

**ZONING BOARD OF ADJUSTMENT
APPLICATION FOR
SPECIAL EXCEPTIONS FOR
WIRELESS COMMUNICATIONS FACILITY**

EIP Communications I, LLC
133 Blackwater Road (Map 257, Lot 24)
Rochester, NH 03867

Respectfully submitted,

Brian S. Grossman, Esq.
Bowditch & Dewey, LLP
200 Crossing Boulevard, Suite 300
Framingham, MA 01702
(508) 416-2410
bgrossman@bowditch.com

BOWDITCH

ATTORNEYS

April 10, 2020

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City of Rochester, New Hampshire

Zoning Board of Adjustment

Special Exception Application Checklist

- ☐ It must be determined that your proposed use is not permitted without a special exception.
- ☐ Complete the application form.
- ☐ Complete the 275.22 Special Exception sheet, addressing the five questions. If the special exception is for a garage, you must also complete the Garage Setbacks sheet.
- ☐ A narrative touching the five criteria and explaining what you are requesting a special exception for.
- ☐ If the applicant is not the property owner, he/she must supply a note signed by the property owner stating his/ her knowledge of the application being submitted to the Zoning Board of Adjustment. The property owner will receive a copy of the public hearing notice by certified mail along with the abutters.
- ☐ A sketch including the following:
 - Measurements of the distances from any existing structure to the lot lines. If the proposed structure is not attached to the building you will need the distance between buildings.
 - Dimensions of the lot. A certified plot plan of your property is required by the Zoning Board. If you do not have a certified plot plan you may request a waiver (see zoning clerk)
 - If for a garage, all appropriate information on proposed garage
- ☐ Photographs, if you have them.
- ☐ Abutter's list. **This information must be obtained from the Zoning Clerk in the Building, Zoning, and Licensing Office. The applicant must pay the cost of the certified fee for each abutter, applicant and any other applicable person.** (See Zoning Clerk for current fee)
- ☐ Application fee of \$175.00. Check made payable to City of Rochester, including abutters' fees.
- ☐ One **PDF form** of your application packet is due as well as **ten** paper copies.

All of the above information must be completed and submitted to the Building, Zoning Department on or before the deadline date, or the application will be considered incomplete and will be postponed until the next scheduled meeting, or until all the requirements have been met.

NOTE: All applications will be allowed one postponement of the hearing in their application, and shall notify the Building, Zoning, and Licensing office in writing of their intent to postpone hearing at least two days prior to the meeting at which their application is to be considered. If the applicant requests a second postponement of the hearing, the application will be considered to have been withdrawn and the applicant must file a new application with the Board in order to receive a hearing. The provisions of this paragraph shall not apply to any postponement requested by an applicant as a result of the inability of the Zoning Board of Adjustment to provide the applicant with a five-member board for the hearing on the application.

The applicant or their representative MUST attend the Zoning Board of Adjustment meeting to present their case, or no action will be taken.

If you have any questions with any of these requirements, please contact the Zoning Clerk, Dee Mondou.

Phone: (603)332-3508 x0

E-mail: dee.mondou@rochesternh.net



City of Rochester, New Hampshire

Zoning Board of Adjustment

Special Exception Application

TO: BOARD OF ADJUSTMENT
CITY OF ROCHESTER

DO NOT WRITE IN THIS SPACE

CASE NO. Z-20-9

DATE FILED 4/22/2020

Dee Mondou

ZONING BOARD CLERK

Applicant: EIP Communications I, LLC

E-mail: bgrossman@bowditch.com Phone: 508.416.2410

Applicant Address: c/o Brian S. Grossman, Bowditch & Dewey LLP, 200 Crossing Blvd, Suite 300, Framingham, MA 01702

Property Owner: Jason A. Scruton & Katherine L. Carroll

Property Owner Address: 20 Farmstead Road, Farmington NH 03835

Variance Address: 133 Blackwater Road

Map Lot and Block No: Map 257 Lot 24

Description of Property (give length of lot lines): Front: 283'; Sides: 2144' / 2208'; Rear: 1,065' (Approx: 56 acres)

Proposed use or existing use affected: Proposed Wireless Communications Facility

The undersigned hereby requests a special exception as provided in section 275-4.1(C), 275-18.5, 275-18-D, and 275-22.2 of the Zoning Ordinance to

permit construction, operation and maintenance of wireless communications facility including without limitation 150' tower, associated radio communications equipment and fenced compound.

The undersigned alleges that the following circumstances exist which prevent the proper enjoyment of his land under the strict terms of the Zoning Ordinance and thus constitute grounds for a variance.

Signed:  Date: 4/10/2020



City of Rochester, New Hampshire

Zoning Board of Adjustment

275.22 Special Exception Sheet

(a) General Provisions

- (1) Certain uses, structures, or conditions are designed as Special Exceptions (E) in this ordinance. Upon application, the Board of Adjustment may, subject to the appropriate conditions and safeguards, grant a permit for these special exceptions and no others.
- (2) Special Exceptions, for which conformance to additional standards is required, may be permitted in their respective districts, subject to the satisfaction of the requirements and standards set forth in this section 275.22, in addition to all other requirements of this ordinance. All such uses are hereby declared to possess such special characteristics that each shall be considered as an individual case.
- (3) The Board of Adjustment may require that a site plan for development for a proposed special exception be submitted showing the location of all buildings, parking areas, traffic access, open spaces, landscaping, and any other pertinent information that may be necessary to determine if the proposed special exception is in harmony with the intent of this ordinance.

(b) Considerations Governing Granting Special Exceptions: In acting upon an application for a special exception, the Board of Adjustment shall take into consideration whether:

- (1) The specific site is an appropriate location for the proposed use or structure. ☒ Yes ☐ No

Reasoning: Please see supporting statement submitted herewith.

- (2) The proposal is detrimental, injurious, obnoxious, or offensive to the neighborhood. ☒ Yes ☐ No

Reasoning:

Please see supporting statement submitted herewith.

- (3) There will be undue nuisance or serious hazard to pedestrian or vehicular traffic, including the location and design of access ways and off street parking. ☒ Yes ☐ No Reasoning:

Please see supporting statement submitted herewith.

- (4) Adequate and appropriate facilities and utilities will be provided to ensure the proper operation of the proposed use or structure. ☒ Yes ☐ No Reasoning:

Please see supporting statement submitted herewith.

- (5) The proposed use or structure is consistent with the spirit of the ordinance and the intent of the Master Plan. ☒ Yes ☐ No Reasoning:

Please see supporting statement submitted herewith.

Please check section 275.22 of the Zoning Ordinance for any additional specific conditions that apply to your Special Exception request.

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April 10, 2020

Zoning Board of Adjustment
City of Rochester
31 Wakefield Street
Rochester, NH 03867

Re: Applicant: *EIP Communications I, LLC*
 Property Owners: *Jason A. Scruton & Katherine L. Carroll*
 Property: *133 Blackwater Road, Rochester, New Hampshire*
 Parcel ID 257-24

 Petition: *(1) Special Exception for a Wireless Communications Facility*
 pursuant to Section 275-4.1(C), Section 275-18.5, Section 275-18-
 D (Use Table), and Section 275-22.2 of the Ordinance; and
 (2) Any other relief required within the jurisdiction of the Zoning
 Board of Adjustment (All relief is requested if and to the extent
 necessary, all rights reserved under the Federal
 Telecommunications Act of 1996 ("TCA") and otherwise).

Dear Members of the Zoning Board of Adjustment:

Pursuant to the applicable provisions of the City of Rochester Zoning Ordinance (the "Ordinance"), the New Hampshire Revised Statutes and the Federal Telecommunications Act of 1996, EIP Communications I, LLC ("Everest" or "Applicant") hereby applies to the City of Rochester Zoning Board of Adjustment (the "Board") for the above-captioned zoning relief to construct, operate and maintain a Wireless Communication Facility (the "Facility") on property located at 133 Blackwater Road, Rochester, New Hampshire (the "Property"). The Property is in the City's Agricultural District and the Conservation Overlay District. The Facility will address significant gaps in wireless communications network coverage for Everest's tenant Verizon Wireless.

I. BACKGROUND

Everest builds, owns and operates the infrastructure that supports wireless telecommunications services and providers. Everest provides its customers, and the communities they serve, with creative, cost efficient solutions to the ever-growing demand for wireless ubiquity and bandwidth. Everest's founders, senior management and staff bring more than 50 years of wireless industry experience to the company, including leadership positions with wireless operators, tower companies, telecommunication infrastructure developers and

the FCC. Everest's exceptional human resources are augmented with equity capital from investors who share the long-term view of investing in responsible communications infrastructure.

Wireless telecommunications carriers are in the process of independently designing, constructing and upgrading wireless telecommunications networks to serve areas in and around the City of Rochester and throughout the State of New Hampshire. Such a network requires a grid of radio transmitting and receiving cell sites located at varying distances depending on the location of existing and proposed installations in relation to the surrounding topography. The radio transmitting and receiving facilities require a path from the facility to the user on the ground. This requires the antennas to be located in a location above the tree line where the signal is not obstructed or degraded by buildings or topographical features.

Once constructed, the proposed Facility will be unmanned and will involve only periodic maintenance visits. The only utilities required to operate the facility are electrical power as well as telephone service which are currently available at the property. The traffic generated by the facility will be one or two vehicle trips per month by maintenance and technical personnel to ensure the telecommunications site remains in good working order. These visits will not result in any material increase in traffic or disruption to patterns of access or egress that will cause congestion hazards or cause a substantial change in the established neighborhood character. The Applicant's maintenance personnel will make use of the existing access roads and parking at the Property. The proposed Facility will not obstruct existing rights-of-way or pedestrian access and will not change the daily conditions of access, egress, traffic, congestion hazard, or character of the neighborhood. The installation will not require the addition of any new parking or loading spaces.

The construction of the Applicant's Facility will enhance service coverage in the City of Rochester and surrounding communities. The enhancement of service coverage in the City of Rochester is desirable to the public convenience for personal use of wireless services and for community safety in times of public crisis and natural disaster. Wireless communications service also provides a convenience to residents and is an attractive feature and service to businesses. In addition, the requested use at this location will not result in a change in the appearance of the surrounding neighborhoods. The use is passive in nature and will not generate any traffic, smoke, dust, heat, glare, discharge of noxious substances, nor will it pollute waterways or groundwater. Once constructed, the facility will comply with all applicable local, state and federal safety regulation.

Most importantly:

1. The proposed Facility will promote and conserve the convenience and general welfare of the inhabitants of the City of Rochester by enhancing telecommunications services within the City.

2. The proposed Facility will lessen the danger from fire and natural disasters by providing emergency communications in the event of such fires and natural disasters.
3. The proposed Facility will preserve and increase the amenities of the City by enhancing telecommunications services.
4. The proposed Facility will facilitate the adequate provision of transportation by improving mobile telecommunications for business, personal and emergency uses.

Wireless service is important to public safety and convenience. As of the end of 2017, there were an estimated 411 million wireless telephone users in the United States. See FCC's *First Communications Marketplace Report*, p. 6 (December 26, 2018). There are now more wireless subscriptions than landline telephone subscriptions in the United States, and the number of landline telephone subscribers across the nation is declining each year while the number of wireless users increases. Moreover, it is forecasted that wireless connections will become more significant as network service providers facilitate increase connectivity directly between devices, sensors, monitors, etc., and their networks. *Id.* at p. 9.

For many Americans, wireless devices have become an indispensable replacement for traditional landline telephones. Even when Americans maintain both types of telephone service, Americans are opting increasingly to use wireless devices over their landline telephones. For Americans living in "wireless-only" homes and for those others while away from their homes, cell phones are often their only lifeline in emergencies. More than one-half of American households (54.9%) are now "wireless only."¹ Even among households with both a landline and wireless telephones, approximately 42% of those households "received all or almost all calls on wireless telephones."² The FCC estimates that approximately 70% of the millions of 911 calls made daily are placed from cell phones, and that percentage is growing. See <http://www.fcc.gov/guides/wireless-911-services>.

II. THE PROPOSED FACILITY

As depicted on the Plans submitted with this application, Everest proposes to construct a 150 foot monopole tower (with a 6-foot lightning rod extending to 156 feet). The proposed Facility will structurally accommodate at least three wireless communications carriers and their associated antennas, electronic equipment and cabling; and fence at the base of the tower will be sufficient to accommodate ground based radio communications equipment. As shown on

¹ <https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201812.pdf>

² *Id.*

the Plans that accompany this Application, Verizon Wireless's panel antennas will be located at a height of 145 feet (antenna centerline) on the tower.

Verizon Wireless's radio communications equipment cabinets will be located on a 12-foot by 20-foot concrete equipment pad located within and surrounded by a 6-foot high chain link fence topped with barbed wire to prevent unauthorized access. A power meter bank and telephone cabinet will also be installed within the fenced in compound. A pad-mounted transformer, protected by bollards, will be located just outside the fenced compound. Additional details for the proposed Facility are set forth below and in the enclosed plans.

Everest anticipates that in the future additional wireless communications providers may also co-locate wireless communications equipment at the Facility.

The Facility will be an unmanned, passive use, will not generate any appreciable noise, dust or odors and will not adversely affect existing developed and natural environments around the City of Rochester. The location of the Facility will mitigate adverse visual impacts. The Facility will enable users to access a state-of-the-art, fully digital system for voice communication, messaging, and data transmission and reception.

III. FEDERAL TELECOMMUNICATIONS ACT OF 1996

Everest's application is governed by the provisions of the Federal Telecommunications Act of 1996, which the United States Supreme Court has explained as follows:

Congress enacted the Telecommunications Act of 1996 (TCA) ... to promote competition and higher quality in American telecommunications services and to "encourage the rapid deployment of new telecommunications technologies." ... One of the means by which it sought to accomplish these goals was reduction of the impediments imposed by local governments upon the installation of facilities for wireless communications, such as antenna towers. To this end, the TCA amended the Communications Act of 1934 ... to include § 332(c)(7), which imposes specific limitations on the traditional authority of state and local governments to regulate the location, construction, and modification of such facilities ... 47 U.S.C. § 332(c)(7). Under this provision, local governments may not "unreasonably discriminate among providers of functionally equivalent services," § 332(c)(7)(B)(i)(I), take actions that "prohibit or have the effect of prohibiting the provision of personal wireless services," § 332(c)(7)(B)(i)(II), or limit the placement of wireless facilities "on the basis of the environmental effects of radio frequency emissions," § 332(c)(7)(B)(iv). They must act on requests for authorization to locate wireless facilities "within a reasonable period of time," § 332(c)(7)(B)(ii), and each decision denying such a request must "be in writing and supported by substantial evidence contained in a written record," § 332(c)(7)(B)(iii).

City of Rancho Palos Verdes, Cal. v. Abrams, 544 U.S. 113, 115-116 (U.S. 2005) (internal citations omitted).

The TCA was intended to provide for a pro-competitive, deregulatory national policy framework designed to accelerate rapidly private sector deployment of advanced telecommunications and information technologies to all Americans. The proposed Facility will help bring advanced and improved telecommunications and information technologies to Rochester.

IV. **RELIEF REQUESTED**

Everest's proposed Facility satisfies the required findings for grant of the requested special exception as follows (Ordinance in **bold**):

- A. *The Facility Satisfies the Generally Applicable "Base Criteria" for a Special Exception as Set Forth in Section 275-22.2 of the Ordinance*

The Facility satisfies the requirements of Section 275-22.2 of the Ordinance for the grant of a Special Exception as follows:

(1) Location. The specific site is an appropriate location for the proposed use or structure;

The Property is a large plot of land and appropriate for the proposed Facility. The Facility is permitted by Special Exception within the Agricultural zoning district. As set forth in the Radio Frequency Report submitted herewith, the Property is uniquely situated to allow Verizon Wireless to address the significant gap in its wireless network coverage in the vicinity of the Property. Further, as set forth in the Alternatives Analysis submitted herewith, the Property is the only feasible location that will allow Verizon Wireless to address this significant gap in its wireless network.

The location of the proposed Facility utilizes significant setbacks from adjacent property lines and Blackwater Road and takes advantage of the existing vegetation and dense tree growth on and near the Property to help minimize any adverse visual impacts. The Facility is generally surrounded by wooded and agricultural land and the required vegetative buffer. The proposed use complies with the Ordinance to the extent reasonably feasible and will reduce the number of new structures ultimately needed to provide wireless communication services in the surrounding area by providing opportunities for co-location. The proposed Facility is an unmanned and passive in nature and will involve no overcrowding of land or undue concentration of population. In addition, the proposed Facility will involve

no adverse effects on drainage, schools, parks, open space, or other public requirements.

(2) Neighborhood. The proposed use would not be detrimental, injurious, obnoxious, or offensive to the neighborhood;

The proposed Facility is not detrimental, injurious, obnoxious or offensive to the neighborhood. The location of the proposed Facility utilizes significant setbacks from adjacent property lines and Blackwater Road and takes advantage of the existing vegetation and dense tree growth on and near the Property to help minimize any adverse visual impacts. The Facility is generally surrounded by wooded and agricultural land and the required vegetative buffer.

The proposed Facility is unmanned and passive in nature. The Facility will only be visited one to two times per month by authorized personnel in an SUV-sized vehicle; therefore it will have no material impact on traffic near the Property. The Facility will not generate any excessive noise, heat, smoke, glare, effluent, odor or pollution. The proposed Facility will not result in the overcrowding of land or over-concentration of population. Since the Facility is unmanned it will not require or discharge water or sewerage, not generate any trash or rubbish, nor overburden other municipal services.

The Facility will comply with all lawful and applicable regulations concerning radio frequency exposure including those established by the Federal Communications Commission.

Further, the Facility will benefit the neighborhood and the City by providing enhanced wireless communications services to the residents, visitors and businesses in the vicinity of the Property. The enhancement of wireless network coverage in the City is desirable to the public convenience for personal use of wireless services and for community safety in times of public crisis or natural disaster. Wireless communications service also provides a convenience to residents and is an attractive feature and service to businesses.

(3) Traffic. The proposed use would not create an undue hazard or nuisance to vehicular or pedestrian traffic;

The proposed Facility is unmanned and passive in nature. The Facility will only be visited one to two times per month by authorized personnel in an SUV-sized vehicle; therefore it will have no material impact on traffic near

the Property. As depicted on the Plans, the Facility will utilize the existing access to the Property. Everest will improve an existing construction driveway and dirt farm road with gravel and extend a portion with a new gravel access road to allow vehicular access to the Facility. Further, one turnaround area/parking space will be located near the proposed Facility for use by authorized personnel. As a result, the proposed Facility will not have any material impact on pedestrian or vehicular traffic and safety on or near the Property.

(4) Public facilities. Adequate and appropriate facilities and utilities would be provided to ensure the proper operation of the proposed use or structure; and

Adequate and appropriate utilities are available to serve the Facility on or near the Property. As depicted on the Plans, electric and telephone utilities necessary for the Facility will be installed from the existing utilities on Blackwater Road and run to the Facility. The Facility is unmanned and does not require water or sewer services, nor does it generate any trash or rubbish or otherwise require services for their removal.

(5) Master Plan. The proposed use or structure is consistent with the spirit of this chapter and the intent of the Master Plan.

The proposed Facility is consistent with the spirit of this chapter and the intent of the Master Plan. The proposed Facility will increase the amenities available within the City by providing enhanced wireless communications service to residents, visitors, and businesses in Rochester for personal, business and emergency purposes. By providing for increased availability of wireless communications services during emergencies, the proposed Facility will promote the health, safety and general welfare of the community, and will lessen the danger from fires or other natural disasters.

The unmanned Facility will not contribute to the overcrowding of land. In addition, it does not require any water or sewer services, nor will it increase the burden on other municipal services such as police, fire or schools. Therefore, the proposed Facility is consistent with the spirit of the Ordinance and Master Plan.

The Facility is also in compliance with the applicable provisions of the Land Use Master Plan as follows:

Goal 1: Provide for a balanced and sustainable pattern of land use that meets the many needs of the City's stakeholders.

Goal 1 – Objective 6: Minimize costs for expansion of infrastructure

As discussed above, the proposed Facility is consistent with the Zoning Ordinance. The location of the proposed Facility utilizes significant setbacks from adjacent property lines and Blackwater Road and takes advantage of the existing vegetation and dense tree growth on and near the Property to help minimize any adverse visual impacts. The Facility is generally surrounded by wooded and agricultural land and the required vegetative buffer.

The Facility will help minimize the costs for expansion of infrastructure by providing enhanced wireless communications services to residents, visitors, and businesses in Rochester for personal, business and emergency purposes. As set forth in the RF Report submitted herewith, the Facility will address a significant gap in Verizon Wireless's communications network and benefit mobile devices to provide fast web browsing, media streaming, and other applications that require broadband connections. The mobile devices that benefit from these advanced networks are not limited to basic handheld phones, but also include devices such as smartphones, PDA's, tablets, and laptop air-cards. With the evolving rollout of 4G LTE services and devices, Verizon Wireless customers will have even faster connections to people, information, and entertainment.

Goal 2: Enhance the quality of development throughout the City

Goal 2 - Objective 4: Develop regulations that mitigate adverse impacts such as noise, glare, odors, vibration, and undue traffic congestion.

The Facility will not generate any excessive noise, heat, smoke, glare, effluent, odor, vibration or pollution. The proposed Facility will not result in the overcrowding of land or over-concentration of population. The Facility will be setback from Blackwater Road by 647 feet and will be surrounded by dense tree growth. The Applicant has designed the Facility to minimize visual impact on the surrounding area.

The Facility will comply with all lawful and applicable regulations concerning radio frequency exposure including those established by the Federal

Communications Commission and will comply with all lawful and applicable state and federal safety codes.

The Facility is unmanned and passive in nature. Since the Facility is unmanned it will not require or discharge water or sewerage, not generate any trash or rubbish, nor overburden other municipal services. The proposed Facility will require no more than two (2) vehicle trips per month by a service technician for routine maintenance and will require no water, septic, or other municipal services. The proposed Facility will involve no adverse effects on public or private water supplies, drainage, schools, parks, open space, or other municipal interests.

Goal 5: Promote positive planning principles and techniques

Goal 5 - Objective 5: Encourage development that is responsive to the broad public interest, well designed, and harmonious with its surroundings.

The Property, is a large wooded parcel located in the AG Zoning District and is an appropriate location for the proposed Facility. The Property is surrounded by wooded and agricultural land and the proposed Facility will be surrounded by dense tree growth. Verizon Wireless has identified a significant gap in wireless coverage and a significant need for capacity relief in the City. The proposed Facility will benefit the City and promote and conserve the convenience and general welfare of its residents, businesses and travelers by enhancing telecommunication services and providing reliable state-of-the-art digital wireless voice and data services. The proposed Facility will contribute to securing safety from fire, flood, panic and other dangers by providing more reliable wireless coverage with E911 enhanced emergency service.

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 use will be passive and require no employees on the premises. Specifically, the proposed Facility will require approximately two (2) vehicle trips per month by a service technician for routine maintenance and will require no water, septic, or other municipal services. Further, the proposed Facility is unmanned and passive in nature and will not contribute to overcrowding of land or undue concentration of population.

Goal 6: Craft ordinances, regulations, policies, and procedures that promote clarity, efficiency, economic value, responsibility, and equity in the development process.

Goal 6 - Objective 2: Support and enhance property values.

The proposed Facility will support and enhance property values. In an effort to minimize any alleged adverse impacts of the proposed Facility, the Applicant has located the Facility 647 feet from Blackwater Road. The proposed Facility will be surrounded by dense tree growth. Further, the Applicant has designed the Facility to minimize visual impact on the surrounding area.

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 use will be passive and require no employees on the premises. Specifically, the proposed Facility will require approximately two (2) vehicle trips per month by a service technician for routine maintenance and will require no water, septic, or other municipal services. Further, the proposed Facility is unmanned and passive in nature and will not contribute to overcrowding of land or undue concentration of population. The proposed Facility will involve no adverse effects on public or private water supplies, drainage, schools, parks, open space, or other public requirements. The proposed Facility will involve no excessive noise or pollution to the environment.

The proposed Facility will also benefit the City and promote and conserve the convenience and general welfare of its residents, businesses and travelers by enhancing telecommunication services and providing reliable state-of-the-art digital wireless voice and data services. The proposed Facility will contribute to securing safety from fire, flood, panic and other dangers by providing more reliable wireless coverage with E911 enhanced emergency service.

B. The Facility Satisfies the Criteria for a Special Exception for a Wireless Communications Facility as Set Forth in Section 275-22.2(N) of the Ordinance

The Facility satisfies the requirements of Section 275-22.2(N) of the Ordinance for the grant of a Special Exception for a Wireless Communications Facility as follows:

N. Wireless Communications Facilities

- (1) Co-location/zoning district. Subject to a determination by the Zoning Board of Adjustment that the telecommunications equipment planned for the proposed site cannot be accommodated:**

a. Within a zoning district where these facilities are permitted by right; nor

The proposed Facility cannot be located within a zoning district where these facilities are permitted by-right while meeting Verizon Wireless's objectives to address this significant gap in its wireless network coverage. The Facility is permitted by right in the Granite Ridge (GR), General industrial (GI), and Recycling Industrial (RI) Zoning Districts. Based on Verizon Wireless's existing locations as set forth in the RF Report and depicted on the radio frequency propagation maps submitted therewith, the existing sites do not provide adequate coverage to the Coverage Objective. As demonstrated by the Alternatives Analysis submitted herewith, Everest has conducted a thorough search for alternatives, including the by-right zoning districts, and determined that there are no feasible alternatives to the Facility that would also allow Verizon Wireless to address this significant gap in its wireless network coverage.

b. On any existing or approved antenna support structure in the City of Rochester; nor

The proposed Facility cannot be accommodated on any existing or approved antenna support structure in the City. Based on Verizon Wireless's existing locations as set forth in the RF Report and depicted on the radio frequency propagation maps submitted therewith, the existing sites do not provide adequate coverage to the Coverage Objective. As demonstrated by the Alternatives Analysis submitted herewith, Everest has conducted a thorough search for alternatives, including existing and approved antenna support structures, and determined that there are no feasible alternatives to the Facility that would also allow Verizon Wireless to address this significant gap in its wireless network coverage.

c. On any prospective alternative tower structure in the City of Rochester for one of the following reasons:

[1] Structural capacity. The planned equipment would exceed the structural capacity of the existing or approved antenna

support structures, as documented by a qualified professional engineer, and the existing or approved tower cannot be reinforced, modified, or replaced to accommodate planned or equivalent equipment at a reasonable cost.

[2] Interference. The planned equipment would cause interference materially impacting the usability of other existing or planned equipment at the antenna support structure as documented by a qualified professional engineer and the interference cannot be prevented at a reasonable cost.

[3] Height constraints. Existing or approved antenna support structure within the required radius cannot accommodate the planned equipment at the necessary height as documented by a qualified professional engineer.

[4] Other reasons. Any other substantial reason that precludes the co-location. The burden of proof is upon the applicant to demonstrate that all reasonable alternatives to the erection of a new structure have been fully explored.

As set forth in the RF Report and Alternatives Analysis submitted herewith, there are no existing or approved antenna support structures, towers, or other structures located in the area within which Verizon Wireless has identified this significant gap in its wireless coverage network. As a result, the proposed Facility, including the proposed monopole, is necessary in order to address Verizon Wireless's significant gap in coverage.

(2) Buffers.

- a. In addition, for the purpose of buffering the proposed structure from neighboring properties and roads, the site proposed for the facility shall be surrounded by an area of dense tree growth, including a sufficient percentage of evergreen trees to partially screen the site in the winter, that extends continuously for a minimum distance equal to 1/2 the height of the proposed support structure.**

In accordance with this provision of the Ordinance, the proposed Facility, including a 150-foot tower, is required to be surrounded by a buffer of dense tree growth of at least 75 feet. As depicted on the

Plans submitted herewith, Everest's proposed Facility is located within an area of dense tree growth, including a significant percentage of evergreen trees, that exceeds 75 feet and therefore complies with this requirement and

- b. In locations where this dense tree growth is not presently in place the Zoning Board of Adjustment may, at its option, where it determines that the intent of this requirement can otherwise be met, waive or reduce this requirement due to other mitigating conditions on or off the site and/or approve a tree planting and landscaping plan for the site (alternatively, the Board may defer review and approval of this plan to the Planning Board as part of site plan review). An appropriate method, such as a deed restriction, shall be employed to ensure that the buffer remains in place as long as the support structure is in place.

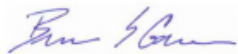
As set forth above, Everest's proposed Facility complies with the buffering requirements. Everest will comply with any lawful and reasonable condition concerning the maintenance of the buffer area.

V. CONCLUSION

Everest respectfully requests the Board to grant the requested variance and any other zoning relief required for the proposed Facility. Everest respectfully requests that the Board schedule this application for a public hearing at its next meeting for which proper notice can be given.

If I can provide any further information regarding this application, please let me know.

Sincerely,



Brian S. Grossman

3



SITE NAME: ROCHESTER 3
SITE NUMBER: 701651 (VW2 NH 0043A)
ADDRESS: 133 BLACKWATER ROAD
ROCHESTER, NH 03867

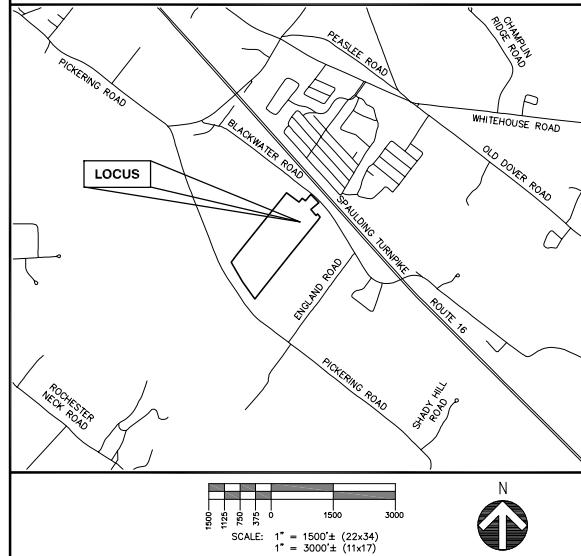
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CA-1 TO CA-2	TENANT DETAILS	2

GENERAL NOTES

- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER & APPLICANT REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- PLANS FOR PERMITTING PURPOSES ONLY. NOT FOR CONSTRUCTION.
- ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL DIG-SAFE (888) 344-7233 72-HOURS PRIOR TO ANY EXCAVATION.
- THIS SHEET WAS ORIGINALLY PRINTED TO ANSI D (22"x34") WITH 1" MARGINS. PRINTING TO ANSI B (11"x17") WILL RESULT IN A HALF-SCALE (1:2) SHEET SET WITH 1/2" MARGINS. CONFIRM ALL SCALED DISTANCES WITH GRAPHICAL SCALES SHOWN HEREIN.
- NEW CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE CODES AND ORDINANCES INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
BUILDING CODE:
NEW HAMPSHIRE STATE BUILDING CODE (2015 IBC) WITH AMENDMENTS
ELECTRICAL CODE: NEC 2017 WITH NEW HAMPSHIRE AMENDMENTS

VICINITY MAP



APPROVAL SIGNATURE BLOCK

CITY OF ROCHESTER PLANNING BOARD

CHAIRMAN

DATE

TENANT INFORMATION



SITE NAME: ROCHESTER 3 NH
CELLCO PARTNERSHIP
dba VERIZON WIRELESS
118 FLANDERS ROAD
THIRD FLOOR
WESTBOROUGH, MA 01581
PH: (508) 366-4389

PROJECT INFORMATION

SITE TYPE: RAW LAND WIRELESS COMMUNICATIONS FACILITY
SCOPE OF WORK: PROPOSED 150' TALL MONOPOLE AND 65'x65' FENCED COMPOUND WITHIN 75'x75' LEASE AREA.
SITE NAME: ROCHESTER 3
SITE NUMBER: 701651 (VW2 NH 0043A)
SITE ADDRESS: 133 BLACKWATER ROAD ROCHESTER, NH 03867
ASSESSOR'S TAX ID#: 257-24
ZONING DISTRICT(S): AGRICULTURAL (AG) CONSERVATION OVERLAY DISTRICT (COD)
LATITUDE: 43° 15' 36.28"± N (SURVEY 1A)
LONGITUDE: 70° 57' 05.35"± W (SURVEY 1A)
(P) ELEVATION: 204.5'±
DATUM: NAD83/NAVD88
PROPERTY OWNER: N/F JASON A. SCRUTON & KATHERINE L. CARROLL 20 FARMSTEAD ROAD FARMINGTON, NH 03835
APPLICANT: EIP COMMUNICATIONS I, LLC 290 CONGRESS STREET 7TH FLOOR BOSTON, MA 02210
SITE ENGINEER: PROTERRA DESIGN GROUP, LLC 4 BAY ROAD BUILDING A, SUITE 200 HADLEY, MA 01035 TEL: (413) 320-4918
SURVEYOR: NORTHEAST SURVEY CONSULTANTS SUITE 302 EASTHAMPTON, MA 01027 TEL: (413) 203-5144
WETLAND SCIENTIST: LUCAS ENVIRONMENTAL, LLC 500A WASHINGTON STREET QUINCY, MA 02169

FOR MORE INFORMATION ABOUT THIS SITE PLAN CONTACT:
MS. MICHAEL ASHLEY GULBERT
VICE PRESIDENT OF SITE DEVELOPMENT
EVEREST INFRASTRUCTURE PARTNERS
PH: 781.820.9120

PERMITTING REVISED



4 Bay Road
Building A, Suite 200
Hadley, MA 01035
Ph: (413)320-4918

CONSULTANTS:

NO.	DATE	REVISIONS
1	09/13/17	ISSUED FOR REVIEW
2	10/22/19	PERMITTING REVISED
3	12/17/19	UPDATE APPLICANT & ACCESS

TITLE: SITE NAME: ROCHESTER 3
SITE NUMBER: 701651 (VW2 NH 0043A)
ADDRESS: 133 BLACKWATER ROAD
ROCHESTER, NH 03867
APPLICANT: EIP COMMUNICATIONS I, LLC
290 CONGRESS STREET
7TH FLOOR
BOSTON, MA 02210
APPLICANT: EVEREST

STAMP:



DATE: 09/13/17

DRAWN: BLM

CHECK: JMM/TEJ

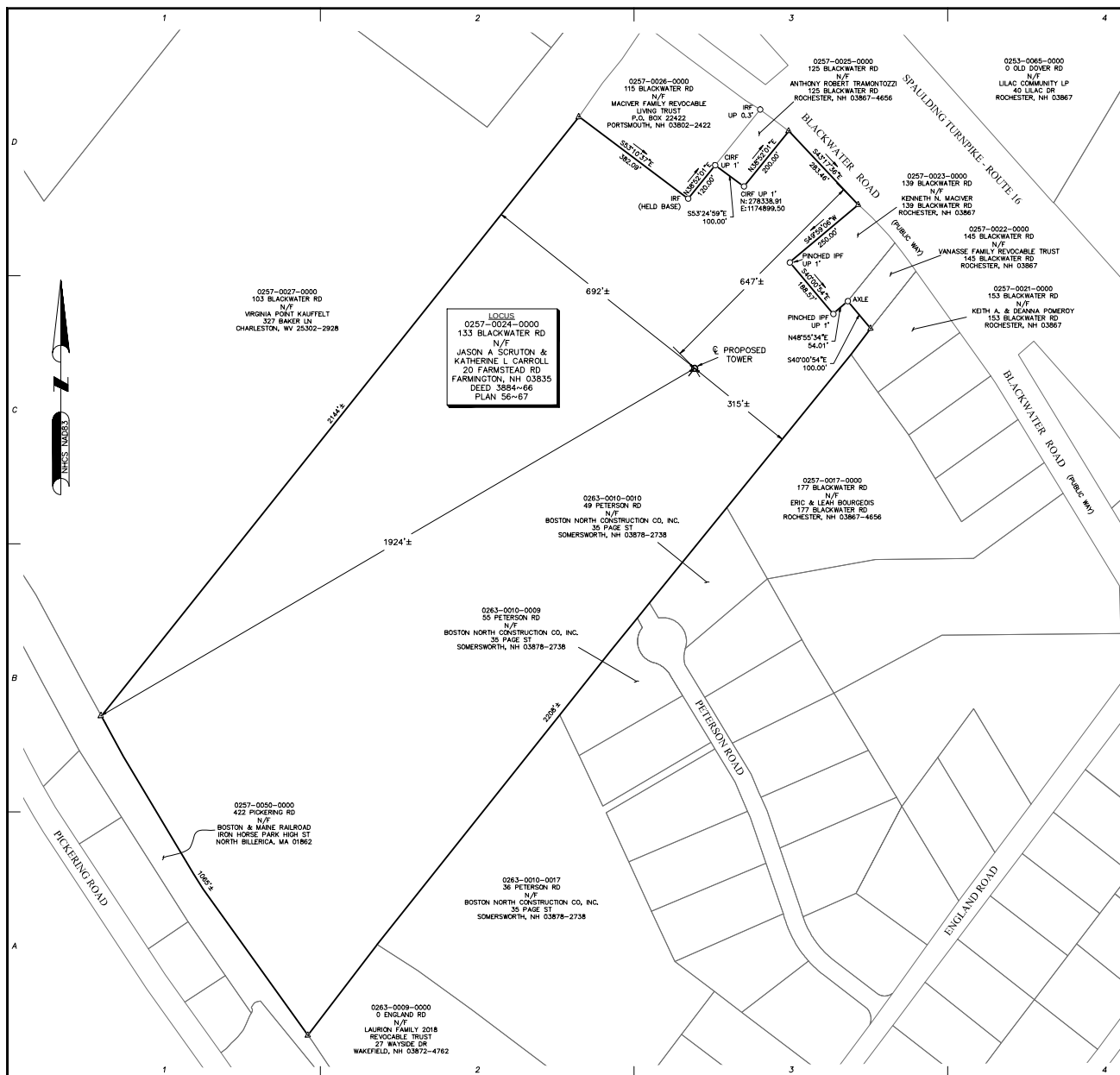
SCALE: SEE PLAN

JOB NO.: 17-046

SHEET TITLE:

TITLE SHEET

T-1



FAA 1-A CERTIFICATION

I HEREBY CERTIFY THAT THE LATITUDE, LONGITUDE, AND ELEVATION PRESENTED HEREON MEET THE REQUIREMENTS OF THE FAA WITH THE FOLLOWING ACCURACIES:

THREE (3) FEET VERTICALLY
TWENTY (20) FEET HORIZONTALLY

10-02-2019
DATE

James M. Lavelle
JAMES M. LAVELLE NH LLS # 489

SURVEY NOTES

- SITE DETAIL SHOWN ON THIS SURVEY IS BASED ON FIELD DATA COLLECTED ON AUGUST 16, 2017. BOUNDARY INFORMATION IS COMPILED FROM RECORD DOCUMENTS AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE.
- THE PURPOSE OF THIS SURVEY IS TO SUPPORT THE DESIGN AND CONSTRUCTION OF A TELECOMMUNICATION FACILITY. USE OF THIS SURVEY BY ANYONE OTHER THAN EIP COMMUNICATIONS I, LLC, AND USE OF THIS SURVEY FOR ANY PURPOSE NOT RELATED TO THE DESIGN OF THE INTENDED FACILITY IS STRICTLY PROHIBITED.
- PROPERTY LINES AND BOUNDARY DIMENSIONS SHOWN ON THIS SURVEY ARE BASED ON A COMPILED OF RECORDED PLANS AND DEEDS AND ARE NOT INTENDED TO REPRESENT DEFINITIVE BOUNDARY LINES OR BE USED FOR THE PURPOSES OF CONVEYANCE. PROPERTY RELATED INFORMATION HAS NOT BEEN CONFIRMED BY FIELD SURVEY OBSERVATIONS AND NO ASSESSMENT OF LAND OCCUPATION HAS BEEN CONDUCTED IN THE PREPARATION OF THIS SURVEY. A PROPERTY LINE RETRACEMENT SURVEY HAS NOT BEEN CONDUCTED.
- THE PROPERTY LINES SHOWN ON THIS PLAN ARE THE LINES DIVIDING EXISTING OWNERSHIP'S, AND THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED, AND NO NEW LINES FOR DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.
- PRIMARY GEODETTIC SURVEY CONTROL WAS ESTABLISHED FROM AN ON THE GROUND SURVEY USING THE GLOBAL POSITIONING SYSTEM (GPS) ON AUGUST 16, 2017. THE HORIZONTAL REFERENCED DATUM IS THE NAD 83 BASED ON THE GRS 80 REFERENCE ELLIPSOID. THE GRID COORDINATES ARE BASED ON THE NEW HAMPSHIRE STATE PLANE COORDINATE SYSTEM OF 1983 CORSB. ELEVATIONS SHOWN ARE ASSUMED AND ARE APPROXIMATED TO THE NAVD 88 VERTICAL DATUM. VERTICAL AND HORIZONTAL INFORMATION SHOWN MEETS THE STANDARD CRITERIA FOR AN FAA 1A CERTIFICATION (20± HORIZONTAL AND 3± VERTICAL).
- IN THE EVENT THAT BENCHMARKS (BM'S), ESTABLISHED FOR THIS PROJECT AND PUBLISHED ON THIS SURVEY, ARE DESTROYED, NOT RECOVERABLE, OR A DISCREPANCY IS FOUND, THE USER SHOULD NOTIFY THIS FIRM IN WRITING PRIOR TO COMMENCING OR CONTINUING ANY WORK.
- THE LOCUS PARCEL IS IDENTIFIED AS 0257-0024-0000 IN THE CITY OF ROCHESTER TAX ASSESSOR'S GIS DATABASE.
- THE PROJECT AREA IS LOCATED IN FLOOD ZONE "X" (AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN, NO SHADING) FLOOD AS SHOWN ON FLOOD INSURANCE RATE MAP COMMUNITY PANEL NUMBER 33017C 0214 D, DATED MAY 17, 2005.
- ALL UNDERGROUND UTILITY INFORMATION WAS DETERMINED FROM SURFACE INVESTIGATIONS AND EXISTING PLANS OF RECORD. THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND UTILITIES IN THE FIELD PRIOR TO ANY SITE WORK. CALL THE FOLLOWING FOR ALL PRE-CONSTRUCTION NOTIFICATION 72-HOURS PRIOR TO ANY EXCAVATION ACTIVITY: DIG SAFE SYSTEM (MA, ME, NH, RI, VT): 1-888-344-7233
- THE SUBJECT PROPERTY AND ALL ABUTTING PROPERTIES ARE LOCATED IN THE CITY OF ROCHESTER AGRICULTURAL ZONING DISTRICT.
- WETLANDS SHOWN HEREON WERE DELINEATED BY CHRISTOPHER M. LUCAS, CWS #274, LUCAS ENVIRONMENTAL, LLC ON JULY 12, 2017.

PROPERTY OWNER: JASON A SCRUTON & KATHERINE L CARROLL
20 FARMSTEAD ROAD
FARMINGTON, NH 03835

LOCUS DEED REFERENCE: BOOK 3884 PAGE 66

PLAN REFERENCES: 56-67

LEGEND

N/F	— NOW OR FORMERLY
IRF/IFF O	— IRON ROD/PIPE FOUND
CRF	— CAPPED IRON ROD FOUND
▲	— CALCULATED POINT
—	— LOCUS PROPERTY LINE
—	— ABUTTERS PROPERTY LINE

ABUTTERS PLAN

ANSI D (22"x34") SCALE: 1"=150'
ANSI A (11"x17") SCALE: 1"=300'

4 Bay Road, Bldg A
Suite 200
Hodley, MA 01535
Ph: (413)320-4918

CONSULTANTS:
NORTHEAST SURVEY CONSULTANTS
116 Pleasant St. Ste. 302
P.O. Box 109
Easthampton, MA 01027
(413) 233-5144
northeastsurvey.com

NO.	DATE	REVISIONS
1	09/07/17	ISSUED FOR REVIEW
2	10/02/19	PERMITS REUSED
3	09/25/19	UPDATE APPLICANT

SITE NAME: ROCHESTER 3
SITE NUMBER: 70651 (VT2 NH 00434)
ADDRESS: 433 BLACKWATER ROAD
ROCHESTER, NH 03867

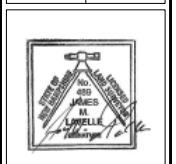
APPLICANT:
EIP COMMUNICATIONS I, LLC
280 CONGRESS STREET
7TH FLOOR
BOSTON, MA 02201

DATE: 10/02/2019
DRAWN: CGG/JDG
CHECK: BCF
SCALE: 1"=150'
JOB NO.: 17-174
SHEET TITLE:
ABUTTERS PLAN
C-1



NO.	DATE	REVISIONS
1	09/07/17	ISSUED FOR REVIEW
2	01/22/19	PERMITTING REVISED
3	09/25/19	UPDATE APPLICANT

TITLE:	SITE NAME: ROCHESTER 3
SITE NUMBER:	70651 (V2 NH 00434)
ADDRESS:	433 BLACKWATER ROAD
	ROCHESTER, NH 03867
APPLICANT:	BIG CONCRETEWORKS, LLC
	280 CONGRESS STREET
	7TH FLOOR
	BOSTON, MA 02201



DATE:	10/02/2019
DRAWN:	CGG
CHECK:	BCF
SCALE:	1"=40'
JOB NO.:	17-174

EXISTING CONDITIONS
C-2

LEGEND

- N/F
- NOW OR FORMERLY
- TOWER CONTROL POINT
- ⊕ UTILITY POLE
- ⊙ GUY WIRE ANCHOR
- WETLAND FLAG
- TEMPORARY BENCHMARK (TBM)
- PIPE INLET / OUTLET
- LOCUS PROPERTY LINE
- ABUTTERS LINE
- TREE LINE
- OVERHEAD WIRES
- WETLAND DELINEATION
- CONTOUR LINE



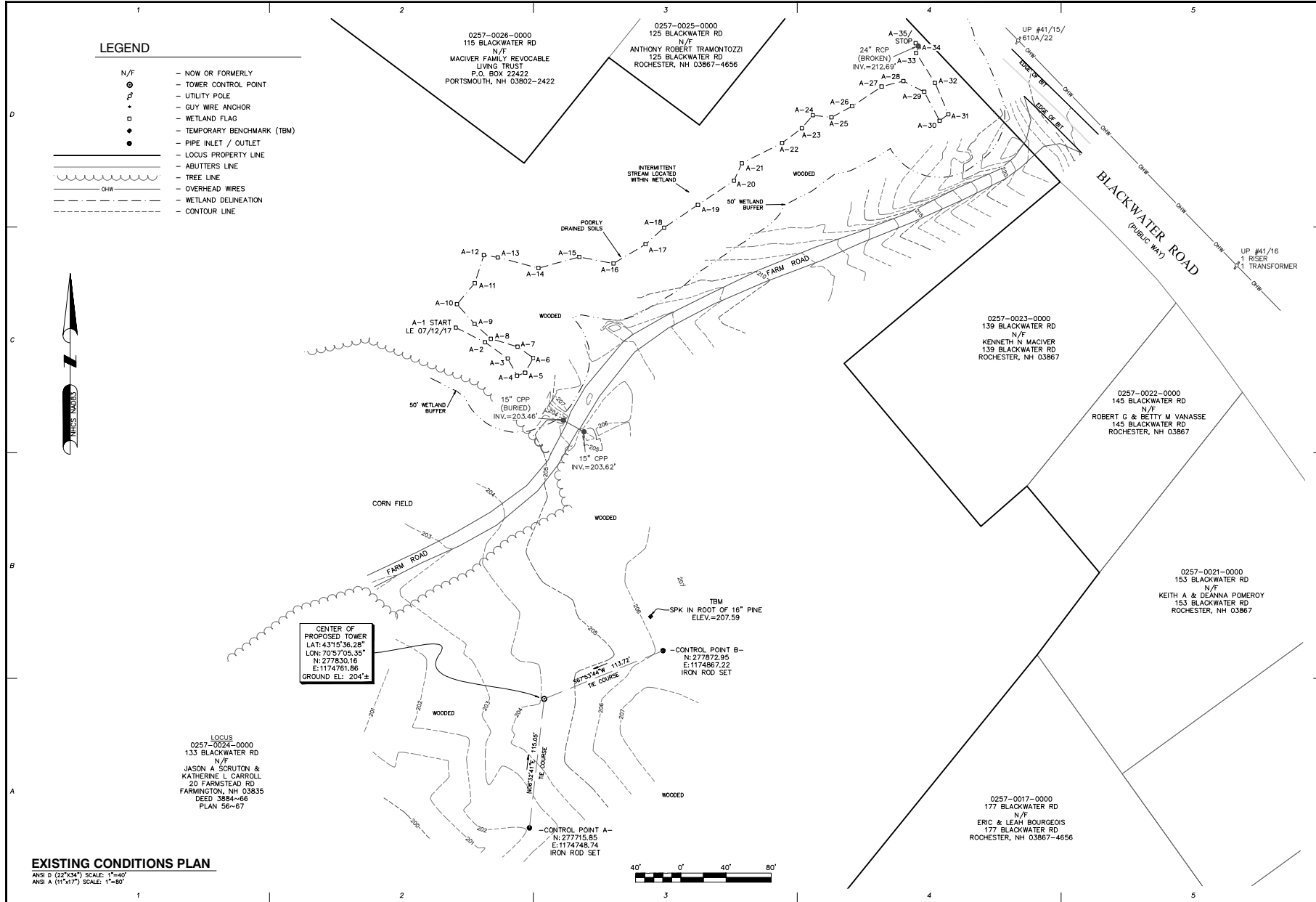
LOCUS
0257-0024-0000
133 BLACKWATER RD
N/F
JASON A SCRUTON &
KATHERINE L CARROLL
20 FARMSTEAD RD
FARMINGTON, NH 03835
DEED: 3854-666
PLAN 56-67

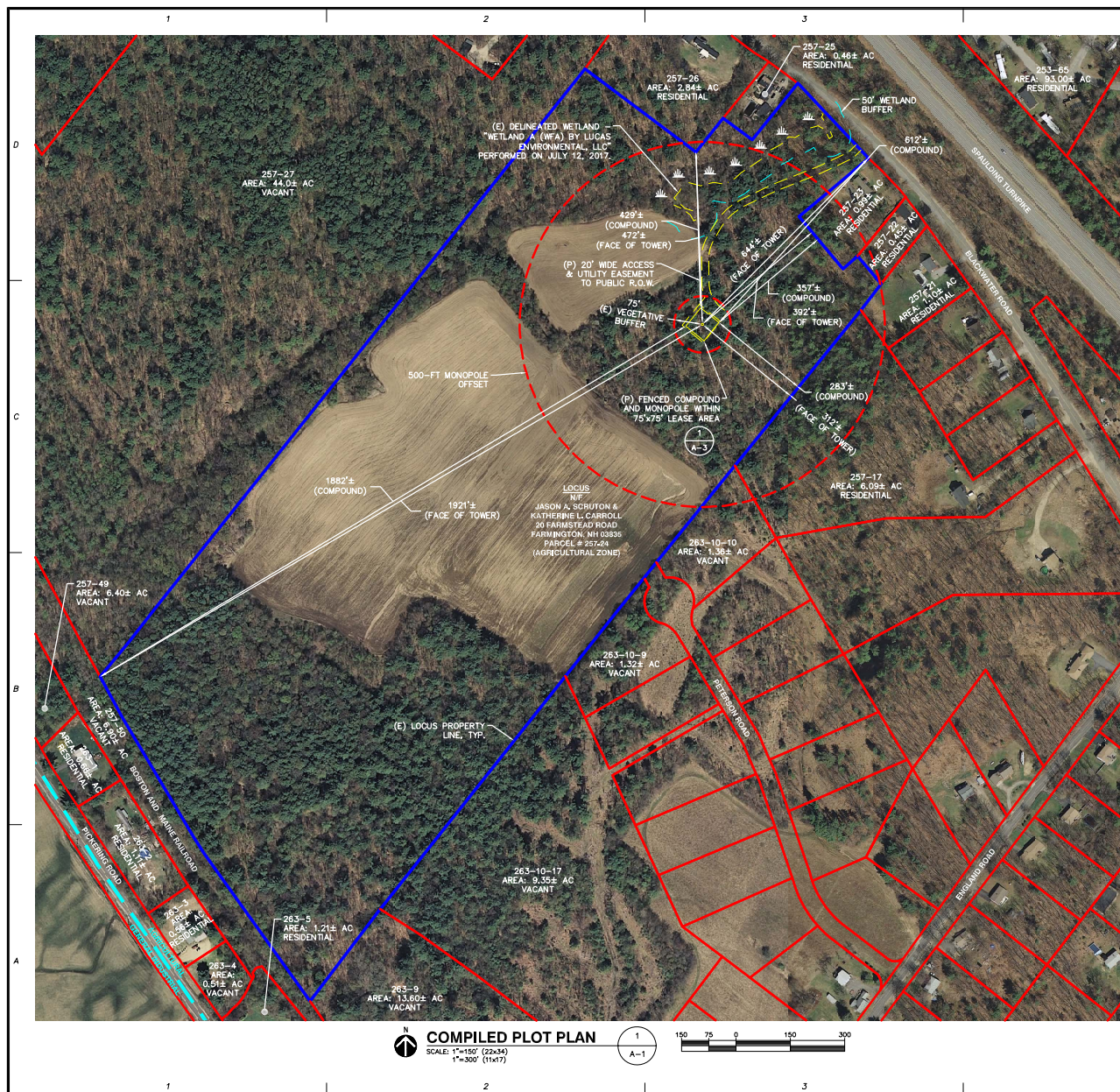
CENTER OF
PROPOSED TOWER
LAT: 43°15'36.28"
LON: 70°57'05.35"
N: 277830.16
E: 1174761.86
GROUND EL: 204.4



EXISTING CONDITIONS PLAN

ANSI D (22"x34") SCALE: 1"=40'
ANSI A (11"x17") SCALE: 1"=80'





REFERENCES

PROPERTY LINE, TOPOGRAPHY AND EXISTING FEATURES – SEE SHEETS C-1 & C-2

ZONING DISTRICTS – ZONED: AGRICULTURAL FROM MAP ENTITLED "ZONING MAP CITY OF ROCHESTER, NH" ADOPTED 4/14/2014.

FLOODPLAIN – FLOOD INSURANCE RATE MAP 33017C02140 EFFECTIVE MAY 17, 2005 PREPARED BY FEDERAL EMERGENCY MANAGEMENT AGENCY, US DEPARTMENT OF HOMELAND SECURITY. PROJECT AREA IS WITHIN ZONE X: "AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN."

AERIAL PHOTOGRAPHY – NH GRANIT, NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE (2010 IMAGES)

GENERAL NOTES

1. THE TYPE, DIMENSIONS, MOUNTING HARDWARE, AND POSITIONS OF ALL PROJECT OWNER'S EQUIPMENT ARE SHOWN IN ILLUSTRATIVE FASHION. ACTUAL HARDWARE DETAILS AND FINAL INSTALLATION, IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
2. THE PROJECT OWNER'S PCS FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. THE DESIGN OF THE TOWER, FOUNDATION AND ANTENNA MOUNTING HARDWARE WILL MEET THE ANSI/EIA/TIA-222-C STANDARDS FOR STRUCTURAL STEEL ANTENNA SUPPORTING STRUCTURES AND STATE BUILDING CODE REQUIREMENTS. DETAILED CONSTRUCTION DRAWINGS AND STRUCTURAL CALCULATIONS WILL BE PREPARED BY A REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH A BUILDING PERMIT APPLICATION FOR REVIEW AND APPROVAL BY THE LOCAL BUILDING CODE ENFORCEMENT OFFICIAL.
4. ONCE THE FACILITY BECOMES FULLY OPERATIONAL, NORMAL AND ROUTINE MAINTENANCE BY TOWER OWNER'S AND CARRIER'S TECHNICIANS WILL BE PERFORMED. THE ESTIMATED VEHICULAR TRAFFIC GENERATED BY THESE VISITS IS PREDICTED TO BE LESS THAN THE TYPICAL TRAFFIC GENERATED BY A SINGLE-FAMILY DWELLING.

ZONING SUMMARY

ZONING DISTRICT(S): AGRICULTURAL (AG)
CONSERVATION OVERLAY DISTRICT (COD)
ASSESSORS ID: 257-24
(P) USE: WIRELESS COMMUNICATIONS FACILITY¹

DIMENSION	PROVIDED	CONSTRAINT
PARCEL – AREA	56± AC	45,000 SF MIN.
PARCEL – FRONTAGE	283'±	150' MIN.
PARCEL – LOT COVERAGE	<1%±	40% MAX.
(P) COMPOUND – FRONT YARD	612'±	20' MIN.
(P) COMPOUND – SIDE YARD	283'±	10' MIN.
(P) COMPOUND – REAR YARD	1882'±	20' MIN.
(P) COMPOUND – ACCESSORY STRUCTURE HEIGHT	15'±	35' MAX.
(P) MONOPOLE – HEIGHT (HIGHEST APPURTENANCE)	150' (156')	156' ²
(P) MONOPOLE – DISTANCE TO PROPERTY LINE	312'± MIN.	156' ²
(P) MONOPOLE – DISTANCE TO (E) BUILDINGS & STRUCTURES	>600'± (NO USES/SIZES/HEIGHTS LABELED)	

SPECIAL CONSIDERATIONS MAY BE REQUIRED FOR THE FOLLOWING:

- 1 – WIRELESS COMMUNICATIONS FACILITY ALLOWED IN AGRICULTURAL (AG) DISTRICT BY SPECIAL EXCEPTION AS NOTED WITHIN "ZONING ORDINANCE OF THE CITY OF ROCHESTER, NEW HAMPSHIRE" TABLE 18-D.
- 2 – "ZONING ORDINANCE OF THE CITY OF ROCHESTER, NEW HAMPSHIRE": §42.22.c.14 SPECIAL EXCEPTIONS, CONDITIONS FOR PARTICULAR USES, WIRELESS COMMUNICATIONS FACILITY DOES NOT SPECIFY A MAXIMUM TOWER HEIGHT OR PROPERTY LINE SETBACK. IT WAS ASSUMED A MINIMUM PROPERTY LINE OF AT LEAST THE TOWER HEIGHT BE PROVIDED.

4 Bay Road
Building A, Suite 200
Hudson, MA 01835
Ph: (413)320-4918

CONSULTANTS:

NO.	DATE	REVISIONS
1	09/13/17	ISSUED FOR REVIEW
2	10/22/19	REVISED PER COMMENTS
3	12/17/19	REVISED PER COMMENTS
4		REVISED PER COMMENTS
5		REVISED PER COMMENTS
6		REVISED PER COMMENTS
7		REVISED PER COMMENTS
8		REVISED PER COMMENTS
9		REVISED PER COMMENTS
10		REVISED PER COMMENTS

TITLE: SITE NAME: ROCHESTER 3
SITE NUMBER: 70651 (V2 NH 00434)
ADDRESS: 433 BLACKWATER ROAD
ROCHESTER, NH 03867

APPLICANT: BIG COMMUNICATIONS, LLC
250 CONGRESS STREET
7TH FLOOR
BOSTON, MA 02201

STAMP: [Signature] 12-17-19

DATE: 09/13/17
DRAWN: BLM
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 17-046
SHEET TITLE: COMPILED PLOT PLAN
A-1

CONSULTANTS:

NO.	DATE	REVISIONS
1	09/13/17	ISSUED FOR REVIEW
2	10/17/17	REVISED PER COMMENTS
3	10/22/17	REVISED PER COMMENTS
4	11/07/17	REVISED PER COMMENTS
5	12/17/17	REVISED PER COMMENTS
6	01/11/18	REVISED PER COMMENTS
7	01/11/18	REVISED PER COMMENTS
8	01/11/18	REVISED PER COMMENTS
9	01/11/18	REVISED PER COMMENTS
10	01/11/18	REVISED PER COMMENTS
11	01/11/18	REVISED PER COMMENTS
12	01/11/18	REVISED PER COMMENTS
13	01/11/18	REVISED PER COMMENTS
14	01/11/18	REVISED PER COMMENTS
15	01/11/18	REVISED PER COMMENTS
16	01/11/18	REVISED PER COMMENTS
17	01/11/18	REVISED PER COMMENTS
18	01/11/18	REVISED PER COMMENTS
19	01/11/18	REVISED PER COMMENTS
20	01/11/18	REVISED PER COMMENTS

SITE NAME: ROCHESTER 3
SITE NUMBER: 701651 (VW2 NH 0043A)
ADDRESS: 433 BLACKWATER ROAD
ROCHESTER, NH 03867

APPLICANT:
EIP COMMUNICATIONS I, LLC
280 CONGRESS STREET
BOSTON, MA 02201

EVEREST

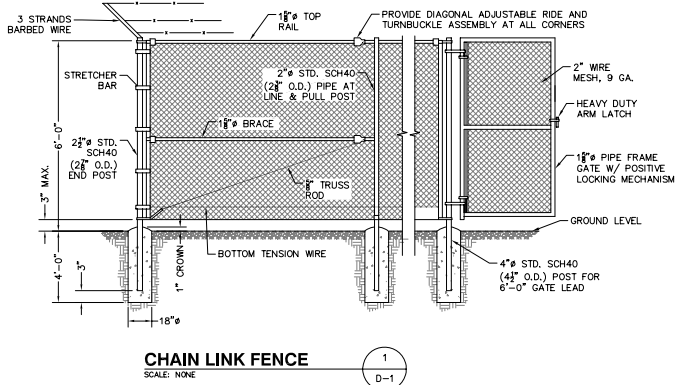
STAMP:

STATE OF NEW HAMPSHIRE
JESSE M. MOORE
JAN 2018
12-17-19

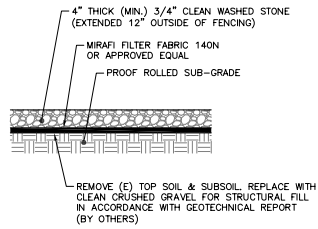
DATE: 09/13/17
DRAWN: BLM
CHECK: JMM/TEJ
SCALE: SEE PLAN
JOB NO.: 17-046
SHEET TITLE:

DETAILS

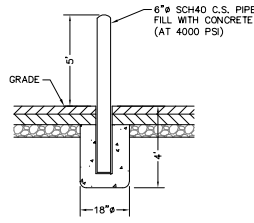
D-1



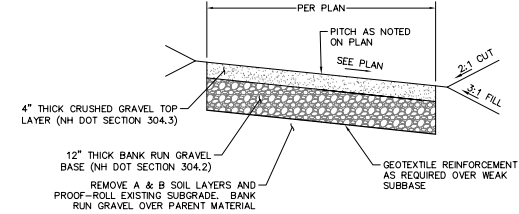
CHAIN LINK FENCE
SCALE: NONE



COMPOUND SURFACE
SCALE: NONE



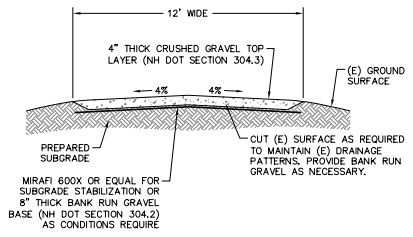
BOLLARD
SCALE: NONE



DRIVEWAY SECTION
SCALE: NONE

- NOTES:**
- ALL GRANULAR MATERIALS SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY BY STD. PROCTOR METHOD.
 - ALL CUT AND FILL SLOPES TO BE COVERED WITH JUTE MESH EROSION CONTROL BLANKETS AND/OR HYDROSEEDING WITH NEW ENGLAND ROADSIDE MATRIX MIX AT 35LBS PER ACRE OR EQUAL.
 - THE REQUIREMENT FOR INSTALLATION OF SUBDRAINS SHALL BE AT ALL CUT SECTIONS OR AS DETERMINED BY THE ENGINEER-OF-RECORD BASED ON FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. SUBDRAINS SHALL BE OUTLETTED TO DAYLIGHT AS APPROVED BY THE ENGINEER-OF-RECORD.
 - ALL MATERIALS TO CONFORM TO STATE AND/OR MUNICIPAL STANDARD AS REQUIRED.

% PASSING	BASE LAYER	TOP LAYER
6"	100	-
3"	-	100
2"	-	95-100
1"	-	55-85
#4	25-70	27-52
#200	0-12	0-12



RESURFACED DRIVEWAY
SCALE: NONE

Property of EIP COMMUNICATIONS I, LLC

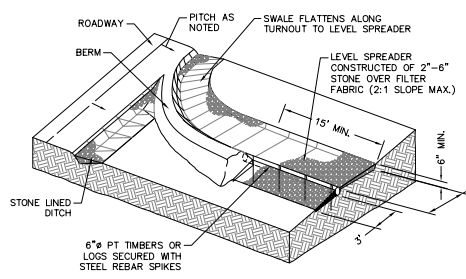
SITE ID#: 701651
(VW2 NH 0043A)
FCC#: XXXXXXXX

In case of emergency, or prior to performing maintenance on this site, call xxx-xxx-xxx and reference cell site number **701651 (VW2 NH 0043A)**

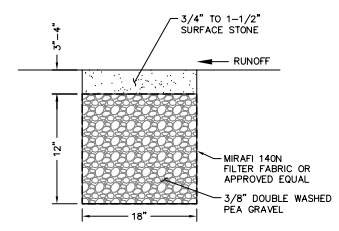
EVEREST

DOES NOT INCLUDE FAA/FCC REGULATED SIGNAGE PER THE CARRIER'S FEDERAL LICENSE.

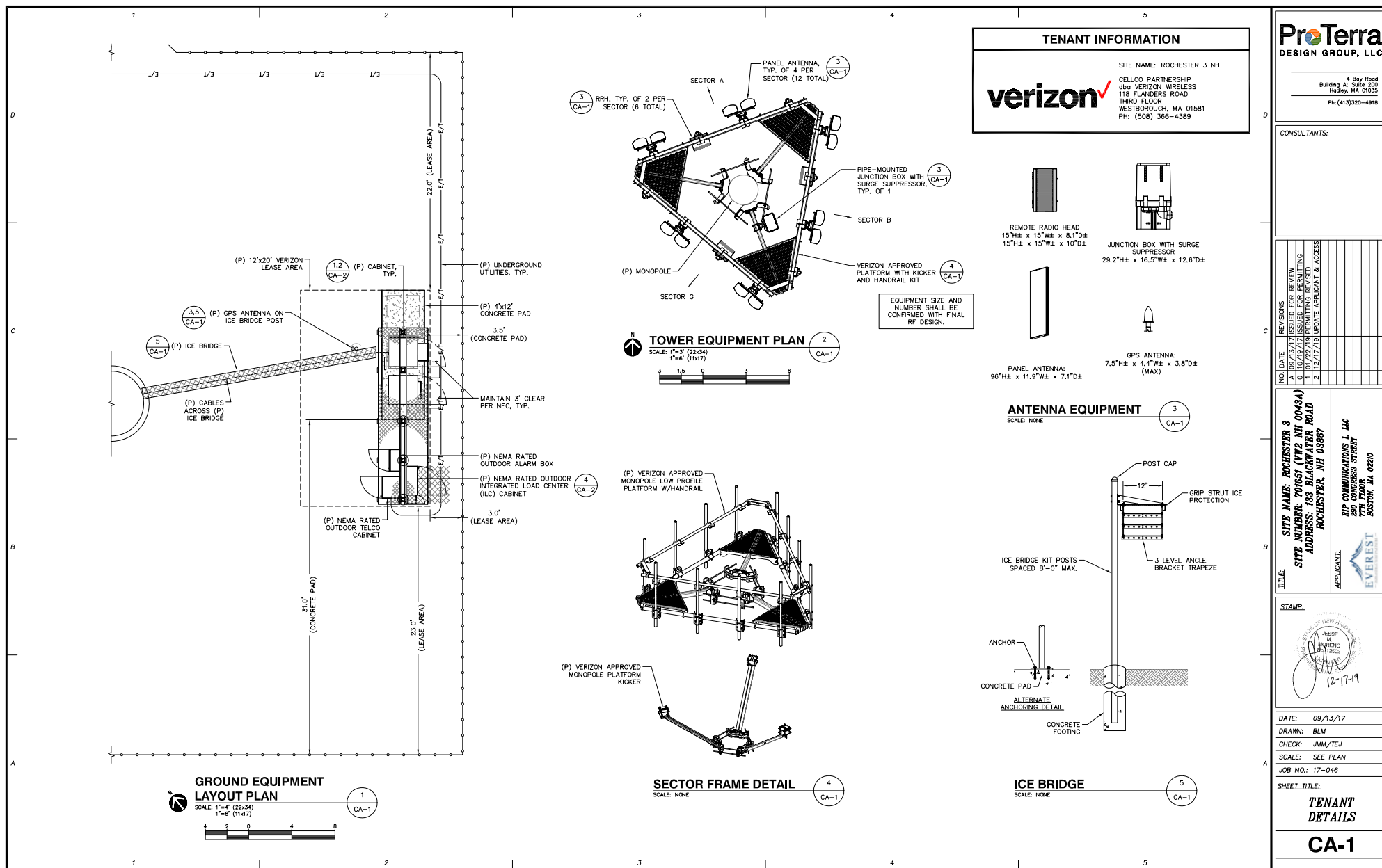
EMERGENCY CONTACT SIGN
SCALE: NONE



DITCH TURNOUT & LEVEL SPREADER
SCALE: NONE



STONE VERGE
SCALE: NONE



4

RF Report

Proposed Wireless Facility
133 Blackwater Road
Rochester, NH 03867



October 21, 2019

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2. Introduction	1
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ATTACHMENTS

- Attachment A: Rochester 3 – Existing 700 MHz LTE Coverage
- Attachment B: Rochester 3 – 700 MHz LTE Coverage with Proposed Site
- Attachment C: Rochester 3 – Existing 700 MHz LTE Sector Footprints
- Attachment D: Rochester 3 – 700 MHz LTE Sector Footprints with Proposed Site
- Attachment E: Rochester 3 – Area Terrain Map

1. Overview

This RF Report has been prepared on behalf of Verizon Wireless in support of Varsity Wireless' application to the City of Rochester for the installation and operation of a wireless facility located 133 Blackwater Road in Rochester, NH. Verizon Wireless' component of the proposed facility consists of ground-based equipment cabinets along with antennas and associated equipment mounted on the proposed 150' monopole.

This report concludes that the proposed site will fill in coverage gaps and provide additional capacity to southern Rochester in order to improve deficient service areas along Route 16 (Spaulding Turnpike), and the surrounding roads and neighborhoods in the proximity of the proposed site.

Included in this report is: a brief summary of the site's objectives, maps showing Verizon Wireless' current network plan, and modeled Radio Frequency coverage of the subject site and the surrounding sites in Verizon Wireless' network.

2. Introduction

Verizon Wireless provides digital voice and data communications services using 3rd Generation (3G) CDMA/EVDO technology in the Cellular (800 MHz) and PCS (1900 MHz) frequency bands, and is in the midst of deploying advanced 4th Generation (4G) voice and data services over LTE technology in the 700 MHz, Cellular, PCS, and AWS (2100 MHz) frequency bands as allocated by the FCC. These networks are used by mobile devices for fast web browsing, media streaming, and other applications that require broadband connections. The mobile devices that benefit from these advanced networks are not limited to basic handheld phones, but also include devices such as smartphones, PDA's, tablets, and laptop air-cards. With the evolving rollout of 4G LTE services and devices, Verizon Wireless customers will have even faster connections to people, information, and entertainment.

As explained within this report, Verizon Wireless has identified the need to add a new facility to its existing network of sites in the Rochester area to improve coverage and capacity to a significant gap in service that exists in southern Rochester, in order to support reliable communications and meet the growing demand in the area.

To maintain a reliable and robust communications system for the individuals, businesses, public safety workers and others who use its network, Verizon Wireless deploys a network of cell sites (also called wireless communications facilities) throughout the areas in which it is licensed to provide service. These cell sites consist of antennas mounted on structures, such as buildings and towers, supported by radio and power equipment. The receivers and transmitters at each of these sites process signals within a limited geographic area known as a "cell."

Mobile subscriber handsets and wireless devices operate by transmitting and receiving low power radio frequency signals to and from these cell sites. Handset signals that reach the cell site are transferred through land lines (or other means of backhaul transport) and routed to their destinations by sophisticated electronic equipment. In order for Verizon Wireless' network to function effectively, there must be adequate overlapping coverage between the "serving cell" and adjoining cells. This not only allows a user to access the network initially, but also allows for the transfer or "hand-off" of calls and data transmissions from one cell to another, and prevents unintended disconnections or "dropped calls."

Verizon Wireless' antennas also must be located high enough above ground level to allow transmission (a.k.a. propagation) of the radio frequency signals above trees, buildings, and other natural or man-made structures that may obstruct or diminish the signals. Areas without adequate radio frequency coverage have substandard service, characterized by dropped and blocked calls, slow data connections, or no wireless service at all, and are commonly referred to as coverage gaps.

The size of the area potentially served by each cell site depends on several factors including the number of antennas used, the height at which the antennas are deployed, the topography of the surrounding land, vegetative cover, and natural or man-made obstructions in the area. The actual service area at any given time also depends on the number of customers who are on the network in range of that cell site. As customers move throughout the service area, the transmission from the phone or other device is automatically transferred to the Verizon Wireless facility with the best reception, without interruption in service, provided that there is overlapping coverage between the cells.

Each cell site must be primarily designed to strike a balance between the overall geographic coverage area it will serve, and the site's capacity to support the usage within the coverage footprint. In rural areas, cell sites are generally designed to have broader coverage footprints because the potential traffic is sparser and distributed over a larger area. In more densely populated suburban and urban environments, the capacity to handle calls and data transmissions is of increasing concern, and cell sites must limit their coverage footprint to an area where the offered network traffic can be supported by the radio equipment and resources. Due to the aggressive historical and projected growth of mobile usage, particularly for mobile data (82% in 2017-2018 in the U.S.¹, 43% in 2017-2018 and 36% CAGR 2017-2022 in North America²), instances arise where the usage demand can no longer be supported by the site(s) serving an area, and new facilities must be integrated to provide capacity relief to the overloaded sites.

We have concluded that by installing the proposed wireless communication facility at 133 Blackwater Road at an antenna centerline height of 145' AGL (above ground level), Verizon Wireless will be able to provide improved coverage and capacity to residents, businesses, and traffic corridors within southern Rochester that are currently located within a gap in service of Verizon Wireless' network.

¹ "2019 Annual Survey Highlights", June 20, 2019, CTIA.
<https://www.ctia.org/news/2019-annual-survey-highlights>

² "Cisco Visual Networking Index: Forecast and Trends, 2017-2022", November 26, 2018, Cisco Systems, Inc.
https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/white-paper-c11-741490.html#_Toc529314192

3. The Proposed Facility

Verizon Wireless' plan for this would consist principally of the following elements:

- 1) A 12' x 20' equipment lease area within Varsity's proposed 65' x 65' fenced compound;
- 2) A concrete pad within Verizon's lease area with telecommunications equipment cabinets, propane fueled generator, and telco/power/fiber connections;
- 3) A 500-gallon liquid propane tank on a 4' x 10' concrete pad within the fenced compound;
- 4) Twelve (12) panel antennas (four per sector) mounted on the proposed 150' monopole, at a centerline elevation of 145' AGL;
- 5) Remote Radio Heads (RRHs) (three per sector) with accessory junction boxes and surge suppressors, mounted alongside the antennas;
- 6) An ice bridge from the proposed equipment cabinets to the proposed tower to protect cabling between Verizon Wireless' equipment and the cable entry port located near the base of the tower.

4. Coverage and Capacity Objectives

As mentioned above, Verizon Wireless is in the process of rolling out its 4G LTE high-speed wireless broadband system in the 700 MHz, Cellular, PCS, and AWS frequency bands, in accordance with its licenses from the FCC. In order to expand and enhance their wireless services throughout New England, Verizon Wireless must fill in existing coverage gaps and address capacity, interference, and high-speed broadband issues. As part of this effort, Verizon Wireless has determined that significant gaps in service exist in and around sections of the City of Rochester, NH, as described further below.

Verizon Wireless currently operates wireless facilities similar to the proposed facility within Rochester and the surrounding cities/towns. Due in large part to the distances between the existing sites, the intervening topography, and volume of user traffic in the area, these existing facilities do not provide sufficient coverage and capacity to portions of Rochester. Specifically, Verizon Wireless determined that much of southern Rochester is without reliable service in the following areas and City roads³, including but not limited to:

- Route 16 (Spaulding Turnpike);
 - Serves ~ 29,000 vehicles per day, as measured between exits 9 & 11 (2018);
- The surrounding roads, neighborhoods and businesses in the proximity of the proposed site and the above-mentioned roads.

The proposed site located at 133 Blackwater Road (“Rochester 3”) is needed to fill in these targeted gaps in service, in order to improve network quality and reliability for Verizon Wireless subscribers traveling along these roads, as well as to the numerous residents, businesses, and visitors in this area.

³ Traffic counts are sourced from the New Hampshire Department of Transportation, Transportation Data Management System.

5. Site Search and Selection Process

To find a site that provides acceptable coverage, adequate capacity, and fills the gaps in service, computer modeling software is used to define a search area. The search ring identifies the area within which a site could be located (assuming sufficient height is considered) that would have a high probability of addressing the significant coverage gap and/or meeting the capacity objectives established by the Verizon Wireless RF (Radio Frequency) engineers.

Once a search ring is determined, Verizon Wireless' real estate specialists search within the proximity of the defined area for existing buildings, towers, and other structures of sufficient height that would meet the defined objectives. If none are found, then the focus shifts to "raw land" sites. A suitable site must satisfy the technical requirements identified by the RF engineers, must be available for lease, and must have access to a road and be otherwise suitable for constructing a cell site of the required size and height. Every effort is made to use existing structures before pursuing a "raw land" build to minimize the number of new towers throughout the cities and towns being served.

Since no suitable existing structures in the area have been identified, Verizon Wireless determined that collocating on the planned wireless communications facility located at 133 Blackwater Road is the most appropriate solution to address the targeted coverage and capacity objectives with respect to its network requirements.

6. Pertinent Site Data

Table 1 below details the site-specific information for the existing (on-air) and proposed Verizon Wireless sites used to perform the coverage analysis and generate the coverage plots provided herein.

Site Name	Address	City/State	Location		Structure Type	Antenna Height (ft AGL)	Status
			Latitude	Longitude			
Barrington E	485 Route 125	Barrington, NH	43.2276	-70.9924	Lattice	137	On-Air
Dover DT	100 Main Street	Dover, NH	43.1959	-70.8724	Smokestack	115	On-Air
Dover Nw	304 Long Hill Road	Dover, NH	43.2287	-70.9252	Lattice	166	On-Air
Lee 5 Corners	11 Concord Road	Lee, NH	43.1515	-71.0139	Monopole	170	On-Air
Rollinsford E	40 Jessie Doe Road	Rollinsford, NH	43.2356	-70.8296	Monopole	140	On-Air
Rollinsford W	17 Highland Avenue	Rollinsford, NH	43.2097	-70.8692	Monopole	88	On-Air
Somersworth 2	157 Route 108	Somersworth, NH	43.2364	-70.8931	Guyed	115	On-Air
Somersworth	43 High Street	Somersworth, NH	43.2624	-70.8651	Steeple	68	On-Air
Lebanon S	216 Oak Hill Road	Lebanon, ME	43.3497	-70.9437	Lattice	230	On-Air
Rochester N	36 Cross Road	Rochester, NH	43.3484	-70.9838	Monopole	179	On-Air
Rochester C	29 Wadleigh Road	Rochester, NH	43.2853	-70.9831	Lattice	155	On-Air
Rochester	34 S Main Street	Rochester, NH	43.3037	-70.9750	Steeple	79	On-Air
Rochester 4	0 Walnut Street	Rochester, NH	43.3077	-70.9996	Lattice	172	On-Air
Rochester W	80 Dry Hill Road	Rochester, NH	43.2781	43.2781	Monopole	177	On-Air
Rochester 3	133 Blackwater Road	Rochester, NH	43.2601	-70.9515	Monopole	145	Proposed

Table 1: Verizon Wireless Site Information Used in Coverage Analysis⁴

⁴ Some sites listed in this table are outside the plot view but are included for completeness of information.

7. Coverage Analysis and Propagation Plots

The signal propagation plots provided in this report were produced using deciBel Planner™, a Windows-based RF propagation computer modeling program and network planning tool. The software considers the topographical features of an area, land cover, antenna models, antenna heights, RF transmitting power and receiver thresholds to model coverage and other related RF parameters used in site design and network expansion.

The coverage plots included as attachments show coverage based on RSRP signal strengths of -95 dBm and above. All other areas (depicted in white) fall within coverage areas characterized by poor service quality, low data throughput, and the substantial likelihood of unreliable service.

Attachments A - E are discussed below:

Attachment A titled “*Rochester 3 – Existing 700 MHz LTE Coverage*” shows the coverage provided to areas of Rochester from the “On-Air” sites listed in Table 1. “On-Air” sites are existing Verizon Wireless facilities. The green areas represent the minimum desired level of coverage for much of this area. The deficient areas of coverage are defined by the unshaded or white areas. As shown in this plot and described in the Coverage and Capacity Objectives section of this report, portions of southern Rochester are in areas of deficient coverage. These coverage gaps include, but are not limited to, Route 16 (Spaulding Turnpike), Blackwater Road, Tebbetts Road, Pickering Road, and the surrounding roads and neighborhoods in the proximity of the proposed site.

Attachment B titled “*Rochester 3 - 700 MHz LTE Coverage with Proposed Site*” shows the composite coverage with the proposed “Rochester 3” facility. As shown by the additional areas of coverage, the proposed facility will provide coverage to:

- ~ 1.2 mi along Route 16 (Spaulding Turnpike);
- ~ 1.7 mi along Blackwater Road;
- ~ 0.8 mi along Tebbetts Road;
- ~ 0.7 mi a Pickering Road and Route 16B (Old Rochester Road);
- ~ 1,200 new residents⁵ and ~ 200 employees⁶ within the surrounding area;
- The surrounding roads and neighborhoods in the proximity of the proposed site and the above-mentioned roads.

⁵ Residential population counts referenced here and elsewhere in this report are based upon the 2010 U.S. Census data. Please note that this does not include employee, visitor, or vehicular counts in the area.

⁶ Employee population counts referenced here and elsewhere in this report are based upon the 2015 U.S. Census Bureau LEHD database.

Attachment C titled “Rochester 3 – Existing 700 MHz LTE Sector Footprints” depicts the areas primarily served by the sectors (a.k.a. signal “footprints”) of the “On-Air” Verizon Wireless macro sites in the area, which are shown by the unique color for each particular sector of interest. For clarity, all other sectors of less interest with respect to the proposed site are shown in grey. As demand for wireless voice and data services continues to grow, Verizon Wireless manages the footprint of each sector so that it can support the demand within the area it is primarily serving. In addition to improving coverage to the area, the proposed site will also serve existing and anticipated demand in the vicinity and thereby offload some of the burden experienced by the surrounding sites. In that way, those sites will be able to more adequately serve the demand for service in the areas nearer to those surrounding sites. Please note that the outer parts of each sector footprint may include areas that presently have signal strength below the targeted value required for reliable service to Verizon Wireless’ customers. The fact that low-level signal may reach these areas does not mean that these areas experience adequate coverage. These unreliable areas of low signal level can impose a significant capacity burden on the sites primarily serving the area.

Attachment D titled “Rochester 3 - 700 MHz LTE Sector Footprints with Proposed Site” shows the composite coverage with the overall footprint of the proposed facility in dark green. As shown in this map, the proposed “Rochester 3” facility is an effective solution to provide capacity relief to the area, particularly to the “Rochester C” beta sector (red) and the “Dover Nw” alpha sector (orange). The proposed facility is centrally located in the area of deficient coverage making it particularly suited to distribute the traffic load across multiple sectors, and provide a dominant server to this pocket of usage. Table 2 below details the capacity relief based on the sector footprints shown in Attachments C and D.

Sector	Current			With "Rochester 3"			Offload Summary		
	Employee Pops	Residential Pops	Area (mi ²)	Employee Pops	Residential Pops	Area (mi ²)	Total Employee Pops Offloaded	Total Residential Pops Offloaded	Area Offloaded (mi ² /%)
Rochester 3 Beta	540	2223	3.53	337	1539	1.85	203 (37.6%)	684 (30.8%)	1.68 (47.6%)
Dover Nw Alpha	339	1223	2.92	311	1055	2.35	28 (8.3%)	168 (13.7%)	0.57 (19.5%)

Table 2: Capacity Offload Summary

Attachment E titled “Rochester 3 – Area Terrain Map” details the topographical features around the proposed “Rochester 3” site. These terrain features play a key role in dictating both the unique coverage areas served from a given location, and the coverage gaps within the network. This map is included to provide a visual representation of the terrain variations that must be considered when determining the appropriate location and design of a proposed wireless facility. The blue and green shades correspond to lower elevations, whereas the orange, red, and grey shades indicate higher elevations.

8. Certification of Non-Interference

Verizon Wireless certifies that the proposed facility will not cause interference to any lawfully operating emergency communication system, television, telephone or radio, in the surrounding area. The FCC has licensed Verizon Wireless to transmit and receive in the Upper C-Block of the 700 MHz band, B Block of the Cellular (850 MHz) band, the C3, E, and F Blocks of the PCS (1900 MHz) band, and the B, D, and E Blocks of the AWS (2100 MHz) band of the RF spectrum. As a condition of the FCC licenses, Verizon Wireless is prohibited from interfering with other licensed devices that are being operated in a lawful manner. Furthermore, no emergency communication system, television, telephone, or radio is licensed to operate on these frequencies, and therefore interference is highly unlikely.

9. Summary

In undertaking its build-out of 4G LTE service in Strafford County, Verizon Wireless has determined that an additional facility is needed to provide reliable service and additional capacity throughout areas of southern Rochester, NH. Verizon Wireless determined that collocating on the proposed wireless communications facility at 133 Blackwater Road in Rochester at an antenna centerline height of 145 feet (AGL) will provide additional coverage and capacity needed in the targeted coverage areas including key roadways such as Route 16 (Spaulding Turnpike), and the surrounding roads and neighborhoods in the proximity of the proposed site. Without the installation of the proposed site, Verizon Wireless will be unable to improve and expand their existing 4G LTE wireless communication services in this area of Rochester; therefore, Verizon Wireless respectfully requests that the City of Rochester act favorably upon the proposed facility.

10. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate.

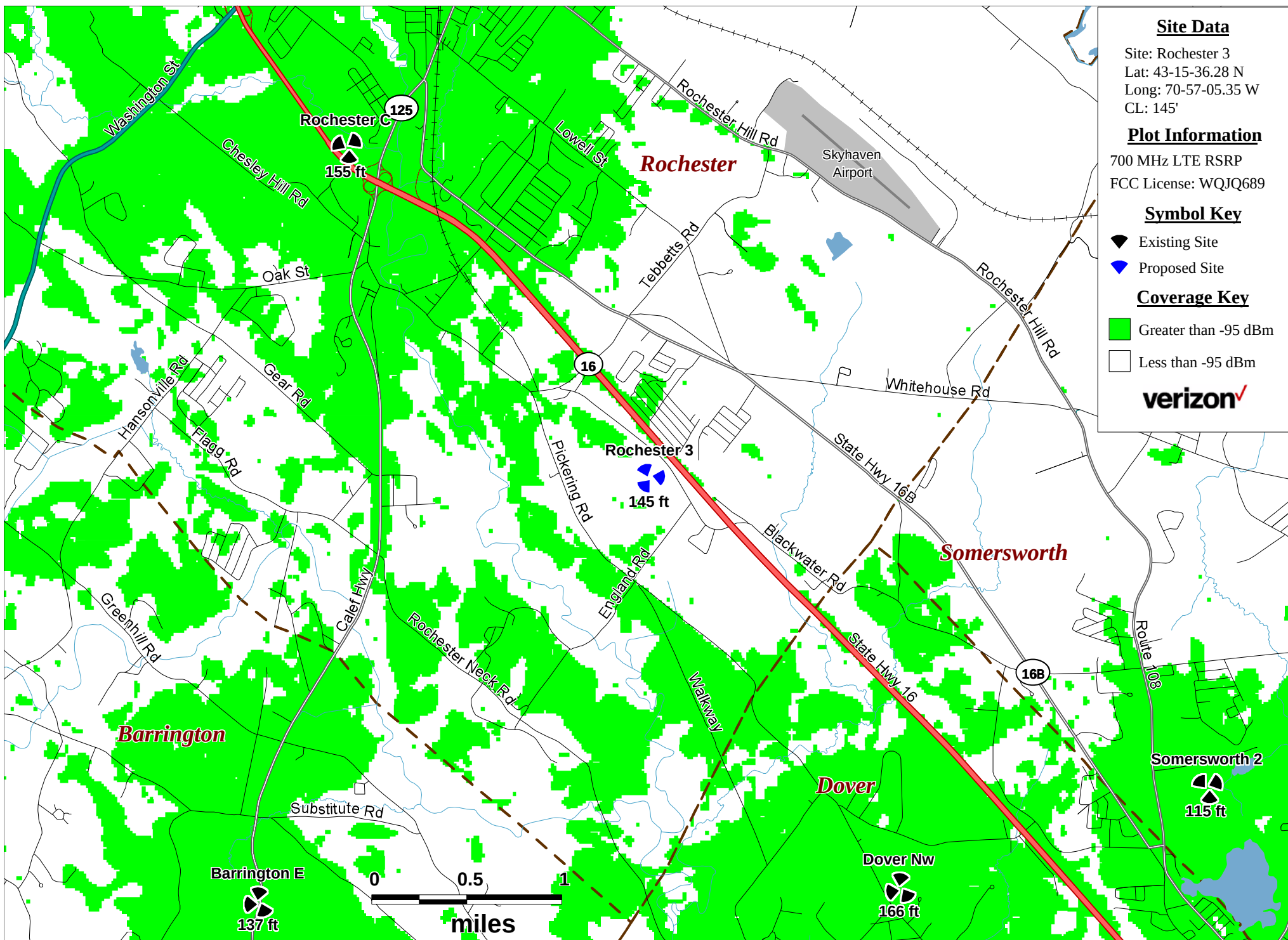


Keith Vellante
RF Engineer
C Squared Systems, LLC

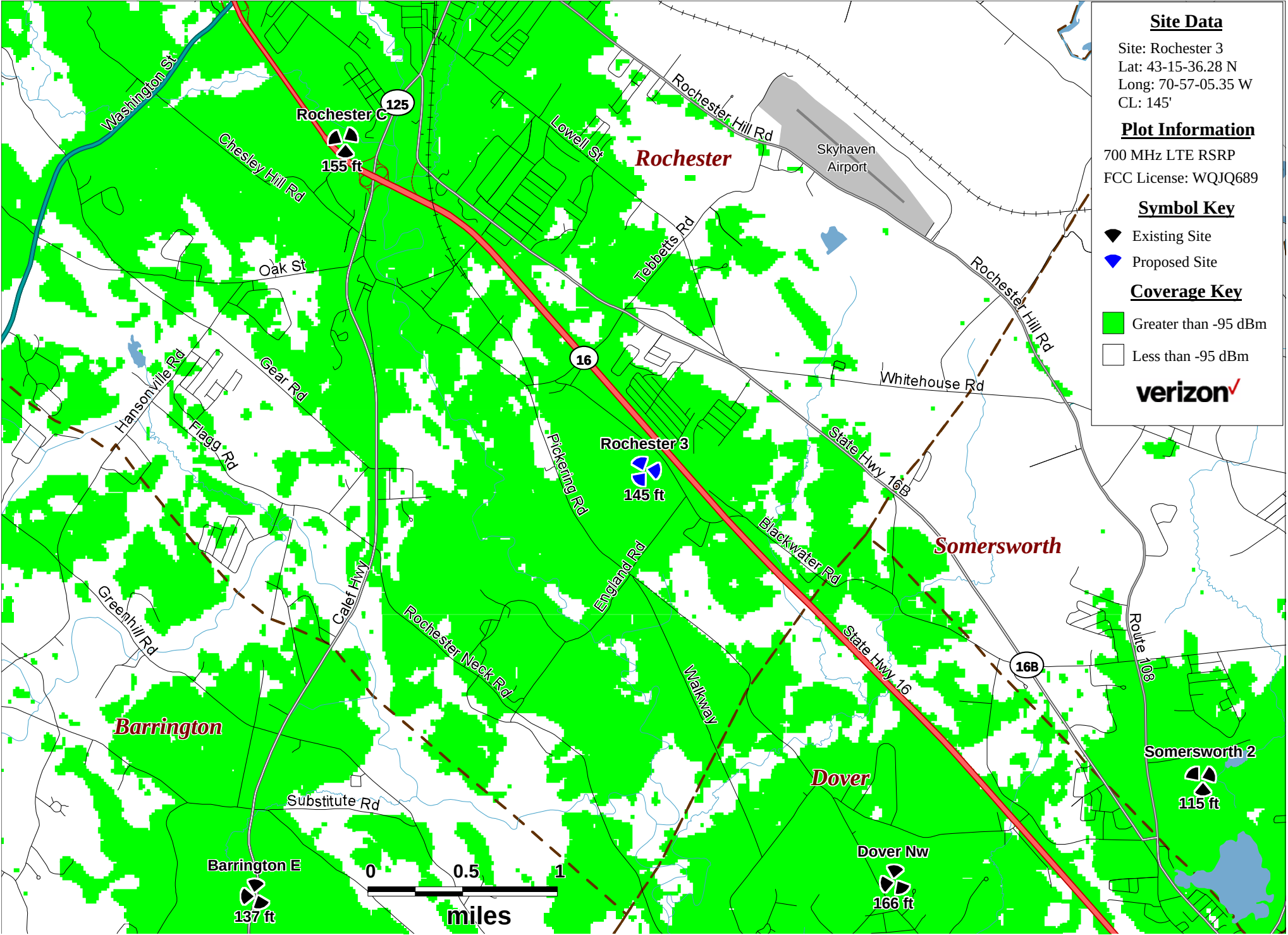
October 21, 2018
Date

11. Attachments

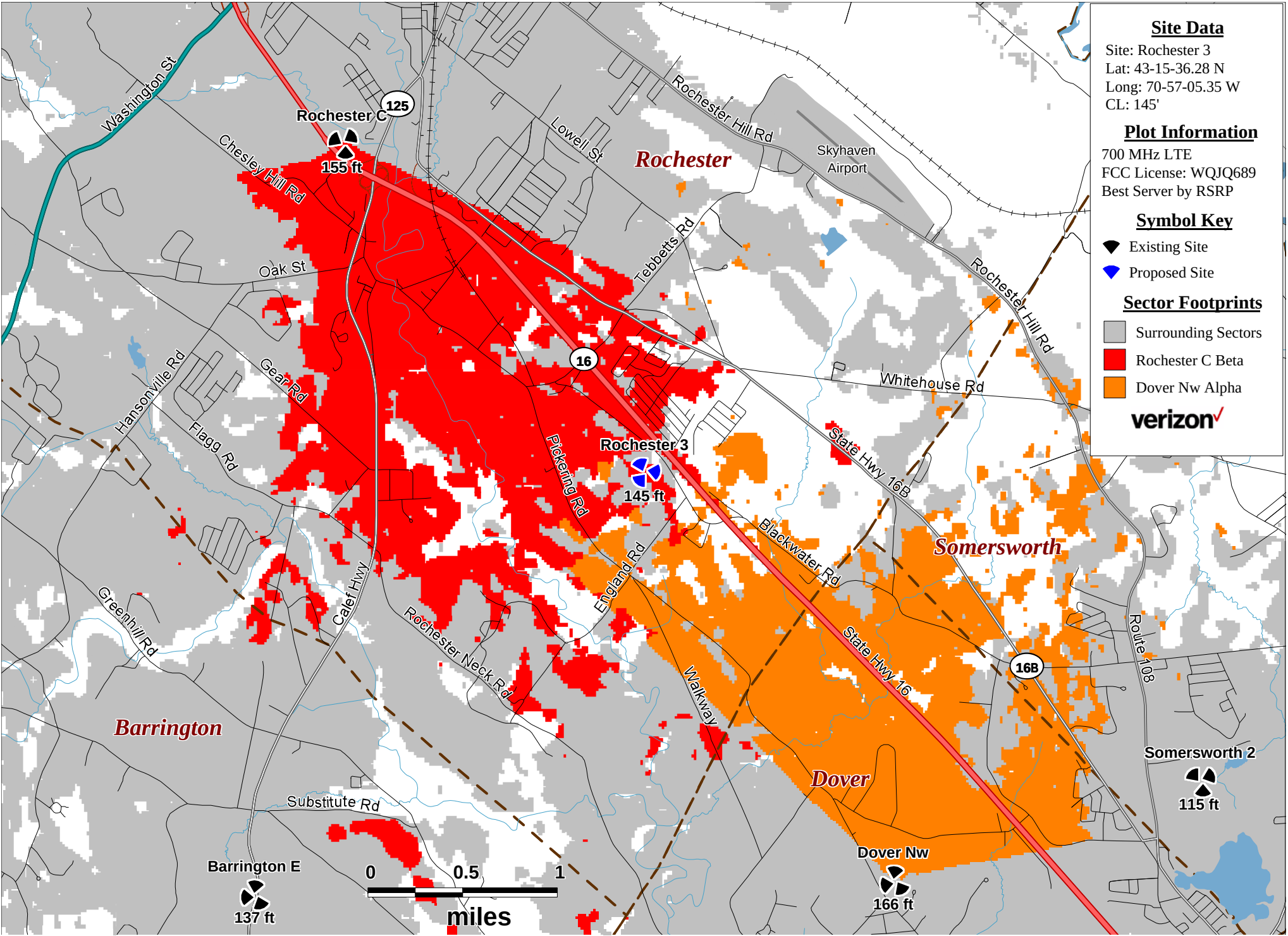
Attachment A:
Rochester 3 - Existing 700 MHz LTE Coverage



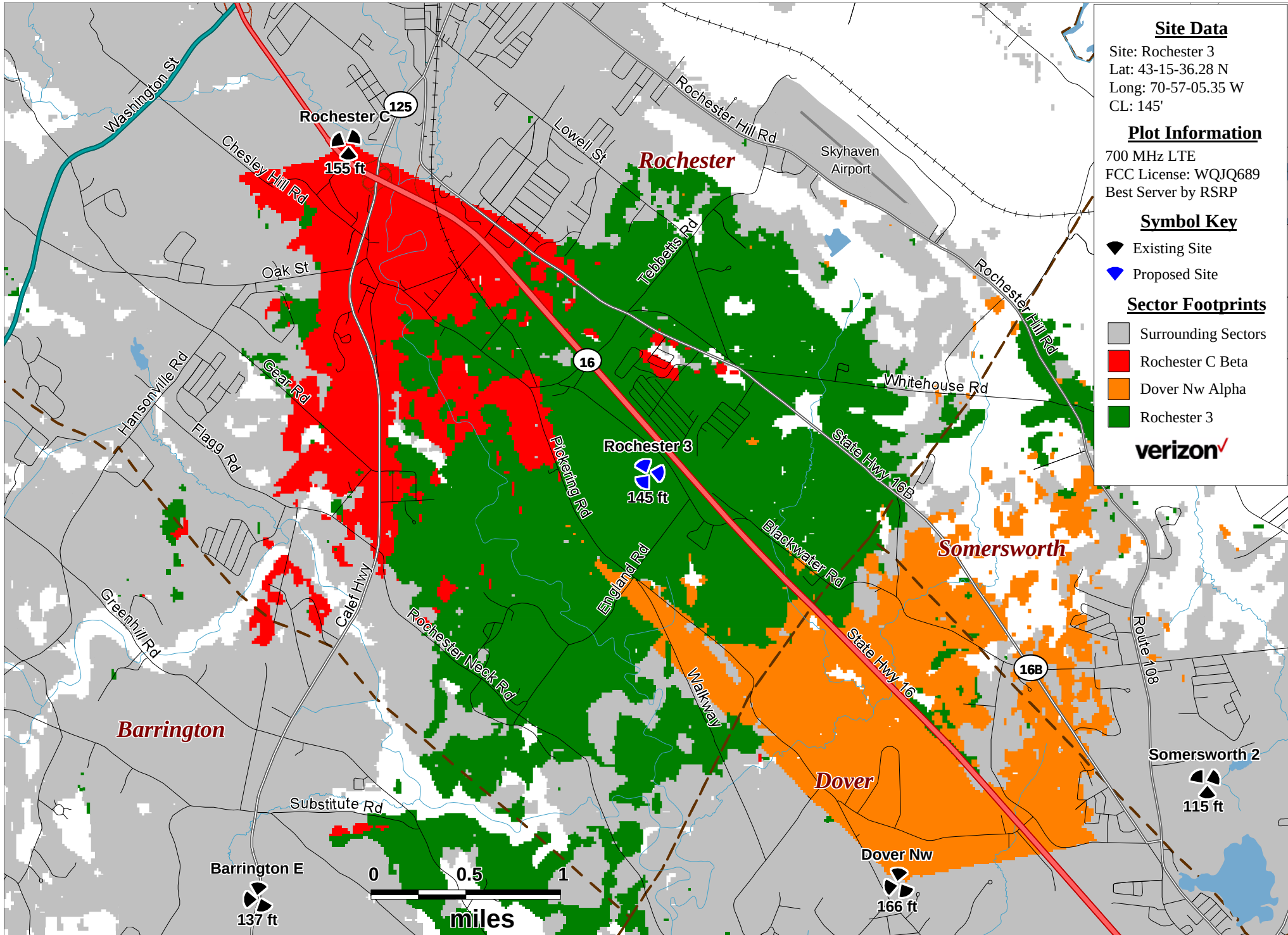
Attachment B:
Rochester 3 - 700 MHz LTE Coverage with Proposed Site



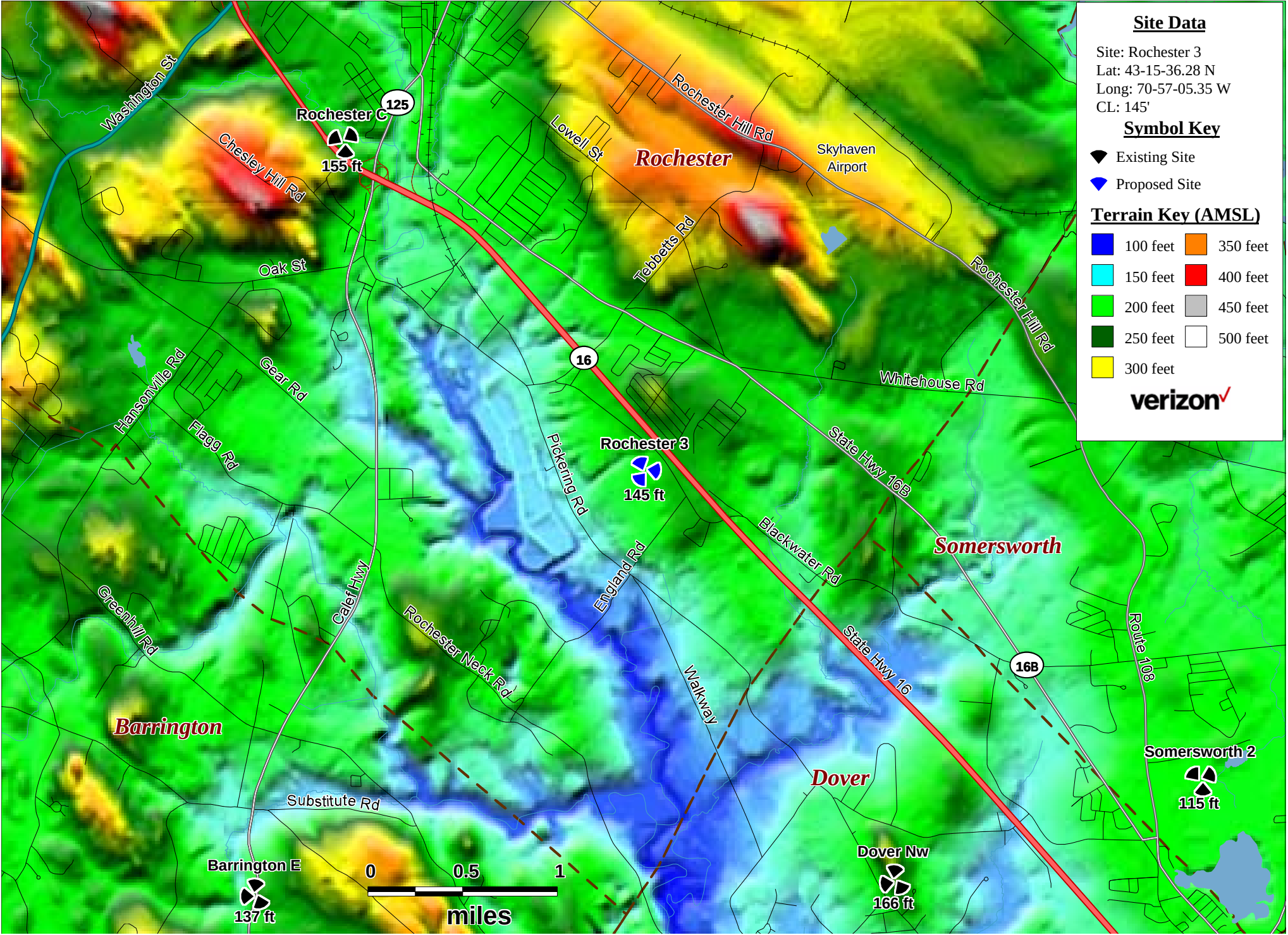
Attachment C:
Rochester 3 - Existing 700 MHz LTE Sector Footprints



Attachment D:
Rochester 3 - 700 MHz LTE Sector Footprints with Proposed Site



Attachment E:
Rochester 3 - Area Terrain Map

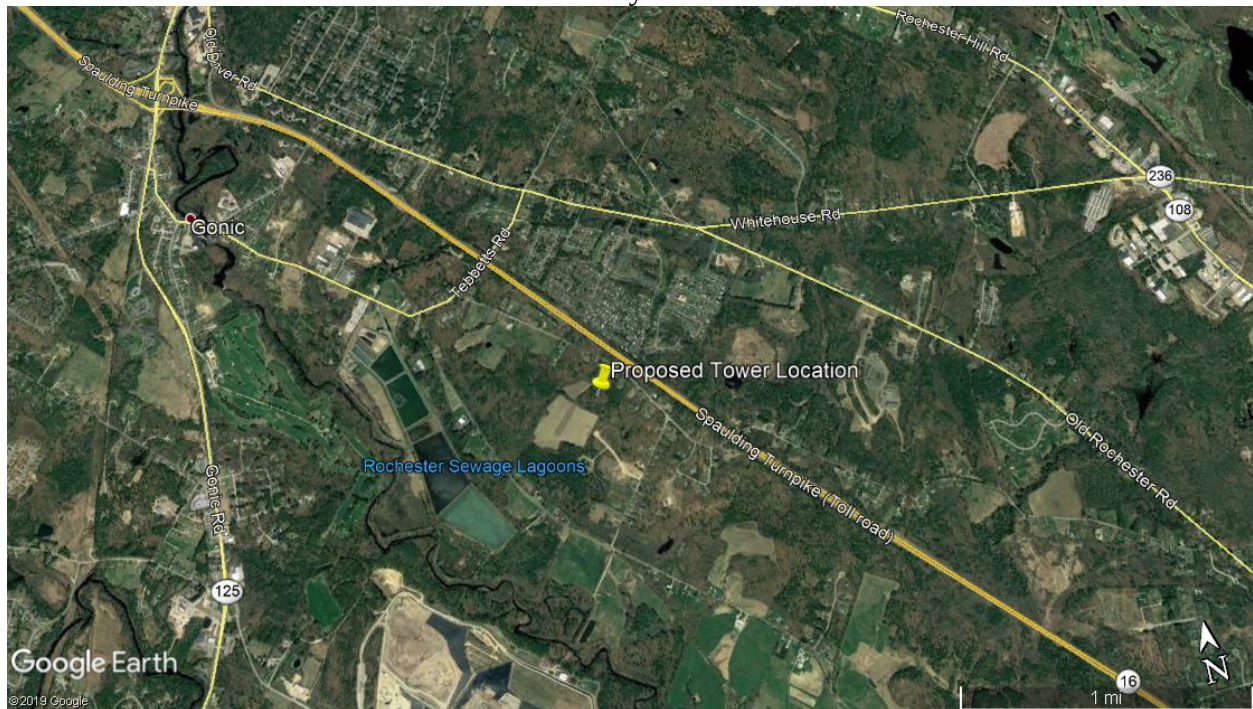




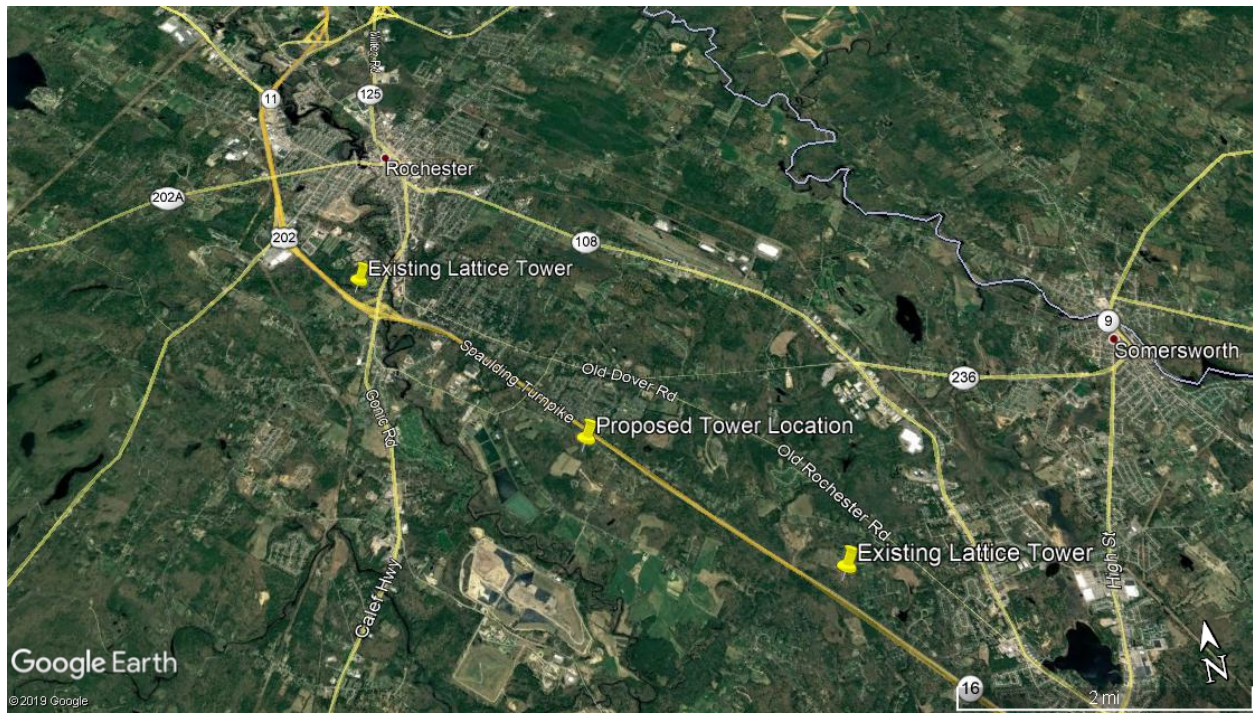
EXISTING AND ALTERNATIVE SITE ANALYSIS

Rochester, NH -

Vicinity MAP



Overall Aerial Map Existing Structures in Area



Existing Structure:

Structure type: Lattice Tower

Address: Off Wadleigh Road, Rochester, NH

Lat/Lon: 43-17-07, -70-58-19

Owner: Crown Castle International

Available AGL: Up to 105'

Ground space available: Yes

Existing Carriers: Yes

Notes: 3 Major Carriers on tower. Approximately 2.3 miles from proposed site

Aerial View



Street View Wadleigh Road Tower



Existing Structure Parsons Lane Somersworth, NH:

Structure type: Existing Tower

Address: Off Parsons Lane, Somersworth, NH

Lat/Lon: 43-14-25, -70-55-06

Owner: American Tower

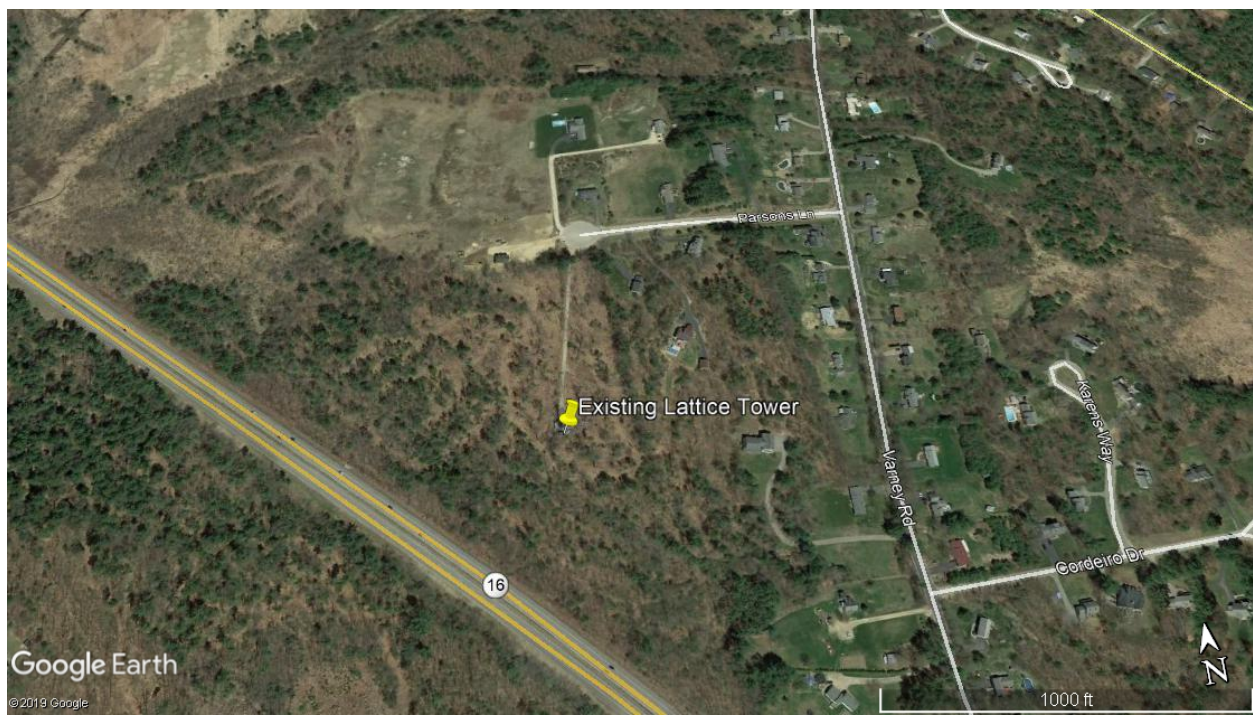
Available AGL100'

Ground space available: Yes

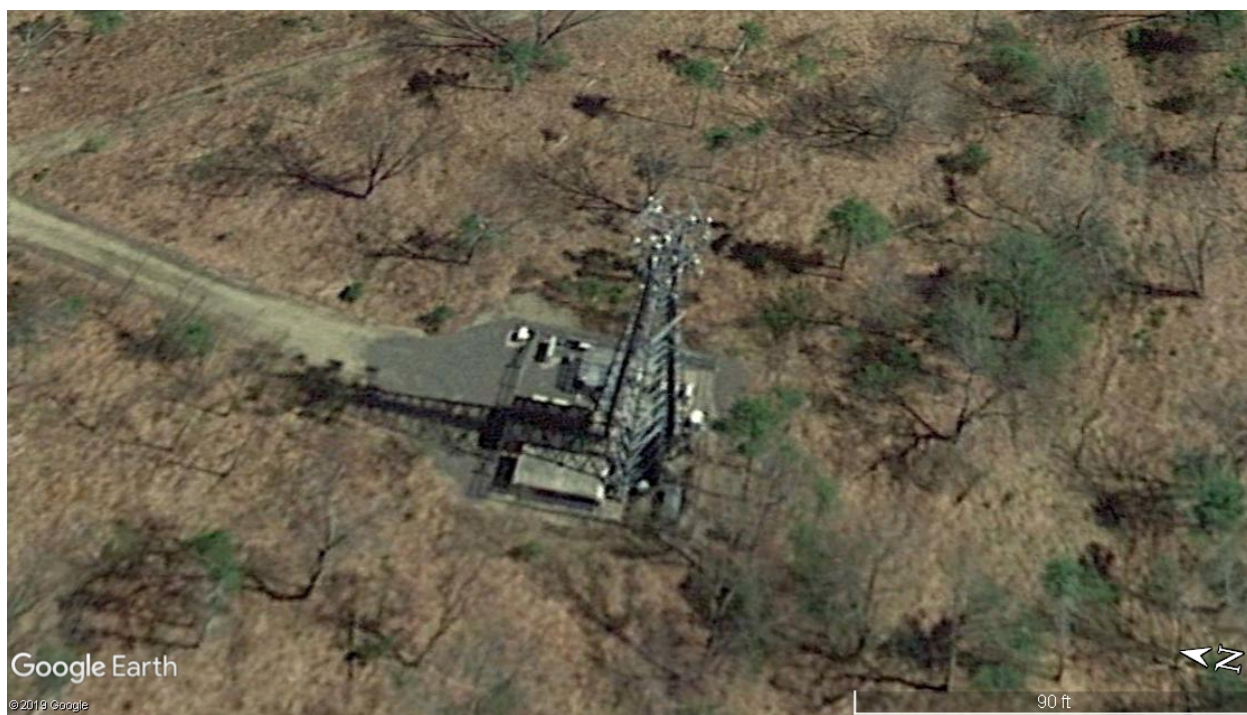
Existing Carriers: Yes

Notes: Existing Lattice Tower. 3 Major Carriers on Tower. Approximately 2.1 miles away from proposed site

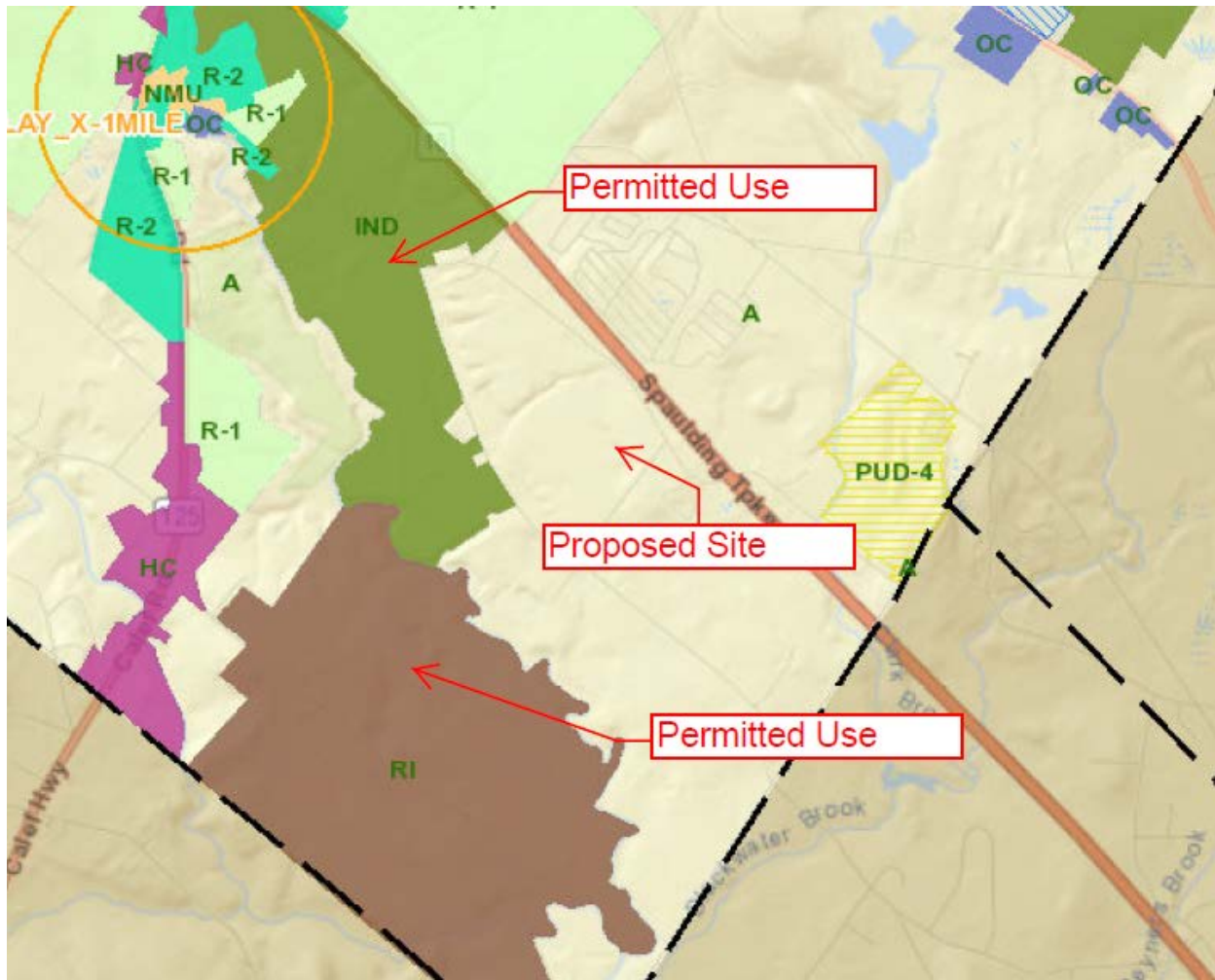
Aerial View



Aerial View Parsons Lane



Analysis of locations in closest by-right districts



There are 2 districts in somewhat proximity to the proposed site which towers are allowed as of right. One district is the RI district located approximately 1 mile south. It consists primarily of the Waste Management Recycling Facility. This district does not provide the required coverage to Route 16 due to its location 1 mile south. In addition, this district is approximately 85' +/- lower in elevation to the proposed property (120' AMSL compared to 204' for subject property. While a tower could be built in this district, its coverage would not change the need to a tower at the subject location.

RI District in relation to Proposed Site



This aerial map displays a residential neighborhood with yellow property boundaries and blue lot numbers. A blue line connects two green dots on the map. The map shows a mix of green spaces, roads, and buildings.





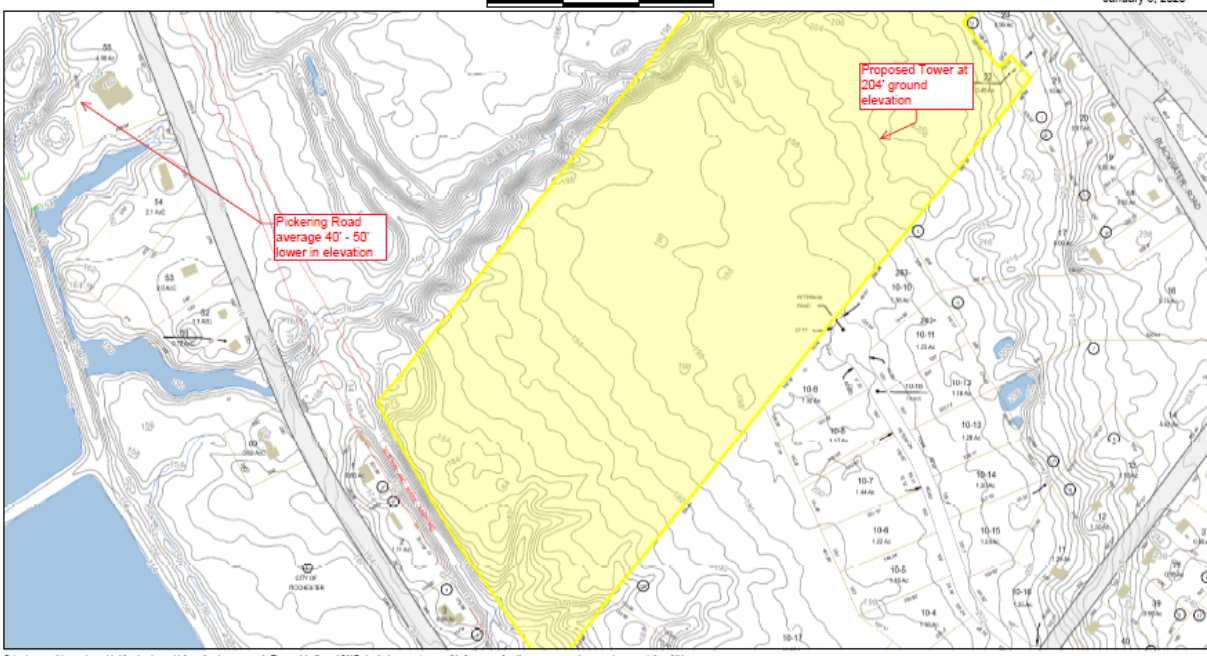
Countour Map Blackwater

Rochester, NH

1 inch = 250 Feet



January 3, 2020



Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

6

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

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617-680-6262

Email: donald_haes_chp@comcast.net

March 10, 2020

RE: Installation of antennas and associated equipment for the PWS facility to be mounted on a proposed monopole at 133 Blackwater Road, Rochester, NH.

PURPOSE

I have reviewed the information pertinent to the proposed installation at the above location. To determine regulatory compliance, theoretical calculations of maximal radio-frequency (RF) fields have been prepared. The physical conditions are that Everest Infrastructure Partners proposes to install a proposed 150' monopole at 133 Blackwater Road, Rochester, NH (See Figure 2). Verizon Wireless has proposed to mount their personal wireless services (PWS) antennas with remote radio head units in three (3) sectors aimed about 120° apart at a centerline mounting height of 145' above ground level (AGL). The monopole will be designed to host two (2) additional PWS directional antennas and associated radio equipment mounted at centerline heights at 10-foot intervals down the monopole.

The theoretical calculations consider the contributions of the proposed Verizon Wireless and two additional PWS providers' transmitters operating at their proposed FCC licensed capacity. The calculated RF field values are presented as a percent of current Maximum Permissible Exposures (%MPE) as adopted by the Federal Communications Commission (FCC).^{i,ii}

SUMMARY

This report is intended to provide written evidence that RF fields on the ground from the proposed Verizon Wireless PWS facility would comply with the FCC RF exposure guidelines. The resulting data indicate the summation of the proposed Verizon Wireless PWS RF contributions would be within the established RF exposure guidelines in all accessible areas on the ground (see Figure 3). Supplementary calculations for the installation of two (2) additional PWS installations further indicates compliance with the established RF exposure guidelines in all accessible areas on the ground as well (see Figure 4). **The results support compliance with the pertinent sections of the FCC's guidelines for RF exposure.**

Based on the results of the theoretical RF fields I have calculated; it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure with the proposed Verizon Wireless antenna and transmitter installations, and even if the monopole were to be "fully loaded" with two (2) additional PWS providers.

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; **VERIZON WIRELESS PWS facility mounted on the proposed monopole at 133 Blackwater Road, Rochester, NH.** Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

EXPOSURE LIMITS AND GUIDELINES

RF exposure guidelines enforced by the FCC were established by the American National Standards Institute (ANSI)ⁱⁱⁱ and the National Council on Radiation Protection and Measurement (NCRP).^{iv} The RF exposure guidelines are listed for RF workers and members of the public. The applicable FCC RF exposure guidelines for the public are listed in Table 1 and depicted in Figure 1. All listed values are intended to be averaged over any contiguous 30-minute period. Note that RF exposure guidelines for trained “RF workers” are five (5) times the values for the general public.

Table 1: Maximum Permissible Exposure (MPE) Values in Public Areas			
Frequency Bands	Electric Fields	Magnetic Fields	Equivalent Power Density
0.3–1.34 MHz	614 (V/m)	1.63 (A/m)	(100) mW/cm ²
1.34–30 MHz	824/ <i>f</i> (V/m)	2.19/ <i>f</i> (A/m)	(100) mW/cm ²
30–300 MHz	27.5 (V/m)	0.073 (A/m)	0.2 mW/cm ²
300–1500 MHz	--	--	<i>f</i> / 1500 mW/cm²
1500–100,000 MHz	--	--	1.0 mW/cm²

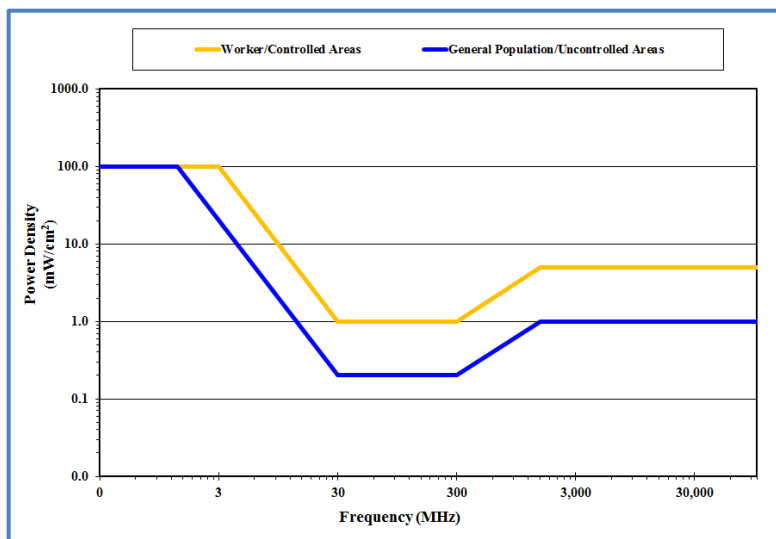


Figure 1: FCC Limits for Maximum Permissible Exposure (MPE)

NOTE: FCC 5% Rule – At multiple transmitter sites, actions necessary to bring the area into compliance with the RF exposure guidelines are the shared responsibility of all licensees whose transmitters produce RF field levels in excess of 5% of the applicable FCC MPEs.

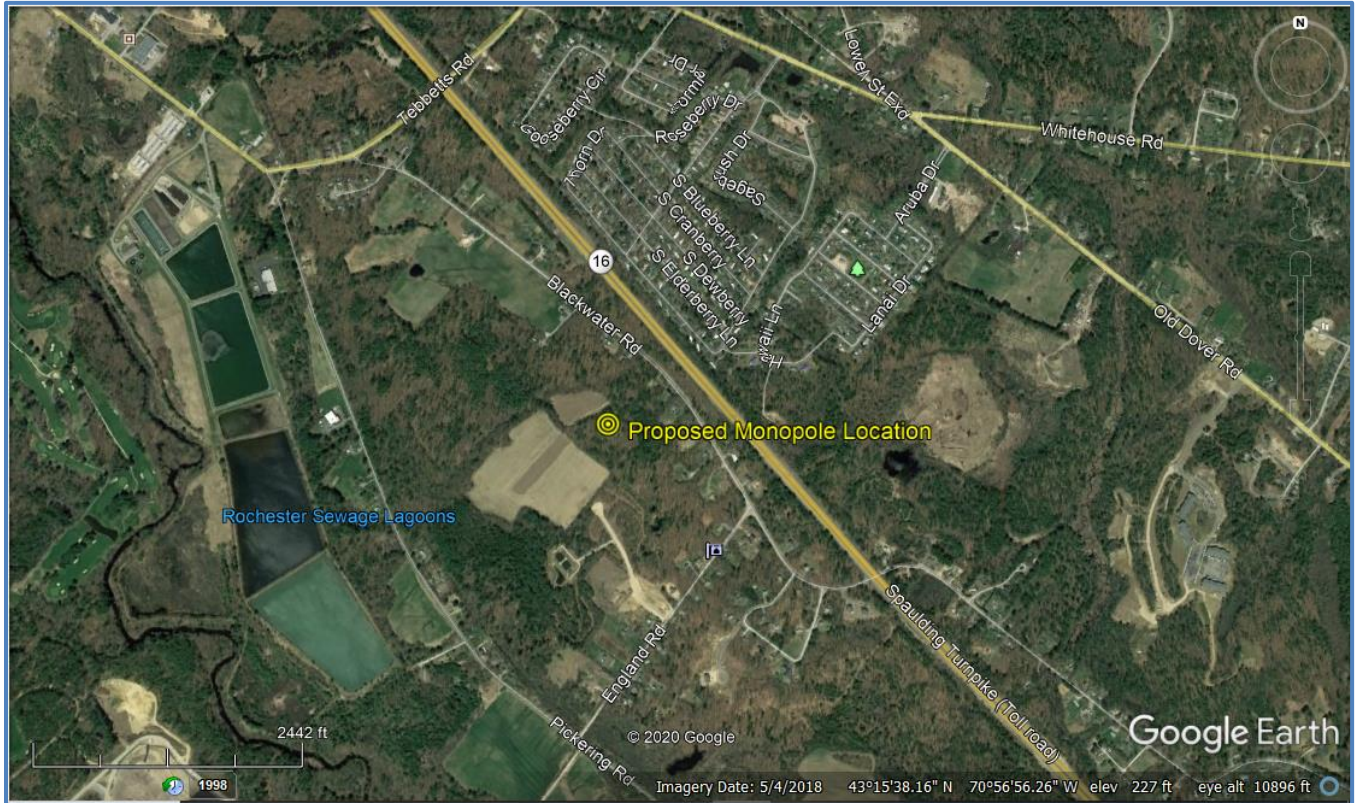


Figure 2: Proposed Monopole Location
133 Blackwater Road, Rochester, NH
 (Picture courtesy Google Earth®)

OBSERVATIONS IN CONSIDERATION WITH FCC RULES §1.1307(B) & §1.1310

Will it be physically possible to stand next to or touch any omnidirectional antenna and/or stand in front of a directional antenna?

NO; access to the proposed monopole will be restricted, and the site will adhere to established RF safety guidelines regarding the transmitting antennas, including the appropriate signage.

THEORETICAL RF FIELD CALCULATIONS - GROUND LEVELS

METHODOLOGY

These calculations are based on what are called "worst-case" estimates. That is, the estimates assume 100% use of all transmitters simultaneously. For these calculations, the surrounding area was assumed to be a flat plane, even though there is a general slope away from the monopole. Note that any loss along the horizontal direction was neglected which means the results would be the maximum values in any direction. The resultant values are thus conservative in that they over-predict actual resultant power densities. The data used to prepare the theoretical RF field calculations are outlined in Tables 2 and 3 for the proposed Verizon Wireless and future PWS transmitters, respectively.

The calculations are based on the following information:

1. **Effective Radiated Power (ERP):** See Tables 2 and 3 Appendix A data).
2. **Antenna Height (Centerline, Above Ground Level (AGL):** Simple trigonometry was used to determine the resultant "RANGE" and the antenna depression angles.
3. **Antenna Vertical Energy Patterns:** The source of the negative gain (G) values, see Appendix B. Omni-directional antennas are designed to send out relatively equal power in all directions. "Directional" antennas are designed to focus the RF signal, resulting in "patterns" of signal loss and gain. Antenna vertical energy patterns display the loss of signal strength relative to the direction of propagation due to elevation angle changes.

The magnitude of the RF field (the power density (S)) from an isotropic RF source is calculated making use of the power density formula as outlined in FCC's OET Bulletin 65, Edition 97-01: ^v

$$S = \frac{P \cdot G}{4 \cdot \pi \cdot R^2}$$

Where:

- P → Power to antenna (Watts)
- G → Gain of antenna
- R → Distance (range) from antenna source to point of intersection with the ground (feet)
- $R^2 = (\text{Height})^2 + (\text{Horizontal distance})^2$

Since: $P \cdot G = \text{EIRP}$ (Effective Isotropic Radiated Power), and for the situation of off-axis power density calculations, apply the negative elevation gain (G^E) value from the vertical energy patterns with the following formula:

$$S = \frac{\text{EIRP} \cdot G^E}{4 \cdot \pi \cdot R^2}$$

Ground reflections may add in-phase with the direct wave, and essentially double the electric field intensity. Because power density is proportional to the *square* of the electric field, the power density may quadruple, that is, increase by a factor of four (4).

Since ERP is routinely used, convert ERP into EIRP by multiplying by the factor of 1.64 (the gain of a ½-wave dipole relative to an isotropic radiator).

$$S = \frac{4 \cdot (\text{ERP} \cdot 1.64) \cdot G^E}{4 \cdot \pi \cdot R^2} = \frac{\text{ERP} \cdot 1.64 \cdot G^E}{\pi \cdot R^2} = \frac{0.522 \cdot \text{ERP} \cdot G^E}{R^2}$$

To calculate the % MPE, use the formula:

$$\% \text{ MPE} = \frac{S}{\text{MPE}} \cdot 100$$

THEORETICAL RF FIELD CALCULATIONS – DATA

For Tables 2 and 3, the following abbreviations were used:

Personal Wireless Services (PWS) Technologies

AWS: Advanced Wireless Services

CDMA: Code Division Multiple Access (a.k.a. “Cellular”)

LTE: Long Term Evolution (a.k.a. “4G”)

ERLTE: Extended Range LTE (600 MHz).

PCS: Personal Communication System

UMTS: Universal Mobile Telecommunications Services

WCS: Wireless Communication Service

Note that Table 2 contains data for the proposed Verizon Wireless installation at this specific location. The additional PWS providers contained in Table 3 are purely speculative as far as location on the monopole. The accompanying information, however, is actual PWS data used for the “typical” installation in similar circumstances, and represents a good faith estimate of the additional equipment on the monopole.

Table 2: Transmitter and Antenna Data and Supporting Parameters for Proposed Verizon Wireless PWS Installation. Monopole at 133 Blackwater Road, Rochester, NH

Remote Radio Head Unit (RRH or RRU; See Appendix A)			Antenna See Appendix B for Energy Patterns			
Model	Frequency (MHz) [†] / Technology	# Tx X Output Power (Watts) [‡]	Manufacturer/ Model	Gain (dBd)	ERP (Watts) ^{**}	Centerline Height (‘AGL)
ANY SECTOR (A, B, or C)						
RFV01U-D2A (B13)	777 / LTE	2 X 60	CommScope/ NHH-45A-R2B	13.14	2,473	145.0’
RFV01U-D2A (B5)	850 / CDMA	4 X 40	CommScope/ NHH-45A-R2B	14.15	4,160	145.0’
RFV01U-D1A (B2)	1948 / LTE	4 X 40	CommScope/ NHH-45A-R2B	16.37	6,936	145.0’
RFV01U-D1A (B66)	2100 / LTE	4 X 60	CommScope/ NHH-45A-R2B	16.92	11,809	145.0’

Table Notes

[†]Transmitter (Tx) Frequency: Central transmit frequency used to account for multiple channels.

[‡] Maximum rated output power (per channel).

****ERP:** Effective Radiated Power is the directional (RF) power (in Watts) that would have to be radiated by a half-wave dipole antenna to give the same radiation intensity as the actual source at a distant receiver located in the direction of the antenna's strongest beam (main lobe). ERP measures the combination of the power emitted by the transmitter and the ability of the antenna to direct that power in a given direction. It is equal to the input power to the antenna multiplied by the gain of the antenna. (Source Wiki).

**Table 3: Transmitter and Antenna Data and Supporting Parameters for
Additional PWS Providers: Monopole at 133 Blackwater Road, Rochester, NH**

Remote Radio Head Unit (RRH or RRU) (See Appendix A)			Antenna See Appendix B for Energy Patterns			
Model	Frequency(MHz) [†] /Technology	Tx X Output Power (watts) [‡]	Manufacturer/ Model	Gain (dBd)	ERP (watts) ^{**}	Centerline Height (‘AGL)
Additional PWS Provider (e.g. AT&T Mobility)						
RRUS-4478	720 / LTE-700	4 X 40	KMW/EPBQ-654L8	15.5	5,677	135.0’
RRUS-8843	2130 / AWS-2100	4 X 60	KMW/EPBQ-654L8	18.1	15,496	135.0’
RRUS-4449	2330 / WCS-2300	1 X 60	KMW/EPBQ-654L8	15.5	10,330	135.0’
RRUS-4449	850 / ERLTE-850	1 X 60	KMW/EPBQ-654L8	16.1	2,444	135.0’
RRUS-8843	1930 / PCS	4 X 40	KMW/EPBQ-654L8	17.5	8,997	135.0’
Additional PWS Provider (e.g. T-Mobile)						
RRUS-4478	1945-1950,1965- 1970 MHz / PCS	2 X 40	RFS/APXVAARR24	15.1	2,570	125.0’
RRUS-8843	2140 / AWS-2100	2 X 40	RFS/APXVAARR24	14.5	2,239	125.0’
RRUS-4449	720 / LTE-700	2 X 20	RFS/APXVAARR24	15.5	1,413	125.0’

RESULTS

The results of the theoretical Cumulative Maximum Percent MPE - vs. - Distance calculations are shown in Figure 3 for the **proposed Verizon Wireless** RF transmitters. The values have been plotted against linear distance from the base of the proposed monopole representing the highest possible values in any direction. The values have been calculated for a height of six feet above ground level in accordance with regulatory rationale. Values for 16’ AGL have also been calculated to represent values on the top floor of a typical two-story structure. Note that a logarithmic scale was used to plot the calculated values in order to compare with the MPE of 100%, which is so much larger that it would be off the page in a linear plot.

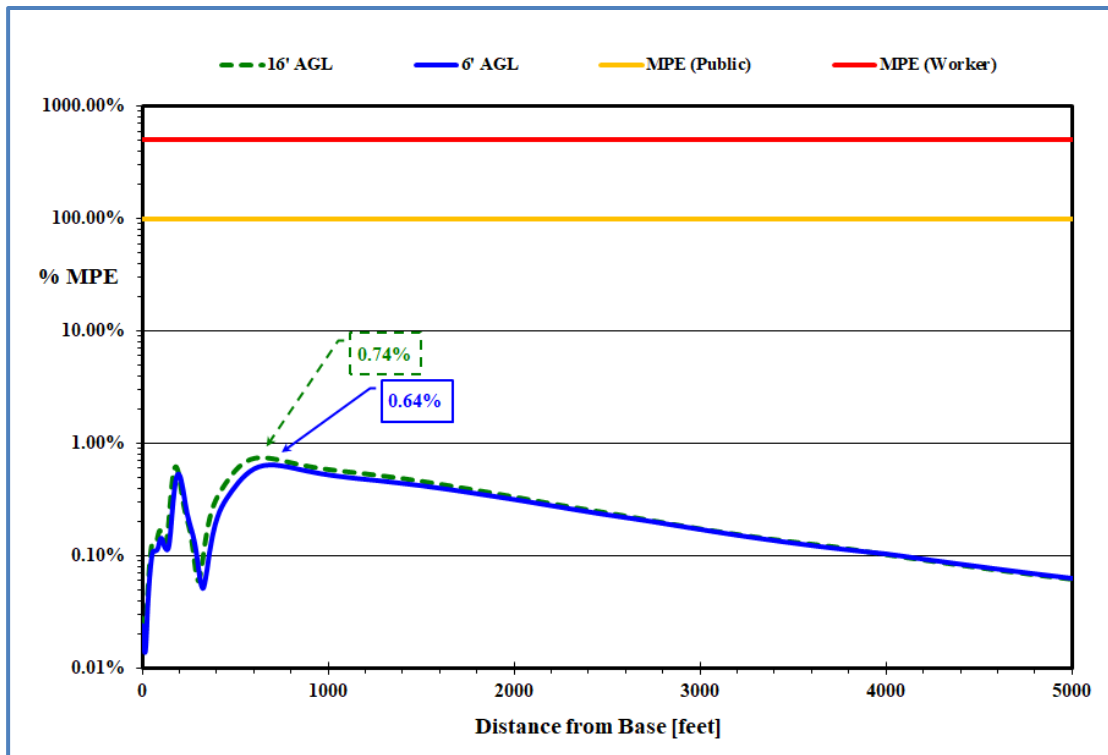


Figure 3: Theoretical Cumulative Maximum Percent MPE - vs. - Distance; Highest Values at Ground Level In Any Direction from *Proposed Verizon Wireless* RF Emissions.

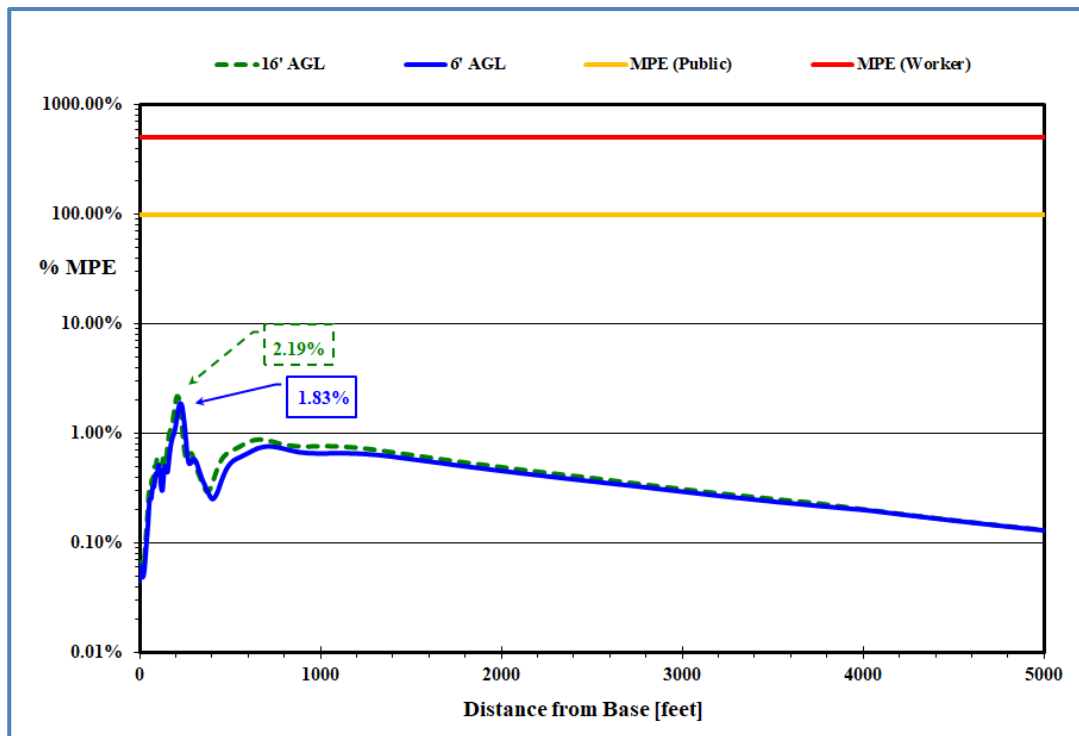


Figure 4: Theoretical Cumulative Maximum Percent MPE - vs. - Distance; Highest Values at Ground Level In Any Direction *from Proposed Verizon Wireless PLUS Two Additional PWS Providers'* RF Emissions.

CONCLUSION

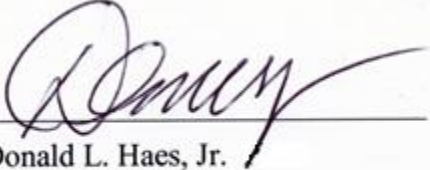
This report is intended to provide written evidence that RF fields on the ground from the proposed Verizon Wireless PWS facility would comply with the FCC RF exposure guidelines. The resulting data indicate the summation of the proposed Verizon Wireless PWS RF contributions would be within the established RF exposure guidelines in all accessible areas on the ground (see Figure 3). Supplementary calculations for the installation of two (2) additional PWS installations further indicates compliance with the established RF exposure guidelines in all accessible areas on the ground as well (see Figure 4). **The results support compliance with the pertinent sections of the FCC's guidelines for RF exposure.**

The number and duration of calls passing through PWS facilities cannot be accurately predicted. Thus, to estimate the highest RF fields possible from operation of these installations, the maximal amount of usage was considered. Even in this so-called "worst-case," the resultant increase in RF field levels are far below established levels considered safe.

Based on the results of the theoretical RF fields I have calculated; it is my expert opinion that this facility would comply with all regulatory guidelines for RF exposure with the proposed Verizon Wireless antenna and transmitter installations, and even if the monopole were to be "fully loaded" with two (2) additional PWS providers.

Feel free to contact me if you have any questions.

Sincerely,



Donald L. Haes, Jr.
Certified Health Physicist

Note: The analyses, conclusions and professional opinions are based upon the precise parameters and conditions of this particular site; **VERIZON WIRELESS PWS facility mounted on the proposed monopole at 133 Blackwater Road, Rochester, NH.** Utilization of these analyses, conclusions and professional opinions for any personal wireless services installation, existing or proposed, other than the aforementioned has not been sanctioned by the author, and therefore should not be accepted as evidence of regulatory compliance.

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841

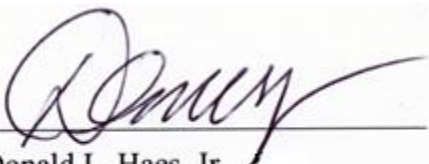
617-680-6262

Email: donald_haes_chp@comcast.net

STATEMENT OF CERTIFICATION

1. I certify to the best of my knowledge and belief, the statements of fact contained in this report are true and correct.
2. The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are personal, unbiased professional analyses, opinions and conclusions.
3. I have no present or prospective interest in the property that is the subject of this report and I have no personal interest or bias with respect to the parties involved.
4. My compensation is not contingent upon the reporting of a predetermined energy level or direction in energy level that favors the cause of the client, the amount of energy level estimate, the attainment of a stipulated result, or the occurrence of a subsequent event.
5. This assignment was not based on a requested minimum environmental energy level or specific power density.
6. My compensation is not contingent on an action or event resulting from the analyses, opinions, or conclusions in, or the use of, this report.
7. The consultant has accepted this assessment assignment having the knowledge and experience necessary to complete the assignment competently.
8. My analyses, opinions, and conclusions were developed and this report has been prepared, in conformity with the *American Board of Health Physics* (ABHP) statements of standards of professional responsibility for Certified Health Physicists.

Date: March 10, 2020



Donald L. Haes, Jr.
Certified Health Physicist

DONALD L. HAES, JR., CHP, CLSO

Radiation Safety Specialist

PO Box 198, Hampstead, NH 03841

617-680-6262

Email: donald_haes_chp@comcast.net

SUMMARY OF QUALIFICATIONS

- **Academic Training -**

- Graduated from Chelmsford High School, Chelmsford, MA; June 1973.
- Completed Naval Nuclear Power School, 6-12/1976.
- Completed Naval Nuclear Reactor Plant Mechanical Operator and Engineering Laboratory Technician (ELT) schools and qualifications, Prototype Training Unit, Knolls Atomic Power Laboratory, Windsor, Connecticut, 1-9/1977.
- Graduated Magna Cum Laude from University of Lowell with a Bachelor of Science Degree in *Radiological Health Physics*; 5/1987.
- Graduated from University of Lowell with a Master of Science Degree in *Radiological Sciences and Protection*; 5/1988.

- **Certification -**

- Board Certified by the American Board of Health Physics 1994; renewed 1998, 2002, 2006, 2010, 2014, and 2018. Expiration 12/31/2022.
- Board Certified by the Board of Laser Safety 2008; renewed 2011, 2014, 2017. Expiration 12/31/2020.

- **Employment History -**

- Consulting Health Physicist; Ionizing/Nonionizing Radiation, 1988 - present.
- Radiation, RF and Laser Safety Officer; BAE Systems, 2005–2018 (retired).
- Assistant Radiation Safety Officer; MIT, 1988 – 2005 (retired).
- Radiopharmaceutical Production Supervisor - DuPont/NEN, 1981 – 1988 (retired).
- United States Navy; Nuclear Power Qualifications, 1975 – 1981 (Honorably Discharged).

- **Professional Societies -**

- Health Physics Society [HPS].
- American Academy of Health Physics [AAHP]
- Institute of Electrical and Electronics Engineers [IEEE];
- International Committee on Electromagnetic Safety [ICES] (ANSI C95 series).
- Laser Institute of America [LIA].
- Board of Laser Safety [BLS].
- American National Standards Institute Accredited Standards Committee [ASC Z136].
- Committee on Man and Radiation [COMAR].

APPENDIX A

REMOTE RADIO HEAD UNITS

VERIZON WIRELESS

RFV01U-D1A RRU & RFV01U-D2A RRU

 CTK Co., Ltd. (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2017-01618 Page (4) / (608) Pages	
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1. General Information

1.1 Client Information

Company	Samsung Electronics Co., Ltd.
Contact Point	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Contact Person	Name : Kim, Jong-in E-mail : jered.kim@samsung.com Tel : +82-31-279-3096

1.2 Product Information

FCC ID	A3LRFV01U-D1A
Product Description	RRU (RFV01U)
Model name	RFV01U-D1A
Power Supply	-48 Vdc
Operating Frequency	- Band 66 DL : 2110 MHz- 2180 MHz, UL 1710 MHz - 1780 MHz - Band 2 DL : 1920 MHz- 1980 MHz, UL 1850 MHz - 1910 MHz
RF Output Power	- Band 66 2T(Single), BW 5 MHz : 40 W / path(Total 80 W) 2T(Single), BW 15 MHz : 90 W / path(Total 180 W) 4T(Single), BW 5 MHz : 20 W / path(Total 80 W) 4T(Single), BW 15 MHz : 60 W / path(Total 240 W) 2T(Multi, Contiguous), BW 5 MHz+5 MHz : 60 W / path(Total 120 W) 2T(Multi, Contiguous), BW 5 MHz+15 MHz : 80 W / path(Total 176 W) 4T(Multi, Contiguous), BW 5 MHz+5 MHz : 40 W / path(Total 160 W) 4T(Multi, Contiguous), BW 5MHz+15 MHz : 60 W / path(Total 240 W) 2T(Multi, Non-Contiguous), BW 5 MHz+5 MHz : 60 W / path(Total 120 W) 2T(Multi, Non-Contiguous), BW 15 MHz+5 MHz : 80 W / path(Total 176 W) 4T(Multi, Non-Contiguous), BW 5 MHz+5 MHz : 40 W / path(Total 160 W) 4T(Multi, Non-Contiguous), BW 15MHz+5 MHz : 60 W / path(Total 240 W) - Band 2 2T(Single), BW 5 MHz : 40 W / path(Total 80 W) 2T(Single), BW 15 MHz : 60 W / path(Total 120 W) 4T(Single), BW 5 MHz : 20 W / path(Total 80 W) 4T(Single), BW 15 MHz : 40 W / path(Total 160 W) 2T(Multi, Contiguous), BW 5 MHz+5 MHz : 60 W / path(Total 120 W) 2T(Multi, Contiguous), BW 5 MHz+15 MHz : 60 W / path(Total 160 W) 4T(Multi, Contiguous), BW 5 MHz+5 MHz : 40 W / path(Total 160 W) 4T(Multi, Contiguous), BW 5 MHz+15 MHz : 40 W / path(Total 160 W) 2T(Multi, Non-Contiguous), BW 5 MHz+5 MHz : 60 W / path(Total 120 W) 2T(Multi, Non-Contiguous), BW 15 MHz+5 MHz : 60 W / path(Total 160 W) 4T(Multi, Non-Contiguous), BW 5 MHz+5 MHz : 40 W / path(Total 160 W) 4T(Multi, Non-Contiguous), BW 15MHz+5 MHz : 40 W / path(Total 160 W)
Channel Bandwidth	5 MHz, 10 MHz, 15 MHz, 20 MHz
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM
Antenna Specification	Antenna type : Sector Maximum Peak Gain : below 19.7 dBi
FCC Rule	Part 2 : FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS Part 24 : PERSONAL COMMUNICATIONS SERVICES Part 27 : MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES KDB Publication 662911, D01 Multiple Transmitter Output v02v01

CTK-D151-06 R104 Rev.0

HCT CO.,LTD. 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA TEC: +82-31-645-6300 FAX: +82-31-645-6401	
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FCC REPORT	FCC Certification
Applicant Name: SAMSUNG Electronics Co.,Ltd. Address: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea	Date of Issue: August 7, 2017 Test Site/Location: HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA Report No.: HCT-R-1707-F009-2 HCT FRN: 0005866421

FCC ID: A3LRFV01 U-D2A APPLICANT: SAMSUNG Electronics Co.,Ltd.	
---	--

FCC Model: RFV01U-D2A EUT Type: RRU(RFV01 U) Frequency Range: TX : 746 756 MHz (Band 13) / 369 - 894 MHz (Band 5) RX : 777 787 MHz (Band 13) / 824 - 849 MHz (Band 5)	Conducted Output Power: Band 13 : 40W/path x 4 paths or 60W/path x 2 paths (Max output power : 160W) Band 5 : 40W/path x 4 paths or 60W/path x 2 paths (Max output power : 160W)
FCC Rule Part(s): 160W Data of Test: CFR 47 Part 2, Part 22, Part 27 June 28, 2017 July 21, 2017	

Engineering Statement;

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of FCC Part 27 of the FCC Rules under normal use and maintenance.


 Report prepared by : Kyung Soo Kang
 Engineer of Telecommunication testing center


 Approved by : Jong Seok Lee
 Manager of Telecommunication testing center

This report only responds to the tested sample and may not be reproduced, except in full, without written approval of the HCT Co., Ltd.

REMOTE RADIO HEAD UNITS ADDITIONAL PWS

REMOTE RADIO HEAD UNIT: RADIO 4478

RI SE	REPORT	Date 2017-06-29	Reference 7P04388-P90	Page 5 (72)
	Description of the test object			
Equipment: Radio equipment Radio 4478 B14 Product number KRC 161 669/3 FCC ID: TABAKRC161669-3				
Hardware revision state: R1B				
Tested configuration: Single RAT LTE				
Frequency bands: 3GPP B7: TX: 758 – 768 MHz RX: 788 – 798 MHz				
IBW: 10 MHz				
Output power: Max 40 W/ antenna port				
Antenna ports: 4 TX / 4 RX ports				
Antenna: No dedicated antenna, handled during licensing				
RF configurations: Single and multi-carrier, 1-2 carriers/ port TX Diversity, 2x2 MIMO, 4x4 MIMO, Contiguous Spectrum (CS), Carrier Aggregation (CA)				
Channel bandwidths: 5 MHz and 10 MHz				
Modulations: QPSK, 16QAM, 64QAM and 256QAM				
RF power Tolerance: +0.6/ -2.0 dB				
CPRI Speed Up to 10.1 Gbit/s				
The information above is supplied by the manufacturer.				

REMOTE RADIO HEAD UNIT: RADIO 4449

Receipt date	November 15, 2017
Nemko sample ID number	None
3.2 EUT information	
Product name	Radio 4449
Model	Radio 4449 B5 B13
Part number	KRC 161 749/1
Revision	R1A
Serial number	B440591478
Antenna ports	4 TX/RX Ports
RF BW / IBW	B5: 25 MHz B13: 10 MHz
FDD	B5: 45 MHz B13: 31 MHz
B5 Frequency range	TX (DL): 869–894 MHz RX (UL): 824–849 MHz
B13 Frequency range	TX (DL): 746–756 MHz RX (UL): 777–787 MHz
Nominal O/P per antenna port	Config 1: B5: Single Carrier, Ports A through D: 1 x 40 W (46 dBm) Config 1: B13: Single Carrier, Ports A through D: 1 x 40 W (46 dBm) Config 2: B5: Single Carrier, Ports A and D: 1 x 60W (47.78 dBm) Config 2: B13: Single Carrier, Ports A and D: 1 x 60W (47.78 dBm)
Accuracy (nominal)	±0.1 ppm
Nominal voltage	2 x -48 V _{DC} @ 20 A
RAT	LTE SC, MIMO
Modulation	LTE: QPSK, 16 QAM, 64 QAM, 256QAM
Channel bandwidth	LTE: 5 MHz (B5), 10 MHz (B13)
Maximum combined OBW per port	15 MHz
CPW	10 Gbps
Channel raster	LTE: 100 kHz
Regulatory requirements	Radio: FCC Part 2, 22, 27 EMC: FCC Part 15, ICES-003 Safety: IEC/EN 62368-1, UL/CSA 62368-1 IEC/EN 60950-22, IEC/EN 60529, UL 50E
Emission Designator:	SM00W7D (B5), 10M0W7D (B13)
Supported Configuration	SC, MC, Single Antenna, TX Diversity, MIMO, Carrier Aggregation
Operating temperature	-40 °C to +55 °C
Total Power based on IBW	Config 1: 4 x 40 W (B5) + 4 x 40 W (B13) Config 2: 2 x 60 W (B5) + 2 x 60 W (B13)
Supported carrier / port	LTE BW, B5: 5 (1-3), 10 (1-2); LTE BW, B13: 5 (2), 10 (1)
Optional Fan Tray	N/A

REMOTE RADIO HEAD UNIT: RADIO 8843

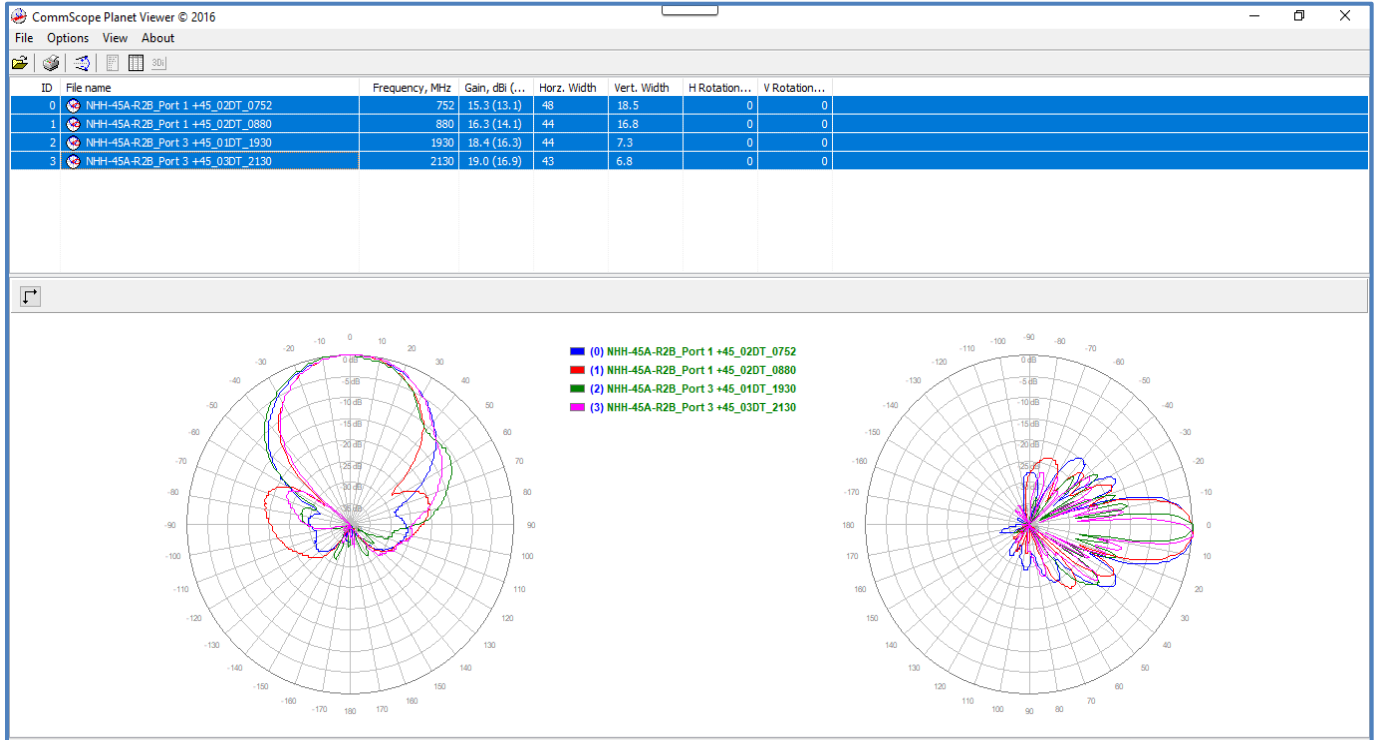
RI SE	REPORT	2018-04-23	8P02716-L	5 (199)
	Description of the test object			
Equipment: Radio equipment Radio 8843 B2 B66A Product number KRC 161 707/2 and KRC 161 707/1 FCC ID: TABAKRC161707-2				
Hardware revision state: R1B (KRC 161 707/2) R2A (KRC 161 707/1)				
Tested configuration: Single RAT LTE				
Frequency bands: 3GPP B2: TX: 1930 – 1990 MHz RX: 1850 – 1910 MHz				
B66: TX: 2110 – 2180 MHz RX: 1710 – 1780 MHz				
IBW: B2: 60 MHz B66A: 70 MHz				
Output power: Maximum output power: B2: 40 W/ port (port A,B,C,D) 60 W/ port (port A,D) port B and C not used in this configuration B66A: 60 W/ port (port E,F,G,H) 80 W/ port (port E,H) port F and G not used in this configuration.				
Antenna ports B2: A-D: 4 TX / 4 RX ports				
Antenna ports B66A: E-H: 4 TX / 4 RX ports				
Antenna: No dedicated antenna, handled during licensing				
RF configurations: Single and multi-carrier, 1-3 carriers/ port TX Diversity, 2x2 MIMO, 4x4 MIMO, Non-Contiguous Spectrum (NCS), Contiguous Spectrum (CS), Carrier Aggregation (CA) intra-band and inter-band supported				

APPENDIX B

ANTENNA ENERGY PATTERNS

VERIZON WIRELESS

CommScope / NHH-45A-R2B



ANTENNA ENERGY PATTERNS

ADDITIONAL PWS



AIR INTERFACE SOLUTIONS

**DualPhase™ 2-way, 3-Sector
Antenna With Electrical Down Tilt
& Beam Steering**

EP-BQ-65-4L-H8

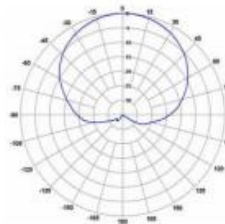
3-Sector 1710 ~ 2170MHz, X-pol., H65° / V7.5°

Electrical Specification

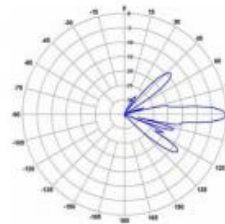
Frequency Range	1710~1880MHz	1850~1990MHz	1920~2170MHz	
Gain	17.0 dBi	17.2 dBi	17.5 dBi	
Beam Width	Horizontal	67°	65°	63°
	Vertical	7.8°	7.5°	7.2°
Impedance	50Ω			
VSWR	≤1.4:1			
Polarization	Dual, Slant ±45°			
Upper 1° Sidelobe Suppression	≥18 dB (@ downtilt 0°)			
Front-to-Back Ratio	≥30 dB			
Adjustable Downtilt Range	0° ~ 15°			
Horizontal Beam Steering	-30° ~ 30°			
Port-to-port Isolation	≥30 dB			
Passive Intermodulation, IM3	≤ -150dBc			
Input Maximum CW Power	250 W			
Control Interface	Feeder Line through Bias-T			

Mechanical Specification

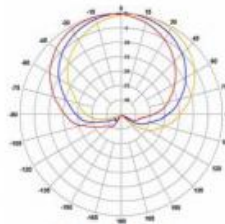
Dimension (Diameter×H)	256×1219mm (10.08×48inch)
Weight (Without Clamp)	22 kg (45.50 lb)
Connector	6 × 7/16" Din(F) / Bottom
Radome Material	FRP
Max Wind Speed	60m/s (135mph)
Wind Load (@ 100mph)	71.80 lbf (319.25 N)



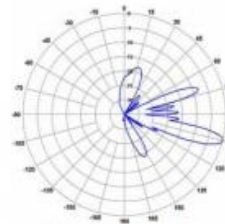
Horizontal Pattern



Vertical Pattern (Downtilt 0°)



Horizontal Beam Steering



Vertical Pattern (Downtilt 15°)

Antenna Pattern Viewer

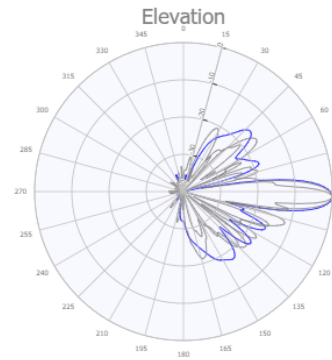
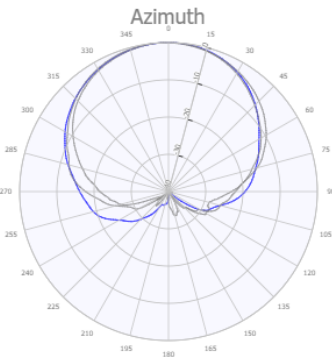
Product Selection

Pattern	Display
Az	Elev
☒ HP465R-BU8A-2ET-750MHz-Pol-45-Port-1st	☒
☒ HP465R-BU8A-2ET-850MHz-Pol-45-Port-2st	☒
☒ HP465R-BU8A-2ET-1050MHz-Pol-45-Port-6st	☒



Chart Settings

Plot Scale -40 to 0



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Antenna Pattern Viewer

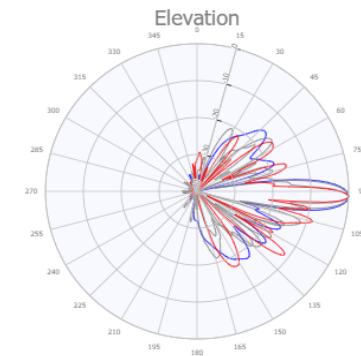
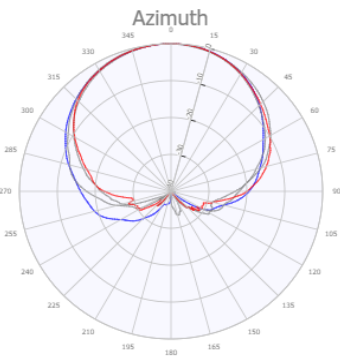
Product Selection

Pattern	Display
Az	Elev
☒ HP465R-BU8A-2ET-750MHz-Pol-45-Port-1st	☒
☒ HP465R-BU8A-2ET-850MHz-Pol-45-Port-2st	☒
☒ HP465R-BU8A-2ET-1050MHz-Pol-45-Port-6st	☒
☒ HP465R-BU8A-2ET-2130MHz-Pol-45-Port-5st	☒



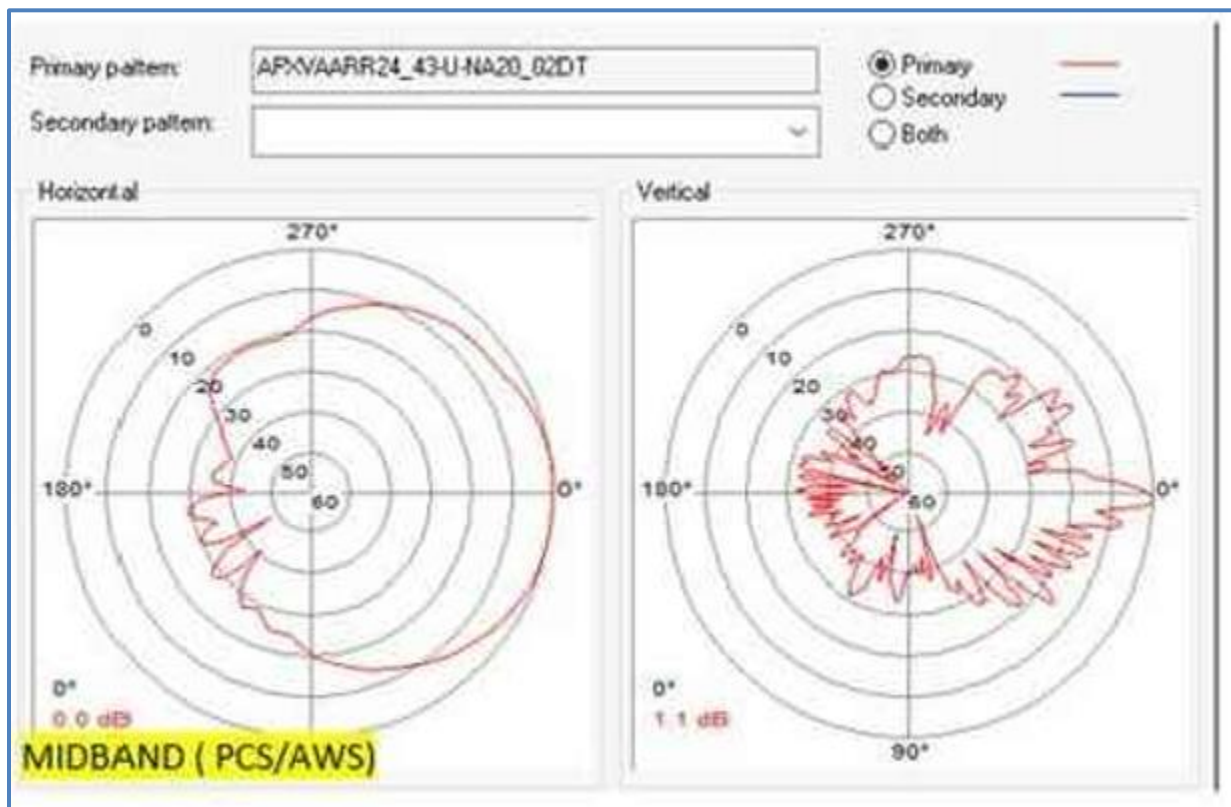
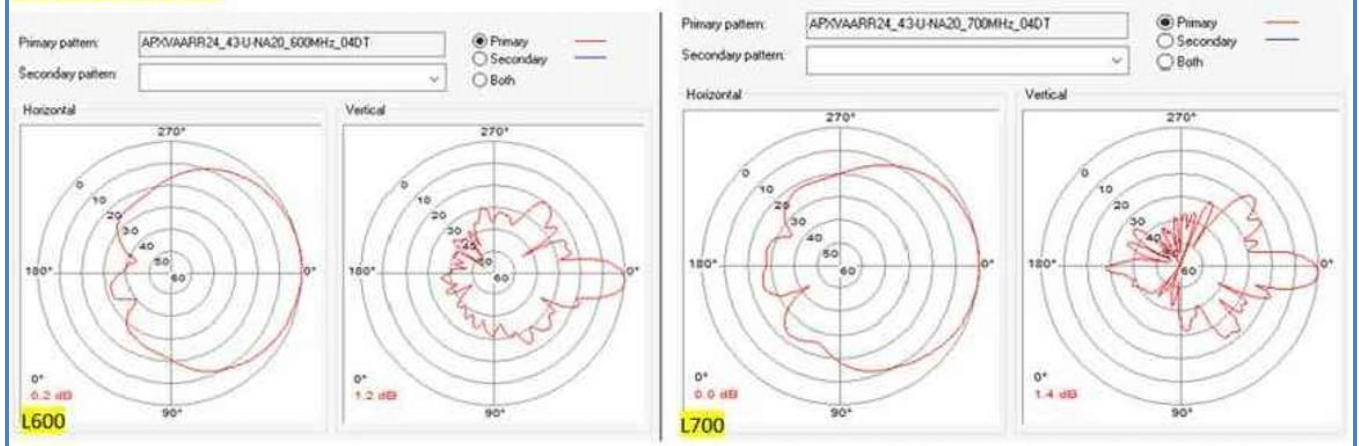
Chart Settings

Plot Scale -40 to 0



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APXVAARR24



ENDNOTES

- ⁱ. Federal Register, Federal Communications Commission Rules; *Radiofrequency radiation; environmental effects evaluation guidelines* Volume 1, No. 153, 41006-41199, August 7, 1996. (47 CFR Part 1; Federal Communications Commission).
- ⁱⁱ. Telecommunications Act of 1996, 47 USC; Second Session of the 104th Congress of the United States of America, January 3, 1996.
- ⁱⁱⁱ. ANSI/IEEE C95.1-1999: American National Standard, *Safety levels with respect to human exposure to radio frequency electromagnetic fields, from 3 kHz to 300 GHz (Updated in 2020)*.
- ^{iv}. National Council on Radiation Protection and Measurements (NCRP); *Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields*, NCRP Report 86, 1986.
- ^v. OET Bulletin 65: Federal Communications Commission Office of Engineering and Technology, *Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields*; Edition 97-01, August 1999.

January 22, 2020

Ms. Michael Ashley Culbert
EIP Communications I, LLC
1435 Bedford Avenue, Suite 108
Pittsburgh, PA 15219

**Subject: Federal Aviation Administration (FAA) Compliance Results
Proposed EIP Communications I, LLC Project
Site No. 701651/VW2 NH 0043A / Rochester 3
133 Blackwater Road
Rochester, NH 03867
EBI Project No. 6120000036**

Dear Ms. Culbert:

Enclosed please find the results of the Federal Aviation Administration (FAA) Compliance studies for the above-referenced site. The studies were completed based on information provided by EIP Communications I, LLC and gathered from the Site Plans, attached as Appendix A.

EBI utilized both commercially available and publicly accessible software that runs algorithms in accordance with FAA glide-slope calculations, referenced in Federal Aviation Regulation (FAR) Part 77 and FCC Rulepart 47 CFR 17, to determine the need for filing with the FAA and if registration with the FCC are required. For this site, our analysis demonstrated that notice to the FAA and an Antenna Structure Registration with the FCC are not required. Thus, the site may proceed from an FAA Compliance perspective.

If the proposed project location or proposed height of the structure changes, please notify EBI Consulting, and we will be happy to conduct FAA Compliance studies based on the changes.

Land Survey and Site Plans – Appendix A

Latitude (NAD 83): 43° 15' 36.28" N
Longitude (NAD 83): 70° 57' 5.35" W
Site Ground Elevation (AMSL): 204.5 feet
Proposed Structure Height (AGL): 160 feet

Airspace© Studies – Appendix B

PASS. This site passed all Airspace studies, and notice to the FAA is not required.

FCC TowAir – Appendix C

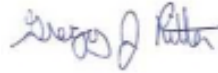
PASS. This site passed all FCC slope guidelines. It does not need to be registered with the FCC, and it does not require notice to the FAA. This determination expires on July 22, 2021.

Thank you for the opportunity to be of service to EIP Communications I, LLC, and please don't hesitate to contact us with any questions or if we can assist with any of your future regulatory needs.

Respectfully Submitted,



Mr. Chris Adams
Author/FAA Specialist
TEL: 603-845-6596

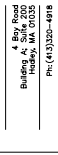


Mr. Gregory J. Ritter
EIP Communications I, LLC Program Manager
TEL: 717-756-8647

Appendix A: Site Plans
Appendix B: Airspace© Studies
Appendix C: FCC TowAir Results

APPENDIX A:
Site Plans

1



10

[illegible]

THE
SITE NAME: ROCHESTER 3
SITE NUMBER: 70661 (V2 NH 0043A
ADDRESS: 133 BLACKWATER ROAD
ROCHESTER, NH 03867
APPLICANT:
EIP COMMUNICATIONS 1, LLC
250 CONGRESS STREET
7TH FLOOR
BOSTON, MA 02210

STAMP: 

DATE:	09/13/17
DRAWN:	BLM
CHECK:	JMM/TEJ
SCALE:	SEE PLAN
JOB NO.:	17-046

**COMPILED
PLOT PLAN**

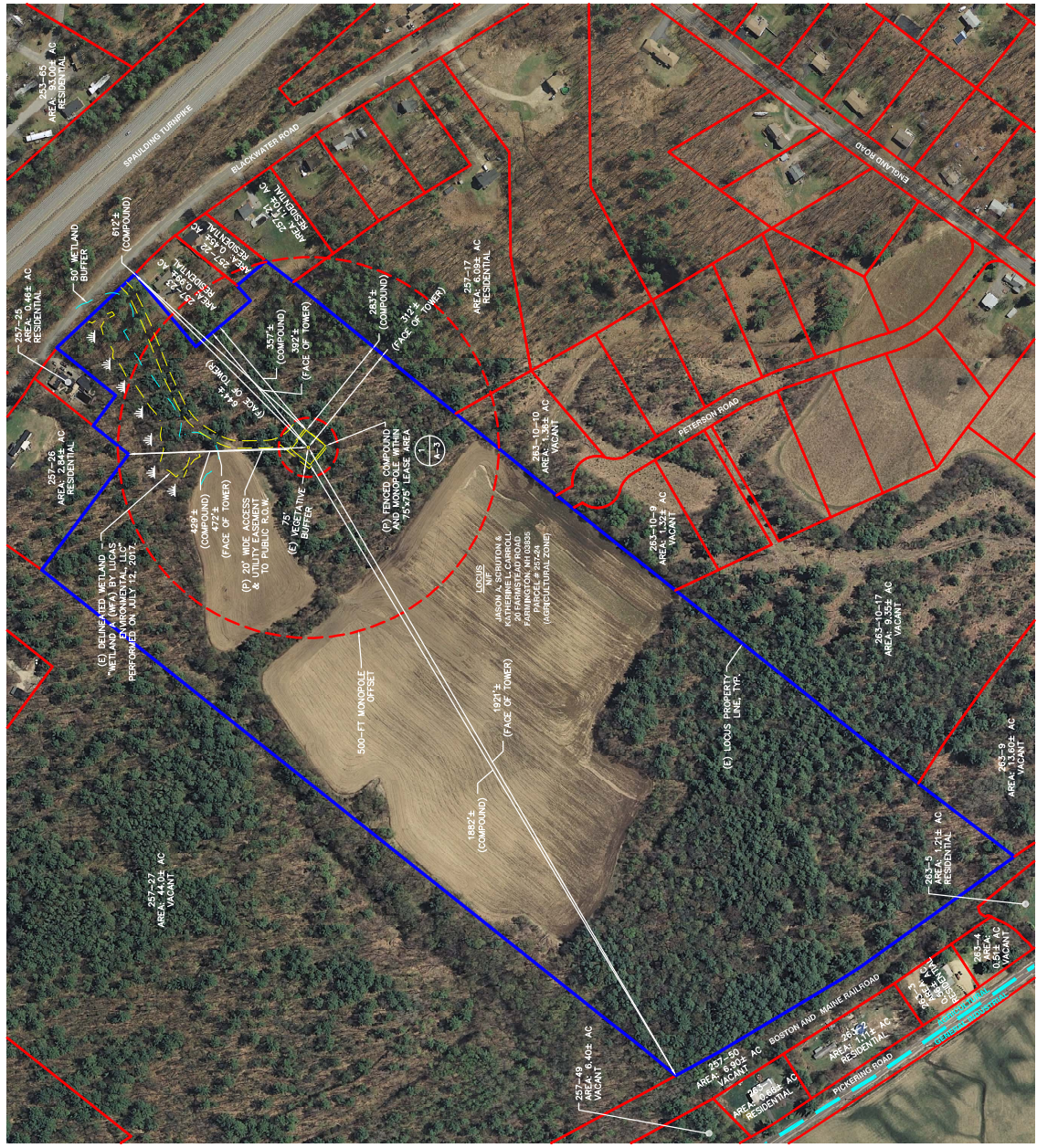
A-1

PROPERTY LINE, TOPOGRAPHY AND EXISTING FEATURES - SEE SHEETS C-1 & C-2
ZONING DISTRICTS - ZONED: AGRICULTURAL FROM MAP ENTITLED "ZONING MAP CITY OF
ROCHESTER, NH" ADOPTED 4/14/2014.
FLOODPLAIN - FLOOD INSURANCE RATE MAP 3307C02140 EFFECTIVE MAY 17, 2005
PREPARED BY FEDERAL EMERGENCY MANAGEMENT AGENCY, US DEPARTMENT OF
HOMELAND SECURITY. AREAS WITHIN THE "A" AREAS DETERMINED TO BE
OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.*
AERIAL PHOTOGRAPHS - NH GRANT, NEW HAMPSHIRE STATEWIDE GIS CLEARINGHOUSE
(2010 IMAGES)

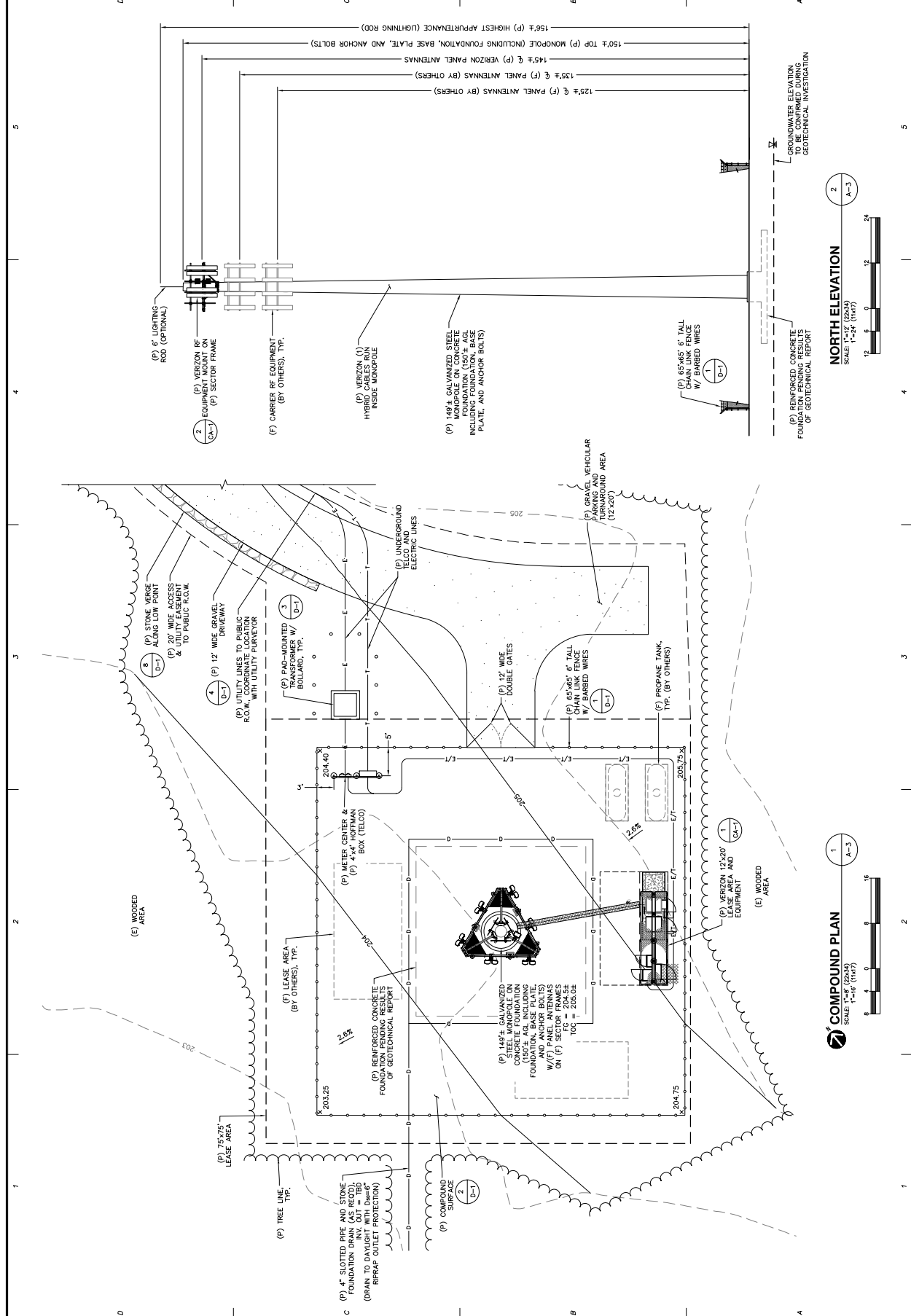
1. THE TYPE, DIMENSIONS, MOUNTING HARDWARE, AND POSITIONS OF ALL PROJECT OWNERS' EXISTING AND PROPOSED HARDWARE DETAILS AND FINAL LOCATIONS MAY DIFFER SLIGHTLY FROM WHAT IS SHOWN.
2. THE PROJECT OWNER'S POSS. FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER CONNECTIONS. THERE IS NOT COMBINED BY REGULATIONS REQUIRING JOINT SEWER PER ADA REQUIREMENTS.
3. THE DESIGN OF THE TOWER FOUNDATION AND ANTENNA MOUNTING HARDWARE WILL MEET THE ANSI/EIA/TIA-222-G STANDARDS FOR STRUCTURAL STEEL ANTENNA SUPPORTING STRUCTURES. UNMANNED BALLOON SYSTEMS REQUIRED TO BE CONSIDERED. A PROFESSIONAL ENGINEER AND SUBMITTED WITH A BUILDING PERMIT APPLICATION FOR REVIEW AND APPROVAL BY THE LOCAL BUILDING CODE ENFORCEMENT OFFICIAL.
4. ONCE THE FACILITY BECOMES FULLY OPERATIONAL, NORMAL ROUTINE MAINTENANCE AND REPAIRS WILL BE LIMITED TO VISUAL INSPECTIONS. VISITOR ACCESS TO THE FACILITY AND VEHICULAR TRAFFIC GENERATED BY THESE VISITS IS PREDICTED TO BE LESS THAN THE TYPICAL TRAFFIC GENERATED BY A SINGLE-FAMILY DWELLING.

ZONING DISTRICT(S): CONSERVATION OVERLAY DISTRICT (COO) 2400' (100' MIN. WIDE) ASSESSORS ID:	(P) USE:	WIRELESS COMMUNICATIONS FACILITY ¹		CONSTRAINT
		PARCEL – AREA	DIMENSION	
	(P) PARCEL – FRONT/REAR	561 AC	45,000 SF MIN.	
	(P) PARCEL – SIDE	283.2	150' MIN.	
	(P) COMPOUND – FRONT YARD	60.2	40' MAX.	
	(P) COMPOUND – SIDE YARD	61.2	10' MIN.	
	(P) COMPOUND – REAR YARD	293.2	10' MIN.	
	(P) COMPOUND – ACCESSORY STRUCTURE HEIGHT	1882.2	20' MIN.	
	(P) MONOPOLE – HEIGHT (HIGHEST APPEARANCE)	15.0'	35' MAX.	
	(P) MONOPOLE – DISTANCE TO PROPERTY LINE	150' (106')	150' 2	
	(P) MONOPOLE – DISTANCE TO BUILDING & STRUCTURES	312' X	150' 2	
	(P) MONOPOLE – DISTANCE TO (E) BUILDINGS & STRUCTURES	3600' (NO USES/HEIGHTS LIMITED)		

- 1 - WIRELESS COMMUNICATIONS FACILITY ALLOWED IN AGRICULTURAL (AG) DISTRICT BY SPECIAL EXCEPTION AS NOTED WHEN "ZONING ORDINANCE OF THE CITY OF ROCHESTER, NEW HAMPSHIRE" TABLE 18-D.
- 2 - "ZONING ORDINANCE OF THE CITY OF ROCHESTER, NEW HAMPSHIRE," §42.22:c-14. SPECIAL EXCEPTIONS, CONDITIONS FOR PARTICULAR USES, WIRELESS COMMUNICATIONS FACILITIES AND SPECIAL USES. THE MINIMUM HEIGHT OF THE TOWER BEHIND IT WAS ASSUMED A MINIMUM PROPERTY LINE OF AT LEAST THE TOWER HEIGHT BE PROVIDED.



SCALE: 1"=150' (22x34)



APPENDIX B:
Airspace© Studies

Study: VW2 NH 0043A

Rochester, NH

Site Information

Latitude:..... **43-15-36.28 43.2600777777778**

Longitude:..... **70-57-5.35 70.9514861111111**

Ground Elevation:..... **204.5**

Structure Height:..... **160 feet AGL**

Overall Height:..... **364.5**

Structure Type:..... **Antenna Structure (New Construction)**

City Information

Nearest City:..... **Rochester, NH**

Distance:..... **3.1 Statute Miles**

Direction:..... **333 Degrees (true bearing)**

Nearest Landing Facility Information

Analyzed by Airspace® on: 01-22-2020. Using Airspace® Version 20.1.546

Nearest Public Use landing facility is: **DAW: SKYHAVEN**

Distance to ARP is: **10560 ft. or 1.7379 nm.**

Direction to ARP is: **33.76 degrees (true bearing)**

Distance to the nearest runway is: **10504 ft. or 1.7287 nm.**

DNE FAR 77.9(a). DNE FAR 77.9(b).

Within IFR Offset IAP Notice Area. NTE 364' AMSL.

DNE FAR 77.9 (EMI Navaid Notification).

LOWEST MOCA FOUND: 2200 AMSL ON AIRWAY V106

INFORMATION ONLY

Private use landing facilities are not studied under FAR Part 77.

Nearest Private Use landing facility is: **ME61: SALMON FALLS**

Distance to this facility is: **3.07 NM**

Direction to this facility is: **47.88 degrees True.**

Date Printed: 01-22-2020

* Federal Airways & Airspace *
* Summary Report: New Construction *
* Antenna Structure *

Airspace User: Not Identified

File: VW2 NH 0043A

Location: Rochester, NH

Latitude: 43°-15'-36.28" Longitude: 70°-57'-5.35"

SITE ELEVATION AMSL.....204.5 ft.

STRUCTURE HEIGHT.....160 ft.

OVERALL HEIGHT AMSL.....364 ft.

NOTICE CRITERIA

FAR 77.9(a): NNR (DNE 200 ft AGL)

FAR 77.9(b): NNR (DNE Notice Slope)

FAR 77.9(c): NNR (Not a Traverse Way)

FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for DAW

FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for 3B4

FAR 77.9(d): NNR (Off Airport Construction)

NR = Notice Required

NNR = Notice Not Required

PNR = Possible Notice Required (depends upon actual IFR procedure)
For new construction review Air Navigation Facilities at bottom
of this report.

Notice to the FAA is not required at the analyzed location and height for
slope, height or Straight-In procedures. Please review the 'Air Navigation'
section for notice requirements for offset IFR procedures and EMI.

OBSTRUCTION STANDARDS

FAR 77.17(a)(1): DNE 499 ft AGL

FAR 77.17(a)(2): DNE - Airport Surface

FAR 77.19(a): DNE - Horizontal Surface

FAR 77.19(b): DNE - Conical Surface

FAR 77.19(c): DNE - Primary Surface

FAR 77.19(d): DNE - Approach Surface

FAR 77.19(e): DNE - Approach Transitional Surface

FAR 77.19(e): DNE - Abeam Transitional Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: DAW: SKYHAVEN

Type: A RD: 10504.21 RE: 321.5

FAR 77.17(a)(1): DNE

FAR 77.17(a)(2): DNE - Height No Greater Than 200 feet AGL.

VFR Horizontal Surface: DNE

VFR Conical Surface: DNE
VFR Primary Surface: DNE
VFR Approach Surface: DNE
VFR Transitional Surface: DNE

The structure is within VFR - Traffic Pattern Airspace Runway Side Area.
Structures that exceed horizontal, conical, and/or 500' AGL will receive
a hazard determination from the FAA.

VFR TRAFFIC PATTERN AIRSPACE FOR: 3B4: LITTLEBROOK AIR PARK

Type: A RD: 62545.49 RE: 123.6

FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): Does Not Apply.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Primary Surface: DNE
VFR Approach Surface: DNE
VFR Transitional Surface: DNE

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, Volume 4)

FAR 77.17(a)(3) Departure Surface Criteria (40:1)
DNE Departure Surface

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)

FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
The Maximum Height Permitted is 1200 ft AMSL

PRIVATE LANDING FACILITIES

FACIL IDENT TYP NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAA IFR
ME61 AIR SALMON FALLS No Impact to VFR Transitional Surface. Below surface height of 207 ft above ARP.	47.88	3.07	+174	
NH56 HEL WENTWORTH-DOUGLASS HOSPITAL No Impact to Private Landing Facility Structure is beyond notice limit by 21492 feet.	128.94	4.36	+217	IFR
43NH HEL TRAYPORT No Impact to Private Landing Facility Structure is beyond notice limit by 29634 feet.	112.95	5.7	+256	

AIR NAVIGATION ELECTRONIC FACILITIES

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRND ANGLE	APCH BEAR
DAW	CO	Y	122,7	39.23	9937	+2	NH	SKYHAVEN UNICOM	.01	

Notice Not Required for Stations operating with an ERP no greater than 3500 watts and frequencies are within the FAA/FCC co-location policy frequency bands. If ERP of 3500 watts is exceeded notice to the FAA is required.

DAW CO Y 135.2 45.83 10102 +6 NH SKYHAVEN ASOS .03
Notice Not Required for Stations operating with an ERP no greater than 3500
watts and frequencies are within the FAA/FCC co-location policy frequency
bands. If ERP of 3500 watts is exceeded notice to the FAA is required.

ESG NDB R 26 113.93 35893 +292 NH ROLLINS .47
Alert! IFR Notice is not required for this structure.
Predict within Final Segment of Approach plus Fix Error Area.
Within FAR 77.9 IFR Notice Requirement Area for DAW: NDB RWY 33
The maximum IFR No Notice Height for new construction is: 510' AMSL.

PSM VOR/DME R 116.5 153.56 71516 +256 NH PEASE .21
Alert! IFR Notice is not required for this structure.
Predict within Final Segment of Approach plus Fix Error Area.
Within FAR 77.9 IFR Notice Requirement Area for DAW: VOR/DME-A
The maximum IFR No Notice Height for new construction is: 720' AMSL.

ENE	VOR/DME	I	117.1	56.01	108295	+172	ME	KENNEBUNK	.09
MHT	RADAR	ON	2805.	219.29	146275	-352	NH	MANCHESTER	-.14
CON	VOR/DME	R	112.9	264.74	166923	-350	NH	CONCORD	-.12
MHT	VOR/DME	R	114.4	217.91	181239	-106	NH	MANCHESTER	-.03
LWM	VOR/DME	I	112.5	191.4	193245	+58	MA	LAWRENCE	.02

CFR Title 47, §1.30000-\$1.30004

AM STUDY REQUIRED: Structure is within specified wavelength(s) of a FCC
licensed AM radio station. AM Study is required for new construction or
significantly modify an existing tower within the FCC mandated critical
distance. Notice to the AM station is required at least 30 days prior to
the start of construction. Movement Method Proof specified in §73.151(c)
is required to determine if the proposed construction would have a
negative impact to the AM station. Please review AM Station Report for
details.

Nearest AM Station: WPKX @ 2998 meters.

Airspace® Summary Version 20.1.546

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01-22-2020
18:40:45

 * PUBLIC AIRPORTS IN PROXIMITY OF CASE *

Airspace User: Not Identified

File: VW2 NH 0043A

LATITUDE: 43°-15'-36.28" LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.

STRUCTURE HEIGHT.....160 ft.

OVERALL HEIGHT AMSL.....364 ft.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
DAW	AIR	SKYHAVEN	33.76	1.738	+41.9	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

Below FAR 77.9(b) (1) Notice Criteria by: 63 feet.

You are 10504 feet from the nearest runway threshold and the threshold elevation is 322 feet. Please review runway analysis for remaining airport surfaces.

This airport has both Circling and Straight-In Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility.

DNE FAR 77.9 IFR Straight-In Notice Criteria for DAW

Category 'C' Circling Approach Area extends 2.89 NM from each runway.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
NH56	HEL	WENTWORTH-DOUGLASS HOSPITAL	128.94	4.358	+217	YES

Your structure DOES NOT EXCEED FAR 77.9(b) (3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 21479.64 feet.

FACIL	BEARING	DISTANCE	DELTA ARP	FAR
-------	---------	----------	-----------	-----

IDENT	TYP	NAME	To FACIL	IN N.M.	ELEVATION	P77
-----	---	-----	-----	-----	-----	---
3B4	AIR	LITTLEBROOK AIR PARK	131.98	10.507	+239.2	YES

This facility does not have a runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 62545 feet from the nearest runway threshold and the threshold elevation is 124 feet. Please review runway analysis for remaining airport surfaces.

This airport has both Circling and Straight-In Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility.

DNE 77.9 IFR Straight-In Notice Criteria 3B4

Category 'B' Circling Approach Area extends 1.84 NM from each runway.

FACIL			BEARING	DISTANCE	DELTA ARP	FAR
IDENT	TYP	NAME	To FACIL	IN N.M.	ELEVATION	P77
-----	---	-----	-----	-----	-----	---
PSM	AIR	PORTSMOUTH INTL AT PEASE	152.78	12.283	+263.6	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 69027 feet from the nearest runway threshold and the threshold elevation is 80 feet. Please review runway analysis for remaining airport surfaces.

This airport has both Circling and Straight-In Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility.

DNE 77.9 IFR Straight-In Notice Criteria PSM

Category 'E' Circling Approach Area extends 4.73 NM from each runway.

FACIL			BEARING	DISTANCE	DELTA ARP	FAR
IDENT	TYP	NAME	To FACIL	IN N.M.	ELEVATION	P77
-----	---	-----	-----	-----	-----	---

SFM AIR SANFORD SEACOAST RGNL 52.94 13.345 +119.9 YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 77022 feet from the nearest runway threshold and the threshold elevation is 241 feet. Please review runway analysis for remaining airport surfaces.

This airport has Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility to determine impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
3NH4	HEL	PORTSMOUTH RGNL HOSPITAL	149.09	13.666	+302	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 78035.98 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
NH57	HEL	EXETER HOSPITAL	177.69	16.698	+286	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 96458.72 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
B18	SEA	ALTON BAY	316.33	18.061	-140	YES

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
7B3	AIR	HAMPTON AIRFIELD	163.48	18.692	+271	YES

This facility does not have a runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this

airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 112615 feet from the nearest runway threshold and the threshold elevation is 92 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected TERPS® impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
1031	HEL	PROPOSED 1031	40.19	20.488	+46	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 119487.1 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
NH27	HEL	HUGGINS HOSPITAL	330.57	22.207	-206	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 129932 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
B19	AIR	BIDDEFORD MUNI	59.55	24.278	+207	YES

This facility does not have a runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 146115 feet from the nearest runway threshold and the threshold elevation is 147 feet. Please review runway analysis for remaining airport surfaces.

This airport has Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility to determine impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
----	---	-----	-----	-----	-----	---
CON	AIR	CONCORD MUNI	261.71	24.401	+22.3	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 146305 feet from the nearest runway threshold and the threshold elevation is 342 feet. Please review runway analysis for remaining airport surfaces.

This airport has Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility to determine impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
----	---	-----	-----	-----	-----	---
98M	AIR	GREATON AIRFIELD	44.81	26.77	+194	YES

This facility does not have a runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 159383 feet from the nearest runway threshold and the threshold elevation is 158 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected TERPS® impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
----	---	-----	-----	-----	-----	---
NH13	HEL	CONCORD HOSPITAL	261.79	26.98	-47	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 158933.2 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
----	---	-----	-----	-----	-----	---
NH48	HEL	ELLIOT HOSPITAL	232.16	26.998	+35	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 159042.5 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
----	---	-----	-----	-----	-----	---
44NH	HEL	LAKES REGION GENERAL HOSPITA	305.81	27.595	-233	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 162670 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
----	---	-----	-----	-----	-----	---
LCI	AIR	LACONIA MUNI	312.8	27.718	-181.4	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 167203 feet from the nearest runway threshold and the threshold elevation is 516 feet. Please review runway analysis for remaining airport surfaces.

This airport has Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility to determine impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
----	---	-----	-----	-----	-----	---
NH54	HEL	PARKLAND MEDICAL CENTER	214.74	27.989	+90	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 165064 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
18NH	HEL	CATHOLIC MEDICAL CENTER	234.79	28.048	+112	YES

Your structure DOES NOT EXCEED FAR 77.9(b) (3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 165422.5 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
2B2	AIR	PLUM ISLAND	170.01	28.314	+353	YES

This facility does not have a runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 170612 feet from the nearest runway threshold and the threshold elevation is 8 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected TERPS® impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
MHT	AIR	MANCHESTER	227.16	28.962	+97.6	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 172073 feet from the nearest runway threshold and the threshold elevation is 242 feet. Please review runway analysis for remaining airport surfaces.

This airport has Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility to determine impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
63B	AIR	LIMINGTON-HARMON	21.89	32.54	+71.7	YES

This facility does not have a runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 197226 feet from the nearest runway threshold and the threshold elevation is 292 feet. Please review runway analysis for remaining airport surfaces.

No Circling or Straight-In Instrument Approach Procedures were found for this landing facility or your proposed location is greater than 10 nautical miles from the airport. No Expected TERPS® impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
LWM	AIR	LAWRENCE MUNI	193.04	33.45	+216.4	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 201181 feet from the nearest runway threshold and the threshold elevation is 134 feet. Please review runway analysis for remaining airport surfaces.

This airport has Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility to determine impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
-----	---	-----	-----	-----	-----	---
PWM	AIR	PORTLAND INTL JETPORT	50.32	36.389	+288.3	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum,

please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 217615 feet from the nearest runway threshold and the threshold elevation is 76 feet. Please review runway analysis for remaining airport surfaces.

This airport has Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility to determine impact.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
NH37	HEL	SOUTHERN NH MEDICAL CENTER	216.41	37.687	+172	YES

Your structure DOES NOT EXCEED FAR 77.9(b)(3) Notice Criteria for this heliport. You are not locating within 5,000 feet of facility. You are beyond limit by: 223990 feet.

FACIL IDENT	TYP	NAME	BEARING To FACIL	DISTANCE IN N.M.	DELTA ARP ELEVATION	FAR P77
ASH	AIR	BOIRE FIELD	220.65	37.868	+163.6	YES

This facility has at least one runway over 3,200 feet in length.

Your structure DNE FAR 77.9(a) or 77.9(b) Notice Criteria for this airport. However, you may EXCEED other Notice Standards. As a minimum, please review reports for FAR Part 77 Obstruction Surfaces, Air Navigation and Communication facilities.

You are 229708 feet from the nearest runway threshold and the threshold elevation is 192 feet. Please review runway analysis for remaining airport surfaces.

This airport has Instrument Procedures. Please review published US Terminal (TERPS®) Approach Procedures for this landing facility to determine impact.

THE NEAREST AIRPORT TO CASE COORDINATES IS: DAW

SKYHAVEN is an Airport type landing facility and is associated with the city of ROCHESTER, NH. The facility is eligible for Study under FAR Part 77 sub-Part C.

Its Reference Point (ARP) elevation is: 322.1 feet AMSL and you are locating 10562 feet from this landing facility.

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01-22-2020

18:40:24

The mathematical algorithms used by this program are derived directly from
Federal Aviation Regulations Part 77, sub-part C.

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*****  
*                               INSTRUMENT PROCEDURES                               *  
*****
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IDENT	TYPE	DESCRIPTION
-----	----	-----
DAW	IAP	VOR/DME-A
DAW	IAP	NDB RWY 33
DAW	IAP	RNAV (GPS) RWY 33
DAW	MIN	TAKEOFF MINIMUMS
DAW	MIN	ALTERNATE MINIMUMS
3B4	IAP	RNAV (GPS) RWY 30
3B4	IAP	VOR-A
3B4	MIN	TAKEOFF MINIMUMS
PSM	APD	AIRPORT DIAGRAM
PSM	DP	PEASE THREE
PSM	DP	TANKER TWO
PSM	IAP	RNAV (GPS) RWY 34
PSM	IAP	ILS OR LOC RWY 34
PSM	IAP	RNAV (GPS) RWY 16
PSM	IAP	ILS OR LOC RWY 16
PSM	MIN	TAKEOFF MINIMUMS
PSM	MIN	ALTERNATE MINIMUMS
PSM	MIN	RADAR MINIMUMS
SFM	IAP	ILS OR LOC RWY 07
SFM	IAP	RNAV (GPS) RWY 07
SFM	IAP	RNAV (GPS) RWY 25
SFM	IAP	RNAV (GPS) RWY 32
SFM	IAP	VOR RWY 25
SFM	MIN	ALTERNATE MINIMUMS
SFM	MIN	TAKEOFF MINIMUMS
B19	IAP	RNAV (GPS) RWY 06
B19	IAP	VOR RWY 06
B19	MIN	TAKEOFF MINIMUMS

CON	IAP	VOR-A
CON	IAP	ILS OR LOC RWY 35
CON	IAP	RNAV (GPS) RWY 17
CON	IAP	RNAV (GPS) RWY 12
CON	IAP	RNAV (GPS) RWY 35
CON	MIN	ALTERNATE MINIMUMS
CON	MIN	TAKEOFF MINIMUMS
LCI	IAP	ILS OR LOC RWY 08
LCI	IAP	RNAV (GPS) RWY 08
LCI	IAP	RNAV (GPS) RWY 26
LCI	IAP	NDB RWY 08
LCI	MIN	ALTERNATE MINIMUMS
LCI	MIN	TAKEOFF MINIMUMS
MHT	APD	AIRPORT DIAGRAM
MHT	DP	MANCHESTER NINE
MHT	DP	PPORT THREE (RNAV)
MHT	HOT	HOT SPOT
MHT	IAP	RNAV (GPS) Y RWY 35
MHT	IAP	RNAV (GPS) Y RWY 17
MHT	IAP	RNAV (GPS) RWY 24
MHT	IAP	RNAV (RNP) Z RWY 35
MHT	IAP	ILS OR LOC RWY 06
MHT	IAP	RNAV (RNP) Z RWY 17
MHT	IAP	RNAV (GPS) RWY 06
MHT	IAP	ILS RWY 35 (SA CAT I)
MHT	IAP	ILS RWY 35 (CAT II - III)
MHT	IAP	ILS OR LOC RWY 17
MHT	IAP	ILS OR LOC RWY 35
MHT	MIN	ALTERNATE MINIMUMS
MHT	MIN	TAKEOFF MINIMUMS
MHT	STAR	ROZZE TWO (RNAV) CONT.1
MHT	STAR	ROZZE TWO (RNAV)
MHT	STAR	POPPP ONE
LWM	APD	AIRPORT DIAGRAM
LWM	DP	LAWRENCE NINE
LWM	DP	LAWRENCE NINE CONT.1
LWM	HOT	HOT SPOT
LWM	IAP	RNAV (GPS) RWY 23
LWM	IAP	ILS OR LOC RWY 05
LWM	IAP	RNAV (GPS) RWY 05
LWM	MIN	TAKEOFF MINIMUMS
LWM	MIN	ALTERNATE MINIMUMS
LWM	STAR	DREEM TWO (RNAV)
LWM	STAR	GRAYM SIX
LWM	STAR	ZELKA TWO (RNAV)
PWM	APD	AIRPORT DIAGRAM
PWM	DP	PORTLAND FIVE

PWM	DP	HSKEL THREE (RNAV)
PWM	DP	NUBLE FOUR (RNAV)
PWM	HOT	HOT SPOT
PWM	IAP	RNAV (GPS) RWY 36
PWM	IAP	RNAV (GPS) RWY 18
PWM	IAP	RNAV (GPS) RWY 29
PWM	IAP	ILS RWY 11 (CAT II - III)
PWM	IAP	RNAV (GPS) RWY 11
PWM	IAP	ILS RWY 29 (SA CAT I - II)
PWM	IAP	HARBOR VISUAL RWY 29
PWM	IAP	ILS RWY 11 (SA CAT I)
PWM	IAP	ILS OR LOC RWY 29
PWM	IAP	ILS OR LOC RWY 11
PWM	LAH	LAHSO
PWM	MIN	TAKEOFF MINIMUMS
PWM	MIN	ALTERNATE MINIMUMS
PWM	STAR	CDOGG THREE (RNAV)
PWM	STAR	SCOGS THREE (RNAV)
ASH	APD	AIRPORT DIAGRAM
ASH	IAP	RNAV (GPS) RWY 14
ASH	IAP	VOR-A
ASH	IAP	VOR RWY 32
ASH	IAP	RNAV (GPS) RWY 32
ASH	IAP	ILS OR LOC RWY 14
ASH	MIN	ALTERNATE MINIMUMS

 * VFR - TRAFFIC PATTERN AIRSPACE ANALYSIS *

Airspace User: Not Identified

FILE: VW2 NH 0043A

LATITUDE: 43°-15'-36.28" LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.

STRUCTURE HEIGHT.....160 ft.

OVERALL HEIGHT AMSL.....364 ft.

Traffic Pattern Airspace, a structure that exceed any of the following maximum allowable heights is considered to constitute a hazard to air navigation:

- (1) The height of the transition surface (other than abeam the runway), the approach slope, the horizontal surface, and the conical surface (as applied to visual approach runways).
- (2) Beyond the lateral limits of the conical surface and in the climb/descent area - 350' above airport elevation or the height of part 77.17(a)(2), whichever is greater not to exceed 500' above ground level (AGL). The climb/descent area begins abeam the runway threshold being used and is the area where the pilot is either descending to land on the runway or climbing to pattern altitude after departure.
- (3) Beyond the lateral limits of the conical surface and NOT in the climb/descent area of any runway - 500' above Airport Elevation not to exceed 500' AGL.

***** Landing Facility Identifier *****
 DAW

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL

FAR 77.17(a)(2): DNE - Height Not Greater Than 200 feet AGL.

Does Not Exceed VFR Horizontal Surface.

Does Not Exceed VFR Conical Surface.

The structure is within VFR - Traffic Pattern Airspace Runway Side Area.
 Structures that exceed horizontal, conical, and/or 500' AGL will receive
 a hazard determination from the FAA.

Existing

Runway 15/33 Does Not Exceed VFR Approach Runway 33

Proposed

Runway 15/33 Does Not Exceed VFR Approach Runway 33

***** Landing Facility Identifier *****
 3B4

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
Does Not Exceed VFR Horizontal Surface.
Does Not Exceed VFR Conical Surface.

Existing
Runway 12/30 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
PSM

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
Does Not Exceed VFR Horizontal Surface.
Does Not Exceed VFR Conical Surface.

Existing
Runway 16/34 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
SFM

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
Does Not Exceed VFR Horizontal Surface.
Does Not Exceed VFR Conical Surface.

Existing
Runway 07/25 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

Existing
Runway 14/32 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
B18

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
Does Not Exceed VFR Horizontal Surface.
Does Not Exceed VFR Conical Surface.

Existing
Runway 01/19 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.

Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
7B3

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL

FAR 77.17(a)(2): Does Not Apply.

Does Not Exceed VFR Horizontal Surface.

Does Not Exceed VFR Conical Surface.

Existing

Runway 02/20 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

Proposed

Runway 02/20 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
B19

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL

FAR 77.17(a)(2): Does Not Apply.

Does Not Exceed VFR Horizontal Surface.

Does Not Exceed VFR Conical Surface.

Existing

Runway 06/24 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
CON

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL

FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.

Does Not Exceed VFR Horizontal Surface.

Does Not Exceed VFR Conical Surface.

Existing

Runway 12/30 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

Existing

Runway 17/35 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****

98M

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL

FAR 77.17(a)(2): Does Not Apply.

Does Not Exceed VFR Horizontal Surface.

Does Not Exceed VFR Conical Surface.

Existing

Runway 06/24 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
LCI

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL

FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.

Does Not Exceed VFR Horizontal Surface.

Does Not Exceed VFR Conical Surface.

Existing

Runway 08/26 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
2B2

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL

FAR 77.17(a)(2): Does Not Apply.

Does Not Exceed VFR Horizontal Surface.

Does Not Exceed VFR Conical Surface.

Existing

Runway 10/28 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

Existing

Runway 14/32 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
MHT

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL

FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.

Does Not Exceed VFR Horizontal Surface.

Does Not Exceed VFR Conical Surface.

Existing

Runway 06/24 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

Existing
Runway 17/35 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
63B

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): Does Not Apply.
Does Not Exceed VFR Horizontal Surface.
Does Not Exceed VFR Conical Surface.

Existing
Runway 11/29 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
LWM

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
Does Not Exceed VFR Horizontal Surface.
Does Not Exceed VFR Conical Surface.

Existing
Runway 05/23 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

Existing
Runway 14/32 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

***** Landing Facility Identifier *****
PWM

FAR 77.17(a)(1): DNE - Maximum Height Less Than 499 feet AGL
FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
Does Not Exceed VFR Horizontal Surface.
Does Not Exceed VFR Conical Surface.

Existing
Runway 11/29 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

Runway 18/36 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

FAR 77.17(a) (1): DNE - Maximum Height Less Than 499 feet AGL
 FAR 77.17(a) (2): DNE - Greater Than 5.99 NM.
 Does Not Exceed VFR Horizontal Surface.
 Does Not Exceed VFR Conical Surface.

Runway 14/32 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

Runway 14/32 Does Not Exceed Runway VFR Approach Runway
Does Not Exceed Runway VFR Transitional Surface.
Does Not Exceed Runway VFR Primary Surface.

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6

 * PRIVATE LANDING FACILITIES IN PROXIMITY OF CASE *

Airspace User: Not Identified

FILE: VW2 NH 0043A

LATITUDE: 43°-15'-36.28" LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.

STRUCTURE HEIGHT.....160 ft.

OVERALL HEIGHT AMSL.....364 ft.

FACIL IDENT	TYP	NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAR P77	FAA PROTECTED IFR PROCEDURE
ME61	AIR	SALMON FALLS	47.88	3.07	+174	NO	
NH56	HEL	WENTWORTH-DOUGLASS HOSPITAL	128.94	4.36	+217	YES	IFR Procedure
43NH	HEL	TRAYPORT	112.95	5.7	+256	NO	
09ME	AIR	PERROTTI SKYRANCH AIRFIELD	41.16	6.44	+104	NO	
ME64	AIR	SKYDIVE LEBANON	8.06	6.96	-1	NO	
0NH7	HEL	LEINSING	144.77	7.94	+354	NO	
NH01	SEA	BELLAMY RIVER SEAPLANE BASE	146.97	8.48	+364	NO	
NH43	AIR	MURPHY-SHERWOOD PARK	239.21	9.47	+164	NO	
ME57	SEA	BAUNEG BEG	57.89	11.17	+59	NO	
NH84	AIR	NORTHWOOD	254.98	12.24	-276	NO	
98NH	HEL	SKYBAST	256.83	12.99	-201	NO	
31NH	HEL	JOHNSON'S	260.31	13.23	-211	NO	
ME87	HEL	SOUTHERN MAINE HEALTH CARE/S	35.23	13.86	-11	NO	
56NH	AIR	TERRIAULTS LANDING	340.84	14.04	-311	NO	
NH15	AIR	LOCKE LAKE	301.69	14.49	-338	NO	
ME94	HEL	YORK HOSPITAL	118.38	15.00	+292	NO	
NH79	HEL	FALCON STATION	210.08	15.23	+204	NO	
51NH	HEL	BLUE PUFFIN FARM	250.5	15.42	-499	NO	
13NH	HEL	COFFIN BROOK LANDING	307.17	16.3	-341	NO	
NH68	SEA	MERRYMEETING LAKE	324.1	16.3	-283	NO	
02ME	AIR	NADEAU'S AIRFIELD	3.31	16.65	-336	NO	
NH57	HEL	EXETER HOSPITAL	177.69	16.7	+286	YES	IFR Procedure
NH32	HEL	BENTLEY	175.07	16.78	+298	NO	
NH67	AIR	WINTERWOOD	188.55	17.09	+234	NO	
NH02	HEL	PUZZO-LAKEWOOD	316.16	18.53	-336	NO	
NH35	HEL	LIBERTY LANE	167.39	19.05	+304	NO	
45NH	HEL	HAYES	211.08	19.26	+212	NO	
58NH	HEL	WALLACE	198.78	19.32	+229	NO	
06NH	AIR	COLE FARM	182.72	19.92	+204	NO	
NH45	HEL	FOSS	166.13	19.93	+344	NO	
05NH	HEL	STUMPFIELD	179.99	20.17	+164	NO	
NH61	AIR	NEW POVERTY FLATS	209.82	20.24	+176	NO	
70ME	SEA	SWN POND SPLASH IN GO	40.19	20.49	+46	NO	
21NH	AIR	PROPWASH	178.02	20.6	+174	NO	

NH98	HEL	BRADY-CANDIA	230.95	20.62	-106	NO
ME89	AIR	BUZZY'S FIELD	358.02	20.9	-286	NO
NH10	HEL	SPRINGFIELD COVE	329.48	20.92	-164	NO
3NH9	HEL	LONGVIEW	325.15	21.03	-196	NO
NH07	AIR	COOPER FARM	273.31	22.18	-121	NO
NH09	HEL	SEABROOK STATION	169.72	22.21	+323	NO
NH27	HEL	HUGGINS HOSPITAL	330.57	22.21	-206	YES IFR Procedure
76NH	HEL	HARRIS HOMESTEAD	285.53	22.24	-286	NO
NH25	HEL	TSAM	250.13	22.75	+62	NO
2NH6	HEL	SPEEDWAY NORTHSIDE	286.19	22.99	-196	NO
29NH	AIR	CLEARY	226.94	23.03	+64	NO
NH59	HEL	SPEEDWAY	284.9	23.18	-127	NO
NH74	HEL	CROWLEY	282.2	23.26	-206	NO
NH33	HEL	BRIGHAM	260.33	23.38	+4	NO
50NH	HEL	SMITH POINT	318.8	23.6	-135	NO
NH52	HEL	WASTE	261.77	23.6	+32	NO
6MA0	SEA	LAKE GARDNER	179.14	23.92	+277	NO
ME46	AIR	BACK ACRES	67.39	23.92	+304	NO
ME90	SEA	LITTLE OSSIPPEE LAKE	27.69	23.93	+53	NO
6MA2	AIR	MEADOWBROOK	184.72	24.08	+247	NO
48NH	SEA	WINTER HARBOR	326.02	24.18	-140	NO
90NH	HEL	DAISY'S LANDING	338.79	24.28	-237	NO
ME45	AIR	GOOSEFAIR	68.83	24.36	+324	NO
37NH	SEA	HOOKSETT'S SEAPLANE LANDING	245.03	24.93	+189	NO
NH31	AIR	MOUNTAIN VIEW FIELD	339.77	24.94	-601	NO
61NH	HEL	HOOKSETT SAFETY CENTER	240.47	24.95	+64	NO
10NH	HEL	CLARK	203.37	25.23	+44	NO
MA35	HEL	HAT FACTORY	177.99	25.51	+354	NO
2NH3	HEL	SCOTT	249.81	25.54	-216	NO
70NH	HEL	SURETTE	270.85	26.17	-48	NO
NH63	HEL	WESTON STREET	206.33	26.35	+140	NO
NH12	SEA	EVANS	239.41	26.41	+182	NO
NH50	HEL	GORDON BROWN	199.96	26.71	+34	NO
MA98	HEL	ANNA JAKUES HOSPITAL	174.4	26.89	+264	NO
NH55	HEL	CHOPPER ONE	205.3	27.43	+124	NO
ME83	SEA	PICKEREL POND SEAPLANE BASE	15.99	27.53	+24	NO
NH34	HEL	BRADY SULLIVAN-ELM HELISTOP	234.41	27.7	+114	NO
03NH	HEL	LORDEN	195.87	27.73	-36	NO
18NH	HEL	CATHOLIC MEDICAL CENTER	234.79	28.05	+112	YES IFR Procedure
04MA	AIR	GODDARD	196.94	28.25	+164	NO
44ME	AIR	HEACOCK FIELD	30.18	28.98	+169	NO
NH06	HEL	DYNASTY FARMS	200.3	29.23	+69	NO
NH18	AIR	CHICKVILLE	343	29.7	-196	NO
71NH	HEL	BRADY-LACONIA	312.42	30.41	-152	NO
80ME	AIR	BAYLEY'S FIELD	55.57	30.53	+340	NO
35NH	SEA	COBBETTS POND	207.59	30.7	+187	NO
NH88	AIR	COUNTRY CLUB AIR PARK	248	31.19	-416	NO
NH83	HEL	CHIEF'S HUT	253.08	31.48	-252	NO
60MA	HEL	GRANDVIEW FARM	173.34	31.75	+353	NO
NH30	HEL	AVERY POINT	321.81	31.78	-141	NO
NH65	HEL	DEAN KAMEN II	230.19	31.78	-136	NO
NH58	HEL	D W	287.55	31.79	-76	NO

17NH	HEL	POMROY	214.67	31.87	+110	NO
ME91	AIR	WEBSTER FIELD	38.52	31.88	+164	NO
16NH	SEA	BOSSEY'S	310.28	32.06	-260	NO
NH44	HEL	DEAN KAMEN	229.91	32.12	+114	NO
ME51	SEA	DOUGLASS	27.38	32.25	+94	NO
NH81	HEL	FRANKLIN RGNL HOSPITAL	290.63	32.41	-116	NO
NH26	HEL	DRAGONWINGS	237.03	32.47	-266	NO
18MA	HEL	HOLY FAMILY HOSPITAL	196.67	33.31	+162	NO
NH03	HEL	GRANITE	213.11	33.42	+147	NO
NH20	AIR	WARD FIELD	294.86	33.42	-76	NO
2NH2	HEL	WESTPORT	223.21	33.44	+159	NO
NH73	HEL	MEADER'S	342.94	33.44	-56	NO
60NH	HEL	SHERWOOD FOREST INC	349.52	33.47	-69	NO
ME66	AIR	SCOTTOW BOG FLIGHTPARK	50.66	33.49	+334	NO
2NH1	HEL	FOOTE	224.32	33.65	+129	NO
12NH	AIR	GILE POND	294.88	33.84	-121	NO
NH93	HEL	SEAN	208.11	33.86	+214	NO
21ME	AIR	MOODY FIELD	42.54	34.07	+216	NO
05MA	HEL	BENTLEY	177.11	34.17	+284	NO
16MA	HEL	LAWRENCE GENERAL HOSPITAL	194.64	34.2	+304	NO
NH77	HEL	SMILING JACK	309.79	34.46	-366	NO
92NH	HEL	MORRISON	315.59	35.34	-356	NO
54NH	HEL	FLYING RIDGE	318	35.41	-421	NO
NH69	AIR	WINDSOCK VILLAGE	343.39	35.45	-96	NO
NH53	HEL	NORDEN SYSTEMS	223.51	35.62	+164	NO
NH60	AIR	HUFF MEMORIAL	239.54	35.7	-476	NO
NH78	AIR	STECK FARM	210.73	35.84	-96	NO
MA36	AIR	SNOW	173.09	35.87	+303	NO
53NH	AIR	MOULTONBORO	328.11	35.91	-212	NO
NH41	HEL	MERRIMACK	222.32	36.06	+155	NO
2MA3	HEL	RIDER	172.19	36.08	+324	NO
19NH	HEL	LORDEN II	242.36	36.74	-336	NO
NH46	HEL	AUSTIN'S LANDING	242.53	36.77	-256	NO
NH86	AIR	INTERVALE	261.79	37.02	-61	NO
28NH	HEL	A AND K	238.2	37.04	-461	NO
94NH	AIR	TUCKER FARM	290.7	37.18	-256	NO
NH05	HEL	SEACOAST HELICOPTERS WEST	234.48	37.45	-236	NO
MA33	HEL	SAGAMORE HILL	171.6	37.48	+164	NO
NH37	HEL	SOUTHERN NH MEDICAL CENTER	216.41	37.69	+172	YES IFR Procedure
68ME	HEL	MAINE MEDICAL CENTER	51.06	37.78	+182	NO
92MA	HEL	AMES	174.26	37.89	+300	NO
51MA	HEL	BSAS# 2	157.74	38.11	+324	NO
36NH	HEL	LONG POND LANDING	208.71	38.3	+179	NO
67ME	HEL	STA-KEL	43.37	38.32	+118	NO
47MA	HEL	DEVON GLEN	174.4	38.38	+264	NO
MA14	HEL	WHEELER'S POINT	162.3	39.12	+329	NO
NH42	HEL	C S S	216.44	39.12	+152	NO
2MA9	HEL	DIGITAL	197.8	39.14	+234	NO
07ME	HEL	WESTBROOK	42.78	39.22	+114	NO
01MA	HEL	COMPAQ ANDOVER	194.73	39.4	+224	NO
57ME	AIR	DYER'S LANDING	6.09	39.68	-77	NO
6MA4	HEL	FERNCROFT VILLAGE	181.19	39.77	+164	NO

MA74	SEA LARSON'S	210.91	39.82	+274	NO
15NH	HEL NASHUA TECHNOLOGY PARK	213.83	39.92	+129	NO

THE NEAREST PRIVATE USE LANDING FACILITY IS: SALMON FALLS

SALMON FALLS is an Airport type landing facility.

Landing facilities with IFR procedures are protected under FAR 77.17(a)(3).

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The mathematical algorithms used by this program are derived directly from
Federal Aviation Regulations Part 77, sub-part C.

* F.A.R. 77 OBSTRUCTION ANALYSIS *

Airspace User: Not Identified

FILE: VW2 NH 0043A

LATITUDE: 43°-15'-36.28" LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.
STRUCTURE HEIGHT.....160 ft.
OVERALL HEIGHT AMSL.....364 ft.

77.17(a) (1) A height more than 499 ft. Above Ground Level (AGL).

***** DOES NOT EXCEED *****

THE MAXIMUM ALLOWABLE HEIGHT IS:..... 703 ft. AMSL

THE GROUND ELEVATION AT THE SITE IS:... 204 ft. AMSL

THE OVERALL CASE ELEVATION IS:..... 364 ft. AMSL

THE CASE IS BELOW THE ALLOWABLE BY:.... 339 ft.

BEGIN AIRPORT ANALYSIS FOR DAW

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Proposed height DNE 200 feet Above Ground Level.

THE REFERENCE AIRPORT IDENT IS:..... DAW

THE AIRPORT ELEVATION IS:..... 322 ft. AMSL

THE DISTANCE FROM THE CASE TO ARP IS:... 1.7383 NAUTICAL MILES

THE BEARING AIRPORT TO CASE IS:..... 213.76 DEGREES

THE CASE HEIGHT AGL IS:..... 160 ft.

ALLOWABLE HEIGHT..... 522 ft. AMSL

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> DAW <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 15/33

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

SITE GREATER THAN 250 FT FROM RUNWAY CENTERLINE.

SITE RUNWAY CENTERLINE ABEAM DISTANCE IS: 10478.02 FT.

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

SITE GREATER THAN 10,000 FT FROM RUNWAY CENTERLINE

77.19(d) A height exceeding an approach surface of RUNWAY 33.

***** DOES NOT EXCEED *****

OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

* BEGIN RUNWAY ANALYSIS *

PROPOSED RUNWAY 15/33

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE
SITE GREATER THAN 250 FT FROM RUNWAY CENTERLINE.
SITE RUNWAY CENTERLINE ABEAM DISTANCE IS: 10477.94 FT.

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****
SITE GREATER THAN 10,000 FT FROM RUNWAY CENTERLINE

77.19(d) A height exceeding an approach surface of RUNWAY 33.

***** DOES NOT EXCEED *****
OUTSIDE APPROACH ANGULAR CRITERIA FOR THIS RUNWAY.

BEGIN AIRPORT ANALYSIS FOR 3B4

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****
BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> 3B4 <<.

***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 12/30

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 12.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 312.503 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 200.18 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 290.1832 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 23682.6 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 7737.32 feet

BEGIN AIRPORT ANALYSIS FOR PSM

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> PSM <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 16/34

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 16.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 333.09 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 239.08 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 329.0793 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 4813.6 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 18666.19 feet

BEGIN AIRPORT ANALYSIS FOR SFM

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> SFM <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 07/25

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 07.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 233.104 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 148.36 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 238.3582 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 6823.2 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 26501.02 feet

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 230.777 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 208.91 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 298.914 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 75224.1 ft.

THE RUNWAY THRESHOLD ELEVATION IS..... 244.1 ft. AMSL

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS... 81146.23 ft.

THE DISTANCE FROM THRESHOLD + 200' TO NB IS..... 30218.69 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS..... 2516.44 ft.

***** DOES NOT EXCEED *****

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

RUNWAY CENTERLINE OFFSET IS..... 75224.05 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS..... 30418.65 ft.

THE SLOPE OF RUNWAY 14 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

BEGIN AIRPORT ANALYSIS FOR B18

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> B18 <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 01/19

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.
***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 01.
THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 135.848 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 264.22 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 174.217 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 67679.3 ft.
***** DOES NOT EXCEED *****
CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 35117.55 feet

BEGIN AIRPORT ANALYSIS FOR 7B3

77.17(a) (2) A height AGL or airport elevation, whichever is higher.
***** DOES NOT EXCEED *****
BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> 7B3 <<.
***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
from the horizontal surface at 20/1 ratio).
***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 02/20

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 02.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 343.32 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 270 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 360 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 32267.7 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 57647.4 feet

* BEGIN RUNWAY ANALYSIS *

PROPOSED RUNWAY 02/20

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 20.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 343.339 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 268.11 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 358.1109 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 28669.5 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 58686.14 feet

BEGIN AIRPORT ANALYSIS FOR B19

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> B19 <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 06/24

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 06.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 239.783 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 130.76 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 220.756 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 48359 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 87955.88 feet

BEGIN AIRPORT ANALYSIS FOR CON

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> CON <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 12/30

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 30.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 81.955 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 195.04 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 105.0361 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 57286.7 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 84795.86 feet

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 17/35

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 35.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 80.246 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 245.06 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 155.0583 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 142528.9 ft.
THE RUNWAY THRESHOLD ELEVATION IS..... 331.4 ft. AMSL
THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS... 147683.88 ft.
THE DISTANCE FROM THRESHOLD + 200' TO NB IS..... 39620.68 ft.
THE CRITICAL WIDTH OF HALF THE APPROACH IS..... 6443.14 ft.
***** DOES NOT EXCEED *****

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

RUNWAY CENTERLINE OFFSET IS..... 142528.9 ft.
DISTANCE FROM THE THRESHOLD TO OFFSET IS..... 39820.63 ft.
THE SLOPE OF RUNWAY 35 IS: 50 TO 1.

The FAA has defined this runway as a non-utility runway. It has a precision approach. The obstacle surface extends 50,000 feet with a 50:1 Slope for the first 10,000 feet and a 40:1 Slope for 40,000 feet. The obstacle approach surface is centered symmetrically along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Precision instrument procedures will have the

greatest impact between the final approach fix (FAF) and the runway end. The FAF is located approximately 5 NM from the runway end. This type of approach usually has a non-precision and a circling approach also. A circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

BEGIN AIRPORT ANALYSIS FOR 98M

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> 98M <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 06/24

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 06.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 224.811 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 125.43 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 215.4298 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 26745.5 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 107059.03 feet

BEGIN AIRPORT ANALYSIS FOR LCI

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> LCI <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 08/26

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 26.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 133.768 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 157.54 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 67.537 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 152578.6 ft.
***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 17358 feet

BEGIN AIRPORT ANALYSIS FOR 2B2

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****
BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> 2B2 <<.

***** DOES NOT EXCEED *****
NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.

from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 10/28

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 10.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 350.419 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 176.92 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 266.9247 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 170751.4 ft.

THE RUNWAY THRESHOLD ELEVATION IS..... 8.9 ft. AMSL

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS... 171857.9 ft.

THE DISTANCE FROM THRESHOLD + 200' TO NB IS..... 19689.43 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS..... 2093.98 ft.

***** DOES NOT EXCEED *****

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

RUNWAY CENTERLINE OFFSET IS..... 170751.4 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS..... 19889.39 ft.

THE SLOPE OF RUNWAY 10 IS: 20 TO 1.

The FAA has defined this runway as a utility runway. It has a visual approach. The obstacle surface extends 5000 feet (20:1 Slope) symmetrically centered along the runway centerline extended. This airport may have a circling approach. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or this runway exist, use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. A circling approach to the airport or any runway can extend out up to 4.5 NM from every runway end.

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 350.667 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 220.16 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 310.1605 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 110719.9 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 79743.86 feet

BEGIN AIRPORT ANALYSIS FOR MHT

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> MHT <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 06/24

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 24.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 47.78 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 132.42 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 42.4188 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 16058.9 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 121030.97 feet

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 17/35

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 17.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 48.228 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 246.54 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 336.5388 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 165618.6 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 3843 feet

BEGIN AIRPORT ANALYSIS FOR 63B

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above airport elevation within a radius of >> 63B <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft. from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 11/29

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 11.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 201.429 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 182.92 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 272.9209 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 186759.5 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 12586.77 feet

BEGIN AIRPORT ANALYSIS FOR LWM

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> LWM <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 05/23

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 23.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 12.667 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 128.16 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 38.1578 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 86504.3 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 131604.17 feet

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 14.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 13.623 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 211.7 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 301.7045 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 192128.9 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED

GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 12321.11 feet

BEGIN AIRPORT ANALYSIS FOR PWM

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> PWM <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 11/29

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 11.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 229.494 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 185.32 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 275.321 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 154845.9 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 101546.7 feet

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 18/36

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 36.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 231.237 degrees
THE ABEAM BEARING TO THE CENTERLINE IS..... 253.22 degrees
THE CENTERLINE OUTBOUND TRUE BEARING IS..... 163.2173 degrees
THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 205626.2 ft.

***** DOES NOT EXCEED *****

CASE MEETS ANGULAR CRITERIA BUT IS LOCATED
GREATER THAN 50,000 ft. FROM THE START OF
ANY APPROACH TYPE, OUT BY 32738.89 feet

BEGIN AIRPORT ANALYSIS FOR ASH

77.17(a) (2) A height AGL or airport elevation, whichever is higher.

***** DOES NOT EXCEED *****

BECAUSE: Location studied is further than 5.99 NM from ARP.

77.19 (a) A height exceeding a horizontal surface 150 ft. above
airport elevation within a radius of >> ASH <<.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED HORIZONTAL SURFACE AREA

77.19(b) A height exceeding a conical surface (a slope outward 4000 ft.
from the horizontal surface at 20/1 ratio).

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED CONICAL SURFACE AREA

* BEGIN RUNWAY ANALYSIS *

EXISTING RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 32.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 39.86 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 212.71 degrees
 THE CENTERLINE OUTBOUND TRUE BEARING IS..... 122.7058 degrees
 THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 227900.4 ft.
 THE RUNWAY THRESHOLD ELEVATION IS..... 192 ft. AMSL
 THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS... 229683.66 ft.
 THE DISTANCE FROM THRESHOLD + 200' TO NB IS..... 30103.81 ft.
 THE CRITICAL WIDTH OF HALF THE APPROACH IS..... 4263.02 ft.
 ***** DOES NOT EXCEED *****
 BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.
 RUNWAY CENTERLINE OFFSET IS..... 227900.4 ft.
 DISTANCE FROM THE THRESHOLD TO OFFSET IS..... 30303.77 ft.
 THE SLOPE OF RUNWAY 32 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

 * BEGIN RUNWAY ANALYSIS *

PROPOSED RUNWAY 14/32

77.19(c) A height exceeding runway primary surface.

***** DOES NOT EXCEED *****
 NOT WITHIN SPECIFIED RUNWAY PRIMARY SURFACE

77.19(e) A height exceeding a transitional surface abeam runway.

***** DOES NOT EXCEED *****

NOT WITHIN SPECIFIED RUNWAY ABEAM TRANSITIONAL SURFACE

77.19(d) A height exceeding an approach surface of RUNWAY 32.

THE BEARING TO THE CASE FROM THE THRESHOLD IS..... 39.958 degrees

THE ABEAM BEARING TO THE CENTERLINE IS..... 212.71 degrees

THE CENTERLINE OUTBOUND TRUE BEARING IS..... 122.7056 degrees

THE ABEAM DISTANCE TO CENTERLINE FROM CASE IS..... 227900.8 ft.

THE RUNWAY THRESHOLD ELEVATION IS..... 189.8 ft. AMSL

THE DISTANCE FROM THRESHOLD + 200' TO THE CASE IS... 229733.8 ft.

THE DISTANCE FROM THRESHOLD + 200' TO NB IS..... 30504.68 ft.

THE CRITICAL WIDTH OF HALF THE APPROACH IS..... 4313.12 ft.

***** DOES NOT EXCEED *****

BEYOND DEFINED APPROACH & TRANSITIONAL AREAS.

RUNWAY CENTERLINE OFFSET IS..... 227900.8 ft.

DISTANCE FROM THE THRESHOLD TO OFFSET IS..... 30704.63 ft.

THE SLOPE OF RUNWAY 32 IS: 34 TO 1.

The FAA has defined this runway as a non-utility runway. It has a non-precision approach. The obstacle surface extends 10,000 feet (34:1 Slope) symmetrically centered along the runway centerline extended. Please review the US Terminal Procedures volume associated with this airport. If a procedure for this airport and/or runway exist use Terps® Professional software to determine the height limits (if any) the procedure will have on the proposed structure. Non-precision instrument procedures can extend 10 NM from the runway and a circling approach to the airport or runway can extend out up to 4.5 NM from every runway end.

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*****
*                               AIRWAY ANALYSIS                               *
*   FAR 77.17(a) (4) (EN ROUTE CRITERIA)                                *
*   MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)                          *
*   MINIMUM ENROUTE ALTITUDE (MEA)                                       *
*****

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Airspace User: Not Identified

FILE: VW2 NH 0043A

LATITUDE: 43°-15'-36.28" LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.

STRUCTURE HEIGHT.....160 ft.

OVERALL HEIGHT AMSL.....364 ft.

FAR 77.17(a) (4) - EN ROUTE CRITERIA
MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
Q480	130	42-09-43.053N	072-42-58.318W	18000	119.88
Q480	140	43-25-32.42N	070-36-48.692W	18000	

Minimum Obstacle Clearance Altitude (MOCA) is: 18000 AMSL.

Proposed structure is between the above points along Airway Q480. The Abeam distance from the course centerline is 1.91 NM. The proposed structure is within the width of the primary area of this airway. The width of the primary area of this airway is 8 NM. The minimum en route altitude (MEA) for this airway segment is 18000 feet AMSL. Any Height above 17000 feet AMSL will not be approved. Your proposed structure must remain below this value.

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
T295	240	43-13-11.233N	071-34-31.631W	3000	35.28
T295	250	43-23-09.13N	070-48-11.07W	3000	

Minimum Obstacle Clearance Altitude (MOCA) is: 3000 AMSL.

Proposed structure is between the above points along Airway T295. The Abeam distance from the course centerline is 5.36 NM. The proposed structure is within the width of the secondary area of this airway. The width of the primary area is 8 NM and the width of the secondary is 2 NM.

The maximum allowable height permitted by the secondary area MOCA of this

airway at this location is 2840 feet AMSL.

LOW ALTITUDE AIRWAY

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
V106	190	43-03-36.89N	071-06-42.16W	5500	18.59
V106	200	43-16-47.89N	070-48-47.74W	5500	

Minimum Obstacle Clearance Altitude (MOCA) is: 2200 AMSL.

Proposed structure is between the above points along Airway V106. The Abeam distance from the course centerline is 3.47 NM. The proposed structure is within the width of the primary area of this airway. The width of the primary area of this airway is 8 NM. The minimum en route altitude (MEA) for this airway segment is 5500 feet AMSL. Any Height above 1200 feet AMSL will not be approved. Your proposed structure must remain below this value.

LOW ALTITUDE AIRWAY

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
V3	990	43-05-04.071N	070-49-55.154W	3500	11.76
V3	1000	43-16-47.89N	070-48-47.74W	3500	

Minimum Obstacle Clearance Altitude (MOCA) is: 2400 AMSL.

Proposed structure is between the above points along Airway V3. The Abeam distance from the course centerline is 5.96 NM. The proposed structure is within the width of the secondary area of this airway. The width of the primary area is 8 NM and the width of the secondary is 2 NM.

The maximum allowable height permitted by the secondary area MOCA of this airway at this location is 2391 feet AMSL.

LOW ALTITUDE AIRWAY

AIRWAY	SEQUENCE	LATITUDE	LONGITUDE	MEA	LENGTH (NM)
V93	320	43-13-11.233N	071-34-31.631W	3000	35.28
V93	330	43-23-09.13N	070-48-11.07W	3000	

Minimum Obstacle Clearance Altitude (MOCA) is: 3000 AMSL.

Proposed structure is between the above points along Airway V93. The Abeam distance from the course centerline is 5.36 NM. The proposed structure is within the width of the secondary area of this airway. The width of the primary area is 8 NM and the width of the secondary is 2 NM.

The maximum allowable height permitted by the secondary area MOCA of this airway at this location is 2840 feet AMSL.

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The mathematical algorithms used by this program are derived directly from Federal Aviation Regulations Part 77, sub-part C.

 * IFR RUNWAY DEPARTURE SURFACE ANALYSIS *

FILE: VW2 NH 0043A

LATITUDE: 43°-15'-36.28" LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.
 STRUCTURE HEIGHT.....160 ft.
 OVERALL HEIGHT AMSL.....364 ft.

An airport with at least one instrument approach procedure (IAP) will require all airport runways to be analyzed using 40:1 criteria for Departures. FAA application of the 40:1 screening criteria extends 22.09 nautical miles and 180° semi-circle area around the Runway centerline extended. Penetration of the 40:1 surface will result initially in a determination of presumed hazard (DPH). An extended study is normally required to remove the DPH.

A specified climb gradient (CG) greater than the standard (200 ft/nm) is sometimes necessary to allow acceptable obstacle clearance. Should the proposed location exceed the maximum height you may need to determine if there is a published climb gradient and conduct additional calculations to determine if the climb gradient will provide proper clearance for the proposed structure. Should you require additional assistance please contact Federal Airways & Airspace or another aeronautical consult to perform these calculations.

Ident	Dep Rwy	Elev	Distance	40:1	Max Hgt	CG	Rwy Status
-----	-----	-----	-----	----	-----	----	-----
DAW	15/33			DNE	Between	DNE	
DAW	15/33			DNE	Between	DNE	
3B4	30	123.6	62545	DNE	Below	DNE	Existing Rwy
PSM	34	80.0	69028	DNE	Below	DNE	Existing Rwy
SFM	25	240.5	77023	DNE	Below	DNE	Existing Rwy
SFM	32	244.1	81221	DNE	Below	DNE	Existing Rwy
B18	19	502.3	108720	DNE	Below	DNE	Existing Rwy
7B3	20	91.6	112616	DNE	Below	DNE	Existing Rwy
7B3	02	100	112637	DNE	Below	DNE	Proposed Rwy
B19	24	146.5	146115	DNE	Beyond	DNE	Existing Rwy
CON	12	341.7	146305	DNE	Beyond	DNE	Existing Rwy
CON	17	331.4	147736	DNE	Beyond	DNE	Existing Rwy
98M	24	158.3	159383	DNE	Beyond	DNE	Existing Rwy
LCI	08	515.5	167203	DNE	Beyond	DNE	Existing Rwy
2B2	28	8.9	171881	DNE	Beyond	DNE	Existing Rwy
2B2	32	8.3	170613	DNE	Beyond	DNE	Existing Rwy
MHT	06	241.6	172073	DNE	Beyond	DNE	Existing Rwy
MHT	35	216.1	174512	DNE	Beyond	DNE	Existing Rwy
63B	29	292.3	197226	DNE	Beyond	DNE	Existing Rwy

LWM	05	134.0	201181	DNE	Beyond	DNE	Existing Rwy
LWM	32	121.0	202172	DNE	Beyond	DNE	Existing Rwy
PWM	29	75.7	217616	DNE	Beyond	DNE	Existing Rwy
PWM	18	44.3	221121	DNE	Beyond	DNE	Existing Rwy
ASH	14	192.0	229709	DNE	Beyond	DNE	Existing Rwy
ASH	14	189.8	229759	DNE	Beyond	DNE	Proposed Rwy

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 * NAVAIDS IN PROXIMITY OF CASE *

FILE: VW2 NH 0043A

LATITUDE: 43°-15'-36.28" LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.
 STRUCTURE HEIGHT.....160 ft.
 OVERALL HEIGHT AMSL.....364 ft.

FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST	LOCATION	GRD ANGLE	APCH BEAR
DAW	CO	Y	122.7	39.23	9937	+2	NH	SKYHAVEN UNICOM	.01	
DAW	CO	Y	135.2	45.83	10102	+6	NH	SKYHAVEN ASOS	.03	
DAW	UN	ON		34.4	10519	+2	VT	ROCHESTER - SKYHA	.01	
ESG	NDB	R	26	113.93	35893	+292	NH	ROLLINS	.47	
3B4	CO	Y	122.9	131.53	64659	+230	ME	LITTLEBROOK UNICO	.20	
PSM	LOCALIZER	I	110.1	153.16	67639	+270	NH	RWY 34 PORTSMOUTH	.23	345
PGQ	GLIDE SLOPE	I	334.4	153.19	70845	+266	NH	RWY 16 PSM	.22	165
PSM	VOR/DME	R	116.5	153.56	71516	+256	NH	PEASE	.21	
PSM	ATCT	ON	A/G	151.38	73188	+128	NH	PEASE INTERNATIONAL	.10	
PSM	CO	Y	A/G	153.74	73426	+218	NH	PORTSMOUTH RTR	.17	
SFM	GLIDE SLOPE	I	332.9	53.43	78109	+130	ME	RWY 07 SFM	.10	75
PSM	GLIDE SLOPE	I	334.4	152.95	79131	+288	NH	RWY 34 PSM	.21	345
PGQ	LOCALIZER	I	110.1	152.48	81360	+280	NH	RWY 16 PORTSMOUTH	.20	165
SFM	LOCALIZER	I	111.5	53.54	84008	+134	ME	RWY 07 SANFORD SE	.09	75
ENE	VOR/DME	I	117.1	56.01	108295	+172	ME	KENNEBUNK	.09	
ZBW	CO	Y	A/G	25.62	119576	-570	ME	WATERBORO	-.27	
CO	NDB	R	21	248.74	143187	+10	NH	EPSOM	0.00	
CON	LOM	I		248.76	143249	+16	NH	RWY 35 CONCORD MU	.01	
MHT	RADAR	ON	2805.	219.29	146275	-352	NH	MANCHESTER	-.14	
CON	GLIDE SLOPE	I	330.5	260.61	148300	+34	NH	RWY 35 CON	.01	351
CON	LOCALIZER	I	108.7	262.65	149520	+24	NH	RWY 35 CONCORD MU	.01	351
LCI	LOCALIZER	I	108.5	313.97	166863	-148	NH	RWY 08 LACONIA MU	-.05	84
CON	CO	Y	A/G	264.74	166894	-338	NH	CONCORD	-.12	
CON	VOR/DME	R	112.9	264.74	166923	-350	NH	CONCORD	-.12	
LCI	VG	Y	A/G	313.44	167774	-150	NH	RWY26 PAPI	-.05	
LCI	VG	Y	A/G	312.21	169472	-174	NH	RWY08 PAPI	-.06	
LCI	GLIDE SLOPE	I	329.9	312.23	169598	-172	NH	RWY 08 LCI	-.06	84
MJE	LOCALIZER	I	109.9	227.79	171421	+122	NH	RWY 06 MANCHESTER	.04	57
LCI	FAN MARKER	D	NA	310.86	171525	-216	NH	LACONIA	-.07	
MHT	LOCALIZER	I	109.1	228.62	174059	+148	NH	RWY 35 MANCHESTER	.05	352
MNA	GLIDE SLOPE	I	331.4	227.78	174637	+144	NH	RWY 17 MHT	.05	172
MHT	CO	Y	A/G	226.13	176008	+74	NH	MANCHESTER RTR #1	.02	
MHT	ATCT	ON	A/G	227.38	176426	+44	NH	MANCHESTER	.01	
MHT	GLIDE SLOPE	I	331.4	225.93	176588	+116	NH	RWY 35 MHT	.04	352
MHT	MK	I	75.0	225.31	177457	+100	NH	RWY 35 MANCHESTER	.03	
MNA	LOCALIZER	I	109.1	225.04	178008	+88	NH	RWY 17 MANCHESTER	.03	172

MJE	GLIDE SLOPE	I	333.6	227.65	178334	+146	NH	RWY 06 MHT	.05	57
MHT	CO	Y	A/G	225.22	178533	+44	NH	MANCHESTER RTR #2	.01	
MHT	VOR/DME	R	114.4	217.91	181239	-106	NH	MANCHESTER	-.03	
LC	NDB	I	32	303.13	185427	-376	NH	BLNAP	-.12	
LCI	LOM	I		303.13	185427	-398	NH	RWY 08 LACONIA MU	-.12	
LWM	VOR/DME	I	112.5	191.4	193245	+58	MA	LAWRENCE	.02	
LWM	LOCALIZER	I	111.7	192.51	199812	+230	MA	RWY 05 LAWRENCE M	.07	53
LWM	VG	Y	A/G	192.77	202126	+228	MA	RWY23 PAPI	.06	
LWM	VG	Y	A/G	192.76	203286	+218	MA	RWY32 PAPI	.06	
LWM	ATCT	ON	A/G	192.79	203915	+132	MA	LAWRENCE MUNI	.04	
LWM	VG	Y	A/G	193.12	204909	+228	MA	RWY05 PAPI	.06	
LWM	GLIDE SLOPE	I	333.5	193.11	205062	+228	MA	RWY 05 LWM	.06	53
MJE	LOM	I		226.72	211243	+130	NH	RWY 06 MANCHESTER	.04	
MJ	NDB	I	20	226.72	211260	+130	NH	FITZY	.04	
GCS	LOCALIZER	I	109.9	49.34	216907	+290	ME	RWY 29 PORTLAND I	.08	290
PWM	MK	I	75.0	49.35	216945	+300	ME	RWY 11 PORTLAND I	.08	
A90	TR	Y	A/G	221.7	217114	+114	NH	BOSTON CONSOLIDAT	.03	
PWM	GLIDE SLOPE	I	333.8	49.81	218077	+296	ME	RWY 11 PWM	.08	110
PWM	VT	I	111.0	50.25	221608	+312	ME	PORTLAND	.08	
PWM	ATCT	ON	A/G	50.22	221657	+222	ME	PORTLAND INTL JET	.06	
GCS	GLIDE SLOPE	I	333.8	50.64	222307	+322	ME	RWY 29 PWM	.08	290
PWM	LOCALIZER	I	109.9	51.03	223468	+330	ME	RWY 11 PORTLAND I	.08	110
ASH	LOCALIZER	I	109.7	219.75	229621	+178	NH	RWY 14 BOIRE FIEL	.04	139
ASH	GLIDE SLOPE	I	333.2	221.15	230269	+168	NH	RWY 14 ASH	.04	139
ASH	ATCT	ON	A/G	220.54	230850	+114	NH	BOIRE FIELD	.03	
LW	NDB	D	40	196.25	233909	+240	MA	HAGET	.06	
AS	NDB	D	35	227.32	235795	+148	NH	CHERN	.04	
BVY	FAN MARKER	I	NA	179.47	236730	+298	MA	BEVERLY	.07	
ZBW	AR	ON		216.34	237803	+84	NH	NASHUA	.02	
SZO	NDB	D	22	10.75	238968	-588	ME	SEBAGO	-.14	

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 * COMMUNICATION FACILITIES IN PROXIMITY OF CASE *

Airspace User: Not Identified

FILE: VW2 NH 0043A

LATITUDE: 43°-15'-36.28"

LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.

STRUCTURE HEIGHT.....160 ft.

OVERALL HEIGHT AMSL.....364 ft.

IDENT	FACILITY	LOCATION NAME	ST	BEARING (deg)	DISTANCE (ft)
				Case to FAC	
-----	-----	-----	--	-----	-----
QEM	RCL	ROCHESTER	NH	3.92	6872
DAW	CO	SKYHAVEN UNICOM	NH	39.47	9932
DAW	ATIS	ROCHESTER	VT	36.36	10024
DAW	CO	SKYHAVEN ASOS	NH	46.27	10067
DAW	ASOS	ROCHESTER	NH	34.4	10519
DAW	UNICOM	ROCHESTER - SKYHAVEN	VT	34.4	10519
3B4	CO	LITTLEBROOK UNICOM	ME	131.55	64697
PSM	ATCT	PEASE INTERNATIONAL T	NH	151.35	73209
PSM	CO	PORTSMOUTH RTR	NH	153.73	73448
SFM	AWOS-3	SANFORD	ME	53.46	78156
PSM	ASOS	PORTSMOUTH	NH	152.2	79385
ZBW	CO	WATERBORO	ME	25.64	119531
QEL	RCL	WATERBORO	ME	25.62	119622
QEN	RCL	CANDIA	NH	233.29	120147
MHT	ASR	MANCHESTER	NH	219.29	146270
CON	DF	CONCORD	NH	261.94	148102
CON	ASOS	CONCORD	NH	261.79	148159
CON	CO	CONCORD	NH	264.73	166881
LCI	AWOS-3	LACONIA	NH	312.7	168569
MHT	CO	MANCHESTER RTR #1	NH	226.13	176008
MHT	ATCT	MANCHESTER	NH	227.37	176387
MHT	ASOS	MANCHESTER	NH	226.85	176752
MHT	CO	MANCHESTER RTR #2	NH	225.21	178590
LWM	ATCT	LAWRENCE MUNI	MA	192.78	203965
LWM	ASOS	LAWRENCE	MA	193.07	205038
QEK	RCL	OAKHILL	ME	52.94	208801
PWM	EFAS	PORTLAND	ME	48.94	215443
PWM	ASOS	PORTLAND	ME	50.75	221196
PWM	ATCT	PORTLAND INTL JETPORT	ME	50.24	221659
QE3	RCL	HUDSON	NH	211.5	224824
ASH	AWOS-3	NASHUA	NH	220.63	230420
ASH	ATCT	BOIRE FIELD	NH	220.53	230881
ZBW	RCL	BOSTON (NASHUA (ARTCC)	NH	216.37	237833

THE NEAREST COMMUNICATION FACILITY TO CASE COORDINATES IS: QEM

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 * NOS OBSTRUCTIONS NEAR CASE *

 Obstacle Search Range = 40000

Airspace User: Not Identified

FILE: VW2 NH 0043A

LATITUDE: 43-15-36.28 LONGITUDE: 70-57-5.35

SITE ELEVATION AMSL..... 204.5 ft.
 STRUCTURE HEIGHT.....160 ft.
 OVERALL HEIGHT AMSL.....364 ft.

TYPE FAA V OBSTACLE NUMBER	JULIAN CITY DATE A	ST	LATITUDE	LONGITUDE	RANGE	DEG	QUAN	AMSL	AGL	L	H	V	K	A A M
O BLDG 2011010 A	ROCHESTER	NH	43-16-58.03	070-56-12.03	9169	25	1	390	0034	U	2	C	U	
U BLDG 2014ANE00363OE 2018024 A	ROCHESTER	NH	43-16-53.55	070-55-53.94	9440	34	1	370	0040	N	4	D	N	
U BLDG 2012ANE00233OE 2018024 A	ROCHESTER	NH	43-16-48.11	070-55-42.90	9492	40	1	370	0028	N	4	D	N	
O TANK 2011010 A	ROCHESTER	NH	43-17-07.37	070-56-27.22	9644	17	1	506	0079	U	2	C	U	
O TOWER 2013ANE00362OE 2016134 C	ROCHESTER	NH	43-17-11.99	070-57-02.58	9692	1	1	636	0291	R	1	A	P	
O TOWER 2013ANE00363OE 2016133 C	ROCHESTER	NH	43-17-13.74	070-56-56.48	9889	4	1	632	0291	N	1	A	N	
O POLE 2011010 A	ROCHESTER	NH	43-16-43.47	070-55-25.57	10039	47	1	360	0037	U	1	B	U	
O POLE 2011010 A	ROCHESTER	NH	43-16-45.85	070-55-27.45	10104	46	1	358	0034	U	1	B	U	
O TOWER 2013ANE00364OE 2016134 C	ROCHESTER	NH	43-17-15.49	070-56-50.39	10106	6	1	654	0291	R	1	A	P	
O FENCE 2011010 A	ROCHESTER	NH	43-16-44.40	070-55-25.04	10132	47	1	331	0009	U	1	B	U	
O POLE 2011010 A	ROCHESTER	NH	43-17-06.19	070-56-03.80	10179	27	1	437	0121	U	2	C	U	
O POLE 2011010 A	ROCHESTER	NH	43-17-08.20	070-56-06.78	10266	25	1	436	0123	U	2	C	U	
O POLE 2011010 A	ROCHESTER	NH	43-17-10.25	070-56-09.80	10364	23	1	434	0122	U	2	C	U	
O POLE 2011010 A	ROCHESTER	NH	43-17-12.24	070-56-12.75	10466	22	1	432	0120	U	2	C	U	
U BLDG 2012ANE01729OE 2018024 A	ROCHESTER	NH	43-16-48.01	070-55-11.64	11114	49	1	325	0029	N	4	D	N	

U POLE	ROCHESTER	NH	43-17-19.82	070-55-49.65	11885	28	1	308	0023	N	4	D	N
2016ANE02271OE	2018025 A												
U POLE	ROCHESTER	NH	43-17-20.63	070-55-50.78	11919	28	1	308	0023	N	4	D	N
2016ANE02272OE	2018026 A												
U POLE	ROCHESTER	NH	43-17-21.34	070-55-51.90	11945	27	1	309	0023	N	4	D	N
2016ANE02273OE	2018025 A												
U BRIDGE	ROCHESTER	NH	43-16-53.20	070-55-02.12	11991	49	1	277	0033	N	4	D	N
2012ANE00006OE	2018024 A												
O TOWER	ROCHESTER	NH	43-17-06.93	070-58-59.22	12458	317	1	424	0186	N	5	D	N
2008ANE01405OE	2016138 C												
U TANK	DOVER	NH	43-13-49.00	070-55-31.00	12913	147	1	378	0080	N	4	D	N
2011ANE01151OE	2018030 A												
O TOWER	BARRINGTON	NH	43-13-26.00	070-58-17.00	14217	202	1	765	0385	R	5	E	P
2011ANE00664OE	2012293 C												
O TOWER	SOMERSWORTH	NH	43-14-10.90	070-53-35.20	17795	119	1	511	0297	R	1	A	P
2017ANE02300OE	2017258 C												
O TOWER	DOVER	NH	43-13-00.00	070-55-00.00	18343	150	1	448	0274	R	5	E	M
1971ANE00324OE	2014152 C												
O TOWER	ROCHESTER	NH	43-17-44.00	071-00-34.00	20136	310	1	654	0175	U	3	C	U
2014152 C													
O TOWER	ROCHESTER	NH	43-19-33.30	070-58-18.60	24602	347	1	500	0260	R	5	D	P
2012ANE00169OE	2016280 C												
O STACK	SOMERSWORTH	NH	43-15-22.00	070-51-32.00	24711	93	1	269	0150	N	1	D	N
2014152 C													
U POLE	DOVER	NH	43-11-43.67	070-52-33.55	30978	140	1	171	0115	N	4	D	N
2015ANE00159OE	2018026 A												
O STACK	DOVER	NH	43-11-45.00	070-52-21.00	31489	138	1	210	0180	N	1	D	U
2014152 C													
O TOWER	LEBANON	ME	43-20-58.89	070-56-37.29	32729	4	1	604	0258	D	5	D	N
2004ANE00064OE	2004263 C												
U TOWER	DOVER	NH	43-10-10.94	070-53-52.16	35912	157	1	288	0150	N	4	D	N
2015ANE00672OE	2018005 A												
O TOWER	DURHAM	NH	43-09-25.00	070-56-25.00	37709	175	1	432	0253	R	5	E	M
1971ANE00092OE	2014152 C												
O TOWER	DOVER	NH	43-10-58.00	070-51-09.00	38601	137	4	270	0205	N	4	D	M
1981ANE00165OE	2014152 C												
O STACK	DOVER	NH	43-10-29.00	070-51-29.00	39853	141	1	209	0150	N	1	D	N
2014152 C													

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DEFINITIONS:

The data for each obstacle record is in the following format:

Field -----	Data Element -----	Description -----
1	"O" or "U"	Verification Status "O": verified "U": unverified
2	Obstacle Type	1. Arch 2. Balloon 3. Bridge 4. Bldg 5. Bldg-Twr 6. Catenary 7. Cool TWR 8. Crane 9. Crane T 10. Ctrl Twr 11. Dam 12. Dome 13. Elevator 14. Monument 15. Plant 16. Pole 17. Rig 18. Refinery 19. Sign 20. Spire 21. Stack 22. Stacks 23. Tank 24. T-L Twr 25. Tower 26. Towers 27. Tramway 28. Windmill
3	City Name	City
4	State Identifier	State
5	Latitude	Latitude (NAD 1883)
6	Longitude	Longitude (NAD 1983)
7	Range	Distance from Aeronautical Study to NOS Obstruction (feet)
8	DEG	Bearing from Aeronautical Study to NOS Obstruction (feet)
9	Freq	Charted AM station Frequency
10	AMSL	Above Mean Sea Level Height (Feet)
11	AGL	Above Ground Level Height (Feet)
12	Strobe Indicator	(L)ighting, type of "S": High Intensity White Strobe Lighting "M": Medium Intensity White Strobe Lighting "R": Red Lighting "H": Dual, Red with HIGH Intensit White Strobe "D": Dual, Red with MEDIUM Intensity White Strobe "F": Flood Lights

"N": No Lights
 "L": Other, Lighting not listed
 above

13, 14	Accuracy H V	A A	Horizontal, Vertical Accuracy
		HORIZONTAL	VERTICAL
		-----	-----
		Code Tolerance	Code Tolerance
		----	----
		1 +-15'	A +-3'
		2 +-50'	B +-10'
		3 +-100'	C +-20'
		4 +-250'	D +-50'
		5 +-500'	E +-125'
		6 +-1000'	F +-250'
		7 +-1/2 NM	G +-500'
		8 +-1M	H +-1000'
		9 Unknown	I Unknown

15	Mark Indicator "Y" or "N"	Painted/Marked Yes or No
----	------------------------------	--------------------------

16	FAA Study Number or NOS Source Code	NOS Source Code (when FAA study number is not available)
		99CF0000 7610 Form
		99AM0000 FCC AM List
		99FM0000 FCC FM List
		99FC0000 Flight Check
		99SP0000 Stereoplot
		99IP0000 IAP Procedures
		99VR0000 Visual Reported
		99LR0000 Letter Reported
		99TR0000 Telephone Reported
		99MS0000 MSAW Reported
		99OC#### OC Charts
		99HC0000 Horizontal Ctrl Data
		99LM0000 Landmark for Charts

17	Action: A, C, D, Julian Date	Add, Change, Dismantle, Date of Action *
----	---------------------------------	---

* A revision has been made to the Julian date field by NOS in order to comp issues. The numeric, 5-digit field (YYDDD) has changed to an alphanumeric field. The new format has a distinctive letter to indicate Y2K compliance character of the Julian date (jdate) field will be a letter. The remainin will be numeric. The sequence will begin with A0001 = January 1, 2000. It with:

A1001 = January 1, 2001
A2001 = January 1, 2002
A3001 = January 1, 2003

A9001 = January 1, 2009

B0001 = January 1, 2010

```

*****
*                               AM RADIO STATIONS                               *
* Disturbance of AM Broadcast Station Antenna Pattern *
*                               CFR Title 47, Part 1, Subpart BB                     *
*****
File: VW2 NH 0043A

```

LATITUDE: 43°-15'-36.28" (NAD83) LONGITUDE: 70°-57'-5.35" (NAD83)

SITE ELEVATION AMSL..... 204.5 ft.
STRUCTURE HEIGHT.....160 ft.
OVERALL HEIGHT AMSL.....364 ft.

CALL	FREQ	POWER	ANT	P	DIST	BEARING	NAD83	NAD83		
SIGN	KHz	Watts	MOD	T	Meters	Degrees	LATITUDE	LONGITUDE	CITY	ST
WPKX	930	5,000	D	A	2998	5.33	43°-17'-13	070°-56'-53	ROCHESTER	NH

This station has a current license.
The authorized directional antenna pattern is augmented.
This station is operating a directional type antenna system.
The electrical height of the studied antenna is: 54°.

NOTICE! Your proposed structure will be within 3.0 KM of this station. This station has a directional antenna radiation pattern. FCC regulations require the responsible party to show that a new or significantly modified tower would not negatively impact a AM station (FCC 13-115).

The ciritcal tower height is 32 meters.

CALL	FREQ	POWER	ANT	P	DIST	BEARING	NAD83	NAD83		
SIGN	KHz	Watts	MOD	T	Meters	Degrees	LATITUDE	LONGITUDE	CITY	ST
WTSN	1270	5,000	D	A	11652	136.84	43°-11'-01	070°-51'-12	DOVER	NH

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DEFINITIONS:

SIGNIFICANT MODIFICATION: A significant modification of a tower in the immediate vicinity of an AM station is defined in CFR Title 47, Part 1.30002, as follows;
(1) any change that would alter the tower's physical height by 5 electrical

degrees or more at the AM frequency; or

(2) in addition or replacement of one or more antennas or transmission lines on a tower that has been detuned or base-insulated.

The addition or modification of an antenna or antenna-supporting structure on a building shall be considered a construction modification subject to the analysis and notice requirements of this subpart if and only if the height of the antenna supporting structure alone exceeds the thresholds in paragraphs (a) and (b) of this section.

CALL SIGN: The Call Sign of the station or application. For applications and construction permits which do not have Call Signs a value of 'NEW' is used.

FREQUENCY: in Kilohertz

POWER: The nominal power of the station, as defined in Section CFR 73.14. This is not necessarily the effective radiated power, the transmitter power, the antenna input power, etc.

ANT MOD: Antenna Mode, The mode of the complete antenna system. Indicates directional or non-directional. (D = Directional and N = Non-Directional) If a station is directional at one time during a day and non-directional at another time it is considered to be directional for the purpose of Movement Method Proof. If the same station has multiple locations these are listed as separate AM stations with the same Call Sign.

PT: The type of antenna pattern which has been notified to (or by) foreign countries.

DIST Meters: This is the calculated distance (in meters) between your proposed site and the latitude/longitude coordinates specified by the FCC data.

Bearing Degrees: This is the true bearing from your proposed site to the station.

LATITUDE: This is the latitude of the AM Station in NAD 1983 coordinates.

LONGITUDE: This is the longitude of the AM Station in NAD 1983 coordinates.

ST: This is the state where the AM Station is located.

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 * FCC REGISTERED ANTENNA STRUCTURES *

 ASR Search Range = 40000

FILE: VW2 NH 0043A

LATITUDE: 43°-15'-36.28" LONGITUDE: 70°-57'-5.35"

SITE ELEVATION AMSL..... 204.5 ft.
 STRUCTURE HEIGHT.....160 ft.
 OVERALL HEIGHT AMSL.....364 ft.

STRUCTURE DIST DIR	REGISTER	FILE NUM	FAA STUDY NUMBER	LATITUDE	LONGITUDE	GROUND	AGL	AMSL
-----	-----	-----	-----	-----	-----	-----	-----	-----
BMAST	1241696	A0749223	2003-ANE-849-OE	43-17-07.40	070-56-27.19	130.5	27	158.2
9648 17								
GTOWER	1031115	A1119603	2013-ANE-362-OE	43-17-11.90	070-57-02.59	104.8	87	193.5
9684 1								
GTOWER	1031117	A1119605	2013-ANE-364-OE	43-17-13.00	070-56-54.99	110.0	87	198.7
9823 4								
GTOWER	1031115	A1119603	2013-ANE-362-OE	43-17-13.00	070-56-54.99	104.8	87	193.5
9823 4								
GTOWER	1031116	A1119604	2013-ANE-363-OE	43-17-13.00	070-56-54.99	103.9	88	192.6
9823 4								
GTOWER	1031116	A1119604	2013-ANE-363-OE	43-17-13.70	070-56-56.50	103.9	88	192.6
9886 4								
GTOWER	1031117	A1119605	2013-ANE-364-OE	43-17-15.50	070-56-50.40	110.0	87	198.7
10107 6								
TOWER	1250889	A0618150	2008-ANE-1405-OE	43-17-06.90	070-58-59.19	72.5	55	129.2
12455 317								
LTOWER	1304392	A1121956	2017-ANE-1733-OE	43-13-48.58	070-55-30.50	89.6	45	141.4
12968 147								
TOWER	1034328	A1121992	2011-ANE-664-OE	43-13-25.99	070-58-17.00	115.8	116	233.1
14217 202								
TOWER	1255099	A0724856	2010-ANE-1168-OE	43-13-39.20	070-59-32.58	79.2	42	122.2
16102 223								
GTOWER	1033990	A1088232	2017-ANE-2300-OE	43-14-10.90	070-53-35.20	62.5	90	153.0
17794 119								
TOWER	1258645	A0613792	2006-ANE-1257-OE	43-12-53.79	070-54-54.00	61.3	75	140.9
19110 149								
TOWER	1212065	A0267657	99-ANE-0875-OE	43-12-53.69	070-54-54.19	61.3	61	122.3
19111 149								
LTOWER	1250789	A1132044	2019-ANE-435-OE	43-16-41.00	071-01-33.60	150.3	55	210.3
20902 288								
TOWER	1009205	A1025318	96-ANE-390-OE	43-18-30.00	070-59-55.98	99.0	57	159.6
21649 324								
TOWER	1247170	A1098195	2012-ANE-169-OE	43-19-33.29	070-58-18.59	73.1	79	152.3
24601 347								

TOWER 25629 64	1209433	A0819500	2007-ANE-95-OE	43-17-27.99	070-51-54.48	119.4	45	167.5
LTOWER 28211 130	1304390	A1121953	2017-ANE-2505-OE	43-12-35.90	070-52-14.89	85.9	45	137.7
TOWER 28605 130	1207446	A0479454	2003-ANE-1009-OE	43-12-34.99	070-52-08.98	87.1	30	123.6
TOWER 32731 4	1242925	A0918542	2004-ANE-64-OE	43-20-58.90	070-56-37.30	105.5	76	184.1
TOWER 33316 345	1222078	A0336859	2003-ANE-554-OE	43-20-54.19	070-59-01.58	74.0	54	130.3
TOWER 35337 157	1240049	A0749214	2003-ANE-522-OE	43-10-14.50	070-54-00.49	56.4	47	104.3
MTOWER 35917 157	1297050	A1095033	2015-ANE-672-OE	43-10-10.90	070-53-52.09	42.0	45	87.7
TOWER 36832 177	1064725	A0470571	98-ANE-0558-OE	43-09-33.00	070-56-39.00	74.4	45	120.7
TOWER 37180 203	1209556	A0837000	99-ANE-0718-OE	43-09-59.20	071-00-24.58	77.4	57	138.1
TOWER 37918 175	1031818	A0204673	97-ANE-351-OE	43-09-22.99	070-56-24.00	49.0	92	141.0
TOWER 37918 175	1031991	A0123301	71-NE-92-OE	43-09-22.99	070-56-24.00	49.0	77	126.0
38149 137	1216121	A1050523	81-ANE-165-OE	43-11-01.91	070-51-12.21	18.6	62	81.1
38216 137	1216125	A1050522	81-ANE-165-OE	43-11-01.00	070-51-12.21	16.8	61	78.3
38216 137	1216128	A1050521	81-ANE-165-OE	43-11-01.00	070-51-12.21	14.9	61	76.7
38216 137	1216129	A1050520	81-ANE-165-OE	43-11-01.00	070-51-12.21	16.1	61	77.7
TOWER 42079 144	1009206	A1025319	2006-ANE-305-OE	43-10-00.40	070-51-30.70	14.6	47	62.5

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01-22-2020
18:40:47

APPENDIX C:
FCC TowAir

TOWAIR Determination Results

A routine check of the coordinates, heights, and structure type you provided indicates that this structure does not require registration.

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

PASS SLOPE(100:1)NO FAA REQ - 3181.0 Meters (10436.2 Feet)away & below slope by 12.0 Meters (39.3699 Feet)

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	43-17-17.00N	070-56-8.00W	SKYHAVEN	STRAFFORD ROCHESTER, NH	91.4	1280.5

Your Specifications

NAD83 Coordinates

Latitude 43-15-36.3 north

Longitude 070-57-05.4 west

Measurements (Meters)

Overall Structure Height (AGL) 48.8

Support Structure Height (AGL) 45.7

Site Elevation (AMSL) 62.3

Structure Type

MTOWER - Monopole

Tower Construction Notifications

Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW

8



March 23, 2020

Ms. Michael Culbert
Vice President of Site Development
EIP Communications I, LLC
290 Congress Street, 7th Floor
Boston, MA 02210

**RE: Engineer of Record Letter of Intent
EIP Communications I, LLC
Rochester 3 (701651 – VW2-NH-0043A)
133 Blackwater Road
Rochester, NH 03867**

Ms. Culbert:

ProTerra Design Group, LLC (ProTerra) as the site civil Engineer of Record for the proposed EIP Communications I, LLC telecommunications tower referenced above shall provide certification and/or documentation for the following:

- During the construction document phase of the project, ProTerra will verify that the site plans, tower design, and tower foundation design comply with the City of Rochester and the State of New Hampshire structural and electrical standards.
 - BCR300 (International Building Code 2015)
 - ANSI/EIA/TIA-222 Rev G
 - National Electric Code 2017
- An initial (pre-construction) Construction Control Affidavit (CCA) will be submitted outlining what, who, and how inspections will occur during construction.
- A final CCA will be submitted to the City's Code Enforcement Department verifying that the project has been constructed per the approved construction documents.

If you have any questions or need further information, please do not hesitate to call.

Sincerely,
ProTerra Design Group, LLC



Jesse Moreno, PE
Managing Partner

9



City of Rochester, New Hampshire
Department of Building, Zoning and Licensing Services

Abutters List Report
Rochester, NH September 27, 2017

Subject Property:

Parcel Number:	0257-0024-0000	Mailing Address:	SCRUTON JASON A & CARROLL
CAMA Number:	0257-0024-0000		KATHERINE L
Property Address:	133 BLACKWATER RD		20 FARMSTEAD RD
			FARMINGTON, NH 03835

Abutters:

Parcel Number:	0257-0017-0000	Mailing Address:	BOURGEOIS ERIC & LEAH
CAMA Number:	0257-0017-0000		177 BLACKWATER RD
Property Address:	177 BLACKWATER RD		ROCHESTER, NH 03867-4656

Parcel Number:	0257-0021-0000	Mailing Address:	POMEROY KEITH A & DEANNA
CAMA Number:	0257-0021-0000		153 BLACKWATER RD
Property Address:	153 BLACKWATER RD		ROCHESTER, NH 03867

Parcel Number:	0257-0022-0000	Mailing Address:	VANASSE ROBERT G & BETTER M
CAMA Number:	0257-0022-0000		145 BLACKWATER RD
Property Address:	145 BLACKWATER RD		ROCHESTER, NH 03867

Parcel Number:	0257-0023-0000	Mailing Address:	MACIVER KENNETH N
CAMA Number:	0257-0023-0000		139 BLACKWATER RD
Property Address:	139 BLACKWATER RD		ROCHESTER, NH 03867

Parcel Number:	0257-0024-0000	Mailing Address:	SCRUTON JASON A & CARROLL
CAMA Number:	0257-0024-0000		133 BLACKWATER RD
Property Address:	133 BLACKWATER RD		ROCHESTER, NH 03867

Parcel Number:	0257-0025-0000	Mailing Address:	TRAMONTOZZI ANTHONY ROBERT
CAMA Number:	0257-0025-0000		125 BLACKWATER RD
Property Address:	125 BLACKWATER RD		ROCHESTER, NH 03867-4656

Parcel Number:	0257-0026-0000	Mailing Address:	MACIVER FAMILY REV LIV TRUST %
CAMA Number:	0257-0026-0000		JASON M SULLIVAN TRUSTEE
Property Address:	115 BLACKWATER RD		PO BOX 22422
			PORTSMOUTH, NH 03802-2422

Parcel Number:	0257-0027-0000	Mailing Address:	POINT VIRGINIA ANN % VIRGINIA
CAMA Number:	0257-0027-0000		POINT KAUFFELT
Property Address:	103 BLACKWATER RD		327 BAKER LN
			CHARLESTON, WV 25302+2928

Abutters List Report
Rochester, NH September 27, 2017

Parcel Number: 0257-0050-0000
CAMA Number: 0257-0050-0000
Property Address: 422 PICKERING RD

Mailing Address: BOSTON & MAINE RAILROAD
IRON HORSE PARK HIGH ST
NORTH BILERICA, MA 01862

Parcel Number: 0263-0009-0000
CAMA Number: 0263-0009-0000
Property Address: 0 ENGLAND RD

Mailing Address: LAURION MARC D & TOBI L
267 LOWELL ST
ROCHESTER, NH 03867

Parcel Number: 0263-0010-0009
CAMA Number: 0263-0010-0009
Property Address: 55 PERERSON RD

Mailing Address: BOSTON NORTH CONSTR CO INC
35 PAGE ST
SOMERSWORTH, NH 03878-2738

Parcel Number: 0263-0010-0010
CAMA Number: 0263-0010-0010
Property Address: 49 PERERSON RD

Mailing Address: BOSTON NORTH CONSTR CO INC
35 PAGE ST
SOMERSWORTH, NH 03878-2738

Parcel Number: 0263-0010-0017
CAMA Number: 0263-0010-0017
Property Address: 36 PERERSON RD

Mailing Address: BOSTON NORTH CONSTR CO INC
35 PAGE ST
SOMERSWORTH, NH 03878-2738

Parcel Number: 0263-0010-0018
CAMA Number: 0263-0010-0018
Property Address: 0 PERERSON RD

Mailing Address: BOSTON NORTH CONSTR CO INC
35 PAGE ST
SOMERSWORTH, NH 03878-2738

Parcel Number: 0253-0065-0000
CAMA Number: 0253-0065-0195
Property Address: 20 SO FUCHSIA DR

Mailing Address: ROBERTS BARBARA J
20 SO FUCHSIA DR
ROCHESTER, NH 03867-5203

Parcel Number: 0253-0065-0000
CAMA Number: 0253-0065-0185
Property Address: 18 SO FUCHSIA DR

Mailing Address: HERSEY JANICE & MICHAEL
18 SO FUCHSIA DR
ROCHESTER, NH 03867

Parcel Number: 0253-0065-0000
CAMA Number: 0253-0065-0103
Property Address: 12 SO FUCHSIA DR

Mailing Address: LORENTZEN PATSY L & STEPHEN L
12 SO FUCHSIA DR
ROCHESTER, NH 03867-5203

Parcel Number: 0253-0065-0000
CAMA Number: 0253-0065-0105
Property Address: 14 SO FUCHSIA DR

Mailing Address: ELLIS RICHARD F
14 SO FUCHSIA DR
ROCHESTER, NH 03867-5203

Parcel Number: 0253-0065-0000
CAMA Number: 0253-0065-0179
Property Address: 16 SO FUCHSIA DR

Mailing Address: ROY THERESA A REVOCABLE TRUST %
ROY THERESA A TRUSTEE
16 SO FUCHSIA DR
ROCHESTER, NH 03867

**EIP Communications I, LLC - 133 Blackwater Road, Rochester, New Hampshire
Cities/Towns Within 20 Mile Radius**

City of Rochester, NH City Council 31 Wakefield Street Rochester, NH 03867	Town of Strafford, NH Board of Selectmen Strafford Town Hall ATTN: Ellen White, Town Administrator P.O. Box 23 Strafford, NH 03884
Town of Wakefield, NH Board of Selectmen 2 High Street Sanbornville, NH 03872	Town of Pittsfield, NH Board of Selectmen Town Hall 85 Main Street Pittsfield, NH 03263
Town of Brookfield, NH Board of Selectmen 267 Wentworth Road Brookfield, NH 03872	Town of Chichester, NH Board of Selectmen Town Hall 54 Main Street Chichester, NH 03258
Town of Middleton, NH Board of Selectmen 182 Kings Highway Middleton, NH 03887	Town of Epsom, NH Board of Selectmen Selectmen's Office Town Office PO Box 10 940 Suncook Valley Highway Epsom, NH 03234
Town of New Durham, NH Board of Selectmen Town Hall 4 Main Street P.O. Box 207 New Durham, NH 03855	Town of Allenstown, NH Board of Selectmen 16 School Street Allenstown, NH 03275
Town of Alton, NH Board of Selectmen Attn: Alton Board of Selectmen PO BOX 659 1 Monument Square Alton, NH 03809	Town of Northwood, NH Board of Selectmen Northwood Town Hall 818 First New Hampshire Turnpike Northwood, NH. 03261
Town of Gilmanton, NH Board of Selectmen 503 Province Road P.O. Box 550 Gilmanton, NH 03237	Town of Deerfield, NH Board of Selectmen 8 Raymond Road Deerfield, NH 03037

Town of Barnstead, NH Board of Selectmen Selectmen's Office 108 South Barnstead Road PO Box 11 Center Barnstead, NH 03225	Town of Candia, NH Board of Selectmen Candia Town Offices 74 High Street Candia, NH 03034
Town of Milton, NH Board of Selectmen 424 White Mountain Highway P.O. Box 310 Milton, NH 03851	Town of Barrington, NH Select Board 333 Calef Highway PO Box 660 Barrington 03825
Town of Farmington, NH Board of Selectmen Farmington Municipal Offices 356 Main Street Farmington, NH 03835	Town of Nottingham, NH Board of Selectmen P.O. Box 114 Nottingham, NH 03290
Town of Raymond, NH Board of Selectmen Raymond Town Offices 4 Epping Street Raymond, NH 03077	City of Somersworth, NH City Council One Government Way Somersworth, NH 03878
Town of Rollinsford, NH Board of Selectmen 667 Main Street P.O. Box 309 Rollinsford, NH 03869	City of Dover, NH City Council 288 Central Avenue Dover, NH 03820
Town of Madbury, NH Board of Selectmen 13 Town Hall Road Madbury, NH 03823	Town of Lee, NH Select Board Lee Town Hall 7 Mast Road Lee, NH 03861
Town of Epping, NH Board of Selectmen 157 Main Street Epping NH 03042	Town of Fremont, NH Board of Selectmen 295 Main Street PO Box 120 Fremont, NH 03044-0120
Town of Brentwood, NH 1 Dalton Road Brentwood, NH 03833	Town of Durham, NH Town Council Town Administrator's Office 8 Newmarket Road Durham, NH 03824

Town of Newmarket, NH Town Hall 186 Main Street Newmarket, NH 03857	Town of Newfields, NH Board of Selectmen 65 Main Street Newfields, NH 03856
Town of Exeter, NH Select Board 10 Front Street Exeter, NH 03833	City of Portsmouth, NH City Council Council Chambers 1 Junkins Avenue Portsmouth, NH 03801
Town of Greenland, NH Board of Selectmen PO Box 100 11 Town Square Greenland, NH 03840-0100	Town of Stratham, NH Select Board 10 Bunker Hill Avenue Stratham, NH 03885
Town of New Castle, NH Select Board New Castle Town Hall 49 Main Street P.O. Box 367 New Castle, NH 03854	Town of Rye, NH Board of Selectmen Rye Town Hall 10 Central Road Rye, NH 03870
Town of North Hampton, NH 233 Atlantic Avenue North Hampton, NH 03862	Town of Hampton, NH Board of Selectmen 100 Winnacunnet Road Hampton, NH 03842
Town of Hampton Falls, NH Board of Selectmen 1 Drinkwater Road Hampton Falls, NH 03844	Town of Kensington, NH Board of Selectmen Kensington Town Hall 95 Amesbury Road Kensington, NH 03833

§ 275-4.1 Powers of Board.

C. Special exceptions.

- (1)** The Board grants special exceptions for particular uses and activities as listed in the Tables of Uses in Article 18, Use Regulations, and as articulated in Article 22, Special Exceptions.
- (2)** The Board shall grant a special exception only if it reasonably determines that all of the following base criteria are met (in addition to those criteria and conditions included for specific uses in Article 22):
 - (a)** Location. The specific site is an appropriate location for the proposed use or structure;
 - (b)** Neighborhood. The proposed use would not be detrimental, injurious, obnoxious, or offensive to the neighborhood;
 - (c)** Traffic. The proposed use would not create an undue hazard or nuisance to vehicular or pedestrian traffic;
 - (d)** Public facilities. Adequate and appropriate facilities and utilities would be provided to ensure the proper operation of the proposed use or structure; and
 - (e)** Master Plan. The proposed use or structure is consistent with the spirit of this chapter and the intent of the Master Plan

§ 275-18.5 Special exceptions.

A use denoted in the tables by the letter "E" is permitted in that zoning district by special exception. Authorization of special exceptions is subject to review and approval by the Zoning Board of Adjustment as articulated in Article 22, Special Exceptions. For some special exceptions within specific districts there are additional standards and/or criteria that apply, beyond the base criteria applicable to all special exceptions. Where these additional standards and/or criteria apply there is a reference in the right column of the table. Always check these special criteria/conditions to see if they are applicable.

§ 275-22.2 Base criteria.

The Zoning Board of Adjustment shall approve a special exception if, and only if, it reasonably determines that all of the following criteria are met (in addition to those criteria/conditions articulated for specific uses in § **275-22.3** below, or in addition to those articulated elsewhere in this chapter for departures from standards):

- A.** Location. The specific site is an appropriate location for the proposed use or structure;
- B.** Neighborhood. The proposed use would not be detrimental, injurious, obnoxious, or offensive to the neighborhood;
- C.** Traffic. The proposed use would not create an undue hazard or nuisance to vehicular or pedestrian traffic;
- D.** Public facilities. Adequate and appropriate facilities and utilities would be provided to ensure the proper operation of the proposed use or structure; and
- E.** Master Plan. The proposed use or structure is consistent with the spirit of this chapter and the intent of the Master Plan.

ZONING

275 Attachment 4

City of Rochester

Table 18-D Industrial-Storage-Transport-Utility Uses

LEGEND

P = Permitted Use

C = Conditional Use

E = Use Allowed by Special Exception

Industrial-Storage-Transport-Utility-Uses	Residential Districts				Commercial Districts				Industrial Districts		Special		Criteria/Conditions
	R1	R2	NMU	AG	DC	OC	GR	HC	GI	RI	HS	AS	Reference
Airport	—	—	—	E	—	—	—	—	—	—	—	P	Article 21
Contractor's storage yard	—	—	—	E	—	—	—	E	P	P	—	—	Articles 20 and 22
Distribution center	—	—	—	—	—	—	P	C	P	—	—	—	Article 21
Emergency services facility	—	—	—	—	C	C	—	C	C	—	P	—	Article 21
Fuel storage	—	—	—	—	—	—	P	E	E	—	—	—	Article 21
Helipad (accessory use)	—	—	—	E	—	E	P	E	P	P	P	P	Article 21
Industry, heavy	—	—	—	—	—	—	P	E	P	E	—	—	Article 21
Industry, light	—	—	—	—	—	—	P	P	P	—	—	—	Article 21
Industry, recycling	—	—	—	—	—	—	—	—	—	P	—	—	Articles 20 and 22
Junkyard	—	—	—	—	—	—	—	E	E	P	—	—	Articles 20 and 22
Laundry establishment-3	—	—	—	—	—	—	—	P	P	—	—	—	
Mini-warehouse	—	—	—	—	—	—	P	C	P	—	—	—	Articles 20 and 21
Monument production	—	—	C	—	—	C	—	P	P	P	—	—	Article 21
Parking lot	—	C	C	C	C	C	—	P	C	P	C	P	Article 21
Printing facility	—	—	C	—	—	P	P	P	P	—	—	—	
Recycling facility	—	—	—	—	—	—	—	E	E	P	—	—	Articles 20 and 22
Research and development	—	—	—	—	E	P	P	P	P	—	—	—	Article 21
Sawmill	—	—	—	—	—	—	—	—	E	—	—	—	Article 21
Sawmill, temporary (accessory use)	—	—	—	P	—	P	—	P	P	P	—	P	Article 23
Solid waste facility	—	—	—	—	—	—	—	—	—	P	—	—	Articles 20 and 22
Tank farm	—	—	—	—	—	—	P	C	P	—	—	—	

ROCHESTER CODE

Industrial-Storage- Transport-Utility-Uses	Residential Districts				Commercial Districts				Industrial Districts		Special		Criteria/Conditions
	R1	R2	NMU	AG	DC	OC	GR	HC	GI	RI	HS	AS	Reference
Trade shop	—	—	C	—	C	C	P	P	P	P	—	—	Article 21
Transportation service	—	—	C	—	C	—	P	P	C	C	—	—	Article 21
Truck terminal	—	—	—	—	—	—	P	—	C	C	—	—	Article 21
Utility - substation	E	E	E	E	E	C	E	P	P	P	E	E	Article 21
Utility - power generation	—	—	—	—	E	—	E	—	E	E	—	—	Article 21
Warehouse	—	—	C	—	C	C	P	P	P	C	—	C	Articles 20, 21 and 23
Wireless communications facility	—	—	—	E	E	E	P	E	P	P	E	E	Articles 20 and 22





Patriot

Properties Inc.

User Defined

Property Location

No.	Alt No.	Direction/Street/City
133		BLACKWATER RD, ROCHESTER

Ownership

Owner 1	SCRUTON JASON A &				
Owner 2	CARROLL KATHERINE L				
Owner 3					
Street 1	20 FARMSTEAD RD				
Street 2					
Town/City	FARMINGTON				
St/Prov	NH	Country		Occ	N
Postal	03835			Type	

Previous Owner

Owner 1	SCRUTON ARTHUR W REVOCABLE		
Owner 2	TRUST % A W SCRUTON TRUSTEE		
Street 1	20 FARMSTEAD RD		
Town/City	FARMINGTON		
St/Prov	NH	Country	
Postal	03835		

Narrative Description

This parcel contains 56.00000 AC of land mainly classified as CFSD with a Building, having primarily Exterior.
--

Other Assessments

Code	Description	Amount	Com Int

Property Factors

Item	Code	Description	%	Item	Code	Description
Zone 1	A	AGRICULTURAL	100	Utility 1	4	NONE
Zone 2				Utility 2		
Zone 3				Utility 3		
Census Tract				Exempt		
Flood Hazard						
District 1	RO	ROCHESTER	0	Topo	4	ROLLNG
District 2				Street	1	PAVED
District 3				Traffic	2	LIGHT

Land Section (First 9 Lines Only)

Use Code	Description	LUC Factor	No of Units	Depth/ Price/Unit	Unit Type	Land Type	LT Factor	Base Value	Unit Price	Adjusted Unit Price	Neigh	Neigh Infl	Neigh Modifier	Infl 1	%	Infl 2	%	Infl 3	%	Appraised Value	Alt Class	%	Spec Land	Juris	Land Factor	Assessed Value	Notes
614	CFSD	1.0000	1.0000		PRIMARY ACRE	JNDEVELOPEC	1.00000		60,000.00	60,000.00	1070	1.000								60,000		0	340.00		1.00000	238	
614	CFSD	1.0000	25.0000		EXCESS ACRES	EXCESS	1.00000	0.00	2,500.00	1,986.60	1070	1.000								49,665	653	100	73.00		1.00000	1,725	
614	CFSD	1.0000	25.0000		EXCESS ACRES	EXCESS	1.00000	0.00	2,500.00	1,986.60	1070	1.000								49,665		0	340.00		1.00000	5,950	
614	CFSD	1.0000	5.0000		EXCESS ACRES	EXCESS	1.00000	0.00	2,500.00	1,986.60	1070	1.000								9,933	633	100	146.00	0	1.00000	705	
Total AC/HA			56.00000		Total SF/SM			2,439,360.00000	Parcel LUC	614	CFSD			Prime NB Desc	RESIDENTIAL				Total	169,263.00	Total		899.00	Total		8,618	

In Process Appraisal Summary (First 4 Lines Only)

Use Code	Land Size	Building Value	Yard Items	Land Value	Total Value
614	26.00	0.00	0.00	109,665.00	109,665.00
633	5.00	0.00	0.00	9,933.00	9,933.00
653	25.00	0.00	0.00	49,665.00	49,665.00
Total Card	56.00	0.00	0.00	169,263.00	169,263.00
Total Parcel	56.00	0.00	0.00	169,263.00	169,263.00
Source	Mkt Adj Cost	Total Value per Sq Unit /Card	N/A	/Parcel	N/A

Previous Assessment (First 9 Lines Only)

Tax Yr	Use	Cat	Bldg Value	Yrd Items	Land Size	Land Value	Total Value	Assessed Value	Notes	Date
2019	614	FV	0	0	56.0000	169,263	169,263	8,618		10/30/2019
2018	614	FV	0	0	56.0000	154,263	154,263	8,523	Year End Roll	09/19/2018
2017	614	FV	0	0	56.0000	154,263	154,263	8,018	Year End Roll	09/07/2017
2016	614	FV	0	0	56.0000	154,263	154,263	8,018	Year End Roll	09/08/2016
2015	614	FV	0	0	56.0000	154,263	154,263	8,018	Year-end	10/01/2015
2014	614	FV	0	0	56.0000	154,263	154,263	8,018	Year End Roll	09/29/2014
2013	614	FV	0	0	56.0000	212,968	212,968	8,198	Year End Roll	09/04/2013
2012	614	FV	0	0	56.0000	215,187	215,187	8,638	Year End Roll	09/20/2012
2011	614	FV	0	0	56.0000	215,187	215,187	8,668	Year End Roll	09/27/2011

Sales Information (First 5 Lines Only)

Grantor	Legal Ref	Type	Date	Sale Code	Sale Price	V	TSF	Verification	Notes
SCRUTON ARTHUR W REVOCABLE	3884-66	3	05/20/2010	Estate Sale	2,667.00	No	No	OTHER	TENANTS IN COMMON
MACIVER DONALD M	2001-282	1	04/23/1998	Current Use	25,000.00	Yes	No	OTHER	
CAMPBELL ERNEST W & MARION G	742-346		01/09/1962		0.00	No	No		

Building Permits (First 8 Lines Only)

Date	Number	Description	Amount	CIO	Last Visit	Fed Code	F. Description	GeneralNotes

Activity Information (First 11 Lines Only)

Date	Result	By	Name
10/05/2012	VACANT LOT	NM	NANCY
12/01/2010	DEED CHANGE	VB	VERNA
05/05/2005	OWN ADD CHG	GN	GAYE
04/28/2005	CORRECTION	TG	THERESA
12/14/2004	OWN ADD CHG	VW	VIRGINIA
11/29/2004	MAPPING CHG	TM	TOM
02/04/2004	VACANT LOT	TG	THERESA
12/03/2003	OWN ADD CHG	VL	VICTORIA
12/19/2002	OWN ADD CHG	VW	VIRGINIA

Sign: _____

Exterior Information

Type			
Story Height			
(Liv) Units		Total	
Foudation			
Frame			
Prime Wall			
Sec Wall			
Roof Struct			
Roof Cover			
Color			
View/Desir			
Bld Name			

General Information

Grade			
Year Blt		Eff Yr Blt	
Alt LUC		Alt %	
Jurisdic		Fact	1.00000
Const Mod			
Lump Sum Adj			

Interior Information

Avg Ht/Ft			
Prime Int Wall			
Sec Int Wall			
Partition			
Prim Floors			
Sec Floors			
Basement Floors			
Subfloor			
Basement Garage			
Electric			
Insulation			
Int vs Ext			
Heat Fuel			
Heat Type			
# Heat Sys			
% Heated	0	% AC	0
Solar HW	No	Cntrl Vac	No
% Com Wall	0	% Sprinkled	0

Special Features/Yard Items (First 20 Lines Only)

Code	Description	A	Y/S	Qty	Size/Dim	Qual	Con	Year	Unit Price	D/S	Dep	LUC	Fact	NB	Fact	Appr Value	J Code	J Fact	Juris Value
More	N			Total Yard Items					Total Special Features							Total SFY			

Bath Features

Full Bath		Rating	
A Bath		Rating	
3/4 Bath		Rating	
A 3QBath		Rating	
1/2 Bath		Rating	
A HBath		Rating	
Othr Fix		Rating	

Other Features

Kitchen		Rating	
A Kitchen		Rating	
Fireplace		Rating	
WSFlues		Rating	

Condo Information

Location	
Total Units	0
Floor	
% Own	
Name	

Depreciation

Phys Cond	AV - Average	
Functional		
Economic		
Special		
Override		
Total		

Calc Summary

Basic \$ / SQ	0.00000
Size Adj	1.00000
Const Adj	1.00000
Adj \$ / SQ	0.00000
Other Features	0.00
Grade Factor	1.00000
NBHD Inf	1.00000
NBHD Mod	1.00000
LUC Factor	1.00000
Adj Total	0
Depreciation	0
Depricated Total	0

Comments

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Res Breakdown (First 4 Only)

No Unit	Rooms	Bed Rooms	Floor
Totals			

Remodeling

Exterior	
Interior	
Additions	
Kitchen	
Baths	
Plumbing	
Electric	
Heating	
General	

Mobile Home

Make	
Model	
Serial #	
Year	0
Color	

0257-0024-0000

Parcel ID

Comparable Sales (First 7 Only)

Rating	Parcel ID	Type	Date	Sale Price
WtAv\$/SQ		AvRate		
Ind Val				

Juris Factor	1.00000	Before Depr	0.00
Special Features	0.00	Val/Su Net	0.00
Final Total	0.00	Val/Su SzAd	0.00

Sketch

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Sub Area (First 8 Only)

Code	Description	Area - SQ	Rate - AV	Undepr Value
Net Sketched Area			Total	
Size Adj		Gross Area		Fin Area

Sub Area Detail (First 10 Only)

Sub Area	% Usbl	Description	% Type	Qu	# of Tenants

Image

