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September 15, 2009

VIA ELECTRONIC MAIL

Mayor Kevin Johnson  
Members of the Sacramento City Council  
Ray Tretheway, Sandy Sheedy, Steve Cohn, Robert King Fong, Vice-Mayor Lauren  
Hammond, Kevin McCarty, Robbie Waters, Bonnie Pannell  
City Hall  
915 I Street  
Sacramento, CA 95814

Re: Verizon Wireless Club Center Tree Pole (P09-003)  
5508 Sorrento Road, Sacramento; Council Agenda September 22, 2009

Dear Mayor Johnson and Honorable Councilmembers:

We write to you on behalf of our client Verizon Wireless to encourage you to re-affirm the June 25, 2009, decision of the Sacramento Planning Commission to approve a stealth monopine telecommunications facility to provide needed wireless services to the Club Center/Natomas area of the City of Sacramento ("City").

Since January of 2008, Verizon Wireless has been seeking to identify a location in the Club Center area to install a wireless services facility to fill a signal gap in its network. Verizon Wireless explored and rejected several alternatives prior to applying in February 2009 for the tree pole design to be located within a grove of trees at 5508 Sorrento Road. As confirmed by recommendations of the planning staff and favorable vote of the Planning Commission, the tree pole facility will have no impacts on the environment and is the least intrusive of available alternatives to fill the signal gap identified by Verizon Wireless.

Subsequent to Planning Commission approval, Councilmember Tretheway requested that the approval be reviewed by the Sacramento City Council and, specifically, that Verizon Wireless revisit available alternatives for the proposed site, including potential location of the facility at a proposed high school and city corporation yard. Verizon Wireless has diligently re-examined these alternatives and re-confirmed that the proposed facility at 5508 Sorrento Road remains the least intrusive means to fill the identified signal gap in Verizon Wireless coverage.

As described below, federal law preempts local authority where local regulation has the effect of prohibiting the provision of wireless services. This pre-emption applies where, as here, a carrier has demonstrated a significant gap in coverage and has identified the least intrusive means to fill that gap. Federal law further requires that any denial of the site be based upon substantial evidence. Here, there is simply no evidence of any negative impact from the facility

that would qualify as substantial evidence for denial. To avoid conflict with federal law, we encourage the City Council to re-affirm the well-considered decision of the Planning Commission and approve the proposed Verizon Wireless tree pole at Club Center.

**The Proposed Facility:**

Verizon Wireless proposes to install a 70' monopole disguised as a pine tree at 5508 Sorrento Road along with a 12' x 20' radio equipment shelter and an emergency back-up generator (the "Proposed Facility"). The Proposed Facility will be located in the middle of a grove of 30'-50' trees situated 400' back from Sorrento Road on a 3.73 acre parcel zoned agricultural (A) with a general plan designation of "Rural Estate." The Rural Estate designation is characterized under the Sacramento Municipal Code ("SMC") as:

a very low density residential zone . . . intended to be applied primarily to areas impacted by high noise levels, within designated approach or clear zones around airports, within identified floodway and floodway fringe areas, and other areas where physical and/or safety considerations necessitate very low density residential use.<sup>1</sup>

The nearest residence to the Proposed Facility is over 200' away and there are few homes in the immediate vicinity. An survey conducted by Gell Engineering has identified scores of trees, including pine trees and trees as tall as 85' within a 1,500 foot radius of the Proposed Facility. Under the conditions of approval, Verizon Wireless will plant additional evergreen trees. Noise generation from the site will be minimal, limited to periodic use of air conditioning units mounted on the shelter (equivalent to home units) and periodic remote testing of the generator, and in full compliance with the SMC. The Proposed Facility is described as "invisible" by planning staff and findings of the Planning Commission. We have attached a photo-simulation of the Proposed Facility as Exhibit A to this letter.

**The Proposed Facility Fully Complies with the Requirements of the Sacramento Municipal Code, Sacramento Wireless Guidelines and General Plan**

Section 17.24.050 of the SMC requires a Special Permit for the location of wireless telecommunications facilities in Agricultural zones. Required findings for a Special Permit for the Proposed Facility include:

- A. A Special Permit shall be granted upon sound principles of land use.
- B. A special permit shall not be granted if it will be detrimental to the public health, safety or welfare or if its results in the creation of a nuisance; and
- C. A special permit use must comply with the objectives of the general or specific plan for the area in which it is to be located.

Both the Planning Commission and planning staff concluded that the Proposed Facility meets all of the findings for a Special Permit. With respect to finding (A) staff and the Planning

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<sup>1</sup> SMC Chapter 17.20 Zoning Districts

Commission reference the land use policies embodied in the Sacramento Guidelines for Telecommunication Facilities (“Guidelines”), noting that “the proposed monopole complies with the intent of the Guidelines to create ‘invisible’ cellular facilities in that the proposed pole is designed to appear as a pine tree.”<sup>2</sup> With respect to finding (B) the staff noted in its report for the June 25<sup>th</sup> hearing that the site will be located some 400’ from Sorrento Road, will be surrounded by trees, will have no traffic or parking impacts and imposes no impacts on health and welfare of the community. Finally, with respect to finding (C), staff in its report, and the Planning Commission in its findings, identified several General Plan policies that are consistent with the Proposed Facility related to the promotion of public infrastructure (Policy U1.1), and promotion of state-of-the-art telecommunications services and emergency communications infrastructure Policy (U 7.1).

### **The Proposed Facility Complies with Applicable State and Federal Law**

#### 1. State Law.

Verizon Wireless is a telephone corporation under California law and registered with the California Public Utilities Commission to provide wireless telecommunications services in Sacramento as a public utility under utility number U-3001-C. The Proposed Facility qualifies for a categorical exemption under the California Environmental Quality Act as a small structure.

#### 2. Federal Law

Verizon Wireless is licensed by the Federal Communications Commission to provide wireless telecommunications services in Sacramento. As part of its application, Verizon Wireless has provided evidence of its FCC license to the City.

The Federal Telecommunications Act of 1996 (the “Telecommunications Act”) contains fundamental limits on the right of a local jurisdiction to regulate the placement of wireless facilities. Section 332 states:

No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission’s regulations concerning such emissions.<sup>3</sup>

To confirm compliance with federal standards, and in compliance with the SMC, Hammett & Edison Consulting Engineers has provided the City with a radio frequency engineering analysis dated January 22, 2009 (the “H&E Report”). The H&E Report confirms that the Proposed Facility, when operational, will be well within (and actually far below) all applicable FCC public exposure limits. Indeed, the H&E Report states that with the Proposed Facility operating at

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<sup>2</sup> See Planning Staff Report and Findings for Planning Commission hearing June 25, 2009, Item 3  
<sup>3</sup> 47 USC § 332(c)(7)(B)(iv).

maximum theoretical power levels, the RF exposure for a person anywhere at ground level near the site would be a mere 2.6% of the applicable public limit. A copy of the H&E Report is attached as Exhibit B to this letter.

In addition to pre-empting regulation on the basis of concerns over RF emissions, the Telecommunications Act also:

- Requires the City to take final action on a permit application within a reasonable period of time;<sup>4</sup>
- Requires that any permit denial be in writing and based on substantial evidence in the record;<sup>5</sup>
- Prohibits unreasonable discrimination among competing wireless carriers;<sup>6</sup> and
- Bars local regulation that would prohibit or have the effect of prohibiting the provision of personal wireless services.<sup>7</sup>

### **Prohibition of Service**

Federal case law has clarified the circumstances when local authority is pre-empted by federal law under the prohibition of service restriction of the Telecommunications Act. Once a wireless service provider has established a gap in signal coverage, the provider need only show that the proposed antenna facility is the “least intrusive means” to fill that gap based upon the land use values embodied in local regulation.<sup>8</sup> The courts have clarified that the applicant need not show that a site is the “only” alternative to fill a signal gap, but rather that the site is equivalent to, or no more intrusive, than any other feasible site location.<sup>9</sup> Once a provider has made a “prima facie” showing that a proposed facility is the least intrusive the requirements for federal pre-emption have been satisfied. For the local jurisdiction to overcome this pre-emption, it must show that another alternative is both “feasible” and “less intrusive” than the proposed facility.<sup>10</sup>

### **Signal Gap**

Verizon Wireless submitted detailed radio propagation coverage maps to show the significant gap in coverage in the vicinity of the Proposed Facility. The Proposed Facility will be located in the center of a ring created by five existing Verizon Wireless facilities (Mirage to the Northwest, Arco Park to the Southwest, Northgate to the South, Del Paso to the Southeast and

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<sup>4</sup> 47 USC § 332(c)(7)(B)(iii).

<sup>5</sup> 47 USC § 332(c)(7)(B)(iii).

<sup>6</sup> 47 USC 332(c)(7)(B)(i)(I).

<sup>7</sup> 47 USC 332(c)(7)(B)(i)(II).

<sup>8</sup> See *MetroPCS, Inc. v. City & County of San Francisco*, 400 F.3d 715 (9<sup>th</sup> Cir. 2004).

<sup>9</sup> Ibid

<sup>10</sup> See *T-Mobile USA, Inc. v. City of Anacortes*, 572 F.3d 987 (9<sup>th</sup> Cir. 2009)

Rio Linda to the Northeast). The location of the Proposed Facility is dictated by the proximity to these adjacent sites, and has been selected to fill a significant gap in in-building coverage and network capacity. Coverage maps that show this gap and the improved coverage following installation of the Proposed Facility are enclosed as Exhibit C to this letter.

### **“Least Intrusive Means”**

Verizon Wireless began its search for an appropriate location for the Proposed Facility in early 2008. Each collocation, commercial and institutional property within the proposed coverage area was investigated. In March of 2008, Verizon Wireless went so far as to send a letter to all residents of the Natomas area seeking input on possible locations for its wireless facility. Ultimately, this search resulted in the identification of the Proposed Facility as the least intrusive means to fill the intended signal gap, a conclusion confirmed by planning staff and the Planning Commission on June 25, 2009.

Upon the subsequent request of Councilmember Tretheway, Verizon Wireless reexamined its list of potential alternatives, with particular emphasis on collocation and institutional opportunities. The results of this effort are contained in an updated alternatives analysis submitted by OnAir LLC for this hearing (the “Alternatives Analysis Update”). The summary matrix from the Alternatives Analysis Update is enclosed as Exhibit D to this letter. The Alternatives Analysis Update confirms that the Proposed Facility remains the least intrusive means to fill the coverage gap identified by Verizon Wireless. In all, the Updated Alternatives Analysis reviews eight (8) potential locations for the proposed wireless facility, each of which, other than the Proposed Facility, was found to be infeasible, unavailable or unable to provide the necessary radio signal coverage. A brief summary of these eight alternatives is as follows:

Proposed Facility, 5508 Sorrento Road. As described above, the Proposed Facility, a tree pole surrounded by existing trees, 200’ from the nearest residence and 400’ from Sorrento Road, remains the least intrusive alternative. The Proposed Facility location is ideally situated in the center of the geographic service area that Verizon Wireless seeks to address with this site. Located on land above floodplain levels identified by the Federal Emergency Management Agency (“FEMA”), and with available electrical power, telephone service and access roadway, the Proposed Facility will remain viable during disasters and will cause the least disruption to the environment for installation and continued operation.

Existing Crown Castle Facility. An older, existing lattice tower facility exists .3 miles northwest of the Proposed Facility and is operated for a single carrier by Crown Castle. Unfortunately, Crown Castle does not control sufficient ground space under the tower, or sufficient utility and vehicle access, for collocation by Verizon Wireless. During 2008, Verizon Wireless sought, unsuccessfully, to negotiate with the underlying landowner for space. However, the owner did not want to further encumber the property, which it hoped to develop as a subdivision. More recently, the property was foreclosed upon by Comerica Bank. Once again, Crown Castle has been unable to negotiate ground space rights for Verizon Wireless. A letter confirming Crown Castle’s inability to provide collocation space is enclosed as Exhibit E to this letter. We should also note that comments by the Planning Commission expressed an aesthetic preference for the Proposed Facility and a desire for the existing lattice tower to “disappear”.

Proposed East Natomas Education Complex (“ENEC”) of the Twin Rivers Unified School district (“TRUSD”) 5921 East Levee Road. The ENEC, located outside of City limits in Sacramento County, has been approved for construction. Plans include stadium light standards that have been under review for possible location of a wireless facility. In 2008, Verizon Wireless was advised that construction of the ENEC had been postponed for 3-5 years, and as a consequence Verizon Wireless abandoned this alternative. More recently, Councilmember Tretheway and the TRUSD interim facilities director have revived this alternative at the behest of opponents to the Proposed Facility. As of the date of this letter, Verizon Wireless continues to have serious doubts regarding the feasibility of locating its facility at the ENEC. Principal among these concerns is whether the facility can be built above FEMA floodplain levels (mounted on a platform some 8’ above the playing field) as required by federal regulations; whether Sacramento County approvals can be obtained, particularly if there is neighbor opposition; and whether such a facility can be timely constructed given necessary approvals from the TRUSD, Department of State Architect, State Historic Preservation Office and the County Board. While Verizon Wireless hopes to construct the Proposed Facility in the next year, the ENEC stadium is not planned to be constructed for some 15 years. Verizon Wireless has asked TRUSD to respond to the floodplain issue in a letter dated September 13, 2009, which we have attached as Exhibit F-1 to this letter. A possible design for a facility at this location is attached as Exhibit F-2. This drawing has been reviewed by County staff who indicate, on the drawing, that a use permit will be required causing additional delay, cost and uncertainty to this alternative.

City of Sacramento Corporate Yard, 918 Del Paso Blvd., Sacramento. Councilmember Tretheway requested review of this alternative. Unfortunately, this location is too far south to provide coverage to the signal gap to be remedied by the Proposed Facility. Verizon Wireless RF engineers have confirmed that locating the facility at this site would result in a continuing signal gap to the north of the proposed coverage area, resulting in the need for an additional site to fill this northern gap.

Natomas Park, 1839 Bend Drive, Sacramento. The Parks Department and Verizon Wireless were unable to agree upon lease terms. While the department could not agree to a lease term longer than five years, Verizon Wireless requires a much longer term in order to amortize its investment and maintain its network.

Natomas Charter School, 4600 Blackrock Road. This location was determined to be too far south and ruled out by Verizon Wireless RF engineers due to poor signal propagation to the north. Further, the school was not responsive to Verizon Wireless’s need to clarify site location.

NEMDC Storm Water Treatment Plant, E. Levee Road. The storm water agency was not willing to allow an antenna support on its structure and an adequate tower foundation location could not be located ruling out this alternative.

Avdis Family Trust, 5625 E. Levee Road. Although Nick Avdis, acting President of the Valley View Acres Community Association, was a willing landlord, this location was determined to be too close to Sorrento Road, and, lacking any existing tree cover, aesthetically inferior to the Proposed Facility according to Planning staff.

The Updated Alternatives Analysis and staff's comprehensive review of alternatives plainly demonstrate that there is no less intrusive site than the Proposed Facility to fill the signal gap identified by Verizon Wireless. Having identified the signal gap and shown the Proposed Alternative to be the least intrusive means to fill that gap of feasible alternatives, Verizon Wireless has met the burden to pre-empt local regulation of the Proposed Facility.

### **Substantial Evidence**

Finally, as noted above, the Telecommunications Act requires that any decision to deny a wireless facility must be in writing and supported by "substantial evidence."<sup>11</sup> The principal opposition to the Proposed Facility to date has been neighbor concern over the health effects from RF emissions.<sup>12</sup> Under federal law, such concerns are beyond the authority of the City Council and do not qualify as substantial evidence for denial. Indeed, that preemption applies whether the local decision is explicitly based on environmental effects, or through some proxy such as property values. A federal district court in California has held that in light of the federal preemption of RF regulation, "concern over the decrease in property values may not be considered as substantial evidence if the fear of property value depreciation is based on concern over the health effects caused by RF emissions." *AT&T Wireless Services of California LLC v. City of Carlsbad*, 308 F.Supp.2d 1148, 1159 (S.D. Cal. 2003).

Similarly, opponents argue that there must be some other alternative location for the site. Yet, again, federal law only requires that the Proposed Facility be no more intrusive than any other alternative, not that the Proposed Facility is the only alternative for filling a coverage gap. Through an exhaustive site search as shown in the Alternatives Analysis Update, Verizon Wireless has demonstrated that the Proposed Facility is the best alternative to fill the identified signal gap with no environmental impacts.

In sum, no evidence has been presented of environmental or other impacts from the Proposed Facility that would justify overturning the reasoned findings and decision of the Planning Commission. Further, none of the concerns expressed by opponents would qualify as "substantial evidence" for denial under federal law. As such, there is simply no evidence for denial of the Proposed Facility, let alone the substantial evidence required by federal law.

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<sup>11</sup> 47 USC § 332(c)(7)(B)(iii).

<sup>12</sup> See Valley View Acres Community Association Letter to the Planning Commission dated April 19, 2009: "The proposed site of this project is in close proximity of residential sites posing health risks such as Cancer, Leukemia and Neurological Effects associated with the over exposure to Electro Magnetic Radiation (EMR) emitted by these types of cell towers." Signed by Nick Avdis, President.

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## **Conclusion**

The Proposed Facility complies with all applicable provisions of the SMC and Guidelines as well as state and federal law. Verizon Wireless has provided substantial evidence in the form of coverage maps, photo-simulations and the Alternatives Analysis Update to confirm the decision of the Planning Commission and make all necessary findings to approve the Proposed Facility. The Planning Commission properly found that the Proposed Facility is the least intrusive alternative, “invisible” in design and compliant with both RF regulations and local Guidelines for approval. Sacramento residents and visitors demand the enhanced wireless coverage and capacity that will be provided by the Proposed Facility. Verizon Wireless’s application clearly demonstrates that such life saving technology can be provided to the community in an environmentally and aesthetically sensitive manner. We encourage you to re-affirm the Planning Commission and approve the Proposed Facility.

Very truly yours,

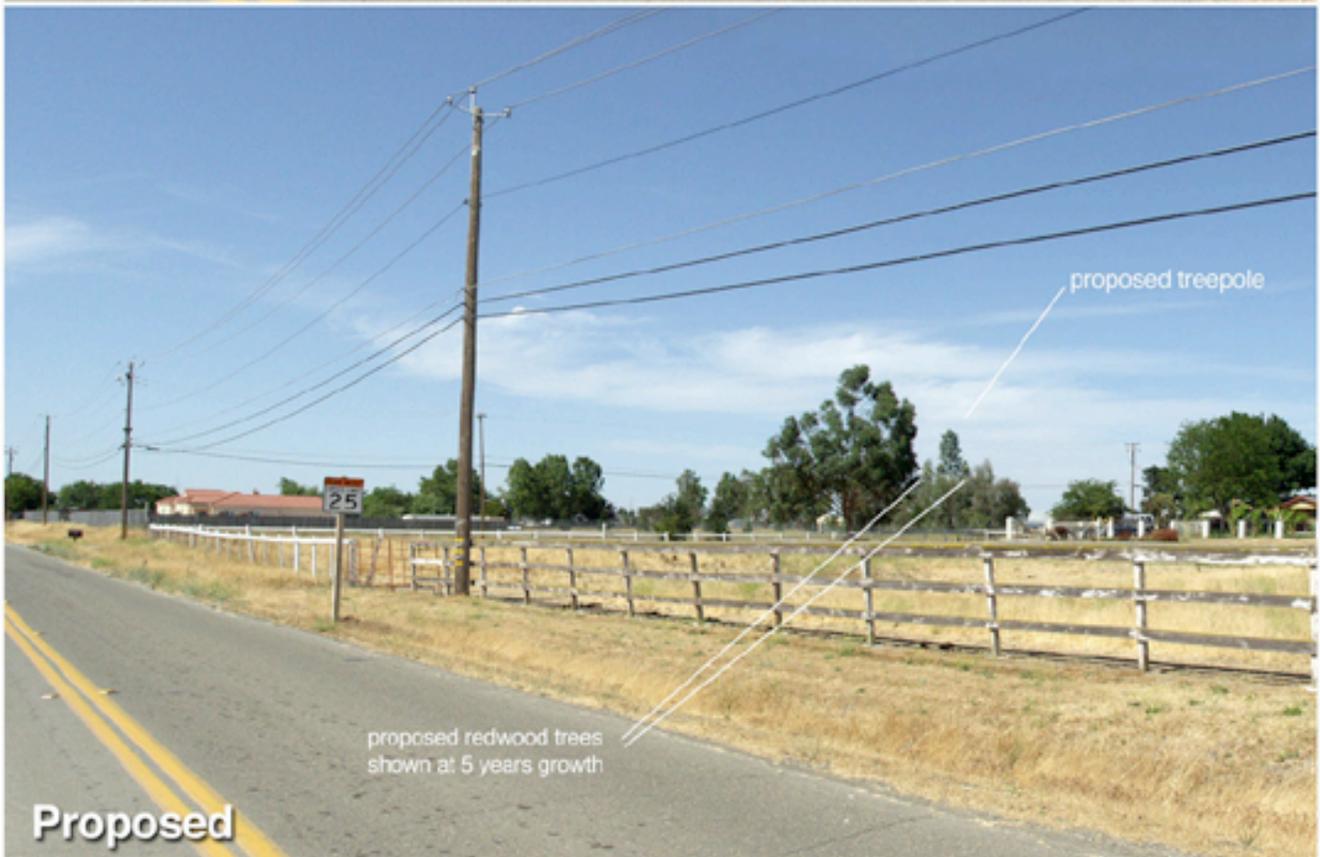
A handwritten signature in black ink, appearing to read "Paul Albritton". The signature is fluid and cursive, with a large initial "P" and a long horizontal stroke at the end.

Paul B. Albritton

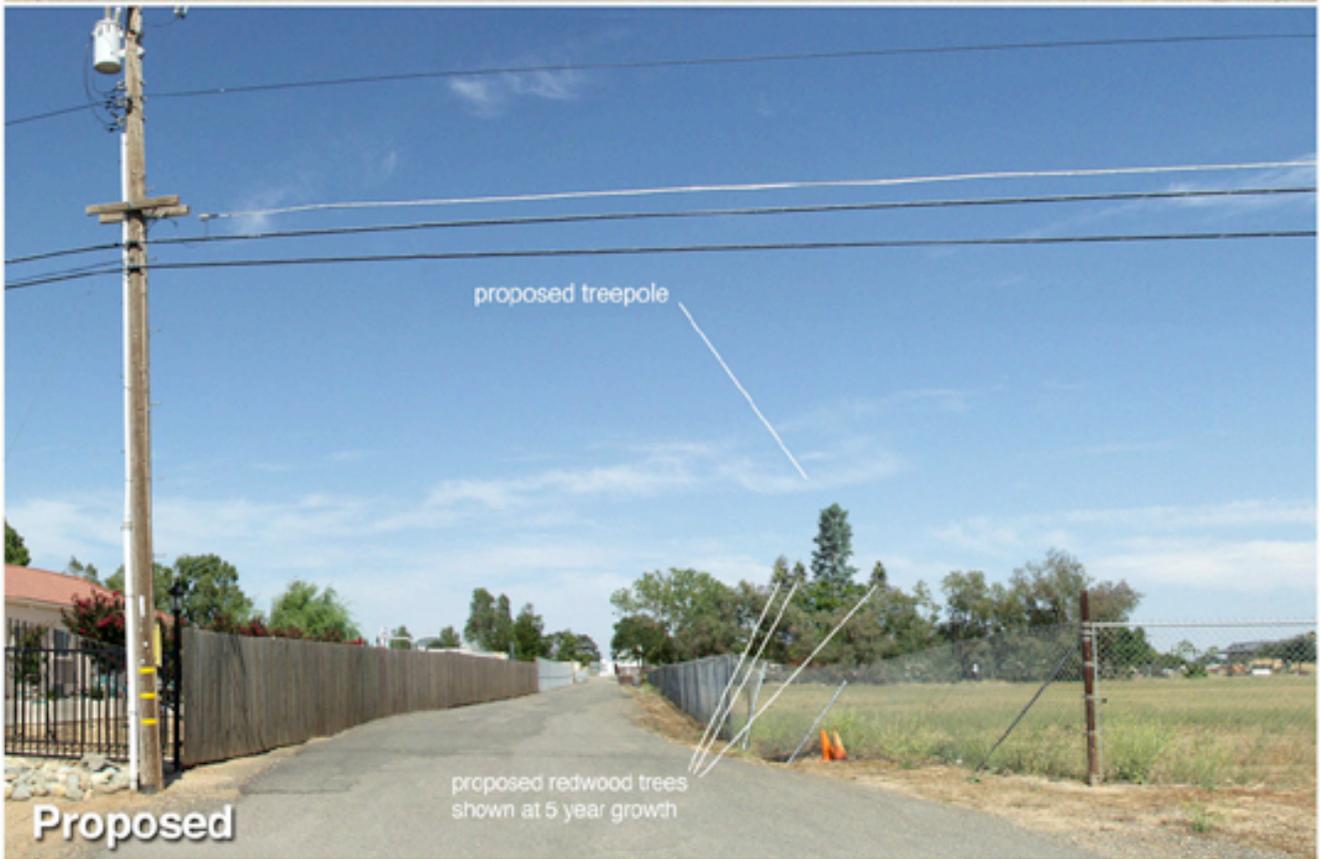
Cc: Ed McGah, Esq  
Eileen M. Teichert, Esq

## Exhibits

Exhibit A: Photo-simulation  
Exhibit B: H&E Report  
Exhibit C: Coverage Maps  
Exhibit D: Alternative Analysis Update Summary Matrix  
Exhibit E: Crown Castle Letter  
Exhibit F-1: TRUSD Letter  
Exhibit F-2: ENEC Design and County Staff Comments







**Verizon Wireless • Proposed Base Station (Site No. 183684 “Club Center”)  
5508 Sorento Road • Sacramento, 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. 183684 “Club Center”) proposed to be located at 5508 Sorento Road in Sacramento, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

**Prevailing Exposure Standards**

The U.S. Congress requires that the Federal Communications Commission (“FCC”) evaluate its actions for possible significant impact on the environment. In Docket 93-62, effective October 15, 1997, the FCC adopted the human exposure limits for field strength and power density recommended in 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 exposure limits. 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:

Personal Wireless Service	Approx. Frequency	Occupational Limit	Public Limit
Broadband Radio (“BRS”)	2,600 MHz	5.00 mW/cm <sup>2</sup>	1.00 mW/cm <sup>2</sup>
Advanced Wireless (“AWS”)	2,100	5.00	1.00
Personal Communication (“PCS”)	1,950	5.00	1.00
Cellular Telephone	870	2.90	0.58
Specialized Mobile Radio (“SMR”)	855	2.85	0.57
Long Term Evolution (“LTE”)	700	2.15	0.43
[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



**Verizon Wireless • Proposed Base Station (Site No. 183684 “Club Center”)  
5508 Sorento Road • Sacramento, California**

transceivers are often located at ground level and are connected to the antennas by coaxial cables about 1 inch thick. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the 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. Along with the low power of such facilities, 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 attached 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 drawings by L.D. Strobel Co., Inc., dated December 22, 2008, it is proposed to mount twelve directional antennas, six Antel Model LPD7905/8 cellular antennas and six RFS Model APL196516 PCS antennas, on a new 65-foot steel pole, configured to resemble a pine tree, to be sited on agricultural land located at 5508 Sorento Road in Sacramento. The cellular antennas would be mounted in pairs at an effective height of about 51 feet above ground and the PCS antennas would be mounted in pairs at an effective height of about 61 feet above ground. The stacked pairs would be oriented toward 95°T, 215°T, and 335°T. The maximum effective radiated power in any direction would be 6,256 watts, representing the simultaneous operation of eight cellular channels at 382 watts each and eight PCS channels at 400 watts each. There are reported no other wireless base stations installed nearby.

### **Study Results**

For a person anywhere at ground, the maximum ambient RF exposure level due to the proposed Verizon operation is calculated to be 0.015 mW/cm<sup>2</sup>, which is 2.6% of the applicable public exposure limit; the maximum calculated level at the second-floor elevation of any nearby building would be 4.3% 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.



**Verizon Wireless • Proposed Base Station (Site No. 183684 "Club Center")  
5508 Sorento Road • Sacramento, California**

**No Recommended Mitigation Measures**

Due to their mounting locations, the Verizon antennas are not accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. It is presumed that Verizon will, as an FCC licensee, take adequate steps to ensure that its employees or contractors comply with FCC occupational exposure guidelines whenever work is required near the antennas themselves.

**Conclusion**

Based on the information and analysis above, it is the undersigned's professional opinion that the base station proposed by Verizon Wireless at 5508 Sorento Road in Sacramento, 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.

**Authorship**

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2009. This work has been carried out by him or under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.



*William F. Hammett*  
William F. Hammett, P.E.

January 22, 2009

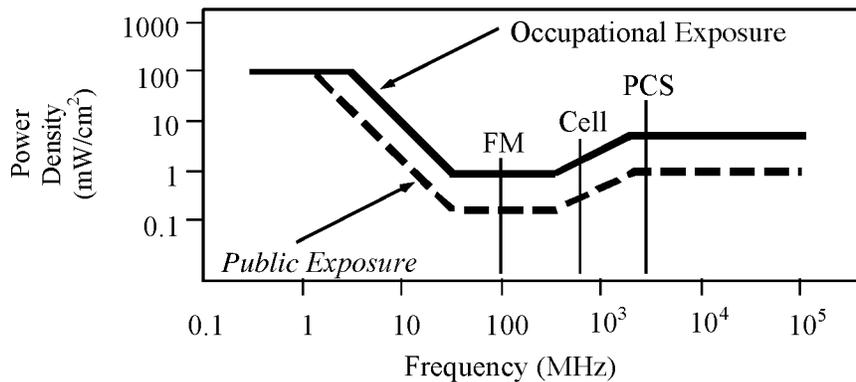


## FCC Radio Frequency Protection Guide

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 (f is frequency of emission in MHz)					
	Electric Field Strength (V/m)		Magnetic Field Strength (A/m)		Equivalent Far-Field Power Density (mW/cm <sup>2</sup> )	
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/f<sup>2</sup></i>
3.0 – 30	1842/f	<i>823.8/f</i>	4.89/f	<i>2.19/f</i>	900/f <sup>2</sup>	<i>180/f<sup>2</sup></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√f	<i>1.59√f</i>	√f/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.



## 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/cm<sup>2</sup>,

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/cm<sup>2</sup>,

where  $\theta_{BW}$  = 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

$\eta$  = 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/cm<sup>2</sup>,

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

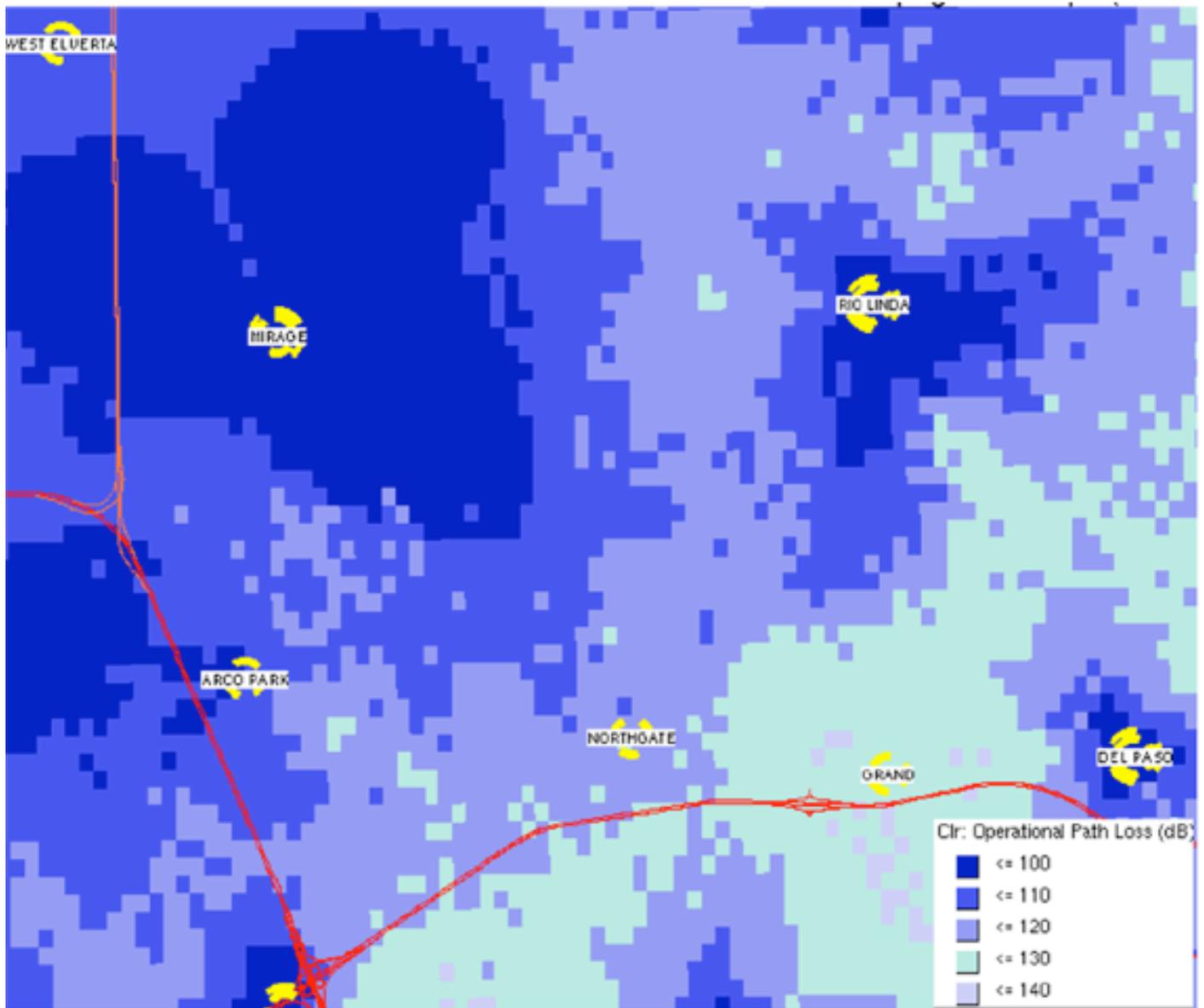
RFF = relative field factor at the direction to the actual point of calculation, and

$D$  = 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.



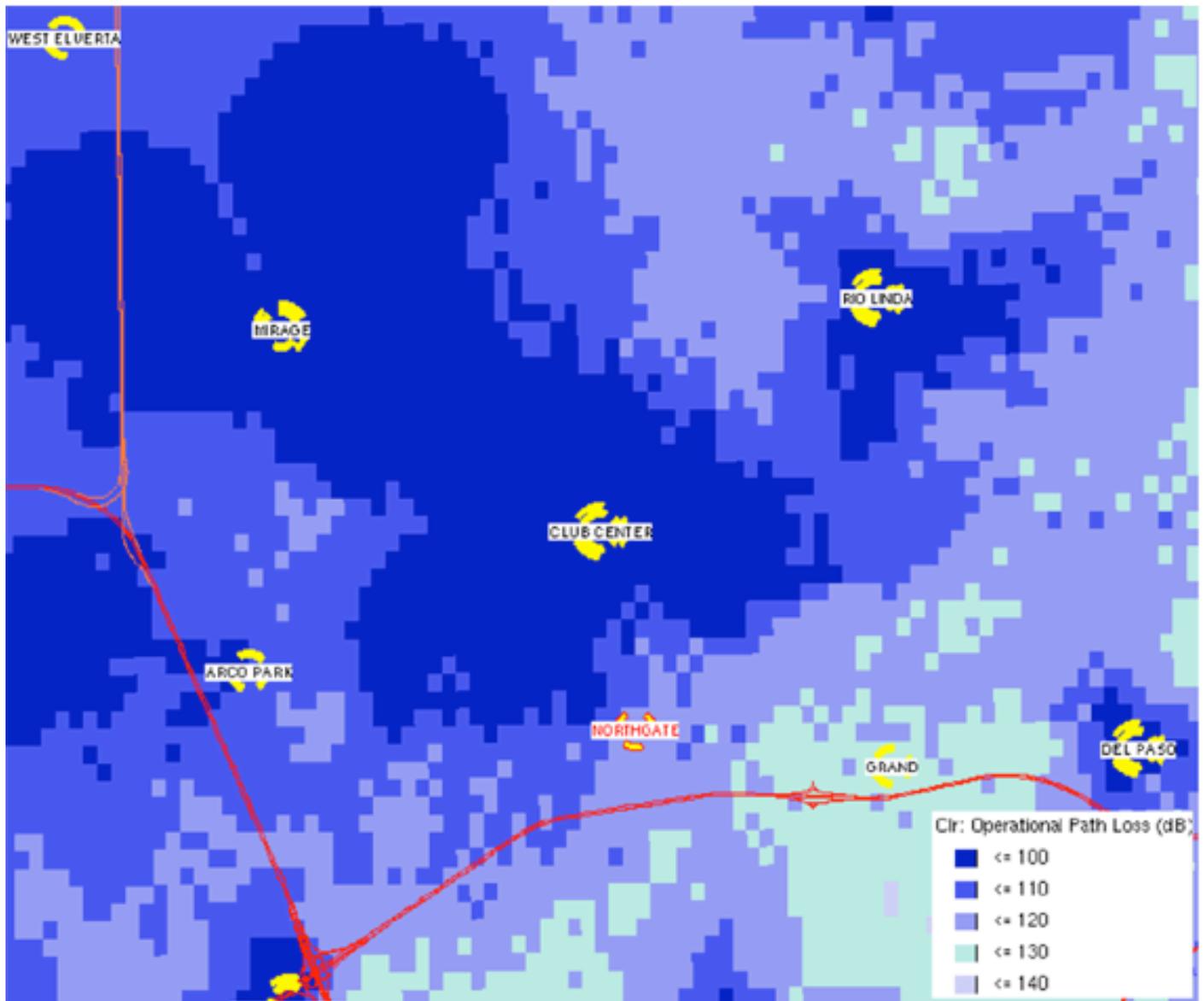
# Exhibit C-1 Coverage Without Proposed Site)



The map is not a guarantee of coverage and contains areas with no service.

This map shows approximately where rates and coverage apply based on our internal data. Wireless service is subject to network and transmission limitations, including cell site unavailability, particularly near boundaries and in remote areas. Customer equipment, weather, topography and other environmental considerations associated with radio technology also affect service and service may vary significantly within buildings. Some information on service outside the Verizon Wireless proprietary network, although depicted as Local DigitalChoice or America's Choice, is based on information from other carriers or publicly available information, and we can not vouch for its accuracy. With "all-digital" devices you can only make and receive calls when digital service is available. When digital service is not available your device will not operate or be able to make 911 calls. Check the room indicator on your phone to determine actual areas where service rates apply.

## Exhibit C-2 ( Coverage With Proposed Site)



The map is not a guarantee of coverage and contains areas with no service.

This map shows approximately where rates and coverage apply based on our internal data. Wireless service is subject to network and transmission limitations, including cell site unavailability, particularly near boundaries and in remote areas. Customer equipment, weather, topography and other environmental considerations associated with radio technology also affect service and service may vary significantly within buildings. Some information on service outside the Verizon Wireless proprietary network, although depicted as Local DigitalChoice or America's Choice, is based on information from other carriers or publicly available information, and we can not vouch for its accuracy. With "all-digital" devices you can only make and receive calls when digital service is available. When digital service is not available your device will not operate or be able to make 911 calls. Check the roam indicator on your phone to determine actual areas where service rates apply.

**Site Selection Analysis**

<b>#</b>	<b>Site Name</b>	<b>Adequately Fills RF Gap</b>	<b>Available for Lease</b>	<b>Significant Visual Impact</b>	<b>Time to On Air</b>	<b>Utilities available in onsite easements</b>	<b>Standard Foundation</b>	<b>City Planning Approval Req'd/Rec'd</b>
<b>1</b>	Proposed Facility	Yes	Yes	No	4 months	Within 389'	Yes	Yes/Yes
<b>2</b>	Crown Castle	Yes	No	Yes	Unknown (min 1.5 yrs)	Within 400'	Yes	Yes/No
<b>3</b>	TRUSD ENEC	Yes at 100'	Unknown	Yes	2 to 3 years	Offsite 2500'	No, 8' elevated foundation	No/No Not in City County Use Permit Req'd
<b>4</b>	Natomas Park	Yes	No	Yes	N/A	N/A	N/A	Yes/No
<b>5</b>	Natomas Charter School	Marginal	No	Yes	N/A	N/A	N/A	Yes/No
<b>6</b>	NEMDC plant	Yes	No	Yes	N/A	N/A	N/A	Yes/No
<b>7</b>	Avdis Family Trust	Yes	Unknown	Yes	Unknown (min 1.5 yrs)	N/A	No, 4' elevated foundation	Yes/No
<b>8</b>	City of Sac Corp yard	No	Yes	Unknown	Unknown	N/A	N/A	Yes/No



Joanne Gundermann  
Account Executive  
5820 Stoneridge Mall Rd #300  
Pleasanton, CA 94588  
Office 925-737-1007  
Cell 510-816-8303

09/09/09

Alan Heine  
Representing Verizon Wireless  
4305 Hensley Circle  
El Dorado Hills, CA 95762

Dear Alan,

As per our phone conversation yesterday I will re-cap the difficulties we have had in trying to provide Verizon a collocation solution at our site number 874118 off Sorento Rd. in Sacramento.

We were approached by Allen Fink back in early 2008 when the property was still owned by Dunmore Homes. Verizon looked over the facility and determined they would require additional lease space for their equipment. In addition Verizon needed to acquire easements to extend the utilities and access road to the proposed Verizon space. Dunmore was unwilling to allow such changes to the site footprint as it did not work with their future development plans. Allen Fink attempted to work around these issues but ultimately was unable to provide a secure site solution at this location.

Sometime thereafter in early 2009 the property went into bankruptcy which continued to stall the potential of expanding the required lease conditions for Verizon.

We have been informed that Verizon has acquired another site candidate in the area. We are sorry we could not control the problematic underlying Landlord issues at this site, and hope that you consider Crown Castle for future site solutions.

Regards,

A handwritten signature in cursive script that reads 'Joanne Gundermann'.

Joanne Gundermann

**MACKENZIE & ALBRITTON LLP**

423 WASHINGTON STREET, SIXTH FLOOR  
SAN FRANCISCO, CALIFORNIA 94111

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TELEPHONE 415 / 288-4000  
FACSIMILE 415 / 288-4010

September 14, 2009

VIA ELECTRONIC MAIL AND FEDERAL EXPRESS

Jeff Doyle  
Interim Director  
Facilities Planning and Construction  
5115 Dudley Blvd.  
McClellan, CA 95652

Re: Proposed Verizon Wireless Facility

Dear Mr. Doyle:

We write to you on behalf of our client Verizon Wireless. Thank you for meeting with Alan Heine of OnAir LLC last week to discuss the alternative of locating a Verizon Wireless facility at the East Natomas Education Complex ("ENEC").

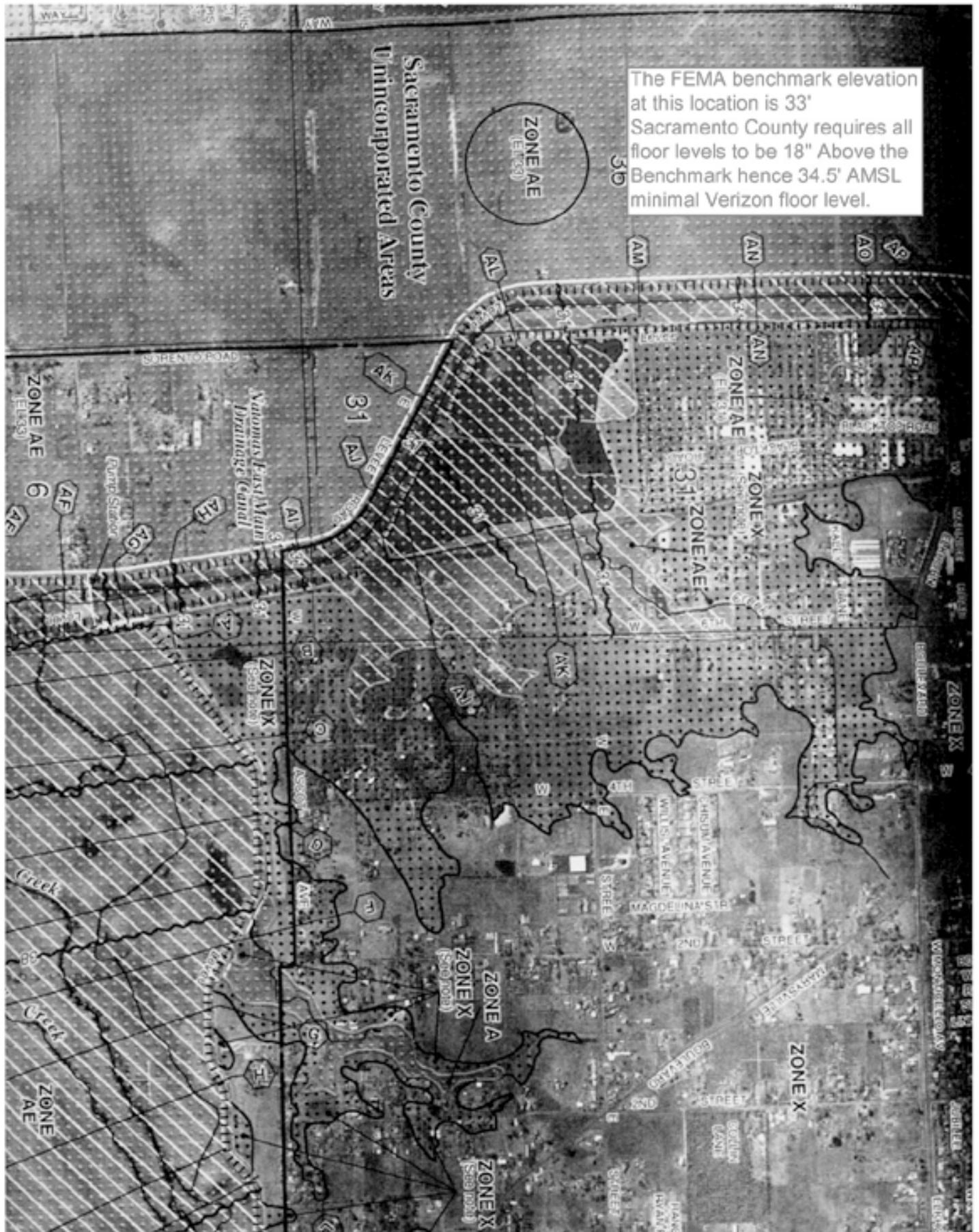
We understand that there are many facilities issues to be resolved in the possible location of a Verizon Wireless site at ENEC. One issue of paramount concern is whether Verizon Wireless will be able to locate a permanent facility at an elevation that satisfies current Federal Emergency Management Agency ("FEMA") floodplain requirements for the ENEC parcel. While we understand that the ENEC plan may be exempt from such requirements, Verizon Wireless must comply with federal requirements that prevent placing facilities below FEMA floodplain levels. We include a copy of the current FEMA floodplain map for your reference.

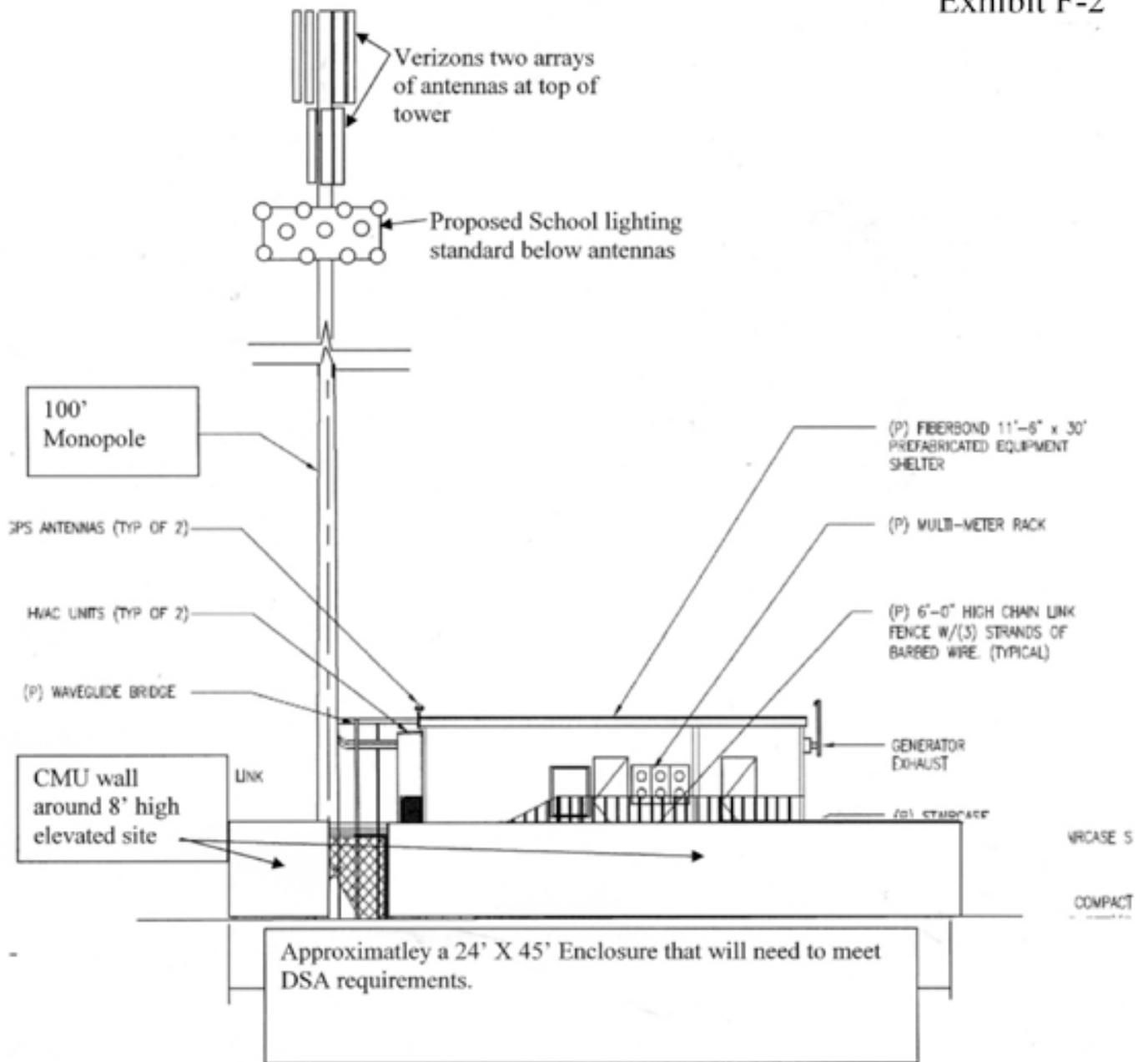
Please confirm, at your earliest convenience, whether Verizon Wireless will be able to locate a permanent wireless facility at ENEC that is placed above the FEMA floodplain required elevation. Obviously, we hope to hear your response in time for us to prepare for the Sacramento City Council meeting of September 22, 2009. Again, thank you for every courtesy extended in this matter.

Very truly yours,



Paul B. Albritton





Based upon initial review of this proposed Verizon Facility at the ENEC location off of Levy Rd in Sacramento the following list reflect the basic application requirements, Such requirements may change depending on what is submitted at the time of application.

1. A Use permit is required by Sacramento County and will be heard by the Planning Commission
2. The fees required to apply will be \$12,822
3. The site will also require an application to DERA Yes
4. The approximate time frame to complete the planning process from start to finish is 4 to 6 months

Signed: Jane Petric Date: 9-14-09

Print name: Jane Petric  
 Title: Planner III