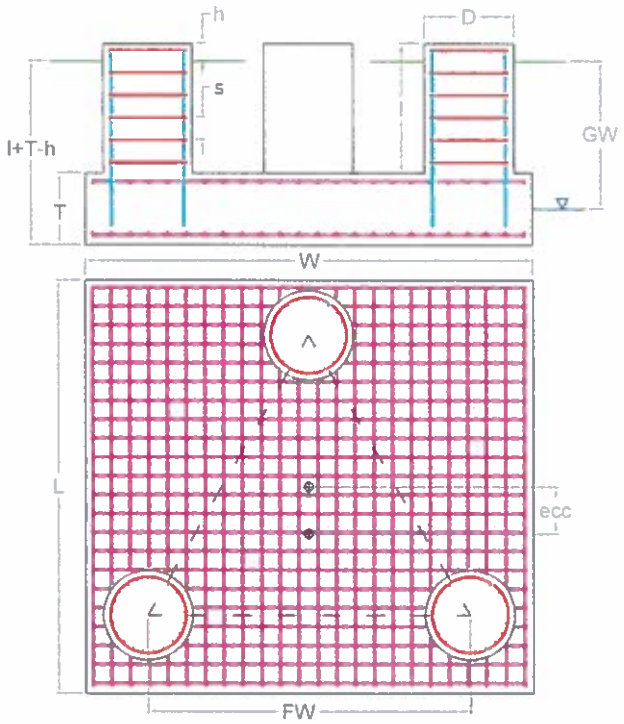
Load Case	Elevation (ft)	Deflection (ft)	Twist (deg)	Sway (deg)	Resultant (deg)
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	106.75	0.1035	0.0064	0.1178	0.1178
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	150.13	0.2205	0.0115	0.2023	0.2024
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	160.00	0.2571	0.0133	0.2345	0.2346
1.0D + 1.0W Service 60° 60 mph Wind with No Ice	190.08	0.393	0.0261	0.2485	0.2499
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	106.75	0.1044	-0.0051	0.1187	0.1189
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	150.13	0.2219	-0.0071	0.2023	0.2024
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	160.00	0.2587	-0.0080	0.2338	0.2339
1.0D + 1.0W Service 90° 60 mph Wind with No Ice	190.08	0.3943	-0.0077	0.1997	0.1999

Monolithic Mat Foundation Analysis (ANSI/TIA-222-H)

Foundation & Tower Parameters			
Ignore Mat Rebar?		N	
Ignore Pier Rebar?		N	
Foundation has Pier(s)?		Y	
Pier Shape		Round	
Pier Diameter	*D*	3.5	ft
Pier Height Above Ground	*h*	0.5	ft
Pier Length	*l*	3.5	ft
Mat Base Depth	*l+T-h*	5	ft
Mat Length	*L*	30.5	ft
Mat Width	*W*	30.5	ft
Mat Thickness	*T*	2	ft
Unit Weight of Concrete		150	pcf
Tower Eccentricity	ecc	0	ft
Tower Face Width	FW	21	ft
Tower Leg Count		3	

Soil Parameters			
Water Table Depth [BGL]	*GW*	3	ft
Unit Weight of Soil		117.4	pcf
Unit Weight of Soil [Submerged]		55	pcf
Shear Friction Coefficient		0.4	
Ultimate Bearing Pressure		8,000	psf
Bearing Pressure Type		Net	
Conical Failure Angle		30	°
Capacity Increase (Transient Loads)		1.00	
Soil Strength Reduction Factor, ϕ_s		0.75	
Dead Load Factor		1.2	

Reactions		
Moment, M_u	918.66	k-ft
Shear, V_u	19.41	k
Axial, P_u	200.78	k
Uplift, T_u	169.32	k
Tower Weight	100.69	k
Tower Dead Load Factor	0.9	
Shear/Leg in Compression, v_{cu}	12.8	k
Shear/Leg in Tension, v_{tu}	10.7	k



Soil Capacities		
Design Moment, M_u	1,025.42	k-ft
Nominal Moment Capacity, $\phi_m M_n$	8,321.96	k-ft
$M_u / \phi_s M_n$	12.3%	
Net Bearing Pressure	644	k
Nominal Bearing Capacity, $\phi_b P_n$	6,439	k
Bearing Pressure Controlling Load Direction	Parallel to Pad Edge	
$P_u / \phi_s P_n$	10.0%	
Ultimate Friction Resistance	233.89	k
Ultimate Passive Pressure Resistance	24.84	k
Nominal Shear Capacity, $\phi_s V_n$	194.05	k
$V_u / \phi_s V_n$	10.0%	

Mat Reinforcement Parameters		
Concrete Compressive Strength, f'_c	3,000	psi
Mat Rebar Quantity [Lower]	50	
Mat Rebar Size # [Lower]	9	
Mat Single Rebar Area [Lower]	1	in²
Mat Rebar Quantity [Upper]	50	
Mat Rebar Size # [Upper]	9	
Mat Single Rebar Area [Upper]	1	in²
Mat Rebar Yield Strength, F_y	60	ksi
Mat Clear Cover	3	in
Bending Reduction Factor, ϕ_B	0.9	
Shear Reduction Factor, ϕ_V	0.75	
Compression Reduction Factor, ϕ_C	0.65	
Steel Elastic Modulus	29,000	ksi

Mat Reinforcement Capacities		
Compression Zone Factor, β_1	0.85	
Lower Reinforcement Spacing	7.34	in
Upper Reinforcement Spacing	7.34	in
One Way Design Shear, V_u	23.31	k
One Way Shear Capacity, ϕV_c	484.56	k
One Way Shear Controlling Load Direction	Diagonal to Pad Edge	
$V_u / \phi V_c$	4.8%	
Punching Design Shear Stress, v_u	49.44	psi
Punching Shear Capacity, $\phi_c V_n$	164.32	psi
$v_u / \phi_c V_n$	30.1%	
Moment Transfer Effective Flexural Width, $_f$	9.5	in
Neutral Axis Depth	3.41	in
Moment Transfer Flexural Capacity, $\phi M_{sc,f}$	16,456.56	k-in
$\gamma_f M_{sc} / \phi M_{sc,f}$	1.6%	
Flexure Due to Soil Pressure, M_u	564.7	k-ft
Lower Steel Mat Moment Capacity, ϕM_n	3,782.86	k-ft
Flexural Steel Controlling Load Direction	Diagonal to Pad Edge	
$M_u / \phi M_n$	14.9%	
Flexure Due to Uplift, M_u	267.88	k-ft
Upper Steel Mat Moment Capacity, ϕM_n	4,164.5	k-ft
$M_u / \phi M_n$	6.4%	

Pier Reinforcement Parameters			
Concrete Compressive Strength (f'_c)		3,000	psi
Pier Rebar Quantity		14	
Pier Rebar Size #		7	
Pier Single Rebar Area		0.6	in²
Pier Rebar Yield Strength (F_y)		60	ksi
Tie Rebar Size #		4	
Tie Rebar Area (Single)		0.2	in²
Tie Rebar Spacing	s	12	in
Tie Rebar Yield Strength (F_y)		60	ksi
Rebar Cage Diameter		34.12	in

Pier Reinforcement Capacities		
Design Moment (M_u)	44.84	k-ft
Nominal Moment Capacity ($\phi_B M_n$)	633.18	k-ft
$M_u / \phi_B M_n$	7.1%	
Design Shear (V_u)	12.94	k
Nominal Shear Capacity ($\phi_V V_n$)	136.4	k
$V_u / \phi_V V_n$	9.5%	
Design Tension (T_u)	169.32	k
Nominal Tension Capacity ($\phi_T T_n$)	453.6	k
$T_u / \phi_T T_n$	37.3%	
Design Compression (P_u)	200.78	k
Nominal Compression Capacity ($\phi_P P_n$)	1,844.68	k
$P_u / \phi_P P_n$	10.9%	
Pier Reinforcement Ratio	0.001	-
$M_u / \phi_B M_n + T_u / \phi_T T_n$	44.4%	

ELIGIBLE FACILITIES REQUEST CERTIFICATION
FOR NON-SUBSTANTIAL CHANGES TO A WIRELESS TOWER
NOT LOCATED WITHIN A PUBLIC RIGHT OF WAY

1) Address of the Wireless Tower:
13310 Hemlock Ridge Road, Barre, NY 14411

2) The height (measured in feet above ground level) of the existing Tower as originally approved, including any modifications approved prior to February 22, 2012: 195 **feet**

3) Height (measured in feet above ground level) at which the modifications to the Transmission Equipment will occur on the Tower: 150 **feet**

4) Height (measured in feet above ground level) of the existing Tower after the modifications to the Transmission Equipment are installed: 195 **feet**

5) Effect of modifications of Transmission Equipment on Tower height:

A) Will the modifications in Transmission Equipment (addition, removal or replacement of Transmission Equipment) result in increasing the height above ground level of the existing Tower?

☐ **Yes** ☒ **No**

B) Will the modifications in Transmission Equipment result in increasing the height above ground level of the existing Tower by more than:

i) 10% of the height of the existing Tower, as originally approved, including any modifications approved prior to February 22, 2012; or

ii) twenty feet above the height of the existing Tower, as originally approved, including any modifications approved prior to February 22, 2012, whichever height increase is greater?

☐ **Yes** ☒ **No**

6) Will the modifications in Transmission Equipment (measured at the height above ground level where the Transmission Equipment will be attached to the tower) result in any Transmission Equipment protruding horizontally from the edge of tower by more than twenty (20) feet or by more than the existing width of the tower at that height, whichever of these dimensions is greater?

☐ **Yes** ☒ **No**

7) Will the proposed changes in Transmission Equipment involve excavation or placement of new equipment outside the existing Tower site or outside any access or utility easements currently related to the site?

☐ **Yes** ☒ **No**

(CONTINUED ON NEXT PAGE)

8) Will the proposed modification in Transmission Equipment involve installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four?

☐Yes ☒No

9) Will the proposed modification in Transmission Equipment defeat the existing concealment elements of the Tower?

☐Yes ☒No

10) Prior Conditions of Approval

A) Will the proposed modification in Transmission Equipment comply with conditions of approval imposed on the Tower prior to February 22, 2012?

☒Yes ☐No

B) If the answer to 10(A) is "No," Is the non-compliance due solely to any of the conditions addressed in questions 5-9 above?

☐Yes ☐No ☒ N/A

If the answer to either question 5A or 5B is "No", and the answers to questions 6-9 are "No", and the answer to either 10A or B is "Yes" then the proposed modifications do not substantially change the physical dimensions of the existing Tower. Please provide a brief explanation, if necessary, to clarify any answer.

Explanatory Comments (If Needed):

Question No. N/A

Comment: _____

This certification is dated this 18th day of October, 2022.

George Chianis
Signature

George Chianis, VP of Site Acquisitions
RTO Wireless, LLC
Name & Title

TOWER AND GROUND SPACE LEASE AGREEMENT

This Agreement ("Lease") made this 8 day of June, 2022 (the "Effective Date"), between Town of Barre, NY, whose mailing address is 14317 West Barre Road, Albion, NY 14411 (hereinafter "Landlord"), and RTO Wireless, LLC, a Delaware limited liability company, whose corporate address is 945 Concord Street, Framingham, MA 01701 (hereinafter "Tenant"). The Landlord and Tenant are at times collectively referred to hereinafter as the "Parties" or individual as the "Party".

WHEREAS, Landlord owns and maintains a Water Tank Tower (the "Tower") located on a parcel of land (the "Site") situated at 4709 Oak Orchard Road, in the Town of Barre, Orleans County, State of New York. The Site is owned by the Barre Fire Company (the "Fire Company"). The Site is more particularly described in Exhibit 1 which is incorporated herein; and

WHEREAS, Tenant desires to occupy, and Landlord is willing to provide, attachment locations upon the Tower and ground space at the Site for Tenant's provision of communications services.

NOW, THEREFORE, in consideration of the mutual promises, conditions, and other good and valuable consideration of the Parties hereto, the Parties covenant and agree as follows:

1. Demise of Premises. Landlord hereby lets and demises unto Tenant, and Tenant hereby receives and accepts from Landlord, the following described "Premises":

   (a) Attachment locations upon the Tower (the "Tower Space") for the placement and affixing up to three (3) panel antennas at approximately one hundred and one feet (101'). In addition, up to two (2) parabolic dishes at approximately one hundred and one feet (101'). Specifications of this radio communications equipment, antennas and appurtenances are listed in "Exhibit 3".

   (b) A parcel of ground space (the "Ground Space") measuring approximately five feet (5') by five feet (5') near structure, which is shown as area "A" on the sketch attached as "Exhibit 2", for the placement of a radio station equipment ("Tenant's Cabinet").

2. Privileges. Landlord hereby confers upon Tenant the following described privileges appurtenant to the Premises, which shall be irrevocable for the duration hereof:

   (a) To place and affix lines, conduits, connections, devices, and equipment for the transmission, reception, encryption and translation of voice and data signals by means of radio frequency energy and landline carriage, including lines for signal carriage between the Ground Space and the Tower Space, as Tenant, in its sole discretion, deems necessary or desirable for the conduct of Tenant's business, subject to Landlord's prior consent to any changes which Tenant

may from time to time propose to make to said lines, conduits, connections, devices, and equipment, which consent shall not unreasonably be withheld or delayed.

(b) To travel between the Site and the public road over routes which Landlord is entitled to use; and

(c) To traverse other portions of the Site reasonably necessary to accomplish Tenant's purposes as contemplated herein.

3. Use of Premises. Tenant shall be entitled to use the Tower for any lawful activity in connection with the provision of communications services including but not limited to fixed wireless and mobile wireless services using licensed and unlicensed spectrum. Tenant shall have the right to install, operate, maintain, upgrade and remove thereon communications facilities, including without limitation utility lines, transmission lines, equipment cabinet, electronic equipment, transmitting and receiving antennas, microwave dishes, antennas and equipment, a power generator and generator pad, and supporting equipment and structures therefore (collectively, "Tenant's Equipment") provided said upgrade or replacement does not increase tower loading of said Tower. No materials may be used in the installation of the antennas or transmission lines that will cause corrosion or rust or deterioration of the Tower structure or its appurtenances. All antenna(s) on the Tower must be identified by a marking fastened securely to its bracket on the Tower and all transmission lines are to be tagged at the conduit opening where it enters any user's equipment space. Tenant's use of the Tower shall at all times comply with and conform to all laws and regulations applicable thereto. Tenant shall at all times keep the Premises in clean and neat order, including the removal of litter, trash and unused hardware from the Site.

4. Initial Term. This Agreement shall be effective as of the date of execution by both parties (the "Effective Date"), provided, however, the initial term shall be for five (5) years and shall commence on the Commencement Date (as hereinafter defined) at which time rental payments will be due at an annual rental to be paid in equal monthly installments on the first day of the month, in advance to Landlord ("Initial Term"). The Commencement Date is defined as the first (1st) day of the month following the date Tenant has secured all necessary federal, state, county and municipal permits which allows for the start of construction.

5. Option to Renew. This Agreement shall automatically renew for a maximum of four (4) five-year terms ("Renewal Terms"), unless either party provides written notice of its intention not to renew the Lease at least thirty (30) days before the expiration of the then-current term.

6. Base Rent. During the Initial Term (5 years), Tenant shall pay Base Rent to Landlord in the amount of Five Hundred ($500.00) per month with a two percent (2%) annual escalator.

7. Tenant's Personal Property. Landlord acknowledges and agrees that the Tenant Equipment and all personal property, equipment, apparatus, fittings, building, fixtures and trade fixtures installed or stored on the Premises by Tenant constitute personal property, not real property, and shall continue to be the personal and exclusive property of Tenant. Tenant's Equipment shall remain at all times the personal property of Tenant, and neither Landlord nor any person claiming by, through or under Landlord shall have any right, title or interest (including without limitation, a security interest) in Tenant's Equipment. Tenant, and Tenant's successors in interest, shall have the right to remove Tenant's Equipment at any time during the term of this Lease or its earlier termination. With respect to the holder of any mortgage, deed of trust or other lien affecting Landlord's interest in the Premises, whether existing as of the date hereof or arising hereafter, Landlord and Tenant hereby agree, acknowledge and declare that Tenant's Equipment is now and shall at all times hereafter remain the personal and exclusive property of Tenant. The Parties further acknowledge and agree that Landlord shall have no right or authority to grant a lien upon or security interest in any of Tenant's Equipment. Landlord acknowledges that Tenant may enter into a financing arrangement including promissory notes and financial and security agreements for the financing of the Tenant Equipment ("Collateral") with a third party financing entity (and may in the future enter into additional financing arrangements with other financing entities). In connection therewith, Landlord (i) consents to the installation of the Collateral; (ii) disclaims any interest in the Collateral, as fixtures or otherwise; and (iii) agrees that the Collateral shall be exempt from execution, foreclosure, sale, levy, attachment, or distress for any rent due or to become due and that such Collateral may be removed at any time without recourse to legal proceedings.

8. Tower Maintenance. Landlord represents and warrants that it has the right and responsibility to repair and maintain the Tower. If the Tower is damaged for any reason, other than by negligent or wrongful act or omission of Tenant or its contractors, so as to render it substantially unusable for Tenant's intended use, rent shall abate for such period until Landlord, at Landlord's expense, restores the Tower to its condition prior to such damage; provided, however, in the event Landlord fails to repair the Tower within a reasonable amount of time following the date of such damage, Tenant shall have the right to terminate this Lease by giving Landlord written notice thereof, as long as Tenant has not resumed operations upon the Premises.

9. Aviation Hazard Marking. Landlord agrees to be solely responsible for full compliance, at all times, with the Tower marking, lighting, maintenance, inspection, recording, registration, and notification requirements of the Federal Communications Commission ("FCC") and the Federal Aviation Administration ("FAA").

10. FCC and FAA Tower Registration. Landlord represents and warrants to Tenant that the Tower if required, will be registered by the Tower owner with the FCC and/or FAA.

11. Utilities. Landlord shall ensure that utility services are accessible and available at the Tower for Tenant's intended use including Landlord's grant of a non-exclusive easement to the local utility company if necessary. Tenant shall be responsible for billing and payment of its utility services consumed by its operations.

12. Taxes. Tenant shall pay any personal property taxes levied against the Tenant's Equipment including Tenant's Cabinet. Landlord shall pay any real estate taxes and assessments attributable to the land underlying the Premises, and any personal property taxes levied against the Tower, and any other of Landlord's equipment or property.

13. Access. Tenant shall have the right of access to Tenant's Equipment at all hours of the day and night, subject to such reasonable rules and regulations as Landlord may impose including a non-exclusive easement for Tenant for such access. Tenant shall notify the Town of Barre, NY Water/Highway Superintendent, twenty-four (24) hours in advance of any work to be performed on the Tower to facilitate access.

14. Compliance with Laws. Tenant shall, at Tenant's cost and expense, comply with all Federal, State, County or Local Laws, Rules, Regulations and Ordinances now or hereafter enacted by any governmental authority or administrative agencies having jurisdiction over the Premises and Tenant's operations thereupon. Landlord shall, at Landlord's cost and expense, comply with all Federal, State, County or Local Laws, Rules, Regulations and Ordinances now or hereafter enacted by any governmental authority or administrative agencies having jurisdiction over the Site.

15. Mutual Indemnification. Tenant shall indemnify, defend and hold Landlord harmless from any loss, damage, or injury (including reasonable attorney's fees) caused by, or on behalf of, or resulting from Tenant's breach of any term or condition of this Lease, use of the Premises or its presence at the Site. Landlord shall indemnify and hold Tenant harmless from and against any loss, damage, or injury (including reasonable attorney's fees) caused by, or on behalf of, or Landlord's breach of any term or condition of this Lease or activity in or about the Site. Nothing in this Article shall require a Party to indemnify the other Party against such other Party's own negligence or misconduct.

16. Interference. Tenant agrees to install equipment of the type and frequency which will not cause interference which is measurable in accordance with then existing industry standards to any equipment of Landlord or other tenants of the Tower or the Site which existed on the Tower or the Site prior to the date this Agreement is

executed by the Parties. Failure to comply by the Tenant shall be grounds for termination of the Lease by the Landlord. Landlord shall not use, nor shall Landlord permit its tenants to use, any portion of the Tower or the Site in any way which interferes with the operations of Tenant. Such interference which is measurable in accordance with then existing industry standards shall be deemed a material breach by Landlord, and Landlord shall have the responsibility to promptly cause any such interference to be eliminated. If said interference cannot be eliminated within five (5) business days after receipt of notice that such interference is occurring, Landlord shall discontinue or cause to be discontinued the operation of any equipment causing the interference until the same can be corrected. In the event any such interference does not cease promptly after Landlord's receipt of notice of said interference, Tenant shall have the right, in addition to any other right that it may have at law or in equity, to enjoin such interference or to terminate this Lease.

17. Default. If Landlord or Tenant fails to comply with any provision of this Lease which the other Party claims to be a default hereof, the Party making such claim shall serve written notice of such default upon the defaulting Party, whereupon a grace period of thirty (30) days shall commence to run during which the defaulting Party shall undertake and diligently pursue a cure of such default. Such grace period shall automatically be extended for an additional thirty (30) days, provided the defaulting Party makes a good faith showing that efforts toward a cure are continuing. The reasonable costs of curing such default shall be payable by the defaulting Party upon the written demand of the non-defaulting Party. This Section shall not apply in the case of interference, which instead shall require immediate and effective curative action.

18. Attorney's Fees and Expenses. In the event of any litigation arising under this Lease, the non-prevailing Party shall, upon demand, reimburse the prevailing Party for all costs and expenses arising there from, including reasonable attorney's fees.

19. Quiet Enjoyment. Landlord hereby covenants that Tenant shall have quiet and peaceful possession of the agreed upon portion of the Tower and ground space throughout the duration of this Lease, and that Landlord will not intentionally disturb Tenant's occupancy thereof as long as Tenant is not in default hereunder.

20. Title, Access and Authority. Landlord covenants and warrants to Tenant that Landlord presently owns the fee simple interest in and to the Tower; that the Site is served by legal access from a public way; that Landlord is duly authorized and empowered to enter into this Lease; and that the person executing this Lease on behalf of the Landlord warrants himself or herself to be duly authorized to bind the Landlord hereto.

21. Assignment and Subleasing. Tenant may assign this Lease, or sublet or license the Premises or any portion thereof, which shall be evidenced by written notice

thereof to Landlord within a reasonable period of time thereafter. Upon assignment, Tenant shall be relieved of all future performance, liabilities, and obligations under this Lease. Landlord may assign this Lease, which assignment may be evidenced by written notice to Tenant within a reasonable period of time thereafter. This Lease shall run with the Site and shall be binding upon and inure to the benefit of the Parties, their respective successors, personal representatives, heirs and assigns.

22. Environmental Warranty. Landlord hereby represents and warrants to Tenant that Landlord (i) that neither Landlords nor any third party has used, generated, stored or disposed of, or permitted the use, generation, storage or disposal of, any Hazardous Material on, under, about or within the Site in violation of any law of regulation, and (ii) that Landlord will not generate, store or dispose of any Hazardous Material on, under, about or within the Property in violation of any law or regulation. As used in this Section, "Hazardous Material" shall mean petroleum or any petroleum product, asbestos, any substance known by the state in which the Site is located to cause cancer and/or reproductive toxicity, and/or any substance, chemical or waste that is identified as hazardous, toxic or dangerous in any applicable federal, state or local law or regulation.

23. Compliance with FCC Radio Frequency Emissions Requirements.

(a) It shall be the responsibility of Tenant to ensure that Tenant's use, installation, or modification of Tenant's Equipment at the Site does not cause radio frequency (RF) exposure levels of all the existing equipment located at the Site including the Tenant's Equipment, Landlord's equipment, and all other transmitting equipment at the Site to exceed those levels permitted by the FCC as of the installation date of the Tenant's Equipment. Landlord shall require other communications users of the Site, including without limitation, Landlord and any party or entity which uses, leases, or occupies any portion of the Tower (collectively, the "Users") to bear the same responsibility. In the event that a User after the installation date of the Tenant's Equipment causes or will likely cause the RF exposure levels of the Site to exceed those levels permitted by the FCC then such User shall bear the cost for equipment changes to bring such RF exposure levels into compliance.

(b) Tenant agrees that in the event that there is any change to applicable rules, regulations, and procedures governing exposure to RF radiation which place the Site in non-compliance, Tenant will cooperate with Landlord and other users of the Site to bring the Site into compliance, which cooperation shall include, but not be limited to, sharing pro rata the costs associated with bringing the Site into compliance.

24. Subordination. Tenant agrees to subordinate this Lease to any mortgage or trust deed which may hereafter be placed on the Premises, providing the mortgage or trustee there under shall ensure to Tenant the right to possession of the Premises

and other rights granted to Tenant herein so long as Tenant is not in default beyond any applicable grace or cure period, such assurance to be in writing and otherwise in form and substance reasonably satisfactory to Tenant. Further, Landlord agrees to promptly have any mortgage or trustee which has a mortgage or trust deed currently placed on the Premises execute a non-disturbance agreement in a form reasonably satisfactory to Tenant.

25. Notices. Any notice, demand, or communication which Landlord or Tenant shall desire or be required to give pursuant to the provisions of this Lease shall be sent by registered or certified mail or reliable overnight courier; and the giving of any such notices shall be deemed complete three days after mailing in a United States Post Office with postage charges prepaid or one day after sending with the overnight courier, addressed to the Party intended to be given such notice at its address as first above set forth in this Lease or to such address as such Party may theretofore have designated by notice similarly given.

26. Contingencies. Tenant shall have the right to terminate this Lease upon a written Thirty (30) day notice to Landlord, relieving both Parties of all further obligations hereunder, if Tenant, acting reasonably and in good faith, shall be unable to obtain or maintain any or all licenses or permits required to construct its intended improvements upon the Premises and/or conduct Tenant's business at the Premises; if Tenant's technical reports fails to establish to Tenant's satisfaction that the Premises are capable of being suitably engineered to accomplish Tenant's intended use of the Premises; or if any environmental report reveals the potential presence of Hazardous Materials or if Tenant's title insurer determines that Landlord does not own good and clear marketable title to the land underlying the Premises, or if such title has encumbrances and restrictions that would interfere with Tenant's intended use of the Premises.

27. Surrender. Upon the expiration or earlier termination of this Lease, Tenant shall remove all of Tenant's property from the Site and surrender the Premises to Landlord in good condition, reasonable wear and tear excepted. The Parties agree that all of Tenant's property must be removed from the Site not later than the date of expiration or effective termination hereof; otherwise, Tenant shall be deemed to be a holdover Tenant, and shall be liable for the payment of cash rent to Landlord at one and a half times (1.5x) the rate of rent which was last in effect preceding such holdover tenancy.

28. Tenant's Self-Help. If Landlord at any time fails to perform any of its obligations under this Lease, Tenant shall have the right, but not the obligation, upon giving the Landlord at least two (2) days prior written notice of its election to do so (except in the event of an emergency, when no prior notice shall be required) to perform such obligations on behalf of and for the account of Landlord, and to take all necessary action to perform such obligations. Tenant's costs and expenses incurred in performing such obligations of Landlord shall promptly be reimbursed by Landlord.

29. Insurance. During the Term of this Lease, Tenant shall, at its sole cost and expense, have the Tenant's contractor/agent procure and maintain the following insurance with customary exceptions and exclusions: (i) Bodily Injury: $1,000,000.00 for injury to any one (1) person, and $2,000,000.00 for injury(s) sustained by more than one (1) person in any one (1) occurrence; and (ii) Property Damage: replacement cost for all of Tenant's Equipment located at the Leased Premises (collectively, the "Tenant Policies"). In the event of Landlord's written request therefore, Tenant shall provide Landlord with a certificate of insurance of the contractor/agent evidencing the coverage required hereby not later than thirty (30) days following its receipt of Landlord's request.

Tenant hereby releases and holds harmless Landlord, and Landlord hereby releases and holds harmless Tenant, from and against any personal injury/death occurring at the Premises that results from risks insured against under any insurance policy(s) carried by such party that are in force at the time of any such injury or damage. Landlord and Tenant shall use commercially reasonable efforts to cause all insurance policies referenced in this Section to include a waiver of subrogation against the other party with respect to any injury or damage covered under such policy. The waivers and releases in this paragraph shall not only apply as between the parties but shall also apply to any claims under or through either party as a result of any asserted right of subrogation.

30. Binding Effect. All of the covenants, conditions, and provisions of this Lease shall inure to the benefit of and be binding upon the Parties hereto and their respective successors and assigns.

31. Severable. If any provision of this Lease is invalid or unenforceable with respect to any Party, the remainder of this Lease or the application of such provision to persons other than those as to whom it is held invalid or unenforceable, shall not be affected and each provision of this Lease shall be valid and enforceable to the fullest extent permitted by law.

32. Governing Law. This Lease shall be governed by the laws of New York State.

33. Title Issues. Landlord agrees to fully cooperate with Tenant (including obtaining and/or executing necessary documentation) to clear any outstanding title issues that could adversely affect Tenant's interest in the Tower.

34. Authority. Each of the Parties hereto represent and warrant that they have the right, power, legal capacity and authority to enter into and perform their respective obligations under this Lease.

35. Drafting. Both Parties took part in the negotiation of this Lease and agree that legal concepts intended to construe the Lease against the drafter will not apply against either Party.

36. Rights Cumulative. In the event of any breach or default by either Party, the other Party shall be entitled to all rights and remedies provided for in this Lease and/or available at law, in equity, by statute or otherwise, all of which rights and remedies shall be cumulative and not exclusive.

37. Recitals and Exhibits. All Recitals set forth above, and all Exhibits annexed hereto, form material parts of this Lease and are hereby incorporated herein by this reference.

38. Counterparts. This Lease may be executed in duplicate counterparts, each of which shall be deemed an original.

39. Entire Agreement. This Lease constitutes the entire agreement of the Parties, and may not be modified except in writing signed by the Party against whom such modification is sought to be enforced.

IN WITNESS WHEREOF, the Landlord and the Tenant have hereunto set their hands and seals by their heretofore duly authorized officers as of the day and year first above written.

LANDLORD:

TOWN OF BARRE, NY

By: _____
Print Name: Dr. Sean P. Pogue
Title: Supervisor

Maureen Beach
No. 01BE4980858
Qualified in Orleans County
My Commission Expires April 29, 2023

TENANT:

RTO WIRELESS, LLC

By: _____
Print Name: Steve Hubbard
Title: Chief Executive Officer

EXHIBIT 1

[Site Legal Description will be attached hereto]

EXHIBIT 2

[Attached]

[The Parties may replace this Exhibit with a mutually agreed to site survey]

This Agreement ("Document") made this 8 day of June, 2022 (the "Effective Date"), between Town of Barre, NY, whose mailing address is 14317 West Barre Road, Albion, NY 14411 (hereinafter "Landlord"), and RTO Wireless, LLC, a Delaware limited liability company, whose corporate address is 945 Concord Street, Framingham, MA 01701 (hereinafter "Tenant"). The Landlord and Tenant are at times collectively referred to hereinafter as the "Parties" or individual as the "Party".

NOW, THEREFORE, in consideration of the mutual promises, conditions, and other good and valuable consideration of the Parties hereto, the Parties covenant and agree as follows:

1. **Galvanized Steel Conduit/Bonus**. Landlord shall be entitled to a One Thousand Dollar ($1000.00) "Bonus" to be paid to Landlord by the Tenant within thirty (30) days after the full execution of the Tower Lease and Ground Space Agreement and once the Tenant has secured all necessary Federal, State, County and Municipal permits which allows for the start of construction.

   This Document's "Bonus" intent is for the Landlord to purchase a One Hundred Twenty Foot (120') One Inch (1") Galvanized Steel Conduit. The Tenant will install the Landlord's above mentioned Conduit to the height of One Hundred Feet (100') adjacent to the Tenant's Conduit during the Tenant's installation. The Tenant will incur the cost of the One Thousand Dollar ($1000.00) installation fee.

2. **Utilities.** The Tenant shall pay the Landlord a one-time annual fee (Lease Year One) for Utilities (National Grid) in the sum of One Thousand Eight Hundred Dollars ($1800.00). This fee represents an estimated One Hundred Fifty Dollars ($150.00) per month Utility cost for the operation of the Tenant's Communication Service. The Tenant will install a measuring instrument to gauge the amount of power used. The measuring instrument and the Landlord's monthly Utility bill at the Site will provide an accurate Tenant's Utility cost. This cost will be adjusted annually according to the aforementioned process.

3. **WiFi Service**. The Tenant shall attempt to provide, to the best of its capabilities without guarantee, WiFi service to a certain section of property owned by the Landlord adjacent to or near Oak Orchard Road and Rice Road. Tenant will provide the WiFi device and monthly connectivity service at no charge to the Landlord (complimentary) for the term of the Lease and any renewal periods.

IN WITNESS WHEREOF, the Landlord and the Tenant have hereunto set their hands and seals by their heretofore duly authorized officers as of the day and year first above written.

LANDLORD:

TOWN OF BARRE, NY

By: _____
Print Name: Dr. Sean P. Pogue
Title: Supervisor

Maureen Beach
No. 01BE4980858
Qualified in Orleans County
My Commission Expires April 29, 2023

TENANT:

RTO WIRELESS, LLC

By: _____
Print Name: Steve Hubbard
Title: Chief Executive Officer

LICENSE AGREEMENT
ATC Contract No: _____

This LICENSE AGREEMENT ("**Agreement**") is entered into as of the latter signature date hereof ("**Effective Date**") by and between ATC Sequoia LLC, a Delaware limited liability company, with a place of business at 10 Presidential Way, Woburn, MA 01801 ("**Licensor**") and RTO Wireless, LLC, a Delaware limited liability company, with a place of business at 69 Woodlawn Ave, Auburn, MA 04210 ("**Licensee**").

I. TOWER FACILITY INFORMATION:

Site Name: BARRE - HELOCK RIDGE NY
Site Number: 414486
Address and/or location of Tower Facility: 13310 Hemlock Ridge Road, Albion, NY 14411-9333
Tower Facility Coordinates: 43.15522 / -78.26812

II. NOTICE & EMERGENCY CONTACTS:

- Licensee's local emergency contact (name and number): David Duplissis 207-240-7204.
- Licensor's local emergency contact: Network Operations Communications Center (800) 830-3365.
- Notices to Licensee shall be sent to Licensee's address above to the attention of David Duplissis.
- Notices to Licensor shall be sent to Licensor's address above to the attention of Contracts Manager.
- Licensor's Remittance Address: American Tower Corporation, 29637 Network Place, Chicago, IL 60673-1296; all payments shall include a reference to the Site Name and Site Number as identified above in Section I.

III. PERMITTED USE OF TOWER FACILITY BY LICENSEE:

Transmitting and Receiving frequencies: See Exhibit A for specific frequencies.
Antenna mount height on tower: See Exhibit A for specific location.
All other permitted uses of the Tower Facility including Licensee's Approved Equipment, and the Licensed Space are further described in Section 4 of this Agreement and Exhibits A and B attached hereto.

IV. FEES & TERM:

Monthly License Fee: increased by the Annual Escalator on the first anniversary of the Commencement Date of this Agreement and each anniversary of the Commencement Date thereafter during the Term (as defined in Appendix I).

Annual Escalator:

Application Fee: N/A

Relocation Application Fee: N/A

Site Inspection Fee: N/A

Initial Term: A period of seven (7) years beginning on the Commencement Date. The "**Commencement Date**" shall be December 15, 2022.

Renewal Terms: 3 additional periods of 5 years each.

Connection Fee (as described in Subsection 5(b)): N/A

Electricity for operation of Approved Equipment is to be provided by (check one):

☐ Licensor, with the cost of such electricity to be paid by Licensee at the initial rate of $_____ per month ("**Utility Fee**") subject to adjustment pursuant to Subsection 5(b), OR
☒ Licensee, at its sole expense.

V. TERMS & CONDITIONS:

The attached terms and conditions are incorporated herein by this reference.

VI. OTHER PROVISIONS:

Other provisions: (check one): ☐ None ☒ As listed below

A. PCN/PCN Retention Fee/Cross-Default. Licensee, an Affiliate of Licensee or any entity or individual acting on behalf Licensee or an Affiliate of Licensee shall only issue Prior Coordination Notices ("**PCNs**") for the Permitted Frequencies set forth in Exhibit A and shall not issue PCNs for any other frequencies at this Tower Facility or at any other tower facility owned and/or operated by Licensor unless Licensee has submitted an Application for use of the subject frequencies to Licensor for which a partially executed License Agreement shall be signed by Licensee and returned to Licensor within sixty (60) days of the submittal of the Application. Licensee shall withdraw PCNs filed for any frequencies which are not licensed to Licensee by Licensor, no more than ten (10) days from the date of Licensee's withdrawal of an Application or Licensor's election to not process a Licensee-submitted Application. Failure to comply with the terms of this Subsection A shall constitute an event of default pursuant to Section 21 hereof (a "**PCN Default**") for which the cure period is set forth in Section 21. In the event Licensee fails to cure a PCN Default within the cure period set forth in Section 21, then, in addition to all other obligations of Licensee under this Agreement, Licensee shall pay Licensor
per month as liquidated damages for each tower facility wherein Licensee maintains an active PCN in breach of this Subsection A ("**PCN Retention Fee**"). Licensor and Licensee acknowledge that holding PCNs in violation of this Subsection A reduces Licensor's opportunity to license space at Licensor's tower facilities and since the actual amount of such lost revenue is difficult to determine, Licensor and Licensee agree that the PCN Retention Fee is a reasonable estimate of the damages that would accrue if a breach occurred. Licensor and Licensee agree that the PCN Retention Fee is fair and reasonable and would not act as a penalty to the breaching Party. The PCN Retention Fee shall be remitted by Licensee within ten (10) days of Licensor's written notice to Licensee of Licensee's uncured default of this Subsection A and Licensee shall continue to remit payment of the PCN Retention Fee on a monthly basis on or before the first day of each calendar month while such default of this Subsection A remains uncured. In the event that Licensor does not receive the PCN Retention Fee on or before the first day of each month, then Licensor may, at its option, declare a default of this Agreement and all agreements between Licensor and Licensee and the PCN Retention Fee shall continue to be due and payable as set forth herein until the time Licensee withdraws the subject PCNs.

B. Notwithstanding anything to the contrary in this Agreement, the offer expressed to Licensee in this Agreement shall automatically become null and void with no further obligation by either Party hereto if a structural analysis of the Tower Facility completed after the execution of this Agreement by Licensor but before the commencement of the installation of Licensee's Approved Equipment indicates that the Tower Facility is not suitable for Licensee's Approved Equipment unless Licensor and Licensee mutually agree that structural modifications or repairs shall be made to the Tower Facility on mutually agreeable terms.

C. The "Rider for Verizon Subleased Sites" attached hereto is hereby incorporated into this Agreement in its entirety and the terms and conditions contained therein shall supersede any contradictory provision in this Agreement.

D. Notwithstanding anything to the contrary contained herein, Licensee shall pay to Licensor a one-time non-refundable fee in the amount of (the "**Collocation Fee**") payable concurrent with the submission of the Application
attributable to Site Inspection Fee and SSIF Fees, of which is attributable to Structural Analysis

Fee (as defined herein)). Notwithstanding the foregoing, any equipment design modification initiated by Licensee that occurs prior to the initial installation of Licensee's Approved Equipment or any subsequent modification thereto, shall result in an additional structural analysis fee of
. per each design change.

[Signatures appear on next page]

IN WITNESS WHEREOF, each Party in consideration of the mutual covenants contained herein, and for other good and valuable consideration, intending to be legally bound, has caused this Agreement to be executed by its duly authorized representative as of the day and year written below; *provided, however*, that this Agreement shall not become effective as to either Party until executed by both Parties.

LICENSOR:
ATC Sequoia LLC, a
Delaware limited liability company

DocuSigned by:
By: Nathaniel Ritzenthaler
44D947ED06844CB

Name: Nathaniel Ritzenthaler

Title: Senior Counsel

Date: September 7, 2022

LICENSEE:
RTO Wireless, LLC, a Delaware limited liability company

DocuSigned by:
By: Steve Hubbard
2FA8148D468040C

Name: Steve Hubbard

Title: Chief Executive Officer

Date: August 31, 2022

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 04/05/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER MARSH USA, INC. 99 HIGH STREET BOSTON, MA 02110 CN130061406-GAWUP-GAWUP-22	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): E-MAIL ADDRESS:
INSURED Tilson Technology Management, Inc 16 Middle Street, 4th Floor Portland, ME 04101	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Liberty Mutual Fire Insurance Co — 23035 INSURER B : N/A — N/A INSURER C : LM Insurance Corporation — 33600 INSURER D : Liberty Insurance Corporation — 42404 INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER:** NYC-011141455-05 **REVISION NUMBER:** 7

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
C	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY [X] PRO-JECT [ ] LOC OTHER:			TB5-651-291916-022	04/01/2022	04/01/2023	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 2,000,000 $ 1,000,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000
A	AUTOMOBILE LIABILITY [X] ANY AUTO OWNED AUTOS ONLY HIRED AUTOS ONLY SCHEDULED AUTOS NON-OWNED AUTOS ONLY			AS2-651-291916-012	04/01/2022	04/01/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
D	[X] UMBRELLA LIAB [X] OCCUR EXCESS LIAB CLAIMS-MADE DED [X] RETENTION $ 10,000			TH7-651-291916-052	04/01/2022	04/01/2023	EACH OCCURRENCE AGGREGATE	$ 1,000,000 $ 1,000,000
A A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [N] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		WA2-65D-291916-032 WC2-651-291916-042	04/01/2022 04/01/2022	04/01/2023 04/01/2023	[X] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Re: RTO Wireless

Orleans County, County of Niagara, its agents, officers, and employees is/are included as Additional Insured (except Workers Compensation) where required by written contract. If insurer cancels this policy for any reason other than nonpayment of premium, insurer will notify persons or organizations per schedule on file with broker. Insurer will send notice to the email or mailing address per schedule on file with broker at least 30 days before the cancellation becomes effective. In no event does the notice to the third party exceed the notice to the first named insured.

CERTIFICATE HOLDER

Orleans County
14016 Route 31 West
Albion, NY 14411

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Marsh USA Inc.

Policy Number: AS2-651-291916-011
Issued By: Liberty Mutual Fire Insurance Co.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

NOTICE OF CANCELLATION TO THIRD PARTIES

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE PART
MOTOR CARRIER COVERAGE PART
GARAGE COVERAGE PART
TRUCKERS COVERAGE PART
EXCESS AUTOMOBILE LIABILITY INDEMNITY COVERAGE PART
SELF-INSURED TRUCKER EXCESS LIABILITY COVERAGE PART
COMMERCIAL GENERAL LIABILITY COVERAGE PART
EXCESS COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART
LIQUOR LIABILITY COVERAGE PART

Schedule		
Name of Other Person(s)/ Organization(s):	Email Address or mailing address:	Number Days Notice:
Per schedule on file with broker	Per schedule on file with broker	30

A. If we cancel this policy for any reason other than nonpayment of premium, we will notify the persons or organizations shown in the Schedule above. We will send notice to the email or mailing address listed above at least 10 days, or the number of days listed above, if any, before the cancellation becomes effective. In no event does the notice to the third party exceed the notice to the first named insured.

B. This advance notification of a pending cancellation of coverage is intended as a courtesy only. Our failure to provide such advance notification will not extend the policy cancellation date nor negate cancellation of the policy.

All other terms and conditions of this policy remain unchanged.

Policy Number TB5-651-291916-021
Issued by LM Insurance Corporation

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

NOTICE OF CANCELLATION TO THIRD PARTIES

This endorsement modifies insurance provided under the following:

BUSINESS AUTO COVERAGE PART
MOTOR CARRIER COVERAGE PART
GARAGE COVERAGE PART
TRUCKERS COVERAGE PART
EXCESS AUTOMOBILE LIABILITY INDEMNITY COVERAGE PART
SELF-INSURED TRUCKER EXCESS LIABILITY COVERAGE PART
COMMERCIAL GENERAL LIABILITY COVERAGE PART
EXCESS COMMERCIAL GENERAL LIABILITY COVERAGE PART
PRODUCTS/COMPLETED OPERATIONS LIABILITY COVERAGE PART
LIQUOR LIABILITY COVERAGE PART
COMMERCIAL LIABILITY - UMBRELLA COVERAGE FORM

A. If we cancel this policy for any reason other than nonpayment of premium, we will notify the persons or organizations shown in the Schedule of this endorsement. We will send notice to the email or mailing address listed above at least 10 days, or the number of days listed above, if any, before the cancellation becomes effective. In no event does the notice to the third party exceed the notice to the first named insured.

B. This advance notification of a pending cancellation of coverage is intended as a courtesy only. Our failure to provide such advance notification will not extend the policy cancellation date nor negate cancellation of the policy.

All other terms and conditions of this policy remain unchanged.

Schedule

Name of Other Person(s) / Organization(s):	Email Address or mailing address:	Number Days Notice:
Per schedule on file with broker	Per schedule on file with broker	30