

Cup18-0012
APPROVED
EL DORADO COUNTY
PLANNING COMMISSION

DATE January 9, 2020
BY Tiffany Schmidtke
EXECUTIVE SECRETARY

HORIZON



TOWER, LLC

Site Name: **BAVARIAN HILLS**

Site ID: **CA4075**

Site Address: **2560 HIGH HILL RD.
PLACERVILLE, CA 95667**

Project: **MULTI-TENANT
TELECOMMUNICATIONS
FAUX MONOPINE SITE**



4255 PARK ROAD
BENICIA, CA 94510



117 Town & Country Drive, Suite A
Danville, CA 94526
Phone: 925-314-1113
Fax: 925-314-1114



SITE NAME:
BAVARIAN HILLS
APN:
048-090-04-100
SITE ID:
CA4075
JURISDICTION:
EL DORADO COUNTY
SITE ADDRESS:
2560 HIGH HILL RD., PLACERVILLE, CA 95667

SITE INFORMATION

THIS SCOPE OF WORK FOR THIS PROJECT IS LIMITED TO A FACILITY WHICH IS UNMANNED, AND NOT FOR HUMAN HABITATION. ACCESSIBILITY COMPLIANCE IS NOT REQUIRED IN ACCORDANCE WITH THE 2016 CALIFORNIA BUILDING CODE SECTION 11B-203.5 MACHINERY SPACES.

ADA COMPLIANCE

THIS PROJECT CONSISTS OF A NEW 125'-0" A.G.L. STEALTH MONO PINE THAT WILL BE DESIGNED TO HOLD A MINIMUM OF 4 TELECOMMUNICATION ENTITIES.

THE PROPOSED LEASE AREA IS APPROXIMATELY 1,600 SQ. FT.

POINT OF CONNECTION FOR POWER IS AN EXISTING ELECTRICAL TRANSFORMER.

FINAL LOCATION OF UTILITIES TO BE VERIFIED WITH APPROPRIATE COMPANIES.

TELEPHONE POINT OF CONNECTION WILL BE DETERMINED AT A FUTURE DATE.

THE APPLICANT SHALL SUBMIT CERTIFICATION FROM A CALIFORNIA REGISTERED PROFESSIONAL ENGINEER THAT A PROPOSED COMMUNICATIONS TOWER WILL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE CURRENT STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES, PUBLISHED BY THE ELECTRICAL INDUSTRIAL ASSOCIATION/TELECOMMUNICATIONS INDUSTRY ASSOCIATION AND APPLICABLE REQUIREMENTS OF THE COUNTY'S BUILDING CODE.

PROJECT NARRATIVE



VICINITY MAP

ALL WORK AND MATERIALS SHALL BE PERFORMED AND 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 THE LATEST APPLICABLE VERSION OF THESE CODES.

- 2016 CALIFORNIA BUILDING CODE (CBC)
WORK PERFORMED SHALL COMPLY WITH THE FOLLOWING:
CALIFORNIA FIRE CODE 2016 EDITION UPC
CALIFORNIA BUILDING CODE 2016 EDITION CBC
CALIFORNIA MECHANICAL CODE 2016 EDITION IAPMO
CALIFORNIA PLUMBING CODE 2016 EDITION IAPMO
CALIFORNIA ELECTRICAL CODE 2016 EDITION 2015 NEC
CAL GREEN CODE 2016 EDITION CGC

CALIFORNIA ENERGY EFFICIENCY STANDARDS CODE (CEES) 2016 EDITION REVISED JULY 2016, AND ALL APPLICABLE LOCAL & STATE ORDINANCES, CODES AND REGULATIONS AND 2016 CALIFORNIA STATE STANDARDS CODE AMENDMENTS.

- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES
- NFPA 76

BUILDING CODES

LANDLORD:
RICHARD H. BUSH AND LESLIE H. BUSH
2560 HIGH HILL RD.
PLACERVILLE, CA 95667

SITE ACCESS CONTACT / APPLICANT:

HORIZON TOWER
117 TOWN & COUNTRY DRIVE, SUITE A
DANVILLE, CA 94526
SUZIE DENSMORE
PH: 925-314-1113 EXT. 243
FAX: 925-314-1114

ENGINEER:

DIAMOND ENGINEERING SERVICES
4255 PARK RD.
BENICIA, CA 94510
CONTACT: ERIC UEHRENHOLT P.E.
eric@desbuilders.com

SURVEYOR:

QUIET RIVER LAND SERVICES INC.
6747 SIERRA CT., SUITE "K"
DUBLIN, CA 94568
CONTACT: KEVIN MCGUIRE
PH: 925-734-6788

PROJECT TEAM

CONSTRUCTION DATA:

ZONING: TPZ & PA-20

ZONING CLASSIFICATION: TIMBER PRODUCTION ZONE & PLANNED AGRICULTURAL

OCCUPANCY GROUP: U. UNMANNED WIRELESS
TELECOMMUNICATIONS FACILITY

FIRE SPRINKLERS: AN AUTOMATED FIRE SUPPRESSION SYSTEM
(FIRE SPRINKLERS) ARE NOT REQUIRED.

CONSTRUCTION TYPE: V-B

SITE COMPOUND AREA: 1,600 SQ. FT.

SITE COORDINATES: N 38°44'55.29"
W 120°43'14.87"

ELEVATION: 2856.5± AMSL AT GROUND (NAVD88)

APN: 048-090-04-100

PROJECT DATA

SHEET NO	DESCRIPTION
T1	PROJECT INFORMATION & SHEET INDEX
C1	SITE SURVEY
A1	AREA PLAN
A2	SITE PLAN
A3	LEASE AREA LAYOUT
A4	NORTH & EAST ELEVATIONS
A5	SOUTH & WEST ELEVATIONS

SHEET INDEX



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811 / 800-227-2600

CALL BEFORE YOU DIG

Horizon Tower
CA4075 - BAVARIAN HILLS
2560 HIGH HILL RD.
PLACERVILLE, CA 95667

PROJECT INFORMATION & SHEET INDEX

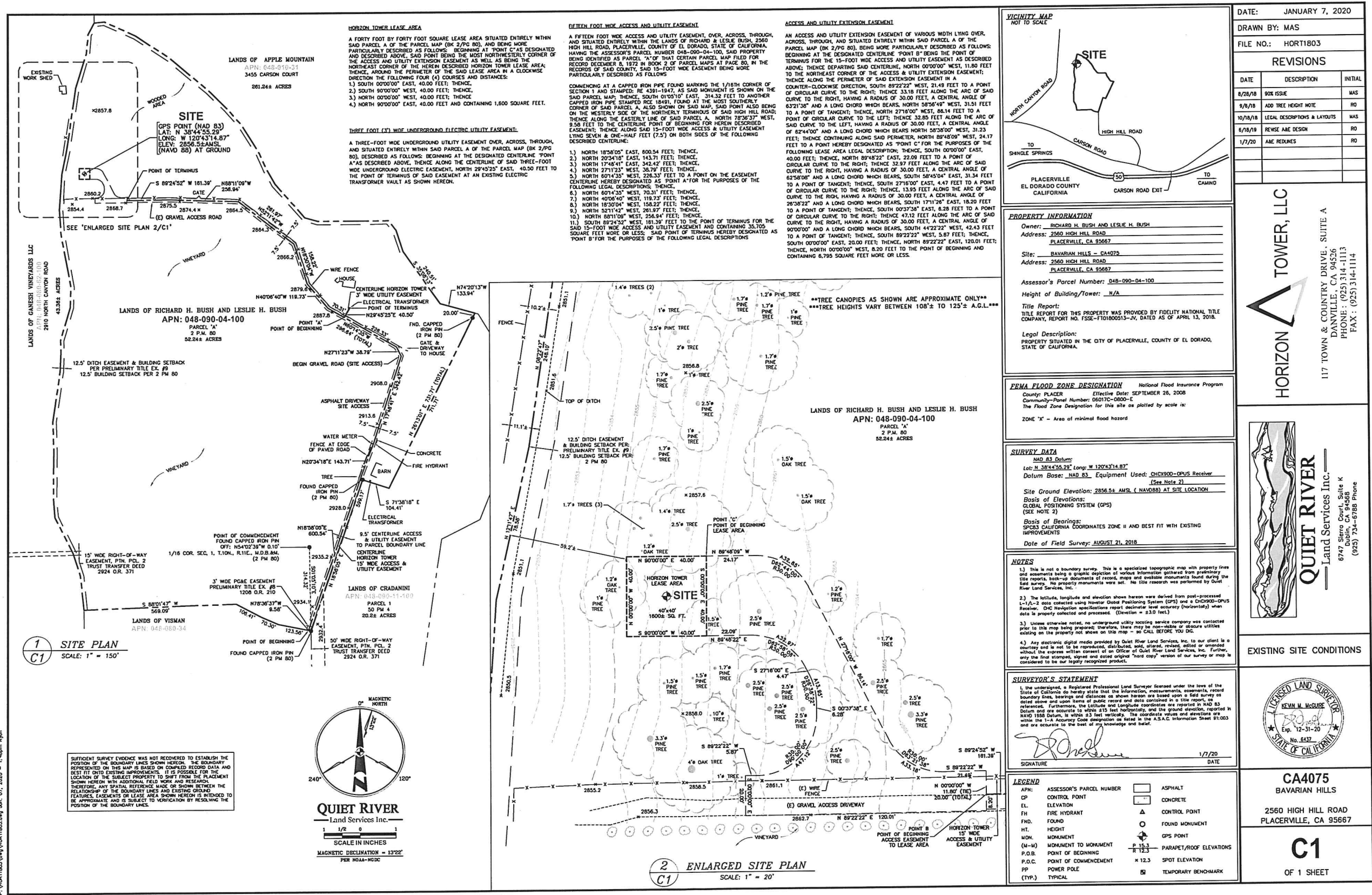
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	1	09-18-18	ADDED FLEETNET
	2	09-28-18	REVISED PER REDLINES
	3	10-31-18	ADDED SITE ACCESS
	4	04-02-19	MOVE SITE LOCATION
	5	100%CD ZONING SUBMITTAL	
	6	100%CD ZONING SUBMITTAL	01-07-20

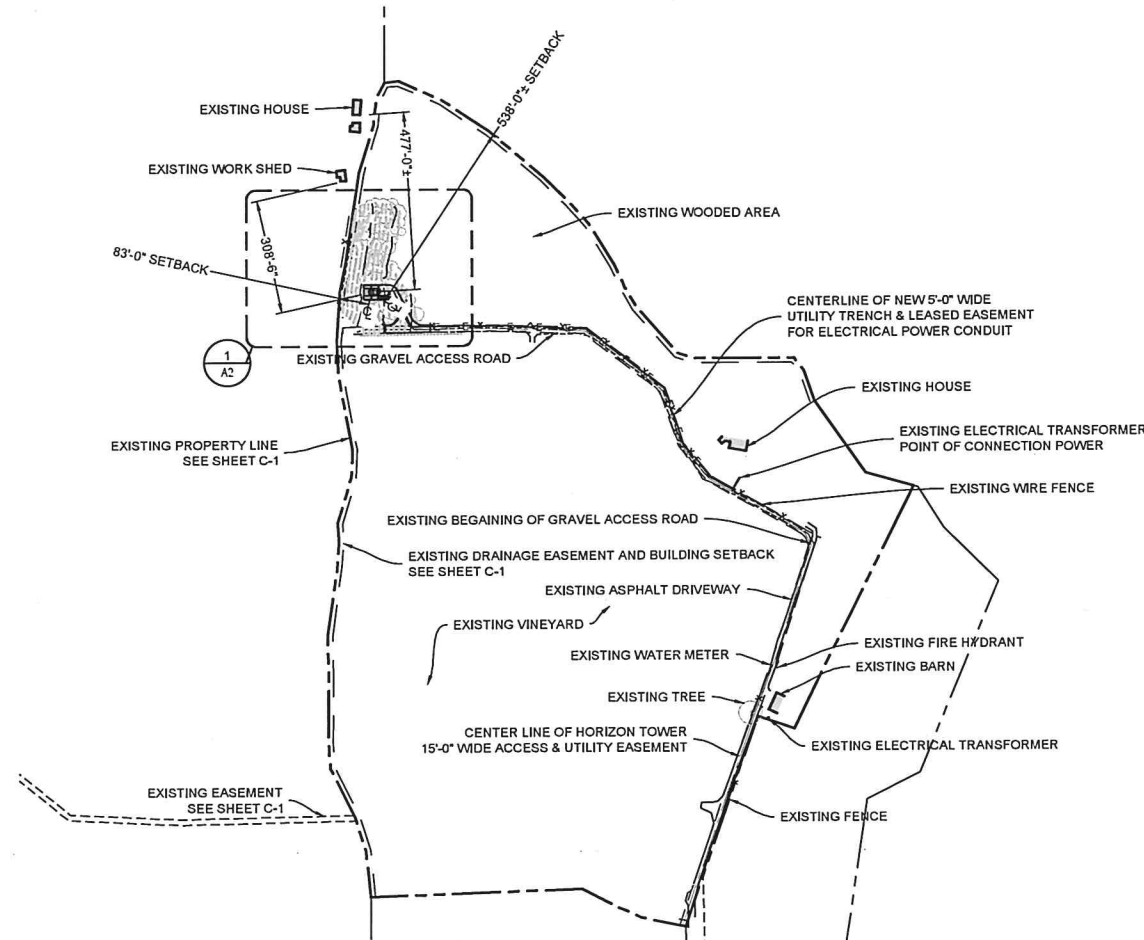
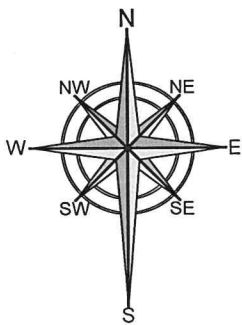
Job No.: HT18001
Draw/Check By: LBS / BLL

T1

Exhibit F
Cup18-0012

P:\NORTH1803\Drawings\NORTH1803.dwg Jan. 07, 2020 - 1:46pm Ryan





1 AREA PLAN

SCALE: 1" = 200'-0"



DIAMOND ENGINEERING SERVICES
4255 PARK ROAD
BENICIA, CA 94510



HORIZON TOWER, LLC
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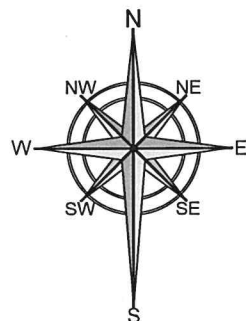
Horizon Tower
CA4075 - BAVARIAN HILLS
2560 HIGH HILL RD.
PLACERVILLE, CA 95667

AREA PLAN

REVISIONS			DATE
No.	DESCRIPTION		
1	ADDED FLEETNET	09-18-18	
2	REVISED PER REDLINES	09-28-18	
3	ADDED SITE ACCESS	10-31-18	
4	MOVE SITE LOCATION	04-02-19	
5	100% CD ZONING SUBMITTAL	01-09-20	
6	100% CD ZONING SUBMITTAL	01-07-20	

Job No.: HT18001
Draw/Check By: LBS / BLL

A1



EXISTING PROPERTY LINE
SEE SHEET C-1

EXISTING WOODED AREA

CENTERLINE OF NEW 20'-0" WIDE
GRAVEL ACCESS ROUTE PER AGREEMENT

NEW 20'-0" ACCESS GATE

EXISTING TREES
TO BE REMOVED AS REQUIRED FOR SITE ACCESS
SEE SHEET C-1

CENTER LINE OF HORIZON TOWER
15'-0" WIDE ACCESS & UTILITY EASEMENT

CENTERLINE OF NEW 5'-0" WIDE
UTILITY TRENCH & LEASED EASEMENT
FOR ELECTRICAL POWER CONDUIT

EXISTING WIRE FENCE

83'-0" SETBACK

NEW 6'-0" HIGH CHAIN LINK FENCE

NEW FIRE DEPARTMENT TURN AROUND

120'-0"

EXISTING VINEYARD

EXISTING GRAVEL ACCESS ROAD

1 SITE PLAN

SCALE: 1" = 20'-0"



4255 PARK ROAD
BENICIA, CA 94510



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CA4075 - BAVARIAN HILLS
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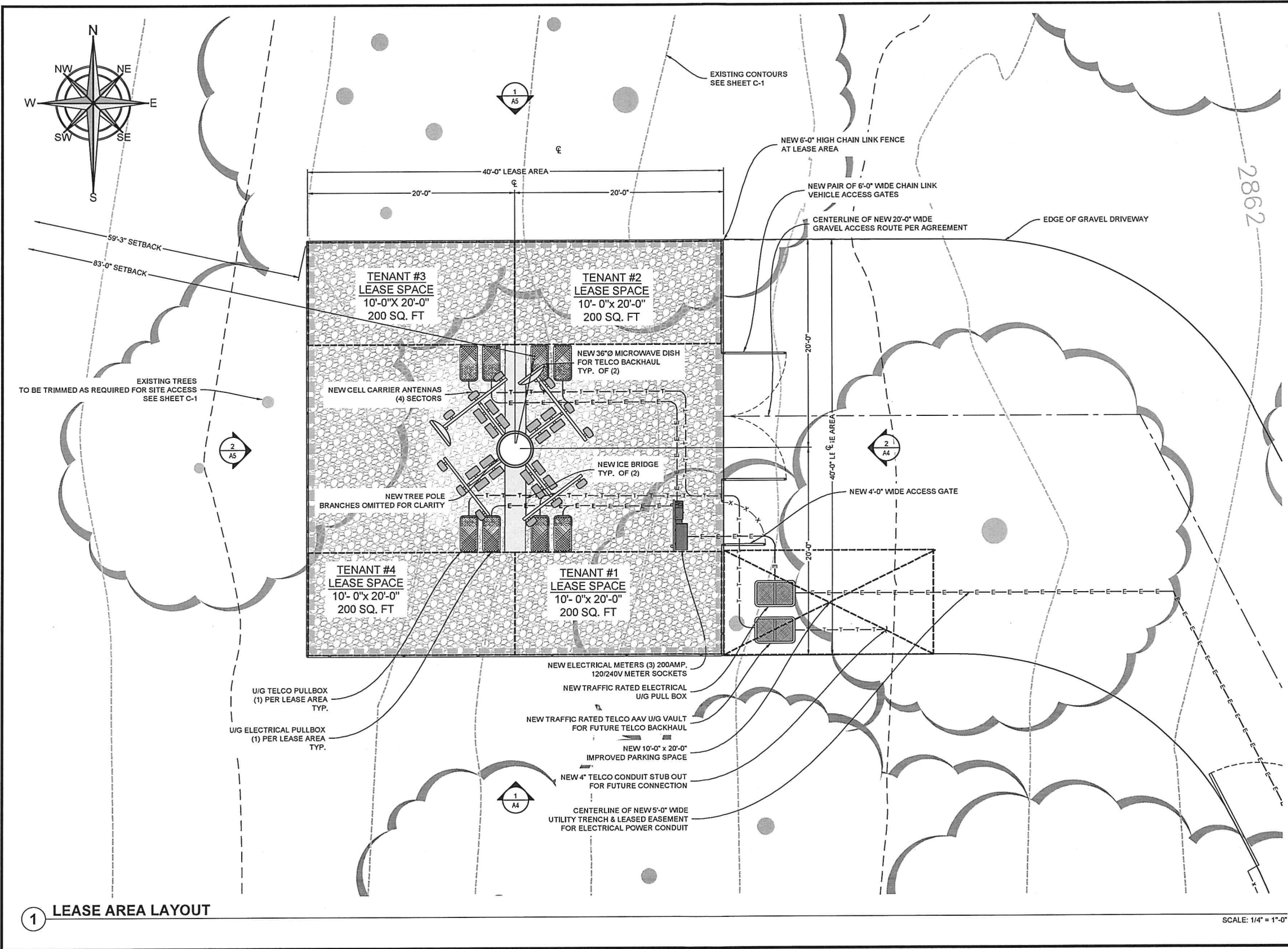
SITE PLAN

REVISIONS		DATE
No.	DESCRIPTION	
1	ADDED FLEETNET	09-18-18
2	REVISED PER REDLINES	09-28-18
3	ADDED SITE ACCESS	10-31-18
4	MOVE SITE LOCATION	04-02-19
5	100% CD ZONING SUBMITTAL	01-06-20
6	100% CD ZONING SUBMITTAL	01-07-20

Job No.:
HT18001

Draw/Check By:
LBS / BLL

A2



DIAMOND ENGINEERING SERVICES

4255 PARK ROAD
BENICIA, CA 94510

HORIZON TOWER, LLC

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Fax: 925-314-1114

Eric White
Professional Engineer
No. C 59712
Civil
State of California

Horizon Tower
CA4075 - BAVARIAN HILLS
2560 HIGH HILL RD.
PLACERVILLE, CA 95667

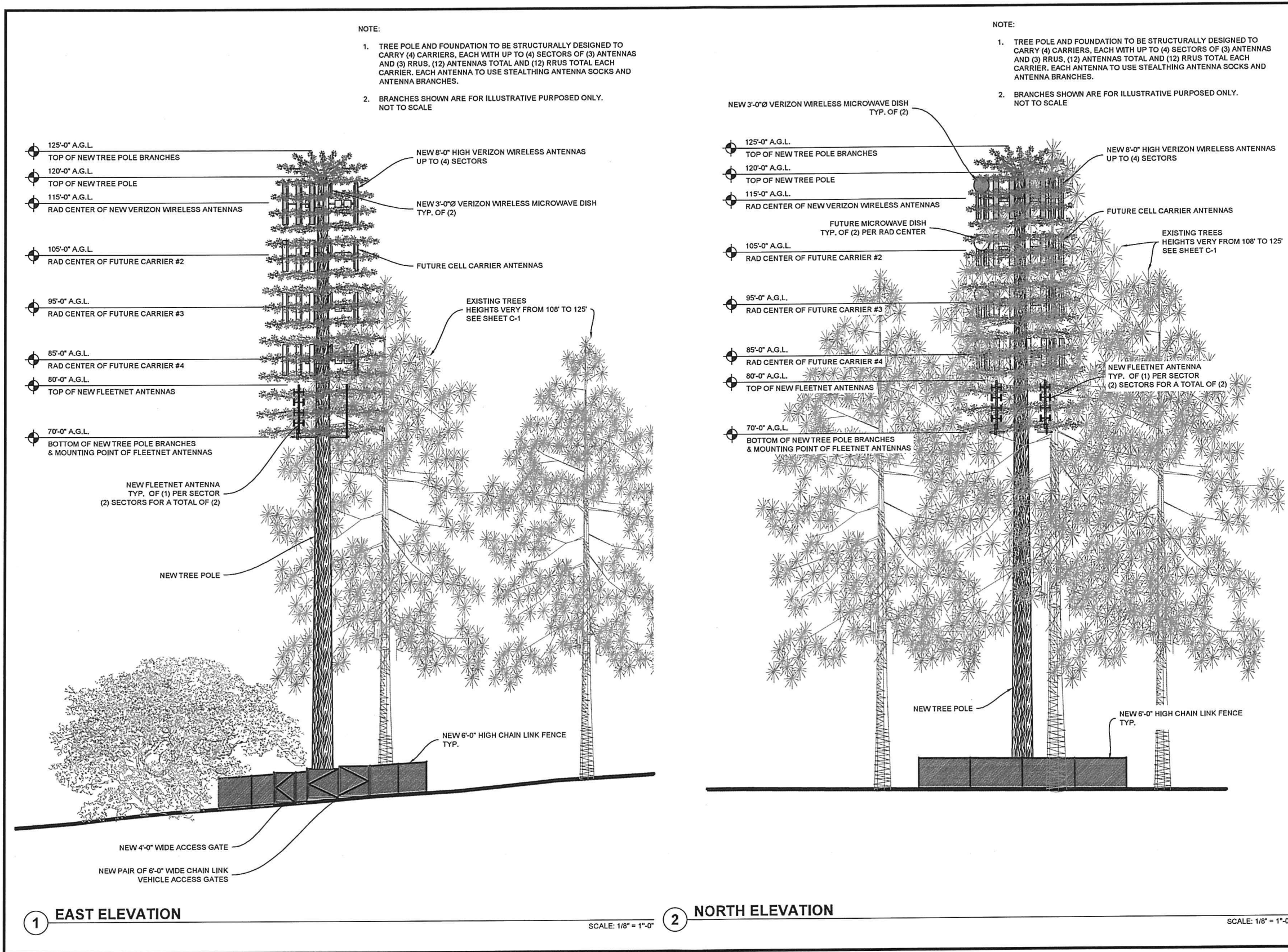
LEASE AREA LAYOUT

REVISIONS		DATE
No.	DESCRIPTION	
1	ADDED FLEETNET	09-18-18
2	REVISED PER REDLINES	09-28-18
3	ADDED SITE ACCESS	10-31-18
4	MOVE SITE LOCATION	04-02-19
5	100% CD ZONING SUBMITTAL	01-06-20
6	100% CD ZONING SUBMITTAL	01-07-20

Job No.: HT18001

Draw/Check By: LBS / BLL

A3



DIAMOND ENGINEERING SERVICES

4255 PARK ROAD
BENICIA, CA 94510

TOWER, LLC

HORIZON

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Horizon Tower
CA4075 - BAVARIAN HILLS
2560 HIGH HILL RD.
PLACERVILLE, CA 95667

NORTH & EAST ELEVATIONS

No.	DESCRIPTION	DATE
1	ADDED FLEETNET	09-18-18
2	REVISED PER REDLINES	09-28-18
3	ADDED SITE ACCESS	10-31-18
4	MOVE SITE LOCATION	04-02-19
5	100%CD ZONING SUBMITTAL	01-06-20
6	100%CD ZONING SUBMITTAL	01-07-20

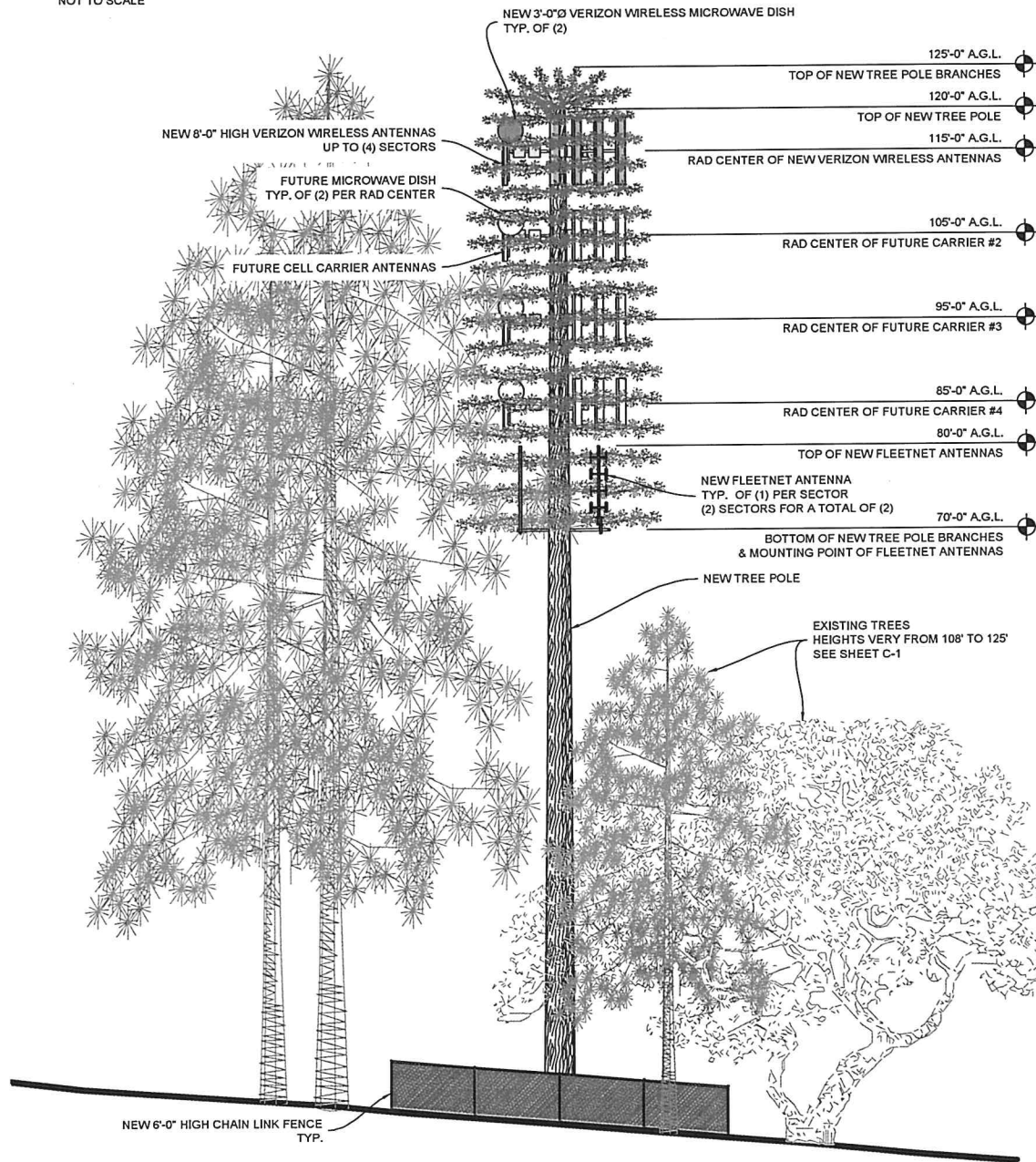
Job No.: HT18001

Draw/Check By: LBS / BLL

A4

NOTE:

1. TREE POLE AND FOUNDATION TO BE STRUCTURALLY DESIGNED TO CARRY (4) CARRIERS, EACH WITH UP TO (4) SECTORS OF (3) ANTENNAS AND (3) RRUS, (12) ANTENNAS TOTAL AND (12) RRUS TOTAL EACH CARRIER. EACH ANTENNA TO USE STEALTHING ANTENNA SOCKS AND ANTENNA BRANCHES.
2. BRANCHES SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY. NOT TO SCALE

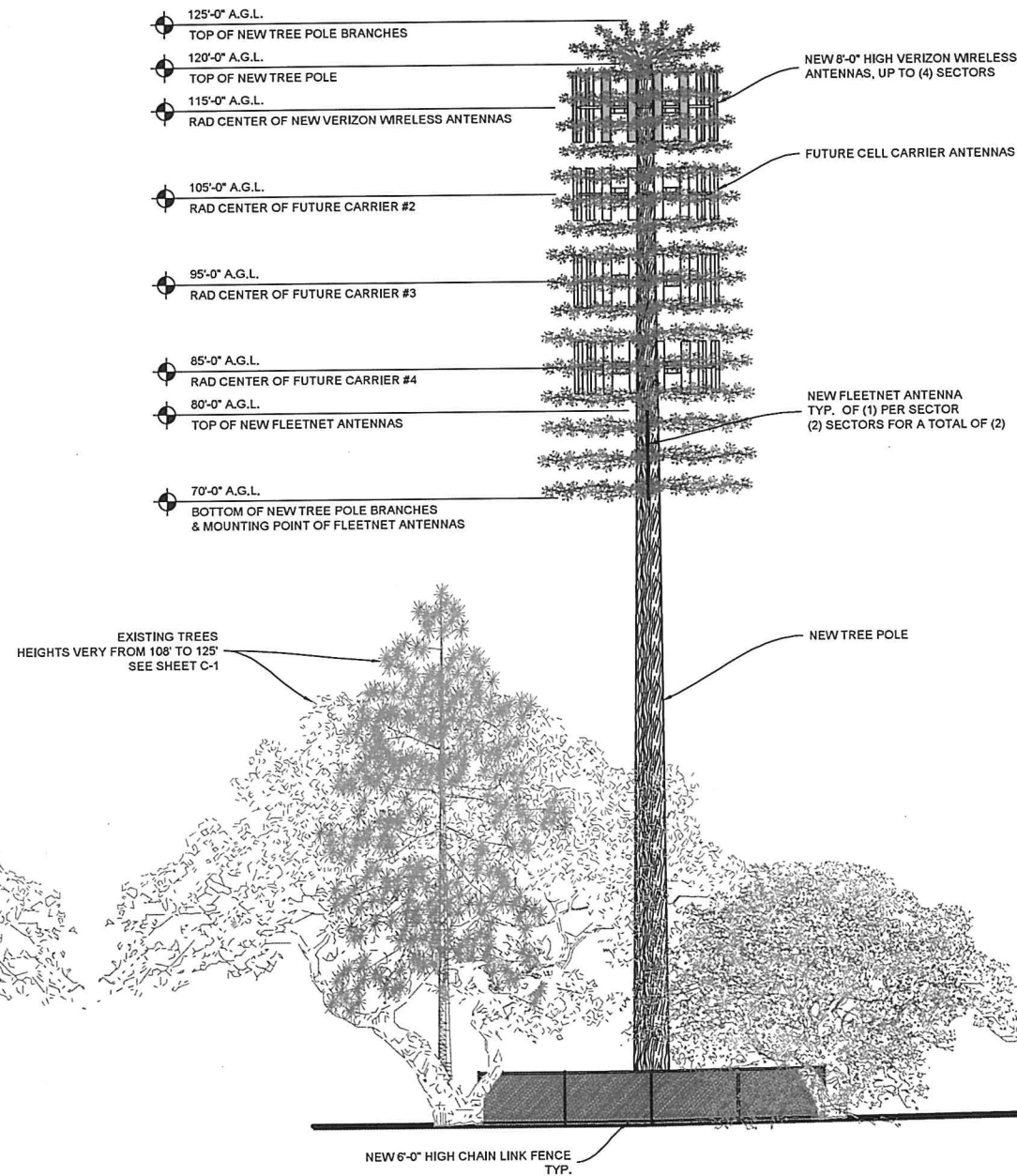


1 WEST ELEVATION

SCALE: 1/8" = 1'-0"

NOTE:

1. TREE POLE AND FOUNDATION TO BE STRUCTURALLY DESIGNED TO CARRY (4) CARRIERS, EACH WITH UP TO (4) SECTORS OF (3) ANTENNAS AND (3) RRUS, (12) ANTENNAS TOTAL AND (12) RRUS TOTAL EACH CARRIER. EACH ANTENNA TO USE STEALTHING ANTENNA SOCKS AND ANTENNA BRANCHES.
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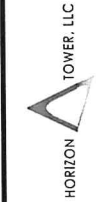


2 SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



4255 PARK ROAD
BENICIA, CA 94510



117 Town & Country Drive, Suite A
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Phone: 925-314-1113
Fax: 925-314-1114



Horizon Tower
CA4075 - BAVARIAN HILLS
2560 HIGH HILL RD.
PLACERVILLE, CA 95667

SOUTH & WEST ELEVATIONS

REVISIONS	No.	DESCRIPTION	DATE
	1	ADDED FLEETNET	09-18-18
	2	REVISED PER REDLINES	09-28-18
	3	ADDED SITE ACCESS	10-31-18
	4	MOVE SITE LOCATION	04-02-19
	5	100%CD ZONING SUBMITTAL	01-08-20
	6	100%CD ZONING SUBMITTAL	01-07-20

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A5



Cup18-0012

EXPANDED ALTERNATE SITE ANALYSIS

APPROVED
EL DORADO COUNTY
PLANNING COMMISSION

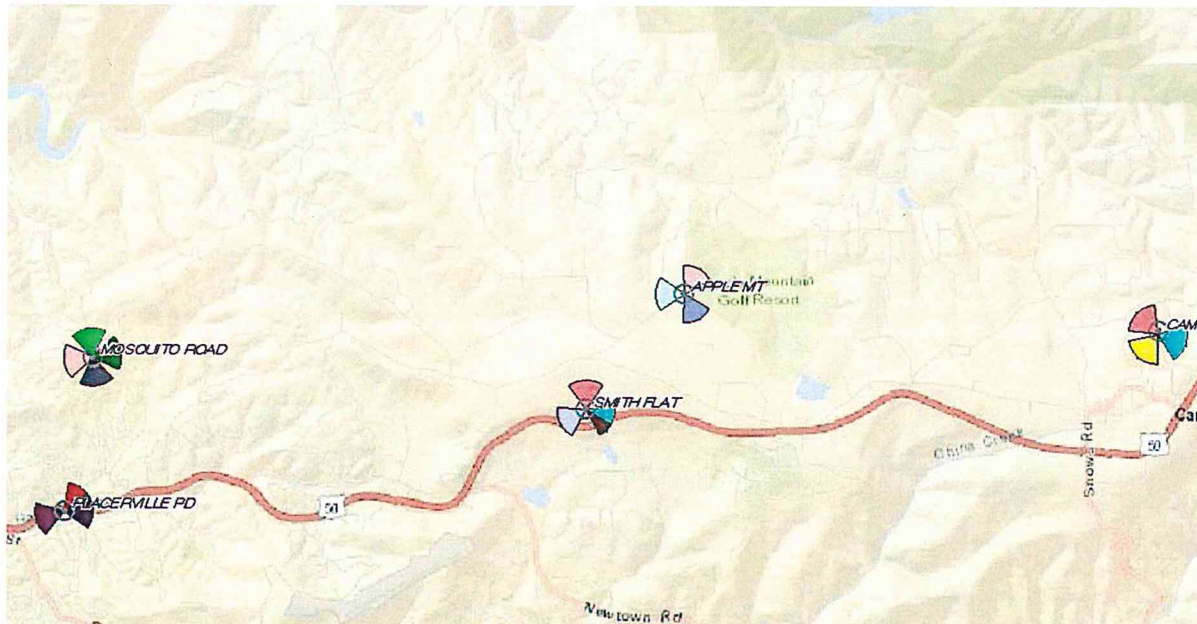
DATE January 9, 2020
BY Tiffany Schmid, etc
EXECUTIVE SECRETARY

HORIZON TOWER APPLICATION
BAVARIAN HILLS, SITE #CA4075
2560 HIGH HILL ROAD, CAMINO, CA
APN 048-090-04-100

Background

Horizon Tower designs and builds communication sites for major cell phone carriers. Our current focus is improving our clients' network coverage and capacity. The Bavarian Hills site is in response to a need identified by Verizon Wireless for improved coverage in the area east of Placerville near Carson and North Canyon Roads. As well as local residents' mobile use this corridor benefits from substantial visitors to its wineries, fruit farms, and other local attractions. This increased traffic generates substantial demand on existing network infrastructure for all mobile carriers. As travelers and increasing numbers of residents depend on mobile service for their primary communication needs, network dependability is increasingly important for maintaining contact, Internet access and safety. The proposed facility will help achieve that objective for Verizon customers and provide a readily available platform for others.

The below maps show existing adjacent Verizon sites and illustrate how Verizon coverage will improve in the targeted area with this new facility.



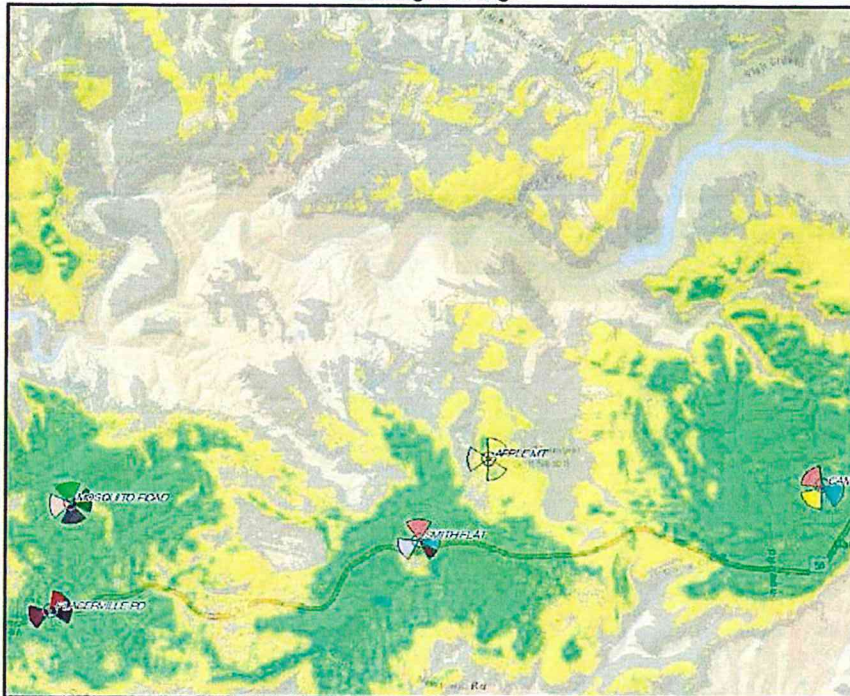
EXISTING VERIZON WIRELESS SITES AND PROPOSED BAVARIAN HILLS SITE

APPLE MT

verizon✓

COVERAGE MAPS

Existing Coverage

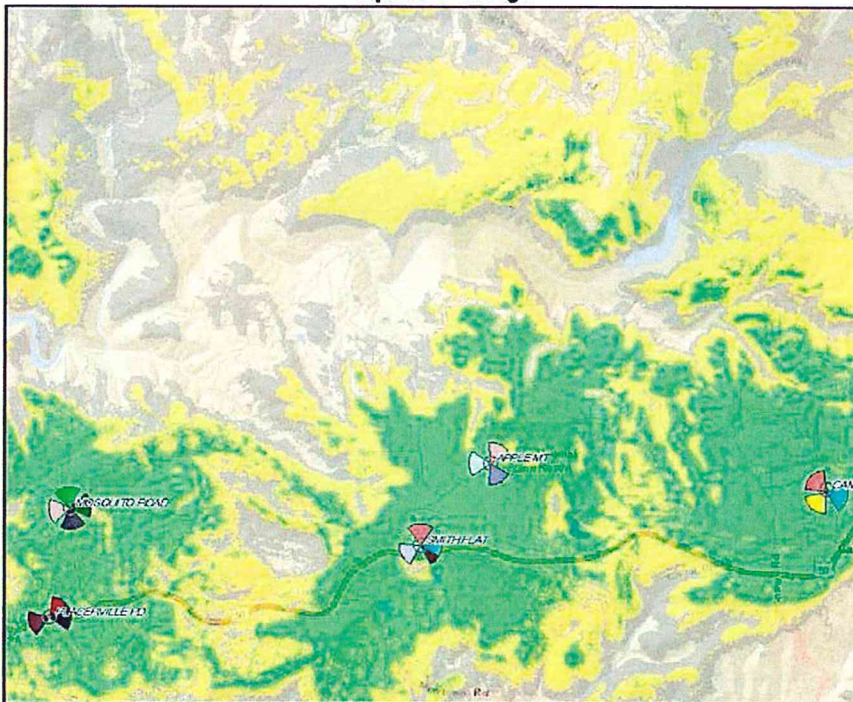


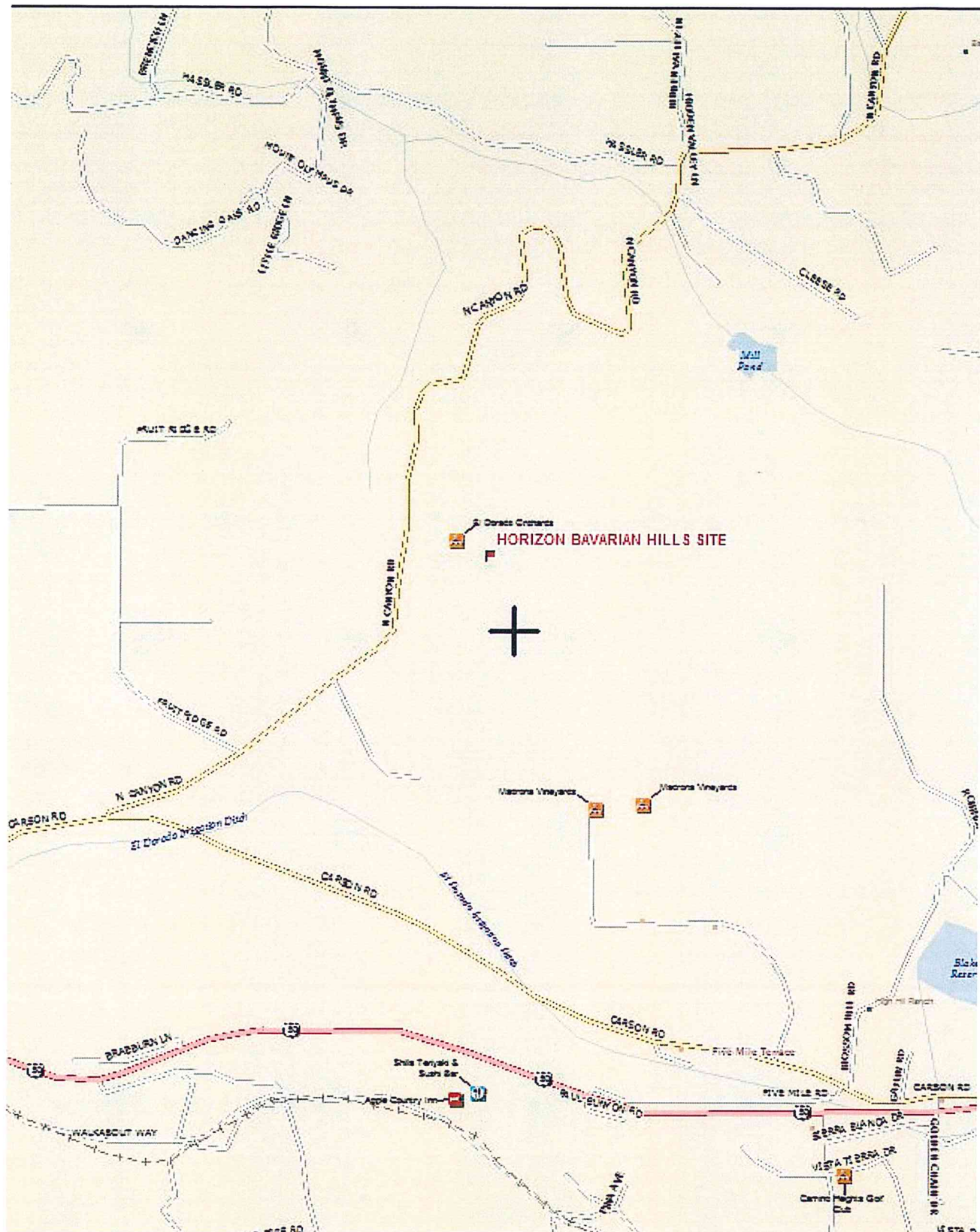
APPLE MT

verizon✓

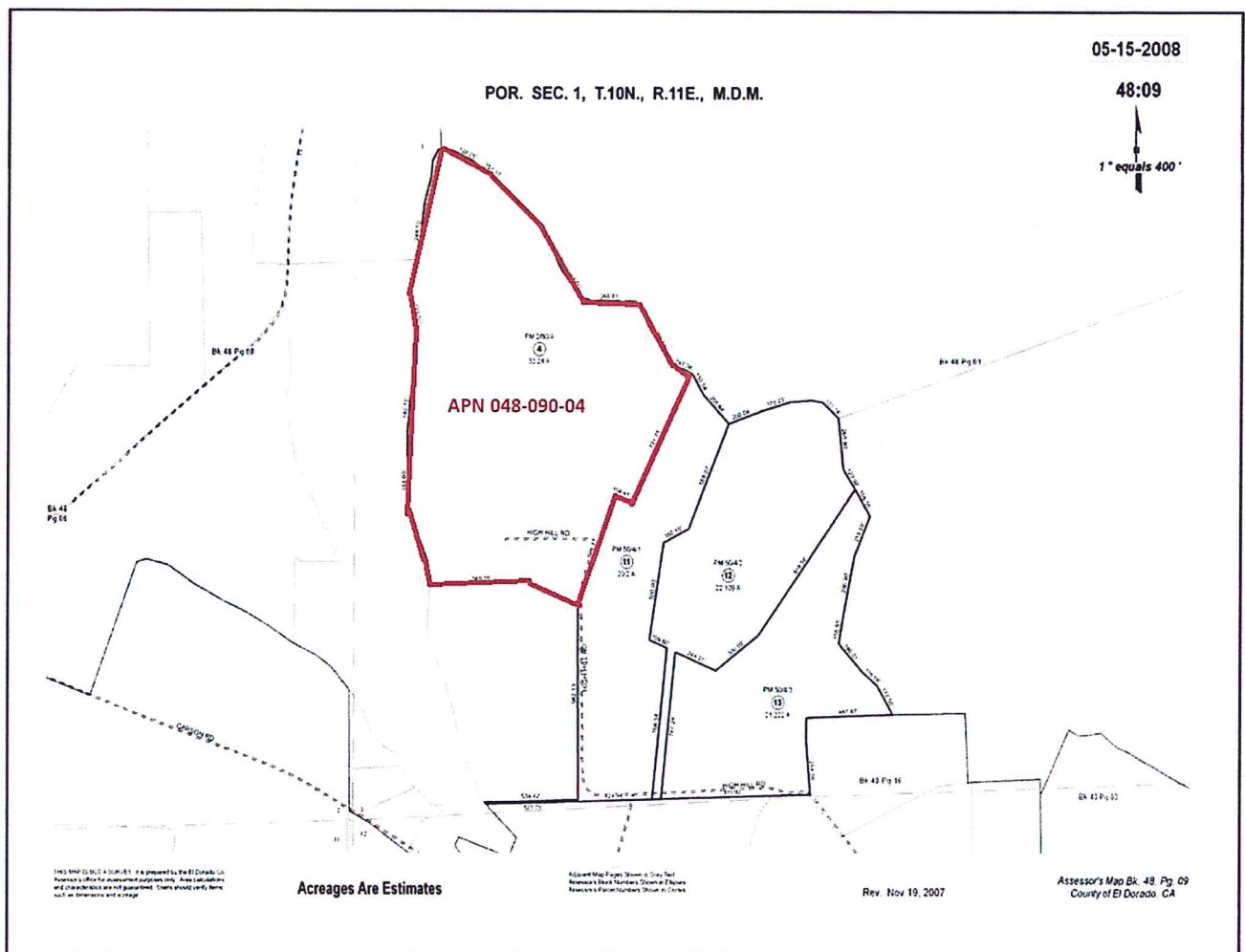
COVERAGE MAPS

Proposed Coverage





HORIZON BAVARIAN HILLS LOCATION MAP



PARCEL MAP OF PROPOSED HORIZON BAVARIAN HILLS SITE ON BUSH PROPERTY

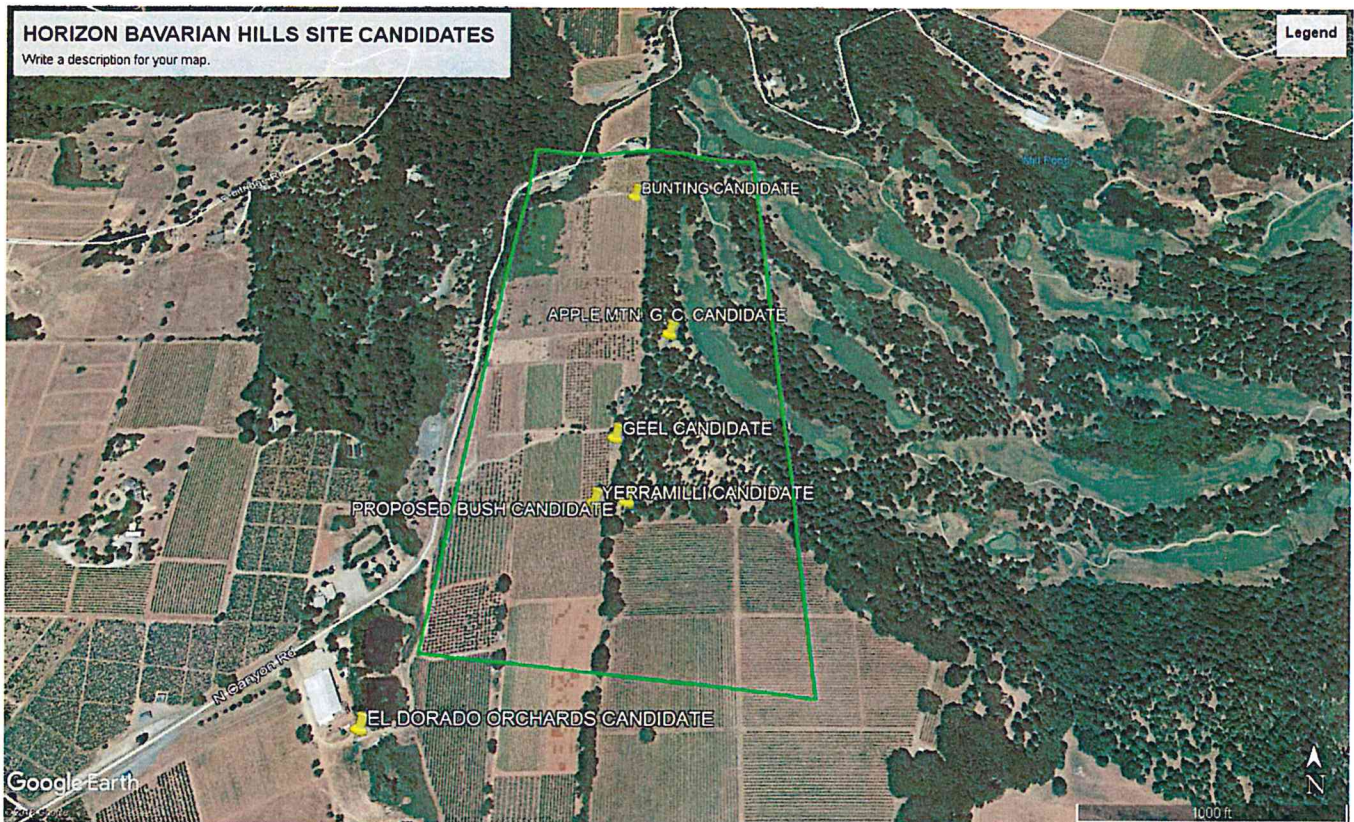




SATELITE PHOTO OF PROPOSED HORIZON BAVARIAN HILLS SITE

Pursuant to the application for a Conditional Use Permit for a multi-carrier capable communications facility at the Madrona Vineyard, APN 090-04-100 an alternate site analysis describing other properties identified and evaluated for this facility is herewith submitted as required by Zoning Ordinance Chapter 17.14.210.

Horizon Tower is pleased to provide the following information in response to this request. Our clients, major cell phone service providers, and our radio engineering team identified the need for improved coverage in the polygon shown below. Also shown are the candidates identified in our field search for locations which meet the required coverage objective.



Horizon Tower first contacted El Dorado County Planning Services to identify permitted zones and ordinance regulations applicable to cell sites. Based on the information secured from this research an extensive field survey was performed in the search area to identify properties in permitted zones which met our coverage objectives without topographic blockage, and provided a reasonable leasing potential. These properties are identified below:

Based on the above criteria our search was initially narrowed to the below properties providing a hilltop location on or overlooking North Canyon Road. Additional factors considered were the size of the properties, access, available utilities, and distance from adjacent residences.

1. Bunting (Bavarian Hills restaurant & orchard) APN 048-080-55-100
2. Apple Mountain Golf Course APN 048-010-31-100
3. Yerramilli APN 048-080-62
4. Geel APN 048-080-50-100
5. El Dorado Orchards APN 048-080-57-100

These properties were subsequently eliminated for the following reasons, referencing each property by the number above.

1. Bunting signed a lease and shortly thereafter had a change of heart, requesting us to terminate the lease. In the interest of maintaining community goodwill we agreed. The Bunting site would have required removal of 1600 square feet of orchard.
2. Apple Mtn. Golf Course - It was determined that access to the westerly part of the property along the tree line was limited to a narrow golf cart path crossing a creek, thus prohibiting construction and maintenance vehicles access.
3. After lengthy discussions owner Yerramilli decided to maintain the vineyard as is. (The cell site would have required removing grape plantings in a 40' x 40' area.)
4. The Geels advised they had put the property up for sale and did not want to enter a long term lease.
5. El Dorado Orchards is too far from the coverage objective and does not provide sufficient ground elevation.
6. There are no existing cell sites within or near the coverage area which would enable co-location.

Please see the below photo's describing alternate sites 1, 2, 3.

**Bavarian Hills Site Bunting Candidate
3100 North Canyon Road, Camino, CA**



Location of Bunting Candidate



Bunting Candidate Access Route

Bavarian Hills Site Apple Mtn. Golf Course Candidate
3455 Carson Road, Camino, CA



Location of Apple Mtn. Golf Course Candidate



Apple Mtn. Golf Course Candidate Access Route

Bavarian Hills Site Yerramilli Candidate
2910 N. Canyon Road, Camino, CA



Location of Yerramilli Candidate

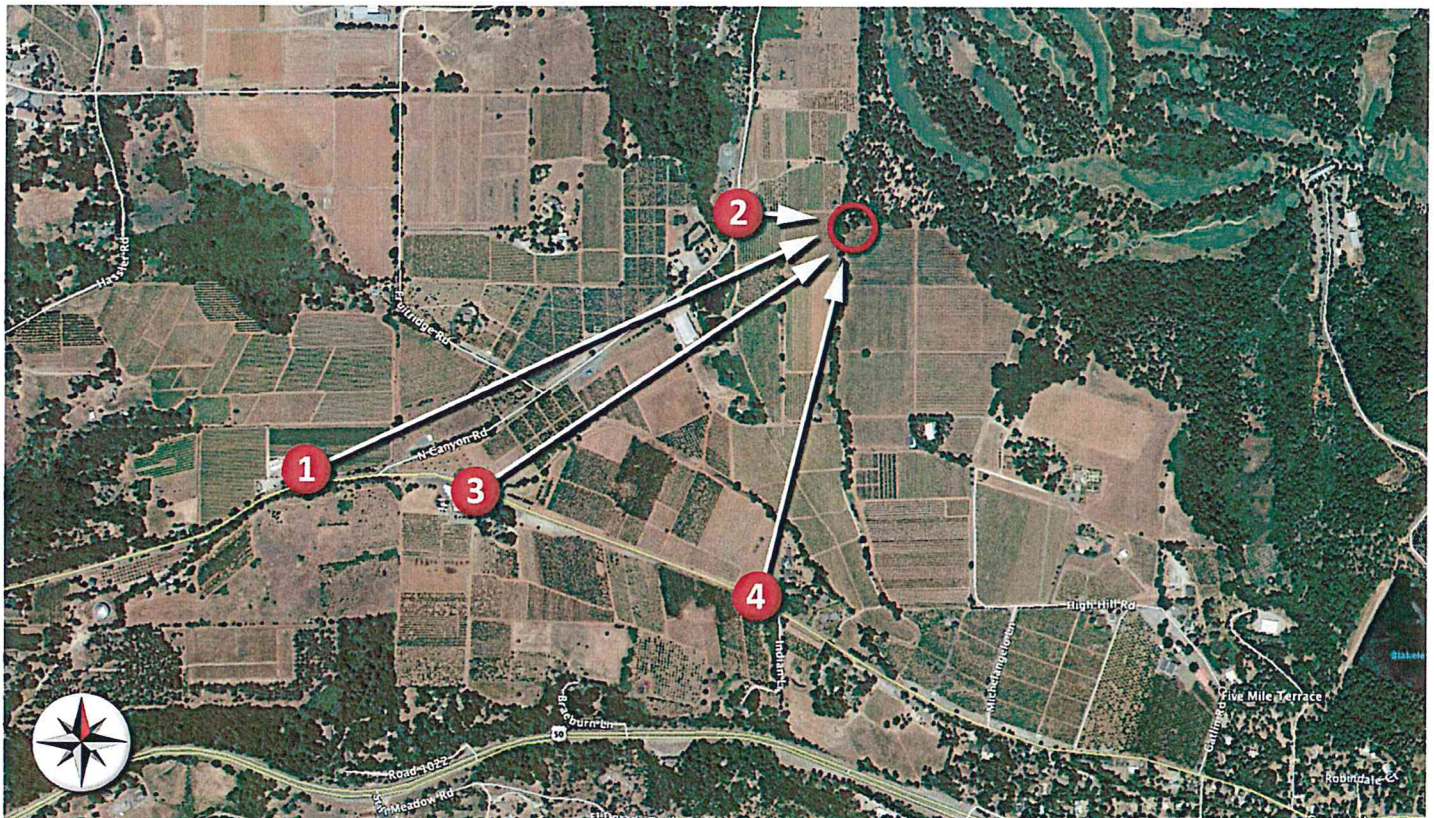
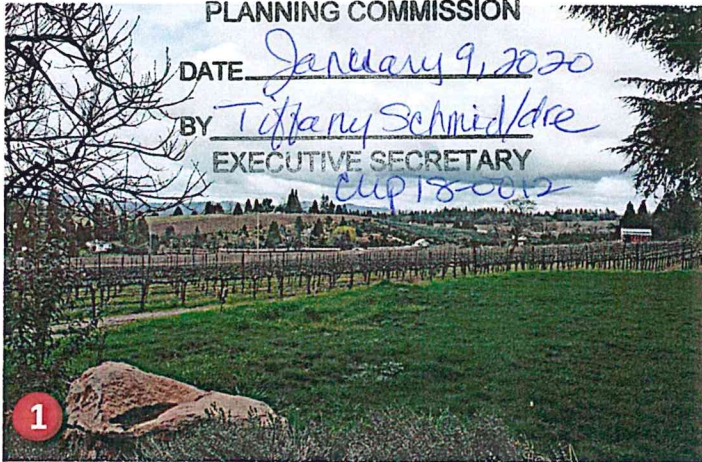


Yerramilli Candidate Access Route

Conclusion

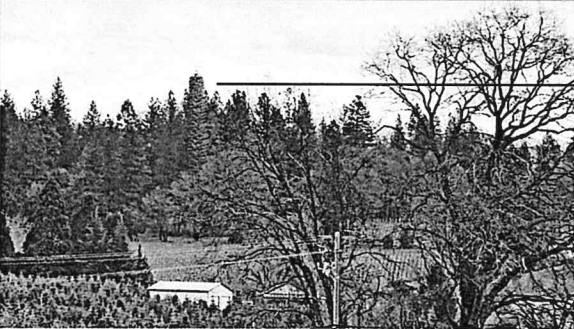
Following this exhaustive evaluation of site candidates the Madrona Vineyard Bush property was selected based on the following criteria:

- Hilltop position overlooking North Canyon Road
- Existing tree cover providing natural screening for a monopine
- Level ground requiring no grading
- Access direct from Carson Road through an existing vineyard road
- Owner Bush's willingness to lease on acceptable terms
- Power and telephone utilities being readily available through new underground extensions.
- The Agricultural Commission finds no adverse effect on natural resources.





Existing



proposed treepole



Proposed



Existing



Proposed

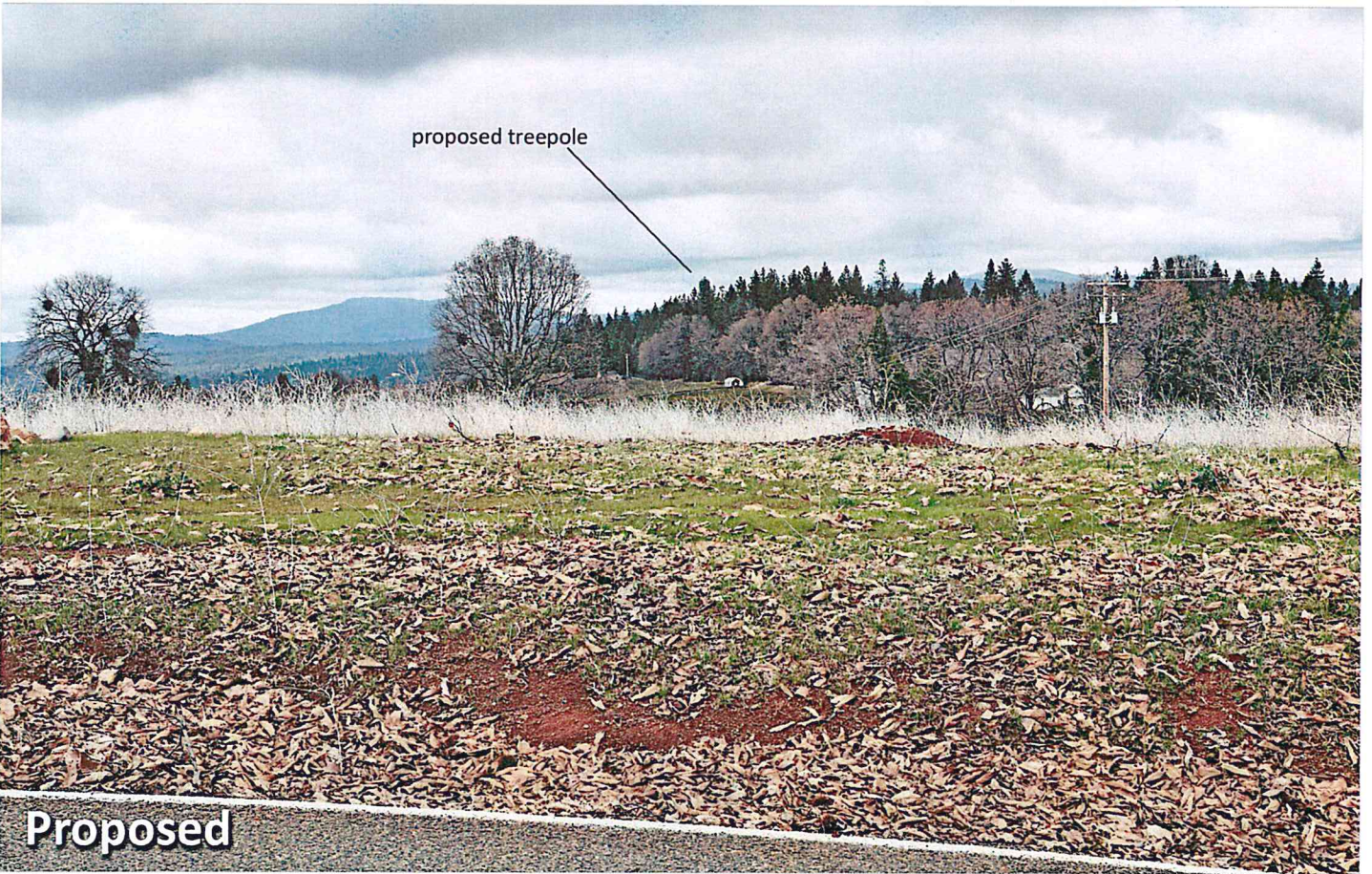


Existing



proposed treepole

Proposed





YOUR RF SAFETY PARTNER

RADIO FREQUENCY ELECTROMAGNETIC FIELDS EXPOSURE REPORT

Prepared for Verizon

c/o Epic Wireless Group LLC

Site Name: Apple MT
Site Type: Monopine

Cup 18-0012

APPROVED
EL DORADO COUNTY
PLANNING COMMISSION

DATE January 9, 2020

BY Tiffany Schmid/dre
EXECUTIVE SECRETARY

Located at:

2560 High Hill Rd
Placerville, CA 95709
Latitude: 38.74929 / Longitude: -120.7208

Report Date: 2/12/2019
Report By: Jamie Santos

Based on FCC Rules and Regulations, Verizon is compliant.

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1.0 EXECUTIVE SUMMARY

Dtech Communications, LLC ("Dtech") has been retained by Epic Wireless Group LLC., contractors to Verizon, to determine whether its wireless communications facility complies with the Federal Communications Commission ("FCC") Radio Frequency ("RF") Safety Guidelines. This report contains a computer-simulated and on-site analysis of the Electromagnetic Fields ("EMF") exposure resulting from the facility. The analysis also includes assessment of existing wireless carriers on site, where information is provided. The table below summarizes the results at a glance:

Table 1: EMF Summary

Verizon	Summary
Access Type	Gate
Access to antennas locked	Optional
RF Sign(s) @ access point(s)	None
RF Sign(s) @ antennas	None
Barrier(s) @ sectors	NA
Max EMF level for Verizon on Ground	1.0% General Population
Min Clearance Distance from Face of Verizon's Antennas	46 Feet

2.0 SITE DESCRIPTION

The wireless telecommunication facility is located on the ground. The facility consists of 1 wireless carrier(s) or operator(s): Verizon. The antennas are typically grouped into sectors pointing in different direction to achieve the desired areas of coverage. Verizon's antennas are mounted on a monopine tower and connected to the equipment via cables.

2.1 Site Map



2.2 Site Photographs



Verizon Proposed Location



Verizon Proposed Location



Verizon Proposed Location



Verizon Proposed Location

2.3 Antenna Inventory

Technical specifications in the table below are provided by our clients and/or gathered from physical field surveys where applicable and/or possible. Conservative estimates are used where information is not provided or available.

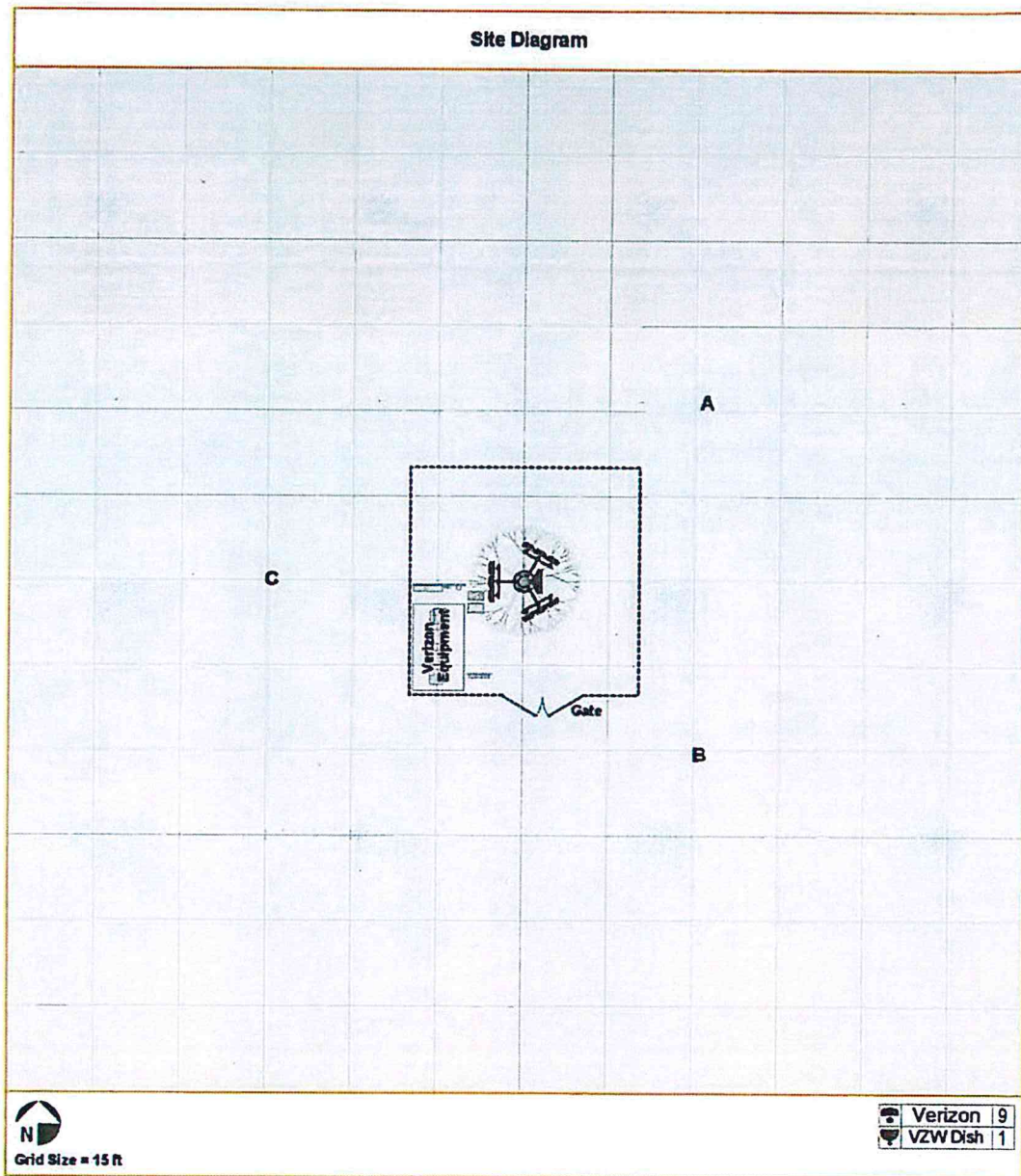
Table 2: Site Technical Specifications

Antenna ID	Operator	Antenna Mfg	Antenna Model	Type	Frequency (MHz)	Orientation (°T)	Horizontal BWidth (°)	Antenna Aperture (ft)	Antenna Gain (dBi)	Total Input Power (Watts)	Total ERP (Watts)	Bottom Tip Height Above Ground (Z) (ft)	Bottom Tip Height At Ant. Level (Z) (ft)
A1	Verizon	Commscope	NHH-65C-R2B	Panel	746	30	65	8.0	13.4	142	3098	111.0	0.0
A1	Verizon	Commscope	NHH-65C-R2B	Panel	880	30	62	8.0	13.7	142	3342	111.0	0.0
A2	Verizon	Commscope	NHH-65C-R2B	Panel	746	30	65	8.0	13.4	142	3098	111.0	0.0
A2	Verizon	Commscope	NHH-65C-R2B	Panel	2120	30	62	8.0	16.3	283	12055	111.0	0.0
A3	Verizon	Commscope	NHH-65C-R2B	Panel	880	30	62	8.0	13.7	142	3342	111.0	0.0
A3	Verizon	Commscope	NHH-65C-R2B	Panel	1965	30	66	8.0	15.7	283	10572	111.0	0.0
B1	Verizon	Commscope	NHH-65C-R2B	Panel	746	150	65	8.0	13.4	142	3098	111.0	0.0
B1	Verizon	Commscope	NHH-65C-R2B	Panel	880	150	62	8.0	13.7	142	3342	111.0	0.0
B2	Verizon	Commscope	NHH-65C-R2B	Panel	746	150	65	8.0	13.4	142	3098	111.0	0.0
B2	Verizon	Commscope	NHH-65C-R2B	Panel	2120	150	62	8.0	16.3	283	12055	111.0	0.0
B3	Verizon	Commscope	NHH-65C-R2B	Panel	880	150	62	8.0	13.7	142	3342	111.0	0.0
B3	Verizon	Commscope	NHH-65C-R2B	Panel	1965	150	66	8.0	15.7	283	10572	111.0	0.0
C1	Verizon	Commscope	NHH-65C-R2B	Panel	746	270	65	8.0	13.4	142	3098	111.0	0.0
C1	Verizon	Commscope	NHH-65C-R2B	Panel	880	270	62	8.0	13.7	142	3342	111.0	0.0
C2	Verizon	Commscope	NHH-65C-R2B	Panel	746	270	65	8.0	13.4	142	3098	111.0	0.0
C2	Verizon	Commscope	NHH-65C-R2B	Panel	2120	270	62	8.0	16.3	283	12055	111.0	0.0
C3	Verizon	Commscope	NHH-65C-R2B	Panel	880	270	62	8.0	13.7	142	3342	111.0	0.0
C3	Verizon	Commscope	NHH-65C-R2B	Panel	1965	270	66	8.0	15.7	283	10572	111.0	0.0
D1	Verizon	Unknown	Unknown	Dish	10000	90	2	4.0	38.0	-	65	103.0	0.0

3.0 ANALYSIS

3.1 Site Diagram

Figure 1: Site Diagram - Plan (bird's eye) view



3.2 Emission Predictions

Figure 2: Plan (bird's eye) view map of results compared to FCC's General Population MPE (Maximum Permissible Exposure) Limits. Gray represents areas where exposure levels are calculated to be at or below 5%; Green- between 5% & 100% (below MPE limits); blue, yellow & red – greater than 100% (exceeds MPE limits). Individuals can safely occupy areas in gray and green for indefinite amount of time; whereas areas in blue, yellow & red must be restricted to RF trained personnel who has been made fully aware of potential for exposure, has control and knows how to reduce their exposure with the use of personal protection equipment or has the ability to power down the transmitters.

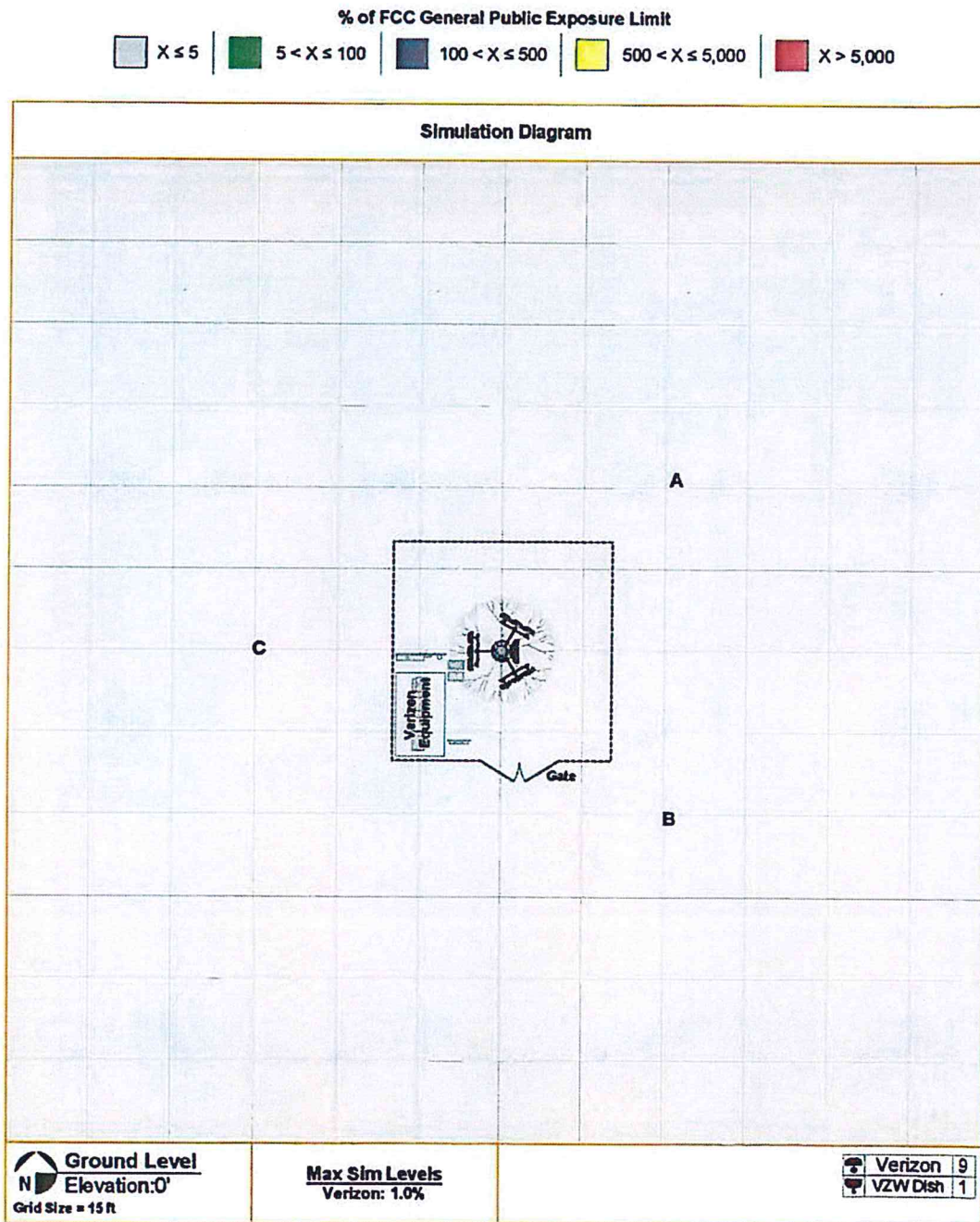
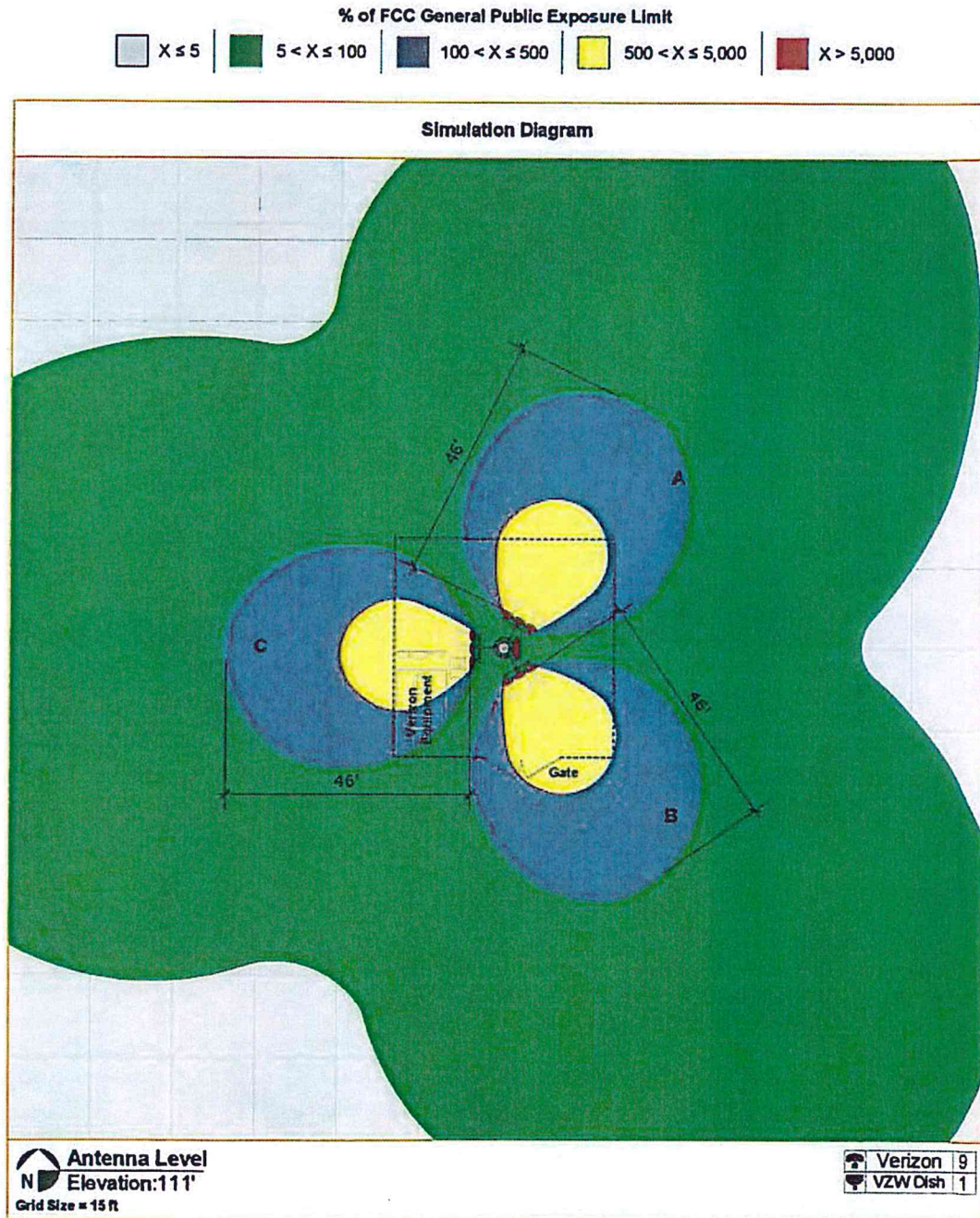


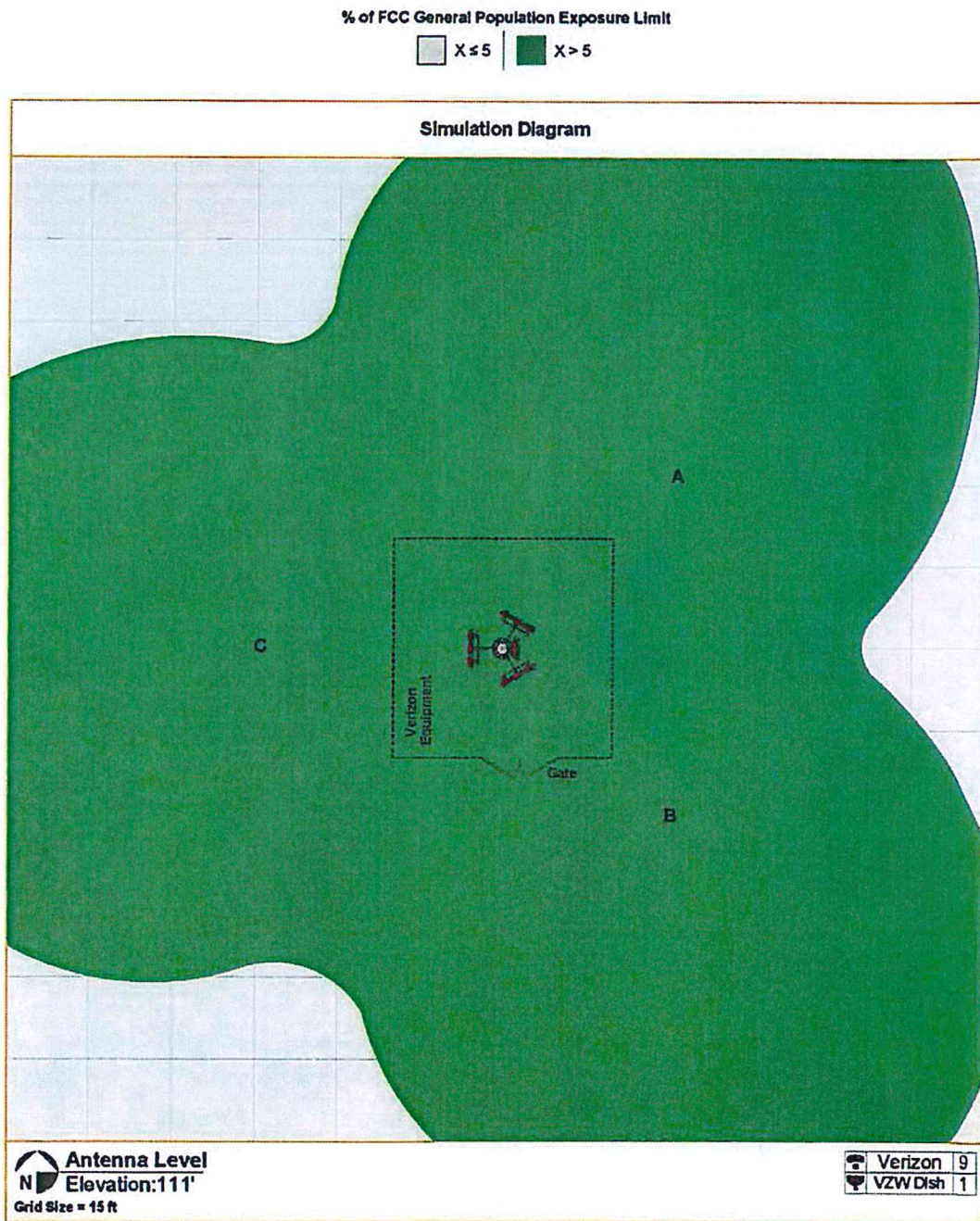
Figure 3: Plan (bird's eye) view map of results compared to FCC's General Population MPE (Maximum Permissible Exposure) Limits. Gray represents areas where exposure levels are calculated to be at or below 5%; Green- between 5% & 100% (below MPE limits); blue, yellow & red – greater than 100% (exceeds MPE limits). Individuals can safely occupy areas in gray and green for indefinite amount of time; whereas areas in blue, yellow & red must be restricted to RF trained personnel who has been made fully aware of potential for exposure, has control and knows how to reduce their exposure with the use of personal protection equipment or has the ability to power down the transmitters.



3.3 Five Percent Contributions

Mitigation measures are a shared responsibility for carriers whose RF emission levels exceed five percent of the FCC's exposure limits in areas of non-compliance.

Figure 4: Plan (bird's eye) view map of results compared to FCC's General Population MPE (Maximum Permissible Exposure) Limits. Gray represents areas where exposure levels are calculated to be at or below 5%; Green – greater than 5%.



4.0 CONCLUSION

4.1 Results

For a person standing in accessible areas on the ground, calculations for Verizon's site resulted in exposure levels below the FCC's most stringent General Population MPE Limits (see figure 2).

At antenna elevation, the highest calculated exposure level is above the FCC's General Population MPE Limits near the Verizon antennas (see figure 3). The overexposed (yellow and blue) areas extend 46-feet from the front face of the Verizon antenna(s). From the provided drawings, there are no other buildings or surrounding structures within 46-feet of the Verizon antenna(s). Beyond 46-feet, exposure levels are predicted to be below the FCC's most stringent General Population MPE Limits.

The antennas are mounted on a tall tower and therefore not accessible by the general public. It is presumed that Verizon employees and contractors are aware of the transmitting antennas and will take appropriate precautions when working near them.

4.2 Recommendation(s)

Further actions are not required.

4.3 Statement of Compliance

Based on the above results, analysis and recommendation(s), it is the undersigned's professional opinion that Verizon's site is compliant with the FCC's RF Safety Guidelines.

4.4 Engineer Certification

This report has been prepared by or under the direction of the following Registered Professional Engineer: Darang Tech, holding California registration number 16000. I have reviewed this report and believe it to be both true and accurate to the best of my knowledge.


Darang Tech, P.E.



Appendix A: Background

Dtech uses the FCC's guidelines described in detail in Office of Engineering & Technology, Bulletin No. 65 ("OET-65") "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields". The table below summarizes the current Maximum Permissible Exposure ("MPE") safety limits classified into two groups: General population and Occupational.

Table 3: FCC MPE Limits (from OET-65)

Frequency (Mhz)	General Population/ Uncontrolled MPE (mW/cm ²)	Averaging Time (minutes)	Occupational/ Controlled MPE (mW/cm ²)	Averaging Time (minutes)
30 - 300	0.2	30	1.0	6
300 - 1500	Frequency (Mhz)/1500 (0.2 - 1.0)	30	Frequency (Mhz)/300 (1.0 - 5.0)	6
1500 - 100,000	1.0	30	5.0	6

General population/uncontrolled limits apply in situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment, and may not be fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related.

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment, and those persons have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits, as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

It is important to understand that the FCC guidelines specify *exposure* limits not *emission* limits. For a transmitting facility to be out of compliance with the FCC's RF safety guidelines an area or areas where levels exceed the MPE limits must, first of all, be in some way *accessible* to the public or to workers. When accessibility to an area where excessive levels is appropriately restricted, the facility or operation can certify that it complies with the FCC requirements.

Appendix B: Measurement and/or Computer Simulation Methods

Spatial averaging measurement technique is used. An area between 2 and 6 feet, approximately the size of an average human, is scanned in single passes from top to bottom in multiple planes. When possible, measurements were made at very close proximity to the antennas and inside the main beam where most of the energy is emitted. The spatial averaged values were recorded.

Dtech uses an industry standard power density prediction computer Model¹ to assess the worse-case, cumulative EMF impact of the surrounding areas of the subject site. The Model does not take into account losses due to buildings. Its methodologies are conservative enough to account for typical down-tilts deployed in wireless communications. In addition, the analysis is performed at 100% duty cycle-all transmitters are active at all times and transmitting at maximum power. For purposes of a cumulative study, nearby transmitters are included where possible. The result is a surrounding area map color-coded to percentages of the applicable FCC's MPE Limits. A result higher than 100% exceeds the Limits.

Appendix C: Limitations

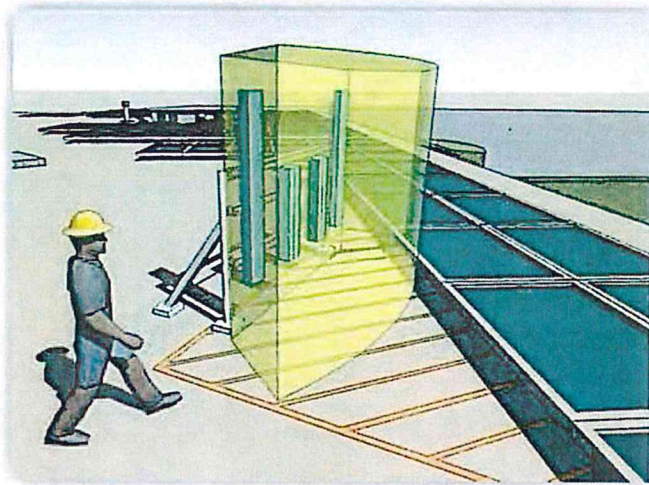
The conclusions in this document rendered by Dtech are based solely upon the information collected during the site survey and/or furnished by our Client which Dtech believes is accurate and correct. Dtech, however, has no responsibility should such Client provided information prove to be inaccurate or incorrect. Third party specification estimates used for cumulative computer simulation purposes, where applicable, are based on common industry practices and our best interpretation of available information. Data, results and conclusions in this document are valid as of its date. However, as mobile technologies continuously change, these data, results and conclusions may also be at variance with such future changes. Dtech has no responsibility to update its survey or report to account for such future technology changes. This document was prepared for the use of our Client only and cannot be utilized by any third party for any purpose without Dtech's written consent. Dtech shall have no liability for any unauthorized use of this document and any such unauthorized user shall defend, indemnify and hold Dtech and its owners, directors, officers and employees harmless from and against any liability, claim, demand, loss or expense (including reasonable attorney's fees) arising from such unauthorized use.

¹ Dtech uses Roofmaster(tm) 2015 Version 15.7.2.18 per Verizon's direction.

Appendix D: AntennaView®

Dtech Communications offers a unique, online tool (AntennaView®) to train, identify and inform individuals of site-specific HotZones – areas that may potentially exceed the FCC's Safety Limits. AntennaView® is an online, interactive training tool that will educate nontechnical people in about ten minutes. It is a site-specific, RF safety training program that requires the end user to sign an online agreement thereby limiting the liability to the landlord and carriers. Some of the advantages include:

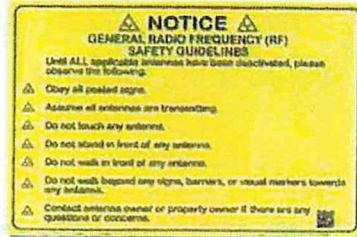
- Virtual walk-through in 3-D with corresponding photographs
- Site-specific, interactive, simple to understand
- Delivers pertinent information i.e. HotZones (areas that may potentially exceed FCC safety limits), site owners and contact numbers.
- User online agreement = accountability



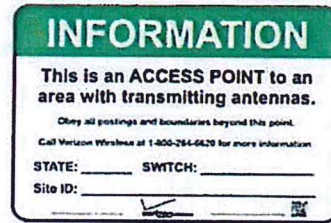
We invite you to take a quick tour at www.AntennaView.com and see how easy to understand and informative AntennaView® is.

Under Article 47 CFR § 1.1307(b), the FCC & OSHA mandates wireless operators/facility owners to have an RF survey completed including a safety plan and training to ensure that their tenants, employees and contractors who work in or around RF sites are aware of the potential risks posed by RF radiation. Most cell sites are located on building rooftops where HVAC contractors, window washers, painters, etc. routinely work and generally do not know what antennas even look like. Dtech Communications can help with ongoing FCC/OSHA compliance and provide practical training that is easy to understand by anyone regardless of their technical background.

Appendix E: Verizon's RF Advisory Signs



GUIDELINES Sign



NOC INFORMATION Sign



NOTICE Sign



CAUTION Sign



WARNING Sign