

Approved By: S. A. DIAZ Date: 10-20-24

# **MSA MUNICIPAL SERVICES ASSOCIATES, INC.**

October 13, 2021

**REVISED**

Mr. George Peluso  
Director of Public Services  
Village of Hinsdale  
19 East Chicago Avenue  
Hinsdale, Illinois 60521

Dear Mr. Peluso:

At the direction of the Village of Hinsdale, Municipal Services Associates, Inc. (MSA) have reviewed the plans submitted by Insite RE, Inc. ("Insite") and Chicago SMSA d/b/a Verizon Wireless ("Verizon") for the replacement, relocation and installation of antenna panels, remote radios and radio modules, and base station equipment located on an existing water tank and in a shelter building located on property adjacent to Hinsdale Central High School at 339 West 57<sup>th</sup> Street. Verizon presently operates a six (6) panel antenna array described below.

**Existing Facilities:** There are two (2) active antenna arrays on the water tower. The Verizon Wireless antenna array is located beneath a T-Mobile array, and it has a centerline height of 70' (21.34 meters) AGL. T-Mobile's antenna array is at a centerline height of 99' (30.18 meters) above ground level (AGL) on the tower.

There are two (2) inactive antenna arrays. An antenna array that belonged to US Cellular is mounted at 70' (21.34 meters) AGL. An antenna array that belonged to Clearwire is mounted at the same height. Both arrays are located adjacent to Verizon's antenna array. Base stations for T-Mobile and Verizon are located in a shelter building at the base of the 104' (31.71 meters) tower. There are no other antenna facilities on this monopole tower.

**FCC 2014 Authorization Order "Shot Clock" Period of Review:** Insite and Verizon Wireless submitted an application for permit, including fees, to the Village on June 2, 2021. Plans were submitted to the Village on June 7, 2021. A letter to Ms. Katie Groark from MSA requesting additional information from Insite and Verizon was sent on July 9, 2021.

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However, as the proposed project is located on municipally-owned property for which the Village and Verizon Wireless have entered into a lease agreement, and the Village is acting in a proprietary capacity concerning the location of this cell site, and other adjacent cell sites on this parcel, the Village is not subject (1) to the “Shot clock” conditions established by the Spectrum Act as stated in 47 CFR §1.6100. The proposed project does not require a Special Use Permit under the Village’s Zoning Ordinance. Other than issuance of required building permits, MSA recommends no additional action from the Village.

### **Proposed Project**

This project involves the removal of outmoded remote radios and cables, and installation of three (3) replacement antennas, and nine (9) remote radio units. Three (3) “back-to-back” radio equipment mounting pipes will also be installed. There is no new significant construction proposed for the tower or base station. Therefore, other than issuance of the required building permit, MSA recommends no additional action from the Village.

Verizon proposes changes to its antenna array on the water tower, and one (1) minor change to its base station. As noted above, the project will entail removal, relocation, replacement, and installation elements. These are described below:

- Removals:**
- Twelve (12) 1 5/8" coaxial cables from the equipment shelter to the water tower mounting ring.
  - Six (6) Ericsson RRUS-32 remote radio units.

- Relocations:**
- Three (3) existing Ericsson 4449 remote radio units from the base station to the water tower mounting ring antenna array.

- Replacements:**
- Verizon will replace the six (6) RRUS-32 radios with three Ericsson 4449 radios, three (3) Ericsson 8843 radios, and three (3) Ericsson AIR 6449 combination antenna/radio units.

- Retentions:**
- Three (3) Raycap COVP boxes located on the antenna array mounting ring.
  - Three (3) Raycap COVP boxes located in the base station.
  - Three (3) High-Capacity trunk hybrid cables from the station COVP boxes to the COVPs serving the antennas and radios.
  - Six (6) Commscope antenna panels.

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(1) Federal Communications Commission, In the Matter of Acceleration of Broadband Deployment by Improving Wireless Facilities Siting Policies, WT Docket No. 13-238, Acceleration of Broadband Deployment: Expanding the Reach and Reducing the Cost of Broadband Deployment by Improving Policies Regarding Public Rights of Way and Wireless Facilities Siting, WT Docket No. 11-59, 2012 Biennial Review of Telecommunications Regulations, WT Docket No. 13-32, Report and Order, Released October 21, 2014, at ¶239.

**Project Purpose:** The proposed project is intended to expand Verizon's low-band and mid-band 5G coverage, and supplement its 4G/LTE coverage throughout a substantial portion of the center and southern sections of Hinsdale. Major coverage zones will include Hinsdale Central High School, the 55<sup>th</sup> Street corridor from Clarendon Hills Road to the Tri-State Tollway, downtown Hinsdale, and south of the cell site to Plainfield Road. It will provide expanded coverage within an approximate one (1) mile radius of the cell site.

The improvements include addition of three (3) additional "Sub-6" Ericsson 6449 advanced antenna system radios with integrated antennas. These antenna/radio units operate at 3.65 GHz within the 3.55-3.70 GigaHertz (GHz) band and are classified as Citizens Broadband Radio Service (CBRS) units by the FCC. CBRS is a band of radio-frequency spectrums from 3.5GHz to 3.7GHz that the Federal Communications Commission has designated for sharing among three tiers of users: incumbent users, priority licensees and generally authorized, which is unlicensed (2). The CBRS band is intended for carriers to extend their own 4G or 5G networks in order to improve capacity and signal performance.

Verizon will replace older 4G/LTE radios with new Ericsson 4449 and Ericsson 8843 model radios. The Ericsson 8843 radios operate in the following mid-band frequency blocks: 1.71-1.78 GigaHertz (GHz), 1.85-1.91 GHz, 1.93-1.99 GHz, and 2.11-2.18 GHz. Like the Ericsson 4449 radios, these radios also provide 4G/LTE and 5G services. None of these frequencies are Millimeter Wave, or ultra-wideband frequencies that can be used for 5G service.

Virtually all new cell phones being sold by Verizon are 5G-capable. Many users continue to use 4G/LTE phones, so demand for 4G service continues, however, many users are retiring older 4G/LTE phones in favor of 5G units. The new antenna and radio improvements are designed to provide greater signal capacity, signal transmission and reception speed, and availability of frequencies for a diverse variety of wireless applications.

Verizon's cell site upgrade is intended to meet rapidly increasing demands. The demand comes from computer users, mobile users, and users of "Smart Home," and other Internet-enabled devices that are 5G-ready. Also, students at Hinsdale Central High School are using high-speed, and massive data applications for which 5G technology is particularly suited, including remote learning, which may be necessary once again as a result of COVID-19.

### **Description:**

**Antenna and Radio Equipment:** Verizon plans to upgrade its antenna array through adding three (3) antenna panels, including remote radio units (RRU), and six (6) new RRUs.

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(2)<https://www.networkworld.com/article/3180615/faq-what-in-the-wireless-world-is-cbrs.html>, February 26, 2020.

Verizon will also replace twelve (12) coaxial cables, and six (6) Ericsson RRUS-32 radios. The centerline array is located at 95' (28.96 meters) AGL. The top of the water tank is located at 104' (31.71 meters) AGL. Also, they will remove all of their existing RRUS-32 radios and replace them with three (3) Ericsson 4449 radios, three (3) Ericsson 8843 radios, and three (3) Ericsson 6449 combination antenna/radio units.

The Ericsson AIR 6449 units include antennas that will join six (6) Commscope antenna panels. The new antenna panels will carry CBRS services as described above at frequencies operating at 3.65 GHz within the 3.55 to 3.70 GHz allotted by the FCC for CBRS. The AIR 6449 antennas are Massive Multiple Input/Multiple Output (M-MIMO) units that provide for 64 transmission channels and 64 reception channels which provide 16 times the transmission and reception capacity of the radios that they are replacing. The Ericsson AIR 6449 panels will measure 30.4" (.774 meters) in height, 15.9" (.405 meters) in width, and 8.1" (.206 meters) in depth. Each antenna/radio unit weighs 88 pounds (39.9 kilograms).

The AIR 6449 antennas are classified by Verizon as "NL-Sub6," that are antennas capable of operating 4G/LTE or 5G services that can utilize either M-MIMO or millimeter wave frequencies in order to significantly boost data speed and signal targeting. These antennas operate at frequencies below 6 GHz.

Verizon will also add three (3) Ericsson 4449 RRUs. These units operate in low-band frequency blocks of 746-756 MegaHertz (MHz), 777-787 MHz, 824-849 MHz, and 869-894 MHz. These bandwidth blocks are primarily used for 4G/LTE service, however, they can be purposed for 5G service as well. The Ericsson 4449 units measure 17.9" (.455 meters) in height, 13.2" (.335 meters) in width, and 9.4" (.240 meters) in depth, with a weight of 70.5 pounds (32 kilograms). An Ericsson 4449 RRU radio will be relocated from the equipment shelter to the water tower mounting ring.

Three Ericsson 8843 RRUs will be added to the antenna array. These units have dimensions of 14.9" (.379 meters) in height, 13.2" (.335 meters) in width, and 10.9" (.277 meters) in depth. Each radio weighs 71.9 pounds (32.6 kilograms). These radios will be installed on the north, east, and south faces of the water tank handrail.

Additional modifications to the antenna array include removal of twelve (12) coaxial cables that served the RRUS-32 radios which are being replaced. Three (3) hybrid fiber optic/power cables will be retained and jumper cables will be distributed to the antenna panels and radios by way of three (3) Raycap COVP boxes on the water tower mounting ring, and three (3) Raycap COVP boxes located in the equipment shelter.

**Grounding:** The antenna/radio units, and radios, and existing Raycap COVP boxes, will be grounded to sector ground bars located around the circumference of the water tank. The new antenna/radio units and RRUs, along with the COVP boxes and existing antennas will use #2 AWG insulated ground wire between each panel and its mast pipe mount, including the back-to-back radios mounted on new pipe mounts. The pipe mounts will use #2 AWG insulated ground wire to ground to the sector ground bars. The sector ground bars will be bonded to the existing ground system. Verizon's equipment in the shelter building will be grounded to a Master Ground Bar located within the shelter.

Verizon's grounding plan for the proposed project was complete, however, the plans did not indicate if the sector ground bars on the water tank were grounded to a ground bar located at the base of the tank. MSA recommends that Insite or Verizon state if there is a ground between the sector ground bars and the base of the water tank, and that Village electrical inspection staff determine if there is a ground bar at the base of the water tank for verification purposes.

### **Requested Information of Applicant**

MSA reviewed Insite and Verizon's submission. On July 9, 2021, MSA notified Ms. Katie Groark of Insite RE, Inc., representative for Verizon, that additional information would be needed from Insite or Verizon in order to complete the review.

Specifically, MSA requested the following informational items:

1. A statement of compliance with Village zoning district regulations, state and federal regulations, federal, state, and local laws, and safety standards.
2. Equipment specifications for the proposed Ericsson 4449 and 8843 remote radio units and the Ericsson 6449 antennas.
3. "Before and After" photo simulations of the antenna array, water tower and base station.
4. Licenses and permit copies from other governmental agencies.

On August 13, 2021, MSA received the requested information from Ms. Groark. MSA requested copies of licenses and permit copies from other governmental agencies. Verizon did not provide these copies. MSA recommends that Insite or Verizon provides a copy of Verizon's FCC tower registration form prior to receipt of its permit. The remainder of Insite and Verizon's information was acceptable.

**FCC OET Bulletin 65 Appendix A Checklist and Radio Frequency Emissions Safety**

**Compliance:** The FCC completely occupies the field as to setting RF safety standards in the United States. The Village is not permitted to set its own standards regardless of whether higher, lower, or even the same as the FCC's standards. The Commission derives its authority under a provision of the National Environmental Policy Act (NEPA) of 1969. The Commission permits the Village to determine if a proposed wireless project meets the required FCC 47 CFR § 1.1307 et seq. (the "FCC rules") and FCC Office of Engineering and Technology Bulletin 65 ("OET 65") RF safety requirements. The actual standards set by the Commission are found in the FCC Office of Engineering and Technology Bulletin 65, titled "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields." A website containing the bulletin is at:

[http://www.fcc.gov/Bureaus/Engineering\\_Technology/Documents/bulletins/oet65/oet65.pdf](http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf).

Under the FCC rules, certain types of wireless projects are deemed to be "categorically excluded," thus not subject to further RF evaluation under the rules due to identified factors including: whether the antenna supporting structure is a building or is shared to perform some other function, and the lowest portion of the transmitting antenna is at least 10 meters (32.8 feet) above ground. Verizon provided a completed FCC OET Bulletin 65 checklist indicating that the proposed antennas are exempted from FCC Radio Frequency (RF) regulations. The lowest point of the mounting height of the antennas is 92.3' (28.14 meters) AGL. The antenna array is 59.5' (18.14 meters) above the maximum regulatory threshold of 32.8' (10.00 meters) AGL. The project is a general wireless communications service that is not subject to FCC RF regulations.

The use of panel antennas and other forms of wireless telecommunications creates a concern that radio frequencies used by cellular and wireless providers might interfere with radio frequencies used for local government public safety and public services communications. Verizon and other wireless providers may be using a radio frequency spectrum that had been previously used for analog television transmission. Other frequencies formerly used for television transmission will be allocated by the FCC to local governments for public safety uses.

Verizon's lease with the Village of Hinsdale contains language addressing RF interference with public safety frequencies. The language states:

"LESSEE agrees to have installed radio equipment of the type and frequency which will not cause measurable interference to the equipment or operations of the LESSOR or other lessees of the property existing as of the date this agreement is executed by the parties (provided that such LESSOR or pre-existing equipment is operated in accordance with all applicable Rules and Regulations of the Federal Communications Commission ["FCC"]). In the event LESSEE'S equipment causes such interference, and after LESSOR has notified LESSEE of such interference, LESSEE will take all steps necessary to correct and eliminate the interference."



Based on the responses from Verizon, MSA is satisfied that Verizon has met the informational requirements necessary in order for us to properly opine on this project.

**Structural Evaluation:** Verizon provided a structural analysis prepared by Krech Ojard & Associates, Inc., (“Krech Ojard”) of Eau Claire, Wisconsin on April 2 and April 23, 2021. Krech Ojard tested design stability of the water tank using the proposed antenna/radio units, RRUs, and existing antennas, cables, and COVP boxes, as load factors, and attachments of US Cellular, and T-Mobile.

Tests were performed according to American Water Works Association (AWWA) D100-11 standards, the 2006 International Building Code, and the International Existing Building Code (IEBC). The AWWA standards set tests using a basic wind speed of 90-MPH, Exposure C, a gust factor of 1.0, and an importance factor of 1.15. A reservoir wind load was calculated at 18.0 pounds per square foot (psf), a roof wind load was calculated at 18.33 psf, and the handrail wind load was calculated at 30 psf. Calculations for the overturning moment indicated that overturning will increase by 11% (3). The IEBC states that “Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is no more than 10 percent greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered.”(4). The 1 percent (1%) difference for the overturning moment with the standard is inconsequential as no alterations were recommended by Krech Ojard. Krech Ojard concluded that “The water tower does not have anchor bolts. Overturning and slide resistance were checked. It was determined that there was not uplift forces on the tank, and both overturning and sliding resistance factors of safety are greater than 1.5 which is required by the AWWA. **The water tower can safely resist the resultant forces from increased overturning.**” (5) **(Emphasis provided by author of analysis)** The structural evaluation is attached.

**Antenna Mount Analysis:** Verizon provided a Mount Structural Analysis Report prepared by Paul J. Ford & Company (PJF) of Columbus, Ohio, on November 16, 2020. PJF tested the capacity of the antenna support mounts. The structural capacity of the water tower was not tested in this analysis. PJF considered the proposed antenna/radio units, and RRUs. Existing mounting posts, antenna panels, cabling, and COVP boxes were included in the analysis as load factors. PJF based its analysis on the American National Standards Institute/Telecommunications Industry Association (ANSI/TIA) Section 222-H standard for platform structures. PJF’s tests were calculated based on an ultimate 3-second gust wind speed of 114-MPH, and a reduced wind speed of 40-MPH with 1.5" of radial ice, and a 30-MPH live loading wind speed.

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(3) Krech Ojard & Associates, Inc., Structural Analysis Report For Verizon (#212521, Revision #1, April 23, 2021, at 1.

(4) *Ibid*, at 8.

(5) *Ibid*, at 1.



In addition, the analysis indicated that the antenna support mount stress levels were within acceptable limits. The overall structural rating under the ANSI/TIA standards “Pass-Fail” grades were 26.7% (6). A breakdown of this rating indicates passing ratings of 26.7% for standoff members, 9.7% for mount pipes, and 15.9% for mount-to-tower connections. (7) Based on these ratings, PJF opined “The existing mounts are **SUFFICIENT** for the final loading configuration and do not require modifications.” (8).

The Antenna Mount Analysis Report is attached.

**Section 6409(a) - Spectrum Act - Evaluation:**

MSA has reviewed the Insite RE, Inc. and Verizon application for the following scope of work at 339 West 57<sup>th</sup> Street, stated on page two (2) of this report. Although the Village is acting in its proprietary capacity as a landlord with respect to the approval of this project, the reciting of Middle Class Tax Relief and Job Creation Act of 2012. Section 6409(a), codified at 47 CFR §1.6100 (the “Spectrum Act”) is instructive in that it defines a “Substantial Change” which, if the project meets the definition, allows the Village when it is not acting in its proprietary capacity, and is acting as a zoning authority, to approve or deny the project. By defining what is a Substantial Change, the Spectrum Act also determines what is not a Substantial Change. The proposed project is not a Substantial Change under the Spectrum Act.

47 CFR §1.6100 says in its entirety:

§ 1.6100 Wireless Facility Modifications.

(a) [Reserved]

(b) Definitions. Terms used in this section have the following meanings.

(1) Base station. A structure or equipment at a fixed location that enables Commission-licensed or authorized wireless communications between user equipment and a communications network. The term does not encompass a tower as defined in this subpart or any equipment associated with a tower.

(i) The term includes, but is not limited to, equipment associated with wireless communications services such as private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

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(6) Paul J. Ford & Company, Mount Structural Analysis Report and PMI Requirements, Project No., 24320-0388.002.8190, Carrier Site No. 212521-VZW, November 16, 2020, at 4.

(7) *Ibid.*

(8) *Ibid.*

(ii) The term includes, but is not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, regular and backup power supplies, and comparable equipment, regardless of technological configuration (including Distributed Antenna Systems and small-cell networks).

(iii) The term includes any structure other than a tower that, at the time the relevant application is filed with the State or local government under this section, supports or houses equipment described in paragraphs (b)(1)(i) through (ii) of this section that has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, even if the structure was not built for the sole or primary purpose of providing such support.

(iv) The term does not include any structure that, at the time the relevant application is filed with the State or local government under this section, does not support or house equipment described in paragraphs (b)(1)(i)-(ii) of this section.

(2) Collocation. The mounting or installation of transmission equipment on an eligible support structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

(3) Eligible facilities request. Any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving:

(i) Collocation of new transmission equipment;

(ii) Removal of transmission equipment; or

(iii) Replacement of transmission equipment.

(4) Eligible support structure. Any tower or base station as defined in this section, provided that it is existing at the time the relevant application is filed with the State or local government under this section.

(5) Existing. A constructed tower or base station is existing for purposes of this section if it has been reviewed and approved under the applicable zoning or siting process, or under another State or local regulatory review process, provided that a tower that has not been reviewed and approved because it was not in a zoned area when it was built, but was lawfully constructed, is existing for purposes of this definition.

(6) Site. For towers other than towers in the public rights-of-way, the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site, and, for other eligible support structures, further restricted to that area in proximity to the structure and to other transmission equipment already deployed on the ground. The current boundaries of a site are the boundaries that existed as of the date that the original support structure or a modification to that structure was last reviewed and approved by a State or local government, if the approval of the modification occurred prior to the Spectrum Act or otherwise outside of the Section 6409(a) process.

(7) Substantial change. A modification substantially changes the physical dimensions of an eligible support structure if it meets any of the following criteria:

(i) For towers other than towers in the public rights-of-way, it increases the height of the tower by more than 10% or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater; for other eligible support structures, it increases the height of the structure by more than 10% or more than ten feet, whichever is greater;

(A) Changes in height should be measured from the original support structure in cases where deployments are or will be separated horizontally, such as on buildings' rooftops; in other circumstances, changes in height should be measured from the dimensions of the tower or base station, inclusive of originally approved appurtenances and any modifications that were approved prior to the passage of the Spectrum Act.

(ii) For towers other than towers in the public rights-of-way, it involves adding an appurtenance to the body of the tower that would protrude from the edge of the tower more than twenty feet, or more than the width of the tower structure at the level of the appurtenance, whichever is greater; for other eligible support structures, it involves adding an appurtenance to the body of the structure that would protrude from the edge of the structure by more than six feet;

(iii) For any eligible support structure, it involves installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets; or, for towers in the public rights-of-way and base stations, it involves installation of any new equipment cabinets on the ground if there are no pre-existing ground cabinets associated with the structure, or else involves installation of ground cabinets that are more than 10% larger in height or overall volume than any other ground cabinets associated with the structure;

(iv) It entails any excavation or deployment outside the current site, except that, for towers other than towers in the public rights-of-way, it entails any excavation or deployment outside of the current site by more than 30 feet in any direction; (9)

(v) It would defeat the concealment elements of the eligible support structure; or

(vi) It does not comply with conditions associated with the siting approval of the construction or modification of the eligible support structure or base station equipment, provided however that this limitation does not apply to any modification that is non-compliant only in a manner that would not exceed the thresholds identified in § 1.6100(b)(7)(i) through (iv).

(8) Transmission equipment. Equipment that facilitates transmission for any Commission-licensed or authorized wireless communication service, including, but not limited to, radio transceivers, antennas, coaxial or fiber-optic cable, and regular and backup power supply. The term includes equipment associated with wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul.

(9) Tower. Any structure built for the sole or primary purpose of supporting any Commission-licensed or authorized antennas and their associated facilities, including structures that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site.

(c) Review of applications. A State or local government may not deny and shall approve any eligible facilities request for modification of an eligible support structure that does not substantially change the physical dimensions of such structure.

(1) Documentation requirement for review. When an applicant asserts in writing that a request for modification is covered by this section, a State or local government may require the applicant to provide documentation or information only to the extent reasonably related to determining whether the request meets the requirements of this section. A State or local government may not require an applicant to submit any other documentation, including but not limited to documentation intended to illustrate the need for such wireless facilities or to justify the business decision to modify such wireless facilities.

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(9) The underlined passages on pp. 11-12 are changes to the Spectrum Act as considered by the FCC for the Report and Order titled In the Matter of Implementation of State and Local Governments Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012, WT Docket No. 19-250., approved October 27, 2020. These passages became effective January 2, 2021.

(2) Timeframe for review. Within 60 days of the date on which an applicant submits a request seeking approval under this section, the State or local government shall approve the application unless it determines that the application is not covered by this section.

(3) Tolling of the timeframe for review. The 60-day period begins to run when the application is filed, and may be tolled only by mutual agreement or in cases where the reviewing State or local government determines that the application is incomplete. The timeframe for review is not tolled by a moratorium on the review of applications.

(i) To toll the timeframe for incompleteness, the reviewing State or local government must provide written notice to the applicant within 30 days of receipt of the application, clearly and specifically delineating all missing documents or information. Such delineated information is limited to documents or information meeting the standard under paragraph (c)(1) of this section.

(ii) The timeframe for review begins running again when the applicant makes a supplemental submission in response to the State or local government's notice of incompleteness.

(iii) Following a supplemental submission, the State or local government will have 10 days to notify the applicant that the supplemental submission did not provide the information identified in the original notice delineating missing information. The timeframe is tolled in the case of second or subsequent notices pursuant to the procedures identified in this paragraph (c)(3). Second or subsequent notices of incompleteness may not specify missing documents or information that were not delineated in the original notice of incompleteness.

(4) Failure to act. In the event the reviewing State or local government fails to approve or deny a request seeking approval under this section within the timeframe for review (accounting for any tolling), the request shall be deemed granted. The deemed grant does not become effective until the applicant notifies the applicable reviewing authority in writing after the review period has expired (accounting for any tolling) that the application has been deemed granted.

(5) Remedies. Applicants and reviewing authorities may bring claims related to Section 6409(a) to any court of competent jurisdiction.

### **Spectrum Act Rules Analysis**

To reiterate, the Village is acting in a proprietary capacity with regard to its role as a landlord. The lease between Verizon Wireless and the Village of Hinsdale allows the Village to be exempt from the conditions of the Spectrum Act with respect to the “Shot Clock” review period and the mandatory approval by the Village of modifications to a wireless facility that do not constitute a “Substantial Change” under the Spectrum Act. The analysis below indicates that the project is not a “Substantial Change.” However, the Village’s decision to approve or deny the project is, in this case, governed by the terms of the lease.

The proposed project includes replacement of antenna panels and RRUs, and a Site Support Cabinet, installation of antenna panels, RRUs, combination antenna/radio units, a “Pendant” cable breakout box, a Cable Over-Voltage Protection surge arrester box (COVP) a new Site Support Cabinet, a battery cabinet, two (2) core modules, eight (8) RF modules, six (6) fiber cable splitters, a cell site router, and electrical and fiber conduit pipes housing power and fiber cabling. The proposed project is consistent with the definition of an *Eligible Facilities Request* as stated in 47 CFR §1.6100(b)(3), and does not entail a *Substantial Change* as defined by 47 CFR §1.6100(b)(7).

Having reviewed the current project plans for this site, MSA’s opinions as the Village’s technology expert are as follows:

1. The instant project is a “collocation of new transmission equipment” within the meaning of 47 CFR §1.6100(a)(2); and
2. The instant project consists of no substantial modifications or extensive external changes. Verizon will be replacing antennas, radios, adding base station equipment, and removing inadequate equipment. These actions do not rise to the level of the definition of *Substantial Change* as described above (10).

### **Recommendations**

MSA opines that the proposed project will significantly improve wireless transmission and reception capabilities throughout the southern section of Hinsdale, including the business district, and especially to Hinsdale Central High School. The project will provide a broader range of frequencies serving both 4G/LTE users and 5G users.

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(10) 47 CFR §1.6100( c).

The proposed project is intended to bring additional 5G services to Hinsdale businesses and residents. The installation of Massive Multiple Input/Multiple Output (MIMO) antenna/radio units will provide businesses, and residences, along with fixed and mobile users, faster transmission and reception speeds, and more available frequencies for wireless devices, including appliances, business and medical equipment, connected vehicles, security systems, and computer equipment.

Verizon's cell site upgrade is similar to those of other wireless carriers that seek to increase the capacity and of their cell sites to address rapidly increasing demand for wireless services, including both 4G/LTE and 5G services. Verizon's proposed project intends to utilize low-band and mid-band RF frequency blocks to provide more transmission and reception channels, in order to increase data speeds and improve connectivity. The frequency blocks described earlier in this report that will be used by Verizon can be purposed for both 4G/LTE and 5G usage.

The proposed project does not impact the aesthetic appearance of the water tower, and it does not include any significant increase in the height of the antennas and mounts. Three (3) of the antenna/radio units will be considerably shorter than other antennas that will be retained on the cell site. The proposed antenna/radio units and RRUs will not create an adverse effect upon nearby properties, or have an adverse effect on the character or future development of the zoning district.

A Building Permit will be required for replacing the RRUs, and adding the new antenna/radio units. MSA recommends that Verizon indicate if the sector ground bars at the top of the water tank are connected to a ground bar at the base of the water tank, and that the Village's Electrical Inspector determine if there is a ground bar at the base of the water tank for verification purposes.

In addition, MSA recommends that Verizon provide a copy of its FCC Tower Registration form in accordance with Article VII, Section 7-309(B)(8) of the Hinsdale Zoning Ordinance. Other than the inspection and production of the FCC Tower Registration Form, MSA recommends that Verizon is allowed to proceed with the proposed project.

Should the Village have any questions concerning this report, or if any additional background is needed, please contact me at your first opportunity.

Sincerely,

*Stuart Chapman*

Stuart Chapman, President  
Municipal Services Associates, Inc.

Attachments



Mr. George Peluso  
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cc: Ms. Kathleen Gargano, Village Manager, Village of Hinsdale (by e-mail)  
Mr. Rob McGinniss, MCP, Director of Community Development, Building  
Commissioner, Village of Hinsdale  
Mr. Daniel Deeter, PE, Village Engineer, Village of Hinsdale  
Mr. Al Diaz, Assistant Village Engineer, Village of Hinsdale  
Ms. Katie Groark, Insite RE, Inc., representative for Verizon Wireless (by e-mail)

APPROVALS

REAL ESTATE:

RF:

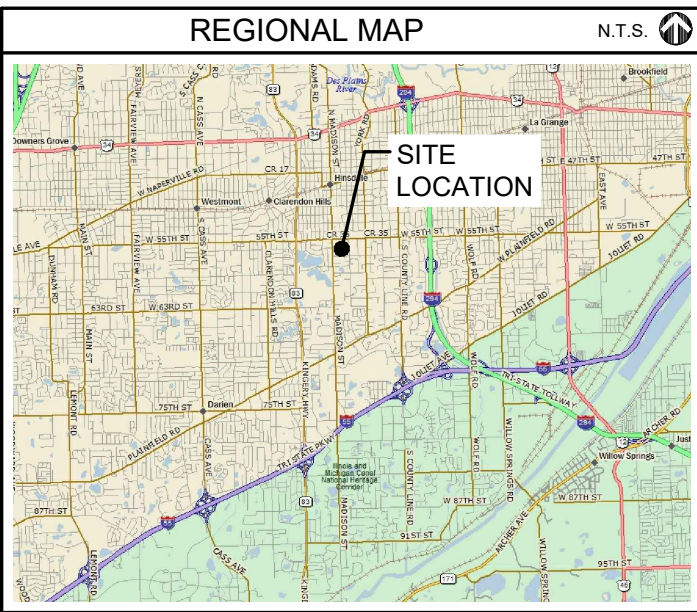
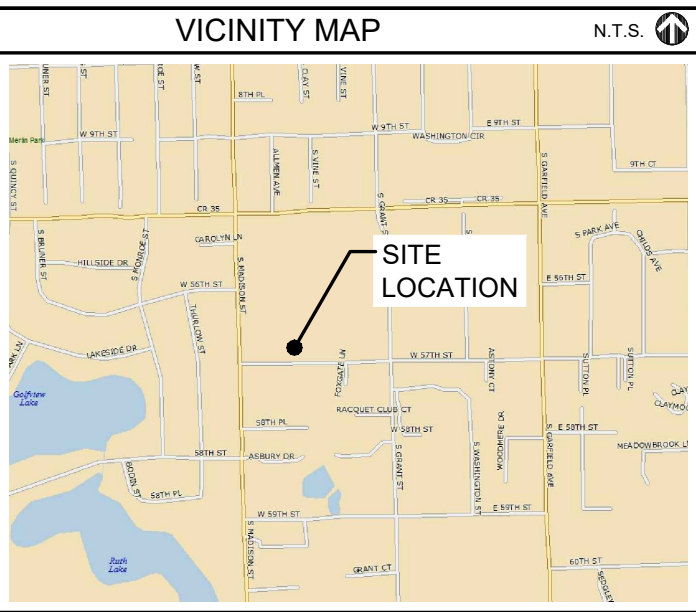
CONSTRUCTION:

EQUIPMENT ENGINEERING:

OPERATIONS:

PROJECT TYPE

PROPOSED ANTENNA MODIFICATION ON AN EXISTING WIRELESS SITE



CONSULTANT TEAM

PROJECT CONSULTANT:

TERRA CONSULTING GROUP, LTD.

600 BUSSE HIGHWAY

PARK RIDGE, IL 60068

(847) 698-6400

STRUCTURAL CONSULTANT:

(TOWER ANALYSIS)

KRECH OJARD & ASSOCIATES, PA

101 PUTNAM STREET

EAU CLAIRE, WI 54703

(715) 552-7374

(715) 552-7336 (FAX)

STRUCTURAL CONSULTANT:

(MOUNT ANALYSIS)

BY OTHERS

MOUNT ANALYSIS STATUS:

COMPLETE

MOUNT ANALYSIS RESULTS:

PASS

MOUNT ANALYSIS DATE:

11/16/2020

STRUCTURAL ANALYSIS DATE:

04/23/2021

CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT:

HTTPS://PMI.VZWSMART.COM

SMART TOOL VENDOR PROJECT #:

10017709

VZW LOCATION CODE (PSLC):

212521

\*\*\*PMI AND REQUIREMENTS ALSO EMBEDDED IN MOUNT ANALYSIS REPORT

MOUNT MODIFCATION REQUIRED:

NO

VZW APPROVED SMART KIT VENDORS

REFER TO MOUNT MODIFICATION DRAWINGS PAGE FOR VZW SMART KIT APPROVED VENDORS

GENERAL CONTRACTOR TO FOLLOW ALL APPLICABLE BUILDING CODES OBSERVED BY LOCAL JURISDICTION

PROJECT INFORMATION

OCCUPANCY:

UNINHABITED

SITE ADDRESS:

339 W 57TH STREET

HINSDALE, IL 60521

LATITUDE:

41° 47' 10.09" N

(APPROXIMATE)

LONGITUDE:

87° 56' 03.09" W

(APPROXIMATE)

STRUCTURE OWNER:

VILLAGE OF HINSDALE

CONTACT PERSON:

T.B.D.

APPLICANT:

VERIZON WIRELESS

1701 GOLF ROAD, TOWER 2, SUITE 400

ROLLING MEADOWS, ILLINOIS 60008

REAL ESTATE MANAGER:

MICHAEL COSENTINO (847) 378-9261

SHEET	DRAWING INDEX	REVISION
T-1	TITLE SHEET	-
C-1	SITE LAYOUT	-
A-1	SHELTER LAYOUT	-
ANT-1	SITE ELEVATION	-
ANT-2	ANTENNA LAYOUT	-
ANT-2A	PROPOSED ANTENNA LAYOUT	-
ANT-2B	PROPOSED ANTENNA LAYOUT	-
ANT-3	ANTENNA INFORMATION	-
ANT-3A	COMBINER CABLE DATA & CABLE DIAGRAM	-
ANT-4	DETAILS	-
EX-1	PHOTO EXHIBIT	-
ATTACHMENTS		
RFE FCC COMPLIANCE ASSESSMENT		

verizon

1701 GOLF ROAD, TOWER 2, SUITE 400

ROLLING MEADOWS, ILLINOIS 60008

PHONE: (847) 619-5397      FAX: (847) 706-7415

LOCATION NUMBER: 212521

SITE NAME: CH HINSDALE WT

339 W 57TH STREET

HINSDALE, IL 60521

OPERATES 24 HOURS  
A DAY 365 DAYS A YEAR

Call Before You Dig

JULIE

ILLINOIS ONE CALL SYSTEM

CALL JULIE TOLL FREE  
1(800) 892-0123  
48 HOURS BEFORE  
YOU DIG

Exo. 4/26/2021  
11/30/2021

LICENSED PROFESSIONAL ENGINEER  
JOHN ZIMMERMAN  
062-047267  
STATE OF ILLINOIS

verizon

1701 GOLF ROAD,  
TOWER 2, SUITE 400  
ROLLING MEADOWS, IL 60008  
PHONE: (847) 619-5397  
FAX: (847) 706-7415

TERRA

CONSULTING GROUP, LTD.  
600 BUSSE HIGHWAY  
PARK RIDGE, IL 60068  
PH: 847-698-6400  
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	02/05/2021	JJR
	ISSUED FOR FINALS	04/28/2021	TH

LOC. # 212521

CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:

JJR

CHECKED BY:

AU

DATE:

01/07/2021

PROJECT #:

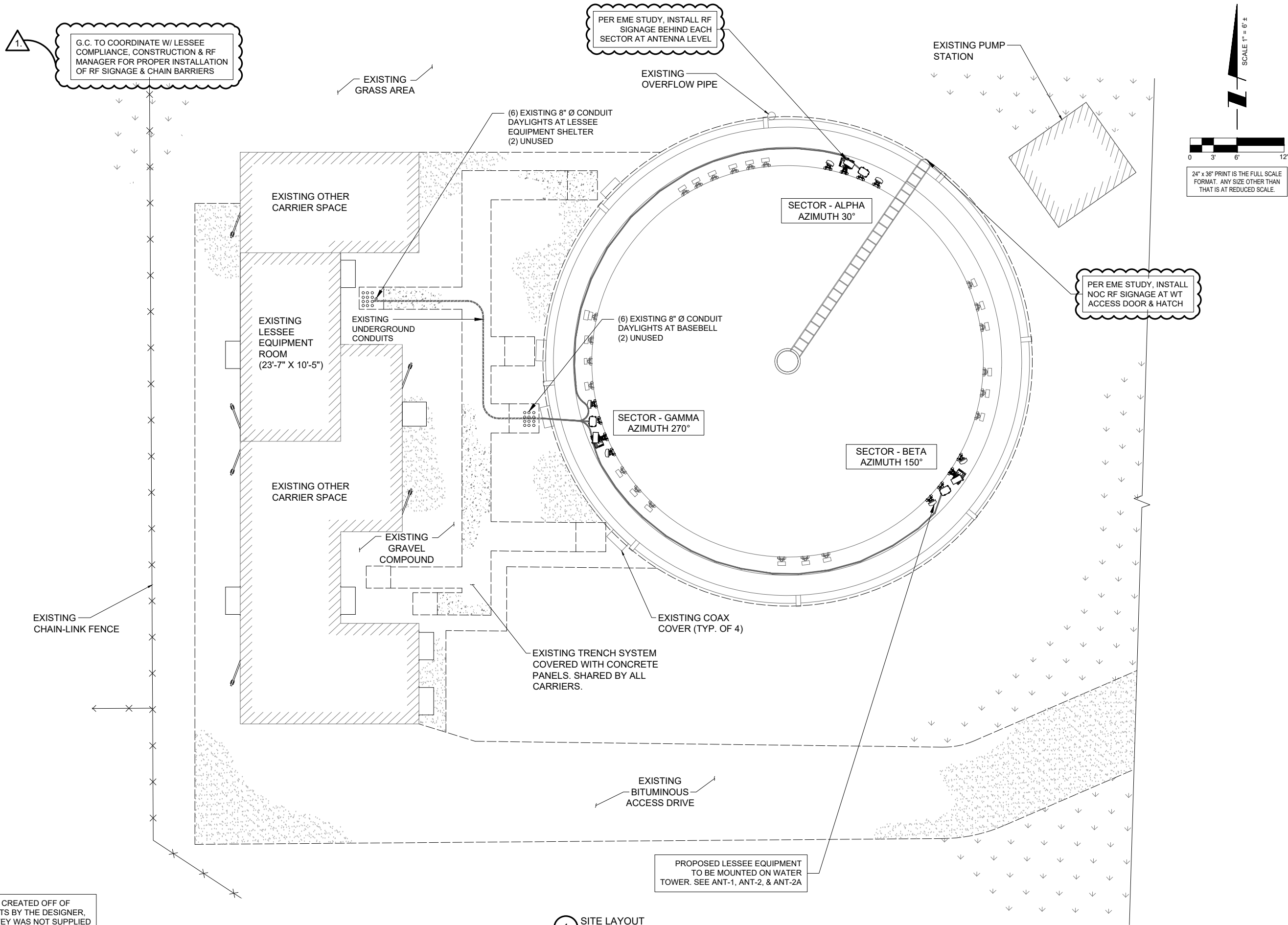
124-997

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1



THIS SITE PLAN WAS CREATED OFF OF FIELD MEASUREMENTS BY THE DESIGNER, AS BOUNDARY SURVEY WAS NOT SUPPLIED FOR PURPOSES OF SITE LAYOUT.

1 SITE LAYOUT

**verizon**  
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TOWER 2, SUITE 400  
ROLLING MEADOWS, IL 60008  
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FAX: (847) 706-7415

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FAX: 847-698-6401

REVISIONS				
NO.	DESCRIPTION	DATE	BY	
1.	ISSUED FOR REVIEW	02/05/2021	JJR	
	ISSUED FOR FINALS	04/28/2021	TH	

LOC. # 212521  
CH HINSDALE  
WT

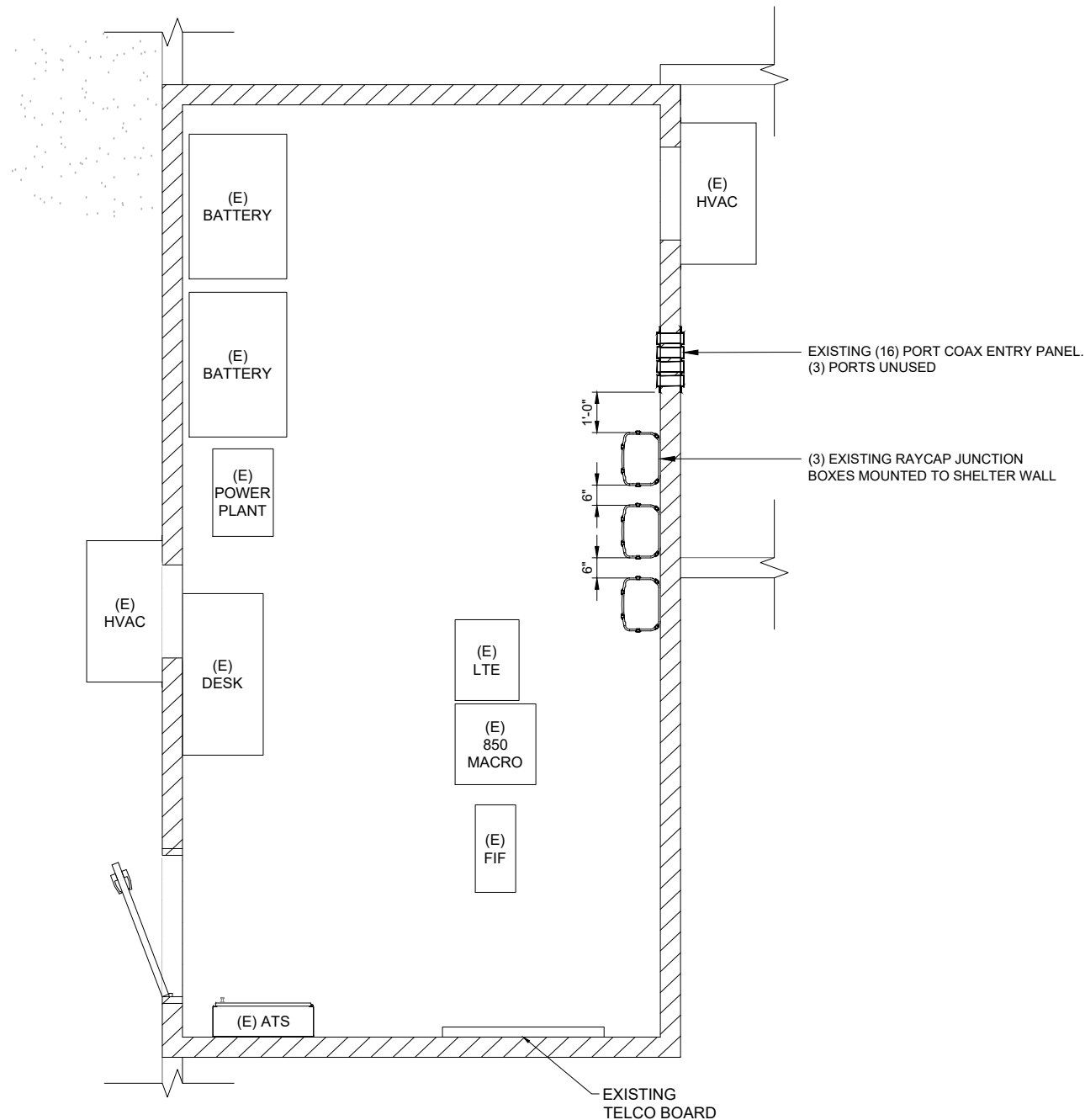
339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

SHEET TITLE  
SITE LAYOUT

SHEET NUMBER  
**C-1**

(3) EXISTING RADIO 4449 ASSUMED TO BE  
INSTALLED IN SHELTER TO BE RELOCATED  
TO ANTENNA LEVEL. SEE ANT-2A



22" x 34" PRINT IS THE FULL SCALE  
FORMAT. ANY SIZE OTHER THAN  
THAT IS AT REDUCED SCALE.

NOTES:  
RAYCAP JUNCTION BOX WILL HAVE 24" OF VERTICAL  
CLEARANCE TO ALLOW FOR THE COVER TO SLIDE OFF.  
  
MAXIMUM CABLE LENGTH OF 30' BETWEEN LTE CABINET  
AND RAYCAP JUNCTION BOX.  
  
G.C. TO GROUND ALL NEW COMPONENTS TO EXISTING  
GROUND SYSTEM.  
  
ALL LESSEE PORTS TO BE WEATHERPROOFED AND  
SEALED W/ APPROPRIATE BOOTS.

THESE PLANS ASSUME SITE WAS BUILT PER  
CONSTRUCTION DRAWINGS BY TERRA  
CONSULTING GROUP DATED 05/06/14. A SITE  
VISIT WAS NOT PERFORMED FOR THIS  
UPGRADE.

1 SHELTER LAYOUT

**verizon**  
1701 GOLF ROAD,  
TOWER 2, SUITE 400  
ROLLING MEADOWS, IL 60008  
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PARK RIDGE, IL 60068  
PH: 847-698-6400  
FAX: 847-698-6401

REVISIONS		NO.	DESCRIPTION	DATE	BY
		1.	ISSUED FOR REVIEW	02/02/2021	JJR
			ISSUED FOR FINALS	04/28/2021	TH

LOC. # 212521  
  
CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

SHEET TITLE  
  
SHELTER LAYOUT

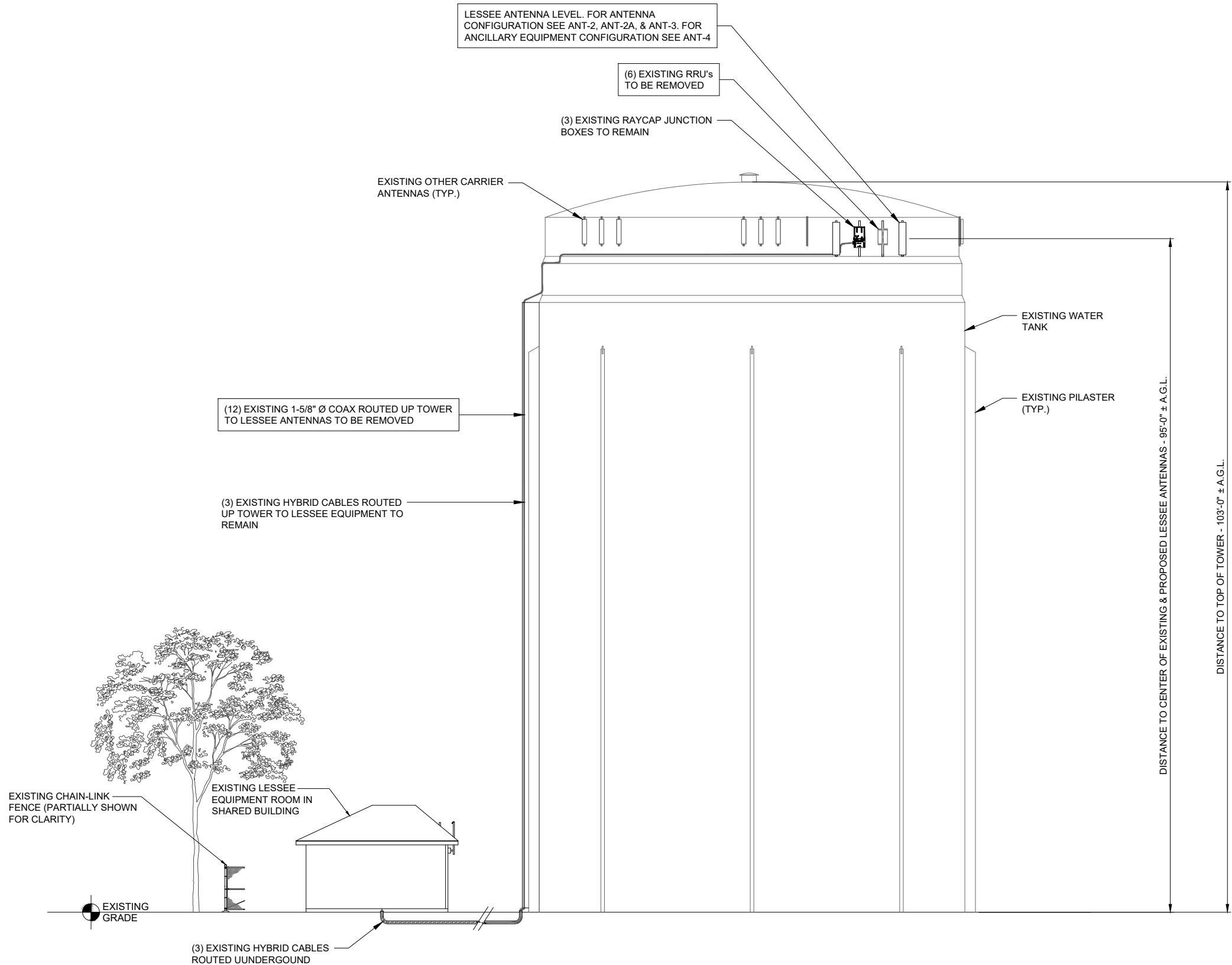
SHEET NUMBER  
  
**A-1**

NOTES:  
THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY.

PLEASE REFER TO MOUNT ANALYSIS PROVIDED BY OTHERS AND TOWER ANALYSIS PROVIDED BY KRECH OJARD & ASSOCIATES, PA FOR ANALYSIS AND STRUCTURAL REQUIREMENTS.

THE ANALYSIS OF THE ANTENNA MOUNT WAS PERFORMED BY OTHERS. TERRA CONSULTING GROUP IS NOT RESPONSIBLE FOR THE ANTENNA MOUNT. THE OWNER DIRECTLY CONTRACTED THE MOUNT ANALYSIS WITH OTHERS.

FULL SCALE PRINT IS ON 22"x34" MEDIA  
HALF SCALE PRINT IS ON 11"x17" MEDIA



EXISTING SITE CONDITIONS SUPPLIED BY LESSEE. SITE VISIT WAS NOT PERFORMED FOR THIS UPGRADE.

1 SOUTH ELEVATION  
SCALE: 1/8" = 1'-0" ±

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**TERRA**  
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600 BUSSE HIGHWAY  
PARK RIDGE, IL 60068  
PH: 847-698-6400  
FAX: 847-698-6401

REVISIONS				
NO.	DESCRIPTION	DATE	BY	
-	ISSUED FOR REVIEW	02/05/2021	JJR	
1.	ISSUED FOR FINALS	04/28/2021	TH	

LOC. # 212521  
CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

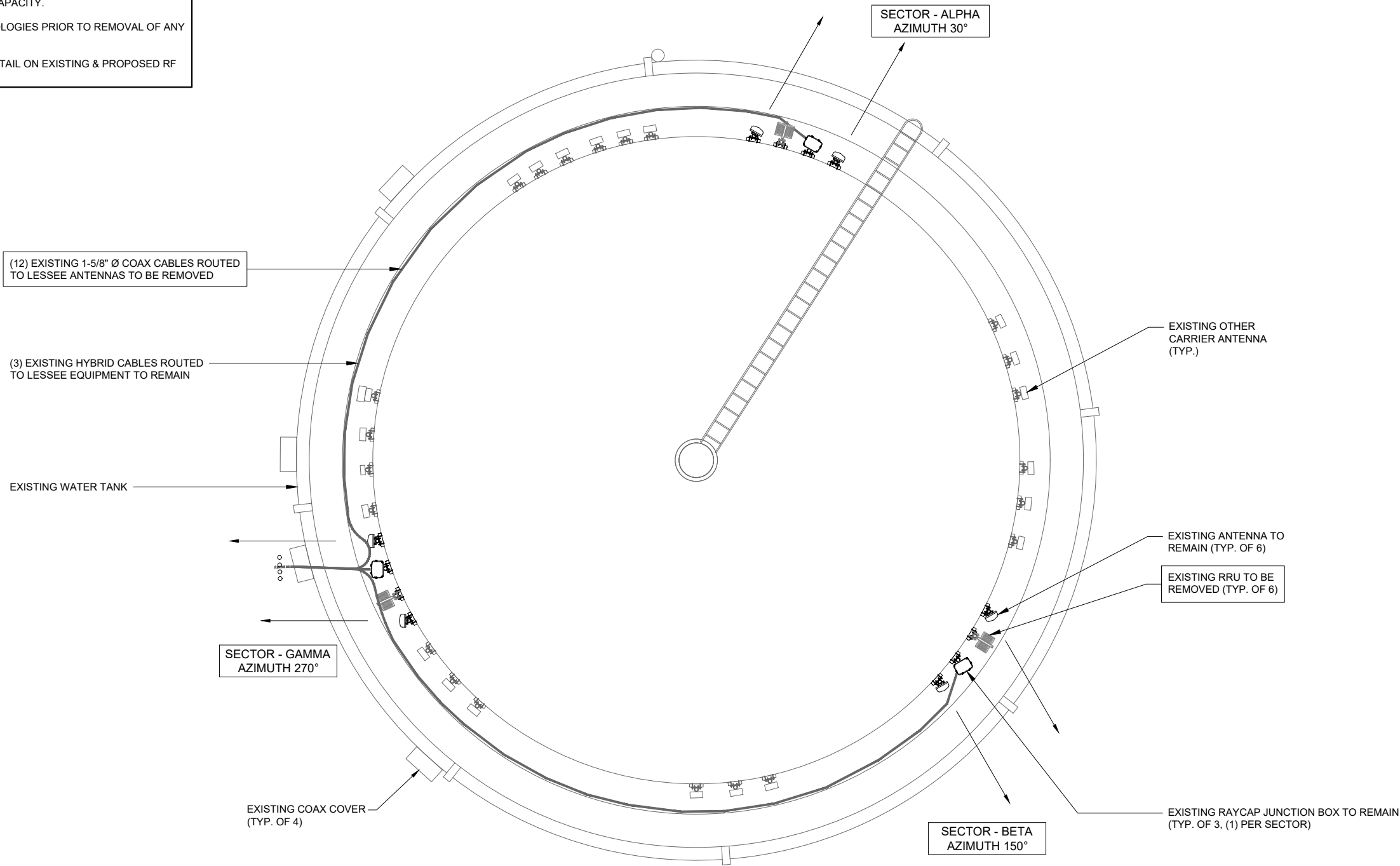
DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

SHEET TITLE  
SITE  
ELEVATION

SHEET NUMBER  
**ANT-1**



- NOTES:
1. THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY. VERIZON WIRELESS HAS PROVIDED A MOUNT ANALYSIS (BY OTHERS) THAT NEEDS TO BE REVIEWED BY THE CONTRACTOR. IF THERE IS ANY DISCREPANCY BETWEEN THE MOUNT ANALYSIS AND THIS DRAWING, CONTRACTOR IS TO NOTIFY VERIZON WIRELESS. THE MOUNT ANALYSIS IS THE GOVERNING DOCUMENT.
  2. NO ANTENNA OR LINE WORK TO BEGIN PRIOR TO CONFIRMATION OF ADEQUATE TOWER AND MOUNT CAPACITY.
  3. G.C. TO VERIFY ANTENNA TECHNOLOGIES PRIOR TO REMOVAL OF ANY ANTENNAS.
  4. REFER TO ANT-3 & ANT-3A FOR DETAIL ON EXISTING & PROPOSED RF CONFIGURATION.



1 EXISTING ANTENNA LAYOUT  
N.T.S.

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FAX: 847-698-6401

REVISIONS				
NO.	DESCRIPTION	DATE	BY	TH
-	ISSUED FOR REVIEW	02/05/2021	JJR	
1.	ISSUED FOR FINALS	04/28/2021		

LOC. # 212521

CH HINSDALE  
WT

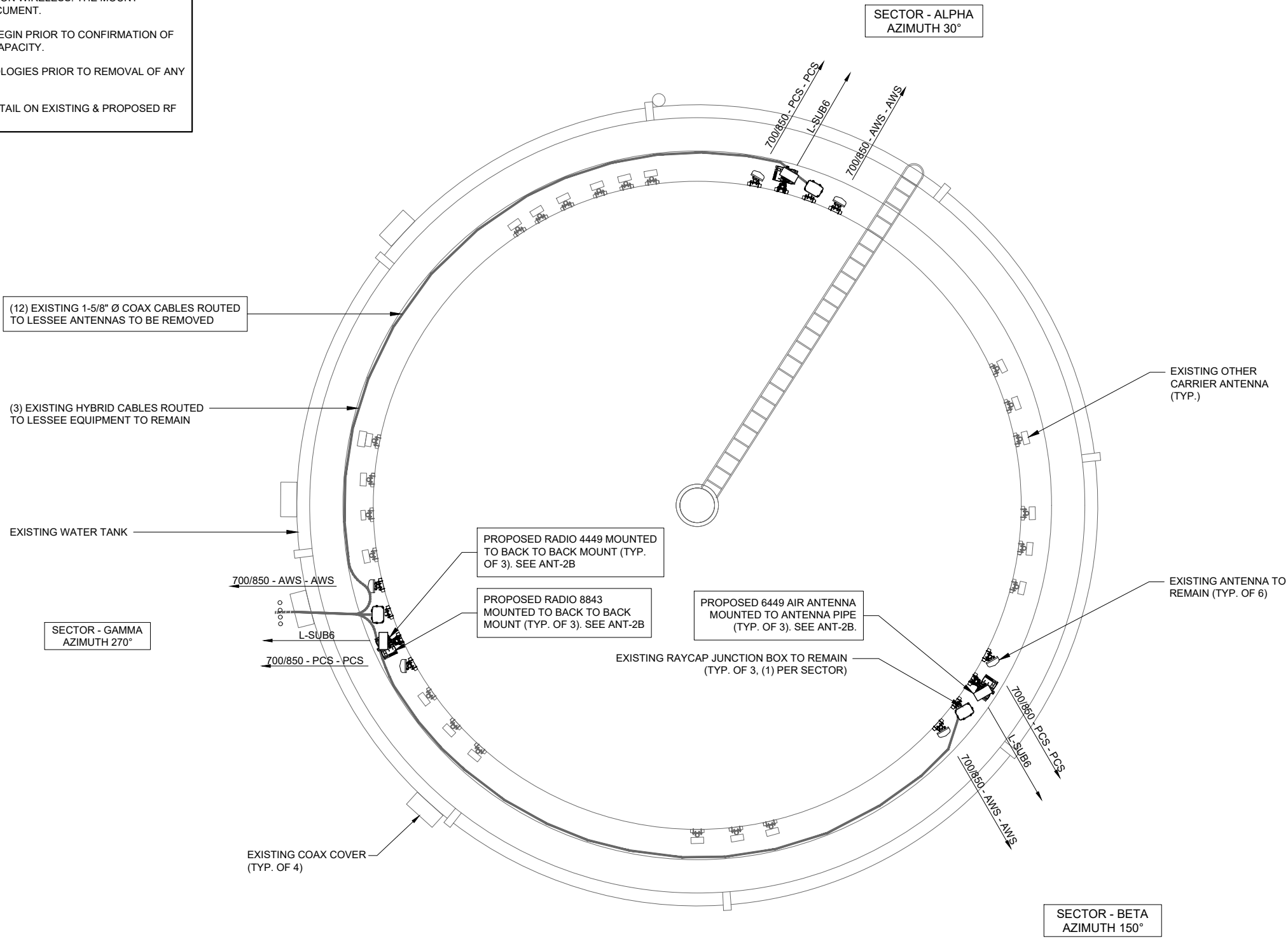
339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

SHEET TITLE  
ANTENNA  
LAYOUT

SHEET NUMBER  
**ANT-2**

- NOTES:
1. THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY. VERIZON WIRELESS HAS PROVIDED A MOUNT ANALYSIS (BY OTHERS) THAT NEEDS TO BE REVIEWED BY THE CONTRACTOR. IF THERE IS ANY DISCREPANCY BETWEEN THE MOUNT ANALYSIS AND THIS DRAWING, CONTRACTOR IS TO NOTIFY VERIZON WIRELESS. THE MOUNT ANALYSIS IS THE GOVERNING DOCUMENT.
  2. NO ANTENNA OR LINE WORK TO BEGIN PRIOR TO CONFIRMATION OF ADEQUATE TOWER AND MOUNT CAPACITY.
  3. G.C. TO VERIFY ANTENNA TECHNOLOGIES PRIOR TO REMOVAL OF ANY ANTENNAS.
  4. REFER TO ANT-3 & ANT-3A FOR DETAIL ON EXISTING & PROPOSED RF CONFIGURATION.



EXISTING SITE CONDITIONS SUPPLIED BY VERIZON WIRELESS AND ARE NOTED IN THE MOUNT ANALYSIS (BY OTHERS). SITE VISIT WAS NOT PERFORMED FOR THIS UPGRADE.

NOTE:  
THE GENERAL CONTRACTOR IS TO REFER TO THE STRUCTURAL MOUNT ANALYSIS PERFORMED BY OTHERS. THIS IS A REPRESENTATION TAKEN DIRECTLY FROM THAT ANALYSIS. IF THERE IS CONFLICT BETWEEN THE ANALYSIS AND DRAWINGS, THE ANALYSIS TAKES PRECEDENT. VERIZON WIRELESS CONTRACTED DIRECTLY WITH THE MOUNT ANALYSIS ENGINEER; TERRA IS NOT RESPONSIBLE FOR THE MOUNT ANALYSIS.

1 EXISTING ANTENNA LAYOUT  
N.T.S.



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PARK RIDGE, IL 60068  
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FAX: 847-698-6401

REVISIONS				
NO.	DESCRIPTION	DATE	BY	TH
1.	ISSUED FOR REVIEW	02/05/2021	JJR	
	ISSUED FOR FINALS	04/28/2021		

LOC. # 212521

CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

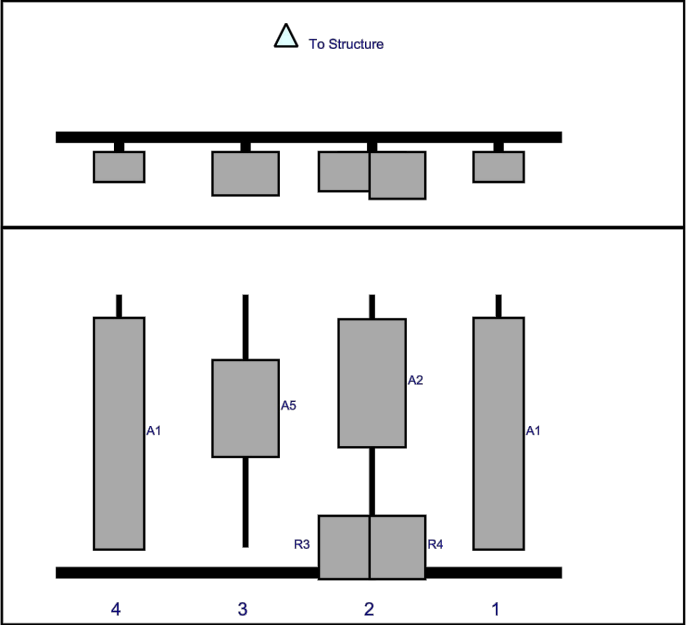
SHEET TITLE  
ANTENNA  
LAYOUT

SHEET NUMBER  
**ANT-2A**



NOTE:  
THE GENERAL CONTRACTOR IS TO REFER TO THE STRUCTURAL MOUNT ANALYSIS PERFORMED BY OTHERS. THIS IS A REPRESENTATION TAKEN DIRECTLY FROM THAT ANALYSIS. IF THERE IS CONFLICT BETWEEN THE ANALYSIS AND DRAWINGS, THE ANALYSIS TAKES PRECEDENT. VERIZON WIRELESS CONTRACTED DIRECTLY WITH THE MOUNT ANALYSIS ENGINEER; TERRA IS NOT RESPONSIBLE FOR THE MOUNT ANALYSIS.

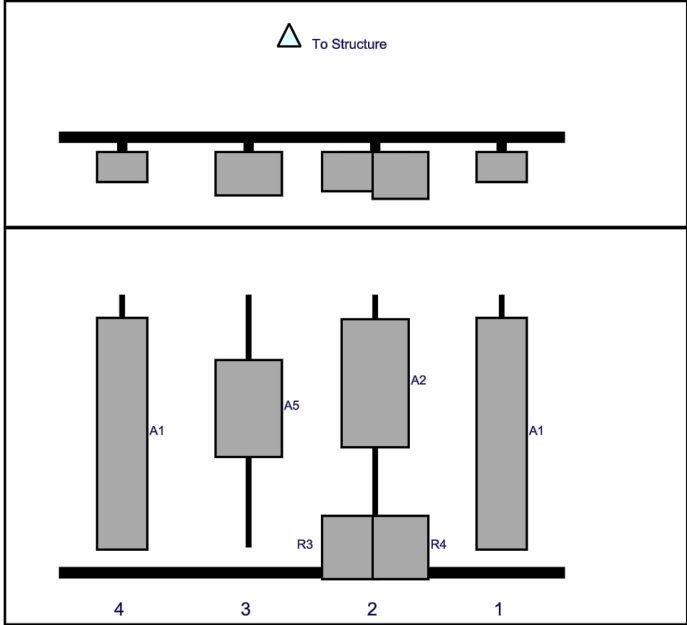
Plan View



Front View  
Looking at Structure

1 ALPHA SECTOR

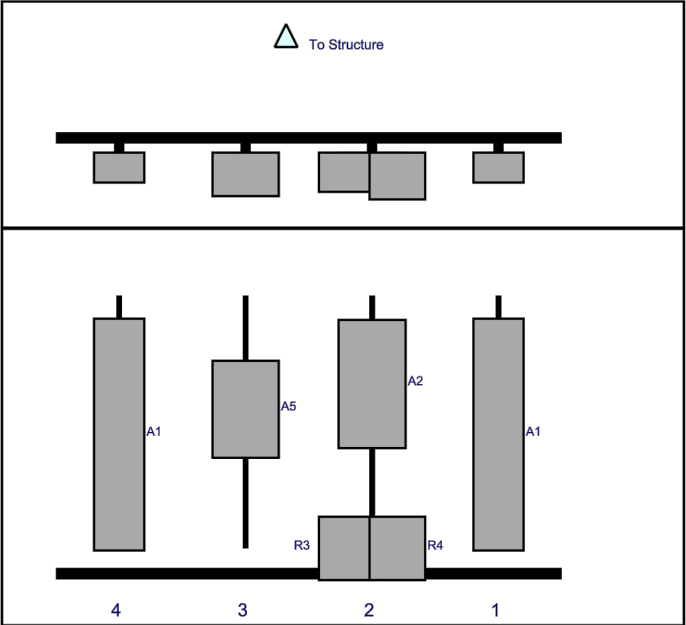
Plan View



Front View  
Looking at Structure

2 BETA SECTOR

Plan View



Front View  
Looking at Structure

3 GAMMA SECTOR

ALPHA SECTOR

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	SBNHH-1D65A	55	11.9	105	1	a	Front	33	0	Retained	11/11/2020
A2	VZE01	30.4	15.9	75	2	a	Front	21	0	Added	
R3	4449	15	13.2	75	2	a	Front	60	-6	Retained	
R4	8843	15	13.2	75	2	a	Front	60	6	Added	
A5	RC3DC-3315-PF-48	23	15.7	45	3	a	Front	27	0	Retained	11/11/2020
A1	SBNHH-1D65A	55	11.9	15	4	a	Front	33	0	Retained	11/11/2020

BETA SECTOR

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	SBNHH-1D65A	55	11.9	105	1	a	Front	33	0	Retained	11/11/2020
A2	VZE01	30.4	15.9	75	2	a	Front	21	0	Added	
R3	4449	15	13.2	75	2	a	Front	60	-6	Retained	
R4	8843	15	13.2	75	2	a	Front	60	6	Added	
A5	RC3DC-3315-PF-48	23	15.7	45	3	a	Front	27	0	Retained	11/11/2020
A1	SBNHH-1D65A	55	11.9	15	4	a	Front	33	0	Retained	11/11/2020

GAMMA SECTOR

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	SBNHH-1D65A	55	11.9	105	1	a	Front	33	0	Retained	11/11/2020
A2	VZE01	30.4	15.9	75	2	a	Front	21	0	Added	
R3	4449	15	13.2	75	2	a	Front	60	-6	Retained	
R4	8843	15	13.2	75	2	a	Front	60	6	Added	
A5	RC3DC-3315-PF-48	23	15.7	45	3	a	Front	27	0	Retained	11/11/2020
A1	SBNHH-1D65A	55	11.9	15	4	a	Front	33	0	Retained	11/11/2020

NOTE:  
THE GENERAL CONTRACTOR IS TO REFER TO THE STRUCTURAL MOUNT ANALYSIS PERFORMED BY OTHERS. THIS IS A REPRESENTATION TAKEN DIRECTLY FROM THAT ANALYSIS. IF THERE IS CONFLICT BETWEEN THE ANALYSIS AND DRAWINGS, THE ANALYSIS TAKES PRECEDENT. VERIZON WIRELESS CONTRACTED DIRECTLY WITH THE MOUNT ANALYSIS ENGINEER; TERRA IS NOT RESPONSIBLE FOR THE MOUNT ANALYSIS.

**verizon**  
1701 GOLF ROAD,  
TOWER 2, SUITE 400  
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**TERRA**  
CONSULTING GROUP, LTD.  
600 BUSSE HIGHWAY  
PARK RIDGE, IL 60068  
PH: 847-698-6400  
FAX: 847-698-6401

REVISIONS

NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	02/05/2021	JJR
	ISSUED FOR FINALS	04/28/2021	TH

LOC. # 212521

CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY: JJR

CHECKED BY: AU

DATE: 01/07/2021

PROJECT #: 124-997

SHEET TITLE  
PROPOSED ANTENNA  
LAYOUT

SHEET NUMBER

**ANT-2B**

Antenna Summary

Added																			
700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
										5G	TBD	L-Sub6 Antenna	95	96.3	30(0001) 150(0002) 270(0003)	false	false	PHYSICAL	3
Removed																			
700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
No data available.																			
Retained																			
700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
LTE	LTE 5G	LTE	LTE								ANDREW	SBNHH-1D65A	95	97.3	30(0001) 30(D1) 150(0002) 150(D2) 270(0003) 270(D3)	false	false	PHYSICAL	6
Added: 3					Removed: 0					Retained: 6									

1 ANTENNA SUMMARY  
N.T.S.

Equipment Summary

Added																			
Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	
RRU	Tower			LTE	LTE								Ericsson	8843			PHYSICAL	3	
RRU	Tower											5G	Ericsson	VZE01			PHYSICAL	3	
Removed																			
Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	
RRU	Tower			LTE									Ericsson	RRUS32 B2			PHYSICAL	3	
RRU	Tower				LTE								Ericsson	RRUS32 B66A			PHYSICAL	3	
Coaxial Cables	Tower															1 5/8	PHYSICAL	12	
RRU	Shelter												Ericsson	4449			PHYSICAL	0	
Diplexer	Shelter													CBC78-DF-8-DCB			PHYSICAL	6	
Retained																			
Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity	
Hybrid Cable	Tower												Andrew	HFT1206-24S49			PHYSICAL	3	
RRU	Tower	LTE	LTE										Ericsson	4449			PHYSICAL	3	
OVP Box	Tower												Raycap	3315			PHYSICAL	3	
OVP Box	Shelter												Raycap	3315			PHYSICAL	3	

2 EQUIPMENT SUMMARY  
N.T.S.



REVISIONS			
NO	DESCRIPTION	DATE	BY
-	ISSUED FOR REVIEW	02/03/2021	JJR
1.	ISSUED FOR FINALS	04/28/2021	TH

LOC. # 212521

CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

SHEET TITLE
ANTENNA INFORMATION

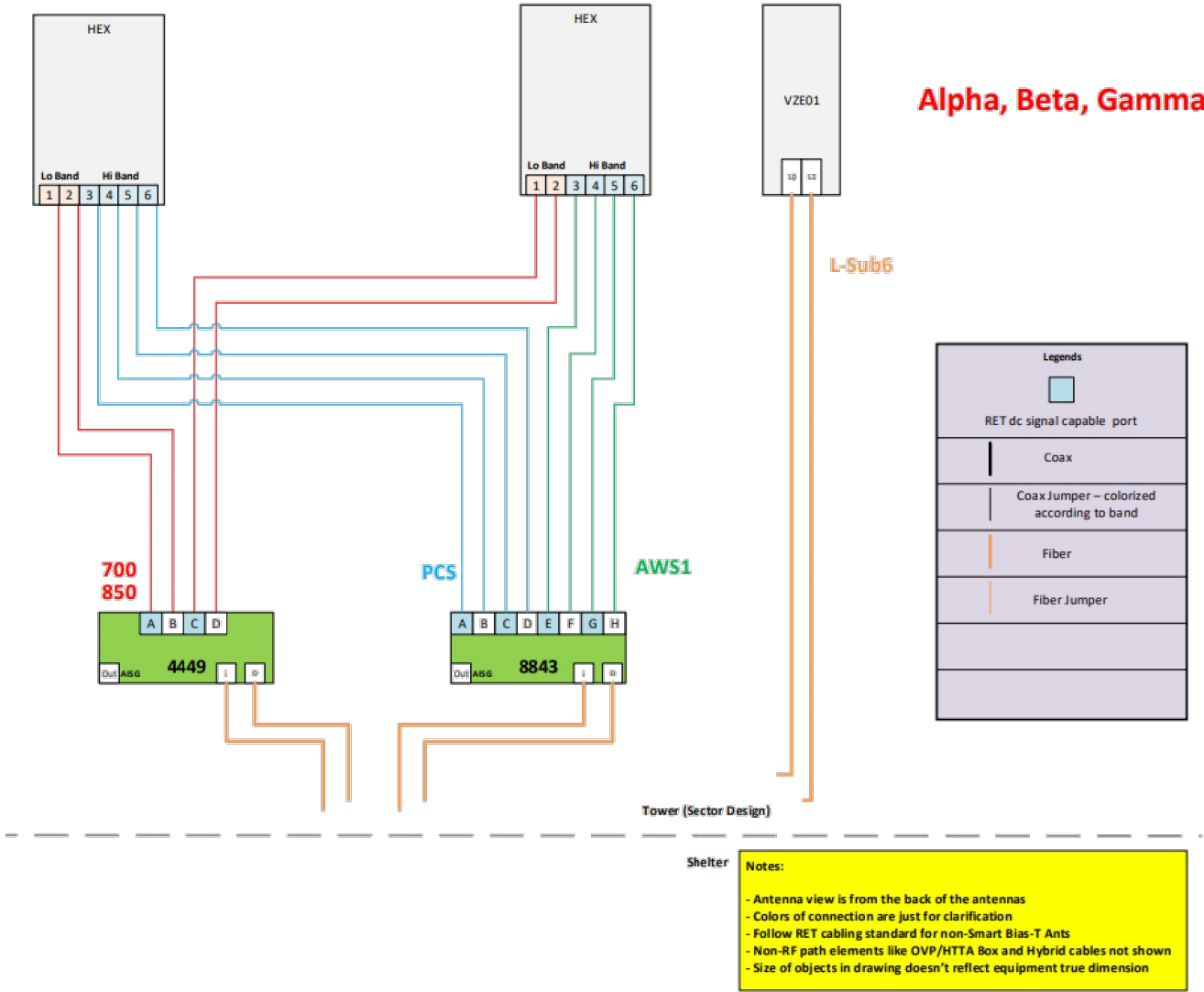
SHEET NUMBER
ANT-3

RF EMISSIONS REPORT REQUIRED

☒ YES ☐ NO

DATE OF REPORT: 02/15/2021

EXISTING EQUIPMENT TO BE REUSED		
LOCATION	COMPONENT	COUNT
TOP	MAIN RAYCAP	3
BOTTOM	MAIN RAYCAP	3
EXISTING CABLING TO BE REUSED		
TYPE	SIZE	COUNT
HYBRID	MAIN TRUNK	3



REVISIONS		BY	DATE
DESCRIPTION	ISSUED FOR REVIEW	JJR	02/05/2021
	ISSUED FOR FINALS	TH	04/28/2021
NO.	1.		

LOC. # 212521

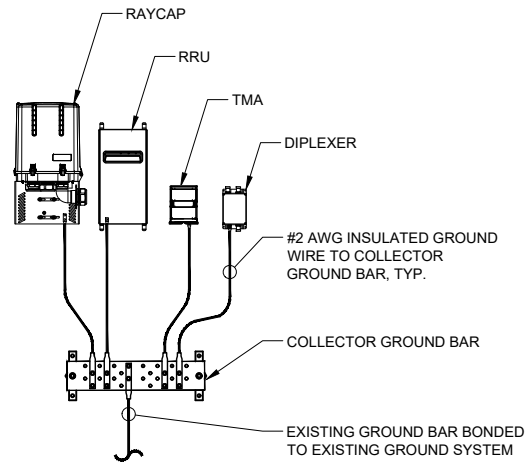
CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

SHEET TITLE  
COMBINER CABLE DATA  
& CABLE DIAGRAM

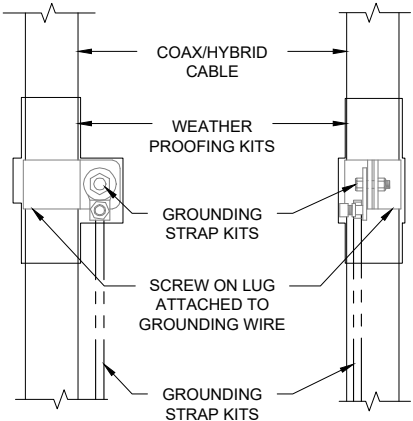
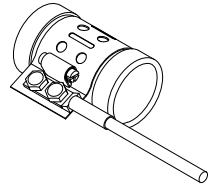
SHEET NUMBER  
**ANT-3A**



- NOTES:
1. DETAIL IS CONCEPTUAL ONLY. PLEASE SEE ECR AND LAYOUT SHEETS FOR ACTUAL EQUIPMENT CONFIGURATION.
  2. GROUND CONNECTIONS MUST BE DOUBLE HOLE CONNECTION. SPECIAL EXCEPTION ONLY TO EQUIPMENT THAT WILL NOT ALLOW FOR A DOUBLE HOLE CONNECTION.

1 TYPICAL APPURTENANCE GROUNDING  
SCALE: N.T.S.

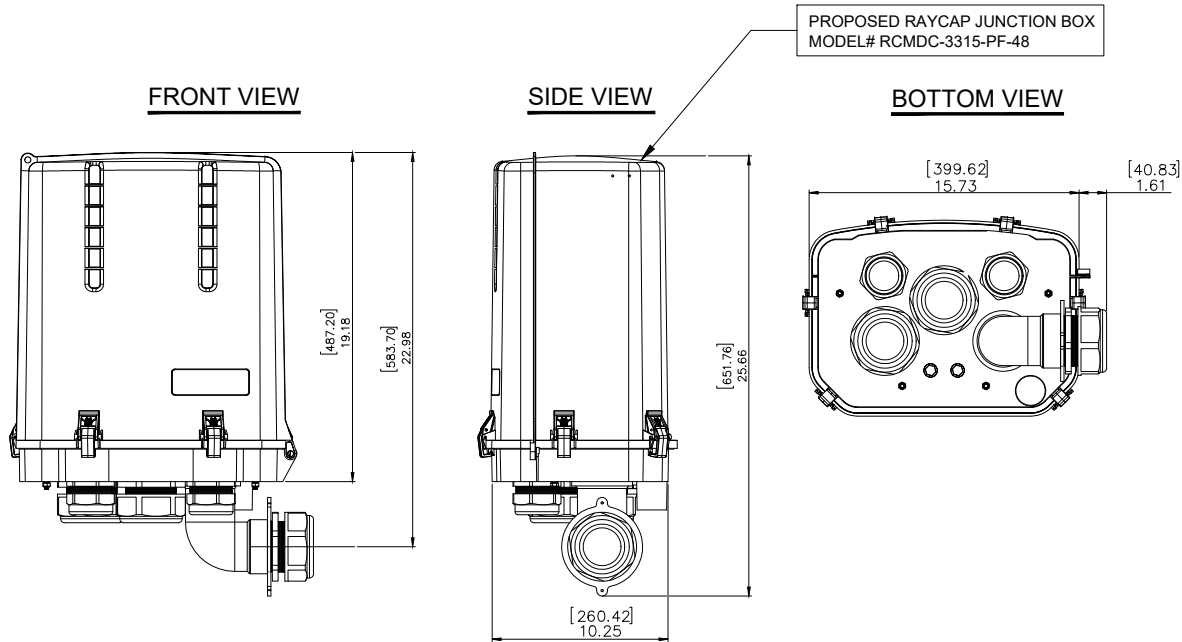
- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  2. THIS DETAIL IS TYPICAL FOR EACH COAX CABLE WHERE IT IS SPECIFIED TO BE GROUNDED
  3. CABLE TO BE GROUNDED AT ANTENNA LEVEL AND PRIOR TO ENTERING SHELTER ENTRY PANEL.
  4. CABLE ALSO TO BE GROUNDED TO GROUND BAR AT TOWER BASE IF APPLICABLE.
  5. USE ONLY TIN PLATED GROUNDING KITS.



2 COAX / HYBRID CABLE GROUND KIT DETAIL  
N.T.S.

SPECIFICATIONS DC SURGE PROTECTION FOR RRU/INTEGRATED ANTENNA RADIO HEAD  
APPLICATION: TOWER / BASE / ROOFTOP / ROOFTOP DISTRIBUTION MODELS  
WEIGHT: 32LBS (14.51 KG)

[mm]  
INCHES



3 RAYCAP JUNCTION BOX DETAIL  
SCALE: N.T.S.

**verizon**  
1701 GOLF ROAD,  
TOWER 2, SUITE 400  
ROLLING MEADOWS, IL 60008  
PHONE: (847) 619-5397  
FAX: (847) 706-7415

**TERRA**  
CONSULTING GROUP, LTD.  
600 BUSSE HIGHWAY  
PARK RIDGE, IL 60068  
PH: 847-698-6400  
FAX: 847-698-6401

REVISIONS		DATE	BY
DESCRIPTION			
NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	02/05/2021	JJR
	ISSUED FOR FINALS	04/28/2021	TH

LOC. # 212521

CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

SHEET TITLE  
DETAILS

SHEET NUMBER  
**ANT-4**

PHOTOS TAKEN PRIOR TO PREVIOUS UPGRADE. SITE VISIT WAS NOT PERFORMED FOR THIS UPGRADE.



1 OVERALL BUILDING PHOTO

EXISTING SITE CONDITIONS SUPPLIED BY LESSEE. SITE VISIT WAS NOT PERFORMED FOR THIS UPGRADE.



ANTENNA LEVEL

1701 GOLF ROAD,  
TOWER 2, SUITE 400  
ROLLING MEADOWS, IL 60008  
PHONE: (847) 619-5397  
FAX: (847) 706-7415

600 BUSSE HIGHWAY  
PARK RIDGE, IL 60068  
PH: 847-698-6400  
FAX: 847-698-6401

REVISIONS				
NO.	DESCRIPTION	DATE	BY	
-	ISSUED FOR REVIEW	02/05/2021	JJR	TH
1.	ISSUED FOR FINALS	04/28/2021		

LOC. # 212521

CH HINSDALE  
WT

339 W. 57TH STREET  
HINSDALE, IL 60521

DRAWN BY:	JJR
CHECKED BY:	AU
DATE:	01/07/2021
PROJECT #:	124-997

SHEET TITLE

PHOTO EXHIBIT

SHEET NUMBER

EX-1

**verizon**  
**Radio Frequency Exposure**  
**FCC Compliance Assessment**

☒ Pre-Activation   ☐ Post-Activation

SITE SPECIFIC INFORMATION			
Site Name	HINSDALE WT	Multi-License Facility	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
Street Address	339 W. 57th St.	Is Verizon a Significant Contributor to Co-Locator Areas Requiring Mitigation?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
City, State, Zip	Hinsdale, IL 60521		<input type="checkbox"/> N/A
Verizon's Max % MPE (Measured - Occupational)	N/A	Verizon's Max % MPE (Predictive - Occupational)	125.049 %
Structure Type	Water Tank	Assessment Date	02/15/2021
Broadcast (AM/FM/TV) Co-Locators	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	Assessment Purpose	MODIFICATION
Total Access Points	2	Total Report Revisions	1
Original Report Date	05/25/2017	Report Revision Date	02/15/2021
Compliance Status	<input type="checkbox"/> COMPLIANT AS DESIGNED <input type="checkbox"/> COMPLIANT PER RF SAFETY PLAN SUBMISSION <input checked="" type="checkbox"/> MITIGATION IS REQUIRED		

VERIZON'S WORST-CASE RF EMISSIONS IN ACCESSIBLE AREAS AT THIS FACILITY	
<input type="checkbox"/>	BELOW the General Population MPE limit
<input type="checkbox"/>	ABOVE the General Population MPE limit and BELOW the Occupational MPE limit
<input checked="" type="checkbox"/>	ABOVE the Occupational MPE limit and BELOW 10x the Occupational MPE limit
<input type="checkbox"/>	ABOVE 10x the Occupational MPE limit

Final Compliant Configuration	VERIZON'S WORST-CASE RF EMISSIONS IN ACCESSIBLE AREAS AT THIS FACILITY					BARRIER/ MARKER
	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	
Access Point(s)	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> dimensions
Alpha	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Beta	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Gamma	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions

NOTE: The table above represents EVERY compliance item that MUST be implemented at this location; also in Sec. 4 (B)

Additional Compliance Requirements(s):			
N/A			
Consultant Legal Name	Telnet Inc.	Phone/Fax	(301) 840 7110 ext. 61062 or 61608
Address	7630 Standish Place, Rockville, MD 20855		

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## 1. Introduction

Verizon Wireless has contracted with Telnet Inc., an independent Radio Frequency consulting firm, to conduct a **Radio Frequency Exposure (RFE) FCC Compliance Assessment** of the HINSDALE WT cell site. The following report contains a detailed summary of the Radio Frequency environment as it relates to Federal Communications Commission (FCC) and Occupational Safety & Health Administration (OSHA) Rules and Regulations for all individuals.

The Verizon Wireless antenna data was provided by:

<b>Name</b>	Sudhanshu Singh
<b>Title</b>	RF Engineer (Contractor)
<b>Date</b>	02/09/2021
<b>Sub-Market</b>	IL/WI Market

This compliance assessment and report has been **prepared** and **reviewed** by:

	<b>Preparer</b>	<b>Reviewer</b>
<b>Name</b>	Oday Alshaikhli	Ahmed Al Jubouri
<b>Title</b>	RF Engineer	RF Engineer
<b>Date</b>	02/15/2021	03/03/2021

This report utilizes the following for predictive modeling of the ambient RF environment:  
MPE Modeling Program: Roofmaster

**Required Modeling Assumptions:** 100% Duty Cycle and Maximum Total Power Output.

Additional Modeling Assumptions:

### General Model Assumptions

In this report, it is assumed that all antennas are operating at full power at all times. Software modeling was performed for all transmitting antennas located on the site. Telnet, Inc has further assumed a 100% duty cycle and maximum radiated power.

The site has been modeled with these assumptions to show the maximum RF energy density. Telnet Inc believes this to be a worst-case analysis, based on best available data.

If at any time power density measurements were to be made, Telnet Inc believes the real-time measurements would indicate levels below those shown in this report. By modeling in this way, we have conservatively shown exclusion areas (areas not to be entered without a personal RF monitor, carriers reducing power or performing real time measurements to show real time exposure levels).

### Use of Generic Antennas

For the purposes of this report, the use of 'Generic' as an antenna model, or 'Unknown' for a wireless carrier, means that the information about the carrier, their FCC license and/ or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Telnet will use our industry specific knowledge of equipment, antenna models and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, remodeling of the site is recommended. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions

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## 2. Existing Site Characteristics

### a. Structure

<b>Physical Description</b>	Antennas are mounted on Water Tank
<b>Single-Family Home</b>	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
<b>Latitude (NAD 83)</b>	41°47'10.1"N
<b>Longitude (NAD 83)</b>	87°56'03.1"W
<b>Total Analyzed Elevations (Roof Levels)</b>	#4 (Top of Water Tank, Ladder Flight 1, Ladder Flight 2, Ground Levels)

### b. Accessibility

<b>Did the property owner or agent of the property owner (e.g. a security guard) grant you access to the rooftop?</b>	N/A
<b>If not - were you required to be escorted by Verizon personnel in order to gain access?</b>	N/A
<b>Were you required to provide any proof of identity to gain access?</b>	N/A
<b>What specific documents were required in order to gain access?</b>	N/A
<b>All access points locked at time of assessment?</b>	N/A
<b>All access points alarmed at time of assessment?</b>	N/A
<b>Were there any broken locks or inoperable alarms on any of the access points to the rooftop?</b>	N/A
<b>Were there any access issues caused by either the property owner or agent of the property owner?</b>	N/A
<b>Additional Notes:</b>	N/A

### c. Existing Verizon Observations

<b>Existing Observations</b>						
	<b>GUIDELINES</b>	<b>NOTICE</b>	<b>CAUTION</b>	<b>WARNING</b>	<b>NOC INFO</b>	<b>BARRIER/ MARKER</b>
<b>Access Point(s)</b>	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
<b>Alpha</b>	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
<b>Beta</b>	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
<b>Gamma</b>	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions

**NOTE:** The table above represents EXISTING compliance items implemented at this location.

<b>Are Verizon signs posted on the front, back and sides of antenna arrays where possible?</b>	N/A
<b>Are Verizon signs visible from all areas of approach?</b>	N/A
<b>Are there any broken, damaged or illegible Verizon signs?</b>	N/A
<b>Are there any broken or damaged Verizon physical barriers?</b>	N/A
<b>Are there any Verizon indicative markers in need of repair or replacement?</b>	N/A

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**d. Antenna Inventory**

Z-height represents the distance from the nearest walking surface to the _____ of the antenna.	<input type="checkbox"/> Bottom <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Top
NON-Verizon Co-locator Data	<input checked="" type="checkbox"/> Estimates <input type="checkbox"/> Actual Data

Antenna Number	Operator	Type	Tx Freq (MHz)	Technology	Input Power (w)	Tx Loss (dB)	Gain (dBi)	EDT (deg.)	Manufacturer	Model	Azimuth (deg.)	Aperture	H-BW (deg)	X (ft)	Y (ft)	Z Top of Water Tank (ft)	Z Ladder Flight 1 (ft)	Z Ladder Flight 2 (ft)	Z Ground (ft)
1	VZW	Panel	746	LTE	80	1.2	11.28	1	Andrew	SBNHH-1D65A	30	4.63	66	376.0	186.5	-3	18	8	95
1	VZW	Panel	850	LTE	80	2.3	11.75	6	Andrew	SBNHH-1D65A	30	4.63	61	376.0	186.5	-3	18	8	95
1	VZW	Panel	850	5G	80	2.3	11.75	6	Andrew	SBNHH-1D65A	30	4.63	61	376.0	186.5	-3	18	8	95
1	VZW	Panel	1900	LTE	160	0.5	14.70	0	Andrew	SBNHH-1D65A	30	4.63	65	376.0	186.5	-3	18	8	95
2	VZW	Panel	L-Sub6	-	320	0.0	21.799	0	-	VZE01	30	2.76	11	380.5	188.0	-3	18	8	95
3	VZW	Panel	746	LTE	80	1.2	11.28	1	Andrew	SBNHH-1D65A	30	4.63	66	382.0	188.8	-3	18	8	95
3	VZW	Panel	850	LTE	80	2.3	11.75	6	Andrew	SBNHH-1D65A	30	4.63	61	382.0	188.8	-3	18	8	95
3	VZW	Panel	850	5G	80	2.3	11.75	6	Andrew	SBNHH-1D65A	30	4.63	61	382.0	188.8	-3	18	8	95
3	VZW	Panel	2100	LTE	240	0.5	14.70	0	Andrew	SBNHH-1D65A	30	4.63	62	382.0	188.8	-3	18	8	95
4	VZW	Panel	746	LTE	80	1.2	11.40	4	Andrew	SBNHH-1D65A	150	4.63	66	393.8	229.5	-3	18	8	95
4	VZW	Panel	850	LTE	80	2.3	11.75	6	Andrew	SBNHH-1D65A	150	4.63	61	393.8	229.5	-3	18	8	95
4	VZW	Panel	850	5G	80	2.3	11.75	6	Andrew	SBNHH-1D65A	150	4.63	61	393.8	229.5	-3	18	8	95
4	VZW	Panel	1900	LTE	160	0.5	14.83	2	Andrew	SBNHH-1D65A	150	4.63	65	393.8	229.5	-3	18	8	95
5	VZW	Panel	L-Sub6	-	320	0.0	21.799	0	-	VZE01	150	2.76	11	391.6	233.2	-3	18	8	95
6	VZW	Panel	746	LTE	80	1.2	11.40	4	Andrew	SBNHH-1D65A	150	4.63	66	390.1	234.7	-3	18	8	95
6	VZW	Panel	850	LTE	80	2.3	11.75	6	Andrew	SBNHH-1D65A	150	4.63	61	390.1	234.7	-3	18	8	95
6	VZW	Panel	850	5G	80	2.3	11.75	6	Andrew	SBNHH-1D65A	150	4.63	61	390.1	234.7	-3	18	8	95
6	VZW	Panel	2100	LTE	240	0.5	14.96	2	Andrew	SBNHH-1D65A	150	4.63	62	390.1	234.7	-3	18	8	95
7	VZW	Panel	746	LTE	80	1.2	11.37	3	Andrew	SBNHH-1D65A	270	4.63	66	343.5	227.3	-3	18	8	95
7	VZW	Panel	850	LTE	80	2.3	11.75	6	Andrew	SBNHH-1D65A	270	4.63	61	343.5	227.3	-3	18	8	95
7	VZW	Panel	850	5G	80	2.3	11.75	6	Andrew	SBNHH-1D65A	270	4.63	61	343.5	227.3	-3	18	8	95
7	VZW	Panel	1900	LTE	160	0.5	14.77	1	Andrew	SBNHH-1D65A	270	4.63	65	343.5	227.3	-3	18	8	95
8	VZW	Panel	L-Sub6	-	320	0.0	21.799	0	-	VZE01	270	2.76	11	341.2	222.8	-3	18	8	95
9	VZW	Panel	746	LTE	80	1.2	11.37	3	Andrew	SBNHH-1D65A	270	4.63	66	341.2	220.6	-3	18	8	95
9	VZW	Panel	850	LTE	80	2.3	11.75	6	Andrew	SBNHH-1D65A	270	4.63	61	341.2	220.6	-3	18	8	95
9	VZW	Panel	850	5G	80	2.3	11.75	6	Andrew	SBNHH-1D65A	270	4.63	61	341.2	220.6	-3	18	8	95
9	VZW	Panel	2100	LTE	240	0.5	14.83	1	Andrew	SBNHH-1D65A	270	4.63	62	341.2	220.6	-3	18	8	95
10	UNK1	Panel	850	-	50	-	12.0	-	Unknown	Unknown	75	5.0	65	396.0	203.6	-2	19	9	96
11	UNK1	Panel	1900	-	20	-	15.0	-	Unknown	Unknown	75	5.0	65	396.8	206.5	-2	19	9	96
12	UNK1	Panel	850	-	50	-	12.0	-	Unknown	Unknown	75	5.0	65	397.5	209.5	-2	19	9	96
13	UNK1	Panel	850	-	50	-	12.0	-	Unknown	Unknown	180	5.0	65	374.6	242.8	-2	19	9	96
14	UNK1	Panel	1900	-	20	-	15.0	-	Unknown	Unknown	180	5.0	65	371.6	242.8	-2	19	9	96
15	UNK1	Panel	850	-	50	-	12.0	-	Unknown	Unknown	180	5.0	65	367.9	242.8	-2	19	9	96
16	UNK1	Panel	850	-	50	-	12.0	-	Unknown	Unknown	330	5.0	65	353.8	191.0	-2	19	9	96
17	UNK1	Panel	1900	-	20	-	15.0	-	Unknown	Unknown	330	5.0	65	356.1	189.5	-2	19	9	96
18	UNK1	Panel	850	-	50	-	12.0	-	Unknown	Unknown	330	5.0	65	358.3	188.0	-2	19	9	96
19	UNK2	Panel	850	-	50	-	12.0	-	Unknown	Unknown	110	5.0	65	398.2	216.1	-2	19	9	96
20	UNK2	Panel	1900	-	20	-	15.0	-	Unknown	Unknown	110	5.0	65	397.5	219.1	-2	19	9	96
21	UNK2	Panel	850	-	50	-	12.0	-	Unknown	Unknown	110	5.0	65	397.5	222.1	-2	19	9	96
22	UNK2	Panel	850	-	50	-	12.0	-	Unknown	Unknown	225	5.0	65	349.4	235.4	-2	19	9	96
23	UNK2	Panel	1900	-	20	-	15.0	-	Unknown	Unknown	225	5.0	65	347.9	233.2	-2	19	9	96
24	UNK2	Panel	850	-	50	-	12.0	-	Unknown	Unknown	225	5.0	65	345.7	230.2	-2	19	9	96
25	UNK2	Panel	850	-	50	-	12.0	-	Unknown	Unknown	350	5.0	65	361.2	186.5	-2	19	9	96

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26	UNK2	Panel	1900	-	20	-	15.0	-	Unknown	Unknown	350	5.0	65	363.5	186.5	-2	19	9	96
27	UNK2	Panel	850	-	50	-	12.0	-	Unknown	Unknown	350	5.0	65	365.7	185.8	-2	19	9	96
28	UNK3	Panel	850	-	50	-	12.0	-	Unknown	Unknown	290	5.0	65	340.5	216.9	-2	19	9	96
29	UNK3	Panel	1900	-	10	-	15.0	-	Unknown	Unknown	290	5.0	65	340.5	213.9	-2	19	9	96
30	UNK3	Panel	850	-	50	-	12.0	-	Unknown	Unknown	290	5.0	65	340.5	211.0	-2	19	9	96
31	UNK3	Panel	1900	-	10	-	15.0	-	Unknown	Unknown	290	5.0	65	341.2	208.0	-2	19	9	96

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### 3. Analysis

Could field measurements be taken in areas with Verizon antennas?	N/A
Describe why measurements could not be taken - if applicable.	N/A
Adjacent Structure(s)	<input type="checkbox"/> Touching <input type="checkbox"/> Potential Concern <input checked="" type="checkbox"/> No Concern
If the structure is a Single-Family Residential Home, were measurements taken inside the residence?	N/A
Field Measurement Equipment	<input checked="" type="checkbox"/> Broadband <input type="checkbox"/> Narrowband
Field Measurement Start Time	N/A
Field Measurement End Time	N/A
Location Broadband Equipment Zeroed	N/A

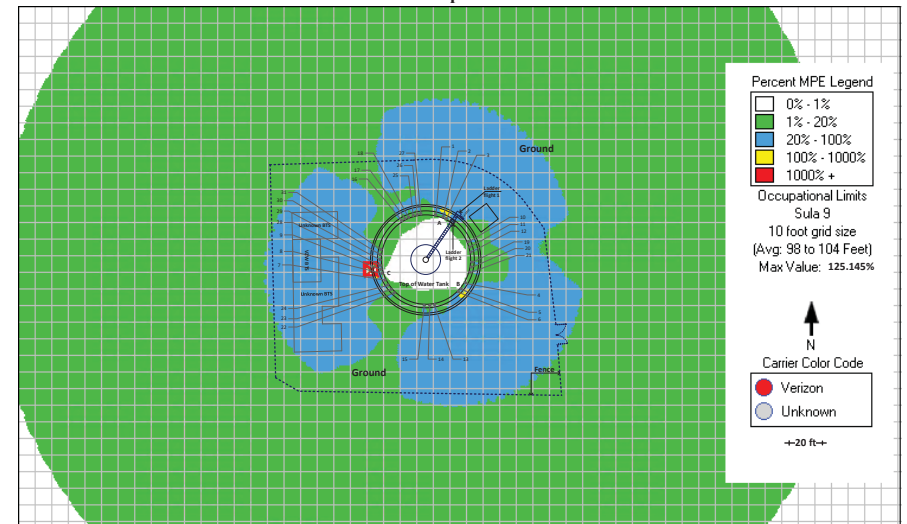
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### a. Predictive Model: All Transmitters

Is the area being modeled completely INACCESSIBLE to members of the general population (including untrained maintenance workers)? ☐YES ☒NO

Reference Plane: Top of Water Tank Level

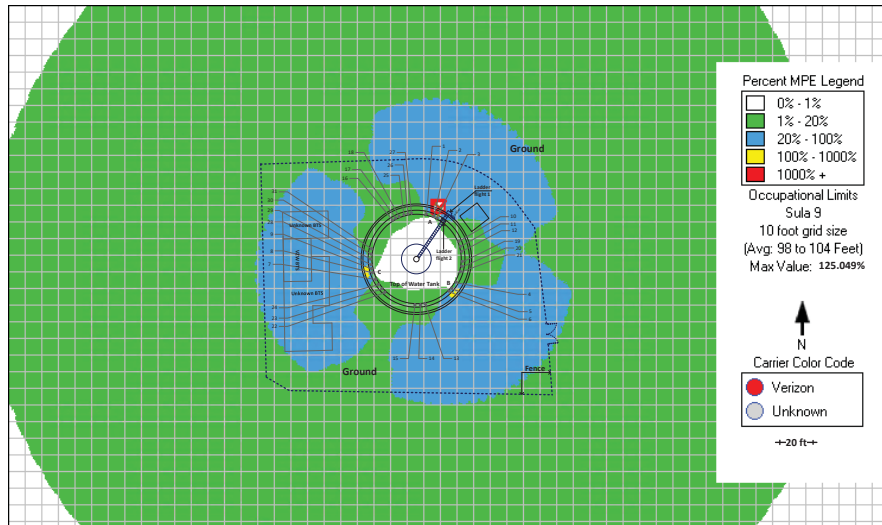


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b. Predictive Model: Verizon Transmitters

Reference Plane: Top of Water Tank Level



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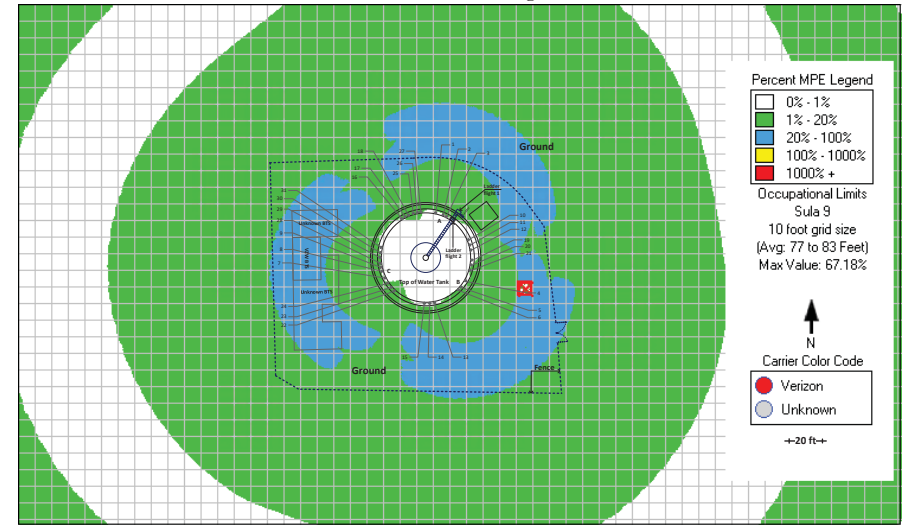
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c. Predictive Model: All Transmitters

Is the area being modeled completely INACCESSIBLE to members of the general population (including untrained maintenance workers)?

☐ YES ☒ NO

Reference Plane: Ladder Flight 1 Level

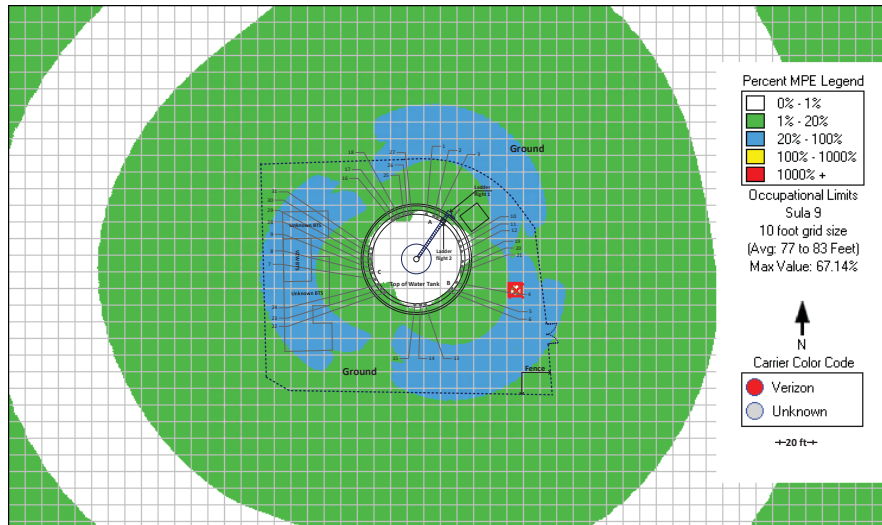


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d. Predictive Model: Verizon Transmitters

Reference Plane: Ladder Flight 1 Level



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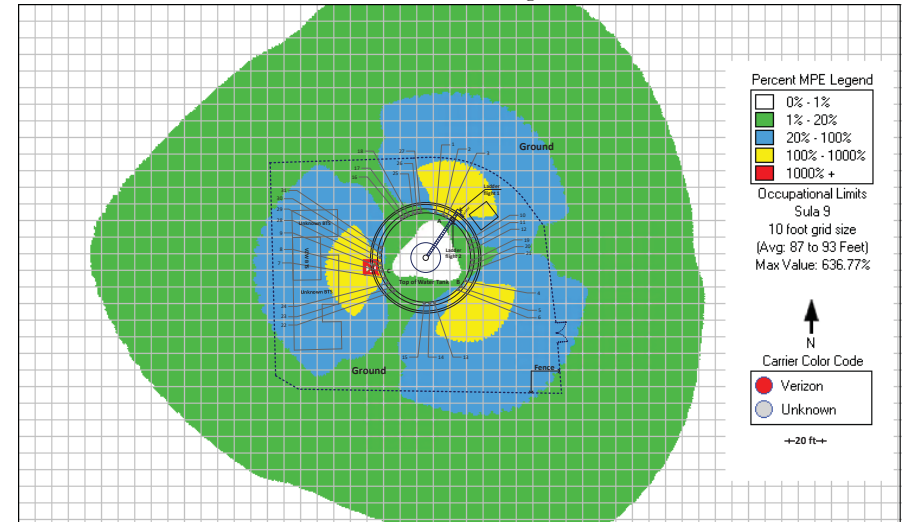
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e. Predictive Model: All Transmitters

Is the area being modeled completely INACCESSIBLE to members of the general population (including untrained maintenance workers)?

☐ YES ☒ NO

Reference Plane: Ladder Flight 2 Level

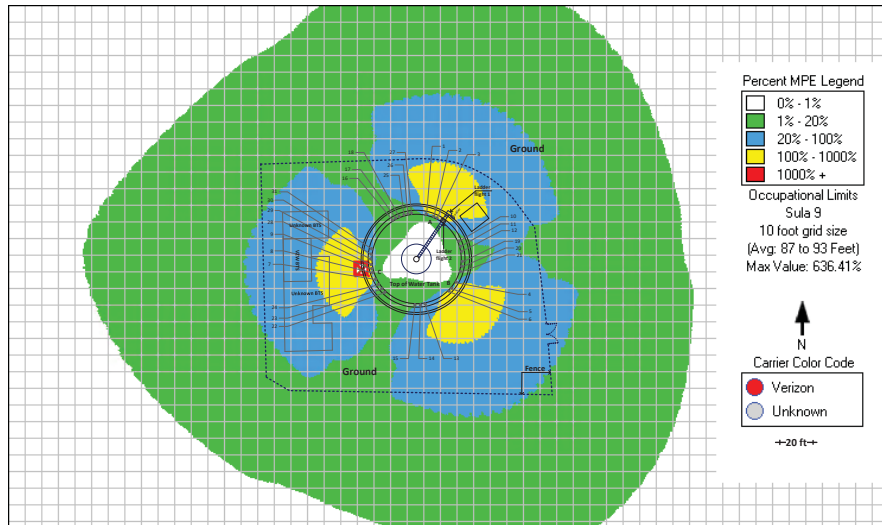


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f. Predictive Model: Verizon Transmitters

Reference Plane: Ladder Flight 2 Level



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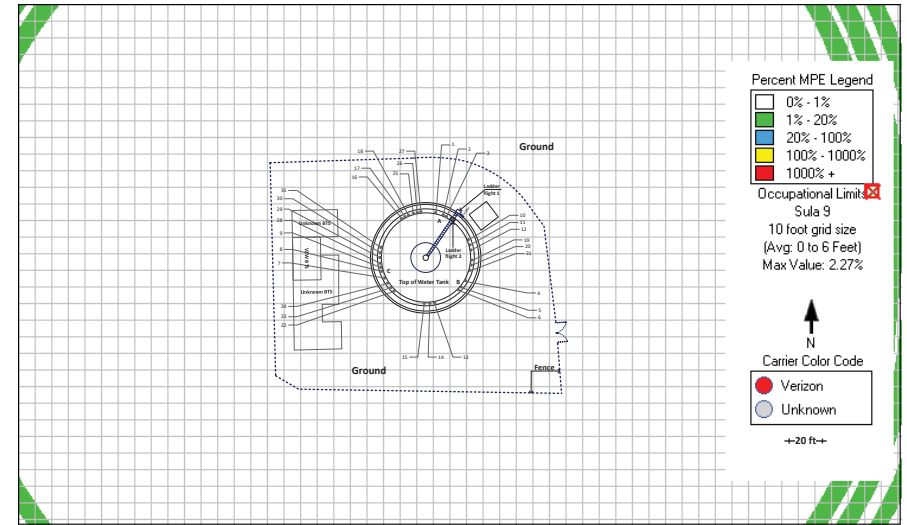
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g. Predictive Model: All Transmitters

Is the area being modeled completely INACCESSIBLE to members of the general population (including untrained maintenance workers)?

☐ YES ☒ NO

Reference Plane: Ground Level

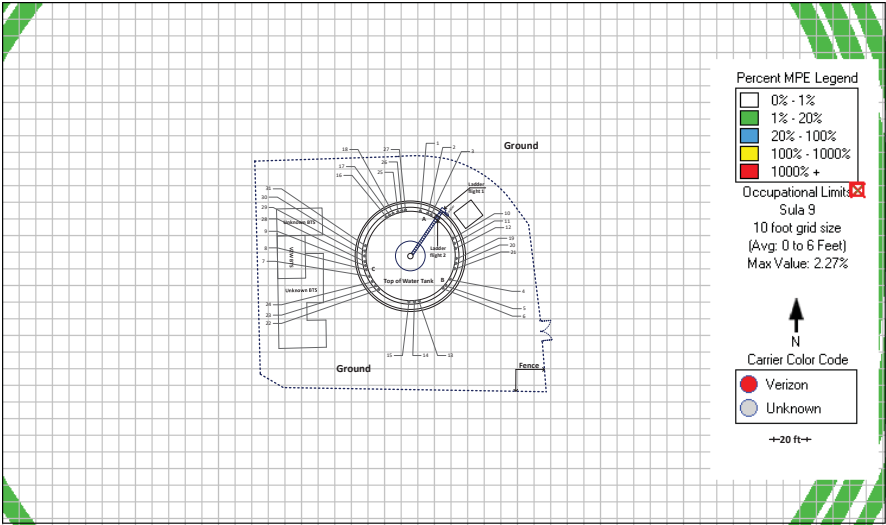


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h. Predictive Model: Verizon Transmitters

Reference Plane: Ground Level



4. Conclusion

a. Conclusion Narrative

**Description of MPE-Limit Exceeding Areas (Top of Water Tank Level)**

VZW Alpha sector is exceeding 20 % Occupational limits  
VZW Beta sector is exceeding 20 % Occupational limits  
VZW Gamma sector is exceeding 20 % Occupational limits

**Verizon Significant Contribution Areas (Top of Water Tank Level):**

VZW Alpha sector is exceeding 1% Occupational limit  
VZW Beta sector is exceeding 1% Occupational limit  
VZW Gamma sector is exceeding 1% Occupational limit

**Co-locator Significant Contribution Areas (Top of Water Tank Level):**

Unknown 1 Alpha sector is exceeding 1 % Occupational Population limits  
Unknown 1 Beta sector is exceeding 1 % Occupational Population limits  
Unknown 1 Gamma sector is exceeding 1 % Occupational Population limits

Unknown 2 Alpha sector is exceeding 1 % Occupational Population limits  
Unknown 2 Beta sector is exceeding 1 % Occupational Population limits  
Unknown 2 Gamma sector is exceeding 1 % Occupational Population limits

Unknown 3 Alpha sector is exceeding 1 % Occupational Population limits

**Description of MPE-Limit Exceeding Areas (Ladder Flight 1 Level) – Hotspot zone does not reach this area:**

VZW Alpha sector is exceeding 20 % Occupational limits  
VZW Beta sector is exceeding 20 % Occupational limits  
VZW Gamma sector is exceeding 20 % Occupational limits

**Verizon Significant Contribution Areas (Ladder Flight 1 Level) – Hotspot zone does not reach this area:**

VZW Alpha sector is exceeding 1% Occupational limit  
VZW Beta sector is exceeding 1% Occupational limit  
VZW Gamma sector is exceeding 1% Occupational limit

**Co-locator Significant Contribution Areas (Ladder Flight 1 Level) – Hotspot zone does not reach this area:**

Unknown 1 Alpha sector is not exceeding 1 % Occupational Population limits  
Unknown 1 Beta sector is not exceeding 1 % Occupational Population limits  
Unknown 1 Gamma sector is not exceeding 1 % Occupational Population limits

Unknown 2 Alpha sector is not exceeding 1 % Occupational Population limits  
Unknown 2 Beta sector is not exceeding 1 % Occupational Population limits  
Unknown 2 Gamma sector is not exceeding 1 % Occupational Population limits

Unknown 3 Alpha sector is not exceeding 1 % Occupational Population limits

Description of MPE-Limit Exceeding Areas (Ladder Flight 2 Level)

VZW Alpha sector is exceeding 20 % Occupational limits  
VZW Beta sector is exceeding 20 % Occupational limits  
VZW Gamma sector is exceeding 20 % Occupational limits

Verizon Significant Contribution Areas (Ladder Flight 2 Level):

VZW Alpha sector is exceeding 1% Occupational limit  
VZW Beta sector is exceeding 1% Occupational limit  
VZW Gamma sector is exceeding 1% Occupational limit

Co-locator Significant Contribution Areas (Ladder Flight 2 Level):

Unknown 1 Alpha sector is exceeding 1 % Occupational Population limits  
Unknown 1 Beta sector is exceeding 1 % Occupational Population limits  
Unknown 1 Gamma sector is exceeding 1 % Occupational Population limits  
Unknown 2 Alpha sector is exceeding 1 % Occupational Population limits  
Unknown 2 Beta sector is exceeding 1 % Occupational Population limits  
Unknown 2 Gamma sector is exceeding 1 % Occupational Population limits  
Unknown 3 Alpha sector is exceeding 1 % Occupational Population limits

Description of MPE-Limit Exceeding Areas (Ground Level)

VZW Alpha sector is not exceeding 20 % Occupational limits  
VZW Beta sector is not exceeding 20 % Occupational limits  
VZW Gamma sector is not exceeding 20 % Occupational limits

Verizon Significant Contribution Areas (Ground Level):

VZW Alpha sector is exceeding 1% Occupational limit  
VZW Beta sector is exceeding 1% Occupational limit  
VZW Gamma sector is exceeding 1% Occupational limit

Co-locator Significant Contribution Areas (Ground Level):

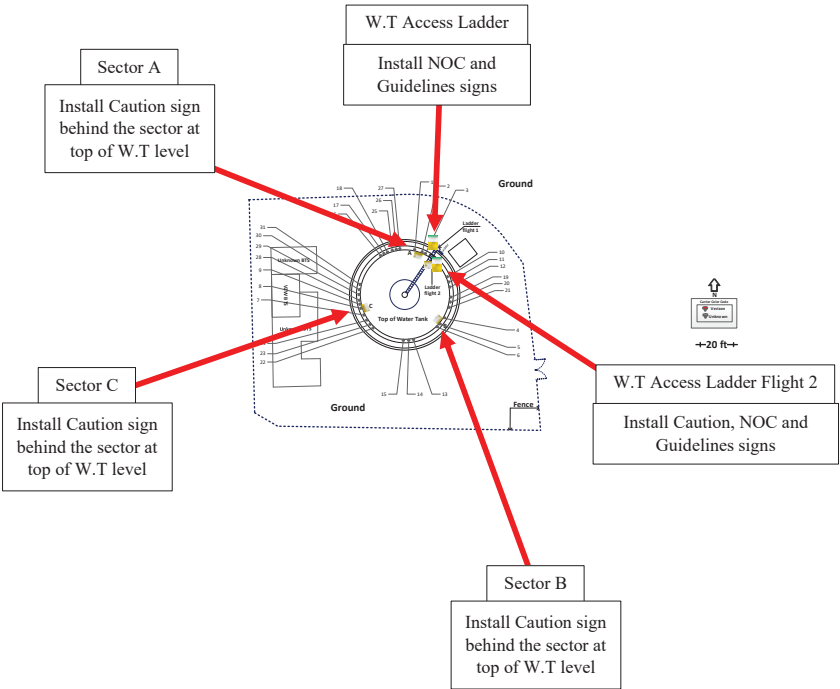
Unknown 1 Alpha sector is not exceeding 1 % Occupational Population limits  
Unknown 1 Beta sector is not exceeding 1 % Occupational Population limits  
Unknown 1 Gamma sector is not exceeding 1 % Occupational Population limits  
Unknown 2 Alpha sector is not exceeding 1 % Occupational Population limits  
Unknown 2 Beta sector is not exceeding 1 % Occupational Population limits  
Unknown 2 Gamma sector is not exceeding 1 % Occupational Population limits  
Unknown 3 Alpha sector is not exceeding 1 % Occupational Population limits

Potentially Non-Compliant Co-Locator Areas: Verizon Responsibility

The following table represents potentially non-compliant co-locators for which Verizon is a 5% General Population MPE (1% Occupational MPE) contributor.

AT&T	T-Mobile	Sprint	Unknown	Microwave	Omni
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

b. Signage/Barrier Diagram











Final Compliant Configuration						
	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER/MARKER
Access Point(s)	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> dimensions
Alpha	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Beta	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Gamma	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions

NOTE: The table above represents EVERY compliance item that MUST be implemented at this location.

c. Signage/Barrier Installation Detail

Mitigation /Actions required						
	GUIDELINES	NOTICE	CAUTION	WARNING	NOC INFO	BARRIER/MARKER
Access Point(s)	<input checked="" type="checkbox"/> [2]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Alpha	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Beta	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
Gamma	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input type="checkbox"/> [#]	<input checked="" type="checkbox"/> [1]	<input type="checkbox"/> [#]	<input type="checkbox"/> dimensions
	ADD REM	ADD REM	ADD REM	ADD REM	ADD REM	ADD ONLY

NOTE: The table represents either the signage/barriers installed / removed OR items required by the market (if mitigation is not installed by consultant/vendor).

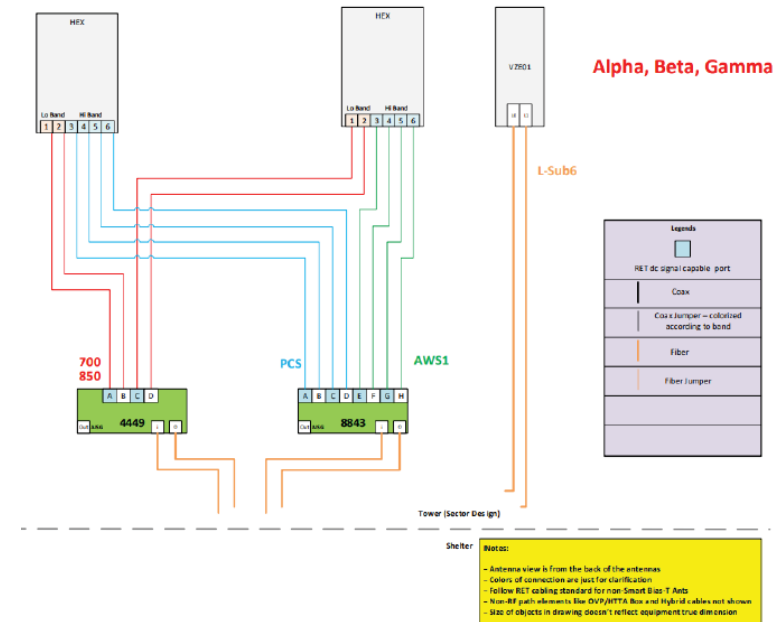
SPECIAL MITIGATION INSTRUCTIONS

Items to be Installed	W.T Access Ladder: Install NOC and Guidelines signs W.T Access Ladder Flight 2: Install Caution, NOC and Guidelines signs Sector A: Install Caution sign behind the sector at top of W.T level Sector B: Install Caution sign behind the sector at top of W.T level Sector C: Install Caution sign behind the sector at top of W.T level
Items to be Removed	N/A
Items to be Repaired/Replaced	N/A

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5. EME Datasheet



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6. Appendix A: RF Consultant Certifications

a. Preparer Certification

I, Oday Alshaikhli, the preparer of this report, am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I am also fully aware of and familiar with the Verizon Wireless Signage & Demarcation Policy. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

Oday Alshaikhli

b. Reviewer Certification

I, Ahmed Al Jubouri, the reviewer and approved of this report, am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation. I am also fully aware of and familiar with the Verizon Wireless Signage & Demarcation Policy. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

Ahmed Al Jubouri

7. Appendix B: Reference Information

a. FCC Rules & Regulations

The Federal Communications Commission (FCC) has established safety guidelines relating to RF exposure from cell sites. The FCC developed those standards, known as Maximum Permissible Exposure (MPE) limits, in consultation with numerous other federal agencies, including the Environmental Protection Agency, the Food and Drug Administration, and the Occupational Safety and Health Administration. The standards were developed by expert scientists and engineers after extensive reviews of the scientific literature related to RF biological effects. The FCC explains that its standards “incorporate prudent margins of safety.” The following represents explanations of the most applicable information:

Two Classifications for Exposure Limits

<b>Occupational</b> – Applies to situations in which persons are “exposed as a consequence of their employment” and are “fully aware of the potential for exposure and can exercise control over their exposure”.	<b>General Population</b> – Applies to situations in which persons are “exposed as a consequence of their employment <i>may not be made fully aware of</i> the potential for exposure or <i>cannot exercise control</i> over their exposure”. Generally speaking, those without significant and documented RF Safety & Awareness training would be in the General Population classification.
---	--

Environment Classification

<b>Controlled</b> – Applies to environments that are restricted or “controlled” in order to prevent access from members of the General Population classification.	<b>Uncontrolled</b> – Applies to environments that are unrestricted or “uncontrolled” that allow access from members of the General Population classification.
---	--

Limits for Occupational/Controlled Exposure		
Frequency Range (MHz)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time (minutes)
300-1500	f/300	6
1500-100,000	5	6
Limits for General Population/Uncontrolled Exposure		
Frequency Range (MHz)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time (minutes)
300-1500	f/1500	30
1500-100,000	1	30
f = frequency in MHz		

Significant Contribution to the RF Environment

Any carrier contributing an aggregate MPE percentage of 5 or more (to the applicable RF Environment Classification) is defined as a significant contributor. This means that if any area is determined to be out of compliance with FCC rules, all significant contributors are jointly responsible for correcting any deficiencies.






b. Occupational Safety and Health Administration (OSHA) Requirements

A formal adopter of FCC Standards, OSHA stipulates that those in the Occupational classification must complete training in the following: RF Safety, RF Awareness, and Utilization of Personal Protective Equipment. OSHA also provides options for Hazard Prevention and Control:

Hazard Prevention	Control
<ul style="list-style-type: none"><li>Utilization of good equipment</li><li>Enact control of hazard areas</li><li>Limit exposures</li><li>Employ medical surveillance and accident response</li></ul>	<ul style="list-style-type: none"><li>Employ Lockout/Tag out</li><li>Utilize personal alarms &amp; protective clothing</li><li>Prevent access to hazardous locations</li><li>Develop or operate an administrative control program</li></ul>

c. RF Signage

Areas or portions of any transmitter site may be susceptible to high power densities that could cause personnel exposures in excess of the FCC guidelines. These areas must be demarcated by conspicuously posted signage that identifies the potential exposure. Signage MUST be viewable regardless of the viewer's position.

GUIDELINES	NOTICE	CAUTION	WARNING
This sign will inform anyone of the basic precautions to follow when entering an area with transmitting radiofrequency equipment	This sign indicates that RF emissions may exceed the FCC General Population MPE limit.	This sign indicates that RF emissions may exceed the FCC Occupational MPE limit.	This sign indicates that RF emissions may exceed at least 10x the FCC Occupational MPE limit.
			
<b>NOC INFORMATION</b> Information signs are used as a mean to provide contact information for any questions or concerns. They will include specific cell site identification information and the Verizon Wireless Network Operations Center phone number.			

d. Physical Barriers

Physical barriers are control measures that require awareness and participation of personnel. Physical barriers are employed as an additional administration control to complement RF signage and physically demarcate an area in which RF exposure levels may exceed the FCC General Population limit. **Example:** chain-connected stanchions

e. Indicative Markers

Indicative markers are visible control measures that require awareness and participation of personnel, as they cannot physically prevent someone from entering an area of potential concern. Indicative markers are employed as an additional administration control to complement RF signage and visually demarcate an area in which RF exposure levels may exceed the FCC General Population limit. **Example:** paint stripes



Project Details
Carrier Aggregation: false
MPT Id:
eCIP-0: false
Project Name: 5G L-Sub6 - Carrier Add
FUZE Project ID: 16229218
Designed Sector Carrier 4G: 14
Designed Sector Carrier 5G: 3
Additional Sector Carrier 4G: N/A
Additional Sector Carrier 5G: N/A
SiteTraker Project Id: a4K0H000000RoCCUA0
FP Solution Type & Tech Type: MODIFICATION;4G_850,5G_L-Sub6-Prep
RFDS Project Scope:
Suffix:

Location Information
Site ID: 707076
E-NodeB ID: 202111,0202111
PSLC: 212521
Switch Name: Las Vegas,Las Vegas
Tower Owner:
Tower Type: Tank
Site Type: MACRO
Street Address: 339 W. 57th Street
City: Hinsdale
State: IL
Zip Code: 60521
County: DuPage
Latitude: 41.786136 / 41° 47' 10.0896" N
Longitude: -87.934192 / 87° 56' 3.0912" W

Antenna Summary

Added																			
700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
										5G	TBD	L-Sub6 Antenna	95	96.3	30(0001) 150(0002) 270(0003)	false	false	PHYSICAL	3
Removed																			
700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
No data available.																			
Retained																			
700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
LTE	LTE 5G	LTE	LTE								ANDREW	SBNHH-1D65A	95	97.3	30(0001) 30(D1) 150(0002) 150(D2) 270(0003) 270(D3)	false	false	PHYSICAL	6
Added: 3												Removed: 0				Retained: 6			

Equipment Summary

Added																		
Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
RRU	Tower			LTE	LTE								Ericsson	8843			PHYSICAL	3
RRU	Tower											5G	Ericsson	VZE01			PHYSICAL	3
Removed																		
Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
RRU	Tower			LTE									Ericsson	RRUS32 B2			PHYSICAL	3
RRU	Tower				LTE								Ericsson	RRUS32 B66A			PHYSICAL	3
Coaxial Cables	Tower															1 5/8	PHYSICAL	12
RRU	Shelter												Ericsson	4449			PHYSICAL	0
Diplexer	Shelter													CBC78-DF-8-DCB			PHYSICAL	6
Retained																		
Equipment Type	Location	700	850	1900	AWS	AWS3	28 GHz	31 GHz	39 GHz	CBRS	LAA	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Hybrid Cable	Tower												Andrew	HFT1206-24549			PHYSICAL	3
RRU	Tower		LTE	LTE									Ericsson	4449			PHYSICAL	3
OVP Box	Tower												Raycap	3315			PHYSICAL	3
OVP Box	Shelter												Raycap	3315			PHYSICAL	3

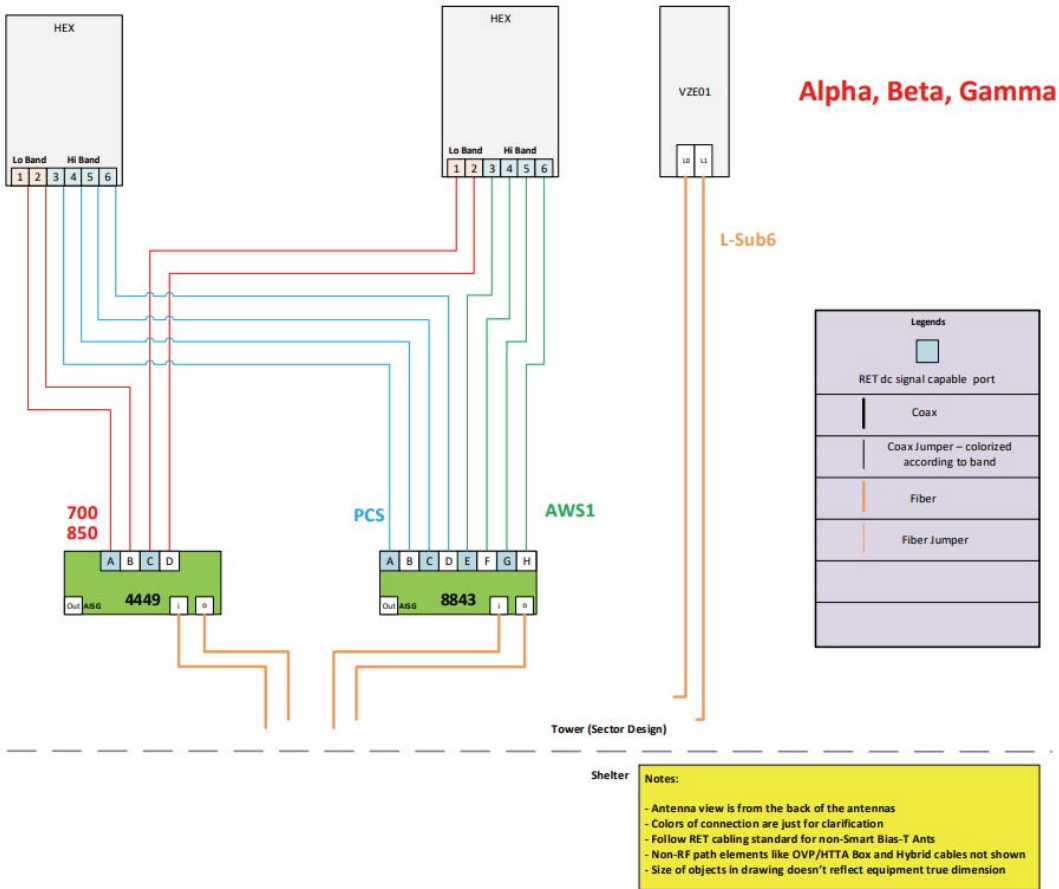
Service Info

1900 MHZ LTE				0000			SGLS			
Sector	D1	D2	D3	D1	D2	D3		D1	D2	D3
Azimuth	30	150	270	30	150	270		30	150	270
Cell / ENode B ID	202111	202111	202111	202111	202111	202111		202111	202111	202111
Antenna Model	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A		SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A
Antenna Make	ANDREW	ANDREW	ANDREW	ANDREW	ANDREW	ANDREW		ANDREW	ANDREW	ANDREW
Antenna Centerline(Ft)	95	95	95	95	95	95		95	95	95
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0		0	0	0
Electrical Down-Tilt	0	2	1	0	2	1		0	2	1
Tip Height	97.3	97.3	97.3	97.3	97.3	97.3		97.3	97.3	97.3
Regulatory Power	373.55	379.71	378.05	373.78	377.91	376.26		373.78	377.91	376.26
TMA Make										
TMA Model										
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson		Ericsson	Ericsson	Ericsson
RRU Model	RRUS32 B2	RRUS32 B2	RRUS32 B2	8843	8843	8843		8843	8843	8843
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4		4,4	4,4	4,4
Position										
Transmitter Id	713661	713668	723862	7439912	7439913	7439920		7439912	7439913	7439920
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API		ATOLL_API	ATOLL_API	ATOLL_API
2100 MHZ LTE				0000			SGLS			
Sector	D1	D2	D3	D1	D2	D3		D1	D2	D3
Azimuth	30	150	270	30	150	270		30	150	270
Cell / ENode B ID	202111	202111	202111	202111	202111	202111		202111	202111	202111
Antenna Model	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A		SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A
Antenna Make	ANDREW	ANDREW	ANDREW	ANDREW	ANDREW	ANDREW		ANDREW	ANDREW	ANDREW
Antenna Centerline(Ft)	95	95	95	95	95	95		95	95	95
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0		0	0	0
Electrical Down-Tilt	0	2	1	0	2	1		0	2	1
Tip Height	97.3	97.3	97.3	97.3	97.3	97.3		97.3	97.3	97.3
Regulatory Power	74.84	77.97	76.39	138.16	143.94	141.02		138.16	143.94	141.02
TMA Make										
TMA Model										
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson		Ericsson	Ericsson	Ericsson
RRU Model	RRUS32 B66A	RRUS32 B66A	RRUS32 B66A	8843	8843	8843		8843	8843	8843
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4		4,4	4,4	4,4
Position										
Transmitter Id	715379	715381	715383	7439921	7439926	7439929		7439921	7439926	7439929
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API		ATOLL_API	ATOLL_API	ATOLL_API
850 MHZ CDMA				0000						
Sector	D1	D2	D3							
Azimuth	30	150	270							
Cell / ENode B ID										
Antenna Model	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A							
Antenna Make	ANDREW	ANDREW	ANDREW							
Antenna Centerline(Ft)	95	95	95							
Mechanical Down-Tilt(Deg.)	0	0	0							
Electrical Down-Tilt	6	6	6							
Tip Height	97.3	97.3	97.3							
Regulatory Power	253.4	253.4	253.4							
TMA Make										
TMA Model										
RRU Make										
RRU Model										
Number of Tx, Rx Lines										
Position										
Transmitter Id										
Source	ATOLL_API	ATOLL_API	ATOLL_API							

850 MHz LTE				0000			SGLS		
Sector	D1	D2	D3	D1	D2	D3			
Azimuth	30	150	270	30	150	270			
Cell / ENode B ID	202111	202111	202111	202111	202111	202111			
Antenna Model	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A			
Antenna Make	ANDREW	ANDREW	ANDREW	ANDREW	ANDREW	ANDREW			
Antenna Centerline(F)	95	95	95	95	95	95			
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0			
Electrical Down-Tilt	6	6	6	6	6	6			
Tip Height	97.3	97.3	97.3	97.3	97.3	97.3			
Regulatory Power	136.12	136.12	136.12	135.48	135.48	135.48			
TMA Make									
TMA Model									
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson			
RRU Model	4449	4449	4449	4449	4449	4449			
Number of Tx, Rx Lines	2.2	2.2	2.2	4.4	4.4	4.4			
Position									
Transmitter Id	737800	737798	737799	7439919	7439917	7439918			
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API			
700 MHz LTE				0000			SGLS		
Sector	D1	D2	D3	D1	D2	D3			
Azimuth	30	150	270	30	150	270			
Cell / ENode B ID	202111	202111	202111	202111	202111	202111			
Antenna Model	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A			
Antenna Make	ANDREW	ANDREW	ANDREW	ANDREW	ANDREW	ANDREW			
Antenna Centerline(F)	95	95	95	95	95	95			
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0			
Electrical Down-Tilt	1	4	3	1	4	3			
Tip Height	97.3	97.3	97.3	97.3	97.3	97.3			
Regulatory Power	44.4	43.43	42.89	44.19	43.23	42.68			
TMA Make									
TMA Model									
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson			
RRU Model	4449	4449	4449	4449	4449	4449			
Number of Tx, Rx Lines	4.4	4.4	4.4	4.4	4.4	4.4			
Position									
Transmitter Id	712189	712190	712191	7439914	7439915	7439916			
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API			
850 MHz SGNR				SGLS					
Sector				0001	0002	0003			
Azimuth				30	150	270			
Cell / ENode B ID				0202111	0202111	0202111			
Antenna Model				SBNHH-1D65A	SBNHH-1D65A	SBNHH-1D65A			
Antenna Make				ANDREW	ANDREW	ANDREW			
Antenna Centerline(F)				95	95	95			
Mechanical Down-Tilt(Deg.)				0	0	0			
Electrical Down-Tilt				6	6	6			
Tip Height				97.3	97.3	97.3			
Regulatory Power				136.12	136.12	136.12			
TMA Make									
TMA Model									
RRU Make				Ericsson	Ericsson	Ericsson			
RRU Model				4449	4449	4449			
Number of Tx, Rx Lines				4.4	4.4	4.4			
Position									
Transmitter Id				7971227	7971228	7971229			
Source				ATOLL_API	ATOLL_API	ATOLL_API			

nL-Sub6				SGLS		
Sector				0001	0002	0003
Azimuth				30	150	270
Cell / ENode B ID				0202111	0202111	0202111
Antenna Model				L-Sub6 Antenna	L-Sub6 Antenna	L-Sub6 Antenna
Antenna Make				TBD	TBD	TBD
Antenna Centerline(F)				95	95	95
Mechanical Down-Tilt(Deg.)				0	0	0
Electrical Down-Tilt				3	3	3
Tip Height				96.3	96.3	96.3
Regulatory Power				74.84	77.97	76.39
TMA Make						
TMA Model						
RRU Make				Ericsson	Ericsson	Ericsson
RRU Model				VZE01	VZE01	VZE01
Number of Tx, Rx Lines				4.4	4.4	4.4
Position						
Transmitter Id				7439970	7439973	7439976
Source				ATOLL_API	ATOLL_API	ATOLL_API

Service Comments





Paul J. Ford & Company  
250 East Broad Street Suite 600  
Columbus, OH 43215  
(614) 221-6679  
spozz@pauljford.com

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## Antenna Mount Analysis Report and PMI Requirements

### Mount Analysis

SMART Tool Project #: 10017709

Paul J. Ford Project #: 24320-0388.002.8190

November 16, 2020

#### Site Information

Site ID: 212521-VZW / Hinsdale WT -- 707076  
Site Name: Hinsdale WT -- 707076  
Carrier Name: Verizon Wireless  
Address: 339 W. 57th Street  
Hinsdale, Illinois 60521, DuPage County  
Latitude: 41.786140°  
Longitude: -87.934192°

#### Structure Information

Tower Type: 103-Ft Water Tank  
Mount Type: (12) 5.5' Pipe Mounts

FUZE ID # 16229218

#### Analysis Results

(12) 5.5' Pipe Mounts: 26.7% Pass

#### \*\*\*Contractor PMI Requirements:

**Included at the end of this MA report**

**Available & Submitted via portal at <https://pmi.vzwsmart.com>**

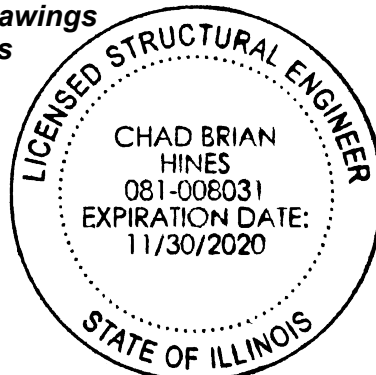
**Contractor - Please Review Specific Site PMI Requirements Upon Award**

**Requirements also Noted on Mount Modification Drawings**

**Requirements may also be Noted on A & E drawings**

Report Prepared By: Steven Pozz, EI

*RMD*



11/16/2020

## **Executive Summary:**

The objective of this report is to determine the capacity of the antenna support mounts at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

This analysis is inclusive of the mount structure only, and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

## **Sources of Information:**

Document Type	Remarks
<i>Radio Frequency Data Sheet (RFDS)</i>	<i>Verizon RFDS, 16229218 dated September 15, 2020</i>
<i>Mount Mapping Report</i>	<i>SGS Towers, Project # 707076, dated October 28, 2020</i>

## **Analysis Criteria:**

Codes and Standards:	ANSI/TIA-222-H
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), $V_{ULT}$ : 114 mph Ice Wind Speed (3-sec. Gust): 40 mph Design Ice Thickness: 1.50 in Risk Category: III Exposure Category: C Topographic Category: 1 Topographic Feature Considered: N/A Topographic Method: N/A Ground Elevation Factor, $K_e$ : 0.974
Seismic Parameters:	$S_s$ : 0.128 $S_1$ : 0.065
Maintenance Parameters:	Wind Speed (3-sec. Gust): 30 mph Maintenance Live Load, $L_v$ : 0 lbs. Maintenance Live Load, $L_m$ : 0 lbs.
Analysis Software:	RISA-3D (V17.0.3)



### **Final Loading Configuration:**

The following equipment has been considered for the analysis of the mounts:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
95	95	3	Ericsson	VZE01	Added
		3	Ericsson	8843	
		6	Andrew	SBNHH-1D65A	Retained
		3	Raycap	RC3DC-3315-PF-48	
		3	Ericsson	4449	Relocated from Shelter to Mount

### **Standard Conditions:**

1. All engineering services are performed on the basis that the information provided to Paul J. Ford and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Paul J. Ford to verify deviation will not adversely impact the analysis.
2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped by PJF, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.
4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
5. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.
6. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
  - o Channel, Solid Round, Angle, Plate      ASTM A36 (Gr. 36)
  - o HSS (Rectangular)      ASTM 500 (Gr. B-46)
  - o Pipe      ASTM A53 (Gr. B-35)
  - o Threaded Rod      F1554 (Gr. 36)
  - o Bolts      ASTM A325
7. The mount was checked up to the welds that attach to the tank column. Local deformation and interaction between the mount and the supporting structure are outside the scope of this analysis.

**Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Paul J. Ford.**

### **Analysis Results:**

Component	Utilization %	Pass/Fail
Standoff Members	26.7%	Pass
Mount Pipes	9.7%	Pass
Mount to Tower Connection	15.9%	Pass

Structure Rating – (Controlling Utilization of all Components)	26.7%
--	-------

### **Controlling Envelope Reaction at Tank Surface:**

Horizontal Shear (k)	Vertical Shear (k)	Axial (k)	Horizontal Moment (k*ft)	Vertical Moment (k*ft)	Torque (k*ft)
0.365	0.055	0.106	0.041	0.149	0.009

**Note:** Reactions provided for the supporting structure EOR to evaluate as needed.

### **Recommendation:**

The existing mounts are **SUFFICIENT** for the final loading configuration and do not require modifications.

ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other, if required. Separate review fees will apply.

### **Attachments:**

1. Mount Photos
2. Mount Mapping Report (for reference only)
3. Analysis Calculations
4. **Contractor Required Post Installation Inspection (PMI) Report Deliverables**
5. Antenna Placement Diagrams



Sector: A

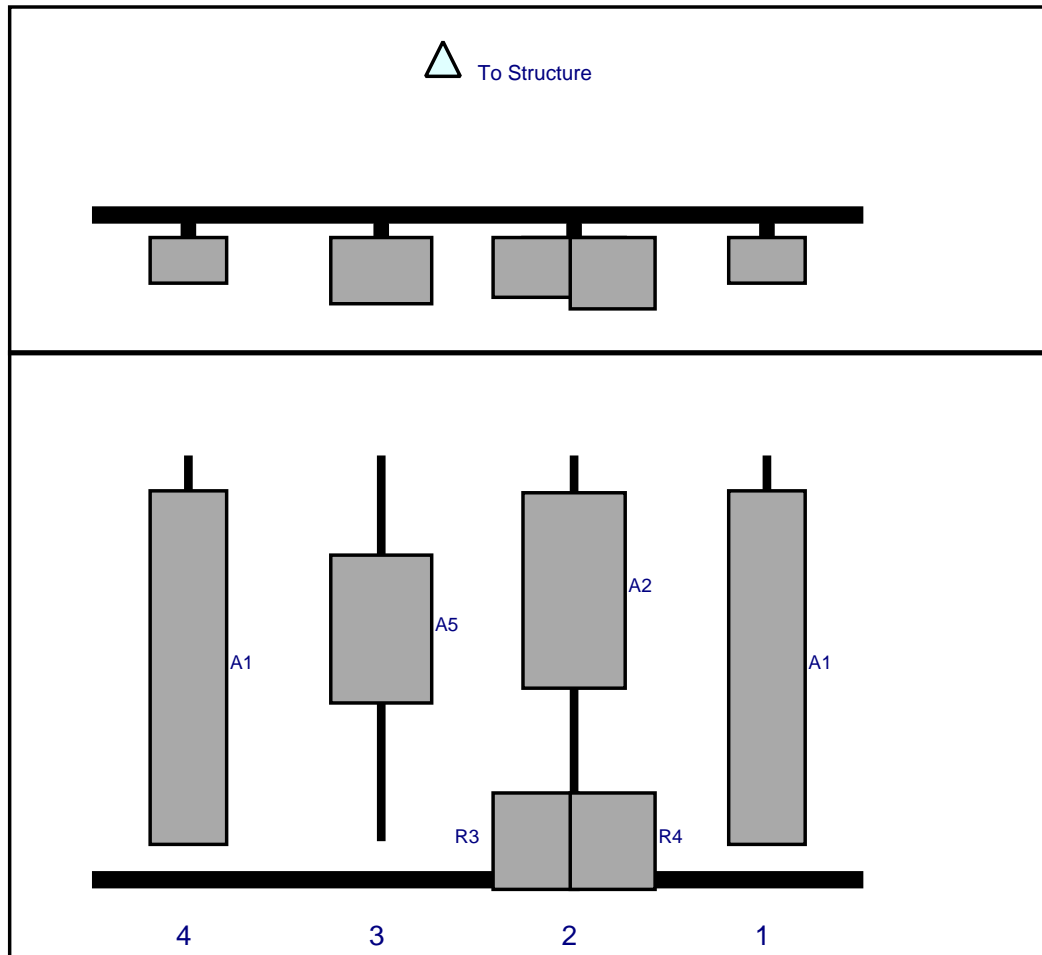
11/16/2020 **PJF** PAUL J. FORD  
& COMPANY

Structure Type: Water Tank

Mount Elev: 95.00

Page: 1

Plan View

 To Structure
Front View  
Looking at Structure

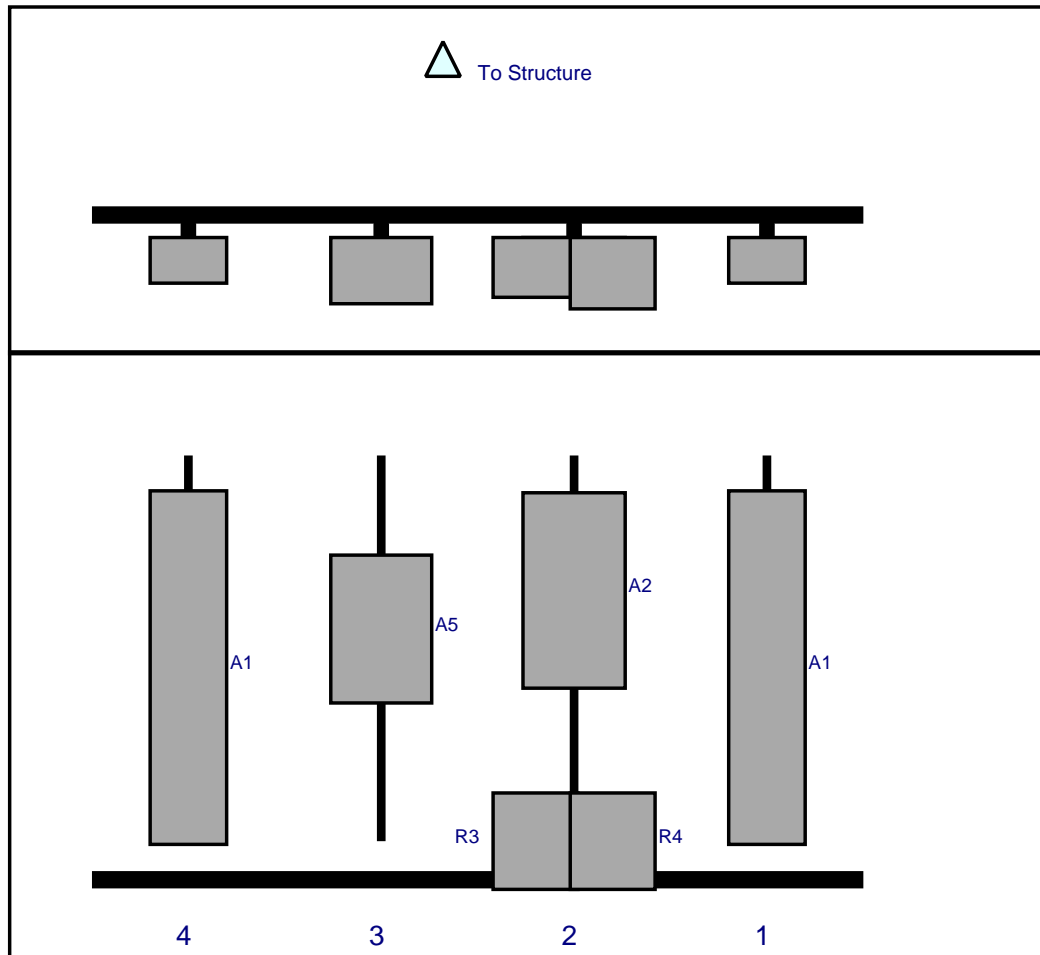
Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	SBNHH-1D65A	55	11.9	105	1	a	Front	33	0	Retained	11/11/2020
A2	VZE01	30.4	15.9	75	2	a	Front	21	0	Added	
R3	4449	15	13.2	75	2	a	Front	60	-6	Retained	
R4	8843	15	13.2	75	2	a	Front	60	6	Added	
A5	RC3DC-3315-PF-48	23	15.7	45	3	a	Front	27	0	Retained	11/11/2020
A1	SBNHH-1D65A	55	11.9	15	4	a	Front	33	0	Retained	11/11/2020

Sector: **B**11/16/2020 **PJF** PAUL J. FORD  
& COMPANY

Structure Type: Water Tank

Mount Elev: 95.00

Page: 2

**Plan View****Front View**  
Looking at Structure

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	SBNHH-1D65A	55	11.9	105	1	a	Front	33	0	Retained	11/11/2020
A2	VZE01	30.4	15.9	75	2	a	Front	21	0	Added	
R3	4449	15	13.2	75	2	a	Front	60	-6	Retained	
R4	8843	15	13.2	75	2	a	Front	60	6	Added	
A5	RC3DC-3315-PF-48	23	15.7	45	3	a	Front	27	0	Retained	11/11/2020
A1	SBNHH-1D65A	55	11.9	15	4	a	Front	33	0	Retained	11/11/2020

Sector: C

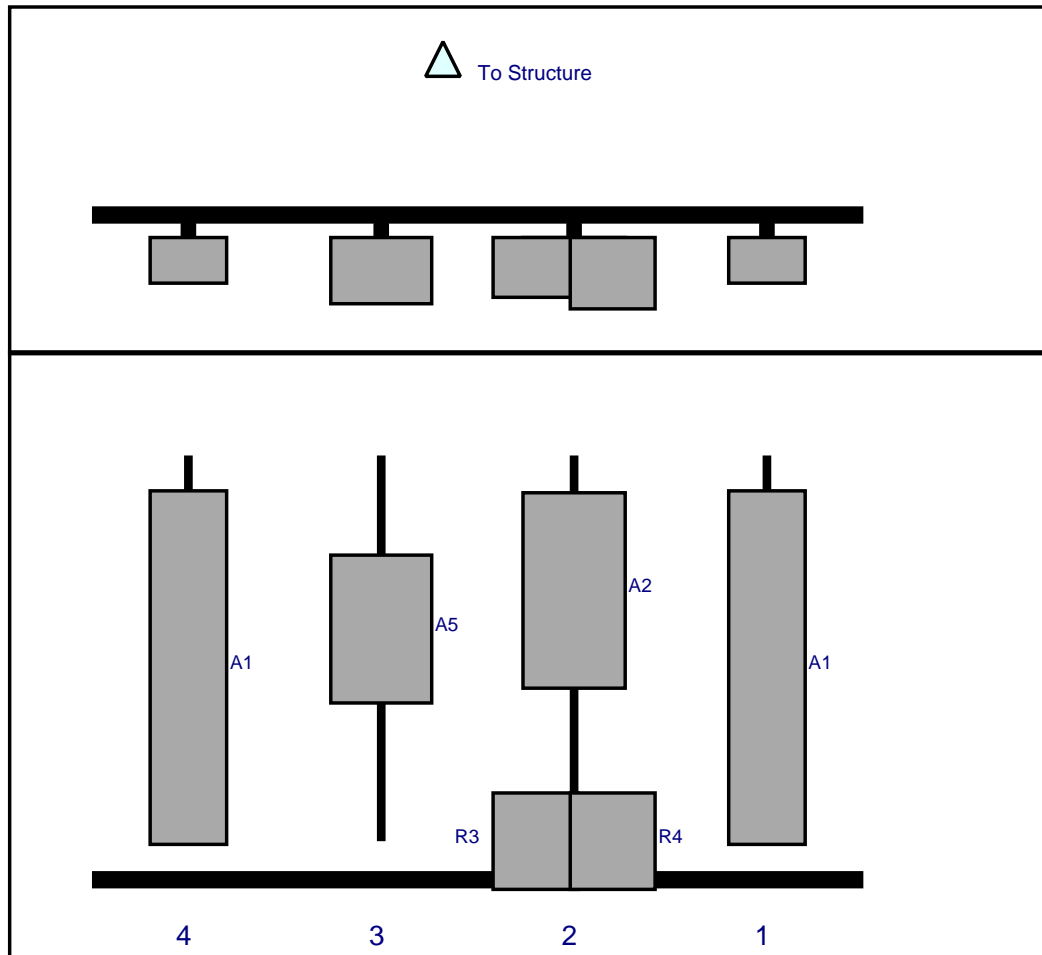
11/16/2020 **PJF** PAUL J. FORD  
& COMPANY

Structure Type: Water Tank

Mount Elev: 95.00

Page: 3

Plan View

Front View  
Looking at Structure

Ref#	Model	Height (in)	Width (in)	H Dist Frm L.	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A1	SBNHH-1D65A	55	11.9	105	1	a	Front	33	0	Retained	11/11/2020
A2	VZE01	30.4	15.9	75	2	a	Front	21	0	Added	
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R4	8843	15	13.2	75	2	a	Front	60	6	Added	
A5	RC3DC-3315-PF-48	23	15.7	45	3	a	Front	27	0	Retained	11/11/2020
A1	SBNHH-1D65A	55	11.9	15	4	a	Front	33	0	Retained	11/11/2020

**HINSDALE WT**  
**339 West 57<sup>th</sup> Street**  
**Hinsdale, IL**

**STRUCTURAL ANALYSIS REPORT FOR VERIZON (#212521)**

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April 23, 2021

KOA PROJECT NO.: 202001.84

Revision #1



**PREPARED BY:**

KRECH OJARD & ASSOCIATES, INC.  
101 PUTNAM ST.  
EAU CLAIRE, WI 54703  
715-552-7374

**PROFESSIONAL SEAL:**



KRECH OJARD LICENSE NO:  
184.006740-003  
081.007476



Site Name: HINSDALE WT

Site Number: 212521

The following report is an update to the previously submitted analysis from Krech Ojard & Associates, Inc. dated April 2, 2021. Changes to the other carriers installed on the tank have been updated by Terra Consulting by a site visit.

**Verizon Installation Summary:**

Verizon is proposing to install new antennas and equipment at Hinsdale water tower site. The proposed antennas and equipment are listed below and noted in the Verizon RFDS dated 9/15/2020. The proposed antennas and equipment mounts have been analyzed by others. The following report is a design check on the tank stability & overturning to support the proposed Verizon equipment. The tank analysis was performed in accordance with the AWWA D100-11. A basic wind speed of 90 MPH, Exposure C, with an importance factor of 1.15 was used in the analysis.

**Proposed Final Verizon Antenna and Equipment Summary (RAD = 95'-0"):**

- (3) nL-Sub6 Antenna w/ VZE01
- (3) Ericsson RRU 8843
- (6) Andrew SBNHH-1D65A
- (3) Hybrid Cables
- (3) Ericsson 4449
- (3) Raycap 3315

**Existing Other Carrier Equipment to remain:**

The following list of existing other carriers on the tank were provided by Terra Consulting. At the time of this report, no other additional antennas or equipment are on the tank.

**Equipment on Water Tank:**

**T-Mobile / Sprint (RAD = 95')**

- (3) 8' x 1' Antennas
- (3) 4' x 2' Antennas
- (6) RRH's

**AT&T (RAD = 95')**

- (6) 8' x 2' Antennas
- (3) 8' x 1' Antennas
- (18) RRU's
- (6) OVP's

**WATER TANK ANALYSIS RESULTS SUMMARY:**

The water tower has been analyzed for the original and proposed new antenna loading. The overturning on the tank was checked for 90 MPH, Exposure C as required by the AWWA. Upon installation of the proposed antennas, the water tower's overturning will increase a total of 11%, which includes the addition of the other telecommunication equipment and mounts.

The water tower does not have anchor bolts. Overturning and slide resistance were checked. It was determined there was no uplift forces on the tank, and both overturning and sliding resistance factors of safety are greater than 1.5 which is required by the AWWA.

***The water tower can safely resist the resultant forces from increased overturning.***



**ASSUMPTIONS:**

- Original self-weight of tank is 582 kips
- Any reinforcement or modifications are assumed to be fully installed and functional.
- The International Existing Building Code (IEBC) states; "Any existing lateral load-carrying structural element whose demand-capacity ratio with the addition considered is no more than 10 percent greater than its demand-capacity ratio with the addition ignored shall be permitted to remain unaltered." Because the weight of the telecommunication equipment compared to the full tank is negligible, seismic considerations were not considered.
- All welds are assumed to have been performed to current welding standards and are assumed to develop their full capacity and to be in good condition. All bolts and bolt-like anchors are assumed to be fully tightened, fastened or bonded to the manufacturers' specifications and are assumed to have full capacity.
- Soil conditions and foundations are not considered unless specified in the analysis and have no deterioration or defects.
- The information provided to Krech Ojard & Associates for analysis is assumed accurate and up to date.
- The tower is assumed to be properly maintained and monitored and this analysis cannot be a considered a condition assessment of the tower. No accommodations are taken for damaged, rusted, deteriorated, or otherwise compromised member conditions.

*If it is determined that any of these assumptions are not accurate, this analysis is void and an additional analysis should be performed.*

**REFERENCED DOCUMENTS:**

- Site photos of other carriers by Terra Consulting through email dated 4.21.2021
- Verizon RFDS dated 9/15/2020
- Paul J. Forward & Company Post-Mod Antenna Mount Analysis Report and PMI Requirements dated October 8, 2020
- Previous Verizon SA by R. Wozniak dated November 4, 2013 and July 2, 2009
- Dixon Engineering Inc. antenna inspection report dated August 14, 2013