

WATER TOWER LICENSE AGREEMENT

This Water Tower License Agreement (“**Agreement**”) is made as of the date of the last signature below (“**Effective Date**”) between the City of West Allis, having a mailing address of City Hall, 7525 West Greenfield Avenue, West Allis, WI 53214 (“**West Allis**”), and Verizon Wireless Personal Communications LP, a Delaware limited partnership, d/b/a Verizon Wireless, with its principal offices at One Verizon Way, Mail Stop 4AW100, Basking Ridge, New Jersey 07920 (telephone number 866-862-4404) (“**Verizon**”). West Allis and Verizon are collectively referred to as “**Parties**” and individually as “**Party**.”

RECITALS

- A. The Parties, and/or their predecessors in interest, entered into a Water Tower Lease Agreement dated May 10, 1996 (“**Lease**”).
- B. West Allis owns property located at 11515 West Rogers Street, West Allis, WI 53227 (“**Property**”) on which West Allis maintains a water tower (“**Tower**”). The Lease authorizes Verizon to place certain telecommunications equipment on the Tower and a shelter and certain telecommunications equipment on a portion of ground space near the base of the Tower (“**Verizon’s Existing Facilities**”).
- C. Verizon desires to upgrade and modify its existing Antenna Facilities (“**Initial Modification**”), subject to the terms of this Agreement.
- D. The current term of the Lease shall expire on May 9, 2022, and the Parties intend that this Agreement supersede and replace the Lease, and, to accomplish the same, hereby terminate the Lease and the easements described therein as of the Effective Date of this Agreement.

AGREEMENT

The Parties agree as follows:

ARTICLE 1: LICENSE GRANTED

- 1.1 Subject to the provisions of this Agreement, West Allis hereby grants Verizon:
 - 1.1.1 A revocable, non-exclusive license authorizing Verizon to install, maintain, upgrade, and operate Verizon’s equipment (collectively, the “**Antenna Facilities**”) as shown on the as-built drawings required under Article 6 (“**As-Built Drawings**”) on the specific locations on the Tower (“**Tower Space**”) as shown on the As-Built Drawings.
 - 1.1.2 A revocable, non-exclusive license authorizing Verizon to install, maintain, upgrade, and operate one equipment building on an approximately 120 square -foot portion of the Property (the “**Land Space**”). The Property and the Land Space are legally described on **Exhibit A-1**.

- 1.1.3 A revocable, non-exclusive license authorizing Verizon to use the following “**Easements**”: (i) an 11-foot-wide non-exclusive access–easement allowing pedestrian and vehicular ingress and egress to the Land Space and the base of the Tower and (ii) a 5-foot-wide non-exclusive utility easement and a 5-foot-wide cable easement for the underground installation and maintenance of utility wires, cables, conduits, and pipes. **Exhibit A-1** contains a legal description of each Easement. West Allis agrees to provide alternate utility easements, if necessary, and **Exhibit A-1** shall be updated accordingly.
- 1.2 At its expense, Verizon shall provide a professional site survey, which shall include legal descriptions for and depict the boundaries of the Property, Land Space, and Easements and which shall be subject to West Allis’s reasonable approval. The site survey shall be attached as **Exhibit A-2**.
- 1.3 The Tower Space and Land Space are collectively referred to as the “**Premises**.”
- 1.4 The Antenna Facilities, the equipment building and its contents, and all of Verizon’s appurtenant facilities are collectively referred to as the “**Communications Facilities**.” The Communications Facilities shall be identified on the As-Built Drawings.
- 1.5 During any power interruption at the Premises, Verizon shall be permitted at any time during the Term, as defined in Section 2.4, to install, maintain, and/or provide access to and use of, as necessary, a temporary power source and all related equipment and appurtenances within the Premises, or elsewhere on the Property in such locations as approved by West Allis in its sole discretion at the time of installation. Verizon shall have the right to install conduits connecting the temporary power source and related appurtenances to the Premises. Such back up power source shall not be diesel-powered.

ARTICLE 2: TERM

- 2.1 The “**Initial Term**” of this Agreement shall commence on the Effective Date and shall terminate on the fifth anniversary of the Effective Date.
- 2.2 Provided that Verizon is not then in default beyond all applicable notice, cure, and grace periods under this Agreement at the end of the Initial Term or any Renewal Term, this Agreement shall automatically be extended for four additional five-year terms (each a “**Renewal Term**”) unless Verizon terminates the Agreement at the end of the then-current Term by giving West Allis written notice of its intent to terminate at least 120 days prior to the expiration of the then-current Term.
- 2.3 If, at least 120 days prior to the end of the fourth and final five-year Renewal Term, neither Party has given the other Party written notice of its desire that the Agreement terminate at the end of that final Renewal Term, then this Agreement shall continue in force upon the same covenants, terms, and conditions until terminated by either Party by giving to the other Party at least one year’s prior written notice of its intention to so terminate this Agreement.
- 2.4 The Initial Term, each Renewal Term, and all other extensions of this Agreement under Section 2.3 shall be referred to collectively as the “**Term**.”

ARTICLE 3: LICENSE FEE

- 3.1 Commencing on the Effective Date, the annual “**License Fee**” amount shall be **\$35,000.00**, which shall be adjusted annually according to Section 3.2. The License Fee shall be payable to West Allis at its address for notice under Article 15 in advance in equal monthly installments of **\$2,916.67** commencing on the Effective Date and on the first of each month thereafter. The License Fee for any partial month will be prorated. In addition to the annual payment under this paragraph, Verizon shall also pay a one-time commencement fee of **\$15,000** representing full reimbursement to West Allis for any and all fees, professional expenses, reimbursements, and payments required in the Initial Modification, and exclusive of any prior payments or deposits made, which shall be due and payable within sixty (60) days of the full execution of this Agreement by the parties and which shall be non-refundable. This payment shall extinguish West Allis’s authority exclusive of this Agreement to collect and assess any further fees, professional expenses, reimbursements, and payments against Licensee for the Initial Modification.
- 3.2 During the entire Term, the annual License Fee amount shall increase 3 percent over the License Fee in effect the immediately preceding year. Such increase shall be made and adjusted on each anniversary of the Effective Date.
- 3.3 In the event Verizon fails to pay any sums owed to West Allis under this Agreement when due, Verizon shall pay to West Allis a late fee on the total payment due of 1 percent per month.

ARTICLE 4: DISCLAIMERS

- 4.1 Verizon acknowledges and agrees that, in accepting this Agreement, West Allis has made no representations or warranties, express or implied, regarding:
- 4.1.1 The physical condition of the Property or Premises,
 - 4.1.2 The suitability of the Property, Premises, or Easements for Verizon's desired purposes, or
 - 4.1.3 The state of title of the Property.
- 4.2 Verizon acknowledges and agrees that:
- 4.2.1 Verizon is experienced in land acquisition and premises development,
 - 4.2.2 Verizon has conducted or will conduct all necessary and appropriate inspections of the Property, and
 - 4.2.3 Verizon accepts the Property (including the Premises), all structures on the Property, and the Easements in “*as-is, where-is and with all faults*” condition.
- 4.3 ***West Allis makes no warranties or representations regarding Verizon's exclusive use of the Property or noninterference with Verizon's transmission operations or that the***

Premises, Easements, or utilities serving the Premises are fit for Verizon's intended use, and all such warranties and representations are hereby disclaimed.

ARTICLE 5: TAXES/NO LIENS

- 5.1 Verizon shall have the responsibility to pay any personal property taxes, assessments, or charges owed on the Property that are the result of Verizon's use of the Premises and/or the installation, maintenance, and operation of Verizon's Communications Facilities. Verizon shall be responsible for the payment of all taxes, levies, assessments, and other charges imposed upon the business conducted by Verizon at the Property.
- 5.2 Verizon shall have the right, at its sole cost and expense, to appeal, challenge, or seek modification of any tax assessment or billing for which Verizon is wholly or partly responsible to pay.
- 5.3 Verizon shall not permit any claim or lien to be placed against any part of the Property or Tower that arises out of work, labor, material, or supplies provided or supplied to Verizon, its contractors, or their subcontractors for the installation, construction, operation, maintenance, or removal of the Communications Facilities or use of the Premises or Property. Upon 30 days' prior written notice from West Allis, Verizon shall cause any such claim or lien filed by any third party making a claim against, through, by, or under Verizon, to be discharged by bonding or letter of credit to give West Allis security to protect West Allis's interests from the claim or lien. If Verizon elects to obtain a bond, it will be with a company authorized to provide bonds in Wisconsin.

ARTICLE 6: USE/INSTALLATION/APPROVALS/MODIFICATIONS

- 6.1 Use. Verizon shall continuously use the Premises solely for the purpose of constructing, maintaining, repairing, and operating its Communications Facilities (including Verizon's Existing Facilities and additional equipment approved pursuant to Sections 6.3 and 6.4) and uses necessarily incidental to such use. All Communications Facilities shall be installed at Verizon's expense and shall remain the exclusive property of Verizon.
- 6.2 Approvals and Permits. Verizon shall not install any additional Antenna Facilities or otherwise modify the then-existing Communications Facilities or make any additions, alterations, or improvements to the Premises, Easements, or Property without first obtaining all necessary federal, state, and local governmental approvals and permits for such work.
- 6.3 Installation of Initial Modification
- 6.3.1 Prior to commencing construction of the Initial Modification, Verizon shall submit all the following to West Allis:
- 6.3.1.1 *Application.* An Antenna Site Application on a form supplied by West Allis ("**Application**"); the complete and executed Application shall be attached as **Exhibit B-1**.

- 6.3.1.2 *Non-refundable one-time fee.* The required fee, as set forth in Section 3.1 of this Agreement.
- 6.3.1.3 *Construction Drawings.* Detailed construction plans and drawings (“CDs”) for all improvements for West Allis’s written approval, which approval must be obtained before Verizon may commence any construction or installation work on the Property. If West Allis disapproves the CDs, Verizon may provide West Allis with revised plans for West Allis’s review. West Allis’s approval of the CDs shall not be unreasonably withheld, conditioned, or delayed.
- 6.3.1.4 *Radio Frequency Interference Study.* An interference study to determine whether the Antenna Facilities Verizon proposes to install as part of the Initial Modification will interfere with the electronic equipment of West Allis or other communications equipment located on the Tower owned and operated by third parties.
- 6.3.1.5 *Engineering Study/Structural Analysis.* An engineering study and structural analysis to determine whether the proposed installation of the Initial Modification will adversely affect the structural integrity of the Tower.
- 6.3.1.6 *Site Survey.* A site survey as required under Section 1.2.
- 6.3.2 Verizon may not commence any construction work or installation on the Premises until West Allis has marked the CDs for the Initial Modification approved, such approval shall not be unreasonably withheld. The CDs, once approved, shall be attached as **Exhibit C-1**.
- 6.3.3 Verizon’s installation of the Communications Facilities shall be completed in a neat and workmanlike manner in accordance with sound engineering practices, applicable rules, regulations, and laws and in compliance with the approved CDs in **Exhibit C-1**. West Allis, may, at Verizon’s expense, inspect the actual location and installation of all Communications Facilities to ensure compliance with the approved CDs.
- 6.3.4 Verizon, at its expense, and within 90 days after the installation of the Communications Facilities, shall provide to West Allis As-Built Drawings of the Communications Facilities installed on the Premises, which drawings shall show the actual location of all of Verizon’s Communications Facilities located on the Premises (including any of Verizon’s Existing Facilities remaining on the Premises). Such drawings shall be accompanied by a complete and detailed inventory of all of Verizon’s Communications located on the Premises, all of which, when approved by West Allis, shall be attached as **Exhibit D-1**.

6.4 Future Modifications

- 6.4.1 Once the Initial Modification is completed, Verizon shall not add any additional Antenna Facilities or otherwise modify the then-existing Communications Facilities or make any additions, alterations, or improvements to the Premises or Property (“**Modification Project**”), aside from routine maintenance, without first submitting to West Allis:
- 6.4.1.1 *Application.* A new complete and executed Application, which shall be attached as **Exhibit B-2** (subsequent Applications shall be numbered sequentially—e.g., **Exhibit B-3**).
 - 6.4.1.2 *Deposit.* The required deposit, as set forth in the new Application.
 - 6.4.1.3 *Modification Construction Drawings.* Detailed construction plans and drawings for the Modifications (“**Modification CDs**”) for West Allis’s written approval, such approval shall not be unreasonably withheld, but is subject to a commercially reasonable increase in License Fee.
 - 6.4.1.4 *Radio Frequency Interference Study.* An interference study to determine whether the Antenna Facilities Verizon proposes to install as part of the Modification Project will interfere with the electronic equipment of West Allis or other communications equipment located on the Tower owned and operated by third parties.
 - 6.4.1.5 *Engineering Study/Structural Analysis.* An engineering study and structural analysis to determine whether the proposed installation of the Modification Project will adversely affect the structural integrity of the Tower.
 - 6.4.1.6 *Site Survey.* If the proposed Modification Project involves changes to the boundaries of the Land Space and/or Easements, an updated site survey as required under Section 1.2, which, once approved by West Allis, shall replace **Exhibit A-2**.
- 6.4.2 Any Modification Project subject to an increase in the then-current License Fee shall not be installed until the Parties have mutually agreed on the amount of the increase, as reflected in an amendment to this Agreement.
- 6.4.3 Verizon may not commence any construction or installation work until West Allis has marked the Modification CDs approved. The Modification CDs, once approved, shall be attached as **Exhibit C-2** (subsequent Modification CDs shall be numbered sequentially—e.g., **Exhibit C-3**).
- 6.4.4 All Modification Projects shall be constructed in a neat and workmanlike manner in accordance with sound engineering practices, all applicable rules, regulations, and laws, and in strict compliance with the approved Modification CDs.

6.4.5 On making the Modifications, Verizon shall provide to West Allis updated As-Built Drawings in the manner specified in Section 6.3.4, which drawings, when approved by West Allis, shall be attached as **Exhibit D-2** (subsequent As-Built Drawings shall be numbered sequentially—e.g., **Exhibit D-3**).

6.5 Additional Requirements

6.5.1 Once any CDs, Modification CDs, or supplemental materials as may be requested for West Allis's evaluation and written approval for the Modification Project within this Article 6 have been received by West Allis (collectively, the "**Project Plans**"), West Allis shall use reasonable efforts to complete its review and respond to Verizon with its detailed comments, disapproval, or approval of the Project Plans within 30 days.

6.5.2 Any damage done to the Property or the Tower during installation, maintenance, or operation of the Communications Facilities shall be immediately repaired at Verizon's expense and to West Allis's reasonable satisfaction. Verizon shall pay all costs and expenses in relation to maintaining the structural integrity of the Tower in connection with Verizon's installation and operation of the Communications Facilities.

6.6 Review/Inspection. As directed by West Allis, West Allis's consulting engineer shall review and periodically inspect any Modification Project beginning with the pre-construction conference and continuing through installation, construction, punch-list review, and verification of the As-Built Drawings. Before Verizon may energize its system (i.e., start-up), all punch-list items must be substantially completed as reasonably determined by West Allis.

6.7 Replacement/Repair

6.6.1 With the exception of emergencies, Verizon shall submit to West Allis advance written notice of the need for and the nature of any repair of Verizon's existing Antenna Facilities or the replacement of such facilities on a like-for-like basis, using the Antenna Site Service Notice form attached as **Exhibit E** ("**Service Notice**").

6.6.2 Once West Allis receives a complete Service Notice form, West Allis will have 10 business days in which to reject or approve, in writing, the proposed replacement or repair work and to seek additional information, if needed. If West Allis rejects Verizon's Service Notice, Verizon may not proceed with the replacement or repair work without West Allis's written approval, which approval may not be unreasonably withheld, conditioned, or delayed. Verizon may resubmit a revised Service Notice as often as necessary until approved by West Allis.

6.6.3 In the case of an emergency, Verizon shall provide written notice to West Allis describing the replacement or repair, as well an explanation of the reason the repair or replacement constituted an emergency and did not require prior written notice to West Allis, with the written notice being transmitted by Verizon to West Allis

within 24 hours following the emergency replacement or repair. As used in this Agreement, “**emergency**” shall be deemed to exist only in instances in which the emergency conditions constitute an immediate threat to the health or safety of the public or immediate danger to the Tower and its operations.

- 6.6.4 For the sake of clarity, “**like-for-like basis**” means that the existing equipment is replaced with equipment that imposes no greater impact than the existing equipment (e.g., the dimensions are the same or smaller, weight is equal or less, radio frequency interference is equal or less, and that the new equipment is attached in the same manner as the then-existing equipment).

6.8 Responsibility for Costs.

- 6.7.1 Verizon shall reimburse West Allis for all third-party professional costs that West Allis incurs associated with a Project. Such costs shall include payments West Allis makes to West Allis’s technical consultants for their work associated with a Project as well as payments made to outside legal counsel for their work associated with the Project (collectively, “**Professional Costs**”).
- 6.7.2 If the Professional Costs exceed the amount of the deposit required under Section 6.3.1.2 or 6.4.1.2, West Allis shall provide Verizon with a detailed invoice for the excess amount within 30 days of Project Completion. “**Project Completion**” means the point at which West Allis has completed all post-construction inspection, Verizon has completed any and all remedial work to West Allis’s satisfaction, and West Allis has approved in writing Verizon’s As-Built Drawings. Verizon shall pay any such invoice within 30 days of its receipt.
- 6.7.3 If the Professional Costs are less than the amount of the deposit, West Allis shall return such unused amounts within 30 days of Project Completion.
- 6.7.4 Any work performed or service provided by West Allis under this Agreement, the cost of which is Verizon’s responsibility, shall be charged out at West Allis’s annually adopted fully loaded labor rate and transportation rate, which rates shall include a charge for administrative and general costs. West Allis will invoice Verizon for such costs, which invoice shall be due and payable within 30 days of its receipt.

ARTICLE 7: ACCESS

- 7.1 Verizon shall have 24/7 unsupervised access to its Antenna Facilities located on the Land Space portion of the Premises. Verizon may have supervised access to its Antenna Facilities on the Tower by requesting access 48 hours in advance. For instances involving regular maintenance, Verizon shall request access to the Tower by calling (414) 302-8830. If Verizon needs access to the Tower in an emergency, it shall give advance notice to West Allis as soon as reasonably possible by calling (414) 302-8830 between 7:00 a.m. and 3:00 p.m. or (414) 550-7402 between 3:00 p.m. and 7:00 a.m. Verizon shall reimburse West Allis for all costs West Allis incurs in sending its personnel to the Site and in supervising

Verizon's Tower access. West Allis will invoice Verizon for such costs, which invoice shall be due and payable within 30 days of its receipt.

- 7.2 Verizon shall be subject to any and all emergency operation plans adopted by West Allis applicable to the Tower. When accessing the Tower, Verizon's employees, contractors, and agents shall have proper identification. Verizon shall be responsible for maintaining a written record of the names of its employees, contractors, and agents who perform work on the Tower, the nature of the work performed, and the date and time such work is performed. Verizon shall make such records available to West Allis upon request.

ARTICLE 8: INDEMNIFICATION

- 8.1 Indemnification. Verizon, and its employees, agents, and contractors or their subcontractors ("**Indemnifying Parties**") shall defend, indemnify, and hold harmless West Allis and its officers, officials, agents, and employees ("**Indemnified Parties**") against any and all liability, costs, damages, fines, taxes, special charges by others, penalties, payments (including payments made by West Allis under any Worker's Compensation Laws or under any plan for employee disability and death benefits), and expenses (including reasonable attorney's fees of West Allis and all other costs and expenses of litigation) (each a "**Covered Claim**") to the extent that such Covered Claims may be asserted against an Indemnified Party by any person or entity and arise in any way; (including any act, omission, failure, negligence, or willful misconduct;) in connection with the construction, maintenance, repair, presence, removal, or operation of the Communications Facilities by Verizon or another Indemnifying Party, except to the extent West Allis's willful misconduct gives rise to such Covered Claim.

8.2 Procedure for Indemnification

- 8.2.1 West Allis shall give prompt written notice to Verizon of any claim or threatened claim, specifying the factual basis for such claim and the amount of the claim. If the claim relates to an action, suit, or proceeding filed by a third party against West Allis, West Allis shall give the notice to Verizon no later than 15 days after West Allis receives written notice of the action, suit, or proceeding.
- 8.2.2 West Allis's failure to give the required notice will not relieve Verizon from its obligation to indemnify West Allis unless, and only to the extent, that Verizon is materially prejudiced by such failure.
- 8.2.3 Verizon will have the right at any time, by notice to West Allis, to participate in or assume control of the defense of the claim with counsel of its choice, which counsel must be reasonably acceptable to West Allis. West Allis agrees to cooperate fully with Verizon. If Verizon assumes control of the defense of any third-party claim, West Allis shall have the right to participate in the defense at its own expense. If Verizon does not assume control or otherwise participate in the defense of any third-party claim, Verizon shall be bound by the results obtained by West Allis with respect to the claim.

- 8.2.4 If Verizon assumes the defense of a third-party claim as described above, then in no event will West Allis admit any liability with respect to, or settle, compromise, or discharge, any third-party claim without Verizon's prior written consent.
- 8.2.5 Verizon shall take prompt action to defend and indemnify the Indemnified Parties against Covered Claims, actual or threatened, but in no event later than notice by West Allis to Verizon of the service of a notice, summons, complaint, petition, or other service of a process against an Indemnified Party relating to a Covered Claim attributed in any way to the Agreement; the work to be performed under this Agreement; or the acts, fault, negligence, equipment, materials, properties, facilities, personnel, or property of Verizon or other Indemnifying Party. Verizon shall defend any such claim or threatened claim, including as applicable, engagement of legal counsel, to respond to, defend, settle, or compromise any claim or threatened claim.
- 8.3 Verizon understands and agrees it is responsible for any and all costs and expenses incurred by West Allis to enforce this indemnification provision.

ARTICLE 9: INSURANCE

- 9.1 **Policies Required.** At all times during the Term of this Agreement, Verizon shall keep in force and effect all insurance policies as described below. It is the intent of both Parties that the liability insurance in place in accordance with the provisions of this Article 9 shall be primary insurance and shall protect both Verizon and West Allis from losses caused, in whole or in part, from the performance of this Agreement.
- 9.1.1 *Worker's Compensation and Employers' Liability Insurance.* Statutory worker's compensation benefits and employers' liability insurance with a limit of liability of **\$1,000,000** each accident each accident/disease/policy limit. To the extent allowed by law, this policy shall include a waiver of subrogation with respect to West Allis.
- 9.1.2 *Commercial General Liability Insurance.* As per ISO Form or equivalent, policy will be written to include coverage for premises-operations, products and completed operations, personal and advertising injury, contractual liability, independent contractor's coverage, and coverage for property damage from perils of explosion, collapse, or damage to underground utilities (commonly known as XCU coverage). Limits of liability shall be **\$6,000,000** per occurrence for bodily injury and property damage and **\$6,000,000** general aggregate, **\$6,000,000** products/completed operations aggregate, **\$6,000,000** personal and advertising injury.
- 9.1.3 *Automobile Liability Insurance.* Commercial automobile policy covering all owned, hired, and non-owned vehicles. Limits of liability shall be **\$6,000,000** combined single limit each accident for bodily injury and property damage.
- 9.1.4 *Property Insurance.* Each Party to this Agreement will be responsible for maintaining property insurance on its own facilities, buildings, and other improvements, including all equipment, fixtures, and utility structures, fencing, or support systems that may be placed on, within, or around West Allis's Facilities to

fully protect against hazards of fire, vandalism and malicious mischief, and such other perils as are covered by policies of insurance commonly referred to and known as “extended coverage” insurance, or shall self-insure such exposures.

- 9.2 Self-Insurance. Notwithstanding the foregoing, Verizon may self-insure all or a portion of the insurance coverage and limit requirements required in this Agreement. In the event Verizon elects to self-insure its obligation to include West Allis as an additional insured, the following provisions shall apply in addition to those set forth in this Article 9: (i) Verizon or its parent company shall have and continuously maintain a tangible net worth of at least **\$200,000,000**; (ii) Verizon shall continuously maintain appropriate loss reserves for the amount of its self-insurance obligations under this Section 9.2, which reserves shall be annually approved by Ernst & Young, or any successor auditing company; (iii) Verizon shall undertake the defense of any self-insured claim for which a defense and/or coverage would have been available from the insurance company, including a defense of West Allis, at Verizon’s sole cost and expense, with counsel selected by Verizon and reasonably acceptable to West Allis; (iv) Verizon shall use its own funds to pay any claim or replace property or otherwise provide the funding which would have been available from insurance proceeds but for Verizon’s election to self-insure; (v) Verizon shall pay any and all amounts due in lieu of insurance proceeds which would have been payable if Verizon had carried the insurance policies, which amounts shall be treated as insurance proceeds for all purposes under this Agreement; and (vi) all amounts that Verizon pays or is required to pay and all loss or damages resulting from risks for which Verizon has elected to self-insure shall not limit Verizon’s indemnification obligations set forth in this Agreement. If Verizon self-insures, it will not be required, to the extent of the self-insurance, to name West Allis as an Additional Insured, as otherwise required in this Article 9.
- 9.3 Qualification/Priority/Contractors’ Coverage. The insurer must be authorized to do business under the laws of the State of Wisconsin and have an “A-” or better rating in Best’s Guide. All contractors and all of their subcontractors who perform work on behalf of Verizon shall carry, in full force and effect, substantially the same insurance with substantially the same limits as required of Verizon. Prior to any such contractor or its subcontractors performing any work for Verizon under this Agreement, Verizon shall furnish West Allis with a certificate of insurance for each such contractor or subcontractor.
- 9.4 Certificate of Insurance/Other Requirements
- 9.4.1 Upon the execution of this Agreement, annually thereafter, and within 30 days of the expiration or renewal of any liability policies required by this Agreement, Verizon will furnish West Allis with certificates of insurance and policy endorsements evidencing the required coverage. The certificates shall reference this Agreement and the worker’s waivers of subrogation required by this Agreement. The certificates of insurance and endorsements shall be attached as **Exhibit F**, which shall be updated annually.
- 9.4.2 West Allis and its officers, officials, and employees shall be included as an **“Additional Insured”** as their interests may appear under this Agreement under all

of the required policies, except worker's compensation and employer's liability, which shall be so stated on the certificate of insurance.

9.4.3 All policies, other than worker's compensation, shall be written on an occurrence, and not on a claims-made, basis.

9.5 Prohibited Exclusions. No policies of insurance required to be obtained by Verizon or its contractors or subcontractors shall contain provisions that exclude:

9.5.1 Coverage of liability arising from excavating, collapse, or underground work, or

9.5.2 Coverage for injuries to West Allis's employees or agents.

9.6 Reports. Verizon shall promptly furnish West Allis with copies of any accident or incident report(s) sent to Verizon's insurance carriers covering accidents/incidents occurring in connection with and/or as a result of the performance of the work under this Agreement.

ARTICLE 10: LIMITATION OF LIABILITY

10.1 West Allis reserves to itself the right to maintain and operate the Tower and Property in the manner that will best enable it to fulfill its water utility service requirements. Verizon agrees to use the Property and Tower at its sole risk. Notwithstanding the foregoing, West Allis shall exercise reasonable precaution to avoid damaging Verizon's Communications Facilities and shall report to Verizon the occurrence of any such damage caused by West Allis. Subject to Section 10.2, West Allis agrees to reimburse Verizon for all reasonable costs Verizon incurs for the physical repair of its Communications Facilities to the extent damaged by West Allis's negligence or willful misconduct.

10.2 No provision of this Agreement is intended, nor shall be construed, to be a waiver for any purpose of any provision of Wis. Stat. §§ 893.80 or 345.05 or any other notice requirements, governmental immunities, or damages limitations that may apply to West Allis, its employees, officials, or agents.

ARTICLE 11: INTERFERENCE

11.1 Verizon agrees to install only equipment of the type and frequency that will not cause harmful interference measurable in accordance with then-existing industry standards to any equipment of West Allis (whenever installed) or preexisting radio frequency users on the Property, as long as those preexisting radio frequency user(s) operate and continue to operate within their respective frequencies and in accordance with all applicable laws and regulations.

11.2 Verizon's installation, operation, maintenance, and use of its Communications Facilities shall not damage or adversely interfere in any way with West Allis's communications equipment or its water utility operations, including the Tower and its related repair and maintenance activities. West Allis, at all times during this Agreement, reserves the right to take any action it deems necessary, in its sole discretion, to repair, maintain, alter, or improve the Tower as may be necessary in order to carry out any such activities. West Allis agrees

to give at least 120 days' advance notice of such activities to Verizon, except in the case of an emergency, in which case West Allis shall notify Verizon as soon as reasonably possible. West Allis will permit Verizon, at Verizon's sole cost and expense, to place a cell tower on wheels ("COW") on the Property in a mutual agreeable location for the duration of the disruption. West Allis agrees to reasonably cooperate with Verizon to carry out such activities with a minimum amount of disruption to Verizon's transmission operations.

- 11.3 In the event any equipment installed by Verizon causes interference to West Allis's then-existing (i.e., at the time of the interference) equipment on the Property, and after West Allis has notified Verizon in writing of such interference, Verizon will immediately take all commercially reasonable steps necessary to correct and eliminate the interference, including, but not limited to, powering down such equipment and later powering up such equipment for intermittent testing.
- 11.4 West Allis agrees that other licensees or lessees on the Tower who currently or in the future have use of the Tower will be permitted to install only such equipment that is of the type and frequency that will not cause harmful interference, which is measurable in accordance with then-existing industry standards, to Verizon's then-existing equipment on the Tower.
- 11.5 Notwithstanding the above, West Allis agrees that each of its agreements with other future Tower users shall contain a provision substantially the same as Section 11.1 and that West Allis shall enforce such provisions in a nondiscriminatory manner with respect to all of its licensees or lessees. West Allis further agrees that West Allis and its employees, contractors, and agents shall use reasonable efforts, consistent with Section 11.2, not to cause interference with the operation of Verizon's Communications Facilities.
- 11.6 The Parties acknowledge that there will not be an adequate remedy at law for noncompliance with the provisions of this Article 11 and, therefore, either Party shall have the right to equitable remedies, such as, without limitation, injunctive relief, and specific performance.
- 11.7 In addition to all other remedies available to Verizon, in the event the equipment or activities of existing lessees/licensees or West Allis are causing interference to Verizon's Communications Facilities and such interference is not eliminated within 7 days after written notice to West Allis from Verizon, then Verizon shall have the right to terminate this Agreement.
- 11.8 For the purposes of this Agreement, "**interference**" may include, but is not limited to, any use of the Property that causes electronic interference with or physical obstruction or, or degradation of, the communications signals from the facilities of any permitted users of the Property.

ARTICLE 12: TOWER/PROPERTY MAINTENANCE

- 12.1 Antenna Facilities Remain in Place. The following process shall be followed when the Tower is to be painted and/or reconditioned and West Allis, in its sole discretion,

determines that it is reasonable to keep all or any portion of the Antenna Facilities in place while such work is performed.

12.1.1 West Allis shall notify Verizon prior to the end of any calendar year during which West Allis has planned and budgeted for Tower painting and/or reconditioning in the subsequent year and shall further notify Verizon at least 90 days in advance of the week when the work on the Tower is to be scheduled.

12.1.2 West Allis shall use the following method to determine the impact of the Antenna Facilities on the cost of painting the Tower:

12.1.2.1 The painting contractor will bid on the cost of painting the Tower both with and without the Antenna Facilities. The contractor will then proceed to paint the Tower with the Antenna Facilities left in place.

12.1.2.2 Verizon shall be responsible for the difference between the two bids and shall pay any such invoice therefor within 30 days of its receipt.

12.2 Temporary Relocation of Antenna Facilities. When, in West Allis's sole discretion, maintenance, repair, repainting, restoration, or other such activity with respect to the Tower requires the Antenna Facilities to be temporarily relocated, West Allis shall give Verizon at least 6 months' prior written notice of the date such work has been scheduled. Within that 6-month period, Verizon shall relocate its equipment on a temporary basis to another location on the Property. If Verizon requires the use of a COW, West Allis shall permit Verizon, at Verizon's sole expense, to place a COW on the Property in a location mutually agreed upon by West Allis and Verizon. Verizon shall cooperate with West Allis regarding the placement of the COW on the Property.

12.3 Temporary Emergency Relocation. In case of an emergency that requires removal of Verizon's Antenna Facilities, West Allis shall provide advance telephone notice to Verizon as soon as practical by calling its 24 hours a day, 7 days a week Network Operations Center (NOC) at **(800) 264-6620**. Verizon shall respond within six (6) hours of the call after which the parties shall work together to effectuate the prompt temporary emergency relocation. In the event the use of Verizon's Antenna Facilities is interrupted, Verizon shall have the right to maintain a COW temporarily on the Property in a location approved by West Allis. If the Property will not accommodate a COW, it is Verizon's responsibility to locate alternative sites. If Verizon does not respond within six (6) hours of the call or is unable to remove its Antenna Facilities within a reasonable time depending upon the nature of the emergency, West Allis may cause the Antenna Facilities to be removed.

12.4 Premises Maintenance. Verizon will keep and maintain the Premises, including the Land Space, in good condition, reasonable wear and tear, and damage from the elements excepted. No materials may be used in the installation of the Antenna Facilities or transmission lines that will cause corrosion or rust or deterioration of the Tower structure or its appurtenances. All Antenna Facilities on the Tower must be identified by a marking fastened securely to its bracket on the Tower and all transmission lines must be tagged at the conduit opening where they enter Verizon's equipment shelter.

- 12.5 Compliance with Laws. Verizon, at its expense, shall diligently, faithfully, and promptly wholly obey and conform with all federal, state, and local orders, rules, regulations, and laws, including all Federal Communications Commission (“FCC”) and Federal Aviation Administration (“FAA”) rules, in relation to any of its business activities or other operations conducted upon, above, or adjacent to the Property and including the American National Standards Institute’s (“ANSI”) “Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields” as set forth in the current ANSI standard or any FCC standard which supersedes that standard or any Environmental Protection Agency rules or regulations that may hereinafter be adopted which supersede this standard. In addition, Verizon shall adhere to all Occupational Safety and Health Administration safety requirements. Verizon shall provide to West Allis a copy of any written notice received by Verizon from any governing authority regarding non-compliance with any federal, state, or local order, rule, regulation, or law within 30 days of Verizon’s receipt of such notice of non-compliance. Any fines or penalties imposed for improper or illegal operation of Verizon’s Communications Facilities shall be Verizon’s sole responsibility.
- 12.6 FAA Compliance. Verizon shall be solely responsible for taking all steps necessary to ensure that, in installing its Communications Facilities on the premises, the Tower remains in compliance with any and all applicable FAA regulations. Notwithstanding anything to the contrary in this Agreement, if Verizon’s Communications Equipment causes the Tower to fall out of compliance with FAA regulations, Verizon shall be solely responsible for any and all costs associated with bringing the Tower into compliance, including, among other things, installing and maintaining any lighting equipment that may be required.
- 12.7 Advertisements. Verizon shall not advertise on the Property or on any structure on the Property, except for company identification as required by FCC regulation.

ARTICLE 13: REMOVAL/BOND

- 13.1 Upon termination or expiration of this Agreement, Verizon shall have 90 days to remove the Communications Facilities from the Property, except underground utilities, which Verizon shall disconnect, and foundations, which shall be removed to a depth of 4 feet below grade, and shall restore the Tower and the Property to the condition they were in on the Effective Date, ordinary wear and tear and loss by casualty or other causes beyond Verizon’s control excepted, all at Verizon’s sole cost and expense. Before removing any part of its Antenna Facilities from the Tower upon termination or expiration of this Agreement, Verizon agrees on behalf of itself and its successors and assigns to provide West Allis with reasonable advance notice of its intentions to remove such facilities and agrees to coordinate such removal with West Allis.
- 13.2 On or before the Effective Date, Verizon shall provide to West Allis a bond with an entity and in a form satisfactory to the City Attorney for West Allis. The initial amount of the bond shall be **\$35,000.00**, the bond shall be renewed annually at an amount that is 3 percent greater than the amount in the preceding year, and the bond shall be kept in full force so long as the Communications Facilities are on the Premises. The purpose of the bond is to ensure the removal of the Communications Facilities (and any other equipment or

improvements of Verizon) and the restoration of the Property at the termination or expiration of this Agreement.

- 13.3 In the event that Verizon fails to comply with the removal and restoration requirements of this Agreement, West Allis shall have the right, using its own personnel or a contractor, to perform such removal and restoration, and Verizon agrees to reimburse West Allis for West Allis's actual costs of such removal and restoration within 60 days of receiving an invoice therefor. If Verizon fails to reimburse West Allis within such 60-day period, then West Allis may go against the bond referenced in Section 13.2.
- 13.4 In the event West Allis does not exercise its right of removal under Section 13.3 and Verizon fails to completely remove its Communications Facilities from the Premises, or fails to restore the Tower and Property as required, Verizon shall continue to pay a License Fee equal to 150% of the License Fee in effect during the last month of the Term, prorated for each and every day of every month during which any part of Verizon's Communications Facilities remains on the Property. Whether or not any or all of the Communications Facilities are in use or functioning shall not be considered a factor when determining Verizon's payment obligations under this Article 13.

ARTICLE 14: ASSIGNMENT/NO SUBLICENSING

- 14.1 Without West Allis's approval or consent, this Agreement may be sold, assigned, or transferred to (i) any entity in which Verizon directly or indirectly holds an equity or similar interest; (ii) any entity which directly or indirectly holds an equity or similar interest in Verizon; or (iii) any entity directly or indirectly under common control with Verizon. Verizon may assign this Agreement to any entity which acquires all or substantially all of Verizon's assets in the market defined by the Federal Communications Commission in which the Property is located by reason of a merger, acquisition, or other business reorganization without approval or consent of West Allis. As to other parties, this Agreement may not be sold, assigned, or transferred without West Allis's written consent, which consent will not be unreasonably withheld, delayed, or conditioned. No change of stock ownership, partnership interest, or control of Verizon or transfer upon partnership or corporate dissolution of Verizon shall constitute an assignment hereunder.
- 14.2 No assignment or transfer under this Agreement shall be effective until the assignee or transferee agrees in writing to assume all the obligations of Verizon arising under this Agreement. Verizon shall furnish West Allis with prior written notice of the transfer or assignment, together with the name and address of the transferee or assignee.
- 14.3 Nothing contained in this Agreement shall be deemed expressly or by implication to give Verizon any right or power to mortgage West Allis's fee or any other interest of West Allis's in or to the Premises or the Property.

ARTICLE 15: NOTICES

- 15.1 All notices hereunder must be in writing and shall be deemed validly given if sent by certified mail, return receipt requested or by commercial courier, provided the courier's regular business is delivery service and provided further that it guarantees delivery to the

addressee by the end of the next business day following the courier's receipt from the sender, addressed as follows (or to any other address that the Party to be notified may have designated to the sender by like notice):

West Allis: West Allis Water Utility
7525 West Greenfield Avenue
West Allis, WI 53214

With a copy to: West Allis City Attorney
7525 West Greenfield Avenue
West Allis, WI 53214

Verizon Wireless
180 Washington Valley Road
Bedminster, New Jersey 07921
Attention: Network Real Estate

With a copy to: TBD

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

15.3 Telephone numbers and email addresses for the Parties are as follows:

West Allis: (414) 302-8830

water@westalliswi.gov

Verizon: () ____ - ____ (TBD)

_____ @ _____ (TBD)

15.4 Except where otherwise provided, a telephone call or email will not constitute notice. In case of emergency, each Party will attempt to contact the other Party in the most expeditious manner possible.

ARTICLE 16: ENVIRONMENTAL

16.1 Verizon shall use its best efforts to ensure that its use of the Property will not generate any Hazardous Substances. Verizon agrees that it will not store or dispose of on the Property or transport to or over the Property any Hazardous Substances and that its Communications Facilities do not constitute or contain and will not generate any Hazardous Substance in violation of state or federal law now or hereafter in effect, including any amendments. West Allis will otherwise be responsible for addressing any environmental condition on the Property except to the extent the condition is caused by Verizon.

- 16.2 “**Hazardous Substances**” shall be interpreted broadly to mean any substance or material designated or defined as hazardous or toxic waste, hazardous or toxic material, hazardous or toxic or radioactive substance, or other similar term by any federal, state, or local laws, regulations, or rules now or hereafter in effect, including any amendments.

ARTICLE 17: CASUALTY/DECOMMISSIONING

- 17.1 If the Tower is damaged for any reason, other than by reason of the willful misconduct or negligence of Verizon, its employees, contractors, or agents, so as to render it substantially unusable for Verizon’s intended use, the License Fee shall abate until West Allis, at West Allis’s expense and option, restores the Tower to its condition prior to such damage. If West Allis elects not to restore the Tower, it shall give Verizon written notice of such election and of the immediate termination of the Agreement.
- 17.2 In the event Verizon is unable to install a COW or its functional equivalent in a mutually agreed upon location for Verizon’s use during the Tower repairs or West Allis does not begin Tower repairs within 14 business days following the date the Tower was damaged, Verizon shall have the right to terminate this Agreement by giving West Allis written notice thereof, as long as Verizon has not resumed operations upon the Property.
- 17.3 West Allis, in its absolute discretion, may decommission and dismantle the Tower at any time. West Allis shall give Verizon 365 days’ prior written notice of the date by which its Communications Facilities must be removed from the Property in accordance with Article 13. This Agreement will terminate at the end of the 365-day notice period or whatever longer time to which the Parties may agree.

ARTICLE 18: DEFAULT/REMEDIES

- 18.1 The following will be deemed a default by Verizon and a breach of this Agreement:
- 18.1.1 The License Fee or other sum owed to West Allis remains unpaid for more than 20 days after receipt of written notice from West Allis of such failure to pay; or
- 18.1.2 Verizon’s failure to perform any other term or condition or failure to correct Verizon’s breach of any warranty or covenant under this Agreement within 30 days after receipt of written notice from West Allis specifying the failure.
- 18.2 No such failure by Verizon under Section 18.1.2, however, will be deemed to exist if Verizon has commenced to cure such default within such 30-day period and provided that such efforts are prosecuted to completion with reasonable diligence. Delay in curing a default will be excused if due to causes beyond Verizon’s reasonable control. If Verizon remains in default beyond any applicable cure period, West Allis will have any and all rights available to it under law and equity.
- 18.3 In the event of any default by Verizon, West Allis, in addition to all other rights and remedies available to West Allis at law or equity, shall have the right to serve a written notice upon Verizon that West Allis elects to terminate this Agreement upon a specified date not less than 10 days but no more than 30 days after the date of serving such notice,

and this Agreement shall terminate on the date so specified as if that date had been originally fixed as the termination date of the Term granted. In the event this Agreement is so terminated, Verizon shall immediately pay to West Allis a sum of money equal to the total of any unpaid consideration accrued through the date of termination.

18.4 The following will be deemed a default by West Allis and a breach of this Agreement:

18.4.1 West Allis's failure to provide access to the Premises within 48 hours of a request for access under Article 7.

18.4.2 West Allis's failure to perform any other term or condition or failure to correct West Allis's breach of any warranty or covenant under this Agreement within 30 days after receipt of written notice from Verizon specifying the failure.

18.5 No failure of West Allis under Section 18.4.2, however, will be deemed to exist if West Allis has commenced to cure the default within such 30-day period and provided such efforts are prosecuted to completion with reasonable diligence. Delay in curing a default will be excused if due to causes beyond West Allis's reasonable control. If West Allis remains in default beyond any applicable cure period, Verizon will have any and all rights available to it under law and equity.

18.6 Verizon's sole remedy for West Allis's failure to provide access timely is the right to seek specific performance.

ARTICLE 19: AUTHORITY

19.1 Each Party warrants to the other that the person or persons executing this Agreement on the Party's behalf have the full right, power, and authority to enter into and execute this Agreement on such Party's behalf.

19.2 The Parties agree that this Agreement is not binding on either Party until fully executed and delivered.

19.3 The Parties agree that West Allis has proprietary ownership rights and control over the Property and the Tower. The Parties agree that FCC 18-133, Section 6409 of the Middle Class Tax Relief and Job Creation Action (47 U.S.C. § 1455) and other state or federal orders, rulings, and laws governing West Allis's regulatory functions do not limit West Allis's authority as to this Agreement.

ARTICLE 20: ADDITIONAL PROVISIONS

20.1 Compliance with Laws. During the Term, West Allis and Verizon shall conduct their activities at the Property and the Tower so as to comply with all applicable laws, rules, regulations, ordinances, directives, covenants, easements, permits, zoning and land use regulations, restrictions of record, and building codes, and the requirements of any applicable fire insurance underwriter or rating bureau, now in effect or which may hereinafter come into effect (including, without limitation, the Americans with Disabilities act and laws relating to Hazardous Substances).

- 20.2 Recording and Further Assurances. West Allis and Verizon agree to execute a Memorandum of this Agreement in the form attached as **Exhibit G**, which Verizon shall record with the appropriate recording officer, within 30 days of the Effective Date. West Allis and Verizon agree as part of the basis of their bargain for this Agreement to cooperate fully in executing any and all documents (including amendments to this Agreement) necessary to correct any factual or legal errors, omissions, or mistakes, and to take any and all additional action that may be necessary or appropriate to give full force and effect to the terms and intent of this Agreement.
- 20.3 Subordination and Non-Disturbance. West Allis agrees that if the Property is or becomes encumbered by a deed to secure a debt, mortgage, or other security interest, West Allis will provide promptly to Verizon a mutually agreeable subordination, non-disturbance, and attornment agreement.
- 20.4 Survival. The provisions of the Agreement relating to indemnification and insurance shall survive any termination or expiration of this Agreement. Additionally, any provisions of this Agreement that require performance subsequent to the termination or expiration of this Agreement shall also survive such termination or expiration.
- 20.5 Governing Law. This Agreement and the performance thereof shall be governed, interpreted, construed, and regulated by the laws of the State of Wisconsin, without regard to its conflict of law provisions.
- 20.6 Entire Agreement. This Agreement, including its recitals and exhibits, contains all agreements, promises, and understandings between West Allis and Verizon with respect to the subject matter of this Agreement, and no verbal or oral agreements, promises, or understandings shall be binding upon either West Allis or Verizon in any dispute, controversy, or proceeding at law.
- 20.7 Quiet Enjoyment. West Allis covenants that Verizon, on paying the License Fee and performing the covenants herein, shall peaceably and quietly have, hold, and enjoy the Premises.
- 20.8 Amendment. Any amendment or modification of this Agreement shall be void and ineffective unless made in writing and signed by both Parties.
- 20.9 Severability. In the event any provision of the Agreement is found to be invalid or unenforceable, such finding shall not affect the validity and enforceability of the remaining provisions of this Agreement.
- 20.10 No Waiver. The failure of either Party to insist upon strict performance of any of the terms or conditions of this Agreement or to exercise any of its rights under the Agreement shall not waive such rights and such Party shall have the right to enforce such rights at any time and take such action as may be lawful and authorized under this Agreement, in law or in equity.
- 20.11 Successors. This Agreement shall extend to and bind the heirs, personal representatives, successors, and permitted assigns of the Parties.

The Parties have formed this Agreement as of the Effective Date.

[SIGNATURE PAGE FOLLOWS]

City of West Allis, Wisconsin

**Verizon Wireless Personal
Communications LP d/b/a Verizon
Wireless**

By: _____

By: _____

Print Name: _____

Print Name: _____

Title: _____

Title: _____

Date: _____

Date: _____

EXHIBIT A-1

LEGAL DESCRIPTIONS

Property

[Verizon to Provide]

Land Space

[Verizon to Provide]

Easements

[Verizon to Provide]

EXHIBIT A-2

SITE SURVEY

[Verizon to Provide]

EXHIBIT B-1

ANTENNA SITE APPLICATION

[City to Provide]

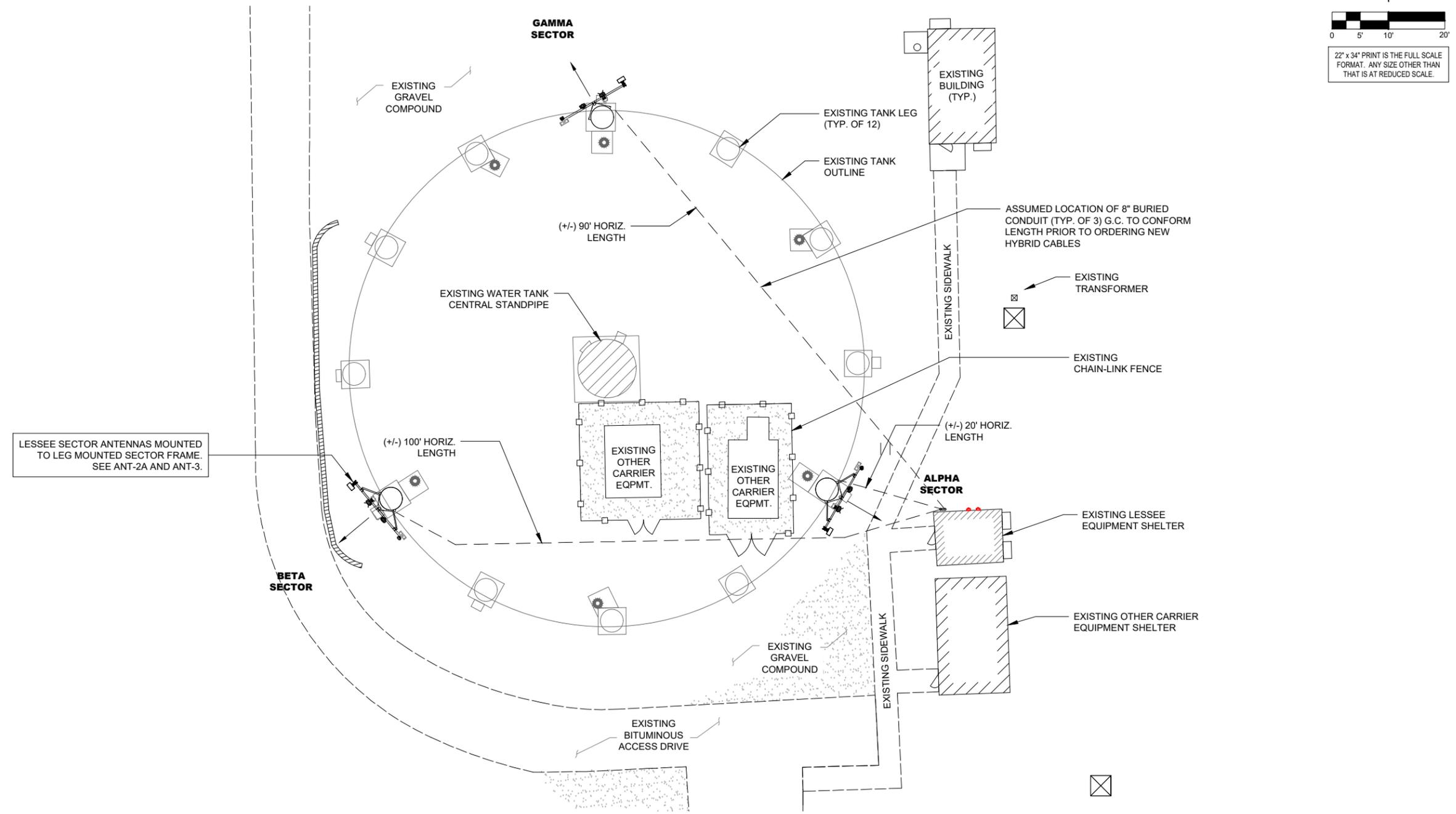
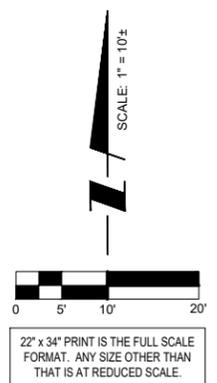
EXHIBIT C-1

APPROVED CONSTRUCTION DRAWINGS

2.

G.C. TO COORDINATE W/ LESSEE COMPLIANCE, CONSTRUCTION & RF MANAGER FOR PROPER INSTALLATION OF RF SIGNAGE & CHAIN BARRIERS

PER EME STUDY, INSTALL NOC RF SIGNAGE AT WT ACCESS LADDER



LESSEE SECTOR ANTENNAS MOUNTED TO LEG MOUNTED SECTOR FRAME. SEE ANT-2A AND ANT-3.

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

1 SITE LAYOUT

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

TERRA
 CONSULTING ENGINEERS, P.C.
 600 BUSSE HIGHWAY
 PARK RIDGE, IL 60068
 PH: 847-698-6400
 FAX: 847-698-6401

REVISIONS		BY	TH	RA	KSS	RA
NO.	DESCRIPTION	DATE				
1.	ISSUED FOR REVIEW	02/11/2021				
2.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	04/28/2021				
3.	ISSUED FOR FINALS	12/02/2021				
	REVISED PER UPDATED MOUNT MODIFICATIONS	09/28/2022				

LOC. # 113278
 WEST ROGERS
 WT

11515 W ROGERS ST
 MILWAUKEE, WI 53227

DRAWN BY:	TH
CHECKED BY:	AU
DATE:	02/11/21
PROJECT #:	124-878

SHEET TITLE
 SITE LAYOUT

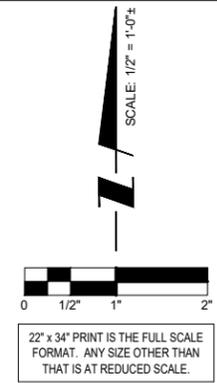
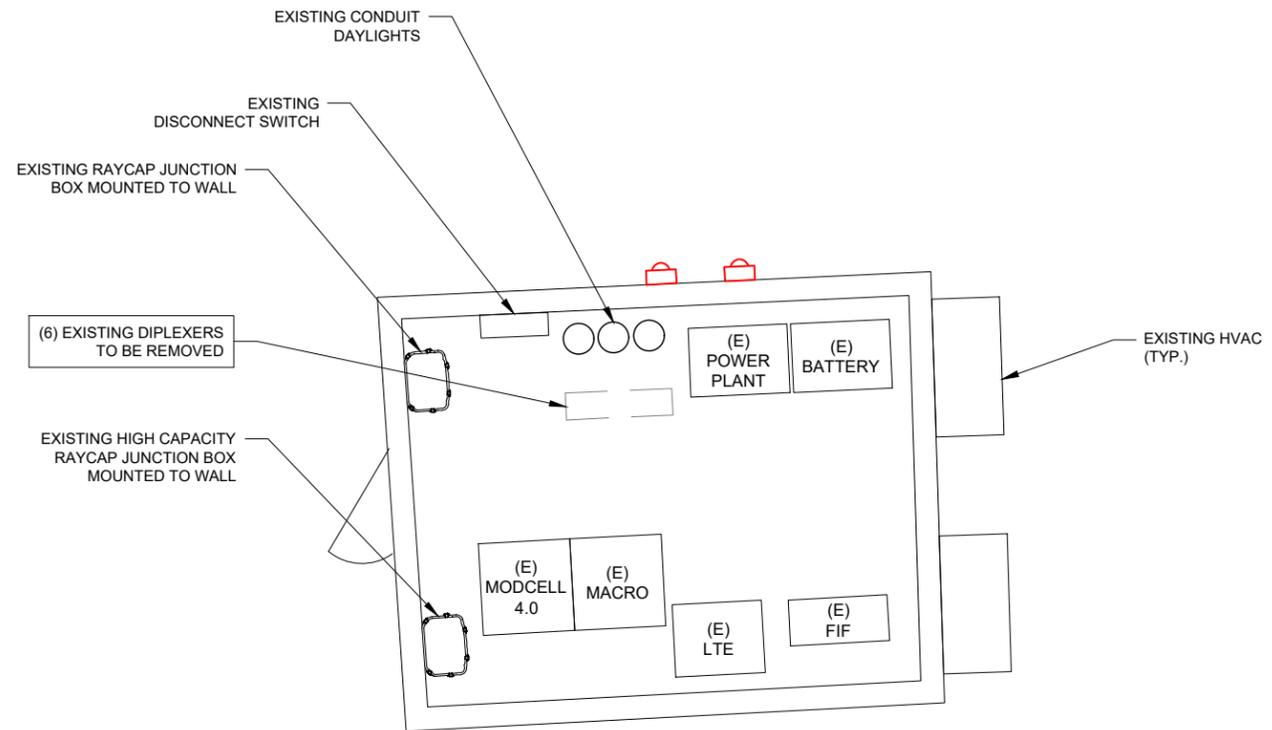
SHEET NUMBER
C-1



A EXISTING RAYCAP JUNCTION BOX IN SHELTER
SCALE: N.T.S.



B EXISTING RAYCAP JUNCTION BOX IN SHELTER
SCALE: N.T.S.



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.

1 SHELTER LAYOUT

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

TERRA
CONSULTING ENGINEERS, P.C.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS		BY	TH	RA	KSS
NO.	DESCRIPTION	DATE			
1.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	02/11/2021			
2.	ISSUED FOR FINALS	04/28/2021			
3.	REVISED PER UPDATED MOUNT MODIFICATIONS	12/02/2021			
		09/28/2022			

LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY: TH
CHECKED BY: AU
DATE: 02/11/21
PROJECT #: 124-878

SHEET TITLE
SHELTER LAYOUT

SHEET NUMBER
A-1

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

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

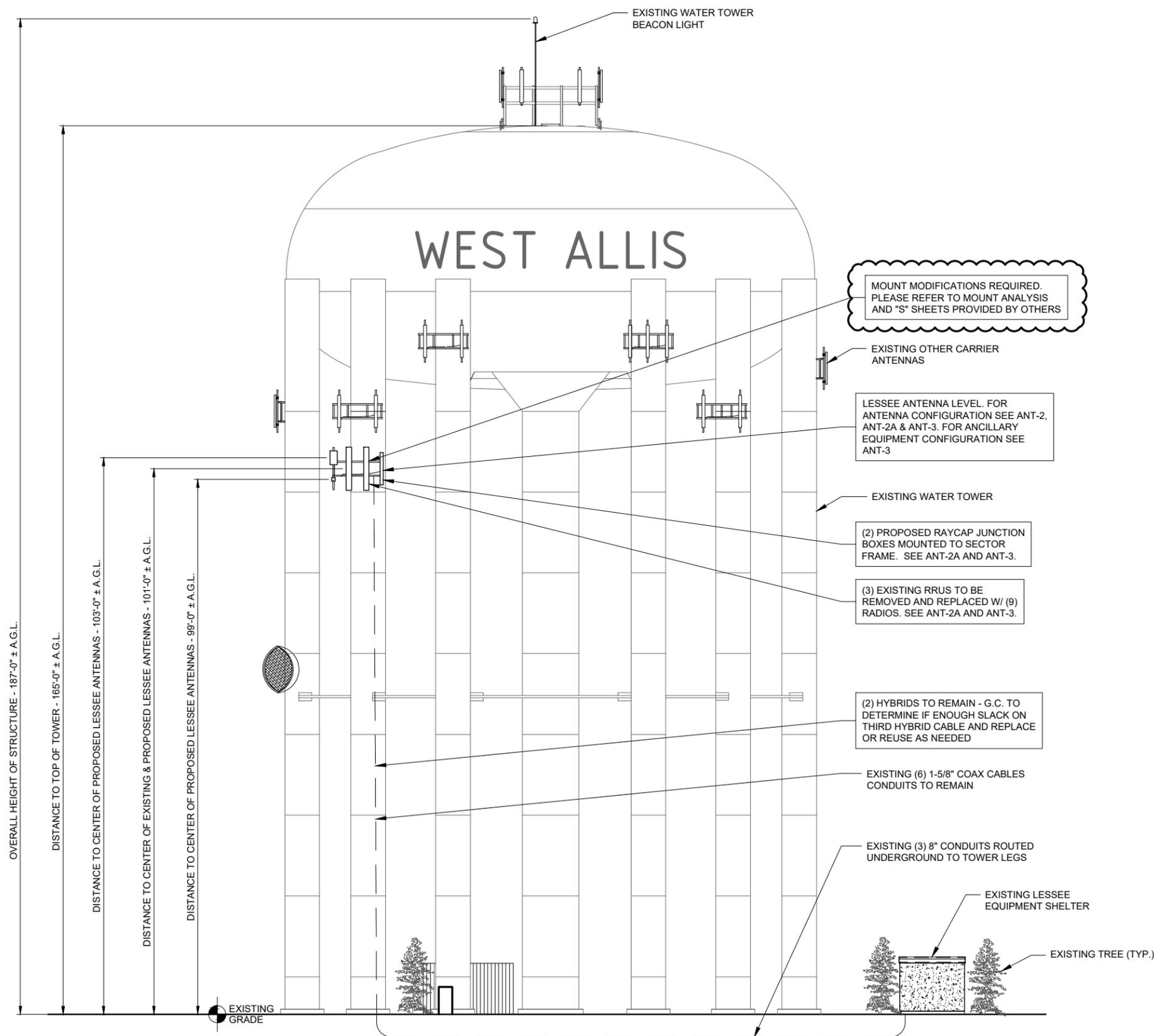
MOUNT MODIFICATIONS REQUIRED. NO ANTENNA WORK TO BEGIN PRIOR TO COMPLETION OF REINFORCEMENT INSTALLATION.

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

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

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



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

1 NORTH ELEVATION
SCALE: 3/32" = 1'-0" ±

REVISIONS		NO.	DESCRIPTION	DATE	BY	TH	RA	KSS	RA
		1.	ISSUED FOR REVIEW	02/11/2021					
		2.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	04/28/2021					
		3.	ISSUED FOR FINALS	12/02/2021					
			REVISED PER UPDATED MOUNT MODIFICATIONS	09/28/2022					

LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY: TH
CHECKED BY: AU
DATE: 02/11/21
PROJECT #: 124-878

SHEET TITLE
SITE
ELEVATION

SHEET NUMBER
ANT-1

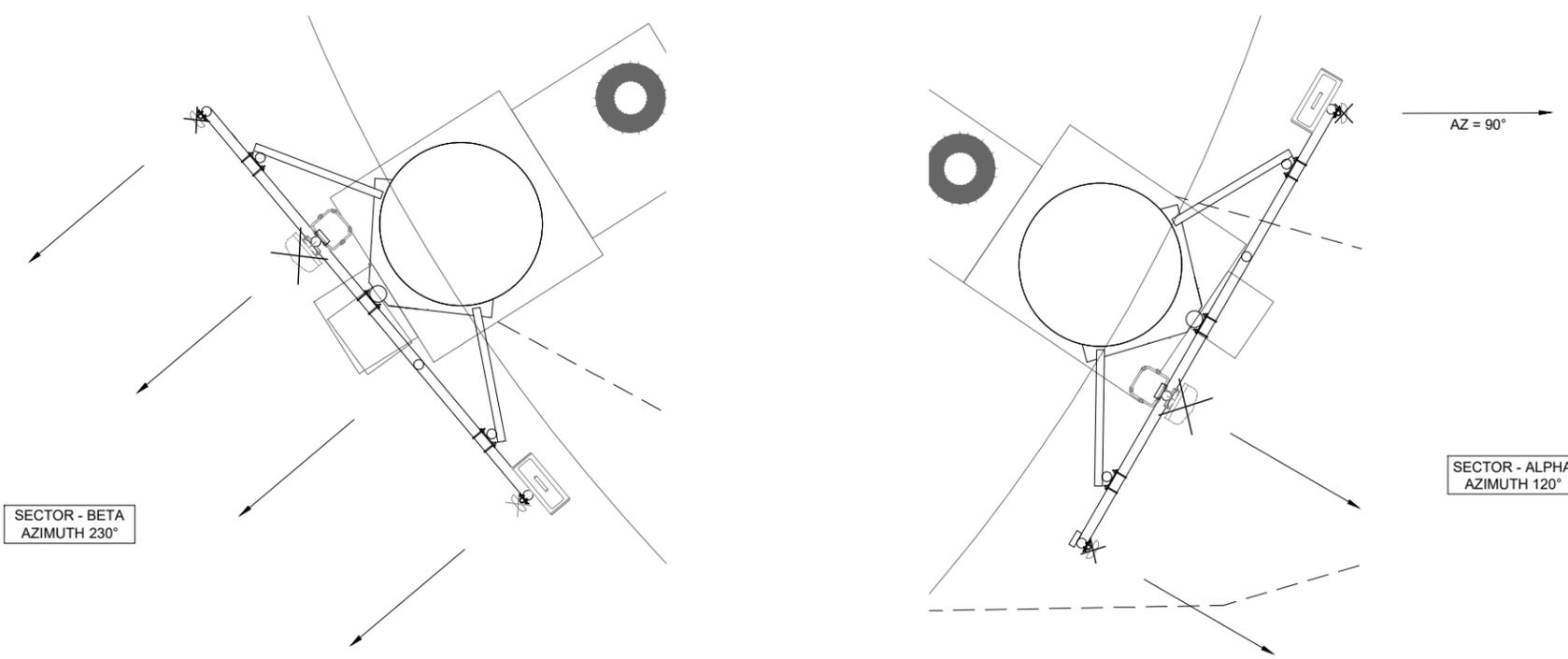
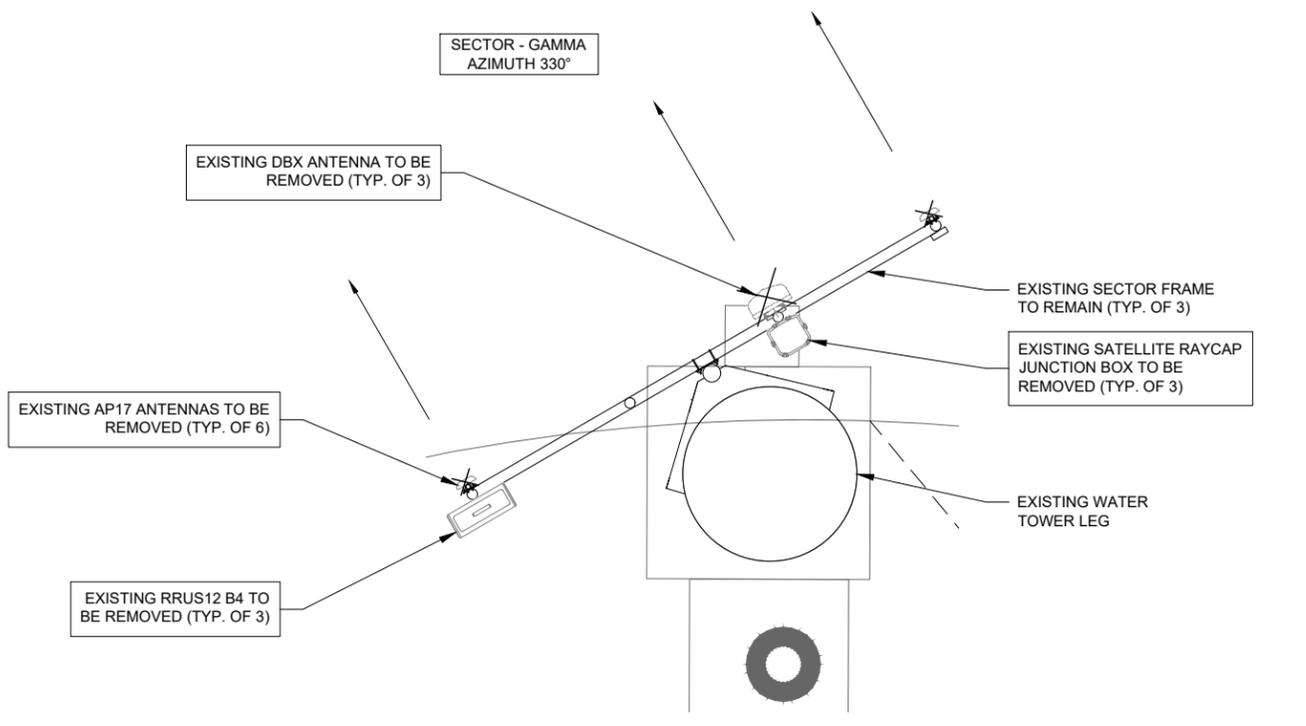
- NOTES:
1. THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY. VERIZON WIRELESS HAS PROVIDED A MOUNT ANALYSIS (BY OTHERS) THAT NEEDS TO BE REVIEWED BY THE CONTRACTOR. IF THERE IS ANY DISCREPANCY BETWEEN THE MOUNT ANALYSIS AND THIS DRAWING, CONTRACTOR IS TO NOTIFY VERIZON WIRELESS. THE MOUNT ANALYSIS 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.

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

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

MOUNT MODIFICATIONS REQUIRED. NO ANTENNA WORK TO BEGIN PRIOR TO COMPLETION OF REINFORCEMENT INSTALLATION.

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.



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

1 EXISTING ANTENNA LAYOUT
N.T.S.

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		BY	TH	RA	KSS	RA
NO.	DESCRIPTION	DATE				
1.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	02/11/2021				
2.	ISSUED FOR FINALS	04/28/2021				
3.	REVISED PER UPDATED MOUNT MODIFICATIONS	12/02/2021				
		09/28/2022				

LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY:	TH
CHECKED BY:	AU
DATE:	02/11/21
PROJECT #:	124-878

SHEET TITLE
ANTENNA
LAYOUT

SHEET NUMBER
ANT-2

NOTES:

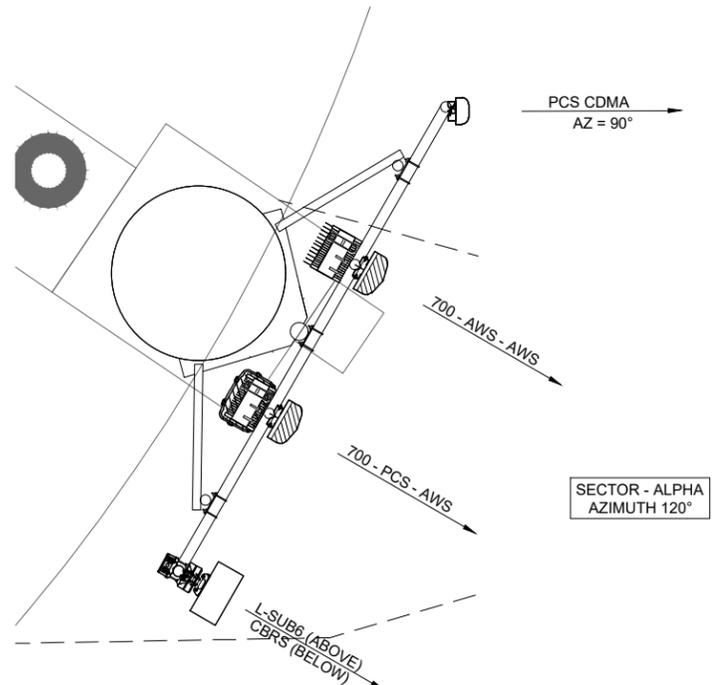
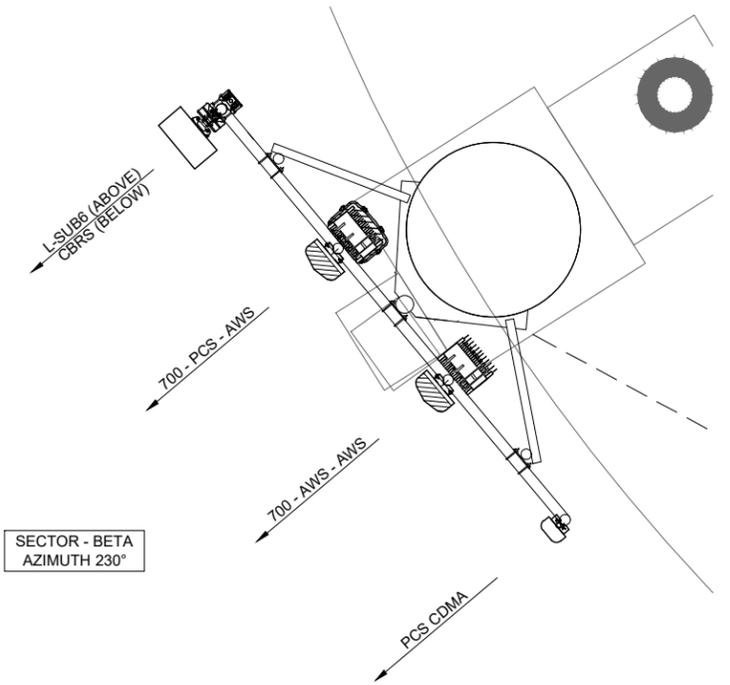
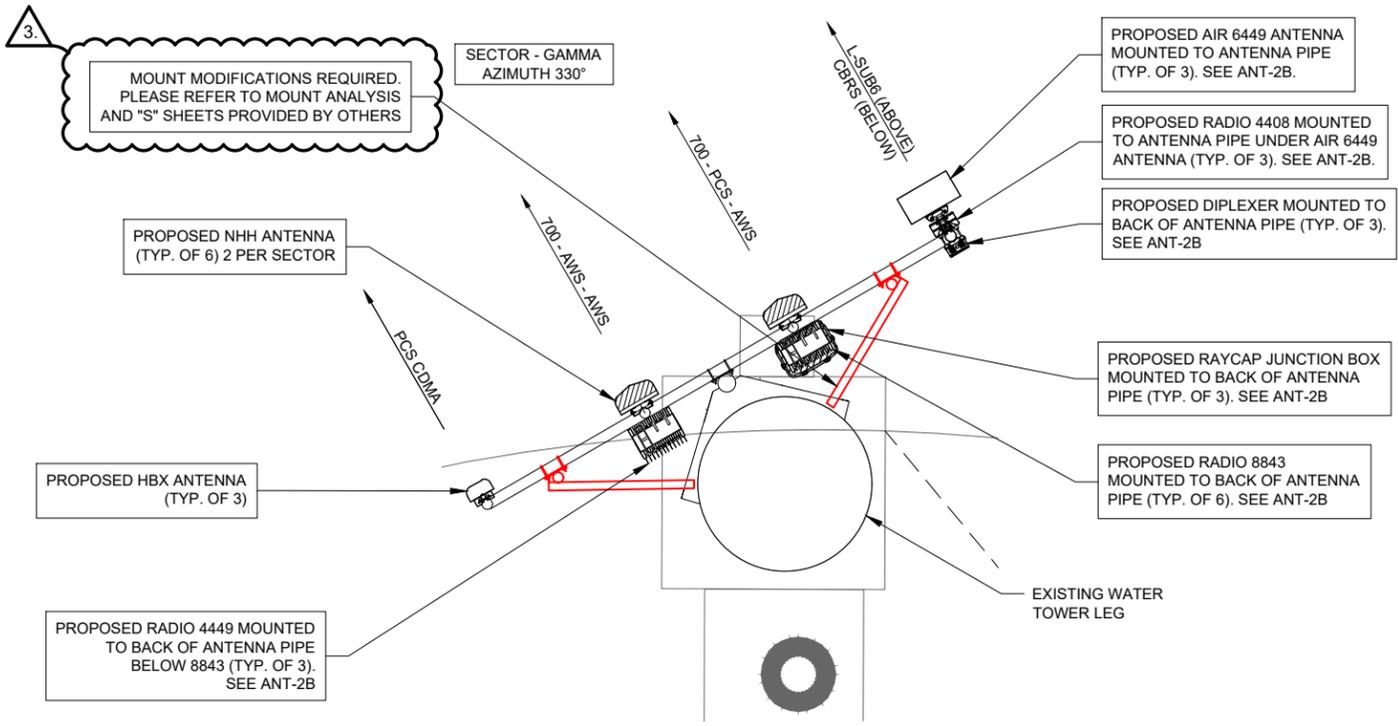
1. THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY. VERIZON WIRELESS HAS PROVIDED A MOUNT ANALYSIS (BY OTHERS) THAT NEEDS TO BE REVIEWED BY THE CONTRACTOR. IF THERE IS ANY DISCREPANCY BETWEEN THE MOUNT ANALYSIS AND THIS DRAWING, CONTRACTOR IS TO NOTIFY VERIZON WIRELESS. THE MOUNT ANALYSIS IS THE 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.

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

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

MOUNT MODIFICATIONS REQUIRED. NO ANTENNA WORK TO BEGIN PRIOR TO COMPLETION OF REINFORCEMENT INSTALLATION.

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.



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 PROPOSED ANTENNA LAYOUT
N.T.S.



REVISIONS		NO.	DESCRIPTION	DATE	BY	TH	RA	KSS	RA
		1.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	04/28/2021					
		2.	ISSUED FOR FINALS	12/02/2021					
		3.	REVISED PER UPDATED MOUNT MODIFICATIONS	09/28/2022					

LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY: TH
CHECKED BY: AU
DATE: 02/11/21
PROJECT #: 124-878

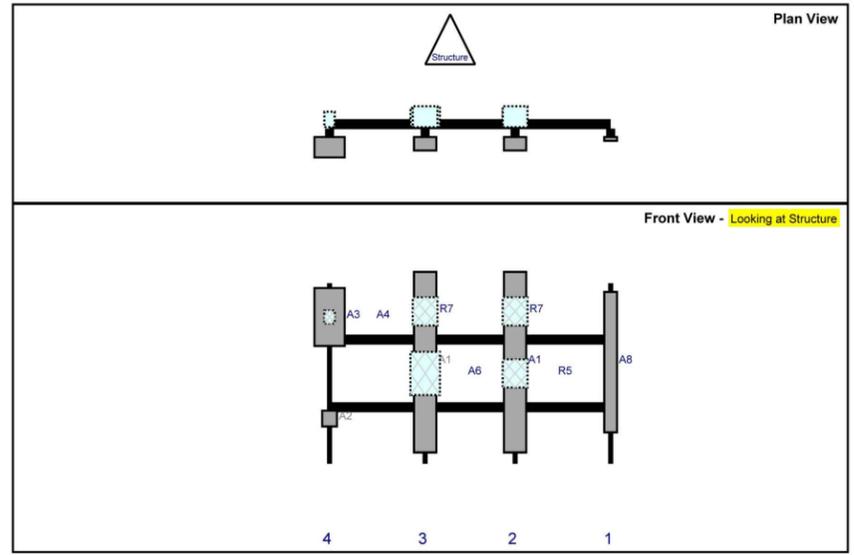
SHEET TITLE
PROPOSED ANTENNA LAYOUT

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.

Structure: 113278-VZW - WEST ROGERS WT -- 698801

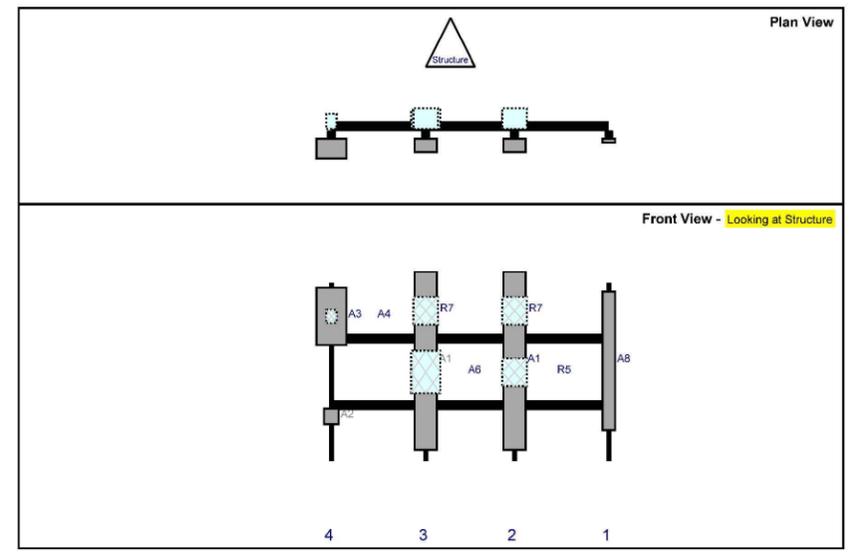
Sector: **A** 9/28/2022
Structure Type: Water Tank 10170920
Mount Elev: 101.00 Page: 1



1 ALPHA SECTOR

Structure: 113278-VZW - WEST ROGERS WT -- 698801

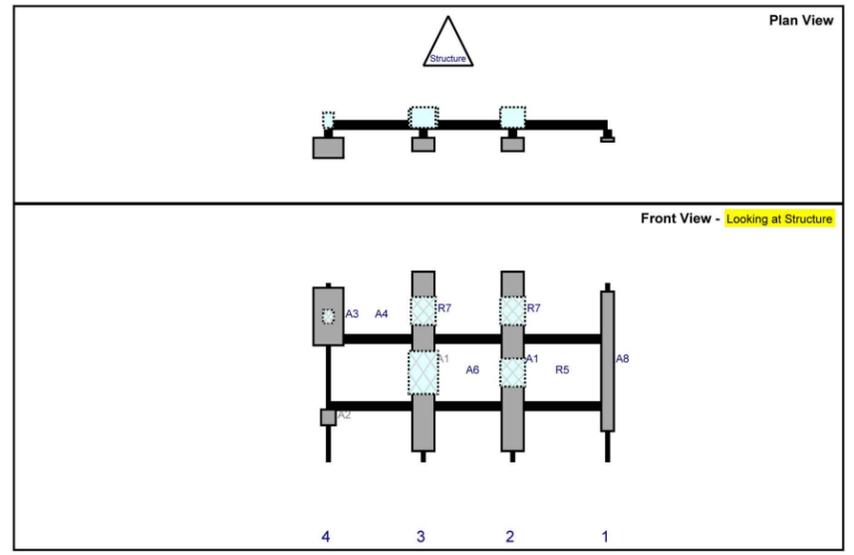
Sector: **B** 9/28/2022
Structure Type: Water Tank 10170920
Mount Elev: 101.00 Page: 2



2 BETA SECTOR

Structure: 113278-VZW - WEST ROGERS WT -- 698801

Sector: **C** 9/28/2022
Structure Type: Water Tank 10170920
Mount Elev: 101.00 Page: 3



3 GAMMA SECTOR

ALPHA SECTOR

Ref#	Model	Height (in)	Width (in)	H Dist (in)	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A8	HBX-9016DS-VTM	74.7	6.8	150	1	a	Front	42	0	Added	
A1	NHH-65C-R2B	96	11.9	99	2	a	Front	42	0	Added	
R5	4449	15	13.2	99	2	a	Behind	48	0	Added	
R7	8843	15	13.2	99	2	a	Behind	15	0	Added	
A1	NHH-65C-R2B	96	11.9	51	3	a	Front	42	0	Added	
A6	RC3DC-3315-PF-48	23	15.7	51	3	a	Behind	48	0	Added	
R7	8843	15	13.2	51	3	a	Behind	15	0	Added	
A2	4408 w/ KRE 105 281/1	8.4	7.9		4	a	Front	72	0	Added	
A3	AIR 6449	30.8	16.1		4	a	Front	18	0	Added	
A4	CDX1923Q-DS-43	6.9	5.5		4	a	Behind	18	0	Added	

BETA SECTOR

Ref#	Model	Height (in)	Width (in)	H Dist (in)	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A8	HBX-9016DS-VTM	74.7	6.8	150	1	a	Front	42	0	Added	
A1	NHH-65C-R2B	96	11.9	99	2	a	Front	42	0	Added	
R5	4449	15	13.2	99	2	a	Behind	48	0	Added	
R7	8843	15	13.2	99	2	a	Behind	15	0	Added	
A1	NHH-65C-R2B	96	11.9	51	3	a	Front	42	0	Added	
A6	RC3DC-3315-PF-48	23	15.7	51	3	a	Behind	48	0	Added	
R7	8843	15	13.2	51	3	a	Behind	15	0	Added	
A2	4408 w/ KRE 105 281/1	8.4	7.9		4	a	Front	72	0	Added	
A3	AIR 6449	30.8	16.1		4	a	Front	18	0	Added	
A4	CDX1923Q-DS-43	6.9	5.5		4	a	Behind	18	0	Added	

GAMMA SECTOR

Ref#	Model	Height (in)	Width (in)	H Dist (in)	Pipe #	Pipe Pos V	Ant Pos	C. Ant Frm T.	Ant H Off	Status	Validation
A8	HBX-9016DS-VTM	74.7	6.8	150	1	a	Front	42	0	Added	
A1	NHH-65C-R2B	96	11.9	99	2	a	Front	42	0	Added	
R5	4449	15	13.2	99	2	a	Behind	48	0	Added	
R7	8843	15	13.2	99	2	a	Behind	15	0	Added	
A1	NHH-65C-R2B	96	11.9	51	3	a	Front	42	0	Added	
A6	RC3DC-3315-PF-48	23	15.7	51	3	a	Behind	48	0	Added	
R7	8843	15	13.2	51	3	a	Behind	15	0	Added	
A2	4408 w/ KRE 105 281/1	8.4	7.9		4	a	Front	72	0	Added	
A3	AIR 6449	30.8	16.1		4	a	Front	18	0	Added	
A4	CDX1923Q-DS-43	6.9	5.5		4	a	Behind	18	0	Added	

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.



REVISIONS		BY	TH	RA	KSS	RA
NO.	DESCRIPTION	DATE	TH	RA	KSS	RA
1.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	02/11/2021				
2.	ISSUED FOR FINALS	04/29/2021				
3.	REVISED PER UPDATED MOUNT MODIFICATIONS	12/02/2021				

LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY: TH
CHECKED BY: AU
DATE: 02/11/21
PROJECT #: 124-878

SHEET TITLE
PROPOSED ANTENNA
LAYOUT

SHEET NUMBER
ANT-2B

Antenna Summary

Added														
700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
		CDMA				ANDREW	HBX-9018DS-VTM	101	104.1	90(D2) 230(D3) 330(D1)	false	false	PHYSICAL	3
LTE	LTE 5G	LTE	LTE			COMMSCOPE	NHH-65C-R2B	101	105	120(02) 230(03) 330(01)	false	false	PHYSICAL	6
					LTE	ERICSSON	4408 3400 (1589634)	99	99.3	120(02) 230(03) 330(01)	false	false	PHYSICAL	3
					5G	Ericsson	AIR8449	103	104.3	120(0002) 230(0003) 330(0001)	false	false	PHYSICAL	3
Removed														
700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
LTE		LTE				ANDREW	DBXNH-6565B-VTM	103	106	120(02) 230(03) 330(01)	false	false	PHYSICAL	3
	CDMA					KATHREIN	AP17-1900/090D (141325)	103	105.7	90(0002) 90(02) 90(D2) 230(0003) 230(03) 230(D3) 330(0001) 330(01) 330(D1)	false	false	PHYSICAL	6
Retained														
700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
No data available.														

Added: 15 Removed: 9 Retained: 0

1 ANTENNA SUMMARY
N.T.S.

Equipment Summary

Added													
Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Diplexer	Tower							Commscope	CDX1923Q-DS-43			PHYSICAL	3
RRU	Tower					LTE		Ericsson	4408 B48			PHYSICAL	3
RRU	Tower	LTE						Ericsson	4449			PHYSICAL	3
RRU	Tower			LTE	LTE			Ericsson	8843			PHYSICAL	3
RRU	Tower					5G		Ericsson	AIR6449			PHYSICAL	3
OVP Box	Tower							Raycap	3315			PHYSICAL	3
OVP Box	Shelter							Raycap	6627			PHYSICAL	1
Removed													
Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Coaxial Cables	Tower							Andrew	Coax		15/8"	PHYSICAL	3
OVP Box	Tower							Commscope	1064			PHYSICAL	3
BAIST	Tower							Commscope	ATSBT-TOP-MF (Bias-T)			PHYSICAL	3
Diplexer	Tower							Commscope	DBC-7CAP			PHYSICAL	6
RRU	Tower				LTE			Ericsson	RRUS12 B4			PHYSICAL	3
RRU	Tower	LTE						Ericsson	RUL01 B13			PHYSICAL	6
Diplexer	Shelter							Commscope	DBC-7CAP			PHYSICAL	6
Retained													
Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Coaxial Cables	Tower							Andrew	Coax		15/8"	PHYSICAL	6
Hybrid Cable	Tower							Commscope	6x12			PHYSICAL	3
RRU	Move to Tower		LTE 5G					Ericsson	8843			PHYSICAL	3

2 EQUIPMENT SUMMARY
N.T.S.



NO.	DESCRIPTION	DATE	BY	TH	RA	KSS	RA
		ISSUED FOR REVIEW	ISSUED FOR PERMITTING	ISSUED FOR FINALS	REVISED PER UPDATED MOUNT MODIFICATIONS		
1.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	02/11/2021					
2.	ISSUED FOR FINALS	04/28/2021					
3.	REVISED PER UPDATED MOUNT MODIFICATIONS	12/02/2021					
		09/28/2022					

LOC. # 113278
WEST ROGERS
WT
11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY:	TH
CHECKED BY:	AU
DATE:	02/11/21
PROJECT #:	124-878

SHEET TITLE
ANTENNA
INFORMATION

SHEET NUMBER
ANT-3

RF EMISSIONS REPORT PROVIDED

YES NO

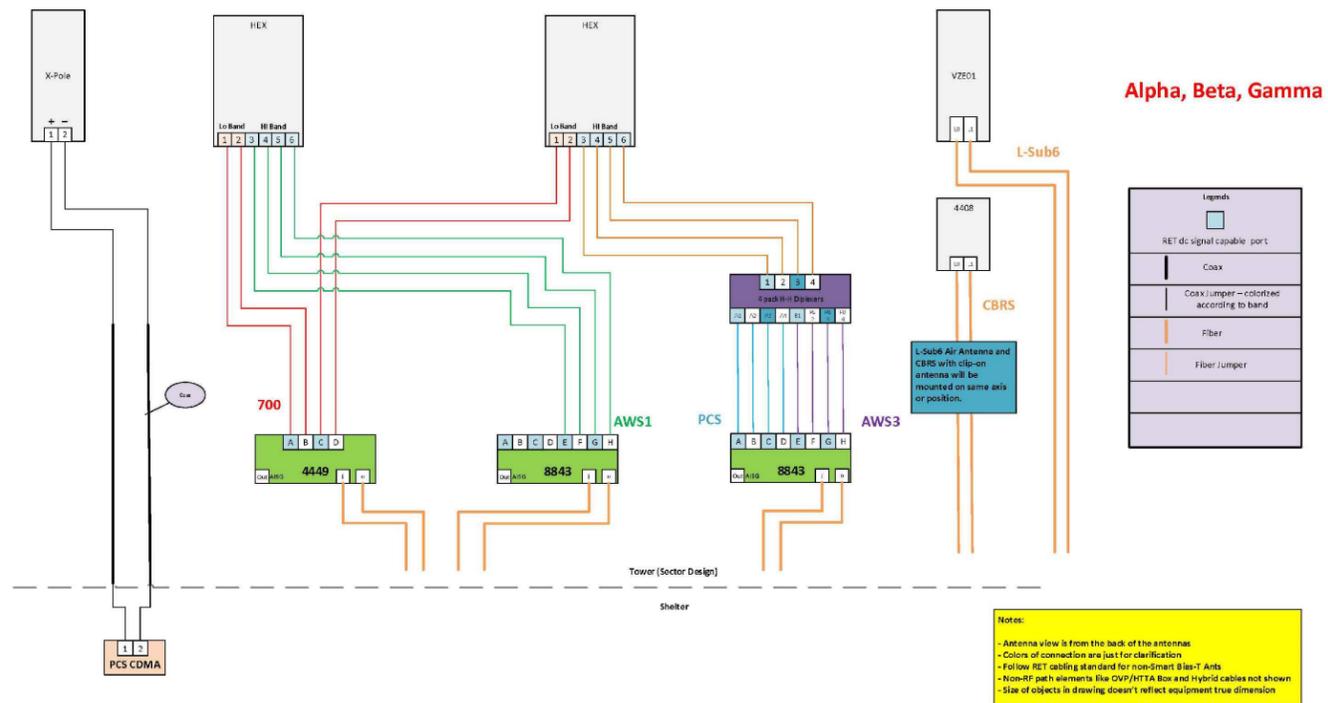
DATE OF REPORT: 10/19/2021

SIGNAGE/BARRIERS REQUIRED

YES NO

EXISTING EQUIPMENT TO BE REUSED		
LOCATION	COMPONENT	COUNT
TOP	MAIN RAYCAP	0
BOTTOM	MAIN RAYCAP	2
EXISTING CABLING TO BE REUSED		
TYPE	SIZE	COUNT
HYBRID	MAIN TRUNK	3
COAX	1-5/8" Ø	6

1 RAYCAP/HYBRID CABLE INFORMATION
N.T.S.



2 CABLE DIAGRAM
N.T.S.

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

TERRA
COMMUNICATIONS CONSULTANTS, P.C.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

NO.	DESCRIPTION	BY	TH	RA	KSS	RA
		DATE	TH	RA	KSS	RA
1.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	TH	02/11/2021	RA	KSS	RA
2.	ISSUED FOR FINALS	TH	04/29/2021	RA	KSS	RA
3.	REVISION PER UPDATED MOUNT MODIFICATIONS	TH	12/02/2021	RA	KSS	RA

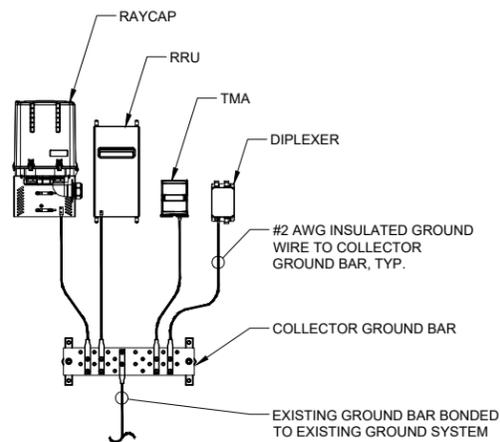
LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY: TH
CHECKED BY: AU
DATE: 02/11/21
PROJECT #: 124-878

SHEET TITLE
COMBINER CABLE DATA
& CABLE DIAGRAM

SHEET NUMBER
ANT-3A



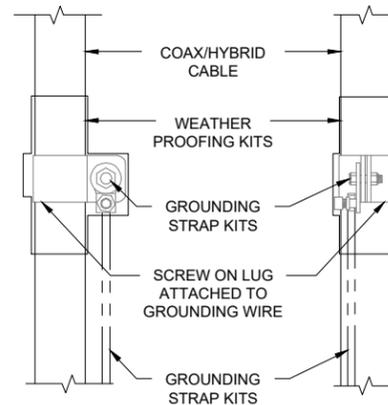
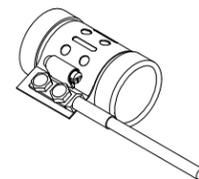
NOTES:

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:

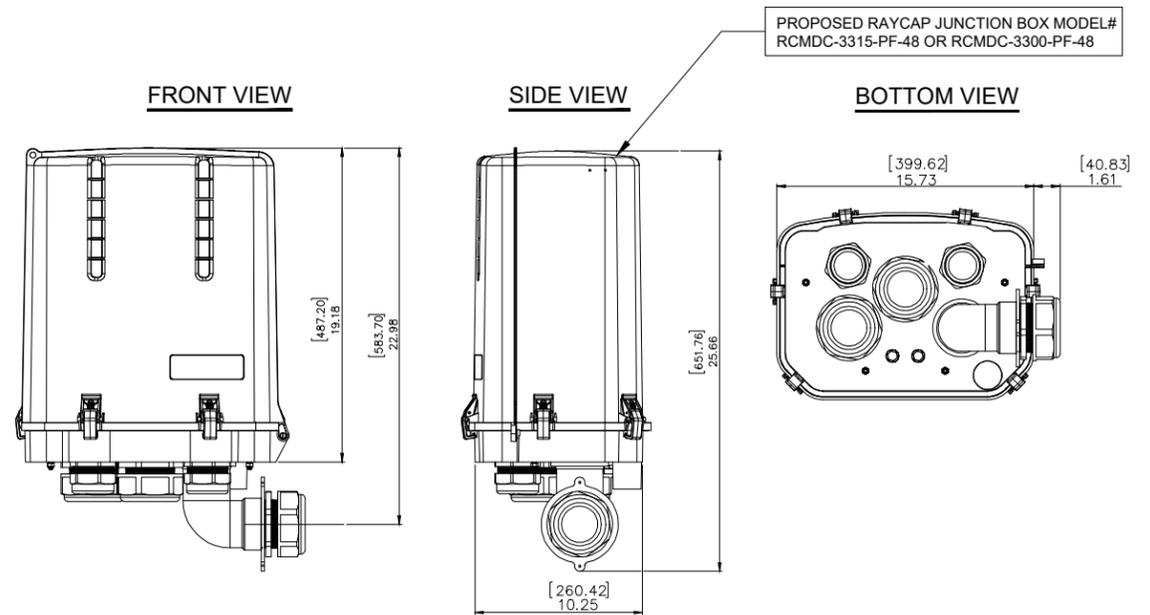
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. THIS DETAIL IS TYPICAL FOR EACH COAX CABLE WHERE IT IS SPECIFIED TO BE GROUNDED
3. CABLE TO BE GROUNDED AT ANTENNA LEVEL AND PRIOR TO ENTERING SHELTER ENTRY PANEL.
4. CABLE ALSO TO BE GROUNDED TO GROUND 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
COMMUNICATIONS & NETWORKS, L.P.
600 BUSSE HIGHWAY
PARK RIDGE, IL 60068
PH: 847-698-6400
FAX: 847-698-6401

REVISIONS		BY	TH	RA	KSS	RA
NO.	DESCRIPTION	DATE	TH	RA	KSS	RA
1.	ISSUED FOR REVIEW	02/11/2021				
2.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	04/28/2021				
3.	ISSUED FOR FINALS	12/02/2021				
	REVISED PER UPDATED MOUNT MODIFICATIONS	09/28/2022				

LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY: TH
CHECKED BY: AU
DATE: 02/11/21
PROJECT #: 124-878

SHEET TITLE
DETAILS

SHEET NUMBER
ANT-4



1 OVERALL WATER TOWER PHOTO



ALPHA SECTOR ANTENNAS



BETA SECTOR ANTENNAS



GAMMA SECTOR ANTENNAS

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

TERRA
 CONSULTING AND DESIGN, LLC
 600 BUSSE HIGHWAY
 PARK RIDGE, IL 60068
 PH: 847-698-6400
 FAX: 847-698-6401

REVISIONS		NO.	DESCRIPTION	DATE	BY	TH	RA	KSS	RA
		1.	ADDITION OF REVISED MA / ISSUED FOR PERMITTING	02/11/2021					
		2.	ISSUED FOR FINALS	04/28/2021					
		3.	REVISED PER UPDATED MOUNT MODIFICATIONS	12/02/2021					
				09/28/2022					

LOC. # 113278
 WEST ROGERS
 WT

11515 W ROGERS ST
 MILWAUKEE, WI 53227

DRAWN BY: TH
 CHECKED BY: AU
 DATE: 02/11/21
 PROJECT #: 124-878

SHEET TITLE
 PHOTO EXHIBIT

SHEET NUMBER
EX-1

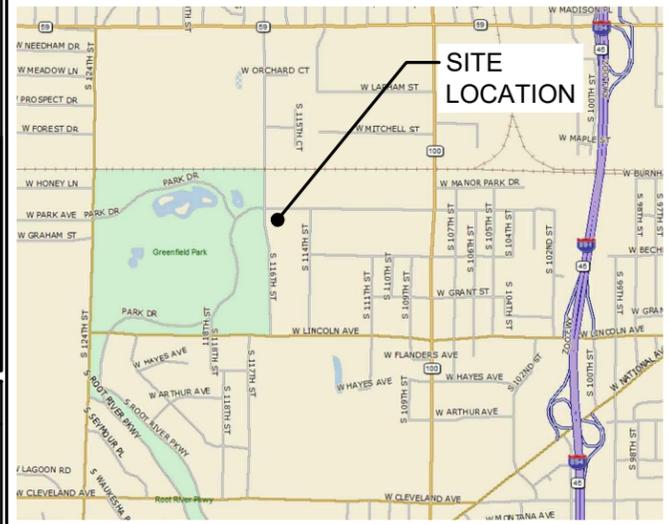
APPROVALS

REAL ESTATE: _____
 RF: _____
 CONSTRUCTION: _____
 EQUIPMENT ENGINEERING: _____
 OPERATIONS: _____

PROJECT TYPE

PROPOSED BATTERY REPLACEMENT AND INTERIOR ELECTRICAL UPGRADES AT AN EXISTING WIRELESS SITE

VICINITY MAP N.T.S.



REGIONAL MAP N.T.S.



CONSULTANT TEAM

PROJECT CONSULTANT: TERRA CONSULTING GROUP, LTD.
 600 BUSSE HIGHWAY
 PARK RIDGE, IL 60068
 (847) 698-6400

STRUCTURAL CONSULTANT: N/A

PROJECT INFORMATION

OCCUPANCY: UNINHABITED

SITE ADDRESS: 11515 W ROGERS ST
 MILWAUKEE, WI 53227

LATITUDE: 43° 00' 28.30" N (APPROXIMATE)
 LONGITUDE: 88° 03' 21.90" W (APPROXIMATE)

STRUCTURE OWNER: CITY OF WEST ALLIS

CONTACT PERSON: T.B.D.

APPLICANT: VERIZON WIRELESS
 1701 GOLF ROAD, TOWER 2, SUITE 400
 ROLLING MEADOWS, IL 60008

CONSTRUCTION MANAGER: BRIAN KIM

REAL ESTATE MANAGER: KIM KUESTER (630) 903-5403

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

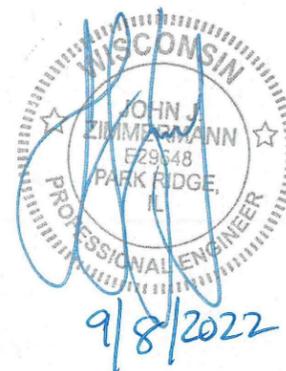


1701 GOLF ROAD, TOWER 2, SUITE 400
 ROLLING MEADOWS, ILLINOIS 60008
 PHONE: (847) 619-5397 FAX: (847) 706-7415

LOCATION NUMBER: 113278
SITE NAME: WEST ROGERS WT
11515 W ROGERS ST
MILWAUKEE, WI 53227



OTHER UTILITIES NOT INCLUDED IN DIGGERS HOTLINE AND LOCAL UTILITY DISTRICTS AND COMPANIES SHALL ALSO BE NOTIFIED



SPECIAL NOTES

HANDICAPPED REQUIREMENTS :
 FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION HANDICAPPED ACCESS REQUIREMENTS NOT REQUIRED

PLUMBING REQUIREMENTS :
 FACILITY HAS NO PLUMBING OR REFRIGERANTS

FAA AND FCC REQUIREMENTS :
 THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REQUIREMENTS

CONSTRUCTION REQUIREMENTS :
 ALL WORK MUST CONFORM TO VERIZON WIRELESS CONSTRUCTION INSTALLATION STANDARDS & ALL APPLICABLE CODES AND ORDINANCES.

SHEET	DRAWING INDEX	REVISION
T-1	TITLE SHEET	-
LP	EXISTING LOCATION PLAN	-
C-1	CIVIL DEMOLITION PLAN	-
A-1	DEMOLITION FLOOR PLAN	-
A-2	PROPOSED FLOOR PLAN	-
A-3	EQUIPMENT DETAILS	-
EX-1	PHOTO EXHIBIT	-

22" x 34" IS FULL SCALE | 11" x 17" IS HALF SCALE



NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	04/03/2021	APD
2.	UPDATED PER POWER COORDINATION	06/04/2021	TH
3.	UPDATED PER POWER COORDINATION	11/03/2021	APD
4.	ISSUED FOR FINALS	12/02/2021	KSS
	REMOVED GENERATOR	09/08/2022	JV

LOC. # 113278
WEST ROGERS WT

11515 W ROGERS ST
 MILWAUKEE, WI 53227

DRAWN BY: JV
 CHECKED BY: DM
 DATE: 03/24/2021
 PROJECT #: 124-878

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

WE ENERGIES POWER CONTACT INFORMATION
 WORK REQUEST #: 4642143
 REP: SARAH LARSON
 PH: (414) 944-5749

*PLEASE NOTE - PER POWER COMPANY AN
 ADDITIONAL FEE FOR INSTALLATION IS REQUIRED AND
 A WORK ORDER/QUOTE HAS BEEN SUPPLIED.

WE ENERGIES GAS CONTACT INFORMATION
 WORK REQUEST #: 4703970
 REP: SARAH LARSON
 PH: (414) 944-5749

*PLEASE NOTE - PER POWER COMPANY AN
 ADDITIONAL FEE FOR INSTALLATION IS REQUIRED
 AND A WORK ORDER/QUOTE HAS BEEN SUPPLIED.



OTHER UTILITIES NOT INCLUDED IN DIGGERS HOTLINE AND LOCAL UTILITY
 DISTRICTS AND COMPANIES SHALL ALSO BE NOTIFIED

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

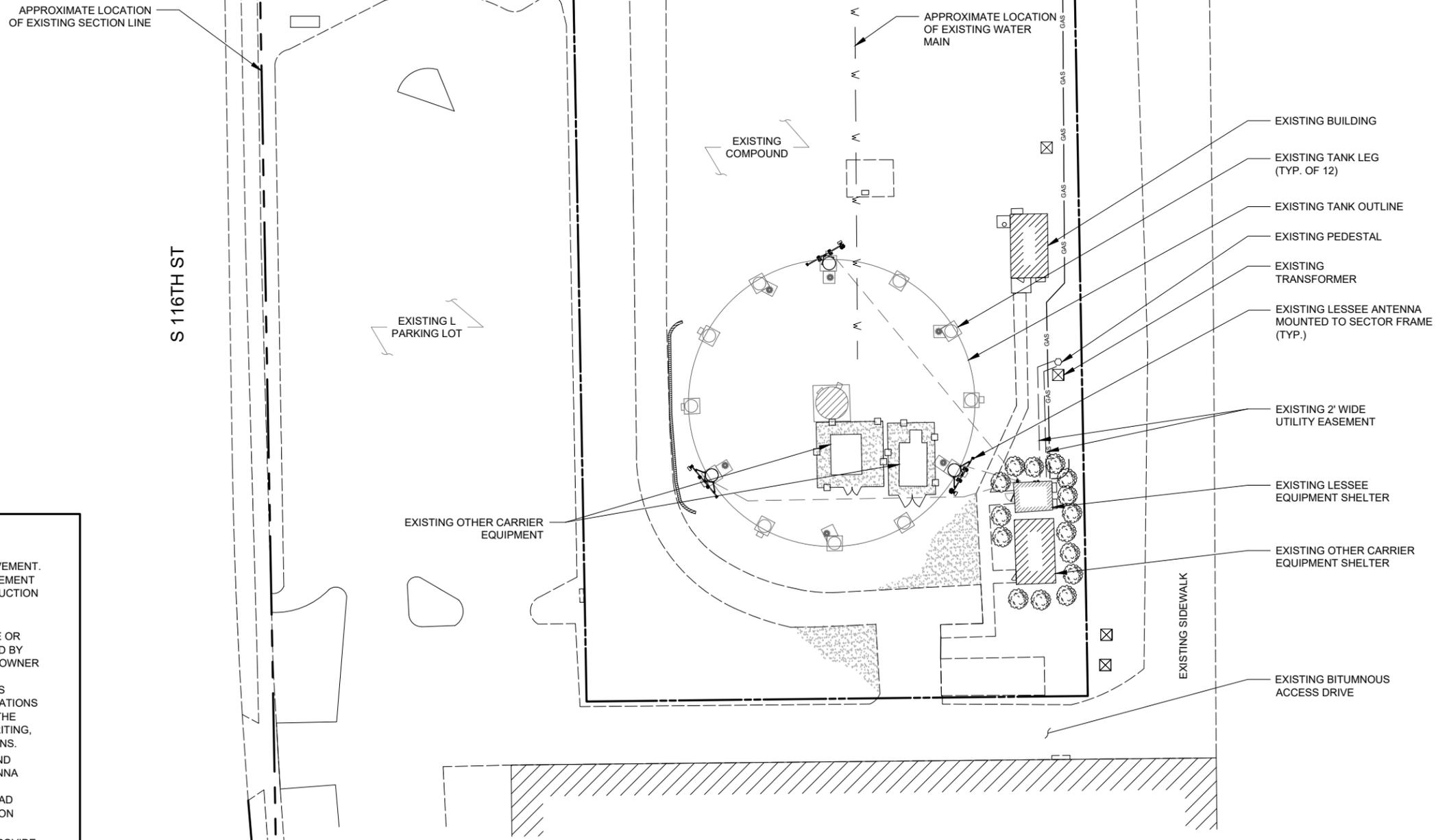
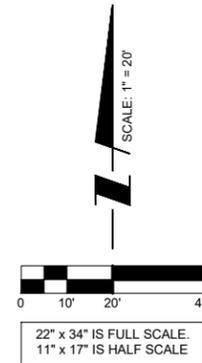
GENERAL SITE NOTES

1. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING PAVEMENT. CONTRACTOR SHALL PHOTOGRAPH AND VIDEOTAPE EXISTING PAVEMENT PRIOR TO CONSTRUCTION. ANY DAMAGE CAUSED DURING CONSTRUCTION SHALL BE REPLACED TO EXISTING OR BETTER CONDITION AT NO ADDITIONAL COST.
2. THE CONTRACTOR WILL, UPON BECOMING AWARE OF SUBSURFACE OR LATENT PHYSICAL CONDITIONS DIFFERING FROM THOSE DISCLOSED BY THE ORIGINAL SOIL INVESTIGATION WORK, PROMPTLY NOTIFY THE OWNER VERBALLY AND IN WRITING, AS TO THE NATURE OF THE DIFFERING CONDITIONS. NO CLAIM BY THE CONTRACTOR FOR ANY CONDITIONS DIFFERING FROM THOSE ANTICIPATED IN THE PLANS AND SPECIFICATIONS AND DISCLOSED BY THE SOIL STUDIES WILL BE ALLOWED UNLESS THE CONTRACTOR HAS SO NOTIFIED THE OWNER, VERBALLY AND IN WRITING, AS REQUIRED ABOVE, OF SUCH DIFFERING SUBSURFACE CONDITIONS.
3. CONTRACTOR TO PROVIDE APPROXIMATE 50'X50' STAGING AREA AND TEMPORARY ROAD. CONTRACTOR SHALL COORDINATE WITH ANTENNA CONTRACTOR, A STAGING AREA AND TEMPORARY ROAD THAT IS ACCEPTABLE TO THE OWNER. STAGING AREA AND TEMPORARY ROAD SHALL BE RESTORED TO EXISTING CONDITIONS AS NECESSARY UPON COMPLETION OF THE PROJECT.
4. BEFORE AND DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL AS NECESSARY IN THE FORM OF SILT FENCES FOR THE SITE AND BALES AROUND ANY EXISTING MANHOLES, INLETS, OR CATCH BASINS SUSCEPTIBLE TO EROSION. EROSION CONTROL MEASURES SHALL BE PERIODICALLY INSPECTED TO ENSURE PROPER FUNCTION. EROSION CONTROL SHALL BE REMOVED UPON COMPLETION OF WORK.

APPROXIMATE LOCATION
 OF EXISTING SECTION LINE

S 116TH ST

W ROGERS ST



1 LOCATION PLAN



NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	04/03/2021	APD
2.	UPDATED PER POWER COORDINATION	06/04/2021	TH
3.	UPDATED PER POWER COORDINATION	11/03/2021	APD
4.	ISSUED FOR FINALS	12/02/2021	KSS
	REMOVED GENERATOR	09/08/2022	JV

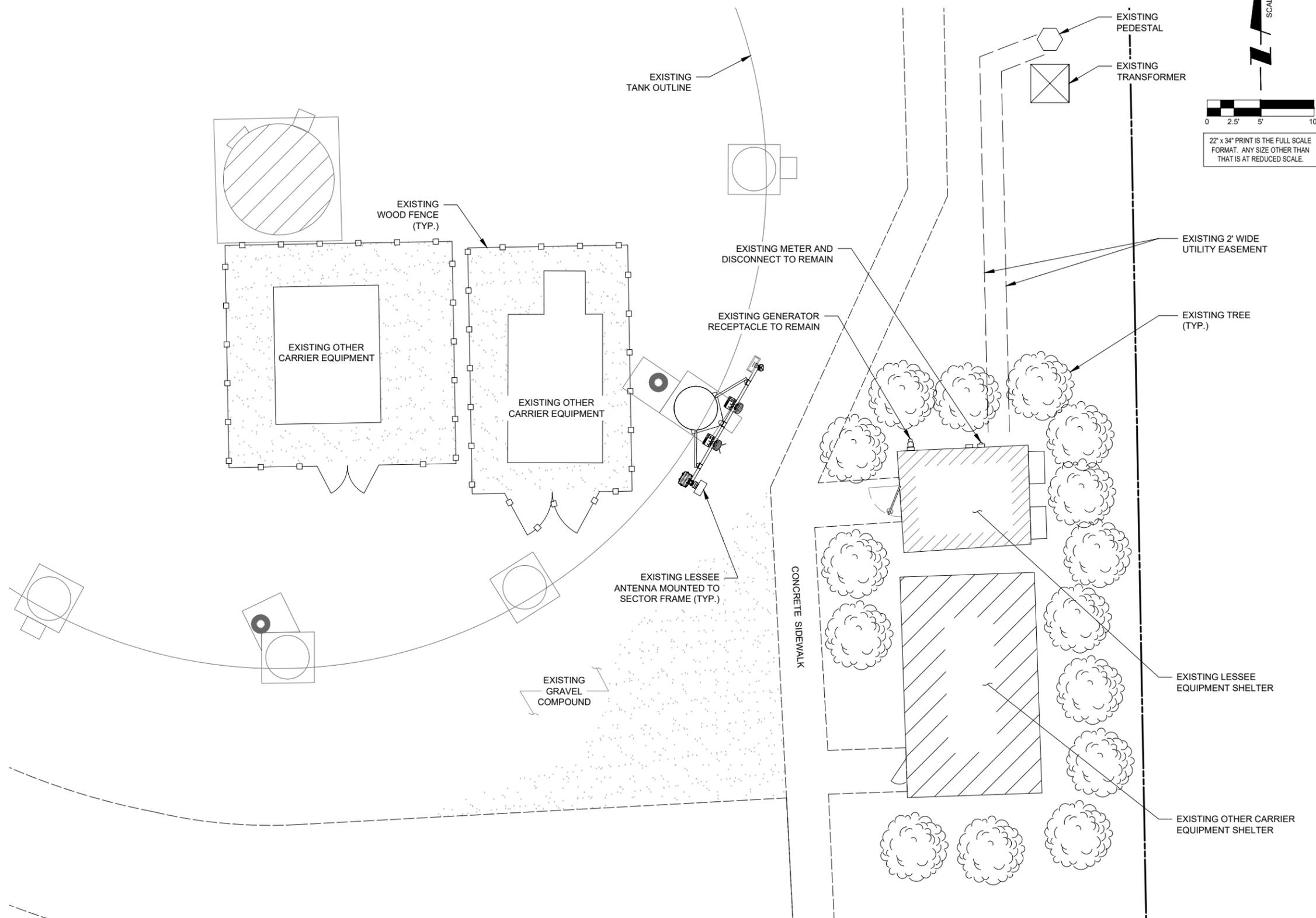
LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
 MILWAUKEE, WI 53227

DRAWN BY:	JV
CHECKED BY:	DM
DATE:	03/24/2021
PROJECT #:	124-878

SHEET TITLE
**EXISTING
 LOCATION PLAN**

SHEET NUMBER
LP



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
 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

NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	04/03/2021	APD
2.	UPDATED PER POWER COORDINATION	06/04/2021	TH
3.	UPDATED PER POWER COORDINATION	11/03/2021	APD
4.	ISSUED FOR FINALS	12/02/2021	KSS
	REMOVED GENERATOR	09/08/2022	JV

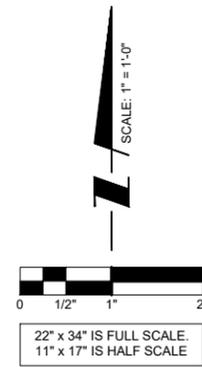
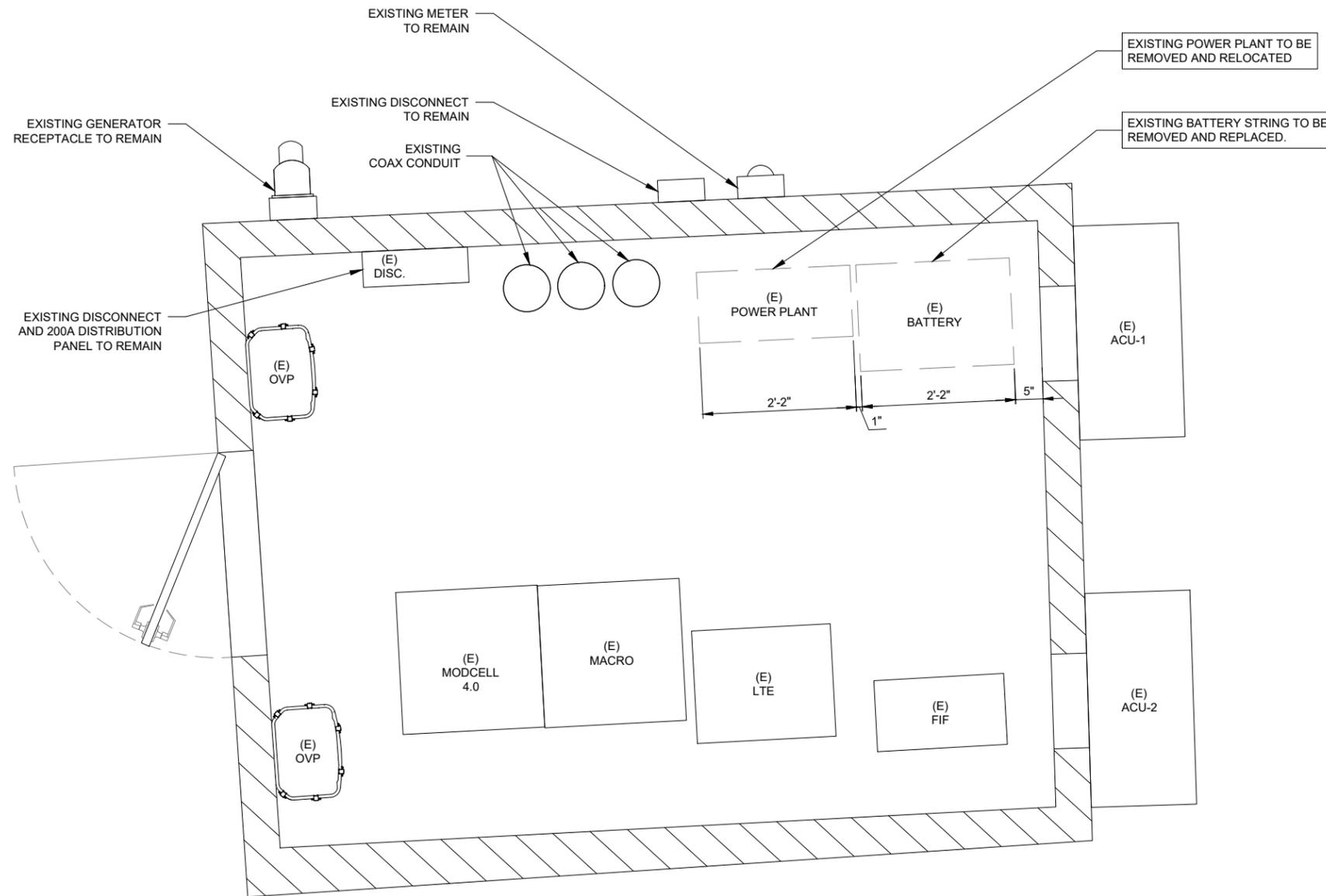
LOC. # 113278
 WEST ROGERS
 WT

11515 W ROGERS ST
 MILWAUKEE, WI 53227

DRAWN BY:	JV
CHECKED BY:	DM
DATE:	03/24/2021
PROJECT #:	124-878

SHEET TITLE
 CIVIL
 DEMOLITION PLAN

SHEET NUMBER
C-1



1 EXISTING FLOOR PLAN
SCALE: 1" = 1'-0"

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	04/30/2021	APD		
2.	UPDATED PER POWER COORDINATION	06/04/2021	TH		
3.	UPDATED PER POWER COORDINATION	11/03/2021	APD		
4.	ISSUED FOR FINALS	12/02/2021	KSS		
	REMOVED GENERATOR	09/08/2022	JV		

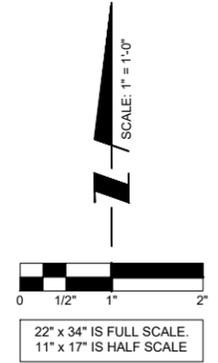
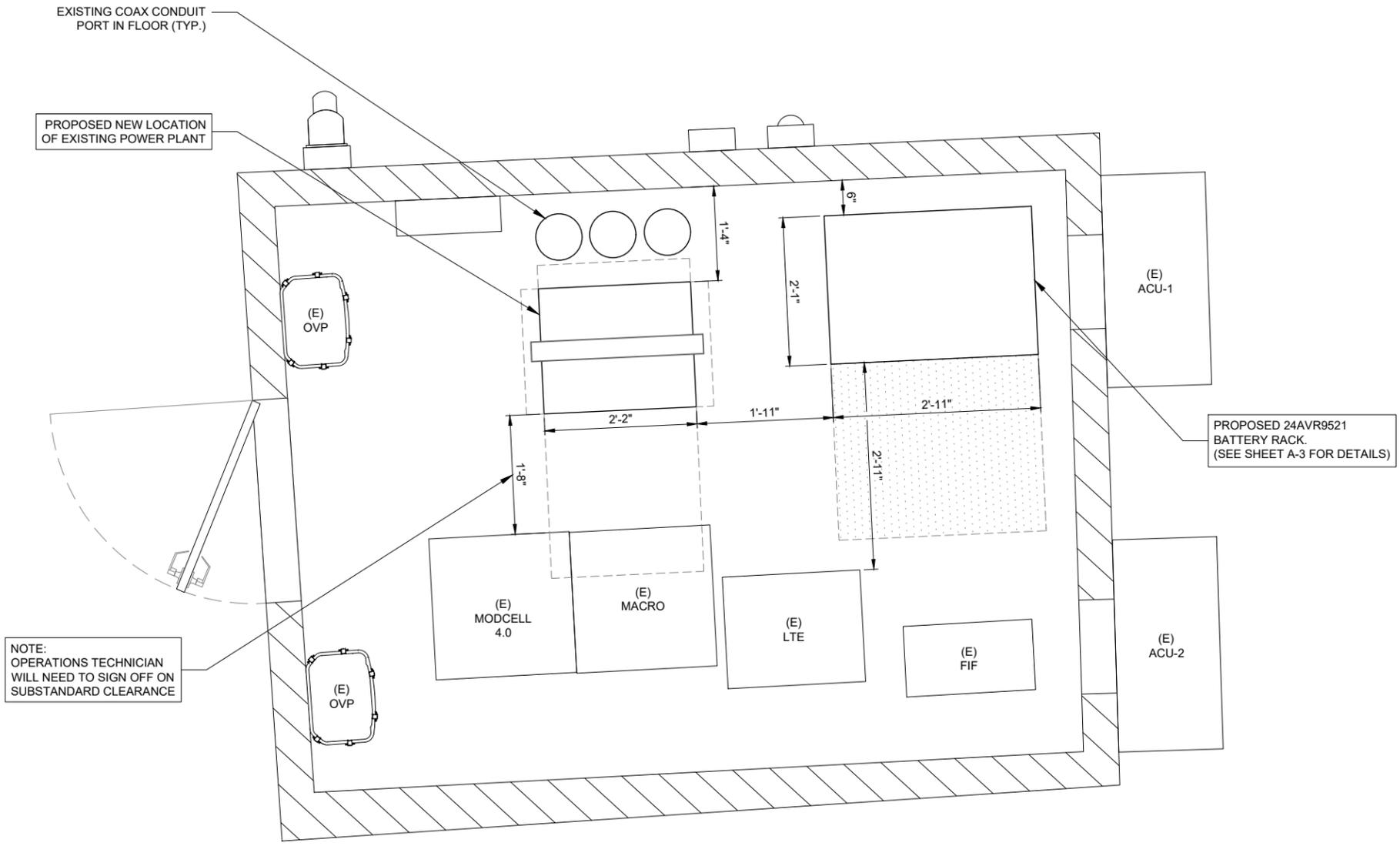
LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY:	JV
CHECKED BY:	DM
DATE:	03/24/2021
PROJECT #:	124-878

SHEET TITLE
DEMOLITION
FLOOR PLAN

SHEET NUMBER
A-1



NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	04/30/2021	APD
2.	UPDATED PER POWER COORDINATION	06/04/2021	TH
3.	UPDATED PER POWER COORDINATION	11/03/2021	APD
4.	ISSUED FOR FINALS	12/02/2021	KSS
	REMOVED GENERATOR	09/08/2022	JV

LOC. # 113278
WEST ROGERS
WT

11515 W ROGERS ST
 MILWAUKEE, WI 53227

DRAWN BY:	JV
CHECKED BY:	DM
DATE:	03/24/2021
PROJECT #:	124-878

SHEET TITLE
PROPOSED FLOOR PLAN

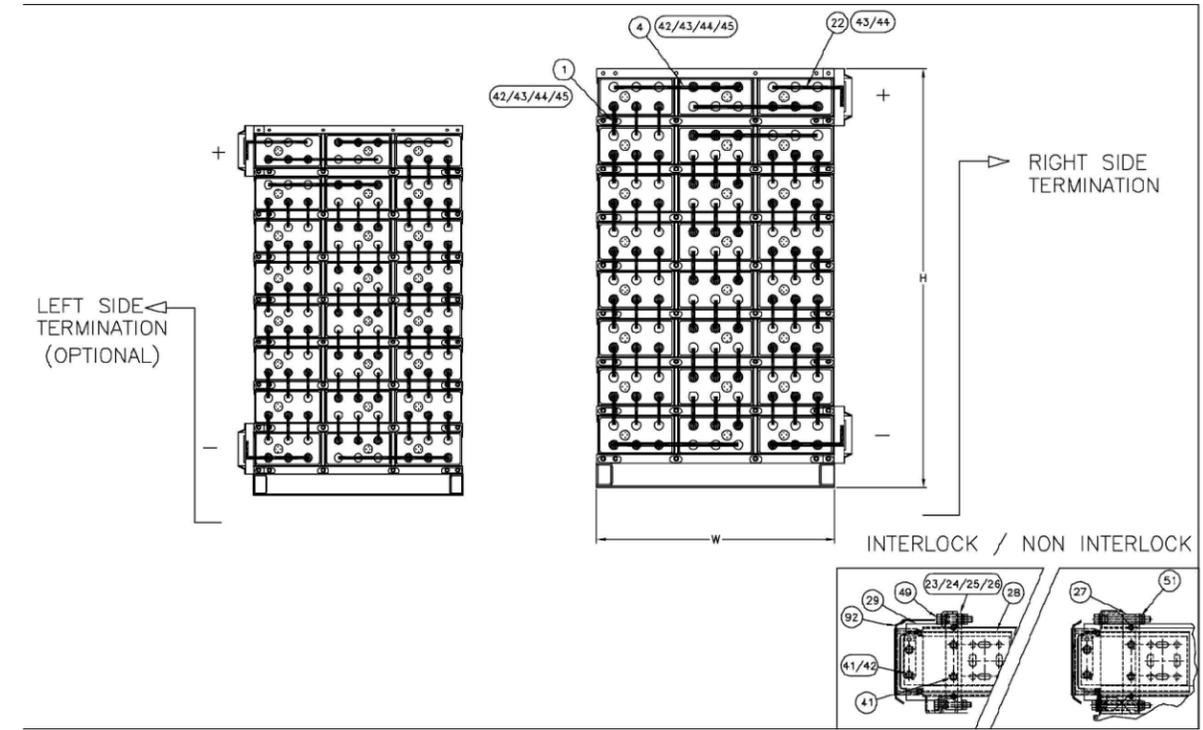
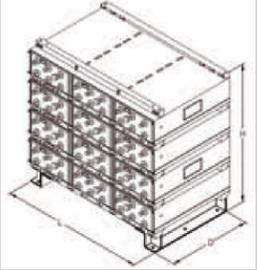
SHEET NUMBER
A-2

1 PROPOSED FLOOR PLAN
 SCALE: 1" = 1'-0"

Plate Number	Capacity C ₈ @ 1.75 vpc	# of cells per module (3 wide)				# of cells per module (6 wide)				Depth ²		Height	
		Length		Weight		Length		Weight		in	mm	in	mm
		in	mm	lb	kg	in	mm	lb	kg				
AVR95													
7	285					19.00	483	339	154	27.12	689	9.48	241
9	380					23.50	597	426	194				
11	475					28.00	711	512	233				
13	570					32.50	826	600	273				
15	665					37.00	940	688	313				
17	760	21.90	556	404	184								
19	855	24.15	613	448	204								
21	950	26.40	671	491	223								
23	1045	28.65	728	535	243								
25	1140	30.90	785	578	263								
27	1235	33.15	842	618	281								
29	1330	35.40	899	665	302								
31	1425	37.65	956	705	320								
33	1520	39.90	1013	749	340								

System Dimensions
System Length = module length x # of stacks
System Height¹ = (module height - 1.44) x (# of tiers high) + 4.00"
Example: 24AVR95-33 (3 wide x 8 high system)
System Length = 39.90" x 1 stack = 39.90"
System Height¹ = (9.48" - 1.44) x 8 + 4.00" = 68.32"

¹ = Height includes base
² = Depth includes safety shield
Termination
Top Termination - Add 7.75" to overall height
Side Termination - Add 4.50" for each side termination



1 AVR 95 BATTERY SPEC
SCALE: N.T.S.

2 NOT USED



REVISIONS		NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	04/02/2021	APD		
2.	UPDATED PER POWER COORDINATION	06/04/2021	TH		
3.	UPDATED PER POWER COORDINATION	11/03/2021	APD		
4.	ISSUED FOR FINALS	12/02/2021	KSS		
	REMOVED GENERATOR	09/08/2022	JV		

LOC. # 113278
WEST ROGERS
WT
11515 W ROGERS ST
MILWAUKEE, WI 53227

DRAWN BY:	JV
CHECKED BY:	DM
DATE:	03/24/2021
PROJECT #:	124-878

SHEET TITLE
EQUIPMENT
DETAILS

SHEET NUMBER
A-3



1 EXISTING METER



2 EXISTING METER & DISCONNECT SWITCH

3 NOT USED



4 EXISTING POWER PLANT TO BE RELOCATED



5 EXISTING BATTERY RACK TO BE REMOVED



6 EXISTING TRANSFORMER

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: 847-698-6000
 FAX: 847-698-6401

NO.	DESCRIPTION	DATE	BY
1.	ISSUED FOR REVIEW	04/02/2021	APD
2.	UPDATED PER POWER COORDINATION	06/04/2021	TH
3.	UPDATED PER POWER COORDINATION	11/03/2021	APD
4.	ISSUED FOR FINALS	12/02/2021	KSS
	REMOVED GENERATOR	09/08/2022	JV

LOC. # 113278
 WEST ROGERS
 WT
 11515 W ROGERS ST
 MILWAUKEE, WI 53227

DRAWN BY:	JV
CHECKED BY:	DM
DATE:	03/24/2021
PROJECT #:	124-878

SHEET TITLE
 PHOTO EXHIBIT

SHEET NUMBER
EX-1

verizon
Radio Frequency Exposure
FCC Compliance Assessment
 Pre-Activation Post-Activation

SITE-SPECIFIC-INFORMATION			
Site Name	West Rogers WT	Multi-Licensee Facility	Yes
Street Address	11515 W Rogers Street	Is Verizon a Significant Contributor To <u>Co-Locator</u> Areas Requiring Mitigation?	No
City, State, Zip	Milwaukee, Wisconsin 53227	Verizon's Max % MPE (Predictive - Occupational)	0.0900 Occupational
Verizon's Max % MPE (Measured - Occupational)	N/A	Assessment Date	N/A
Structure Type	Water Tank	Assessment Purpose	Modification
Broadcast (AM/FM/TV) Co-Locators	No	Total Report Revisions	0
Total Access Points	Unknown	Report Revision Date	N/A
Original Report Date	October 19, 2021	Compliance Status	Mitigation Required

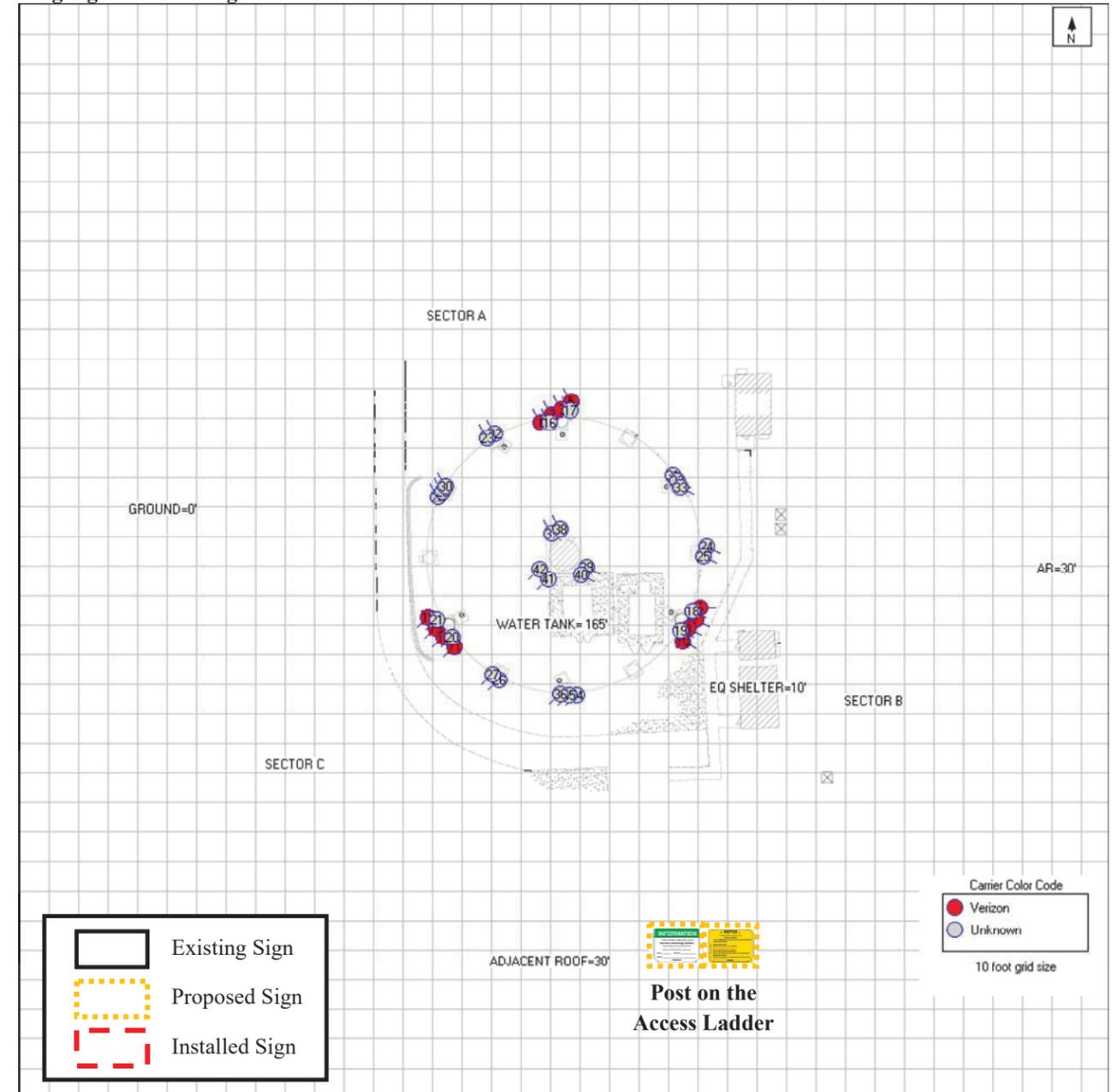
VERIZON'S WORST-CASE RF EMISSIONS IN ACCESSIBLE AREAS AT THIS FACILITY	
<input checked="" type="checkbox"/>	BELOW the General Population MPE limit
<input type="checkbox"/>	ABOVE the General Population MPE limit and BELOW the Occupational MPE limit
<input type="checkbox"/>	ABOVE the Occupational MPE limit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

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

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

Additional Compliance Requirements:			
There are no barriers recommended on this site. Barriers are not recommended for installation because there are no exceedances on any walking/working surface. Signage is recommended at the access points and/or the Verizon antennas as noted in the table above. To reduce the risk of exposure and/or injury, EBI recommends that access to the water tank or areas associated with the active antenna installation be restricted and secured where possible.			
Consultant Legal Name	EBI Consulting	Phone/Fax	781-273-2500
Address	21 B Street, Burlington, MA 01803		

b. Signage/Barrier Diagram



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

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

c. Signage/Barrier Installation Detail

Mitigation Actions Required/Taken	GUIDELINES		NOTICE		CAUTION		WARNING		NOC INFO		BARRIER/MARKER
		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>						
Access Point(s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alpha	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Beta	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gamma	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	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	<ul style="list-style-type: none"> Install GUIDELINES and NOC INFO signs on the water tank access ladder.
Items to be Removed	N/A
Items to be Repaired/Replaced	N/A
Access Requirements	To reduce the risk of exposure and/or injury, EBI recommends that access to the water tank or areas associated with the active antenna installation be restricted and secured where possible.

Barriers are not recommended for installation because there are no exceedances on any walking/working surface.

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. Signs must be legible and readily viewable and readable at a minimum distance of five feet (1.52 meters) from the boundary (and as necessary on approach to this boundary) at which the applicable limits are exceeded, and that controls or indicators be placed at compliance boundaries. The minimum readable letter height at 5 feet from the signage is 0.20 inches for the Message and 0.44 inches for the Signal.

GUIDELINES	NOTICE	CAUTION	WARNING
This sign will inform anyone of the basic precautions to follow when entering an access point to 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.
			
NOC INFORMATION			INFORMATION
Information signs are used as a means 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

FUZE Project ID: 16233638
Project Name: 5G L-Sub6 - Carrier Add
Project Alt Name:
Project Type: Modification
Modification Type: RF
Designed Sector Carrier 4G: 18
Designed Sector Carrier 5G: 3
Additional Sector Carrier 4G: N/A
Additional Sector Carrier 5G: N/A
FP Solution Type & Tech Type: MODIFICATION;4G_AWS3,4G_CBRS,5G_L-Sub6-Prep
Carrier Aggregation: false
MPT Id:
eCIP-O: false
Suffix:

Location Information

Site ID: 698801
E-NodeB ID: 209323,2099323,2099411,0209323
PSLC: 113278
Switch Name: New Berlin
Tower Owner:
Tower Type: Tank
Site Type: MACRO
Site Sub Type: TRADITIONAL
Street Address: 11515 W Rogers St
City: Milwaukee
State: WI
Zip Code: 53227
County: MILWAUKEE
Latitude: 43.007861 / 43° 0' 28.2996" N
Longitude: -88.056083 / 88° 3' 21.8988" W

RFDS Project Scope:

Antenna Summary

Added														
700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
						ANDREW	HBX-9016DS-VTM	101	104.1	90(D2) 230(D3) 330(D1)	false	false	PHYSICAL	3
LTE	LTE	LTE	LTE			COMMSCOPE	NHH-65C-R2B	101	105	120(O2) 230(O3) 330(O1)	false	false	PHYSICAL	6
					LTE	ERICSSON	4408 3400 (1569634)	99	99.3	120(O2) 230(O3) 330(O1)	false	false	PHYSICAL	3
					5G	Ericsson	AIR6449	103	104.3	120(O002) 230(O003) 330(O001)	false	false	PHYSICAL	3

Removed														
700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
LTE		LTE				ANDREW	DBXNH-6565B-VTM	103	106	120(O2) 230(O3) 330(O1)	false	false	PHYSICAL	3
						KATHREIN	AP17-1900/0900 (141325)	103	105.7	90(O002) 90(O2) 90(D2) 230(O003) 230(O3) 230(D3) 330(O001) 330(O1) 330(D1)	false	false	PHYSICAL	6

Retained														
700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	Quantity
No data available.														

Added: 15 Removed: 9 Retained: 0

Equipment Summary

Added													
Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Diplexer	Tower							Commscope	CDX1923Q-DS-43			PHYSICAL	3
RRU	Tower					LTE		Ericsson	4408 B48			PHYSICAL	3
RRU	Tower	LTE						Ericsson	4449			PHYSICAL	3
RRU	Tower			LTE	LTE			Ericsson	8843			PHYSICAL	3
RRU	Tower					5G		Ericsson	AIR6449			PHYSICAL	3
OVP Box	Tower							Raycap	3315			PHYSICAL	3
OVP Box	Shelter							Raycap	6627			PHYSICAL	1
Removed													
Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Coaxial Cables	Tower							Andrew	Coax		15/8"	PHYSICAL	3
OVP Box	Tower							Commscope	1064			PHYSICAL	3
BAIST	Tower							Commscope	ATSBT-TOP-MF (Bias-T)			PHYSICAL	3
Diplexer	Tower							Commscope	DBC-7CAP			PHYSICAL	6
RRU	Tower			LTE				Ericsson	RRUS12 B4			PHYSICAL	3
RRU	Tower	LTE						Ericsson	RUL01 B13			PHYSICAL	6
Diplexer	Shelter							Commscope	DBC-7CAP			PHYSICAL	6
Retained													
Equipment Type	Location	700	1900	AWS	AWS3	CBRS	L-Sub6	Make	Model	Cable Length	Cable Size	Install Type	Quantity
Coaxial Cables	Tower							Andrew	Coax		15/8"	PHYSICAL	6
Hybrid Cable	Tower							Commscope	6x12			PHYSICAL	3
RRU	Move to Tower			LTE				Ericsson	8843			PHYSICAL	3

Service Info

700 MHz LTE													
Sector	01	02	03	01	02	03							
Cell / ENode B ID	209323	209323	209323	209323	209323	209323							
Antenna Model	DBXNH-6565B-VTM	DBXNH-6565B-VTM	DBXNH-6565B-VTM	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B							
Antenna Make	ANDREW	ANDREW	ANDREW	COMMSCOPE	COMMSCOPE	COMMSCOPE							
Antenna Centerline(Ft)	103	103	103	101	101	101							
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0							
Electrical Down-Tilt	4	9	6	4	8	6							
Tip Height	106	106	106	105	105	105							
Regulatory Power	70.59	79.94	61.11	196.72	190.69	191.05							
Total ERP (W)													
TMA Model													
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson							
RRU Model	2xRUL01 B13	2xRUL01 B13	2xRUL01 B13	4449	4449	4449							
Number of Tx, Rx Lines	2,2	2,2	2,2	4,4	4,4	4,4							
Position													
Transmitter Id	9945498	9945500	9945502	7889875	7889879	7889883							
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API							
1900 MHz LTE													
Sector	01	02	03	01	02	03							
Cell / ENode B ID	209323	209323	209323	209323	209323	209323							
Antenna Model	AP17-1900/0900 (141325)	AP17-1900/0900 (141325)	AP17-1900/0900 (141325)	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B							
Antenna Make	KATHREIN	KATHREIN	KATHREIN	COMMSCOPE	COMMSCOPE	COMMSCOPE							
Antenna Centerline(Ft)	103	103	103	101	101	101							
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0							
Electrical Down-Tilt	0	0	0	4	4	4							
Tip Height	105.7	105.7	105.7	105	105	105							
Regulatory Power	328.08	328.08	328.08	443.58	443.58	443.58							
Total ERP (W)													
TMA Model													
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson							
RRU Model	8843	8843	8843	8843	8843	8843							
Number of Tx, Rx Lines	2,2	2,2	2,2	4,4	4,4	4,4							
Position													
Transmitter Id	9945511	9945518	9945524	7889876	7889880	7889884							
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API							
1900 MHz CDMA													
Sector	D1	D3	D1	D2	D3								
Cell / ENode B ID	330	90	230	330	90	230							
Antenna Model	AP17-1900/0900 (141325)	AP17-1900/0900 (141325)	AP17-1900/0900 (141325)	HBX-9016DS-VTM	HBX-9016DS-VTM	HBX-9016DS-VTM							
Antenna Make	KATHREIN	KATHREIN	KATHREIN	ANDREW	ANDREW	ANDREW							
Antenna Centerline(Ft)	103	103	103	101	101	101							
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0							
Electrical Down-Tilt	0	0	0	0	0	1							
Tip Height	105.7	105.7	105.7	104.1	104.1	104.1							
Regulatory Power	197.34	312.76	197.34	441.79	441.79	441.79							
Total ERP (W)													
TMA Model													
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson							
RRU Model	8843	8843	8843	8843	8843	8843							
Number of Tx, Rx Lines	2,2	2,2	2,2	4,4	4,4	4,4							
Position													
Transmitter Id	9945505	9945507	9945509	7889888	7889890	7889892							
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API							

1900 MHz 5GNR				SGLS			
Sector	0001	0002	0003	0001	0002	0003	
Cell / ENode B ID	209411	209411	209411	209323	209323	209323	
Antenna Model	AP17-1900/090D (141325)	AP17-1900/090D (141325)	AP17-1900/090D (141325)	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B	
Antenna Make	KATHREIN	KATHREIN	KATHREIN	COMMSCOPE	COMMSCOPE	COMMSCOPE	
Antenna Centerline(FI)	103	103	103	101	101	101	
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0	
Electrical Down-Tilt	0	0	0	4	4	4	
Tip Height	105.7	105.7	105.7	104.999166666667	104.999166666667	104.999166666667	
Regulatory Power	328.08	328.08	328.08	420.24	420.24	420.24	
Total ERP (W)							
TMA Make							
TMA Model							
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	
RRU Model	8843	8843	8843	8843	8843	8843	
Number of Tx, Rx Lines	2,2	2,2	2,2	4,4	4,4	4,4	
Position							
Transmitter Id	9945529	9945530	9945531	7889758	7889759	7889760	
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	

2100 MHz LTE				SGLS			
Sector	01	02	03	01	02	03	
Cell / ENode B ID	209323	209323	209323	209323	209323	209323	
Antenna Model	DBXNH-6565B-VTM	DBXNH-6565B-VTM	DBXNH-6565B-VTM	NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B	
Antenna Make	ANDREW	ANDREW	ANDREW	COMMSCOPE	COMMSCOPE	COMMSCOPE	
Antenna Centerline(FI)	103	103	103	101	101	101	
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0	
Electrical Down-Tilt	0	0	0	2	2	2	
Tip Height	106	106	106	105	105	105	
Regulatory Power	243.13	243.13	243.13	316.19	353.87	316.19	
Total ERP (W)							
TMA Make							
TMA Model							
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	
RRU Model	RRUS12 B4	RRUS12 B4	RRUS12 B4	8843	8843	8843	
Number of Tx, Rx Lines	2,2	2,2	2,2	4,4	4,4	4,4	
Position							
Transmitter Id	9945499	9945501	9945503	7889877	7889881	7889885	
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	

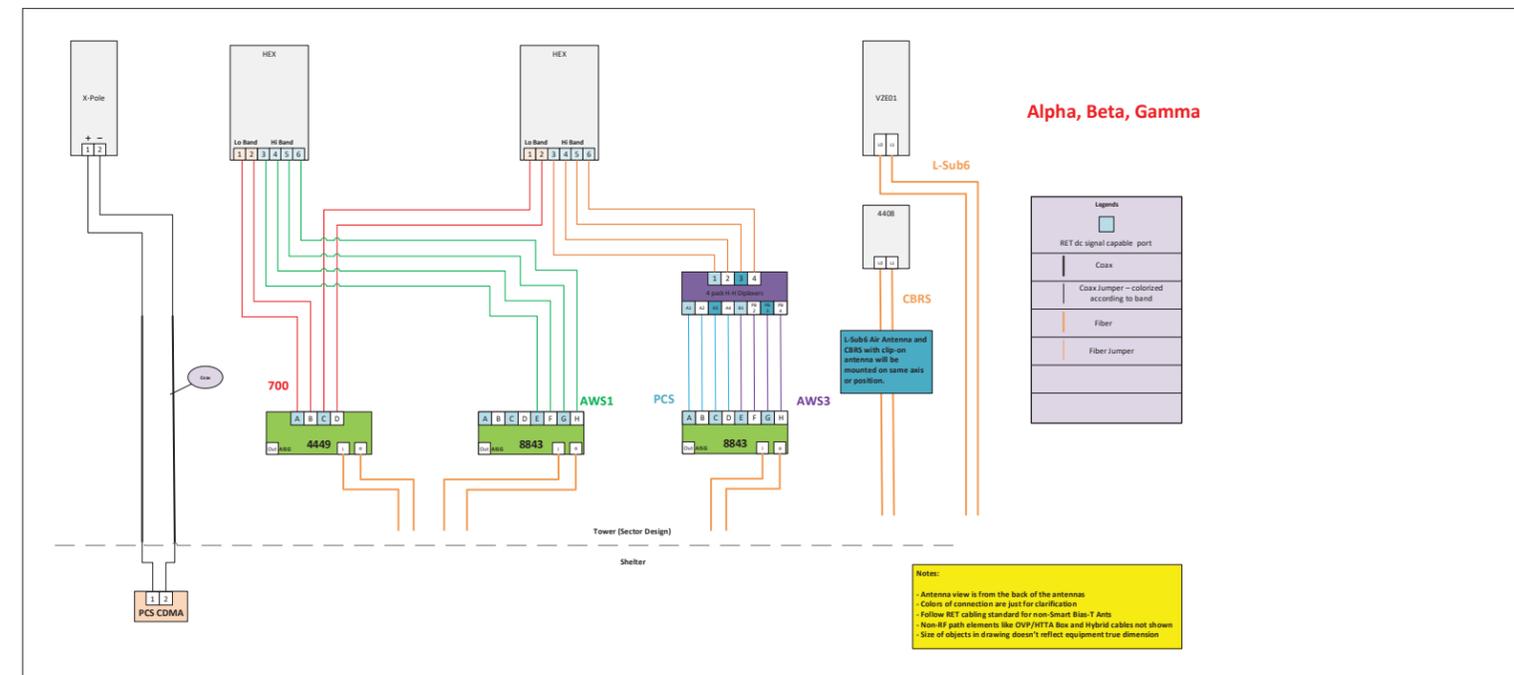
AWS3 LTE				SGLS			
Sector	01	02	03	01	02	03	
Cell / ENode B ID	209323	209323	209323	209323	209323	209323	
Antenna Model				NHH-65C-R2B	NHH-65C-R2B	NHH-65C-R2B	
Antenna Make				COMMSCOPE	COMMSCOPE	COMMSCOPE	
Antenna Centerline(FI)				101	101	101	
Mechanical Down-Tilt(Deg.)				0	0	0	
Electrical Down-Tilt				4	4	4	
Tip Height				105	105	105	
Regulatory Power				501.46	501.46	501.46	
Total ERP (W)							
TMA Make							
TMA Model							
RRU Make				Ericsson	Ericsson	Ericsson	
RRU Model				8843	8843	8843	
Number of Tx, Rx Lines				4,4	4,4	4,4	
Position							
Transmitter Id				7889878	7889882	7889886	
Source				ATOLL_API	ATOLL_API	ATOLL_API	

CBRS 3.5 GHz				SGLS			
Sector	01	01	01	01	01	01	
Cell / ENode B ID	209323	209323	209323	4408_3400 (1569634)	4408_3400 (1569634)	4408_3400 (1569634)	
Antenna Model							
Antenna Make				ERICSSON	ERICSSON	ERICSSON	
Antenna Centerline(FI)				99	99	99	
Mechanical Down-Tilt(Deg.)				0	0	0	
Electrical Down-Tilt				8	8	8	
Tip Height				99.3	99.3	99.3	
Regulatory Power				15.23	15.23	15.23	
Total ERP (W)							
TMA Make							
TMA Model							
RRU Make				Ericsson	Ericsson	Ericsson	
RRU Model				4408 B48	4408 B48	4408 B48	
Number of Tx, Rx Lines				4,4	4,4	4,4	
Position							
Transmitter Id				7736904	7736881	7736927	
Source				ATOLL_API	ATOLL_API	ATOLL_API	

02				03			
Sector	120	120	120	230	230	230	
Cell / ENode B ID	209323	209323	209323	4408_3400 (1569634)	4408_3400 (1569634)	4408_3400 (1569634)	
Antenna Model							
Antenna Make				ERICSSON	ERICSSON	ERICSSON	
Antenna Centerline(FI)				99	99	99	
Mechanical Down-Tilt(Deg.)				0	0	0	
Electrical Down-Tilt				8	8	8	
Tip Height				99.3	99.3	99.3	
Regulatory Power				17.24	17.24	14.47	
Total ERP (W)							
TMA Make							
TMA Model							
RRU Make				Ericsson	Ericsson	Ericsson	
RRU Model				4408 B48	4408 B48	4408 B48	
Number of Tx, Rx Lines				4,4	4,4	4,4	
Position							
Transmitter Id				7736905	7736882	7736906	
Source				ATOLL_API	ATOLL_API	ATOLL_API	

03			
Sector	230		
Cell / ENode B ID	209323		
Antenna Model	4408_3400 (1569634)		
Antenna Make	ERICSSON		
Antenna Centerline(FI)	99		
Mechanical Down-Tilt(Deg.)	0		
Electrical Down-Tilt	8		
Tip Height	99.3		
Regulatory Power	14.47		
Total ERP (W)			
TMA Make			
TMA Model			
RRU Make	Ericsson		
RRU Model	4408 B48		
Number of Tx, Rx Lines	4,4		
Position			
Transmitter Id	7736883		
Source	ATOLL_API		

L-Sub6				SGLS			
Sector	0001	0002	0003	0001	0002	0003	
Cell / ENode B ID	0209323	0209323	0209323	0209323	0209323	0209323	
Antenna Model	AIR6449	AIR6449	AIR6449	AIR6449	AIR6449	AIR6449	
Antenna Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	
Antenna Centerline(FI)	103	103	103	103	103	103	
Mechanical Down-Tilt(Deg.)	0	0	0	0	0	0	
Electrical Down-Tilt	6	6	6	6	6	6	
Tip Height	104.3	104.3	104.3	104.3	104.3	104.3	
Regulatory Power	2711.04	2711.04	2711.04	2711.04	2711.04	2711.04	
Total ERP (W)							
TMA Make							
TMA Model							
RRU Make	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	Ericsson	
RRU Model	AIR6449	AIR6449	AIR6449	AIR6449	AIR6449	AIR6449	
Number of Tx, Rx Lines	4,4	4,4	4,4	4,4	4,4	4,4	
Position							
Transmitter Id	7461995	7461996	7461997	7461995	7461996	7461997	
Source	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	ATOLL_API	



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

Post-Modification Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10170920

Paul J. Ford Project #: 24322-2340.001.8189

September 28, 2022

Site Information

Site ID: 113278-VZW / WEST ROGERS WT -- 698801
Site Name: WEST ROGERS WT -- 698801
Carrier Name: Verizon Wireless
Address: 11515 W Rogers St
Milwaukee, Wisconsin 53227, Milwaukee
County County
Latitude: 43.007900°
Longitude: -88.056080°

Structure Information

Tower Type: 181-Ft Water Tank
Mount Type: 12.50-Ft Sector Frame

FUZE ID # 16233638

Analysis Results

12.50-Ft Sector Frame: 79.3% **Pass w/ Modifications***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

***Contractor PMI Requirements:

Included at the end of this MA report

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

*For additional questions and support, please reach out to:
pmisupport@pauljford.com*

Report Prepared By: Brandon Saline

KAT



09/28/2022

Executive Summary:

The objective of this report is to summarize the analysis results of the antenna support mount including the proposed modifications at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

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
Radio Frequency Data Sheet (RFDS)	Verizon RFDS, 16233638, dated April 10, 2022
Previous Mount Analysis Report	Paul J. Ford, Project # 24320-0436.002.8190, dated December 22, 2020
Mount Mapping Report	SGS Tower, Project # 698801, dated November 24, 2020
Proposed Mount Modification	Paul J. Ford, Project # 24322-2340.001.8189, dated September 28, 2022

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 : 0.973
Seismic Parameters:	S_s : 0.076 g S_1 : 0.048 g
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
101.00±	103.00	3	Ericsson	AIR 6449	Added
	101.00	3	Ericsson	8843	Retained
		6	Commscope	NHH-65C-R2B	Added
		3	Commscope	CDX1923Q-DS-43	
		3	Ericsson	4449	
		3	Raycap	RC3DC-3315-PF-48	
		3	Ericsson	8843	
		3	Andrew	HBX-9016DS-VTM	
	99.00	3	Ericsson	4408 w/ KRE 105 281/1	

The recent mount mapping reported existing OVP units. It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Model Number	Ports	AKA
RHSDC-1064-PF-48	2	OVP-2
RC3DC-3315-PF-48	6	OVP-6
RC3DC-3300-PF-48	6	OVP-6
RC3DC-4750-PF-48	6	OVP-6
RHSDC-6627-PF-48	12	OVP-12
RHSDC-6600-PF-48	12	OVP-12

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Paul J. Ford and Company 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 and Company 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 in accordance with the NSTD-446 Standard, 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. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.
6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Paul J. Ford and Company is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.
7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
 - Channel, Solid Round, Angle, Plate ASTM A36 (Gr. 36)
 - HSS (Rectangular) ASTM 500 (Gr. B-46)
 - Pipe ASTM A53 (Gr. B-35)
 - Threaded Rod F1554 (Gr. 36)
 - Bolts ASTM A325
8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

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

Analysis Results:

Component	Utilization %	Pass/Fail
Face Horizontals	71.8%	Pass
Standoff Members	16.5%	Pass
Tie Backs	7.9%	Pass
Mount Pipes	61.5%	Pass
Mount to Tower Connection	79.3%	Pass
Structure Rating – (Controlling Utilization of all Components)		79.3%

Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

Ice Thickness (In)	Mount Pipes Excluded		Mount Pipes Included	
	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	34.3	29.5	52.6	47.7
0.5	43.3	47.7	74.8	68.0
1	54.2	59.9	95.0	86.3

Notes:

- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 3 sector(s).
- Ka factors included in (EPA)a calculations

Requirements:

The existing mounts will be **SUFFICIENT** for the final loading configuration (attachment 2) **after the modifications detailed in attachment 3 are successfully completed.**

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. Contractor Required PMI Report Deliverables
2. Antenna Placement Diagrams
3. Mount Modification Drawings
4. Mount Photos
5. Mount Mapping Report (for reference only)
6. Analysis Calculations

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Mount Modification

Electronic pdf version of this can be downloaded at <https://pmi.vzwsmart.com>

For additional questions and support, please reach out to pmisupport@pauljford.com

PSLC #: 113278

SMART Project #: 10170920

Fuze Project ID: 16233638

Purpose – to upload the proper documentation to the SMART Tool in order to allow the SMART Tool engineering vendor to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the modification was completed in accordance with the modification drawings.
- Contractor shall relay any data that can impact the performance of the mount or the mount modification, this includes safety issues.

Base Requirements:

- If installation of the modification will cause damage to the structure, the climbing facility, or safety climb if present or any installed system, SMART Tool vendor to be notified prior to install. Any special photos outside of the standard requirements will be indicated on the drawings.
- Provide “as built drawings” showing contractor’s name, preparer’s signature, and date. Any deviations from the drawings (proposed modification) shall be shown. NOTE: If loading is different than what is conveyed in the post-modification passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo shall be time and date stamped.
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope. If there is conflict, contact the SMART Tool engineer for recommendations.
- The PMI can be accessed at the following portal: <https://pmi.vzwsmart.com>

Photo Requirements:

- Photos taken at ground level
 - Photo of Gate Signs showing the tower owner, site name, and number.
 - Overall tower structure after installation of the modifications.
 - Photos of the mount after installation of the modifications; if the mounts are at different rad elevations, pictures must be provided for all elevations that the modifications were installed
- Photos taken at Mount Elevation
 - Photos showing the safety climb wire rope above and below the mount prior to modification.
 - Photos showing the climbing facility and safety climb if present.

- Photos showing each individual sector after installation of modifications. Each entire sector must be in one photo to show the interconnection of members.
 - These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this form.
- Photos that show the model number of each antenna and piece of equipment installed per sector.
- Photos of each installed modification per the modification drawings; pictures shall also include connection hardware (U-bolts, bolts, nuts, all-threaded rods, etc.)
- Photos showing the distances (relative distance between collars) of the installed modifications from the appropriate reference locations shown in the modification drawings.
- Photos showing the installed modifications onto the tower (i.e. ring/collar mounts, tie-backs, V-bracing kits, etc.); if the existing mount elevation needs to be changed according to the modification drawings, an elevation measurement shall be provided before the elevation change.

Material Certification:

- Materials utilized must be as per specification on the drawings or the equivalent as validated by the SMART Tool vendor.
 - If the materials are as specified on the drawings
 - The contractor shall provide the packing list, or the materials certifications for the materials utilized to perform the mount modification
 - Commscope, Metrosite, Perfect Vision, Sabre, and Site Pro have all agreed to support Verizon vendors with the necessary material certifications
 - If seeking permission to use an equivalent
 - It is required that the SMART Tool engineering vendor approval of such is included in the contractor submission package. There may be an additional charge for approval if the equivalent submission doesn't meet specifications as prescribed in the drawings.

All hardware has been properly installed, and the existing hardware was inspected.

The material utilized was as specified on the SMART Tool engineering vendor Mount Modification Drawings and included in the material certification folder is a packing list or invoice for these materials.

OR

The material utilized was approved by a SMART Tool engineering vendor as an "equivalent" and this approval is included as part of the contractor submission.

Antenna & Equipment Placement and Geometry Confirmation:

The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.

OR

- The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.

Comments:

Was the mount modification completed in conjunction with the equipment change / installation?

- Yes No

Special Instructions / Validation as required from the MA or Mod Drawings:

Issue:

Response:

Special Instruction Confirmation:

- The contractor has read and acknowledges the above special instructions.

Comments:

Contractor certifies that the climbing facility / safety climb was not damaged prior to starting work:

- Yes No

Contractor certifies no new damage created during the current installation:

- Yes No

Contractor to certify the condition of the safety climb and verify no damage when leaving the site:

- Safety Climb in Good Condition Safety Climb Damaged

Comments:

--

Certifying Individual:

Company:	
Employee Name:	
Contact Phone:	
Email:	
Date:	

S r: A
 Sr r T :W r T
 M E : 101.00

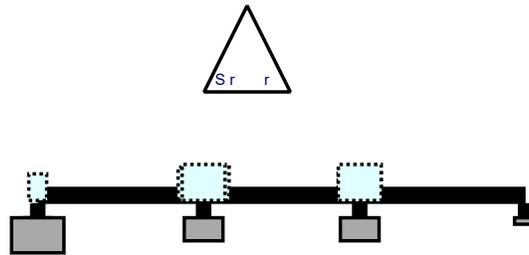
9/28/2022

10170920

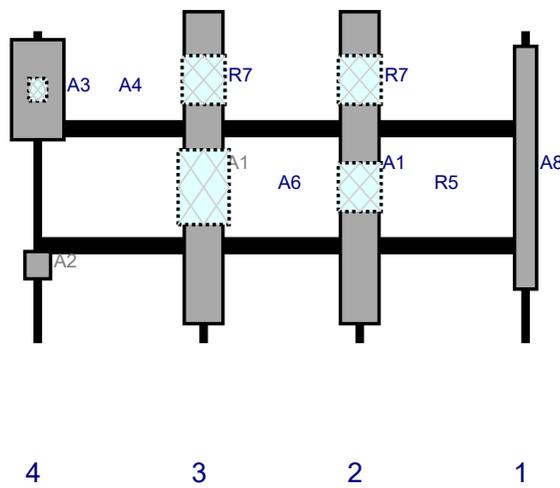


P : 1

Plan View



Front View - L Sr r



R #	M d	H ()	Wd ()	HD Frm L.	P #	P P	A V P	C. A Frm T.	A H O	S	V d
A8	HBX-9016DS-VTM	74.7	6.8	150	1		Fr	42	0	Add d	
A1	NHH-65C-R2B	96	11.9	99	2		Fr	42	0	Add d	
R5	4449	15	13.2	99	2		B d	48	0	Add d	
R7	8843	15	13.2	99	2		B d	15	0	Add d	
A1	NHH-65C-R2B	96	11.9	51	3		Fr	42	0	Add d	
A6	RC3DC-3315-PF-48	23	15.7	51	3		B d	48	0	Add d	
R7	8843	15	13.2	51	3		B d	15	0	Add d	
A2	4408 / KRE 105 281/1	8.4	7.9		4		Fr	72	0	Add d	
A3	AIR 6449	30.8	16.1		4		Fr	18	0	Add d	
A4	CDX1923Q-DS-43	6.9	5.5		4		B d	18	0	Add d	

S r: B
 Sr r T :W r T
 M E : 101.00

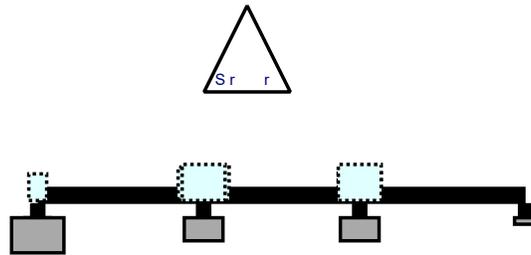
9/28/2022

10170920

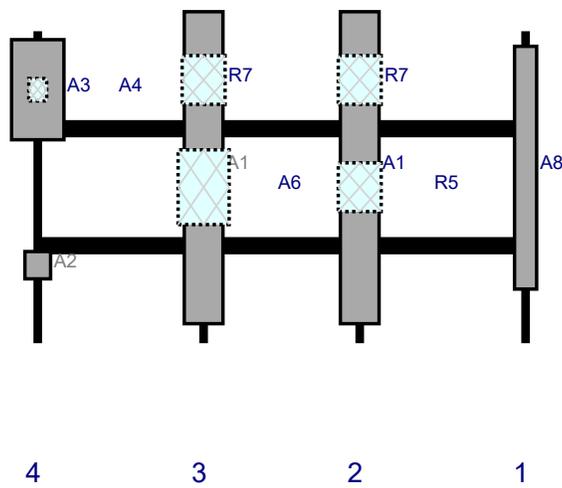


P : 2

Plan View



Front View - L Sr r



R #	M d	H ()	Wd ()	HD Frm L.	P #	P P	A V P	C. A Frm T.	A H O	S	V d
A8	HBX-9016DS-VTM	74.7	6.8	150	1		Fr	42	0	Add d	
A1	NHH-65C-R2B	96	11.9	99	2		Fr	42	0	Add d	
R5	4449	15	13.2	99	2		B d	48	0	Add d	
R7	8843	15	13.2	99	2		B d	15	0	Add d	
A1	NHH-65C-R2B	96	11.9	51	3		Fr	42	0	Add d	
A6	RC3DC-3315-PF-48	23	15.7	51	3		B d	48	0	Add d	
R7	8843	15	13.2	51	3		B d	15	0	Add d	
A2	4408 / KRE 105 281/1	8.4	7.9		4		Fr	72	0	Add d	
A3	AIR 6449	30.8	16.1		4		Fr	18	0	Add d	
A4	CDX1923Q-DS-43	6.9	5.5		4		B d	18	0	Add d	

S r: C
 Sr r T :W r T
 M E : 101.00

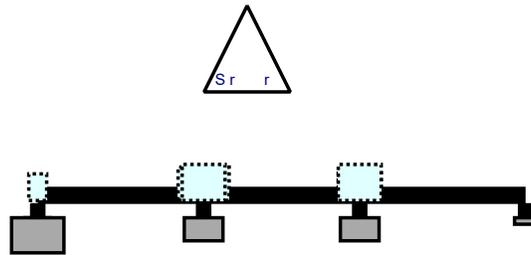
9/28/2022

10170920

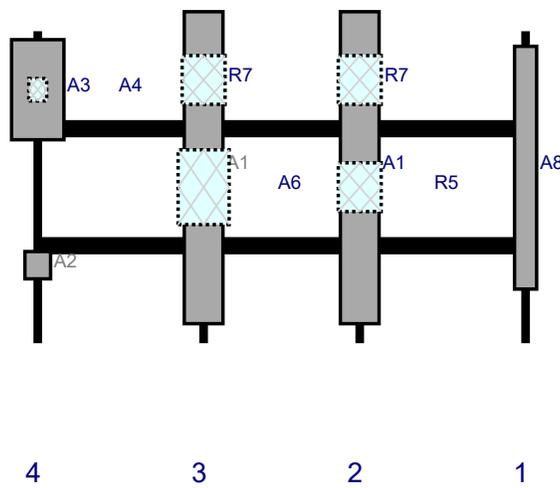


P : 3

Plan View



Front View - L Sr r



R #	M d	H ()	Wd ()	HD Frm L.	P #	P P	A V P	C. A Frm T.	A H O	S	V d
A8	HBX-9016DS-VTM	74.7	6.8	150	1		Fr	42	0	Add d	
A1	NHH-65C-R2B	96	11.9	99	2		Fr	42	0	Add d	
R5	4449	15	13.2	99	2		B d	48	0	Add d	
R7	8843	15	13.2	99	2		B d	15	0	Add d	
A1	NHH-65C-R2B	96	11.9	51	3		Fr	42	0	Add d	
A6	RC3DC-3315-PF-48	23	15.7	51	3		B d	48	0	Add d	
R7	8843	15	13.2	51	3		B d	15	0	Add d	
A2	4408 / KRE 105 281/1	8.4	7.9		4		Fr	72	0	Add d	
A3	AIR 6449	30.8	16.1		4		Fr	18	0	Add d	
A4	CDX1923Q-DS-43	6.9	5.5		4		B d	18	0	Add d	

MOUNT MODIFICATION DRAWINGS PROPOSED CARRIER: VERIZON

113278-VZW / WEST ROGERS WT -- 698801

11515 W ROGERS ST
MILWAUKEE, WISCONSIN 53227
MILWAUKEE COUNTY

LAT: 43° 00' 28.30"; LONG: -88° 03' 21.90"

STRUCTURE OWNER: CITY OF WEST ALLIS

FUZE ID # 16233638

© Copyright 2022, by Paul J. Ford and Company, All Rights Reserved. This document and the data contained herein, is proprietary to Paul J. Ford and Company, issued in strict confidence and shall not, without the prior written permission of Paul J. Ford and Company, be reproduced, copied or used for any purpose other than the intended use for this specific project.

PAUL J. FORD & COMPANY
250 E Broad St. Ste 600 Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

VERIZON WIRELESS

113278-VZW / WEST ROGERS WT --

698801

MILWAUKEE, WISCONSIN
MOUNT MODIFICATION DRAWINGS

CONTRACTOR PMI REQUIREMENTS	
PMI ACCESSED AT	HTTPS://PMI.VZWSMART.COM
SMART TOOL VENDOR PROJECT #	10170920
VZW LOCATION CODE (PSLC)	113278
*** PMI AND REQUIREMENTS ALSO EMBEDDED WITHIN MOUNT ANALYSIS REPORT	

VZW APPROVED SMART KIT VENDORS
REFER TO BILL OF MATERIALS SHEET FOR VZW SMART KIT APPROVED VENDORS

SHEET INDEX		
SHEET	DESCRIPTION	REV
ST-1	TITLE SHEET	0
SBOM	BILL OF MATERIALS	0
SGN-1	GENERAL NOTES	0
SS-1	MODIFICATION DETAILS	0
SS-2	MODIFICATION DETAILS	0
SS-3	MODIFICATION DETAILS	0
SS-4	MOUNT PHOTOS	0
	SPECIFICATION SHEETS	



PROJECT No:	24322-2340.001.8189
DRAWN BY:	BRS
DESIGNED BY:	BRS
CHECKED BY:	KAT
DATE:	09/28/2022

TITLE SHEET

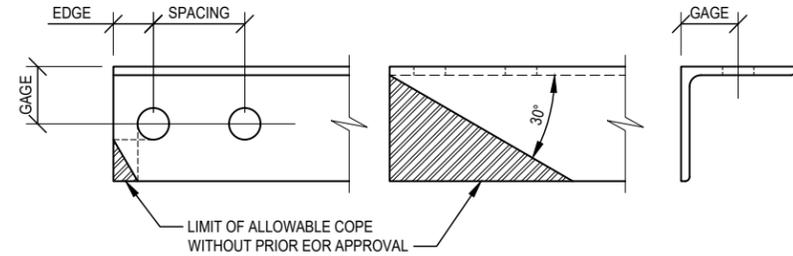
ST-1

GENERAL NOTES:

- PAUL J. FORD AND COMPANY WAS NOT PROVIDED WITH THE EXACT LOCATION OF EVERY EXISTING ANTENNA MOUNT CONNECTION, CABLE CLIP, ETC THAT COULD POTENTIALLY INTERFERE WITH THE MODIFICATIONS AS INDICATED ON THESE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY THAT THE MATERIAL CAN BE INSTALLED AS SHOWN ON THESE DRAWINGS BEFORE FABRICATING ANY MATERIAL. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROPER FIT AND CLEARANCE OF THE REINFORCING MATERIAL IN THE FIELD. IF THE CONTRACTOR DISCOVERS ANY EXISTING CONDITIONS THAT ARE NOT AS REPRESENTED ON THESE DRAWINGS, PAUL J. FORD AND COMPANY SHALL BE CONTACTED IMMEDIATELY TO EVALUATE THE STRUCTURAL SIGNIFICANCE OF THE DEVIATION.
- WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING THE LOCAL BUILDING OFFICIALS FOR ANY INSPECTIONS THAT MAY BE REQUIRED.
- THE CONTRACTOR MUST BE EXPERIENCED IN THE PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED ON THESE DRAWINGS. BY ACCEPTANCE OF THIS PROJECT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED TO DO THIS WORK IN THE JURISDICTION IN WHICH THE WORK IS TO BE PERFORMED.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION. ALL STRUCTURES ARE DESIGNED TO BE STABLE AND SELF-SUPPORTING AT THE COMPLETION OF CONSTRUCTION. THIS DRAWING DOES NOT INDICATE THE METHOD OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE THE ERECTION PROCEDURES, METHODS, MEANS, TECHNIQUES, AND SEQUENCES TO ENSURE THE STABILITY AND SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS DURING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING THAT MAY BE NECESSARY AND ENGINEERING ASSESSMENT OF CONSTRUCTION STRESSES WITH INSTALLATION MAXIMUM WIND SPEED AND/OR TEMPORARY BRACING AND SHORING. SUCH MATERIAL IS NOT INDICATED ON THE DRAWINGS AND, IF PROVIDED, SHALL BE REMOVED, AS CONDITIONS PERMIT AND REMAIN THE PROPERTY OF THE CONTRACTOR.
- ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE STRUCTURE THAT MAY INTERFERE WITH THE INSTALLATION OF THE MODIFICATION SYSTEM WILL HAVE TO BE REMOVED AND RELOCATED, REPLACED, OR RE-INSTALLED AS REQUIRED AFTER THE MODIFICATION IS SUCCESSFULLY COMPLETED. THE CONTRACTOR SHALL IDENTIFY AND COORDINATE THESE ITEMS PRIOR TO CONSTRUCTION WITH OWNER, TESTING AGENCY, AND EOR.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PROGRAMS AND PRECAUTIONS IN CONNECTION WITH THE WORK.
- CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT DAMAGE TO EXISTING STRUCTURES, EQUIPMENT AND UTILITIES. ANY DAMAGE TO EXISTING STRUCTURES, EQUIPMENT, AND UTILITIES AS A RESULT OF THE CONTRACTOR'S WORK OR FROM DAMAGE DUE TO OTHER CAUSES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
- WORK SHALL BE PERFORMED DURING CALM DRY DAYS (WINDS LESS THAN 30-MPH) IN ACCORDANCE WITH OPERATIONAL WIND CONDITIONS PER TIA-322.
- THE MOUNTING SYSTEM SHALL NOT BE USED AS A TIE OFF POINT.
- THE STRUCTURAL ANALYSIS ASSUMES THAT ALL STRUCTURAL COMPONENTS ARE IN BRAND-NEW CONDITION, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. NO ALLOWANCE WAS MADE FOR ANY DAMAGED, MISSING, OR RUSTED MEMBERS. IF ANY OF THESE CONDITIONS ARE DISCOVERED, THE CONTRACTOR SHALL BRING THEM TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY OWNER AND EOR PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
- IF MATERIALS, QUANTITIES, STRENGTHS, OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH, OR SIZE INDICATED, SPECIFIED, OR NOTED SHALL BE PROVIDED.
- OBSERVATION VISITS TO THE SITE BY OWNER AND/OR THE EOR SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
- ANY SUPPORT SERVICES PERFORMED BY THE EOR DURING CONSTRUCTION ARE SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING GENERAL PERFORMANCE WITH CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE CONTRACTORS PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
- THE CLIMBING FACILITIES, SAFETY CLIMB, AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED, OR ALTERED WITHOUT THE APPROVAL OF THE EOR.
- AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MODIFICATION SYSTEM AND THE WORK HAS BEEN ACCEPTED BY THE OWNER, THE OWNER WILL BE RESPONSIBLE FOR THE LONG TERM/PERPETUAL INSPECTION AND MAINTENANCE OF THE STRUCTURE AND MODIFICATION SYSTEM.
- DO NOT SCALE DRAWINGS.
- THE MOUNTING SYSTEM SHALL NOT BE USED FOR RIGGING PURPOSES. IF RIGGING TO THE MOUNT IS REQUIRED, ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION), INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH THE ANSI/TIA-322 (LATEST EDITION).
- ALL MANUFACTURER'S HARDWARE ASSEMBLY INSTRUCTIONS SHALL BE FOLLOWED, UNO. CONFLICTING NOTES SHALL BE BROUGHT TO THE ATTENTION OF THE EOR.
- IF REMOVAL OF EXISTING MODIFICATIONS IS REQUIRED PER THE MODIFICATION SCOPE, THE GC SHALL CLEAN AND COLD GALVANIZE ANY EXISTING EMPTY BOLT HOLES, UNO. IF ADDITIONAL UNEXPECTED, OVERSIZED, OR SLOTTED HOLES ARE FOUND, THE GC SHALL CONTACT THE EOR FOR GUIDANCE PRIOR TO PROCEEDING WITH THE MODIFICATION.

STRUCTURAL STEEL:

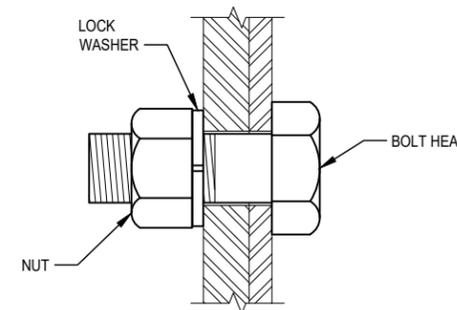
- STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST ADDITION OF THE FOLLOWING REFERENCE STANDARDS:
 - BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
 - "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS"
 - "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS" AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.
 - "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
 - BY THE AMERICAN WELDING SOCIETY (AWS):
 - "STRUCTURAL WELDING CODE- STEEL D1.1"
 - "STANDARD SYMBOLS FOR WELDING, BRAZING, AND NON-DESTRUCTIVE EXAMINATION"
- NEW STEEL (UNLESS NOTED OTHERWISE) SHALL CONFORM TO THE REQUIREMENTS OF THE ASTM STANDARD SPECIFICATION FOR STRUCTURAL STEEL NOTED BELOW:
 - W - ASTM A992 (50 KSI YIELD POINT MATERIAL)
 - HSS RECTANGULAR - ASTM A500 GR. B (46 KSI YIELD POINT MATERIAL)
 - HSS ROUND - ASTM A500 GR. B (42 KSI YIELD POINT MATERIAL)
 - PIPE - ASTM A53 GR. B (35 KSI YIELD POINT MATERIAL)
 - C, MC, L, PLATES, BARS & ALL OTHER STEEL - ASTM A36 (36KSI YIELD POINT MATERIAL)
 - BOLTS - ASTM A325
 - U-BOLTS - ASTM A307 GRADE A, OR SAE J429 GRADE 2
 - THREADED RODS - ASTM A36
 - NUTS - ASTM A563 GRADE DH
 - WASHERS - ASTM F436 TYPE 1
- ALL NEW STEEL SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, ASTM 153/A153M, OR ASTM A653 G90.
- ALL BOLTS, U-BOLTS, AND THREADED RODS SHALL BE PROVIDED WITH LOCK-WASHERS, OR LOCK-NUTS, OR PAL-NUTS TORQUED TO THE SNUG-TIGHT CONDITION AS DEFINED BY AISC.
- ALL HOLES, EITHER PUNCHED OR DRILLED, IN THE EXISTING STEEL MEMBERS SHALL BE 1/16 INCH LARGER THAN THE BOLT DIAMETER, UNLESS NOTED OTHERWISE. BURNING OF MEMBERS SHALL NOT BE PERMITTED. SLOTTED HOLES ARE NOT PERMITTED. THE MINIMUM BOLT SPACING SHALL BE 3 TIMES THE BOLT DIAMETER AND THE MINIMUM EDGE DISTANCE SHALL BE 1.5 TIMES THE BOLT DIAMETER UNLESS NOTED OTHERWISE. ALL BOLT HOLES SHALL BE PLACED AT AISC STANDARD GAGE DIMENSIONS, UNLESS NOTED OTHERWISE.
- IF ANY EXISTING ASTM A325 BOLTS ARE REMOVED, THEY MUST BE REPLACED WITH NEW A325 BOLTS OR GREATER.
- ALL EXISTING PAINTED OR GALVANIZED SURFACES DAMAGED DURING CONSTRUCTION SHALL BE WIRE BRUSHED CLEAN, REPAIRED BY FIRM GALVANIZING BRUSH APPLIED PAINT (ZINGA OR EQUAL), AND REPAINTED TO MATCH THE EXISTING FINISH CONFORMING TO ASTM A780.
- ALL PARTS ARE TO MARKED WITH ITEM NUMBERS USING 3/4" HIGH STEEL STENCILS.
- SHOP SHALL ASSEMBLE AND VERIFY FIT AND GAPS BEFORE BREAKDOWN FOR GALVANIZING.
- NO FIELD WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL OF THE OWNER AND SUPERVISION BY THE INSPECTION/TESTING AGENCY.
- ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS. NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE GROUND SMOOTH AND DE-BURRED. CONTRACTOR TO AVOID 90 DEGREE CORNERS. IT MAY BE NECESSARY TO DRILL STARTER HOLES AS REQUIRED TO MAKE THE CUT.
- ALL JOINTS ARE BEARING TYPE CONNECTIONS, UNO. IF NO BOLT LENGTH IS GIVEN IN THE BILL OF MATERIALS, THE CONNECTION MAY INCLUDE THREADS IN THE SHEAR PLANE, AND THE GC IS RESPONSIBLE FOR SIZING THE LENGTH OF THE BOLT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.



ALLOWABLE COPING

BOLT SCHEDULE (IN)				
BOLT DIAMETER	STANDARD HOLE	SHORT SLOT	MIN EDGE DISTANCE	SPACING
1/2	9/16	9/16 x 11/16	7/8	1 1/2
5/8	11/16	11/16 x 7/8	1 1/8	1 7/8
3/4	13/16	13/16 x 1	1 1/4	2 1/4
7/8	15/16	15/16 x 1 1/8	1 1/2	2 5/8
1	1 1/16	1 1/16 x 1 5/16	1 3/4	3

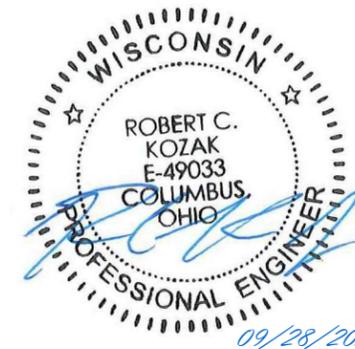
WORKABLE GAGES (IN)	
LEG	GAGE
4	2 1/2
3 1/2	2
3	1 3/4
2 1/2	1 3/8
2	1 1/8



TYP BOLT ASSEMBLY

NOTE:

- ALL DIMENSIONS REPRESENTED IN THE ABOVE TABLES ARE AISC MINIMUM REQUIREMENTS. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ENGINEER IF DISTANCES ARE LESS THAN THOSE PROVIDED.
- THE DIMENSIONS PROVIDED ARE MINIMUM REQUIREMENTS. ACTUAL DIMENSIONS OF PROPOSED MEMBERS WITHIN THESE DRAWINGS MAY VARY FROM THE AISC MINIMUM REQUIREMENTS.
- SHORT SLOT HOLES SHALL ONLY BE USED WHEN DEPICTED IN THE DRAWING.
- MATCH EXISTING GAGES WHEN APPLICABLE, UNLESS MINIMUM EDGE DISTANCES ARE COMPROMISED.



© Copyright 2022, by Paul J. Ford and Company, All Rights Reserved. This document and the data contained herein, is proprietary to Paul J. Ford and Company, issued in strict confidence and shall not, without the prior written permission of Paul J. Ford and Company, be reproduced, copied or used for any purpose other than the intended use for this specific project.

PAUL J. FORD & COMPANY
 250 E Broad St. Ste 600 · Columbus, OH 43215
 Phone 614.221.6679 www.pauljford.com

VERIZON WIRELESS

113278-VZW / WEST ROGERS WT --

698801

**MILWAUKEE, WISCONSIN
 MOUNT MODIFICATION DRAWINGS**

PROJECT No:	24322-2340.001.8189
DRAWN BY:	BRS
DESIGNED BY:	BRS
CHECKED BY:	KAT
DATE:	09/28/2022

GENERAL NOTES

SGN-1

NOTES:

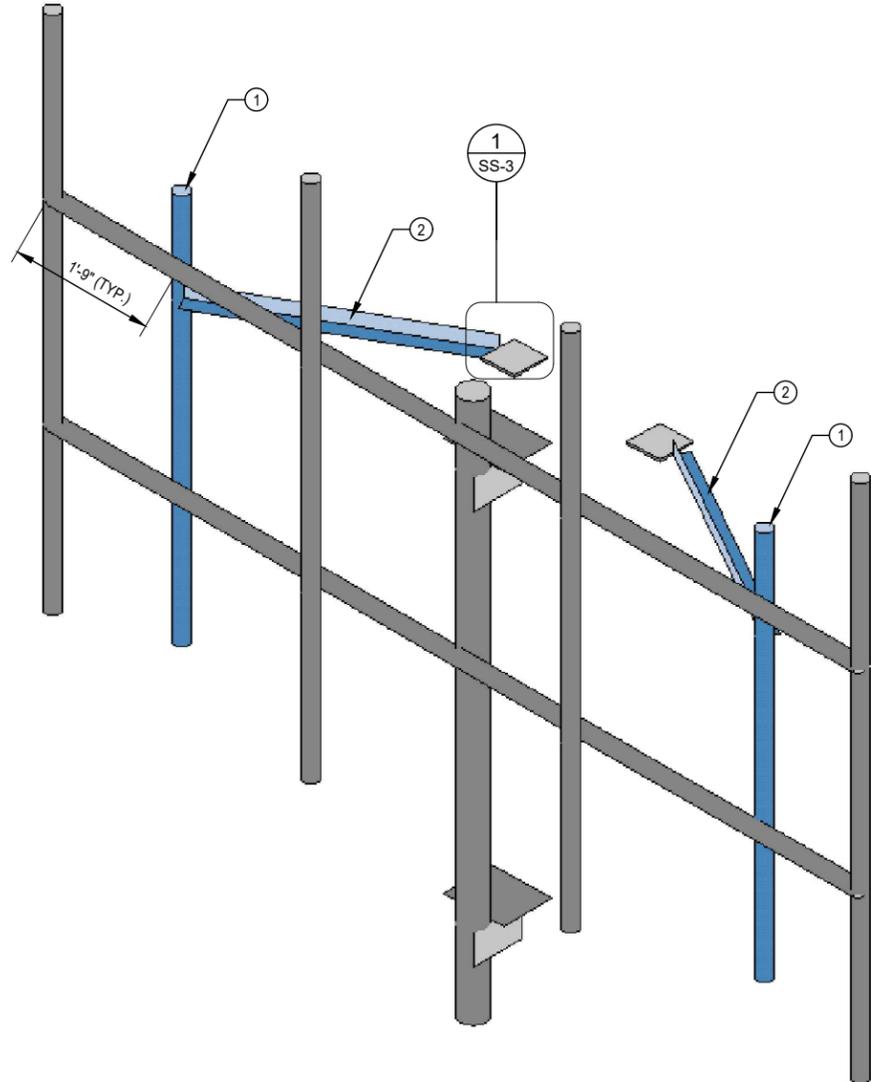
1. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSE ONLY AND SHALL NOT BE USED FOR FABRICATION.
2. ALL MODIFICATIONS SHOWN ARE TYPICAL ALL SECTORS UNLESS NOTED OTHERWISE.
3. SOME MEMBERS NOT SHOWN FOR CLARITY.
4. RADIO AND/OR TME POSITIONS SHALL BE ADJUSTED VERTICALLY AS NEEDED IN ORDER TO ACHIEVE INSTALLATION OF MODIFICATION KITS AS SHOWN. EOR SHALL BE NOTIFIED IF EQUIPMENT NEEDS TO BE RELOCATED TO ANOTHER MOUNT PIPE.
5. MEMBERS IN BLUE COLOR ARE NEW REINFORCEMENTS AND MEMBERS IN AQUA COLOR (IF SHOWN) ARE RELOCATED MEMBERS.
6. ALL SHOWN DIMENSIONS HAVE AN INSTALLABLE TOLERANCE OF $\pm 0'-3"$, UNLESS NOTED OTHERWISE.

MOUNT MODIFICATION SCHEDULE			
	ELEVATION	MOUNT MODIFICATION DESCRIPTION	REFERENCE SHEETS
1	101'-0"±	INSTALL NEW MOUNT PIPES USING NEW CROSSOVER PLATES (GAMMA SECTOR ONLY)	SS-1
2	101'-0"±	INSTALL NEW CUSTOM ANGLE TIEBACKS (GAMMA SECTOR ONLY)	SS-1

© Copyright 2022, by Paul J. Ford and Company, All Rights Reserved. This document and the data contained herein, is proprietary to Paul J. Ford and Company, issued in strict confidence and shall not, without the prior written permission of Paul J. Ford and Company, be reproduced, copied or used for any purpose other than the intended use for this specific project.

PJF PAUL J. FORD & COMPANY
 250 E Broad St. Ste 600 Columbus, OH 43215
 Phone 614.221.6679 www.pauljford.com

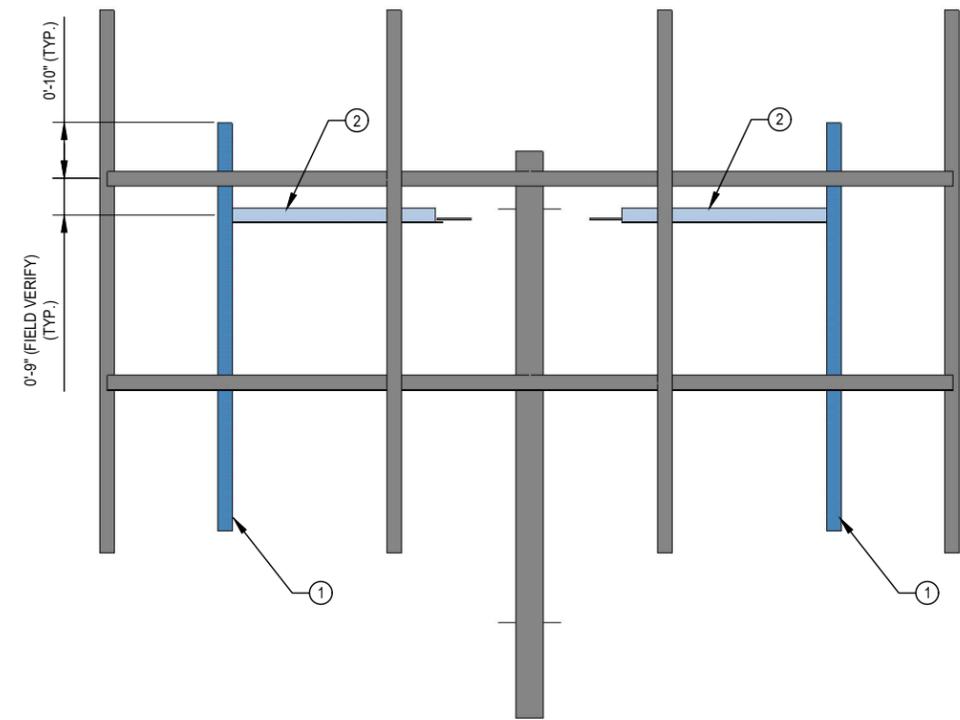
VERIZON WIRELESS



ISOMETRIC MODIFIED MOUNT VIEW (GAMMA)

SCALE: NTS

1
SS-1



FRONT VIEW (GAMMA)

SCALE: NTS

2
SS-1



113278-VZW / WEST ROGERS WT --

698801

MILWAUKEE, WISCONSIN
 MOUNT MODIFICATION DRAWINGS

PROJECT No:	24322-2340.001.8189
DRAWN BY:	BRS
DESIGNED BY:	BRS
CHECKED BY:	KAT
DATE:	09/28/2022

MODIFICATION
 DETAILS

SS-1

© Copyright 2022, by Paul J. Ford and Company, All Rights Reserved. This document and the data contained herein, is proprietary to Paul J. Ford and Company, issued in strict confidence and shall not, without the prior written permission of Paul J. Ford and Company, be reproduced, copied or used for any purpose other than the intended use for this specific project.

RJF PAUL J. FORD & COMPANY
 250 E Broad St. Ste 600 Columbus, OH 43215
 Phone 614.221.6679 www.pauljford.com

VERIZON WIRELESS

113278-VZW / WEST ROGERS WT --

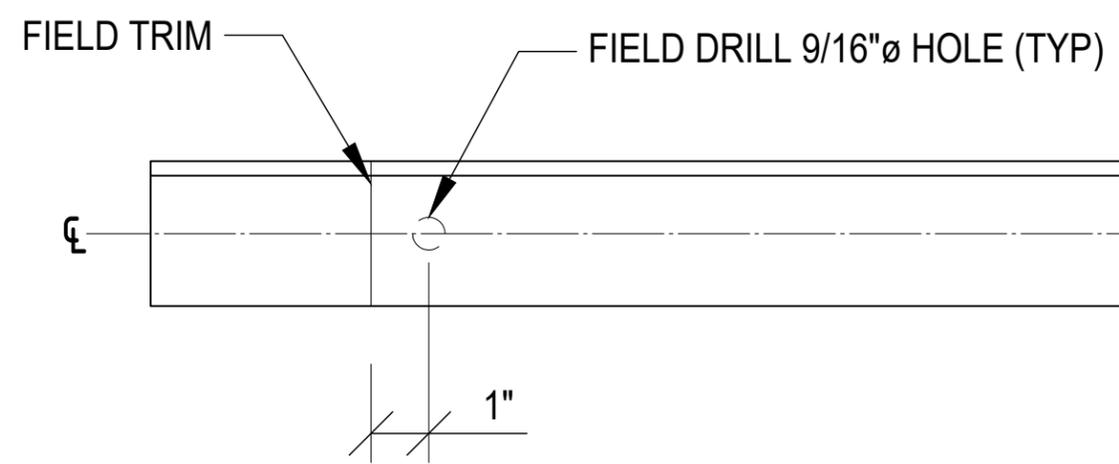
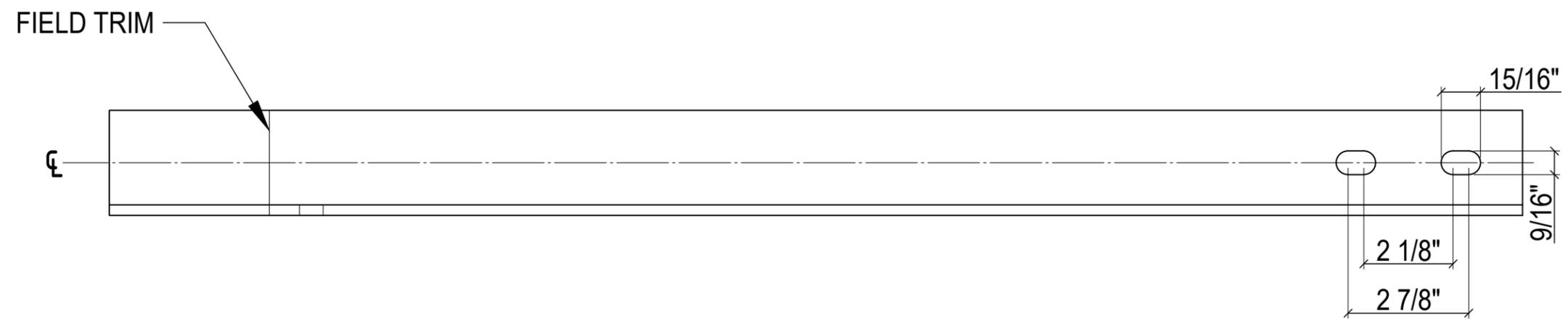
698801

MILWAUKEE, WISCONSIN
 MOUNT MODIFICATION DRAWINGS

PROJECT No: 24322-2340.001.8189
 DRAWN BY: BRS
 DESIGNED BY: BRS
 CHECKED BY: KAT
 DATE: 09/28/2022

MODIFICATION
 DETAILS

SS-2



CUSTOM ANGLE TIEBACK DETAIL

L2.5 x 2.5 x 1/4

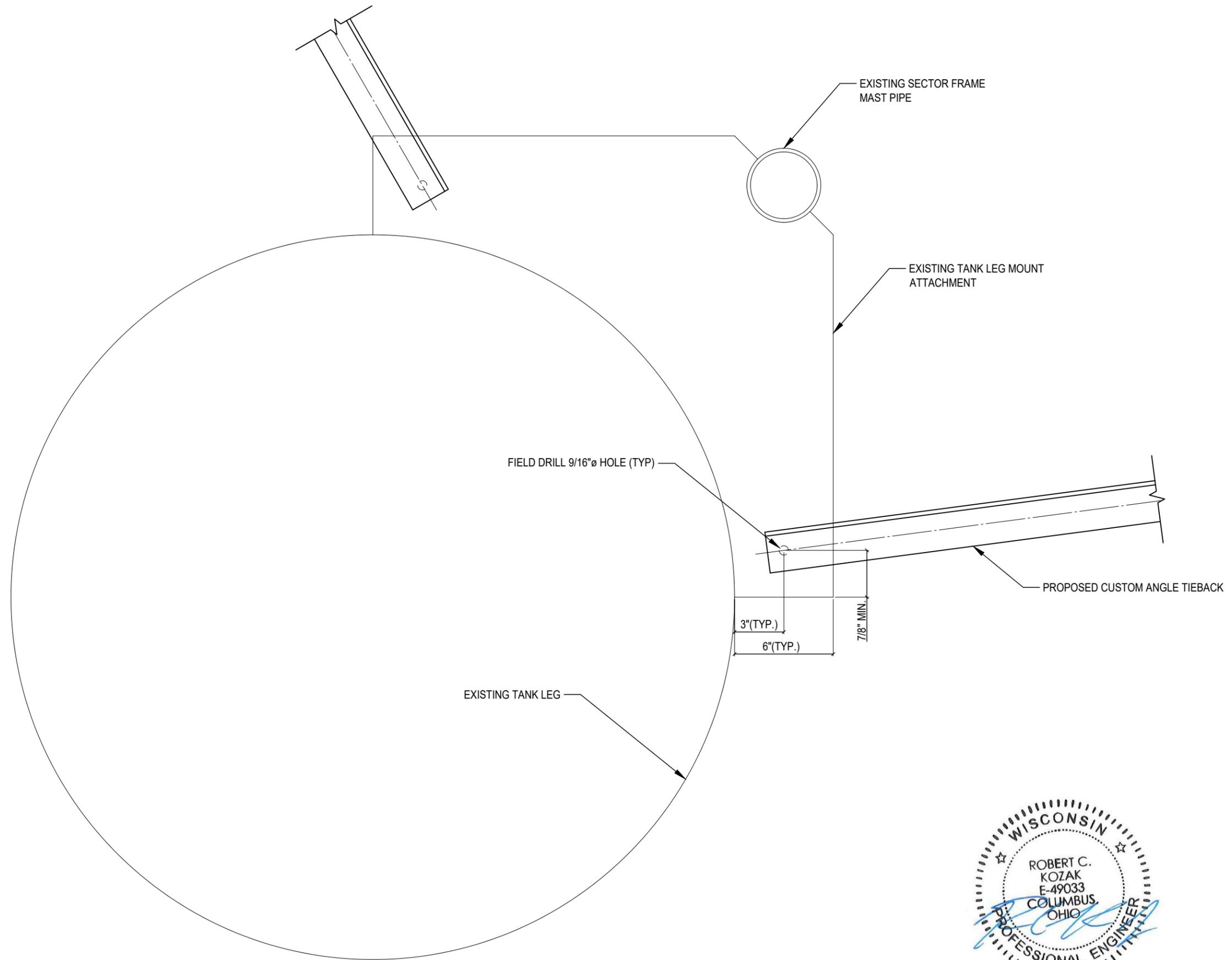


09/28/2022

© Copyright 2022, by Paul J. Ford and Company, All Rights Reserved. This document and the data contained herein, is proprietary to Paul J. Ford and Company, issued in strict confidence and shall not, without the prior written permission of Paul J. Ford and Company, be reproduced, copied or used for any purpose other than the intended use for this specific project.

RJF PAUL J. FORD & COMPANY
 250 E Broad St. Ste 600 Columbus, OH 43215
 Phone 614.221.6679 www.pauljford.com

VERIZON WIRELESS



113278-VZW / WEST ROGERS WT --

698801

MILWAUKEE, WISCONSIN
 MOUNT MODIFICATION DRAWINGS

PROJECT No:	24322-2340.001.8189
DRAWN BY:	BRS
DESIGNED BY:	BRS
CHECKED BY:	KAT
DATE:	09/28/2022



SECTION 1
 SCALE: NTS
 SS-3

MODIFICATION
 DETAILS

SS-3

V2.D 24322-2340.001.DWG



VERIZON MOUNT



© Copyright 2022, by Paul J. Ford and Company, All Rights Reserved. This document and the data contained herein, is proprietary to Paul J. Ford and Company, issued in strict confidence and shall not, without the prior written permission of Paul J. Ford and Company, be reproduced, copied or used for any purpose other than the intended use for this specific project.

PAUL J. FORD & COMPANY
 250 E Broad St. Ste 600 Columbus, OH 43215
 Phone 614.221.6679 www.pauljford.com

VERIZON WIRELESS

113278-VZW / WEST ROGERS WT --

698801

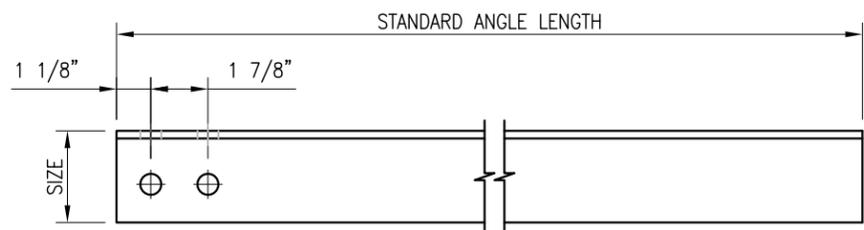
MILWAUKEE, WISCONSIN
 MOUNT MODIFICATION DRAWINGS

PROJECT No:	24322-2340.001.8189
DRAWN BY:	BRS
DESIGNED BY:	BRS
CHECKED BY:	KAT
DATE:	09/28/2022

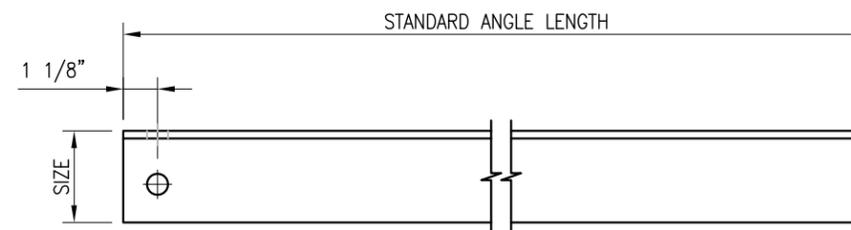
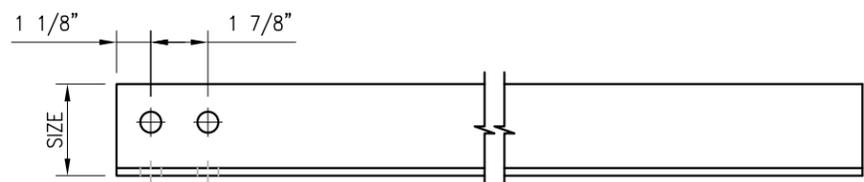
MOUNT
 PHOTOS

SS-4

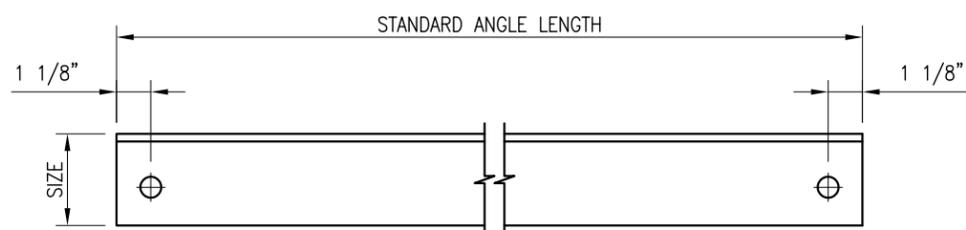
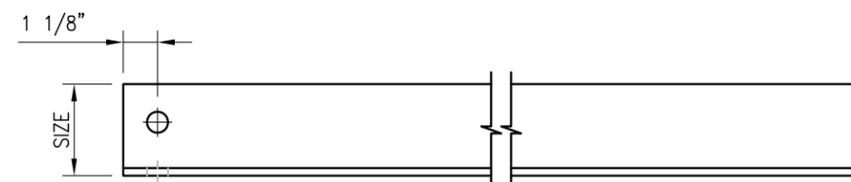
FOR
 REFERENCE
 ONLY



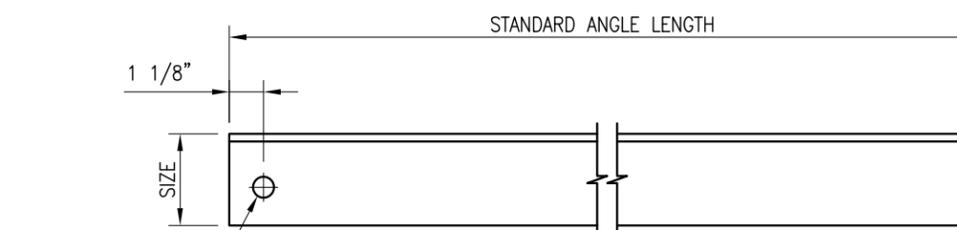
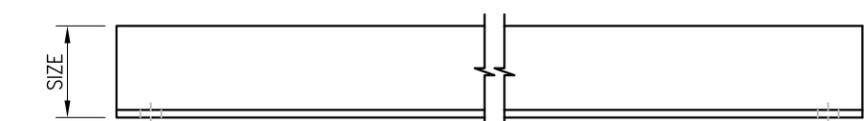
HOLE STYLE "A"



HOLE STYLE "B"



HOLE STYLE "C"



HOLE STYLE "D"

SEE NOTE "3" & "4"
 (TYP)

NOTE:
 APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION ANGLES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE. SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

- NOTES:**
1. ALL ANGLE GRADE A36 OR BETTER.
 2. HOT-DIPPED GALVANIZED PER ASTM A123.
 3. ALL HOLES ARE 11/16" DIA. U.N.O
 4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
 5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

VZWSMART Standard Angle

VZWSMART Number	Size	Length	Hole Style	Hole Gage	Also Used In:
A-PLK2-01	L 3" X 3" X 1/4"	96"	A	1-3/4"	VZWSMART-PLK2
A-PLK5-01	L 3" X 3" X 3/16"	96"	B	1-3/4"	VZWSMART-PLK5
A-SFK3-01	L 2-1/2" X 2-1/2" X 1/4"	96"	C	1-3/8"	VZWSMART-SFK3,-SFK3-SL, -PLK6, & -PLK8
A-L25X25X4X120	L 2-1/2" X 2-1/2" X 1/4"	120"	D	1-5/16"	
A-L25X25X4X240	L 2-1/2" X 2-1/2" X 1/4"	240"	D	1-5/16"	
A-L30X30X4X120	L 3" X 3" X 1/4"	120"	D	1-1/2"	
A-L30X30X4X240	L 3" X 3" X 1/4"	240"	D	1-1/2"	
A-L40X40X4X120	L 4" X 4" X 1/4"	120"	D	2"	
A-L40X40X4X240	L 4" X 4" X 1/4"	240"	D	2"	
A-L50X30X6X120	L 5" X 3" X 3/8"	120"	D	2-1/2"	
A-L50X50X6X120	L 5" X 5" X 3/8"	120"	D	2-1/2"	

DRAWN BY: BT CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	08/04/21

SHEET TITLE:

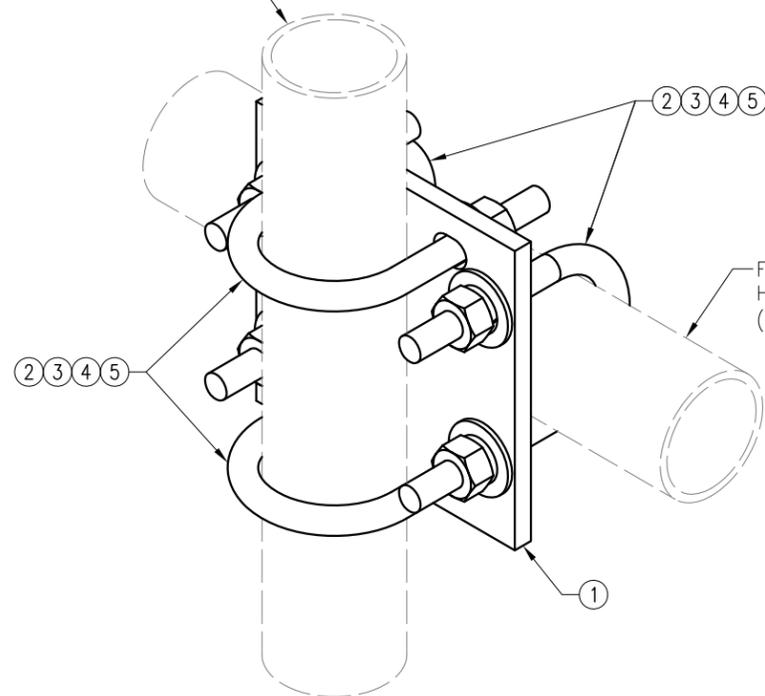
VZWSMART
 STANDARD ANGLE

SHEET NUMBER: VZWSMART-ANGLE REV #: 0

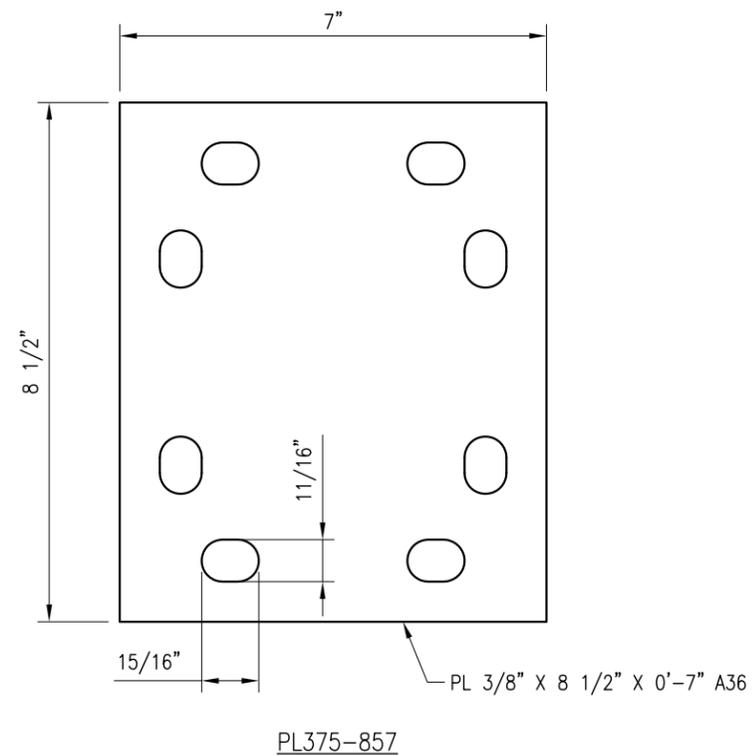


FOR
 REFERENCE
 ONLY

FITS 2.375" O.D. AND 2.875" O.D.
 VERTICAL PIPE.
 (NOT INCLUDED IN THIS KIT)



FITS 2.375" O.D. AND 2.875" O.D.
 HORIZONTAL PIPE.
 (NOT INCLUDED IN THIS KIT)



PL375-857

DRAWN BY: H.R. CHECKED BY: HMA

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	H.R.	05/08/20

SHEET TITLE:

VZSMART-MSK1
 CROSSOVER PLATE

SHEET NUMBER: REV #:

VZSMART-MSK1 0

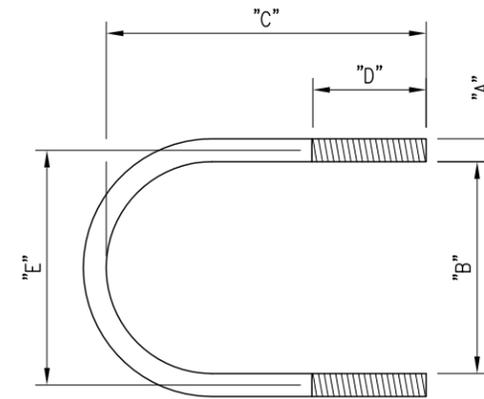
VZSMART-MSK1 (CROSSOVER PLATE)

ITEM NO.	QTY.	PART NO.	DESCRIPTION	SHEET #	WT
1	1	PL375-857	PL 3/8" X 8 1/2" X 0'-7" A36	MSK1-F1	6
2	4	MS02-625-300-500	RU-BOLT 5/8" X 3" I.W. X 5" I.L. A36 (OR EQUIV.)	RBC-1	5
3	8	FW-625	5/8" HDG USS FLAT WASHER	---	1
4	8	LW-625	5/8" HDG LOCK WASHER	---	0
5	8	NUT-625	5/8" HDG HEX NUT	---	1
GALVANIZED WT					14

NOTES:
 1. HOT-DIPPED GALVANIZED PER ASTM A123.



FOR
REFERENCE
ONLY



NOTES:

IF EQUIVALENT U-BOLTS ARE USED, THE FOLLOWING SPECIFICATIONS ARE REQUIRED:

1. THE MATERIAL SHALL BE HOT ROLLED STEEL WITH A MINIMUM YIELD STRENGTH OF 36 KSI.
2. ALL U-BOLTS SHALL BE HOT DIP GALVANIZED PER ASTM A153-78.
3. TOLERANCE: FOR "C" AND "D" +/- 1/16", "B" AND "E" + 1/16", "A" +/- 1/32".

STANDARD RU-BOLT CHART							
DESCRIPTION	(EQUIVALENT PART NO.)	"A"	"B"	"C"	"D"	"E"	"WGT"
3/8" RU-BOLT	MS02-375-8125-1625	3/8"	13/16"	15/8"	7/8"	1 3/16"	0.26
3/8" RU-BOLT	MS02-375-100-225	3/8"	1"	2 1/4"	1 1/4"	1 3/8"	0.30
3/8" RU-BOLT	MS02-375-125-225	3/8"	1 1/4"	2 1/4"	1 1/4"	1 5/8"	0.30
3/8" RU-BOLT	MS02-375-1125-18125	3/8"	1 1/8"	1 13/16"	1 1/4"	1 1/2"	0.27
3/8" RU-BOLT	MS02-375-150-250	3/8"	1 1/2"	2 1/2"	1 1/4"	1 7/8"	0.32
3/8" RU-BOLT	MS02-375-150-275	3/8"	1 1/2"	2 3/4"	1 5/8"	1 7/8"	0.34
3/8" RU-BOLT	MS02-375-150-300	3/8"	1 1/2"	3"	1 3/4"	1 7/8"	0.35
3/8" RU-BOLT	MS02-375-175-275	3/8"	1 3/4"	2 3/4"	1 1/8"	2 1/8"	0.34
3/8" RU-BOLT	MS02-375-200-2625	3/8"	2"	2 5/8"	1 1/4"	2 3/8"	0.34
3/8" RU-BOLT	MS02-375-200-125	3/8"	2"	3"	1-1/4"	2-3/8"	0.40
3/8" RU-BOLT	MS02-375-2125-300	3/8"	2 1/8"	3"	1 1/4"	2 1/2"	0.36
3/8" RU-BOLT	MS02-375-250-30625	3/8"	2 1/2"	3 1/16"	1 1/4"	2 7/8"	0.38
3/8" RU-BOLT	MS02-375-250-3125	3/8"	2 1/2"	3 1/8"	1 1/4"	2 7/8"	0.37
3/8" RU-BOLT	MS02-375-250-3625	3/8"	2 1/2"	3-5/8"	1 3/4"	2 7/8"	0.45
3/8" RU-BOLT	MS02-375-300-3625	3/8"	3"	3 5/8"	1 1/4"	3 3/8"	0.42
3/8" RU-BOLT	MS02-375-300-425	3/8"	3"	4 1/4"	2"	3 3/8"	0.50
3/8" RU-BOLT	MS02-375-300-6625	3/8"	3	6 5/8"	3	3 3/8"	0.53
3/8" RU-BOLT	MS02-375-350-4125	3/8"	3 1/2"	4 1/8"	1 1/4"	3 7/8"	0.46
3/8" RU-BOLT	MS02-375-350-475	3/8"	3 1/2"	4 3/4"	2"	3 7/8"	0.50
3/8" RU-BOLT	MS02-375-400-575	3/8"	4"	5 3/4"	2 1/2"	4 3/8"	0.60

1/2" RU-BOLT	MS02-500-75-350	1/2"	3/4"	3 1/2"	2 1/2"	1 1/4"	0.60
1/2" RU-BOLT	MS02-500-1563-350	1/2"	1 9/16"	3 1/2"	2"	2 1/16"	0.62
1/2" RU-BOLT	MS02-500-200-300	1/2"	2"	3"	1 1/4"	2 1/2"	0.55
1/2" RU-BOLT	MS02-500-200-375	1/2"	2"	3 3/4"	1 3/4"	2 1/2"	0.67
1/2" RU-BOLT	MS02-500-20625-500	1/2"	2 1/16"	5	3"	2 9/16"	0.80
1/2" RU-BOLT	MS02-500-225-450	1/2"	2 1/4"	4 1/2"	2 1/2"	2 3/4"	0.76
1/2" RU-BOLT	MS02-500-2438-3625	1/2"	2 7/16"	3 5/8"	1 3/4"	2 15/16"	0.67
1/2" RU-BOLT	MS02-500-2438-5375	1/2"	2 7/16"	5 3/8"	3"	2 15/16"	0.86
1/2" RU-BOLT	MS02-500-250-400	1/2"	2 1/2"	4"	2 1/2"	3"	0.70
1/2" RU-BOLT	MS02-500-250-450	1/2"	2 1/2"	4 1/2"	2 1/2"	3"	0.76
1/2" RU-BOLT	MS02-500-29375-575	1/2"	2 15/16"	5 3/4"	3"	3 7/16"	0.92
1/2" RU-BOLT	MS02-500-300-4125	1/2"	3"	4 1/8"	2"	3 1/2"	0.74
1/2" RU-BOLT	MS02-500-300-450	1/2"	3"	4 1/2"	1 5/8"	3 1/2"	0.73
1/2" RU-BOLT	MS02-500-300-500	1/2"	3"	5"	2 1/2"	3 1/2"	0.84
1/2" RU-BOLT	MS02-500-350-500	1/2"	3 1/2"	5"	1 1/2"	4"	0.78
1/2" RU-BOLT	MS02-500-350-850	1/2"	3 1/2"	8 1/2"	3"	4"	1.09
1/2" RU-BOLT	MS02-500-3625-550	1/2"	3 5/8"	5 1/2"	3"	4 1/8"	1.10
1/2" RU-BOLT	MS02-500-3625-600	1/2"	3 5/8"	6"	2 1/2"	4 1/8"	0.97
1/2" RU-BOLT	MS02-500-3563-450	1/2"	3 9/16"	4 1/2"	2"	4 1/16"	0.80
1/2" RU-BOLT	MS02-500-3563-650	1/2"	3 9/16"	6 1/2"	3"	4 1/16"	1.02
1/2" RU-BOLT	MS02-500-400-550-B	1/2"	4"	5 1/2"	1 1/2"	4 1/2"	0.84
1/2" RU-BOLT	MS02-500-400-550	1/2"	4"	5 1/2"	2"	4 1/2"	0.92
1/2" RU-BOLT	MS02-500-4063-700	1/2"	4 1/16"	7"	3"	4 9/16"	1.09
1/2" RU-BOLT	MS02-500-4125-600	1/2"	4 1/8"	6"	2 1/2"	4 5/8"	0.98
1/2" RU-BOLT	MS02-500-450-600	1/2"	4 1/2"	6"	1 1/2"	5"	0.89
1/2" RU-BOLT	MS02-500-4625-700	1/2"	4 5/8"	7"	2 1/2"	5 1/8"	1.11
1/2" RU-BOLT	MS02-500-4563-750	1/2"	4 9/16"	7 1/2"	3"	5 1/16"	1.16
1/2" RU-BOLT	MS02-500-5625-725	1/2"	5 5/8"	7 1/4"	2"	6 1/8"	1.04
1/2" RU-BOLT	MS02-500-4563-575	1/2"	4 9/16"	5 3/4"	2"	5 1/16"	0.97
1/2" RU-BOLT	MS02-500-5563-700	1/2"	5 9/16"	7"	2"	6 1/16"	1.14
1/2" RU-BOLT	MS02-500-575-750	1/2"	5 3/4"	7 1/2"	2 1/2"	6 1/4"	1.22
1/2" RU-BOLT	MS02-500-6625-800	1/2"	6 5/8"	8"	3"	7 1/8"	1.28
1/2" RU-BOLT	MS02-500-675-850	1/2"	6 3/4"	8 1/2"	2 1/2"	7 1/4"	1.17
1/2" RU-BOLT	MS02-500-675-8375	1/2"	6 3/4"	8 3/8"	2"	7 1/4"	1.24
1/2" RU-BOLT	MS02-500-8750-1025	1/2"	8 3/4"	10 1/4"	3"	9 1/4"	1.60
1/2" RU-BOLT	MS02-500-875-10375	1/2"	8 3/4"	10 3/8"	2"	9 1/4"	1.34
1/2" RU-BOLT	MS02-500-10875-1300	1/2"	10 7/8"	1'-1"	3"	11 3/8"	1.98

STANDARD RU-BOLT CHART							
DESCRIPTION	(EQUIVALENT PART NO.)	"A"	"B"	"C"	"D"	"E"	"WGT"
5/8" RU-BOLT	MS02-625-200-375	5/8"	2"	3 3/4"	2"	2 5/8"	1.15
5/8" RU-BOLT	MS02-625-2063-500	5/8"	2 1/16"	5"	3"	2 11/16"	1.32
5/8" RU-BOLT	MS02-625-2438-5375	5/8"	2 7/16"	5 3/8"	3"	3 1/16"	1.40
5/8" RU-BOLT	MS02-625-250-400	5/8"	2 1/2"	4"	2 1/2"	3 1/8"	1.17
5/8" RU-BOLT	MS02-625-2625-450	5/8"	2 5/8"	4 1/2"	2"	3 1/4"	1.20
5/8" RU-BOLT	MS02-625-2563-550	5/8"	2 9/16"	5 1/2"	3"	3 3/16"	1.43
5/8" RU-BOLT	MS02-625-2938-5875	5/8"	2 15/16"	5 7/8"	3"	3 9/16"	1.52
5/8" RU-BOLT	MS02-625-300-400	5/8"	3"	4"	2"	3 5/8"	1.20
5/8" RU-BOLT	MS02-625-300-500	5/8"	3"	5"	3"	3 5/8"	1.37
5/8" RU-BOLT	MS02-625-3063-600	5/8"	3 1/16"	6"	3"	3 11/16"	1.54
5/8" RU-BOLT	MS02-625-3625-600	5/8"	3 5/8"	6"	3"	4 1/4"	1.45
5/8" RU-BOLT	MS02-625-3563-650	5/8"	3 9/16"	6 1/2"	3"	4 3/16"	1.65
5/8" RU-BOLT	MS02-625-4063-700	5/8"	4 1/16"	7"	3"	4 11/16"	1.77
5/8" RU-BOLT	MS02-625-4125-600	5/8"	4 1/8"	6"	3"	4 3/4"	1.60
5/8" RU-BOLT	MS02-625-4625-700	5/8"	4 5/8"	7"	3"	5 1/4"	1.60
5/8" RU-BOLT	MS02-625-4563-750	5/8"	4 9/16"	7 1/2"	3"	5 3/16"	1.87
5/8" RU-BOLT	MS02-625-4813-775	5/8"	4 13/16"	7 3/4"	3"	5 7/16"	1.93
5/8" RU-BOLT	MS02-625-500-700	5/8"	5"	7"	3"	5 5/8"	1.96
5/8" RU-BOLT	MS02-625-5063-800	5/8"	5 1/16"	8"	3"	5 11/16"	1.99
5/8" RU-BOLT	MS02-625-5625-85625	5/8"	5 5/8"	8 9/16"	3"	6 1/4"	2.11
5/8" RU-BOLT	MS02-625-575-800	5/8"	5 3/4"	8"	3"	6 3/8"	2.02
5/8" RU-BOLT	MS02-625-6688-9625	5/8"	6 11/16"	9 5/8"	3"	7 5/16"	2.35
5/8" RU-BOLT	MS02-625-6750-900	5/8"	6 3/4"	9"	3"	7 3/8"	2.24
5/8" RU-BOLT	MS02-625-8688-11625	5/8"	8 11/16"	11 5/8"	3"	9 3/16"	2.80
5/8" RU-BOLT	MS02-625-875-1100	5/8"	8 3/4"	11"	3"	9 3/8"	2.70
5/8" RU-BOLT	MS02-625-10688-1375	5/8"	10 13/16"	13 3/4"	3"	11 7/16"	3.27
5/8" RU-BOLT	MS02-625-12875-1575	5/8"	12 7/8"	15 3/4"	3"	13 1/2"	3.72
5/8" RU-BOLT	MS02-625-14125-1700	5/8"	14 1/8"	17"	3"	14 3/4"	4.01

DRAWN BY: H.R. CHECKED BY: HMA

REV.	DESCRIPTION	BY	DATE
△	FIRST ISSUE	H.R.	05/08/20
△			
△			
△			

SHEET TITLE:

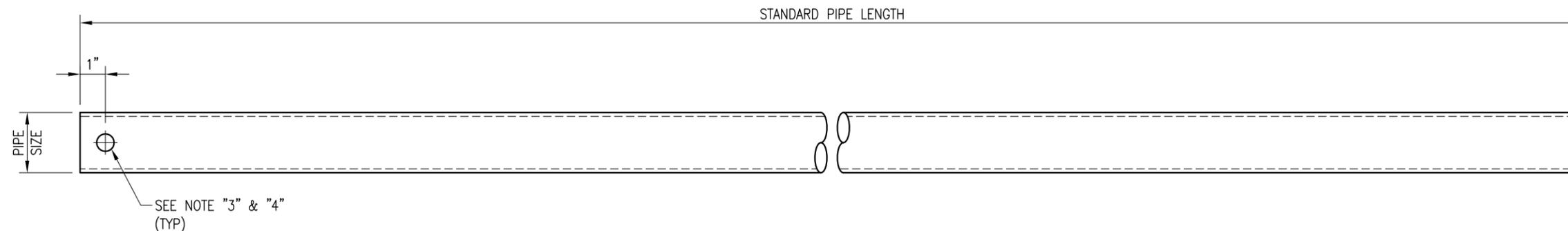
RU-BOLT CHART

SHEET NUMBER: REV #:

RBC-1 0



FOR
 REFERENCE
 ONLY



VZWSMART Standard Pipe		
VZWSMART Number	Size	Length
P40-238X048	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	48"
P40-238X072	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	72"
P40-238X096	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	96"
P40-238X120	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	120"
P40-238X126	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	126"
P40-238X150	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	150"
P40-238X174	PIPE 2 SCH40 (2.375" OD x 0.154" THK)	174"
P40-278X048	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	48"
P40-278X072	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	72"
P40-278X096	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	96"
P40-278X120	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	120"
P40-278X126	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	126"
P40-278X150	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	150"
P40-278X174	PIPE 2.5 SCH40 (2.875" OD x 0.203" THK)	174"
P40-312X048	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	48"
P40-312X072	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	72"
P40-312X126	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	126"
P40-312X150	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	150"
P40-312X174	PIPE 3 SCH40 (3.5" OD x 0.216" THK)	174"

NOTE:
 APPROVED SMART KIT VENDORS ARE ALLOWED TO SUBSTITUTE AT THEIR DISCRETION
 PIPES LISTED ON THIS PAGE FOR CUSTOM LENGTH COMPONENTS OF MATCHING SIZE.
 SUBSTITUTIONS SHALL MEET THE ORIGINAL STRUCTURAL INTENT.

- NOTES:**
1. ALL PIPE GRADE A53-B OR BETTER.
 2. HOT-DIPPED GALVANIZED PER ASTM A123.
 3. ALL HOLES ARE 11/16" DIA. U.N.O
 4. HOLES MAY OR MAY NOT BE PRESENT, DEPEND UPON MANUFACTURE DISCRETION.
 5. ALL FIELD CUT AND DRILLED SURFACES SHALL BE REPAIRED WITH A MINIMUM OF TWO COATS OF ZINGA OR ZINC COTE PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

DRAWN BY: BT CHECKED BY: HMA/KW

REV.	DESCRIPTION	BY	DATE
1	FIRST ISSUE	BT	08/04/21

SHEET TITLE:

VZWSMART
 STANDARD PIPE

SHEET NUMBER: REV #:

VZWSMART-PIPE

0

West Roger WT
Milwaukee, Wisconsin
STRUCTURAL ANALYSIS REPORT FOR VERIZON (#113278)

March 12, 2021
KOA PROJECT NO.: 202001.46



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

PROFESSIONAL SEAL:



KRECH OJARD LICENSE NO:
184.006740-0003
081.007476



Site Name: West Roger WT

Site Number: 113278

VERIZON ANTENNA SUMMARY:

Verizon is proposing to install new antennas and equipment at West Roger water tower site. The proposed antennas and equipment are listed below and noted in the Verizon RFDS dated 9/14/2020. The proposed antennas and equipment will be mounted to existing mounts located on the legs of the tank. Analysis of the existing mounts are 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

- (6) Commscope NHH-65C-R2B (RAD = 101')
- (3) L-Sub6 Antenna w/ VZE01 RRU (RAD = 103')
- (3) Andrew HBX-9016DS-VTM (RAD = 101')
- (3) Commscope CDX1923Q-DS-43 (RAD = 101')
- (6) RRU 8843 (RAD = 101')
- (3) RRU 4449 (RAD = 101')
- (3) Raycap RC3DC-3315-PF-48 (RAD = 101')
- (3) Ericsson 4408 w/ KRE 105 281/1 (RAD = 99')
- (6) Coaxial cables
- (3) Hybrid Cables

Existing Other Carrier Equipment to remain:

The following list of existing other carriers on the tank were provided in the PJF corral mount analysis and Telamon CLS SA report. There are assumed to be no additional antennas or equipment on the tank besides those listed below.

Equipment on Water Tower:

- Beacon (RAD = 187'-0")
- AT&T Commscope SBNHH-1D65C (RAD = 177'-0")
- AT&T Commscope NHH4-65B-R6H4 (RAD = 177'-0")
- AT&T Commscope NHH4-65B-R6 (RAD = 177'-0")
- (3) AT&T Ericsson RRRUS-32 (RAD = 177'-0")
- (3) AT&T Ericsson RRRUS 32 B66 (RAD = 172'-6")
- (3) AT&T Ericsson RRRUS 4449 (RAD = 172'-6")
- (3) AT&T Ericsson RRRUS 4415 (RAD = 172'-6")
- (3) AT&T Ericsson RRRUS 4478 (RAD = 172'-6")
- (3) AT&T Raycap DC6-48-60-18-8C (RAD = 172'-6")
- AT&T Raycap DC6-48-60-0-8C (RAD = 172'-6")
- Unknown 60"x6.5" Panel (RAD = 130'-0")
- (9) Unknown 72"x6" Panel (RAD = 125'-0")
- Sprint Commscope SBCHH-1D90B (RAD = 118'-0")
- Sprint KMW ET-X-TS-70-15-62-18-IR-RD (RAD = 118'-0")
- Sprint Samsung M-MIMO AAU (RAD = 118'-0")
- Sprint Samsung RRH-P4 (RAD = 118'-0")
- Sprint Samsung RRH-C2A w/ Extra Filter (RAD = 118'-0")
- (3) T-Mobile Andrew TMBXX-6517-A2M (RAD = 112'-0")
- (3) T-Mobile Nokia AAFIA (RAD = 112'-0")



Equipment on Water Tower Continued:

- (3) T-Mobile TMA (RAD = 112'-0")
- (3) T-Mobile Nokia COVP (RAD = 112'-0")
- (3) Unknown 60"x6" Panel (RAD = 110'-0")
- (3) Unknown 48"x6" Panel (RAD = 110'-0")

WATER TANK ANALYSIS RESULTS SUMMARY:

The water tower has been analyzed for the original and proposed new antenna loading. The new antenna layout and mount installation will increase the tanks overturning by 0.88% from the previous antenna installation, and increase the tanks overturning by 11.87% from the original tank design, with all existing carriers included.

Tower Rods:

The tower has two tiers with the top and bottom tiers having 1-3/8" and 1-7/8" diameter A36 rods respectively. The highest stressed rods are designed to approximately 79% of their allowable tensile design stress.

Tower Anchorage:

Each tower leg is anchored with two 1-1/2" diameter anchor bolts. The anchor bolts are assumed to be F1554, Gr. 36 ksi and are stressed to approximately 79% of their allowable design stress.

The water tower is capable of safely resisting the resultant forces from increased overturning and meets the requirements of AWWA D100-11.

REFERENCED DOCUMENTS:

- Verizon RFDS dated 9/14/2020
- Verizon Mount analysis by Paul J. Ford dated January 19, 2021
- Verizon Mount Modification Drawings by Paul J. Ford dated January 19, 2021
- Previous SA report by Telamon CLS dated September 30, 2020
- Previous Verizon SA by Robert Wozniak dated May 19, 2010

ASSUMPTIONS:

- Because the information was not readily available in the information provided, Krech Ojard & Associates made the following assumptions in their analysis:
 - Tower rods are A36, Gr. 36 ksi steel
 - Anchor rods are F1554, Gr. 36 ksi steel
- Original self-weight of tank is 599 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 it's demand-capacity ratio with the addition ignored shall be permitted to remain unaltered." Because seismic loads are proportional to the weight of the structure and the percent increase from the original weight of the proposed weight is less than 10 percent, the applied seismic force and resulting increase in the seismic demand capacity should also be less than 10 percent. Therefore, by inspection, this water tower does not need to be re-evaluated for seismic loads under the current AWWA standard.
- 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. This report is considered void if the listed information or assumptions stated herein is inaccurate.



- 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.

EXHIBIT D-1

APPROVED AS-BUILT DRAWINGS AND INVENTORY

[Verizon to provide]

EXHIBIT E

FORM OF ANTENNA SITE SERVICE NOTICE

[City to provide]

EXHIBIT F

CERTIFICATES OF INSURANCE AND POLICY ENDORSEMENTS

[Verizon to provide]

EXHIBIT G

FORM OF MEMORANDUM OF AGREEMENT

**MEMORANDUM OF WATER TOWER LICENSE
AGREEMENT**

Drafted by and return to:

James C. Remington
Husch Blackwell LLP
511 N. Broadway
Milwaukee, WI 53202

PIN: 481-9993-028

MEMORANDUM OF WATER TOWER LICENSE AGREEMENT

THIS MEMORANDUM OF WATER TOWER LICENSE AGREEMENT (the “**Memorandum**”), is made effective as of the _____ day of _____, 2022, by and between City of West Allis, Wisconsin, a municipal corporation operating a public water utility (“**West Allis**”), with its principal offices at 7525 W Greenfield Avenue, West Allis, Wisconsin 53214, and Cellco Partnership, a Delaware partnership, d/b/a Verizon Wireless with its principal offices at c/o Verizon Wireless, One Verizon Way, Mail Stop 4AW100, Basking Ridge, New Jersey 07920-1097 (“**Verizon**”).

W I T N E S S E T H:

WHEREAS, West Allis and Verizon entered that certain Water Tower License Agreement (the “**Agreement**”) dated _____, 2022, (the “**Effective Date**”) wherein West Allis, licensed certain premises to Verizon; and

WHEREAS, this Memorandum is being executed to provide notice of the Agreement and terms thereof in the Office of the Register of Deeds for Milwaukee County, Wisconsin, to place third parties on notice of the Agreement, and West Allis’s and Verizon’s rights and obligations thereunder, some of which are hereinafter summarized.

NOW, THEREFORE, in consideration of the mutual covenants and promises contained in the Agreement, West Allis and Verizon hereby acknowledge:

1. PREMISES. The “**Premises**” is the portion of real property and improvements thereon or to be constructed thereon under the Agreement and located at 11515 West Rogers Street in the City of West Allis, Milwaukee County, Wisconsin, which real property is legally described on Exhibit A attached hereto. The Premises is described and depicted in the Agreement and shall be used for the installation, operation and maintenance of communications equipment and includes a parcel containing

_____ square feet (the “**Land Space**”), space on West Allis’s water tank (the “**Tower Space**”), with the non-exclusive right for ingress and egress, seven (7) days a week twenty four (24) hours a day, on foot or motor vehicle, including trucks over or along a right of way extending from the nearest public right of way to the Land Space (the Right of Way Access Easement), and for the installation and maintenance of utility wires, poles, cables, conduits, and pipes over, under, or along the Utility and Cable Easements. Said Land Space and Tower Space are collectively called the “**Premises**”. The Premises is shown on the plat of survey set forth in Exhibit B attached hereto.

2. TERM. The initial term of the Agreement is for a period of five (5) years commencing on the Effective Date and terminating five (5) years thereafter, unless otherwise terminated as provided in the Agreement. Verizon has the option to renew and extend the Agreement for four (4) additional periods of five (5) years each, at such License Fee and upon such other terms as set forth in the Agreement.

3. AGREEMENT CONTROLLING. This Memorandum is only a summary of some of the terms and conditions in the Agreement and is not intended to amend, alter, modify, abrogate, substitute or otherwise affect the terms or conditions in the Agreement, all of which are incorporated herein in full by this reference. It is understood and agreed that, notwithstanding this Memorandum, the terms and conditions contained in the Agreement shall in all events control the relationship between West Allis and Verizon regarding the subject matter therein contained.

4. PURPOSE; NO MODIFICATION. The Memorandum is solely for recording purposes and shall not be construed to alter, modify or supplement the Agreement of which this is a Memorandum.

5. NOT A CONVEYANCE. The Agreement is for less than 99 years and not a conveyance subject to return and fee.

IN WITNESS WHEREOF, West Allis and Verizon have executed this Memorandum is effective as of the date first written above.

[SIGNATURES & EXHIBITS TO APPEAR ON FOLLOWING PAGES]

WEST ALLIS:
City of West Allis, Wisconsin

By: _____

Name: _____

Title: _____

STATE OF WISCONSIN)
) ss.
COUNTY OF _____)

Personally came before me this ____ day of _____, 2022, the above named _____
_____, the _____ of City of West Allis, Wisconsin,
and acknowledged that he/she executed the foregoing instrument as such member of such entity, by its authority.

Notary Public, State of Wisconsin
My Commission expires: _____

VERIZON:
Cellco Partnership d/b/a Verizon Wireless

By: _____

Name: _____

Title: _____

STATE OF ILLINOIS)
) ss.
COUNTY OF COOK)

Personally came before me this ____ day of _____, 2022, the above named _____
_____, the _____ of Cellco Partnership
d/b/a Verizon Wireless and acknowledged that he/she executed the foregoing instrument as such member of such
entity, by its authority.

Notary Public, State of Illinois
My Commission expires: _____

EXHIBIT "A"

Description of the Real Property

EXHIBIT "B"

Survey