COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: January 19, 2023

TO: Zoning Hearing Officer

FROM: Planning Staff

SUBJECT: Consideration of a Use Permit Renewal, pursuant to Sections 6500 and 6513 of the San Mateo County Zoning Regulations, to allow the continued operation of an existing telecommunications facility on the existing water tower located at 85 Loop Road in the unincorporated San Mateo Highlands area of San Mateo County.

County File Number: PLN 2000-00562 (Verizon Wireless)

PROPOSAL

The project applicant, Chris Durand of On Air LLC, proposes on behalf of Verizon Wireless to renew an existing Use Permit (PLN 2000-00562) to allow the continued operation of a wireless telecommunication facility located at 85 Loop Road. The existing facility consists of six Verizon Wireless panel antennas mounted at various locations (two antennas are mounted on the lower crossarm at approximately 30 feet above grade and four antennas are mounted to the upper crossarm approximately 58 feet above grade) on a 110-foot water tower and an associated equipment compound near the base of the tower. Since the 1991 Use Permit approval, several building permits have been issued to allow minor modifications and amendments, which qualify for Federal preemption under the Middle-Class Tax Relief and Job Creation Act of 2012, including the replacement and installation of antennas and associated equipment. The proposal includes the modification of the existing facility by removing and replacing the six Verizon Wireless antennas with similar size antennas; removing and replacing three existing RRUS-32 B66A units with three new Radio 8843 units at the antennas in the same location; and install three new Radio 4449 units at the antennas. These antenna replacements and minor equipment additions fall below the threshold of County review as defined by 47 CFR 1.6100 of the U.S. Code of Federal Regulations. As such, the replacements and minor modifications are not considered an amendment to this Use Permit.

RECOMMENDATION

1. That the Zoning Hearing Officer approve the Use Permit Renewal, County File No. PLN 2000-00562 by making the required findings and adopting the conditions of approval listed in Attachment A.

BACKGROUND

Report Prepared By: Michael Schaller, Senior Planner; mschaller@smcgov.org

Applicant: Chris Durand (On Air LLC) for Verizon Wireless

Owner: County of San Mateo

Public Notification: Ten (10) day advanced notification for the hearing was mailed to property owners within 300 feet of the project parcel and a notice for the hearing posted in the San Mateo Times.

Location: 85 Loop Road, San Mateo Highlands

APN(s): 041-320-120

Size: Approximately 77.18 acres

Existing Zoning: RE/S-11 (Residential Estates District/Residential Density District 11)

General Plan Designation: Institutional

Existing Land Use: Various institutional uses and telecommunication facilities.

Flood Zone: FEMA Flood Insurance Rate Map designation indicates parcel as Zone X (Area of Minimal Flooding), Community Panel No. 06081C0165E, dated October 15, 2012.

Environmental Evaluation: The project is categorically exempt pursuant to Section 15301, Class 1, of the California Environmental Quality Act (CEQA) Guidelines for the continued operation of existing public or private facilities involving little or no physical changes or expansion of use.

Setting: The subject parcel and surrounding area consists of several existing institutional uses to the east, south, and west including PG&E transmission towers, the Hillcrest Probation Center, San Mateo County Central Library Headquarters, and Cal-Fire offices. To the north of the project site is the residential subdivision known as the San Mateo Highlands. To the west is the I-280 Freeway, a designated State Scenic Corridor. The subject wireless facility is co-located with other wireless carriers that have antennas mounted on the water tank. Each carrier also has its respective equipment shelters nearby and located along both sides of the access road leading to the water tank. The existing facility consists of six Verizon Wireless panel antennas mounted at various locations on a 110-foot water tower and an associated equipment compound near the base of the tower.

Chronology:

Date		Action
May 2, 1991	-	Use Permit approved by Zoning Hearing Officer for the telecommunications facility.
September 23, 1996	-	Use Permit renewal approved by Zoning Hearing Officer for the telecommunications facility.
January 18, 2001	-	Use Permit renewal and amendment approved by Zoning Hearing Officer for the telecommunications facility.
July 6, 2006	-	Use Permit approved by Zoning Hearing Officer for the telecommunications facility.
August 11, 2009	-	Application submitted for a minor modification to add three (3) additional panel antennas.
October 14, 2009	-	Withdrawal of the application for a minor modification to add three (3) additional panel antennas.
July 7, 2011	-	Use Permit renewal approved by Zoning Hearing Officer for the telecommunications facility.
August 7, 2012	-	Minor modification approved for the addition of a generator within the screen equipment area.
February 4, 2015	-	Minor amendment approved for temporary microwave dish on the roof of the existing telecommunication facility equipment shelter.
July 26, 2022	-	Application received for use permit renewal for planning application number PLN 2000-00562 (Verizon Wireless).
August 17, 2021	-	Application deemed complete.
January 19, 2022	-	Zoning Hearing Officer public hearing.

DISCUSSION

A. KEY ISSUES

1. Conformance with the San Mateo County General Plan

The proposal has been reviewed against and found to be consistent with all applicable General Plan Policies. The applicable policies are listed and discussed below.

a. Visual Quality Policies. The project is consistent with Policies 4.15 (*Appearance of Development*), 4.21 (*Utility Structures*), and 4.36 (*Urban Area Design Concept*) because it minimized the visual impact of the antenna facilities by installing them on an existing water tower (rather than constructing a new free-standing tower structure) and painting the equipment (antennas, etc.) to match the water tower to which they are affixed.

2. Conformance with Zoning Regulations

The project site is located within the Residential Estate Zoning District. Wireless telecommunications facilities are allowed in any zoning district pursuant to a Use Permit, which this facility seeks to continue operating under; no expansion of the facility is proposed, just the replacement of existing antennas and support equipment as previously noted.

3. Conformance with Wireless Telecommunications Facilities Regulations

Effective January 9, 2009, the San Mateo County Board of Supervisors adopted a Wireless Telecommunication Facilities (WTF) Ordinance. Renewals of Use Permits approved after the effective date of the WTF Ordinance shall only be approved if all conditions of the original Use Permit have been satisfied and will continue to be met. Continued compliance with applicable standards is discussed below:

a. Development and Design Standards. The water tower is a utility structure located at 85 Loop Rd. Section 6512.2.E – G seeks to minimize and mitigate visual impacts from public views by designing facilities to blend in with the surrounding environment, maintaining exterior equipment to blend with the surrounding environment and/or buildings and requiring facilities to be constructed of non-reflective materials.

The existing Verizon Wireless antennas help to minimize negative visual impacts, particularly since they have been painted the same color as the tower and are constructed of non-reflective materials. The existing antennas are mounted at varying heights on the water tower and do not protrude above the top of the tower. The replacement antennas will be of approximately the same size and will be located at the same locations. They will be painted to match the color of the water tower. The height of the facility will remain unchanged.

b. Performance Standards. Based on the Radio Frequency (RF) emissions analysis submitted with the renewal application, composite exposure levels will be a maximum of 16.87% of the FCC's public exposure limit for a person at ground level. This estimate of RF emissions includes worst-case assumptions (all antennas operating at full power at the same time for all carriers) and actual exposure levels are often well below these maximum values. Based on the findings illustrated in this report, the facility generates exposure levels that are in compliance with the FCC's standards and do not pose any significant health risks.

The facility is required to obtain and maintain all necessary licenses and registrations from the Federal Communications Commission (FCC), California Public Utilities Commission (CPUC), and any other applicable regulatory bodies. Verizon Wireless is also required to supply the Planning and Building Department with evidence of these licenses and registrations. If any license is ever revoked, Verizon Wireless is obligated to inform the Planning and Building Department of the revocation within 10 days of receiving such notice.

4. Use Permit Findings

In order to approve this use permit renewal to allow the continued operation of this facility, the Zoning Hearing Officer must make the following findings:

a. *That the establishment, maintenance and/or conducting of the proposed use will not, under the circumstances of this particular case, be detrimental to the public welfare or injurious to property or improvements in said neighborhood.*

The water tank has supported wireless communication facilities from various providers since 1995. Individual Use Permits have been obtained by each provider and each has remained in compliance with all conditions of approval since their respective initial installations. The radio frequency analysis submitted with this use permit renewal application indicates that the facility continues to comply with the Federal Communications Commission (FCC)'s current prevailing standards for limiting human exposure to RF energy. As this is an unmanned communication facility, the operation does not create additional traffic, noise, or intensity of use of the property.

Staff has also reviewed the project file, conducted a site inspection, reviewed previous conditions of approval, and found no letters in the project file concerning non-compliance with Planning and Building Department requirements or issues from neighboring parcels in the vicinity. The continued operation of this facility is not likely to result in any impacts that would be detrimental to the public welfare or injurious to property/improvements in the area.

b. *That the approval of this use permit renewal for this cellular telecommunication facility is necessary for the public health, safety, convenience, or welfare of the community.*

The use is for personal telecommunication services. The FCC has established the desirability and need for mobile and wireless telephone service to facilitate communication between mobile units and the existing wire-dependent telephone system. The wireless network supported by this antenna facility provides greater mobility and accessibility than the landline networks can offer. The system is considered necessary for public health, safety, convenience, and welfare.

5. Conformance with Conditions of last Permit Approval

Staff has reviewed the previous conditions of approval for this Use Permit, last approved on July 7, 2011, and has determined that Verizon Wireless Mobility is complying with all previous conditions. Previous conditions that remain relevant are included in Attachment A of this staff report.

B. ENVIRONMENTAL REVIEW

The proposed telecommunications facility is categorically exempt from the California Environmental Quality Act (CEQA) under provisions of Guidelines §15301, Class 1 of the California Environmental Quality Act for the continued operation of existing public or private facilities involving no physical changes or expansion in use.

C. REVIEWING AGENCIES

Building Inspection Section
Department of Public Works
County of San Mateo Fire Department
Geotechnical Department

ATTACHMENTS

A. Recommended Findings and Conditions of Approval
B. Location Map
C. Project Plans
D. Photos of Existing Wireless Telecommunication Facility
E. Radio Frequency Emissions Compliance Report

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Attachment A

County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: PLN 2000-00562 Hearing Date: January 19, 2023

Prepared By: Michael Schaller
Senior Planner

For Adoption By: Zoning Hearing Officer

RECOMMENDED FINDINGS

For the Environmental Review, Find:

1. That the project is categorically exempt from the California Environmental Quality Act (CEQA) under provisions of Guidelines §15301, Class 1, for the continued operation of existing public or private facilities involving no additional physical changes and no expansion of use.

For the Use Permit Renewal, Find:

2. That the establishment, maintenance and/or conducting of the proposed use will not, under the circumstances of this particular case, be detrimental to the public welfare or injurious to property or improvements in said neighborhood as a search of County records has shown that the site has operated in full compliance with the previous conditions of approval, is in compliance with the Federal Communications Commission (FCC)'s current prevailing standards for limiting human exposure to RF energy, and is compliant with the County's Wireless Telecommunication Facilities Ordinance due to the design, location, and available opportunities for future co-locations.

3. That the approval of this use permit renewal for an existing cellular telecommunication facility is necessary for the public health, safety, convenience, or welfare of the community as the site provides telecommunications coverage to the surrounding community, which serves as a benefit to both private and public users.

CONDITIONS OF APPROVAL

1. This approval applies only to the proposal, documents, and plans described in this report and submitted to and approved by the Zoning Hearing Officer on January 19, 2023. Modifications beyond those approved by the Zoning Hearing Officer will be subject to review and approval by the Community Development Director and may require review at a public hearing. Minor modifications that are largely

consistent with this approval may be approved at the discretion of the Community Development Director.

2. This permit shall be valid for ten (10) years from the date of this approval and shall expire on January 19, 2033. If continuation of this use is desired, the applicant shall file a use permit renewal application with the Planning and Building Department six months prior to its expiration and pay the fees applicable at that time.

3. The applicant shall continue to maintain the color of all existing facilities in a manner that is consistent with the color samples on file. Over time paint colors fade and, as result, facilities may become more visually prominent than initially proposed. The applicant shall continue to take all necessary measures to ensure that the site remains consistent with all previously approved colors. This includes all antennas and related tower-mounted equipment.

4. This installation shall be removed in its entirety at that time when this technology becomes obsolete, when the facility is no longer needed to achieve coverage objectives, or if the facility remains inactive for six consecutive months. If any of these circumstances occur, the entire facility, including all antennas and associated equipment, cables, power supplies, etc., shall be removed and the site shall be returned to its pre-construction state to the extent practicable.

5. The applicant shall continuously maintain a lease agreement between Verizon Wireless and San Mateo County, the property owner.

6. The applicant shall continue to keep their FCC license active and in good standing through-out this permit's 10-year term. The applicant shall immediately notify the Planning and Building Department if any changes to their license occur.

7. The area around the water tower shall not be fenced. Collar-type security measures may be installed around each leg of the water tower.

8. The applicant shall ensure that any hardware and cables associated with the facility remain securely installed to the water tower so that it will not rattle or create noise.

9. The antenna panels shall be bolted to the water tower and shall be checked regularly by maintenance personnel as this area is subject to high winds.

10. The applicant shall maintain a 30-foot clearance of all flammable vegetation around the structure and generator.

11. The applicant shall maintain a Knox Box on the gate to allow Fire Department entry in case of emergency.

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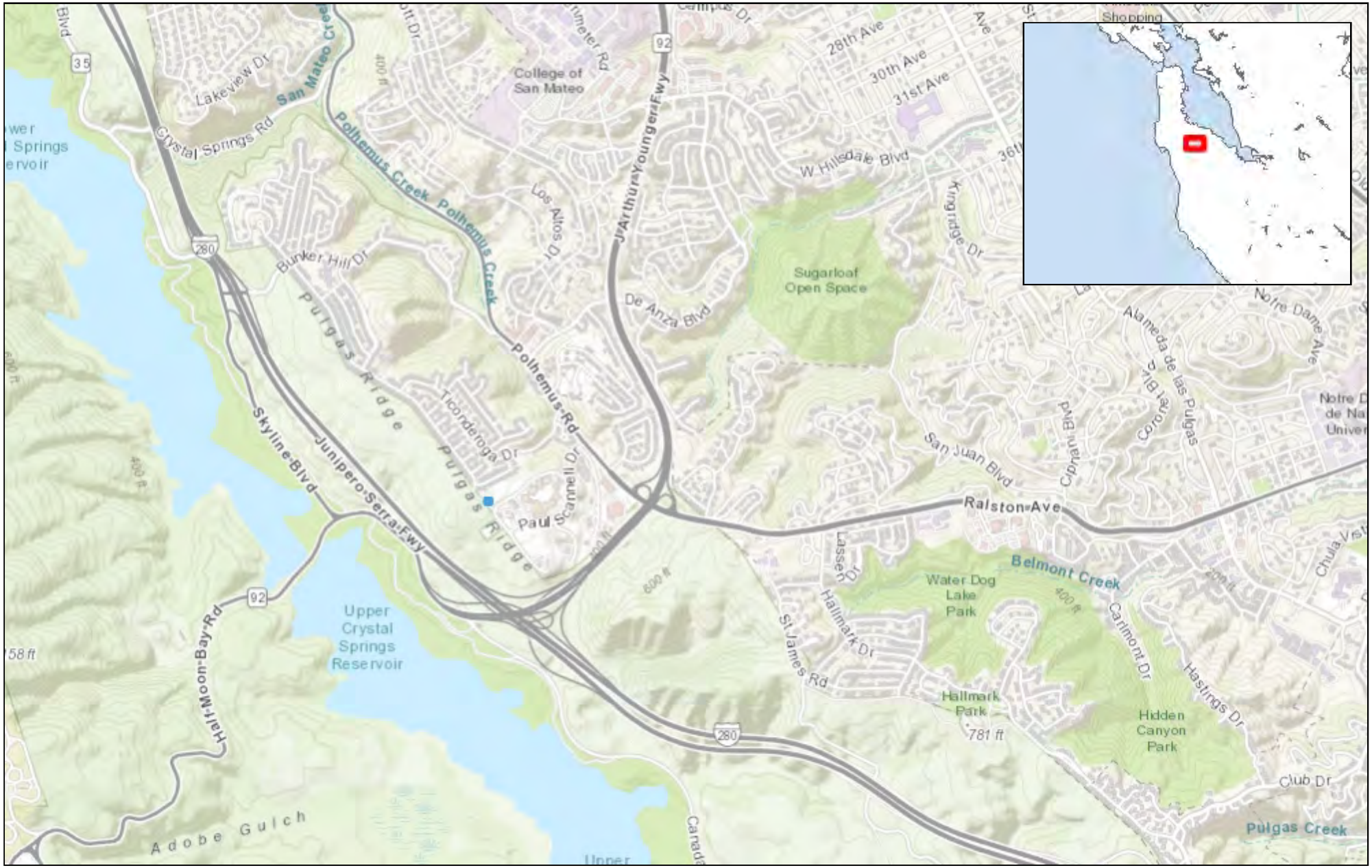
County of San Mateo - Planning and Building Department

ATTACHMENT B

San Mateo County

Project Location - PLN2000-00562



1.14 0 0.57 1.14 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

1: 36,112

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

County of San Mateo - Planning and Building Department

ATTACHMENT C

VERIZON WIRELESS EQUIPMENT ENGINEER:	VERIZON WIRELESS REAL ESTATE:
SIGNATURE DATE	SIGNATURE DATE
VERIZON WIRELESS CONSTRUCTION:	VERIZON WIRELESS RF ENGINEER:
SIGNATURE DATE	SIGNATURE DATE
PROPERTY OWNER:	ON AIR LLC – LEASING
SIGNATURE DATE	SIGNATURE DATE
ON AIR LLC – CONSTRUCTION	ON AIR LLC – ZONING
SIGNATURE DATE	SIGNATURE DATE

verizon

PULGAS RIDGE (ANTENNA MOD)

85 LOOP RD, SAN MATEO, CA 94402
LOCATION NUMBER: 123525
PROJECT ID#: 20202211049

PROJECT DESCRIPTION

A MODIFICATION OF AN (E) VERIZON WIRELESS UNMANNED TELECOMMUNICATION FACILITY CONSISTING OF:

REMOVING & REPLACING (6) (E) VERIZON WIRELESS ANTENNAS W/ (6) (N) VERIZON WIRELESS ANTENNAS
REMOVING & REPLACING (3) (E) RRUS-32 B66A UNITS W/ (3) (N) RADIO 8843 UNITS @ ANTENNAS
INSTALLING (3) (N) RAYCAP 6627 SURGE SUPPRESSORS @ ANTENNAS
INSTALLING (3) (N) RADIO 4449 UNITS @ ANTENNAS
INSTALLING (3) (N) TWIN COMBINERS @ ANTENNAS
INSTALLING (3) (N) 12X24 HYBRID CABLES
INSTALLING (1) (N) RACK MOUNTED RAYCAP 4520 SURGE SUPPRESSOR INSIDE (E) MISC RACK INSIDE (E) EQUIPMENT SHELTER
REMOVING ALL UNUSED COAX CABLES
REMOVING (E) RBS 6201 LTE CABINET & ASSOCIATED RADIOS @ EQUIPMENT
REMOVING ALL (E) DIPLEXERS @ EQUIPMENT & @ ANTENNAS
RETAINING (6) (E) COAX CABLES FOR CDMA

PROJECT INFORMATION

SITE NAME:	PULGAS RIDGE (ANTENNA MOD)	SITE #:	123525
COUNTY:	SAN MATEO	JURISDICTION:	SAN MATEO COUNTY
APN:	041-320-120	POWER:	PG&E
SITE ADDRESS:	85 LOOP RD SAN MATEO, CA 94402		
CURRENT ZONING:	RE		
CONSTRUCTION TYPE:	V-B		
OCCUPANCY TYPE:	U, (UNMANNED COMMUNICATIONS FACILITY)		
PROPERTY OWNER:	COUNTY OF SAN MATEO COUNTY GOVT CENTER REDWOOD CITY, CA 94063		
APPLICANT:	VERIZON WIRELESS 2785 MITCHELL DRIVE, BLDG 9 WALNUT CREEK, CA 94598		
SITE ACQUISITION COMPANY:	ON AIR LLC 465 1ST STREET WEST, SUITE 101 SONOMA, CA 95476		
LEASING CONTACT:	ATTN: CHRIS DURAND (510) 517-8898 CDURAND@ONAIRLLC.COM		
ZONING CONTACT:	ATTN: CHRIS DURAND (510) 517-8898 CDURAND@ONAIRLLC.COM		
CONSTRUCTION CONTACT:	MOHAMMAD BASEER (510) 414-7075 MBASEER@ONAIRLLC.COM		

DESIGN CRITERIA

RISK CATEGORY: IV	ROOF LIVE LOAD: N/A	FLOOR LIVE LOAD: N/A	ALLOW SOIL BEARING: N/A
WIND EXPOSURE: C	DESIGN WIND SPEED: 103 MPH	GROUND ELEVATION:	TOPOGRAPHIC CATEGORY:
SEISMIC SITE CLASS: D	SEISMIC DESIGN CATEGORY: D	SEISMIC COMPONENT I_p: 1.0	a_p: 1.0 R_p: 2.5
S_{DS}: 1.936	S_{D1}: 1.149	S_S: 2.421	S_1: 1.014

VICINITY MAP

DRIVING DIRECTIONS

FROM: 2785 MITCHELL DRIVE, WALNUT CREEK, CA 94598
TO: 85 LOOP RD, SAN MATEO, CA 94402

1.	HEAD SOUTHWEST ON MITCHELL DR	0.3 MI
2.	TURN LEFT ONTO N WIGET LN	0.3 MI
3.	TURN RIGHT ONTO YGNACIO VALLEY RD	2.9 MI
4.	CONTINUE ONTO HILLSIDE AVE	0.2 MI
5.	USE THE RIGHT LANE TO TAKE THE CA-24 W RAMP TO OAKLAND	1.2 MI
6.	CONTINUE ONTO CA-24 W	8.1 MI
7.	KEEP LEFT TO STAY ON CA-24 W	4.3 MI
8.	USE THE RIGHT 2 LANES TO TAKE EXIT EXIT 2B TO MERGE ONTO I-580 W TOWARD SAN FRANCISCO	1.5 MI
9.	USE THE LEFT 3 LANES TO TAKE EXIT 19A TO MERGE ONTO I-80 W TOWARD SAN FRANCISCO	1.3 MI
10.	KEEP RIGHT AT THE FORK TO STAY ON I-80 W	7.2 MI
11.	MERGE ONTO US-101 S	18.0 MI
12.	USE THE RIGHT 3 LANES TO TAKE EXIT 414B TO MERGE ONTO CA-92 W TOWARD HALF MOON BAY	4.3 MI
13.	TAKE EXIT 9A TOWARD RALSTON AVE	0.3 MI
14.	TURN RIGHT ONTO POLHEMUS RD	0.2 MI
15.	TURN LEFT ONTO PAUL SCANNELL DR	0.1 MI
16.	TURN RIGHT ONTO LOOP RD	0.3 MI

END AT: 85 LOOP RD, SAN MATEO, CA 94402

ESTIMATED TIME: 57 MINUTES ESTIMATED DISTANCE: 50.4 MILES

CODE COMPLIANCE

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

2019 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
2019 CALIFORNIA BUILDING CODE (CBC), PART 2, VOLUME 1&2, TITLE 24 C.C.R.
(2018 INTERNATIONAL BUILDING CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2017 NATIONAL ELECTRICAL CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24 C.C.R.
(2018 UNIFORM MECHANICAL CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2018 UNIFORM PLUMBING CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.
2019 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
(2018 INTERNATIONAL FIRE CODE AND 2019 CALIFORNIA AMENDMENTS)
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 C.C.R.
2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
ANSI/EIA-TIA-222-H

ALONG WITH ANY OTHER APPLICABLE LOCAL & STATE LAWS AND REGULATIONS

DISABLED ACCESS REQUIREMENTS

THIS FACILITY IS UNMANNED & NOT FOR HUMAN HABITATION. DISABLED ACCESS & REQUIREMENTS ARE NOT REQUIRED IN ACCORDANCE WITH CALIFORNIA STATE BUILDING CODE, TITLE 24 PART 2, SECTION 11B-203.5

SHEET INDEX

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A-3	ANTENNA PLAN	–
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A-5	ELEVATIONS	–
A-6	ELEVATIONS	–
A-7	DETAILS	–
S-1	STRUCTURAL NOTES & DETAILS	–

PULGAS
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verizon

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WALNUT CREEK, CA 94598

Streamline Engineering and Design, Inc.
8445 Sierra College Blvd, Suite E Granite Bay, CA 95746
Contact: Kevin Sorensen Phone: 916-660-1930
E-Mail: kevin@streamlineeng.com Fax: 916-660-1941

LICENSED PROFESSIONAL ENGINEER
John M. Anderson
NO. 69368
CIVIL
STATE OF CALIFORNIA

ISSUE STATUS

△	DATE	DESCRIPTION	REV.
	01/26/21	CD 90%	A.A.
	04/26/21	CD 100%	I.M.
	–	–	–
	–	–	–
	–	–	–
	–	–	–

DRAWN BY:	A. ARIA
CHECKED BY:	J. GRAY
APPROVED BY:	J. ANDERSON
DATE:	04/26/21

SHEET TITLE:
TITLE SHEET

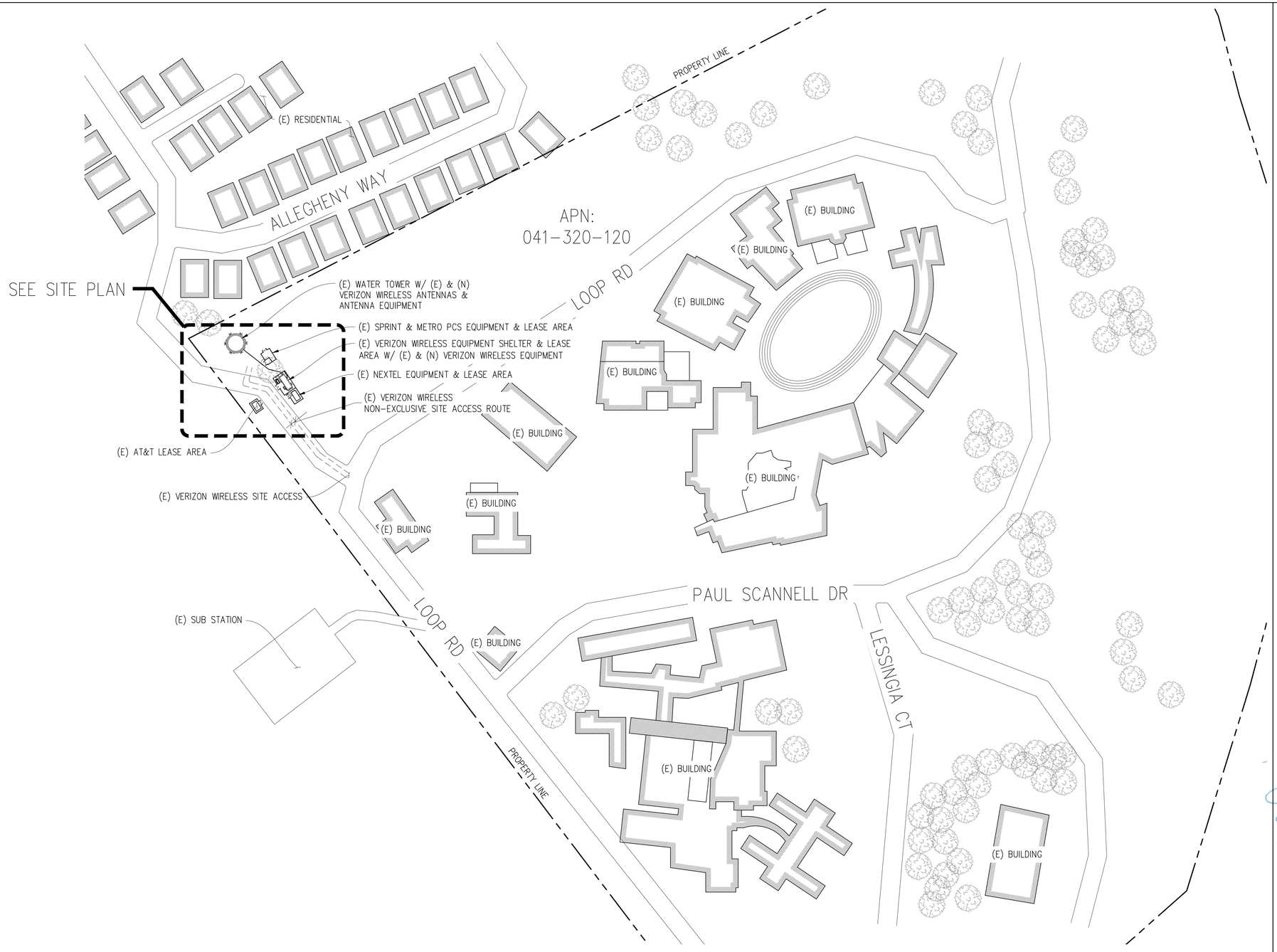
SHEET NUMBER:
T-1

PROJECT GENERAL NOTES

1. THIS FACILITY IS AN UNOCCUPIED WIRELESS TELECOMMUNICATION FACILITY.
2. PLANS ARE NOT TO BE SCALED AND ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS NOTED OTHERWISE.
3. THE SCOPE OF WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
4. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTORS SHALL VISIT THE JOB SITE AND BE RESPONSIBLE FOR ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS, AND CONFIRM THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PAY FOR PERMIT FEES, AND TO OBTAIN SAID PERMITS AND TO COORDINATE INSPECTIONS.
6. THE CONTRACTOR SHALL RECEIVE, IN WRITING, AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
7. CALL BEFORE YOU DIG. CONTRACTOR IS REQUIRED TO CALL 811 (NATIONWIDE "CALL BEFORE YOU DIG" HOTLINE) AT LEAST 72 HOURS BEFORE DIGGING.
8. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
9. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK USING THE BEST SKILLS AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES. CONTRACTOR SHALL ALSO COORDINATE ALL PORTIONS OF THE WORK UNDER THE CONTRACT; INCLUDING CONTACT AND COORDINATION WITH THE CONSTRUCTION MANAGER AND WITH THE LANDLORD'S AUTHORIZED REPRESENTATIVE.
10. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, PAVING, CURBS, GALVANIZED SURFACES, ETC., AND UPON COMPLETION OF WORK, REPAIR ANY DAMAGE THAT OCCURRED DURING CONSTRUCTION TO THE SATISFACTION OF THE PROJECT MANAGER.
11. KEEP GENERAL AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS AND RUBBISH. REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
12. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED, OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
13. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND ALL OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK SHALL BE PROTECTED AT ALL TIMES.
14. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
15. THE CONTRACTOR SHALL PROVIDE A TOILET FACILITY DURING ALL PHASES OF CONSTRUCTION.
16. SUFFICIENT MONUMENTATION WAS NOT RECOVERED TO ESTABLISH THE POSITION OF THE BOUNDARY LINES SHOWN HEREON. THE BOUNDARY REPRESENTED ON THIS MAP IS BASED ON COMPILED RECORD DATA AND BEST FIT ONTO EXISTING IMPROVEMENTS. IT IS POSSIBLE FOR THE LOCATION OF THE SUBJECT PROPERTY TO SHIFT FROM THE PLACEMENT SHOWN HEREON WITH ADDITIONAL FIELD WORK AND RESEARCH. THEREFORE ANY SPATIAL REFERENCE MADE OR SHOWN BETWEEN THE RELATIONSHIP OF THE BOUNDARY LINES SHOWN HEREON AND EXISTING GROUND FEATURES, EASEMENTS OR LEASE AREA IS INTENDED TO BE APPROXIMATE AND IS SUBJECT TO VERIFICATION BY RESOLVING THE POSITION OF THE BOUNDARY LINES.
17. THE CONTRACTOR TO VERIFY THE LATEST/CURRENT RF DESIGN.
18. WHERE APPLICABLE, CONTRACTOR SHALL PROVIDE SEPARATE PLANS, SPECIFICATIONS, FEES AND PERMITS FOR ANY REVISION TO ANY FIRE SPRINKLER AND/OR ALARM SYSTEM ON THE PREMISES AS MAY BE NEEDED TO COMPLETE THE WORK DEPICTED HEREIN, USING A C-10 LICENSED SUBCONTRACTOR FOR ALL SUCH WORK.

NOTE:

ALL (N) ANTENNAS, ANTENNA MOUNTS, ANTENNA EQUIPMENT, & EXPOSED CABLES TO BE PAINTED TO MATCH (E) WATER TANK.



OVERALL SITE PLAN

1"=100'-0"

0 50' 100' 200' 300' 500'

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Contact: Kevin Sorensen Phone: 916-660-1930
E-Mail: kevin@streamlineeng.com Fax: 916-660-1941

LICENSED PROFESSIONAL ENGINEER
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CIVIL
STATE OF CALIFORNIA

ISSUE STATUS

△	DATE	DESCRIPTION	REV.
	01/26/21	CD 90%	A.A.
	04/26/21	CD 100%	I.M.
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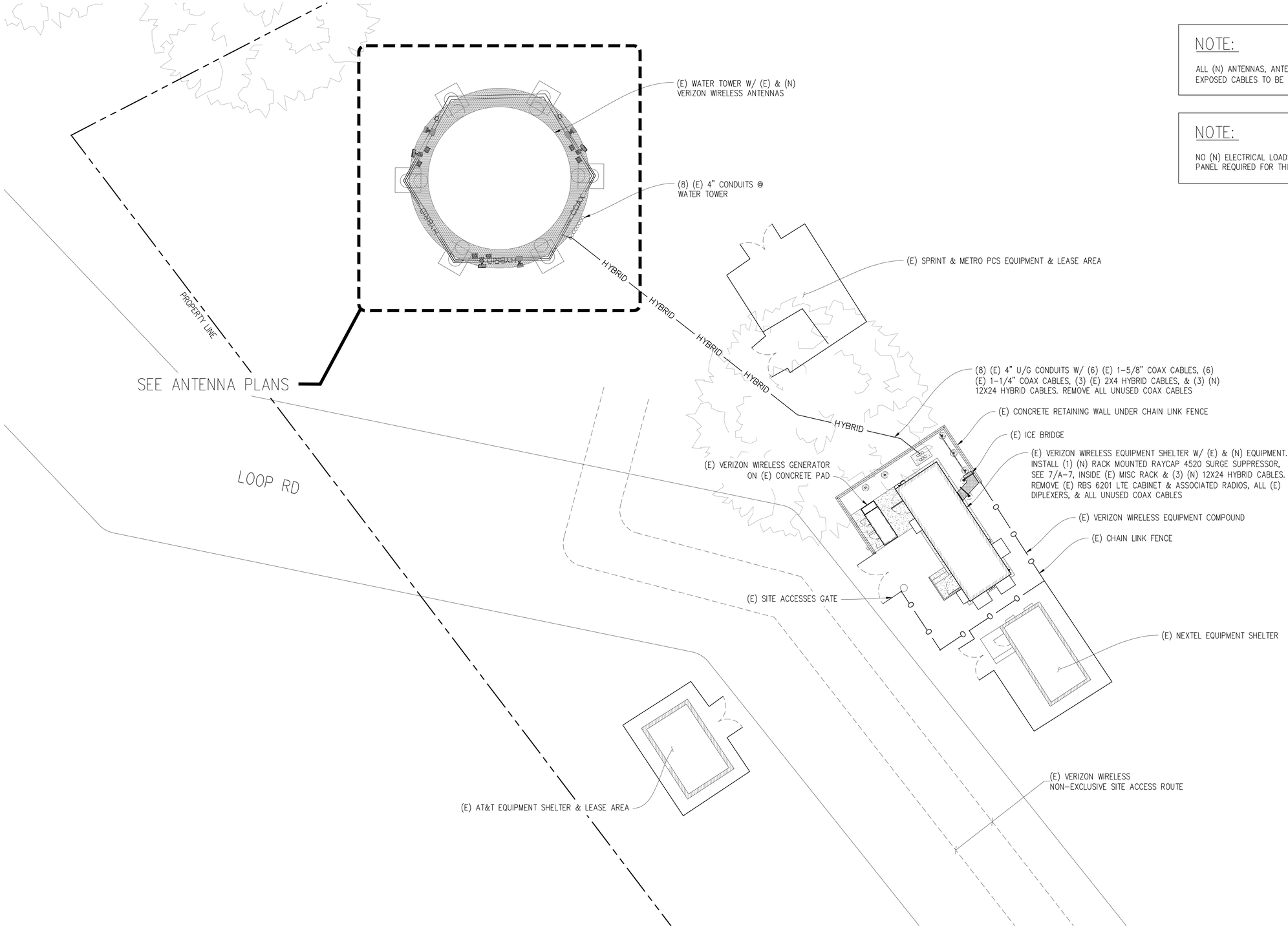
DRAWN BY:	A. ARIA
CHECKED BY:	J. GRAY
APPROVED BY:	J. ANDERSON
DATE:	04/26/21

SHEET TITLE:
OVERALL SITE PLAN

SHEET NUMBER:
A-1



NOTE:

ALL (N) ANTENNAS, ANTENNA MOUNTS, ANTENNA EQUIPMENT, & EXPOSED CABLES TO BE PAINTED TO MATCH (E) WATER TANK.

NOTE:

NO (N) ELECTRICAL LOADS CONNECTIONS TO (E) ELECTRICAL PANEL REQUIRED FOR THIS MODIFICATION.

SITE PLAN

1"=10'-0"

0 5' 10' 20' 30' 50'

PULGAS RIDGE (ANTENNA MOD)

123525

85 LOOP RD
SAN MATEO, CA 94402

verizon

2785 MITCHELL DRIVE, BLDG 9
WALNUT CREEK, CA 94598

Streamline Engineering and Design, Inc.
8445 Sierra College Blvd, Suite E Granite Bay, CA 95746
Contact: Kevin Sorensen Phone: 916-660-1930
E-Mail: kevin@streamlineeng.com Fax: 916-660-1941

LICENSED PROFESSIONAL ENGINEER
John M. Anderson
NO. 69368
CIVIL
STATE OF CALIFORNIA

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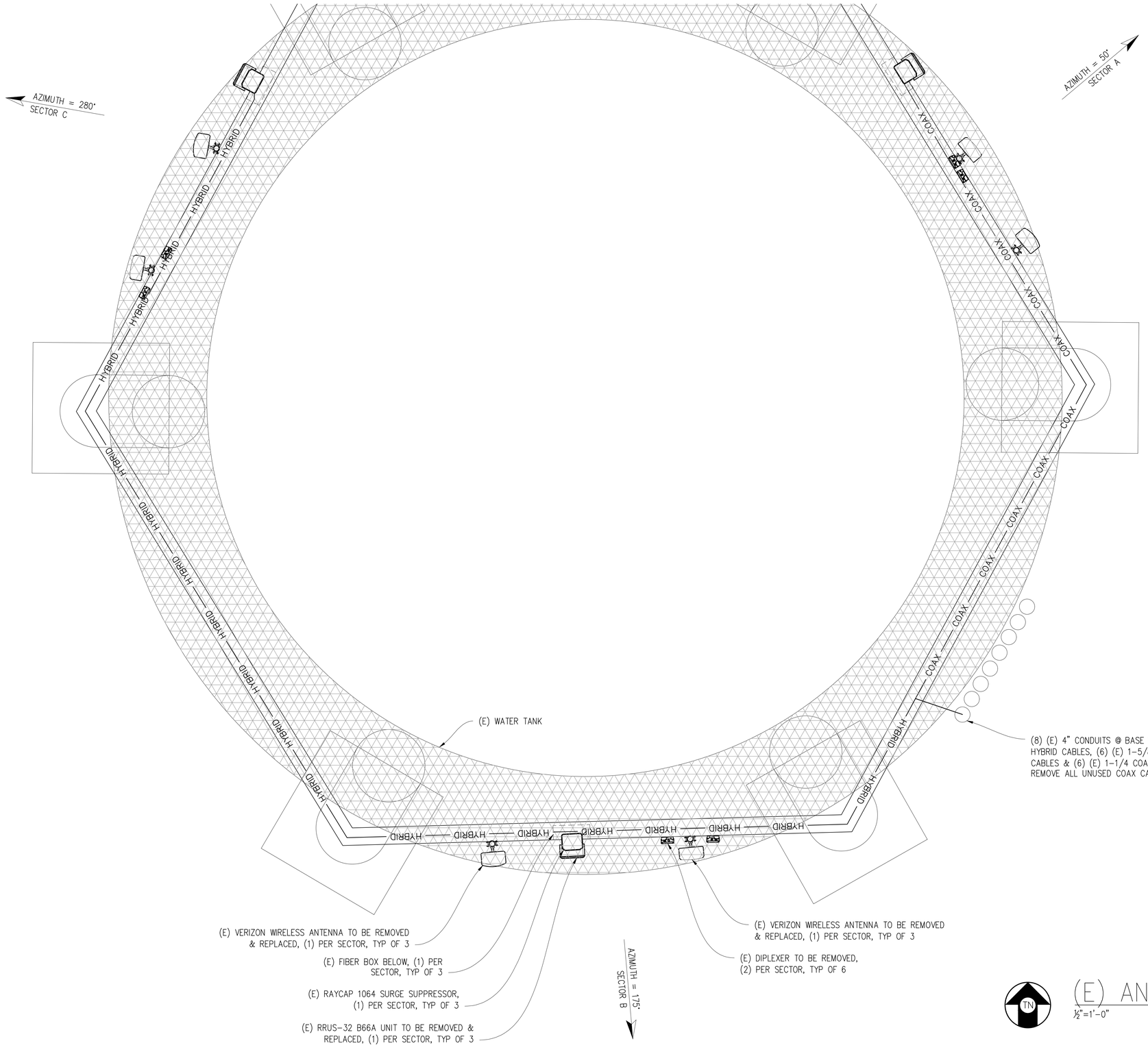
DRAWN BY:	A. ARIA
CHECKED BY:	J. GRAY
APPROVED BY:	J. ANDERSON
DATE:	04/26/21

SHEET TITLE:

SITE PLAN

SHEET NUMBER:

A-2



(E) ANTENNA PLAN

½"=1'-0"

PULGAS RIDGE (ANTENNA MOD)

123525

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SAN MATEO, CA 94402

verizon

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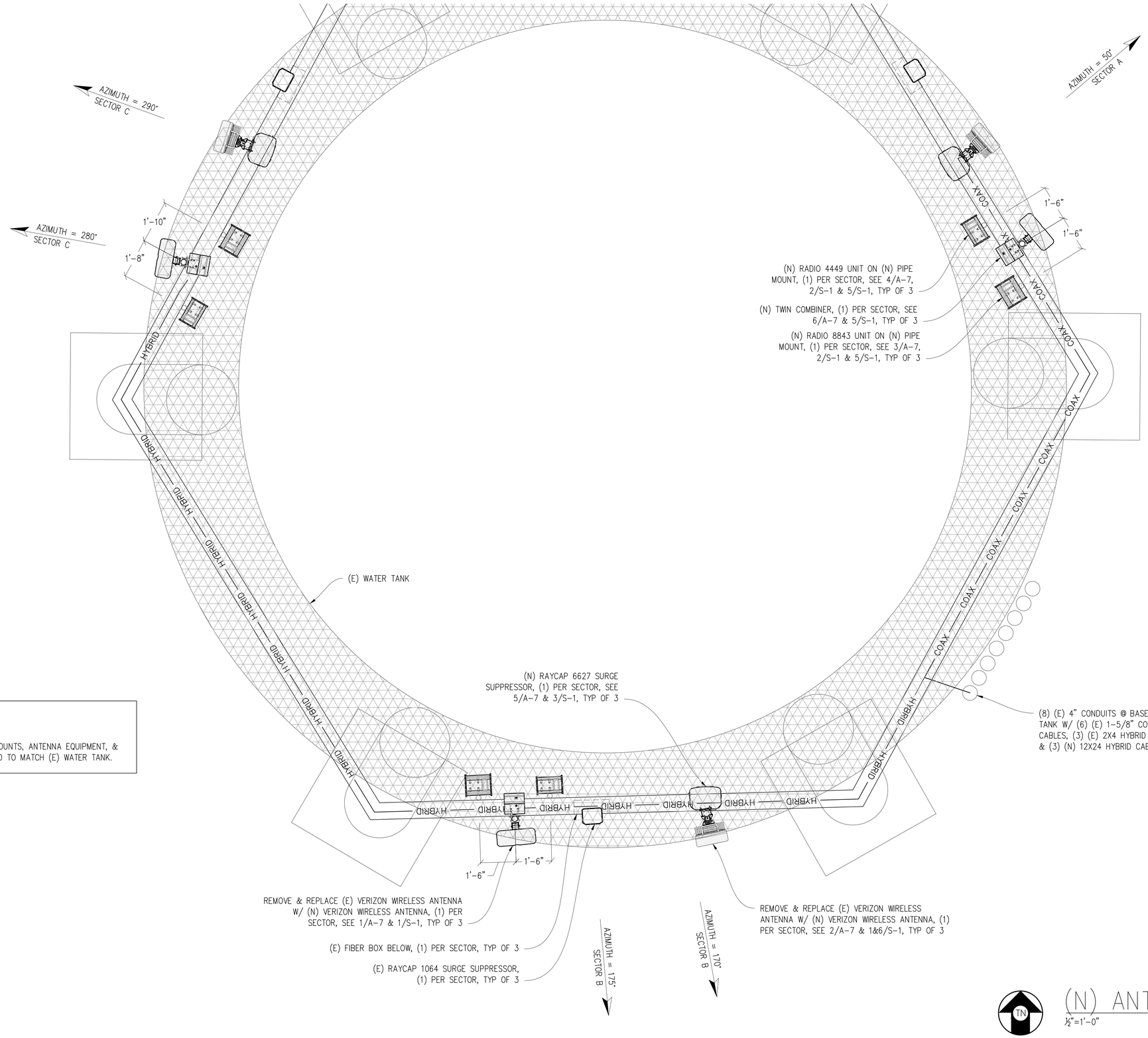
DATE:	04/26/21

SHEET TITLE:

ANTENNA PLAN

SHEET NUMBER:

A-3



NOTE:

ALL (N) ANTENNAS, ANTENNA MOUNTS, ANTENNA EQUIPMENT, & EXPOSED CABLES TO BE PAINTED TO MATCH (E) WATER TANK.

(N) ANTENNA PLAN

½"=1'-0"

PULGAS RIDGE (ANTENNA MOD)

123525

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DRAWN BY: A. ARIA

CHECKED BY: J. GRAY

APPROVED BY: J. ANDERSON

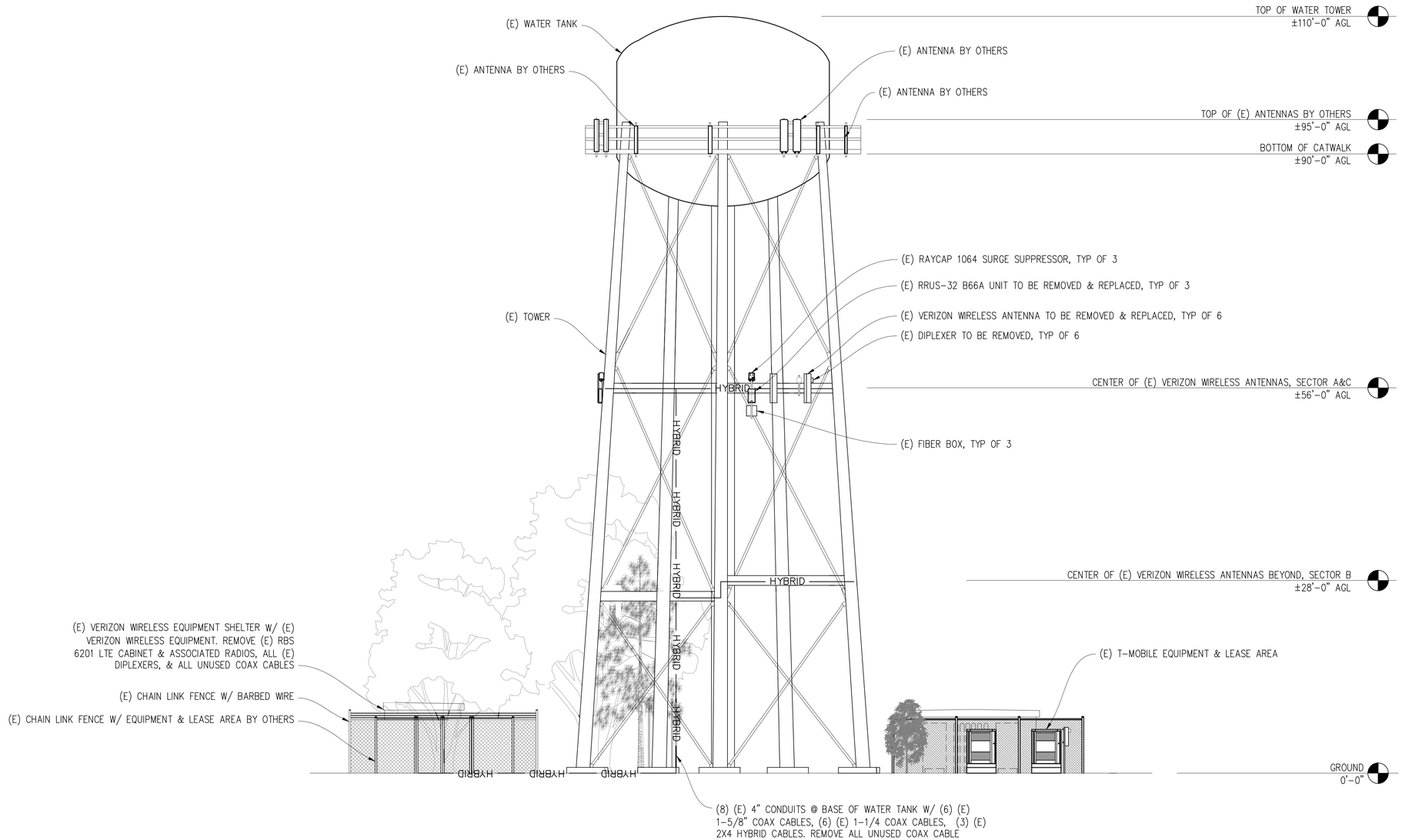
DATE: 04/26/21

SHEET TITLE:

ANTENNA PLAN

SHEET NUMBER:

A-4



(E) NORTHWEST ELEVATION

1/8"=1'-0"

PULGAS RIDGE (ANTENNA MOD)

123525

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DATE:	04/26/21

SHEET TITLE:

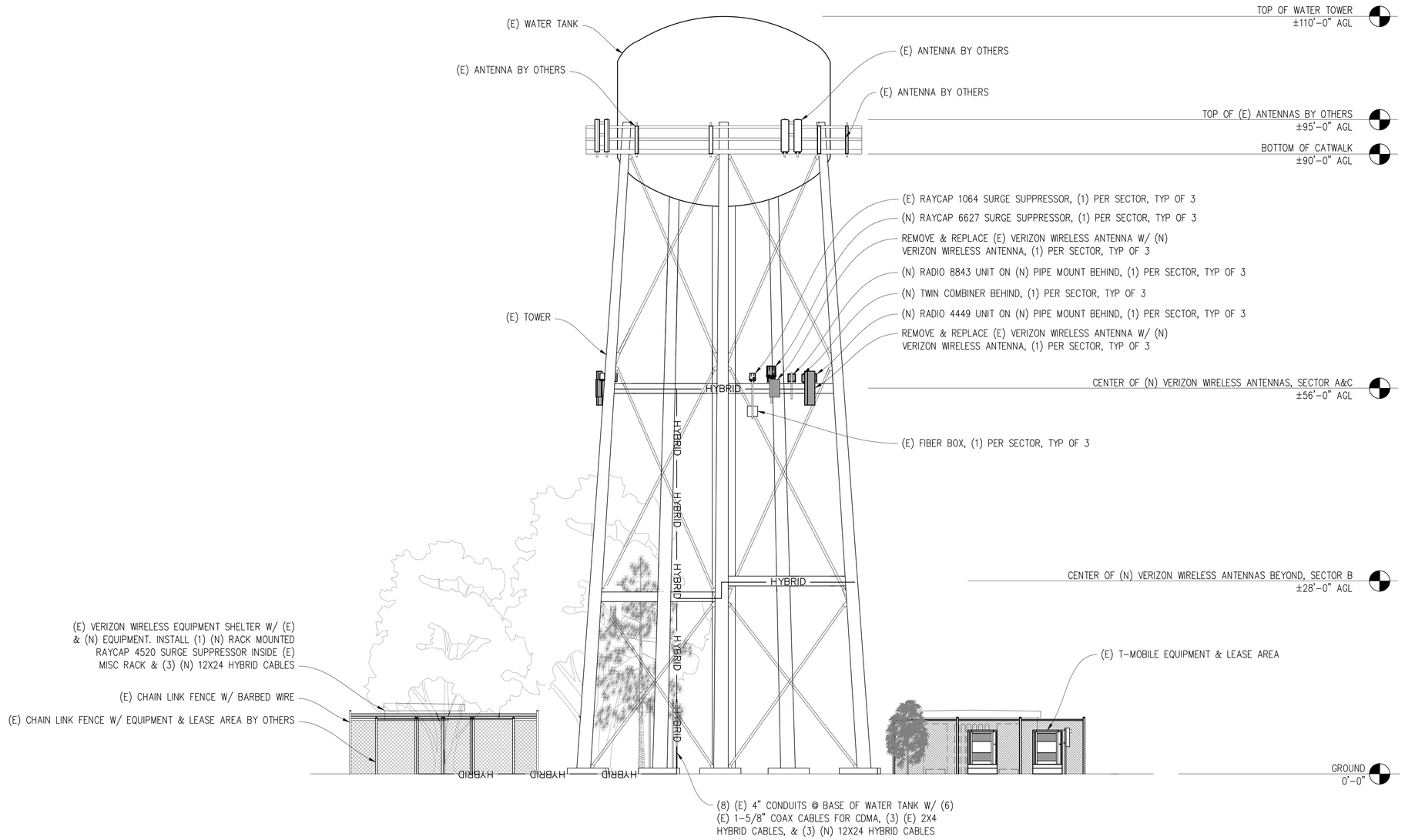
ELEVATIONS

SHEET NUMBER:

A-5

NOTE:

ALL (N) ANTENNAS, ANTENNA MOUNTS, ANTENNA EQUIPMENT, & EXPOSED CABLES TO BE PAINTED TO MATCH (E) WATER TANK.



(N) NORTHWEST ELEVATION

1/8"=1'-0"

PULGAS RIDGE (ANTENNA MOD)

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verizon

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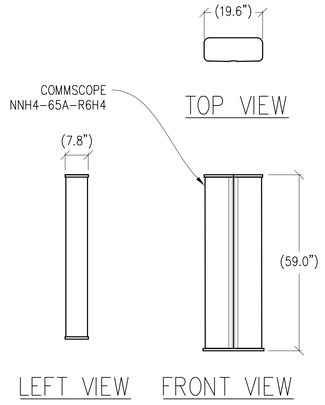
APPROVED BY:	J. ANDERSON
DATE:	04/26/21

SHEET TITLE:

ELEVATIONS

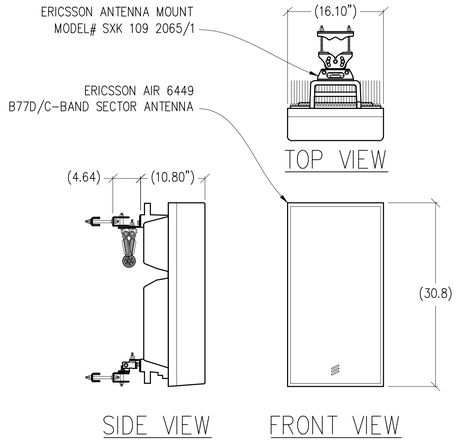
SHEET NUMBER:

A-6



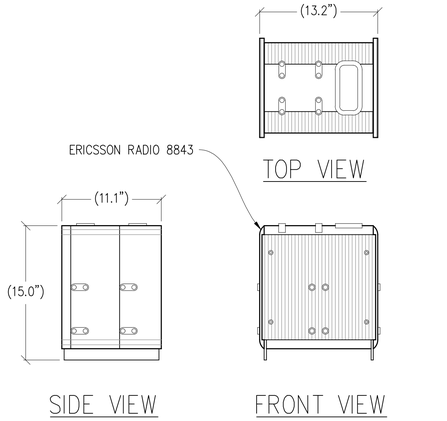
1 ANTENNA DETAIL

½"=1'-0" MAX WEIGHT: 73.86 LBS



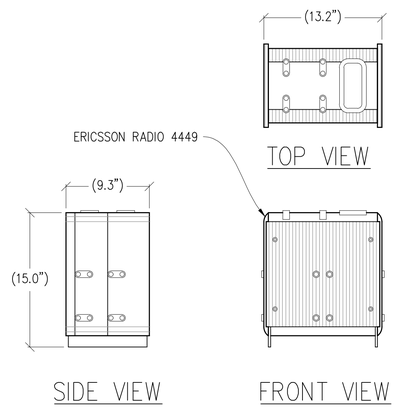
2 ANTENNA DETAIL

1"=1'-0" MAX WEIGHT W/ MOUNT: 101.1 LBS



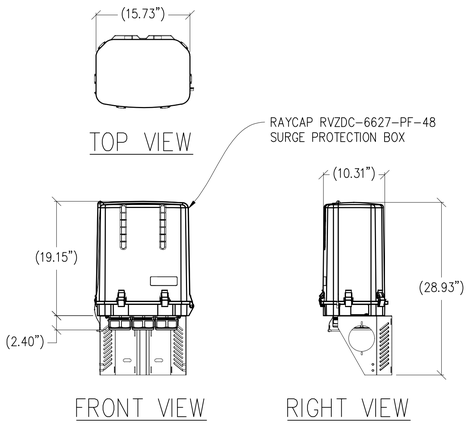
3 RADIO 8843 DETAIL

1½"=1'-0" MAX WEIGHT: 75 LBS



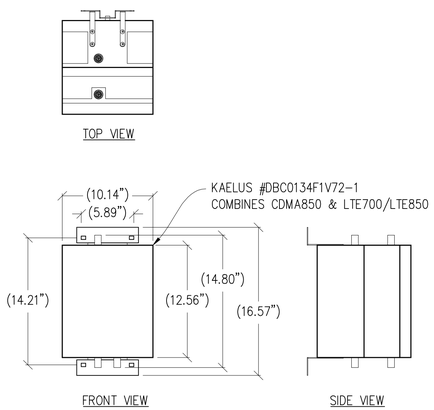
4 RADIO 4449 DETAIL

1½"=1'-0" MAX WEIGHT: 70 LBS



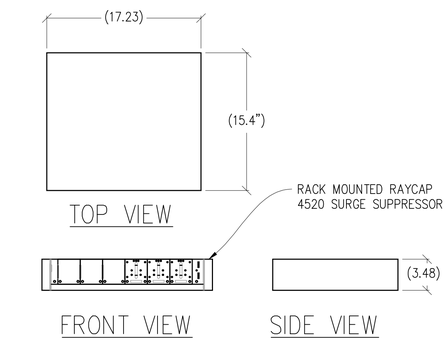
5 SURGE PROTECTION BOX

1"=1'-0" MAX WEIGHT: 32.0 LBS



6 TWIN COMBINER

1½"=1'-0" MAX WEIGHT: 45.1 LBS



7 RAYCAP 4520 SURGE SUPPRESSOR

1½"=1'-0" WEIGHT: 27 LBS

PULGAS RIDGE (ANTENNA MOD)

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SAN MATEO, CA 94402

verizon

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DRAWN BY:	A. ARIA
CHECKED BY:	J. GRAY
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DATE:	04/26/21

SHEET TITLE:

DETAILS

SHEET NUMBER:

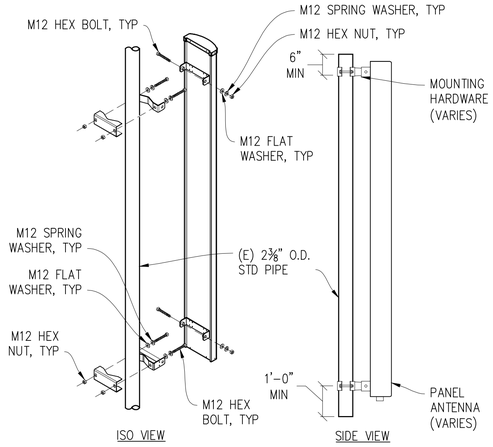
A-7

CONSTRUCTION NOTES

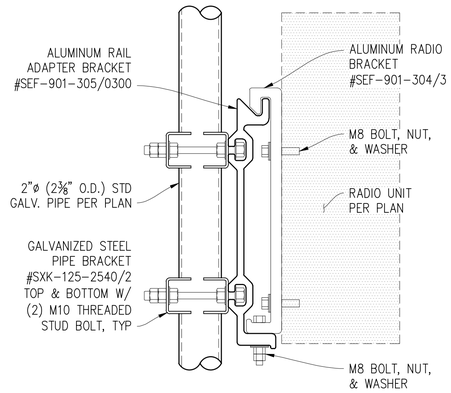
1. EXISTING BUILDING CONSTRUCTION CONDITIONS INDICATED ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO PROCEEDING WITH CONSTRUCTION OR ORDERING OF MATERIALS. IF EXISTING CONDITIONS DO NOT ALLOW FOR DETAILS OF CONSTRUCTION AS SHOWN ON THESE DRAWINGS, NOTIFY ENGINEER OF RECORD FOR RESOLUTION PRIOR TO PROCEEDING. CONTRACTOR SHALL EXPOSE AND REVIEW EXISTING CONDITIONS IN A TIMELY MANNER SUCH THAT ALTERNATE DESIGNS OR DETAILS, IF REQUIRED, MAY BE GENERATED WITHOUT DELAY TO THE PROJECT.
2. DURING CONSTRUCTION, THE CONTRACTOR SHALL NOT ALTER, DAMAGE OR REMOVE ANY PART OF THE EXISTING STRUCTURE UNLESS SPECIFICALLY DETAILED ON THESE DRAWINGS.
3. THE INTENT OF THESE DRAWINGS IS THAT THE WORK OF THE ADDITION, ALTERATION, REHABILITATION, OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH THE 2019 CBC. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NONCOMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH THE 2019 CBC, A CHANGE ORDER, OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE PREPARED AND SUBMITTED TO AND APPROVED BY THE BUILDING DEPARTMENT PRIOR TO PROCEEDING WITH THE WORK.
4. ALL WORK AND MATERIALS SHOWN ARE NEW UNLESS INDICATED AS EXISTING (E).
5. IT MAY BE NECESSARY TO REMOVE ARCHITECTURAL FINISHES, PLUMBING PIPES AND FIXTURES, ELECTRICAL CONDUIT, FIXTURES, PANELS, BOXES, TELEPHONE OR FIRE ALARM WIRING AND FIXTURES OR OTHER NON-STRUCTURAL ITEMS TO INSTALL STRUCTURAL WORK AND MATERIALS SHOWN ON THESE DRAWINGS. SUCH ITEMS SHALL BE REMOVED, REPAIRED AND/OR REPLACED TO MATCH PRE-CONSTRUCTION CONDITIONS AT THE CONTRACTORS EXPENSE.
6. ALL WEATHER PROOFING. INCLUDING BUT NOT LIMITED TO TORCH DOWN, CAULKING, Z-FLASHING OR ANY OTHER MATERIAL THAT MAY BE ALTERED DURING INSTALLATION SHALL BE REPAIRED REPLACED AND/OR MODIFIED TO ENSURE THE BUILDING AT THE INSTALLATION SITE IS WEATHER PROOF.
7. ANY PROPOSED SUBSTITUTIONS FOR STRUCTURAL MEMBERS, HARDWARE, ANCHOR TYPES, OR DETAILING INDICATED IN THESE DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER OF RECORD PRIOR TO ORDERING MATERIALS. SUCH REVIEW SHALL BE BILLED ON A TIME AND MATERIALS BASIS TO THE CONTRACTOR WITH NO GUARANTEE THAT THE SUBSTITUTION WILL BE ALLOWED.
8. CONTRACTOR SHALL ENSURE ALL ROOF AREAS HAVE POSITIVE SLOPE TO ALL EXISTING ROOF DRAINS. PROVIDE ADDITIONAL CRICKETS OR BUILD UP ROOFING AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AROUND ALL NEW CONSTRUCTION INCLUDING ANY CURBS, SLEEPERS, SUPPORT BASES, ETC.

STRUCTURAL STEEL NOTES

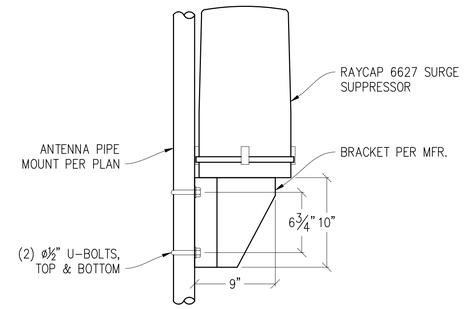
1. ALL STEEL CONSTRUCTION INCLUDING FABRICATION, ERECTION AND MATERIALS SHALL COMPLY WITH ALL REQUIREMENTS OF THE 2016 AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND THE 2019 CBC.
2. ALL STRUCTURAL STEEL SHALL BE ASTM A36 UNLESS OTHERWISE NOTED. ALL WF (WIDE FLANGE) & WT (TEE) SHAPES TO BE ASTM A992 (F_Y=50,000 PSI) UNLESS NOTED OTHERWISE. ALL STRUCTURAL TUBING (TS OR HSS) SHALL BE ASTM A500 GRADE B (F_Y=46,000 PSI). ALL STEEL PIPE SHALL BE ASTM A53 (TYPE E OR S, GRADE B (F_Y=35,000 PSI)) SCHEDULE 40 WITH OUTSIDE DIAMETERS GIVEN UNLESS OTHERWISE NOTED.
3. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES UNLESS OTHERWISE NOTED AND SHALL CONFORM TO AISC & AWS D1.4. WHERE FILLET WELD SIZES ARE NOT SHOWN PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC SPECIFICATION. PAINTED SURFACES SHALL BE TOUCHED UP.
4. ALL WELDING SHALL BE PERFORMED BY QUALIFIED, CERTIFIED WELDERS.
5. BOLTS SHALL BE GALVANIZED ASTM F3125/F3125M GRADE A325 MINIMUM. BOLTED CONNECTIONS SHALL BE BEARING TYPE. SEE PLANS FOR LOCATION, NUMBER, & SIZE OF BOLTS. SPECIAL INSPECTION IS REQUIRED FOR HIGH STRENGTH BOLTS.
6. THREADED RODS SHALL BE ASTM F1554, GR 36 U.O.N. BOLTED CONNECTIONS SHALL BE BEARING TYPE. SEE PLANS FOR LOCATION, NUMBER, & SIZE OF BOLTS.
7. ALL HOLES FOR BOLTED CONNECTIONS SHALL BE 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER. USE STANDARD AISC GAGE AND PITCH FOR BOLTS EXCEPT AS NOTED OTHERWISE. HOLES FOR ANCHOR BOLTS IN BASE PLATES MAY BE AISC "OVERSIZE" HOLES WHERE ACCOMPANIED BY OVERSIZED HARDENED HOT DIPPED GALVANIZED WASHERS.
8. ALL SHOP FABRICATED STEEL STRUCTURAL MEMBERS FOR EXTERIOR USE SHALL BE HOT DIP GALVANIZED PER ASTM A123 AFTER FABRICATION & PAINTED PER CUSTOMER SPECIFICATIONS AS REQUIRED. STEEL FOR INTERIOR USE SHALL BE SHOP COAT OR GALVANIZED & PAINTED PER PLAN.
9. ALL FIELD FABRICATED GALVANIZED STEEL THAT IS CUT, GROUND, DRILLED, WELDED OR DAMAGED SHALL BE TREATED WITH "ZINC RICH" COLD GALVANIZING SPRAY OR COATING. NO RAW STEEL SHALL BE EXPOSED.
10. AT ALL WEB STIFFENER PLATES LEAVE ¾"ø (OR K, WHICHEVER IS LARGER) HOLE @ WEB/FLANGE INTERSECTION UNLESS NOTED OTHERWISE.
11. BOLTS AND NUTS AT ANTENNA & RRU MOUNTS TO BE ASTM F3125/F3125M GRADE A325 WITH A194M NUTS U.O.N.
12. ALL NUTS SHALL BE ASTM A563/A563M ALL WASHERS SHALL BE ASTM F436/F436M.
13. ALL STRUT MEMBERS USED IN EXTERIOR APPLICATIONS SHALL BE HOT DIPPED GALVANIZED PER ASTM A123 OR ASTM A153.
14. ALL STAINLESS STEEL BOLTED CONNECTIONS SHALL BE ASTM F593-17 ALLOY GROUP 1 OR 2 AND STAINLESS STEEL NUTS SHALL BE ASTM F594-09 (2015).



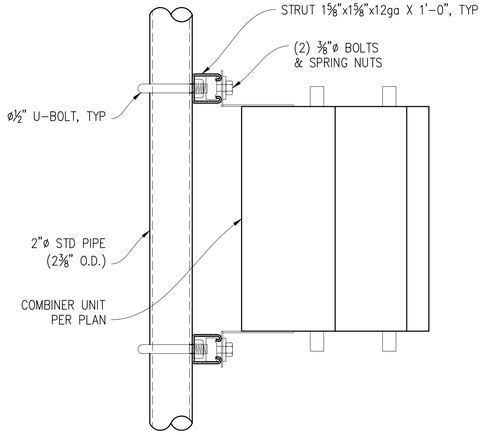
1 ANTENNA MOUNT
1"=1'-0"



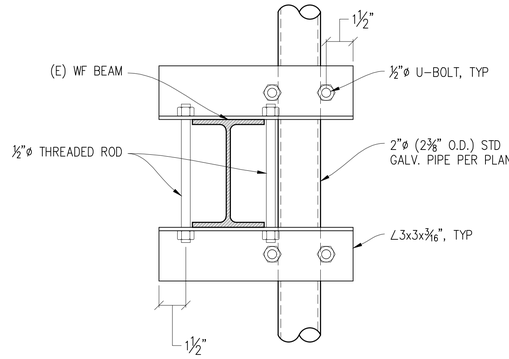
2 RADIO UNIT MOUNTING
3"=1'-0"



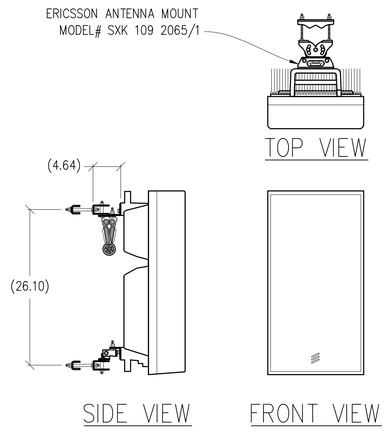
3 SURGE PIPE MOUNT
1½"=1'-0"



4 COMBINER MOUNTING
3"=1'-0"



5 (N) PIPE MOUNT
3"=1'-0"



6 ANTENNA MOUNT DETAIL
1"=1'-0"

PULGAS RIDGE (ANTENNA MOD)

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DRAWN BY:	A. ARIA
CHECKED BY:	J. GRAY
APPROVED BY:	J. ANDERSON
DATE:	04/26/21

SHEET TITLE:
STRUCTURAL NOTES & DETAILS

SHEET NUMBER:
S-1

County of San Mateo - Planning and Building Department

ATTACHMENT D


Mar 11, 2022 9:01:01 AM


SUNBELT RENTALS
JLG ULTRA BOOM
Mar 11, 2022 9:14:59 AM

Mar 11, 2022 9:14:13 AM

County of San Mateo - Planning and Building Department

ATTACHMENT E

Radio Frequency Emissions Compliance Report For Verizon Wireless

Site Name:	**Pulgas Ridge**	**Site Structure Type:**	**Water Tank**
Address:	**85 Loop Road**	**Latitude:**	**37.512992**
	San Mateo, CA 94402	**Longitude:**	**-122.340526**
Report Date:	**April 2, 2021**	**Project:**	**Modification**

Compliance Statement

Based on information provided by Verizon Wireless and predictive modeling, the Pulgas Ridge installation proposed by Verizon Wireless will be compliant with Radiofrequency Radiation Exposure Limits of 47 C.F.R. §§ 1.1307(b)(3) and 1.1310. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings.

Certification

I, David C. Cotton, Jr., am the reviewer and approver of this report and am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation, specifically in accordance with FCC's OET Bulletin 65. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.

General Summary

The compliance framework is derived from the Federal Communications Commission (FCC) Rules and Regulations for preventing human exposure in excess of the applicable Maximum Permissible Exposure ("MPE") limits. At any location at this site, the power density resulting from each transmitter may be expressed as a percentage of the frequency-specific limits and added to determine if 100% of the exposure limit has been exceeded. The FCC Rules define two tiers of permissible exposure differentiated by the situation in which the exposure takes place and/or the status of the individuals who are subject to exposure. General Population / Uncontrolled exposure limits apply to those situations in which persons may not be aware of the presence of electromagnetic energy, where exposure is not employment-related, or where persons cannot exercise control over their exposure. Occupational / Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure. Based on the criteria for these classifications, the FCC General Population limit is considered to be a level that is safe for continuous exposure time. The FCC General Population limit is 5 times more restrictive than the Occupational limits.

Table 1: FCC Limits

Frequency (MHz)	*Limits for General Population/ Uncontrolled Exposure*		*Limits for Occupational/ Controlled Exposure*	
	Power Density (mW/cm^2)	**Averaging Time (minutes)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
30-300	0.2	30	1	6
300-1500	f/1500	30	f/300	6
1500-100,000	1.0	30	5.0	6

f=Frequency (MHz)

In situations where the predicted MPE exceeds the General Population threshold in an accessible area as a result of emissions from multiple transmitters, FCC licensees that contribute greater than 5% of the aggregate MPE share responsibility for mitigation.

Based on the computational guidelines set forth in FCC OET Bulletin 65, Waterford Consultants, LLC has developed software to predict the overall Maximum Permissible Exposure possible at any location given the spatial orientation and operating parameters of multiple RF sources. The power density in the Far Field of an RF source is specified by OET-65 Equation 5 as follows:

$$S = \frac{EIRP}{4 \cdot \pi \cdot R^2} \ (\mathrm{mW/cm^2})$$

where EIRP is the Effective Radiated Power relative to an isotropic antenna and R is the distance between the antenna and point of study. Additionally, consideration is given to the manufacturers' horizontal and vertical antenna patterns as well as radiation reflection. At any location, the predicted power density in the Far Field is the spatial average of points within a 0 to 6-foot vertical profile that a person would occupy. Near field power density is based on OET-65 Equation 20 stated as

$$S = \left(\frac{180}{\theta_{BW}}\right) \cdot \frac{100 \cdot P_{in}}{\pi \cdot R \cdot h} \ (\mathrm{mW/cm^2})$$

where P_{in} is the power input to the antenna, θ_{BW} is the horizontal pattern beamwidth and h is the aperture length.

Some antennas employ beamforming technology where RF energy allocated to each customer device is dynamically directed toward their location. In the analysis presented herein, predicted exposure levels are based on all beams at full utilization (i.e. full power) simultaneously focused in any direction. As this condition is unlikely to occur, the actual power density levels at ground and at adjacent structures are expected to be less that the levels reported below. These theoretical results represent maximum-case predictions as all RF emitters are assumed to be operating at 100% duty cycle.

For any area in excess of 100% General Population MPE, access controls with appropriate RF alerting signage must be put in place and maintained to restrict access to authorized personnel. Signage must be posted to be visible upon approach from any direction to provide notification of potential conditions within these areas. Subject to other site security requirements, occupational personnel should be trained in RF safety and equipped with personal protective equipment (e.g. RF personal monitor) designed for safe work in the vicinity of RF emitters. Controls such as physical barriers to entry imposed by locked doors, hatches and ladders or other access control mechanisms may be supplemented by alarms that alert the individual and notify site management of a breach in access control. Waterford Consultants, LLC recommends that any work activity in these designated areas or in front of any transmitting antennas be coordinated with all wireless tenants.

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Analysis

Verizon Wireless proposes the following installation at this location:

- Remove and replace 6 existing Verizon Wireless antennas with 6 new Verizon Wireless antennas
- Remove and replace 3 existing RRUS-32 B66A units with 3 new Radio 8843 units at the antennas
- Install 3 new Radio 4449 units at the antennas

The antennas will be mounted on a 110-foot Water Tank with centerlines 28 and 56 feet above ground level. Proposed antenna operating parameters are listed in Appendix A. Other appurtenances such as GPS antennas, RRUs and hybrid cable below the antennas are not sources of RF emissions. Panel antennas have been installed at this site by other wireless operators. Operating parameters for these antennas considered in this analysis are also listed in Appendix A.

Figure 1: Antenna Locations

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Power density decreases significantly with distance from any antenna. The panel-type antennas to be employed at this site are highly directional by design and the orientation in azimuth and mounting elevation, as documented, serves to reduce the potential to exceed MPE limits at any location other than directly in front of the antennas. For accessible areas at ground level, the maximum predicted power density level resulting from all Verizon Wireless operations is 16.8542% of the FCC General Population limits. Based on the operating parameters in Appendix A, the cumulative power density level at this location from all antennas is 16.8738% of the FCC General Population limits. Incident at adjacent buildings depicted in Figure 1, the maximum predicted power density level resulting from all Verizon Wireless operations is 10.6724% of the FCC General Population limits. Based on the operating parameters in Appendix A, the cumulative power density level at this location from all antennas is 10.6914% of the FCC General Population limits. The proposed operation will not expose members of the General Public to hazardous levels of RF energy at ground level or in adjacent buildings.

Waterford Consultants, LLC recommends posting contact information and RF Guidelines signage that informs personnel entering the site of basic precautions to be followed when working around antennas. These recommendations are depicted in Figure 2. Any work activity in front of transmitting antennas should be coordinated with Verizon Wireless.

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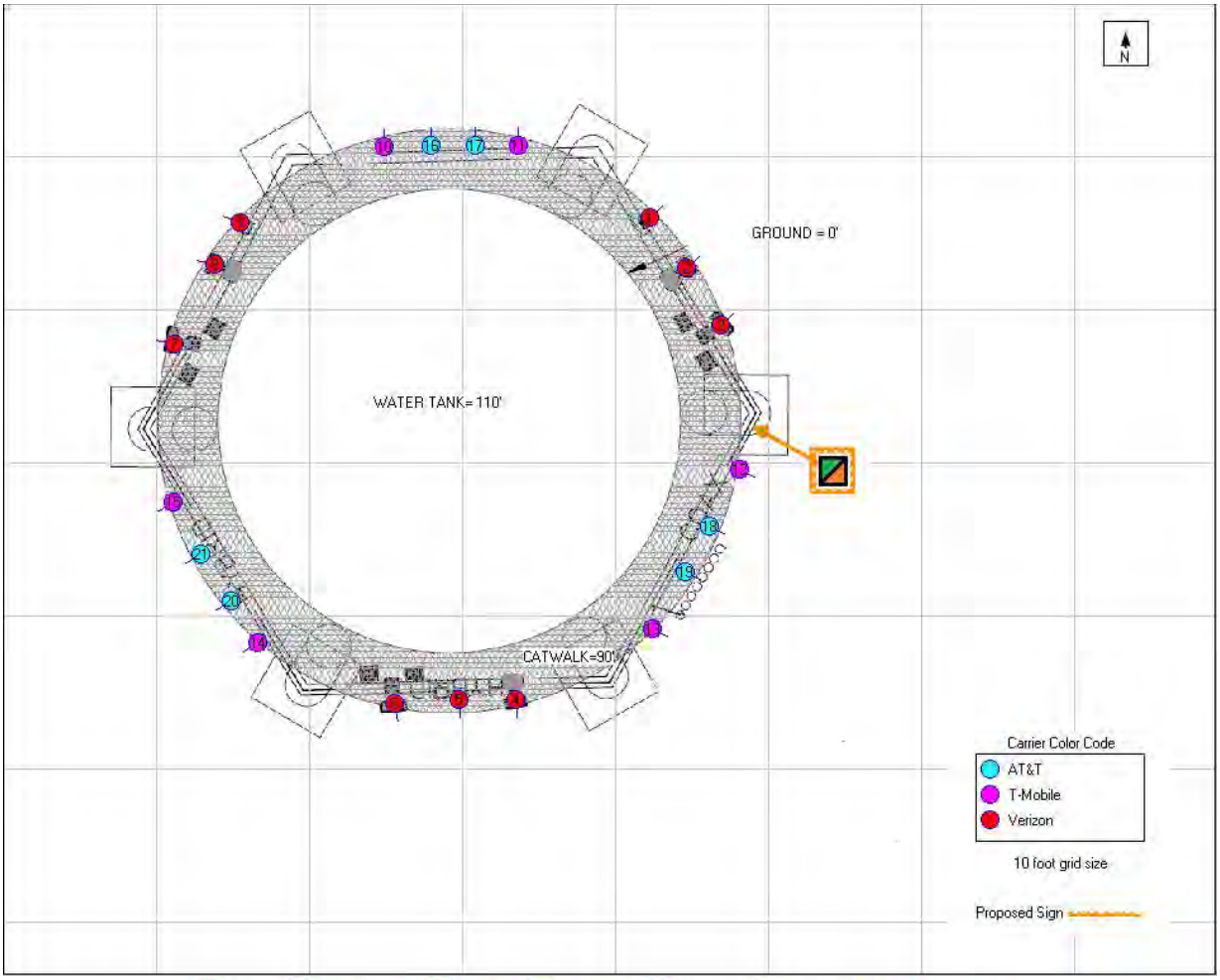
Signage/Barrier Diagram



Final Compliant Configuration							
	GUIDELINES	**NOTICE**	**CAUTION**	**WARNING**	**NOC INFO**	**BARRIER/MARKER**	
Access Point(s)	☒ [1]	☐ [#]	☐ [#]	☐ [#]	☒ [1]	☐	N/A

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

Figure 2: Mitigation Recommendations

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Appendix A: Operating Parameters Considered in this Analysis

Antenna #:	Carrier:	Manufacturer	Pattern:	Band (MHz):	Mech Az (deg):	Mech DT (deg):	H BW (deg):	Length (ft):	TPO (W):	Channels:	Loss (dB):	Gain (dBd):	ERP (W):	EIRP (W):	Rad Center (ft):
1	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	700	50	0	75	4.9	40	4	0.5	10.56	1622	2661	56
1	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	850	50	0	68	4.9	40	4	0.5	11.22	1889	3098	56
1	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	1900	50	0	72	4.9	40	4	0.5	13.89	3492	5730	56
2	Verizon	COMMSCOPE	NNH4-65A-R6H4 06DT	850	50	0	67	4.9	20	4	2	11.12	653	1072	56
2	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	2100	50	0	64	4.9	40	2	0.5	14.94	2224	3648	56
2	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	2100	50	0	64	4.9	40	2	0.5	14.94	2224	3648	56
3	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	50	0	11	2.8	320	1	0	23.55	72469	118891	56
4	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	700	175	0	75	4.9	40	4	0.5	10.56	1622	2661	28
4	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	850	175	0	68	4.9	40	4	0.5	11.22	1889	3098	28
4	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	1900	175	0	72	4.9	40	4	0.5	13.89	3492	5730	28
5	Verizon	COMMSCOPE	NNH4-65A-R6H4 06DT	850	175	0	67	4.9	20	4	2	11.12	653	1072	28
5	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	2100	175	0	64	4.9	40	2	0.5	14.94	2224	3648	28
5	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	2100	175	0	64	4.9	40	2	0.5	14.94	2224	3648	28
6	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	170	0	11	2.8	320	1	3	23.55	36320	59587	28
7	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	700	280	0	75	4.9	40	4	0.5	10.56	1622	2661	56
7	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	850	280	0	68	4.9	40	4	0.5	11.22	1889	3098	56
7	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	1900	280	0	72	4.9	40	4	0.5	13.89	3492	5730	56
8	Verizon	COMMSCOPE	NNH4-65A-R6H4 06DT	850	280	0	67	4.9	20	4	2	11.12	653	1072	56
8	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	2100	280	0	64	4.9	40	2	0.5	14.94	2224	3648	56
8	Verizon	COMMSCOPE	NNH4-65A-R6H4 02DT	2100	280	0	64	4.9	40	2	0.5	14.94	2224	3648	56
9	Verizon	ERICSSON	SON_AIR6449 NR TB 03.24.21 3700 VZW	3700	290	0	11	2.8	320	1	0	23.55	72469	118891	56
10	T-Mobile	COMMSCOPE	F-65C-R1 02DT	600	0	0	60	8	30	4	0	13.6	2749	4510	93
11	T-Mobile	AMPHENOL	HEX336CW0000x-T00	700	0	0	36	6.1	30	2	0	13.7	1407	2308	93
11	T-Mobile	AMPHENOL	HEX336CW0000x-T00	1900	0	0	33	6.1	40	2	0	16.4	3492	5729	93
11	T-Mobile	AMPHENOL	HEX336CW0000x-T00	2100	0	0	34	6.1	40	2	0	16.7	3742	6139	93
12	T-Mobile	COMMSCOPE	F-65C-R1 02DT	600	120	0	60	8	30	4	0	13.6	2749	4510	93

Antenna #:	Carrier:	Manufacturer	Pattern:	Band (MHz):	Mech Az (deg) :	Mech DT (deg) :	H BW (deg) :	Length (ft):	TPO (W):	Channels :	Loss (dB):	Gain (dBd) :	ERP (W):	EIRP (W):	Rad Center (ft):
13	T-Mobile	AMPHENOL	HEX336CW0000x-T00	700	120	0	36	6.1	30	2	0	13.7	1407	2308	93
13	T-Mobile	AMPHENOL	HEX336CW0000x-T00	1900	120	0	33	6.1	40	2	0	16.4	3492	5729	93
13	T-Mobile	AMPHENOL	HEX336CW0000x-T00	2100	120	0	34	6.1	40	2	0	16.7	3742	6139	93
14	T-Mobile	COMMSCOPE	F-65C-R1 02DT	600	240	0	60	8	30	4	0	13.6	2749	4510	93
15	T-Mobile	AMPHENOL	HEX336CW0000x-T00	700	240	0	36	6.1	30	2	0	13.7	1407	2308	93
15	T-Mobile	AMPHENOL	HEX336CW0000x-T00	1900	240	0	33	6.1	40	2	0	16.4	3492	5729	93
15	T-Mobile	AMPHENOL	HEX336CW0000x-T00	2100	240	0	34	6.1	40	2	0	16.7	3742	6139	93
16	AT&T	COMMSCOPE	SBNHH-1D45A 02DT	700	0	0	48	4	30	2	0	12.5	1067	1750	93
16	AT&T	COMMSCOPE	SBNHH-1D45A 02DT	850	0	0	43	4	40	1	0	13.8	960	1574	93
16	AT&T	COMMSCOPE	SBNHH-1D45A 10DT	850	0	0	43	4	60	2	0	13.8	2879	4723	93
17	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	1900	0	0	42	6	40	4	0	17.8	9641	15817	93
17	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	2100	0	0	42	6	40	4	0	18.2	10571	17343	93
17	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	2300	0	0	39	6	25	4	0	18.4	6918	11350	93
18	AT&T	COMMSCOPE	SBNHH-1D45A 02DT	700	120	0	48	4	30	2	0	12.5	1067	1750	93
18	AT&T	COMMSCOPE	SBNHH-1D45A 02DT	850	120	0	43	4	40	1	0	13.8	960	1574	93
18	AT&T	COMMSCOPE	SBNHH-1D45A 10DT	850	120	0	43	4	60	2	0	13.8	2879	4723	93
19	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	1900	120	0	42	6	40	4	0	17.8	9641	15817	93
19	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	2100	120	0	42	6	40	4	0	18.2	10571	17343	93
19	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	2300	120	0	39	6	25	4	0	18.4	6918	11350	93
20	AT&T	COMMSCOPE	SBNHH-1D45A 02DT	700	240	0	48	4	30	2	0	12.5	1067	1750	93
20	AT&T	COMMSCOPE	SBNHH-1D45A 02DT	850	240	0	43	4	40	1	0	13.8	960	1574	93
20	AT&T	COMMSCOPE	SBNHH-1D45A 10DT	850	240	0	43	4	60	2	0	13.8	2879	4723	93
21	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	1900	240	0	42	6	40	4	0	17.8	9641	15817	93
21	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	2100	240	0	42	6	40	4	0	18.2	10571	17343	93
21	AT&T	COMMSCOPE	SBNHH-1D45B 00DT	2300	240	0	39	6	25	4	0	18.4	6918	11350	93

Note: Table depicts recommended operating parameters for Verizon Wireless proposed operations. Colocated antenna parameters based on industry standards.

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