

**EXHIBIT E-
ENVIRONMENTAL
INFORMATION**

**OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION**

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SACRAMENTO, CA 95816-7100
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Dear FCC Applicant:

Section 106 FCC submissions will not be accepted unless this cover sheet is completed and attached.

Project Name	Hwy 29 Dwyer
Project Address	1327 Dwyer Road, Oakville, CA 94562

Based on the information provided on the accompanying FCC Form 620 or Form 621 the following information applies to this project:

X	There are buildings or structures over 45 years of age within this project's direct/indirect area of potential effect (APE).
	There is an archeological site located within this project's direct APE.
	A qualified archeologist has determined that the proposed project area is considered moderately to highly sensitive for archeological resources.

If the above boxes are blank, there are no historic properties within the direct or indirect project area. Therefore, pursuant to Stipulation VII.B.2 of the *Nationwide Programmatic Agreement for Review of Effects on Historic Properties for Certain Undertakings Approved by the Federal Communications Commission* as quoted below, **your Section 106 responsibilities are complete:**

If the SHPO/THPO does not provide written notice to the Applicant that it agrees or disagrees with the Applicant's determination of No Historic Properties Affected within 30 days following receipt of a complete Submission Packet, it is deemed that no Historic Properties Exist within the APE or the Undertaking will have no effect on Historic Properties. The Section 106 process is then complete and the Applicant may proceed with the project, unless further processing for reasons other than Section 106 is required.

_____ Yes, this submission contains an eligibility determination requiring SHPO concurrence. X Yes, this submission contains tribal response.

This project will: Not X Not Adversely _____ Adversely _____ affect Historic Properties.

The qualified project archeologist acknowledges that a pedestrian survey has been completed, a record search has been conducted at the appropriate California Historic Resources Information Center (IC) and that all submitted information is true.

Archeologist's signature Heather Rickett Date July 8, 2015

Please note, this letter pertains only to FCC projects being submitted to the California SHPO for comment.

Sincerely,

Carol Roland Nawi, Ph.D.

Carol Roland Nawi, Ph.D.
State Historic Preservation Officer



TETRA TECH

MEMO

301 E. Vanderbilt Way, Suite 450

San Bernardino, CA 92408-3562

Tel: 909-381-1674 Fax: 909-889-1391

To: Dorothy Knowlton
From: Stephanie Pacheco
Subject: No Potential Effect to Federally Sensitive Biological Resources, Hwy 29
Dwyer Site, 1327 Dwyer Road, Oakville, Napa County, California 94562
Date: 22 July 2015
Project #: N6984-01, EnSite Number 24320

The purpose of this Memo is to provide documentation supporting a No Potential Effect Determination for the potential presence of federally listed sensitive wildlife, plants and/or habitat at the Hwy 29 Dwyer Site. This evaluation has been prepared in compliance with guidelines provided by Verizon Wireless NEPA Program Regulatory Compliance (NRC) dated 23 March 2012 (Appendix A). This site is being considered for the placement of a wireless communication device and associated equipment by the applicant, Cellco Partnership and its controlled affiliates doing business as Verizon Wireless (Verizon Wireless).

PROJECT DESCRIPTION

The proposed project is the installation of a 65-foot stealth structure/faux water tank. Nine panels in three sectors will be mounted at a 61-foot centerline. Equipment cabinets and a diesel emergency power generator will be located within a 24-foot by 24-foot lease area enclosed by a wooden fence. Approximately 400-feet of trenching will be required for utilities.

The property is depicted on the Rutherford Quadrangle, U.S. Geological Survey, 7.5 minute topographic series (1951, photorevised in 1968) (Figure 1). This location is in Section 34, Township 7 North, Range 5 West, Mt. Diablo Baseline and Meridian (MDBM). The approximate latitude and longitude of the subject property is 38°25'6.62" north and 122°23'49.23" west (NAD 83). Based on the topographic map, the original property is located at approximately 165.000 (NAVD 88) feet above mean sea level (AMSL). The topographic gradient of the property is generally to the northeast.

POTENTIAL FOR PRESENCE OF LISTED PLANT AND WILDLIFE SPECIES

The proposed project would place a wireless cellular facility a site developed as a vineyard (Photographs 1 through 4). The site is bounded northeast, southwest and southeast by vineyards and on the northwest by Dwyer Road with vineyards beyond.

DATABASE REVIEW

Plant and wildlife species classified as rare, threatened, or endangered; proposed for listing as endangered or threatened; or candidate species for listing by federal and/or state resource agencies are considered "sensitive." In addition, other plants identified as sensitive by the California Native Plant Society, and wildlife considered species of concern, special animals, or fully protected in the State of California are also considered "sensitive." Certain habitat types are also classified as "sensitive" by the California Department of Fish and Wildlife (CDFW) in the California Natural Diversity Database (CNDDDB). **A compendium of both federal and state Sensitive Biological Resources that have the potential for presence in the survey area and likely occurrence probability for presence in the survey area are found in Appendix B.** The site is developed as a vineyard. It is surrounded on all sides by vineyard's with associated infrastructure. Based on the lack of habitat present plus current uses of the site, previously recorded sensitive resources associated with the area are not likely to be being found on the site or in adjacent areas to the site.

MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions between the United States, Canada, Japan, Mexico and the former Soviet Union for the protection of migratory birds. Concerns with migratory birds are becoming more of a consideration as towers are sited. In general, the vast majority of migratory bird flight occurs at heights greater than 500 feet. The Hwy 29 Dwyer site project would be placed in site developed as a vineyard and is a maximum of 65 feet high as described in the attached Tower Site Evaluation Form (Appendix C). Verizon Wireless' position on migratory birds is that nationwide the United States Fish and Wildlife Service (USFWS) guidelines are considered and incorporated whenever and wherever possible in the siting, design and construction of towers.

SUMMARY

No sensitive plants or wildlife were observed at the site during the reconnaissance performed for the NEPA Review. A finding of a No Potential Effect to listed wildlife, plants and/or habitat is determined for the Hwy 29 Dwyer site. No additional recommendations are made. The resume of the author of this memo is provided in Appendix D.



Stephanie Pacheco
Natural Resources Specialist
Tetra Tech, Inc.

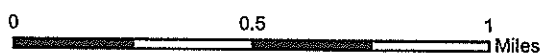
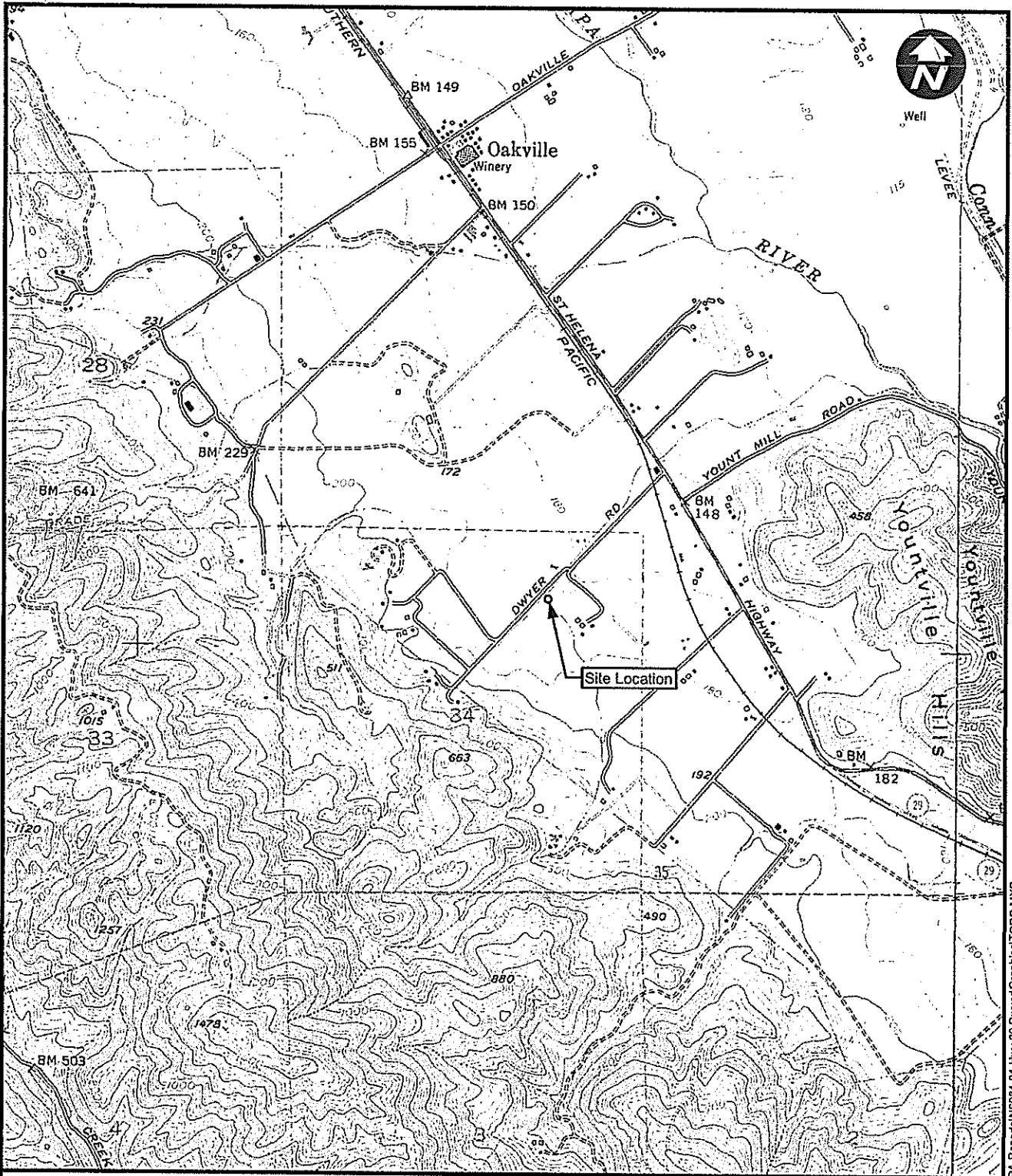


FIGURE 1

SITE LOCATION MAP
OF THE
HWY 29 DWYER SITE

TE TETRA TECH, INC.

Source: USGS 1951. Revised 1968. Topographic Map of Rutherford, California.
USGS 1951. Revised 1968. Topographic Map of Yountville, California.

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**Verizon Wireless • Proposed Base Station (Site No. 283585 “Hwy 29 Dwyer”)
1327 Dwyer Road • Oakville, California**

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate the base station (Site No. 283585 “Hwy 29 Dwyer”) proposed to be located at 1327 Dwyer Road in Oakville, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

Executive Summary

Verizon proposes to install directional panel antennas within a new structure, configured to resemble a water tower, to be located at 1327 Dwyer Road in Oakville. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

The U.S. Congress requires that the Federal Communications Commission (“FCC”) evaluate its actions for possible significant impact on the environment. A summary of the FCC’s exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. The most restrictive FCC limit for exposures of unlimited duration to radio frequency energy for several personal wireless services are as follows:

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5–80 GHz	5.00 mW/cm ²	1.00 mW/cm ²
WiFi (and unlicensed uses)	2–6	5.00	1.00
BRS (Broadband Radio)	2,600 MHz	5.00	1.00
WCS (Wireless Communication)	2,300	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.40	0.48
[most restrictive frequency range]	30–300	1.00	0.20

General Facility Requirements

Base stations typically consist of two distinct parts: the electronic transceivers (also called “radios” or “channels”) that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A small antenna for reception of GPS signals is also required, mounted with a clear view of the sky. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the



**Verizon Wireless • Proposed Base Station (Site No. 283585 “Hwy 29 Dwyer”)
1327 Dwyer Road • Oakville, California**

antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

The FCC provides direction for determining compliance in its Office of Engineering and Technology Bulletin No. 65, “Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radio Frequency Radiation,” dated August 1997. Figure 2 describes the calculation methodologies, reflecting the facts that a directional antenna’s radiation pattern is not fully formed at locations very close by (the “near-field” effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the “inverse square law”). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

Site and Facility Description

Based upon information provided by Verizon, including zoning drawings by Streamline Engineering and Design, Inc., dated March 25, 2015, it is proposed to install nine Andrew Model SBNHH-1D65B directional panel antennas within a new 65-foot structure, configured to resemble a water tower, to be sited in the vineyard located at 1327 Dwyer Road in Oakville. The antennas would employ no downtilt, would be mounted at an effective height of about 61 feet above ground, and would be oriented in groups of three toward 50°T, 120°T, and 340°T. The maximum effective radiated power in any direction would be 10,440 watts, representing simultaneous operation at 4,460 watts for AWS, 4,160 watts for PCS, and 1,820 watts for 700 MHz service; no operation on cellular frequencies is presently proposed from this site. There are reported no other wireless telecommunications base stations at the site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.017 mW/cm², which is 1.7% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building* is 0.61% of the public exposure limit. It should be noted that these results include several “worst-case” assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

* Including the residences located at least 460 feet away, based on photographs from Google Maps.



**Verizon Wireless • Proposed Base Station (Site No. 283585 "Hwy 29 Dwyer")
1327 Dwyer Road • Oakville, California**

Recommended Mitigation Measures

Due to their mounting locations and height, the Verizon antennas would not be accessible to unauthorized persons, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training, to include review of personal monitor use and lockout/tagout procedures, be provided to all authorized personnel who have access to the tower, including employees and contractors of Verizon and of the property owner. No access within 14 feet directly in front of the antennas themselves, such as might occur during certain maintenance activities, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. It is recommended that explanatory signs[†] be posted on the tower at or below the antennas, readily visible from any angle of approach to persons who might need to work within that distance.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the base station proposed by Verizon Wireless at 1327 Dwyer Road in Oakville, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Training authorized personnel and posting explanatory signs is recommended to establish compliance with occupational exposure limits.

[†] Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.



Verizon Wireless • Proposed Base Station (Site No. 283585 "Hwy 29 Dwyer")
1327 Dwyer Road • Oakville, California

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-20309, which expires on March 31, 2017. This work has been carried out under her direction, and all statements are true and correct of her own knowledge except, where noted, when data has been supplied by others, which data she believes to be correct.



Andrea L. Bright

Andrea L. Bright, P.E.
707/996-5200

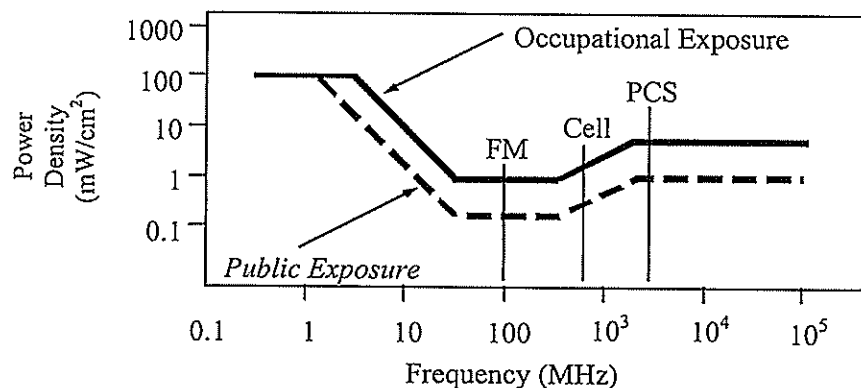
May 4, 2015

FCC Radio Frequency Protection Guide

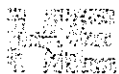
The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission (“FCC”) to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The FCC adopted the limits from Report No. 86, “Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields,” published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements (“NCRP”). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent standard, developed by the Institute of Electrical and Electronics Engineers and approved as American National Standard ANSI/IEEE C95.1-2006, “Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz,” includes similar limits. These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

As shown in the table and chart below, separate limits apply for occupational and public exposure conditions, with the latter limits (in *italics* and/or dashed) up to five times more restrictive:

Frequency Applicable Range (MHz)	Electromagnetic Fields (<i>f</i> is frequency of emission in MHz)					
	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm ²)	
0.3 – 1.34	614	<i>614</i>	1.63	<i>1.63</i>	100	<i>100</i>
1.34 – 3.0	614	<i>823.8/f</i>	1.63	<i>2.19/f</i>	100	<i>180/f²</i>
3.0 – 30	1842/f	<i>823.8/f</i>	4.89/f	<i>2.19/f</i>	900/f ²	<i>180/f²</i>
30 – 300	61.4	<i>27.5</i>	0.163	<i>0.0729</i>	1.0	<i>0.2</i>
300 – 1,500	3.54√ <i>f</i>	<i>1.59√f</i>	√ <i>f</i> /106	<i>√f/238</i>	f/300	<i>f/1500</i>
1,500 – 100,000	137	<i>61.4</i>	0.364	<i>0.163</i>	5.0	<i>1.0</i>



Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits, and higher levels also are allowed for exposures to small areas, such that the spatially averaged levels do not exceed the limits. However, neither of these allowances is incorporated in the conservative calculation formulas in the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) for projecting field levels. Hammett & Edison has built those formulas into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radio sources. The program allows for the description of buildings and uneven terrain, if required to obtain more accurate projections.



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
SAN FRANCISCO

FCC Guidelines
Figure 1

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

The U.S. Congress required (1996 Telecom Act) the Federal Communications Commission ("FCC") to adopt a nationwide human exposure standard to ensure that its licensees do not, cumulatively, have a significant impact on the environment. The maximum permissible exposure limits adopted by the FCC (see Figure 1) apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health. Higher levels are allowed for short periods of time, such that total exposure levels averaged over six or thirty minutes, for occupational or public settings, respectively, do not exceed the limits.

Near Field.

Prediction methods have been developed for the near field zone of panel (directional) and whip (omnidirectional) antennas, typical at wireless telecommunications base stations, as well as dish (aperture) antennas, typically used for microwave links. The antenna patterns are not fully formed in the near field at these antennas, and the FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives suitable formulas for calculating power density within such zones.

For a panel or whip antenna, power density $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$, in mW/cm²,

and for an aperture antenna, maximum power density $S_{max} = \frac{0.1 \times 16 \times \eta \times P_{net}}{\pi \times h^2}$, in mW/cm²,

where θ_{BW} = half-power beamwidth of the antenna, in degrees, and

P_{net} = net power input to the antenna, in watts,

D = distance from antenna, in meters,

h = aperture height of the antenna, in meters, and

η = aperture efficiency (unitless, typically 0.5-0.8).

The factor of 0.1 in the numerators converts to the desired units of power density.

Far Field.

OET-65 gives this formula for calculating power density in the far field of an individual RF source:

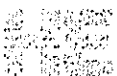
power density $S = \frac{2.56 \times 1.64 \times 100 \times RFF^2 \times ERP}{4 \times \pi \times D^2}$, in mW/cm²,

where ERP = total ERP (all polarizations), in kilowatts,

RFF = relative field factor at the direction to the actual point of calculation, and

D = distance from the center of radiation to the point of calculation, in meters.

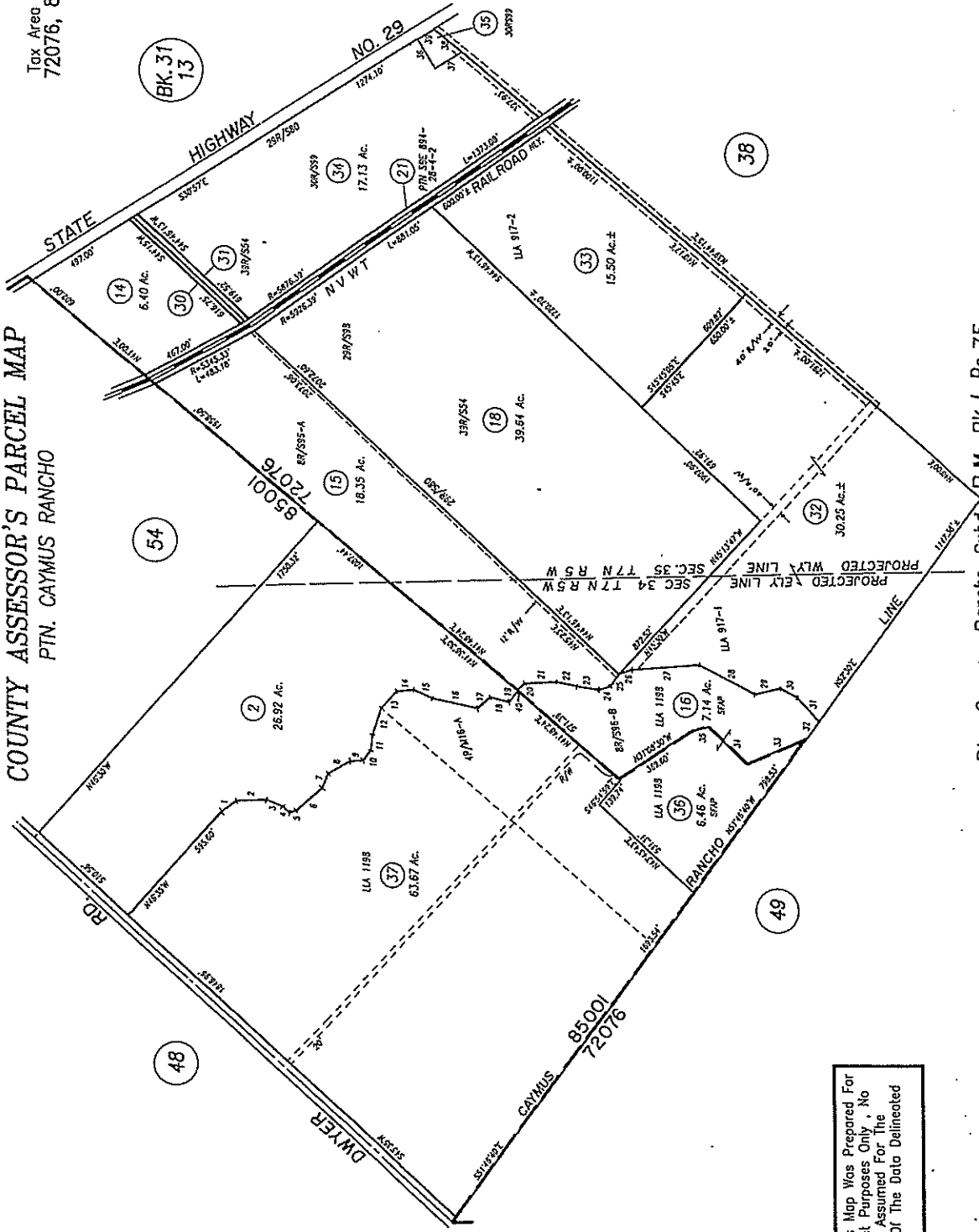
The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates, at each location on an arbitrary rectangular grid, the total expected power density from any number of individual radiation sources. The program also allows for the description of uneven terrain in the vicinity, to obtain more accurate projections.



COUNTY ASSESSOR'S PARCEL MAP
PTN. CAYMUS RANCHO

27-50

Tax Area Code
72076, 85001



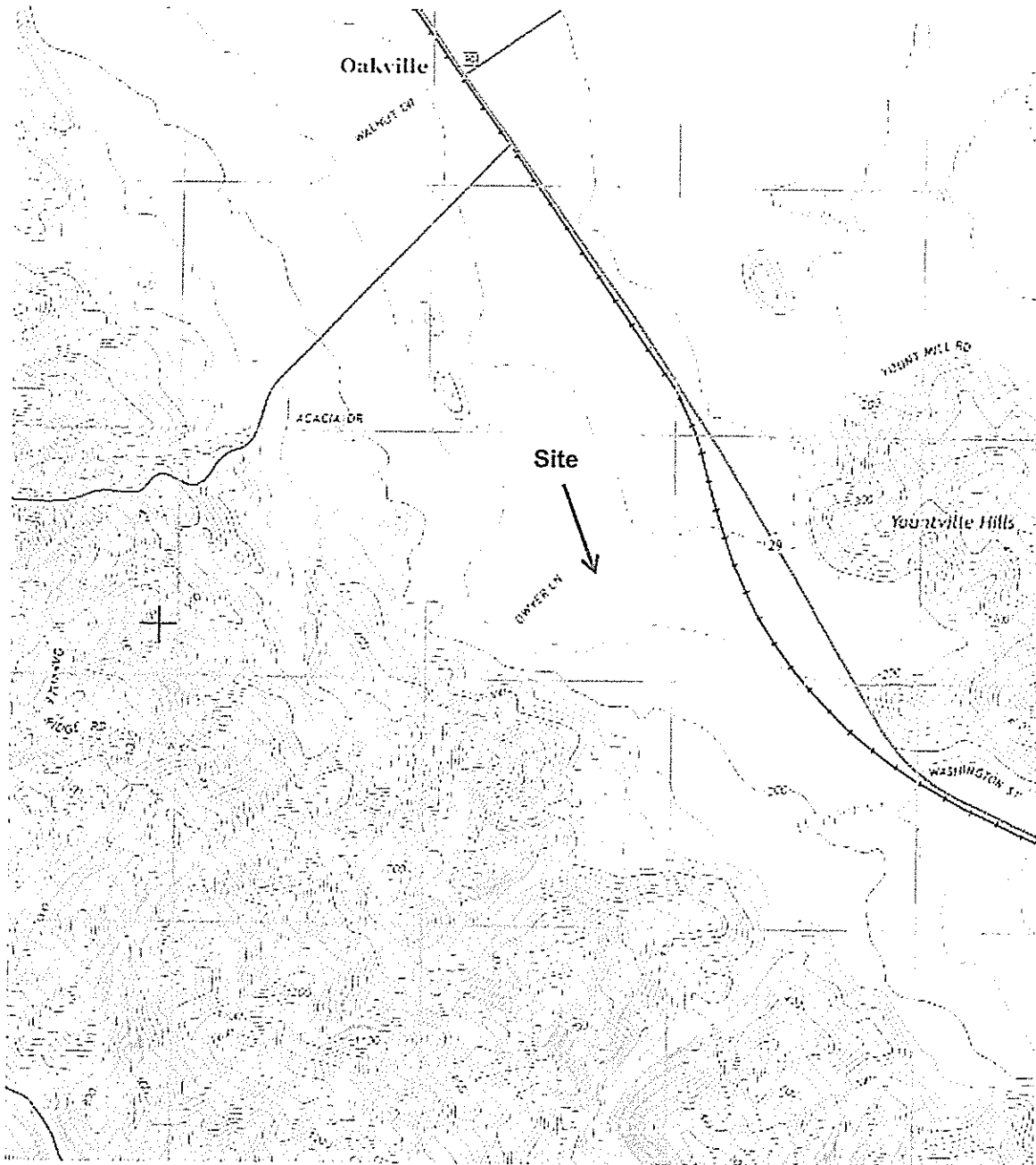
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REVISION	DATE
8-3-95	
2-27-95	
500-34 & 35 ULA	
500-16 & 28 REFRER	7-2-95
500-16, 36 & 37 ULA	12-27-00
500-16 & 31 RS	10-21-09
500-16, 36 & 37 ESMF	8-22-13

NOTE: This Map Was Prepared For Assessment Purposes Only, No Liability Is Assumed For The Accuracy Of The Data Delineated Hereon.

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Ptn. Caymus Rancho Subd R.M. Bk. I Pg.75



Topographic Map – 1327 Dwyer Road, Oakville, CA 94562

2015 Rutherford, CA Quadrangle - USGS