COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: December 12, 2018

TO: Planning Commission

FROM: Planning Staff

SUBJECT: EXECUTIVE SUMMARY: Consideration of an appeal of the Zoning Hearing Officer's decision to approve a Use Permit to allow the installation of a new wireless telecommunication facility consisting of a 2-foot tall omnidirectional cylindrical antenna, 7-foot pole extension, and ancillary pole mounted equipment boxes on an existing joint utility pole located in the public right-of-way adjacent to 431 Sequoia Avenue in the unincorporated Sequoia Tract area of San Mateo County.

County File Number: PLN 2017-00500 (Modus c/o AT&T)

PROPOSAL

The appellant has appealed the Zoning Hearing Officer's decision to approve the installation of a new wireless telecommunication facility consisting of a 2-foot tall omnidirectional cylindrical antenna, 7-foot pole extension, and ancillary pole mounted equipment boxes on an existing joint utility pole on the basis that: 1) the facility may have a negative effect on the nearby housing values, 2) the equipment may introduce unwanted noise, and 3) the Radio Frequency (RF) energy may not stay within the proposed limits and thus lead to negative health impacts.

RECOMMENDATION

That the Planning Commission deny the appeal and uphold the decision of the Zoning Hearing Officer's decision to approve the Use Permit, County File Number PLN 2017-00500, by making the required findings and adopting the conditions of approval listed in Attachment A of this staff report.

SUMMARY

Located in the public right-of-way adjacent to 431 Sequoia Avenue, the proposed project was approved by the Zoning Hearing Officer on April 19, 2018. This decision was appealed on March 2, 2018 based on the concern that the wireless facility will create unwanted noise, depress property values, and emit more RF radiation than projected in the RF report leading to negative health impacts. Staff responses to the points of appeal can be found below:

Noise

Staff has found that the facility will not emit unwanted noise as the proposed facility is a passive devise cooled by natural air flow, does not require cooling fans, nor requires the use of a generator or battery to operate.

Property Values

MODUS provided a 2012 study conducted by the Joint Venture of Silicone Valley that explored this issue. The year-long study identified 70 wireless facilities located in Palo Alto, Redwood City, Saratoga, and San Jose and evaluated all home transactions that occurred within a 1-mile radius of these facilities. Of the 1,600 home transactions evaluated, the study found that homes sold for 99% to 106% of their listing price and concluded that the relationship between the list and sale price of a home remained the same across multiple cities regardless of their proximity to a cell site.

RF Radiation and Health Effects

Section 704 of the Federal Telecommunications Act of 1996 states that *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 [Federal Communications] Commission's regulations concerning such emissions*. A RF report estimated that the maximum RF exposure generated by this facility at first and second floor elevations would be 0.69% and 1.2%, respectively, of the Federal Communications Commission's (FCC) maximum public exposure (MPE) limit. The RF engineer noted that the report's estimated exposure level is based on the worst-case operation scenarios and stated that since the maximum worst case scenario exposure levels of this facility are in compliance with FCC's guidelines then it follows that the regular operation of the equipment will also be in compliance. To ensure that field RF emissions do not exceed projected emissions, the applicant supplied a supplemental RF report that measured the RF emissions of nearly identical facilities located within Palo Alto. This report found that ground level and second floor elevation RF exposure was 0.11% and 0.011%, respectively, of the FCC's MPE limit. This report illustrated that the actual RF exposure levels experienced at first and second story elevations for nearly identical facilities are many times below the FCC's maximum public exposure limits.

This project has received conditional approval from the Department of Public Works, and the Menlo Park Fire Protection District. Staff has found that this facility will increase the clarity, range, and capacity of the existing cellular network, will enhance services for the public, and is consistent will applicable regulations. The proposed facility will use existing utility infrastructure and is the least intrusive option available to expand AT&T's network capacity and service coverage in this area of Sequoia Tract.

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COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: December 12, 2018

TO: Planning Commission

FROM: Planning Staff

SUBJECT: Consideration of an appeal of the Zoning Hearing Officer's approval of a Use Permit, pursuant to Section 6500 of the San Mateo County Zoning Regulations, to install a new wireless telecommunication facility on an existing joint utility pole located in the public right-of-way in front of 431 Sequoia Avenue, in the unincorporated Sequoia Tract area of San Mateo County.

County File Number: PLN 2017-00500 (AT&T c/o MODUS)

PROPOSAL

The appellant has appealed the Zoning Hearing Officer's decision to approve the installation of a new wireless telecommunication facility consisting of a 2-foot tall omnidirectional cylindrical antenna, 7-foot pole extension, and ancillary pole mounted equipment boxes on an existing joint utility pole on the basis that: 1) the facility may have a negative effect on the nearby housing values, 2) the equipment may introduce unwanted noise, and 3) the Radio Frequency (RF) energy may not stay within the proposed limits and thus lead to negative health impacts.

RECOMMENDATION

That the Planning Commission deny the appeal and uphold the Zoning Hearing Officer's decision to approve the Use Permit, County File Number PLN 2017-00500, by making the required findings and adopting the conditions of approval listed in Attachment A of this staff report.

BACKGROUND

Report Prepared By: Laura Richstone, Project Planner, 650/363-1829

Appellant: Mehmet Emre Sargin

Applicant: AT&T (C/O MODUS)

Owner: Public Right-of-Way (San Mateo County Department of Public Works)

Pole Owner: Joint Pole Association (JPA)

Location: Public Right-of-Way in front of 431 Sequoia Avenue, Sequoia Tract

APN(s): Public Right-of-Way adjacent to 069-352-070

Existing Zoning: R-1/S-74 (Single-Family Residential/Minimum Lot Size 5,000 sq. ft.)

General Plan Designation: Medium Density Residential Urban

Sphere-of-Influence: City of Redwood City

Existing Land Use: Utility Pole in the Public Right-of-Way

Environmental Evaluation: Categorically exempt under the provisions of Class 3, Section 15303, of the California Environmental Quality Act (CEQA) Guidelines for construction of a new small structure and installation of small new equipment and a facility in a small structure.

Setting: The project site is located on an existing utility pole in the public right-of-way south of Woodside Road between Alameda de las Pulgas and El Camino Real in the unincorporated Sequoia Tract area. The surrounding area is an urbanized single-family residential neighborhood.

Chronology:

Date		Action
November 30, 2017	-	Use Permit application submitted.
February 7, 2018	-	Application deemed complete.
April 19, 2018	-	Project approved by the Zoning Hearing Officer.
May 2, 2018	-	Appeal received.
December 12, 2018	-	Planning Commission hearing date.

DISCUSSION

A. KEY ISSUES

1. Appellant's Basis of Appeal

The appellant is concerned that the installation of the proposed wireless facility will cause unwanted noise, depress nearby property values and

result in negative health effects. The concerns of the appellant are outlined below followed by staff's response:

a. The appellant is concerned that the facility will emit unwanted noise.

Staff Response:

The proposed facility will draw power directly from the power lines located on the existing utility pole and will not require a generator nor battery to operate or provide emergency power. Furthermore, the proposed antenna is a passive device cooled by natural air flow, does not require cooling fans, and thus does not emit noise. In addition, the construction and maintenance of the proposed facility will be regulated by the San Mateo County Ordinance Code Section 4.88.360 (see Condition of Approval No. 12)

b. Appellant would like a written statement verifying the location of the RF safety signs.

Staff Response:

A Radio Frequency (RF) report prepared by Hammett & Edison, Inc., dated November 29, 2017, was submitted with the original Use Permit application. The RF report estimated that the maximum RF exposure at first and second floor elevations would be 0.69% and 1.2%, respectively, of the Federal Communications Commission's (FCC) public exposure limit. The report confirmed that the proposed facility will comply with the FCC's prevailing standards for limiting the public's exposure to RF emissions and stated (in the Recommended Mitigation Measures section of the RF report) that no further measures were necessary to comply with FCC's public exposure guidelines. This is due to the fact that the facility's RF emissions fall well below the FCC's maximum permissible exposure (MPE) limits and because the proposed antenna (which would extend from 46.5' to 48.5' above grade) would not be accessible to the general public. However, as required by Condition of Approval No. 14, a notice sign will be posted directly on the pole below the antenna. As the strongest RF emissions are experienced immediately adjacent to the antenna, safety signs are typically located closer to the antenna rather than at the base of the utility pole. The purpose of these types of signs is to alert workers, who may need to perform maintenance activities near the top of the pole, to the presence of an antenna and the potential exposure to radio frequency emissions. A picture of a typical notice sign can be found in Attachment H of this staff report and the approximate placement of the notice sign can be seen on page A-3 of the project plans.

c. The appellant is concerned that the installation of the proposed wireless facility will negatively affect the property values of adjacent residences.

Staff Response:

In response to this appeal, the applicant provided a copy of a study conducted by the Joint Venture of Silicon Valley (Attachment I). This 2012 study explored this issue and found that proximity to a wireless facility had no apparent impact on property values. The study identified 70 wireless facilities located in Palo Alto, Redwood City, Saratoga, and San Jose and evaluated the "list" and "sale" price of all home transactions located within a 1-mile radius of the identified cellular facilities. The study evaluated over 1,600 single-family home transactions and found that homes located within this 1-mile radius sold for 99% to 106% of their listing price and concluded that the relationship between the list and sale price of a home remained the same across multiple cities regardless of their proximity to a cell site. The appellant has not cited, nor is staff aware of, any evidence to support the assertion that the proposed wireless facility will decrease the value of the nearby property.

d. The Appellant would like to be assured that the RF energy will stay within the proposed limits over the years of operation.

Staff Response:

Though measured RF levels near the proposed antenna may have minor fluctuations over time, the RF report's estimated exposure level is based on the maximum, worst-case exposure levels. The report assumes that the antenna and associated equipment will always operate at maximum power, that there will be large RF reflections from ground and nearby structures, and that there will be no signal attenuation from trees, buildings, or other objects. These assumptions generally result in overstated RF exposure levels that are 2-10 times greater than what is experienced in the field. Since the maximum worst case scenario exposure levels of this facility are in compliance with the FCC's guidelines then it follows that the regular operation of the equipment will also be in compliance with the FCC's guidelines. See Section 1.e. below for further discussion and clarification.

e. To ensure that the RF report projections are accurate, the appellant would like see reports that compare the simulated RF emissions and the actual readings in the field for similar small wireless facilities located at the same height as the proposed project.

Staff Response:

Though the County's Wireless Telecommunication Ordinance does not identify RF emissions limits it does require wireless facilities to maintain compliance with FCC regulations and licensing/registration. Section 704 of the Federal Telecommunications Act of 1996 contains provisions for the restriction of such emission limits and 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* [Federal Communications] *Commission's regulations concerning such emissions.* While the County does not set RF limits for proposed cellular facilities, the Planning and Building Department does require the submittal of RF reports to ensure that proposed cellular facilities adhere to FCC standards. As stated previously, the RF report submitted with the initial Use Permit application projected that the maximum RF exposure experienced for any person at ground level and at the second story of the adjacent buildings would be 0.69% and 1.2% (respectively) of the FCC's maximum permissible exposure (MPE) limit.

On May 4, 2018, the appellant was provided with an RF exposure measurement report detailing the actual levels of RF emissions measured near twelve (12) operational AT&T DAS nodes (which are nearly identical to the proposed project) in Palo Alto. Power density measurements were taken by a registered RF engineer at ground level locations along the sidewalks, street, and second story elevations near these Palo Alto cellular facilities. The measured RF levels at grade and at second story elevations near these locations was 0.11% and 0.011%, respectively, of the FCC's maximum permissible public exposure limit. This report illustrated that the actual RF exposure levels experienced at first and second story elevations for facilities that are nearly identical to the proposed project are many times below the FCC's maximum public exposure limits (see Attachment J).

Given: (1) Section 704 of the Federal Telecommunications Act, (2) the November 2017 RF report which estimates the RF exposure of the facility to be between 0.69% and 1.2% of the FCC's public exposure limit, (3) the Palo Alto RF field report, (4) the proposed project's compliance with the County's Wireless Telecommunications Ordinance and Zoning Regulations (discussed below), and (5) the fact that the facility will not generate unwanted noise nor negatively impact property values, staff recommends denial of the appeal.

B. ANALYSIS OF PROJECT COMPLIANCE WITH ALL APPLICABLE POLICIES AND REGULATIONS

1. Compliance with the General Plan

Visual Quality Policies

Policies 4.15 (*Appearance of New Development*) and 4.21 (*Utility Structures*) seek to promote and enhance good design, site relationships and other aesthetic considerations including the appearance of utility structures in an effort of minimize adverse visual impacts.

The proposed wireless facility will be situated on a joint utility pole located in the public right-of-way within a single-family residential area. The facility includes a 2-foot tall omnidirectional cylindrical antenna (mounted at 46.5' to 48.5' above grade), a 7-foot pole extension, and ancillary pole mounted equipment boxes. Per Condition of Approval No. 4, the proposed antennas and mounted equipment boxes will be painted a brown color to match the existing utility pole and shall be constructed of non-reflective materials (See Attachment D for photo simulations). As such, the proposed facility is not expected to create a significant visual impact to the area.

2. Conformance with the Zoning Regulations

The proposed project is located within the public right-of-way in the R-1/S-74 (Single-Family/Sequoia Tract Combining District). Zoning District development standards, within the exception of height, are not applicable to projects located within the public right-of-way.

The maximum height allowed in the R-1/S-74 district is 36 feet. The proposed projects consist of a 7-foot pole extension, one cylindrical cell antenna (approximately 2-foot tall), and ancillary pole mounted equipment. The proposed 48.5' height of the facility will exceed the maximum height allowed in the R-1/S-74 Zoning District. General Order No. 95 (GO95), mandated by the California Public Utilities Commission, requires a vertical 6-foot safety separation between all cellular antennas and the nearest adjacent power supply lines. With power supply lines located at the top of the existing 39' utility pole, and communication lines located midway down the pole, the applicant has proposed to achieve the State mandated 6-foot separation by placing a 7-foot extension bracket on top of the existing pole. The use of the extension bracket in addition to the wireless antenna itself will add an average of 9 feet to the existing utility pole as outlined in the table below:

Table 1				
Approximate Location	**Zoning District**	**Maximum Height Allowed in Zoning District**	**Existing Pole Height**	**Proposed Effective Height****
431 Sequoia Avenue.	R-1/S-74	36'	39'-1''	48'-6''
***The effective height is measured from grade level to top of antenna and includes the proposed pole extension*				

Section 6512.2.I.2 (*Development and Design Standards for New Wireless Facilities That Are Not Co-Location Facilities*) of the San Mateo County Zoning Regulations state, in any Residential (R) District, that no monopole or antenna shall exceed the maximum height for structures allowed in that district, except that new equipment on an existing facility in the public right-of-way shall be allowed to exceed the maximum height for structures allowed in that district by 10% of the height of the existing facility, or by 5 feet, whichever is less. As outlined in the chart above, the proposed project will exceed the allowed height for new facilities in the right-of-way and will not be in compliance with Section 6512.2.I.2. The applicant requests that the proposed project be permitted to exceed the height criteria outlined in Section 6512.2.I.2 in order to comply with the safety and engineering requirements of GO95. While an alternative site analysis (Attachment E) did identify nearby alternative utility poles, these poles either: (1) are preempted from supporting the equipment due to GO95 rules and regulations, (2) did not have adequate space to support the proposed equipment, or (3) would require significant tree trimming. If the request for additional height is not granted, the proposed project could not be located on any of the nearby utility poles or would require significant tree trimming and/or removal. The imposition of the County's height regulations in conjunction with the requirements of GO95 would effectively prohibit the installation of wireless facilities in these areas due to the fact that: (1) no other feasible alternative sites were identified, (2) local jurisdictions cannot require wireless facilities to locate outside of the right-of-way and, (3) local jurisdictions cannot require providers to consider alternatives outside of the right-of-way. When the application of the County's height criteria results in the effective prohibition of wireless facilities, local regulations (i.e. height in this case) are preempted by federal law. In this case, though the proposed project will exceed the height regulations of the R-1/S-74 Zoning District, state (i.e., GO95) and federal regulations supersede location regulations.

3. <u>Conformance with the Wireless Telecommunication Facility Ordinance</u>

Staff has reviewed the project against the provisions of the Wireless Telecommunications Facilities (WTF) Ordinance and determined that the project complies with the applicable standards discussed below:

a. Development and Design Standards

1. Section 6512.2.A prohibits location in a Sensitive Habitat as defined by Policy 1.8 of the General Plan for facilities proposed outside the Coastal Zone.

The project is not located in a sensitive habitat, as defined by Policy 1.8 of the General Plan.

2. Section 6512.2.B prohibits wireless facilities to be located in residential-zoned areas, unless the applicant demonstrates that no other site allows feasible or adequate capacity and coverage. Evidence shall include an alternative site analysis within 2.5 miles of the proposed facility.

Though the WTF Ordinance requires applicants to demonstrate the need for wireless facilities through the submittal of propagation maps and alternative analyses, wireless providers have a state mandated right to place their facilities in the public right-of-way (ROW) (California Public Utilities Code Section 7901), and recent legal developments indicate that wireless providers are not required to consider alternatives outside of the ROW, nor are they required to prove the need for their facilities. Consequently, the County's ability to request information demonstrating the need for proposed facilities located in the public ROW is limited.

The proposed project will be located on an existing joint utility pole along the public right-of-way in the R-1/S-74 Zoning District. Small cell technology requires sites to be much closer together than larger macro sites. This type of technology is designed to concentrate their energy towards the horizon (with little energy wasted towards the sky or ground) and requires line of site placement in order to function and connect into the larger cell network. These sites are not meant to increase the coverage of an area but to assist with unloading traffic from the macro site network to provide increased data speeds and decrease dropped calls for the surrounding residences and transient traffic. As such, small cell facilities are frequently located in residential neighborhoods where data traffic is high.

In order to provide the needed increase in coverage and capacity the small cell site must be located within 100-200 feet of the targeted coverage area. Instead of a 2.5-mile alternative analysis which would not provide an accurate representation of where the proposed small cell site could be located, the

applicant has provided an alternative analysis (Attachment E) that evaluated seven alternative utility poles located within a 200-foot radius of the proposed coverage area. These poles were ruled out as viable alternatives due to inadequate space, limited climbing spaces for maintenance, location outside of the target area, or impacts to nearby trees (i.e. significant tree trimming or tree removal). Among the identified locations, the proposed project site is the least intrusive.

3. **Section 6512.2.C prohibits wireless telecommunication facilities to be located in areas where co-location on existing facilities would provide equivalent coverage with less environmental impact.**

   As small cell technology requires sites to be located closer to the target coverage area, co-locating small cell sites on macro cell towers (which are often located far outside of the coverage area) is often infeasible. While a 2.5-mile alternative site analysis is not required for this application (see discussion above), the applicant was unable to identify any existing wireless facilities that would either allow co-location or provide coverage to the target area. This type of small cell technology is the least environmentally impactful wireless technology employed thus far, is not accessible to the public, and would not require the construction of additional utility poles or ground mounted boxes.

4. **Section 6512.2.D requires wireless telecommunication facilities to be constructed so as to accommodate and be made available for co-location unless technologically infeasible.**

   The proposed pole-top mounted facilities cannot support future co-locations of cell sites per current GO95 engineering requirements. As such, future co-locations are infeasible and not expected.

5. **Sections 6512.2.E-G seek to minimize and mitigate visual impacts from public views by ensuring that appropriate vegetative screening, painting of equipment, or other methods of blending equipment in with the surrounding environment are implemented and requiring facilities to be constructed of non-reflective materials.**

   The proposed facilities include a 2-foot cylindrical antenna attached to a 7-foot pole extension and ancillary pole mounted equipment boxes. The equipment boxes will be mounted 7 to 18

feet above grade while the top of the antenna will be located at 48'-6'' above grade. To mitigate the visual impact of the proposed projects, the antennas and utility boxes shall be painted a non-reflective brown color to blend-in with the existing utility pole (Condition of Approval No. 4). No trees or vegetation are proposed for removal to accommodate the proposed project.

6. Section 6512.2.H requires compliance with the underlying zoning district.

Refer to Section B.2 above (Zoning Regulations) for discussion.

7. Section 6512.2.I (2) requires new equipment located on existing facilities in the public right-of-way in any Residential (R) District shall be allowed to exceed the maximum height for structures allowed in that district by 10% of the height of the existing facility, or by 5 feet, whichever is less.

The proposed facility must comply with General Order No. 95 (GO95) clearance regulations. GO95 requires a 6-foot vertical safety separation between all wireless facilities and the nearest adjacent powerlines for facilities located on utility poles. Due to the height of the existing utility pole (39'-1''), the 2-foot height of the antenna, and the 7-foot extension bracket, the proposed project will achieve an effective height of 48'-5'' and will thus exceed the 36-foot height limit of the R-1/S-74 Zoning District. The imposition of the County's height regulations in conjunction with the requirements of GO95 would effectively prohibit the installation of this wireless facility in the area. Such a prohibition is preempted by federal law. Because wireless carriers: (1) have a state mandated right to utilize the public ROW, (2) must abide by the 6-foot safety separation, and (3) are not required to consider alternative sites outside the ROW, this is a situation in which state and federal regulations supersede location regulations (i.e., height criteria).

8. Sections 6512.2.J and K seek to regulate the size, quantity, and location of accessory buildings required for wireless facilities located in any Residential (R) District.

No accessory buildings or ground floor equipment boxes are required for these projects. The equipment boxes necessary for these projects are small in size and will be mounted on the existing utility poles.

9. Section 6512.2.L prohibits diesel generators as emergency power sources unless electricity, natural gas, solar, wind or other renewable energy sources are not feasible.

The proposed facility will draw power directly from the power lines located on the existing utility pole and will not require a generator nor battery to operate or provide emergency power.

b. Performance Standards

The proposed project meets the required standards of Section 6512.3 (*Performance Standards for New Wireless Telecommunication Facilities that are Not Co-Location Facilities*) for lighting, licensing, provision of a permanent power source, timely removal of the facility, and visual resource protection. There is no lighting proposed, proper licenses will be obtained from both the Federal Communications Commission (FCC) and the California Public Utilities Commission (CPUC), power for the facility will be provided by PG&E, visual impacts will be minimal, and the recommended conditions of approval will require maintenance and/or removal of the facility when they are no longer in operation. Furthermore, road access to the proposed project sites is existing and the facility is a passive device and no noise in excess of San Mateo County's Noise Ordinance will be produced.

4. Conformance with the Use Permit Findings

Under the provisions of Section 6500 (Use Permits), wireless telecommunication facilities are permitted in R-1 districts after the issuance of a use permit. For the use permit to be approved by the Zoning Hearing Officer, the following findings must be made:

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

The proposed wireless facilities will be unmanned and serviced bi-annually by an AT&T technician with a pickup sized truck for no more than a couple of hours. As such, the maintenance of these facilities will not generate significant traffic, noise, or be detrimental to the public welfare.

Cellular communications facilities require the submittal and review of a radio frequency (RF) report to ensure that the RF emissions from the

proposed antenna do not exceed the Federal Communications Commission's public exposure limits. The applicant submitted a radio frequency report as a part of the original application prepared by Hammett & Edison, Inc., dated November 29, 2017, confirming that the proposed facility will comply with the prevailing standards for limiting public exposure to radio frequency energy and, thus, will not cause a significant impact on the environment (see Attachments F). The report states that the maximum RF level at ground level and second story elevations is calculated to be 0.69% and 1.2%, respectively, of the FCC's public exposure limit (see table 2 below). It should be noted that these results include several "worst-case" assumption and therefore are expected to overstate actual power density levels from the proposed operation. The location of the mounted antenna at 48'-5'' above grade will not be accessible to the general public and therefore no mitigation measures are necessary to comply with the FCC's public exposure guidelines. To ensure compliance with occupational exposure limitations, staff included Conditional of Approval No. 14 which requires posting a notice sign at the antenna and/or on the pole below the antenna, readily visible from any angle of approach to persons who may need to work within the project area immediately adjacent to the proposed antenna. Staff has determined that the proposed project will not be detrimental to the public welfare, or injurious to property or improvements to the unincorporated Sequoia Tract area of San Mateo County.

Table 2

Location	Ground Floor Radio Frequency Exposure	Second Floor Radio Frequency Exposure
431 Sequoia Avenue	0.69%	1.2%

b. That this telecommunication facility is necessary for the public health, safety, convenience, or welfare of the community.

Staff has determined that installation of a cellular facility at this location will allow for increased clarity, range, and capacity of the existing cellular network and will enhance services for the public. The proposed facility is the least intrusive option available to expand AT&T's network capacity and service coverage in this area of Sequoia Tract. The proposed facility will use existing utility infrastructure and add small equipment without disturbing the character of the neighborhood.

C. ENVIRONMENTAL REVIEW

This project is categorically exempt pursuant to Section 15303, Class 3, of the California Environmental Quality Act (CEQA) related to the construction of a new, small structure and installation of small new equipment and a facility in a small structure.

D. REVIEWING AGENCIES

Building Inspection Section
Department of Public Works
Menlo Park Fire Protection District

ATTACHMENTS

A. Recommended Findings and Conditions of Approval
B. Vicinity Map
C. Project Plan
D. Photo Simulations
E. Alternative Site Analysis
F. Radio Frequency (RF) Radiation Report prepared by Hammett & Edison, Inc., dated November 29, 2017
G. Appeal filed
H. RF Notice Sign Example
I. Joint Venture of Silicone Valley Report
J. RF Regulatory Compliance Report
K. AT&T Statement of Need

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Attachment A

County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: PLN 2017-00500 Hearing Date: December 12, 2018

Prepared By: Laura Richstone
Project Planner

For Adoption By: Planning Commission

RECOMMENDED FINDINGS

Regarding the Environmental Review, Find:

1. That this project is categorically exempt from environmental review, per Class 3, Section 15303, of the California Environmental Quality Act (CEQA) Guidelines for construction of a new, small structure and installation of small new equipment and a facility in a small structure.

Regarding the Use Permit, Find:

2. That the establishment, maintenance, and/or conducting of the uses will not, under the circumstances of these particular cases, result in a significant adverse impact, or be detrimental to the public welfare or injurious to the property or improvements in said neighborhood because the project will meet the health have safety standards set by the California Public Utilities Commission (CPUC) and the Federal Communications Commission (FCC). The project has been conditioned to maintain valid FCC license and has been reviewed and granted conditional approval by Menlo Park Fire Protection District, the Building Inspection Section and the Department of Public Works.

3. That this telecommunications facility is necessary for the public health, safety, convenience, or welfare of the community. The proposed facility contributes to an enhanced AT&T wireless network for increased clarity, range, and system capacity, and therefore, is a benefit to both public and private users. The wireless network is considered necessary for public health, safety, convenience, and welfare in the area for residents, commuters, and emergency personnel.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

1. This approval applies only to the proposal, documents, and plans described in this report and submitted to and approved by the Planning Commission on December 12, 2018. Minor revisions or modifications may be approved by the Community Development Director if they are consistent with the intent of and in substantial conformance with this approval.

2. This Use Permit shall be for the proposed project only. Any modification or change in intensity of use shall require an amendment to the applicable use permit. Amendments to this use permit requires an application for amendment, payment of applicable fees, and consideration at a public hearing prior to any change to the facility.

3. This permit shall be valid for ten (10) years until December 12, 2028. If the applicant seeks to renew this permit, renewal shall be applied for six (6) months prior to expiration with the Planning and Building Department and shall be accompanied by the renewal application and fee applicable at that time. Renewal of these permits shall be considered at a public hearing.

4. The applicant shall paint the antenna brown to match the utility poles. The equipment box shall also be painted a non-reflective brown color to match the utility poles. Color verification will be confirmed by the Current Planning Section prior to a final inspection for the encroachment permit.

5. During project construction, the applicant shall, pursuant to Chapter 4.100 of the San Mateo County Ordinance Code, minimize the transport and discharge of storm water runoff from the construction site into storm drain systems by:

    a. Stabilizing all denuded areas and maintaining erosion control measures continuously between October 1 and April 30. Stabilizing shall include both proactive measures, such as the placement of hay bales or coir netting, and passive measures, such as revegetating disturbed areas with plants propagated from seed collected in the immediate area.

    b. Storing, handling, and disposing of construction materials and wastes properly, so as to prevent their contact with stormwater.

    c. Controlling and preventing the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, and non-storm water discharges, to storm drains and watercourses.

d. Avoiding cleaning, fueling, or maintaining vehicles on-site, except in a designated area where wash water is contained and treated.

e. Delineating with field markers clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses.

f. Protecting adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

g. Performing clearing and earth-moving activities only during dry weather.

h. Limiting and timing application of pesticides and fertilizers to prevent polluted runoff.

i. Limiting construction access routes and stabilizing designated access points.

j. Avoiding tracking dirt or other materials off-site; cleaning off-site paved areas and sidewalks using dry sweeping methods.

k. The contractor shall train and provide instruction to all employees and subcontractors regarding the construction Best Management Practices.

6. This permit does not allow for the removal of any trees. Any tree removal will require a separate permitting process.

7. The applicant shall not enter into a contract with the landowner or lessee which reserves for one company exclusive use of the structures on this site for telecommunication facilities.

8. The wireless telecommunication facility shall not be lighted or marked unless required by the Federal Communications Commission (FCC) or the Federal Aviation Administration (FAA).

9. The applicant shall file, receive, and maintain all necessary licenses and registrations from the Federal Communications Commission (FCC), the California Public Utilities Commission (CPUC), and any other applicable regulatory bodies prior to initiating the operation of these facilities. The applicant shall supply the Planning and Building Department with evidence of each of these licenses and registrations. If any required license is ever revoked, the applicant shall inform the Planning and Building Department of the revocation within ten (10) days of receiving notice of such revocation.

The projects' final inspection approval shall be dependent upon the applicant obtaining a permanent and operable power connection from the applicable energy provider.

10. This wireless telecommunications facility and all equipment associated with it shall be removed in its entirety by the applicant within 90 days if the FCC and/or CPUC license and registration are revoked or the facility is abandoned or no longer needed, and the sites shall be restored to blend with the surrounding area. The owner and/or operator of the wireless telecommunication facility shall notify the Planning Department upon abandonment of the facility. Restoration shall be completed within two (2) months of the removal of the facility.

11. This wireless telecommunications facility shall be maintained by the permittee(s) and subsequent owners in a manner that implements visual resource protection requirements of Sections 6512.2.E and F above (e.g., landscape maintenance and painting), as well as all other applicable zoning standards and permit conditions.

12. Noise sources associated with demolition, construction, repair, remodeling, or grading of any real property shall be limited to the hours from 7:00 a.m. to 6:00 p.m., weekdays and 9:00 a.m. to 5:00 p.m., Saturdays. Said activities are prohibited on Sundays, Thanksgiving, and Christmas (San Mateo Ordinance Code Section 4.88.360).

13. If technically practical and without creating any interruption in commercial service caused by electronic magnetic interference (EMI), floor space, tower space, and/or rack space for equipment in a wireless telecommunication facility shall be made available to the County for public safety communication use.

14. Notice signs are required to be posted at the antenna and/or on the pole below the antenna, readily visible from any angle of approach to persons who might need to work within the project area.

    Once a use permit is obtained, the applicant shall obtain a building permit and build in accordance with the approved plans.

15. To reduce the impact of construction and maintenance activities within the public right-of-way and/or on neighboring properties, the applicant shall ensure that no construction-related vehicles impede through traffic along Sequoia Avenue, or other public right-of-ways.

<u>Department of Public Works</u>

16. No proposed construction work within the public right-of-way shall begin until County requirements for the issuance of an encroachment permit, including review of the plans, have been met and an encroachment permit issued. The

applicant shall contact a Department of Public Works inspector 48 hours prior to commencing work in the public right-of-way.

Menlo Park Fire Protection District

17. The applicant shall meet all applicable requirements of Section 608 of the 2016 CFC (California Fire Code).

18. A final inspection is required with all corrections completed.

19. Approved plans, approval letter, and a permit must be on-site at the time of inspection.

LAR:ann - LARCC0473_WNU.DOCX

County of San Mateo - Planning and Building Department

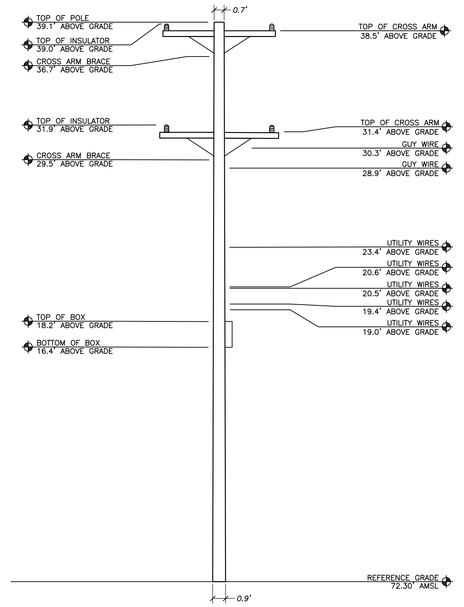
ATTACHMENT B


Project Site
R-1/S-74
069352070
SEQUOIA AVE
0
37.5
75
150
Feet
Rutherford Ave
Santa Clara Ave
Polhemus Ave
Selby Ln
VICINITY MAP

County of San Mateo - Planning and Building Department

ATTACHMENT C

2 SITE PLAN
SCALE: 1"=10'



3 UTILITY POLE ELEVATION
SCALE: 1"=5'

BOUNDARY AND TITLE INFORMATION

THIS MAP IS A GRAPHIC DEPICTION OF DATA COMPILED FROM MAPS AND VARIOUS OTHER INFORMATION. IT IS NOT A BOUNDARY SURVEY. THIS MAP IS A TOPOGRAPHIC MAP SHOWING PROPERTY LINES PLOTTED FROM SAID RECORD DATA AND BEST FIT ONTO EXISTING IMPROVEMENTS. THE LIMITS OF TOPOGRAPHIC DATA AND/OR IMPROVEMENTS GATHERED AND DEPICTED ARE LIMITED TO THE CONTRACTUAL SCOPE FOR THIS PROJECT. NO MONUMENTS WERE SET OR WILL BE SET. NO TITLE RESEARCH WAS PERFORMED BY OMNI DESIGN GROUP INC. PROPERTY LINE LOCATION COULD POSSIBLY SHIFT FROM LOCATIONS SHOWN HEREON SHOULD A BOUNDARY SURVEY BE PERFORMED. LOCATIONS OF EXISTING FEATURES RELATIVE TO PROPERTY LINES THEREFORE ARE APPROXIMATE

DATUM:

HORIZONTAL & VERTICAL DATUMS SHOWN ON THESE PLANS WERE OBTAINED FROM GPS OBSERVATIONS USING "SMARTNET" REAL TIME NETWORK.

BASIS OF BEARINGS

THE BEARINGS ARE BASED UPON CALIFORNIA COORDINATE SYSTEM, ZONE 3, NAD 83

BENCHMARK:

THE ELEVATIONS ARE BASED UPON NAVD 88

NOTES:

1. DATE OF SURVEY: 06/28/17
2. NO UNDERGROUND UTILITIES WERE LOCATED.
3. ADDRESS(S) AND ASSESSOR PARCEL NUMBER(S) "APN" WERE OBTAINED USING THE COUNTY OF SAN MATEO'S GIS WEBSITE. OMNI DESIGN GROUP, INC. ASSUMES NO LIABILITY FOR INFORMATION OBTAINED.

LEGEND

AC = ASPHALTIC CONCRETE
EP = EDGE OF PAVEMENT
FL = FLOWLINE
FS = FINISHED SURFACE
GD = GROUND ELEVATION
TC = TOP OF CURB
AGL = ABOVE GRADE LEVEL
AMSL = ABOVE MEAN SEA LEVEL

1 BOUNDARY & LEGAL DESCRIPTIONS
SCALE: NONE

at&t
2600 CAMINO RAMON
4TH FLOOR, WEST WING
SAN RAMON, CA 94583

PROJECT INFORMATION:

SFOK3-041

431 SEQUOIA AVE
ATHERTON, CA

CURRENT ISSUE DATE:

07/18/17

ISSUED FOR:

100% SURVEY

REV.:	DATE:	DESCRIPTION:	BY:

COORDINATING ARCHITECT:

omni DESIGN GROUP
Architecture
Civil Engineering
Surveying
Telecommunications
711 Tank Farm Road, Suite 100
San Luis Obispo, California 93401
Phone: (805) 544-9700
www.omnidesigngroup.com
email: omni@odgslo.com

SEAL:

PROFESSIONAL LAND SURVEYOR
DAVID A. MARCHELL
EXP. 12-31-18
NO. PLS6375
STATE OF CALIFORNIA

CONSULTANT:

Modus, Inc.
240 Stockton Street, 3rd Floor
San Francisco, CA 94108

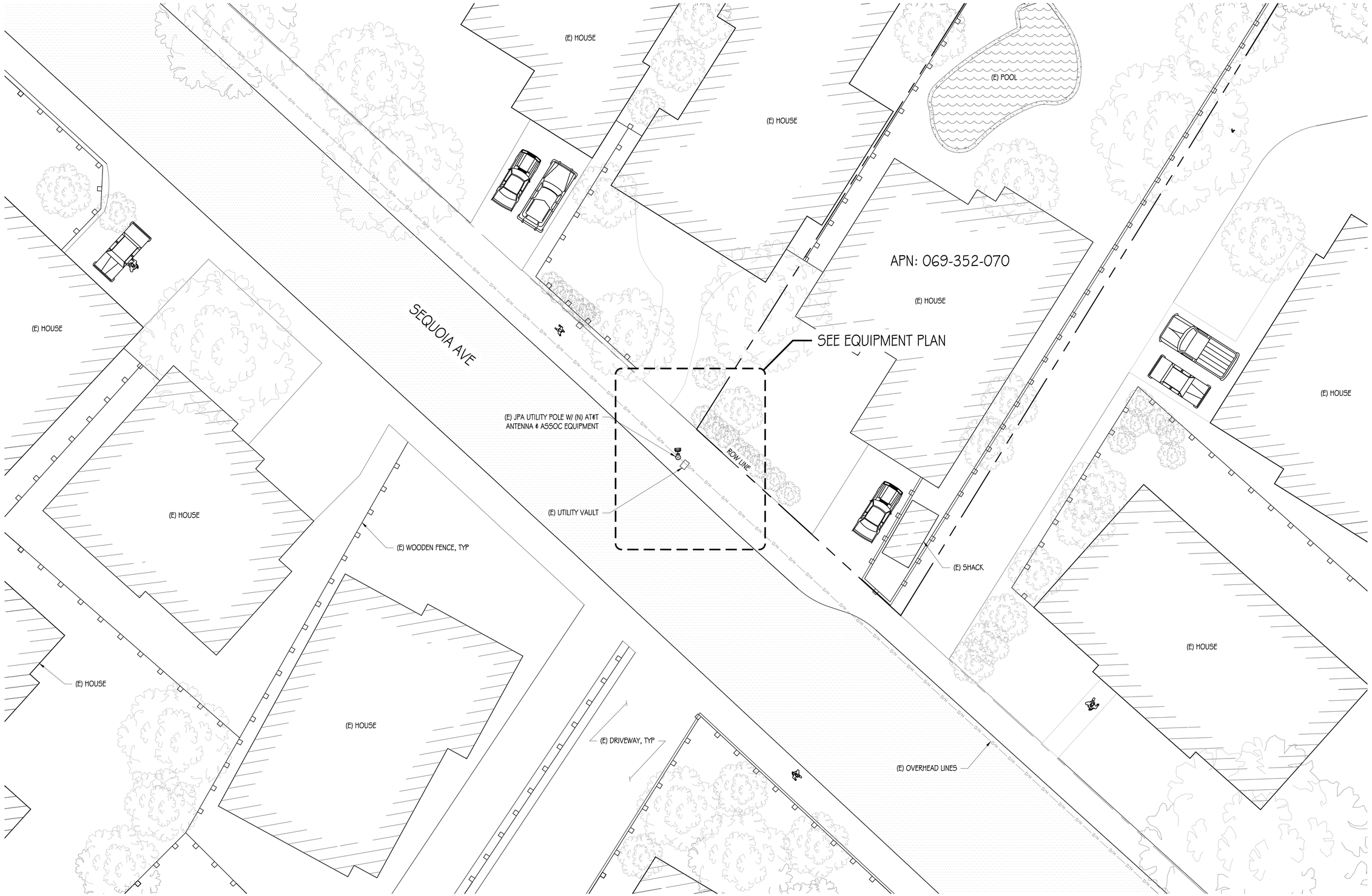
DRAWN BY:	CHK.:	APV.:
CA	DM	DM

SHEET TITLE:

SITE PLAN

SHEET NUMBER: C-1

REVISION: 1180-75



TN

SITE PLAN

1"=10'

0 5' 10' 20' 30' 50'

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AT&T MOBILITY
5001 EXECUTIVE PARKWAY
SAN RAMON, CA 94583

MODUS

240 STOCKTON STREET, 3RD FLOOR
SAN FRANCISCO, CA 94108

PRECISION DESIGN & Drafting, INC.
Phone: (530) 823-6546 www.pdnd.com
11768 Atwood Rd. Suite 20 Auburn, CA 95603

REGISTERED PROFESSIONAL ENGINEER
BRET A. McCOMB
C 68991
EXP 09-30-18
CIVIL
STATE OF CALIFORNIA

CRAN_RSFR_SFOK3_041

ROW ADJCT TO 431 SEQUOIA AVE
ATHERTON, CA 94061

ISSUE STATUS

△	DATE	DESCRIPTION	
	10/27/17	CD 90%	
	11/27/17	CD 100%	

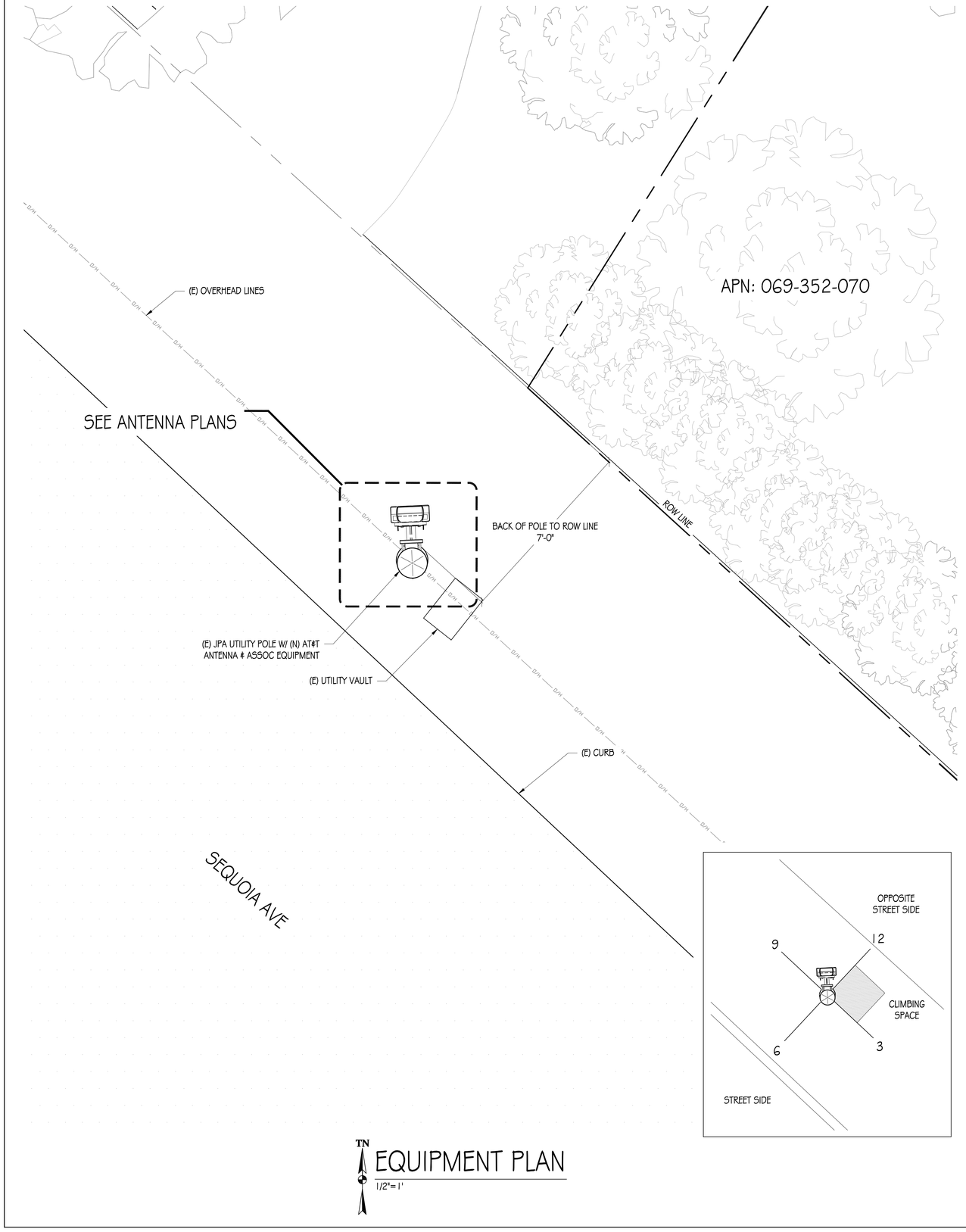
DRAWN BY:	T. WEBB
CHECKED BY:	T. DiCARLO
APPROVED BY:	B. McCOMB
DATE:	11/27/17

SHEET TITLE:

SITE PLAN

SHEET NUMBER

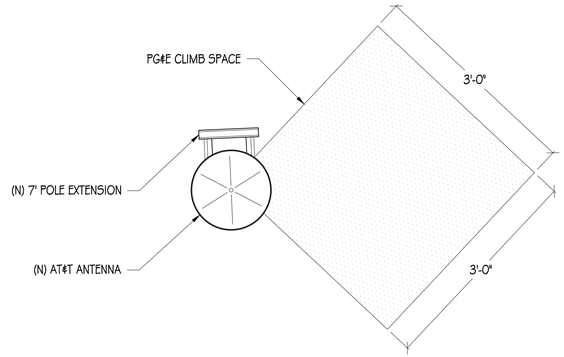
A-1



TN

EQUIPMENT PLAN

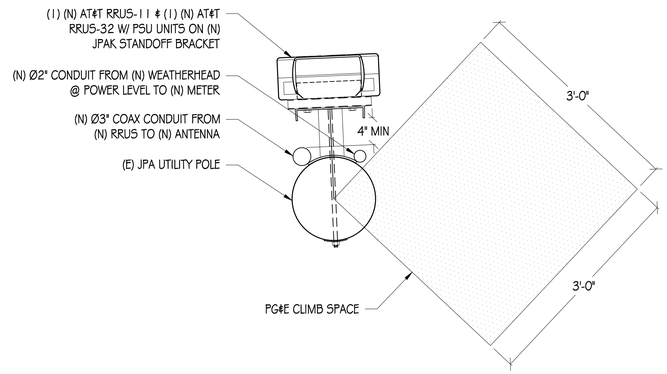
1/2"=1'



TN

ANTENNA PLAN

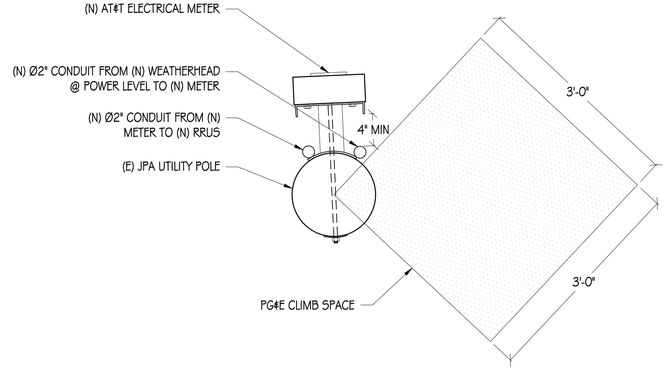
1"=1'



TN

RRU PLAN

1"=1'



TN

ELECTRICAL METER PLAN

1"=1'

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STATE OF CALIFORNIA

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ATHERTON, CA 94061

ISSUE STATUS

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	10/27/17	CD 90%	
	11/27/17	CD 100%	

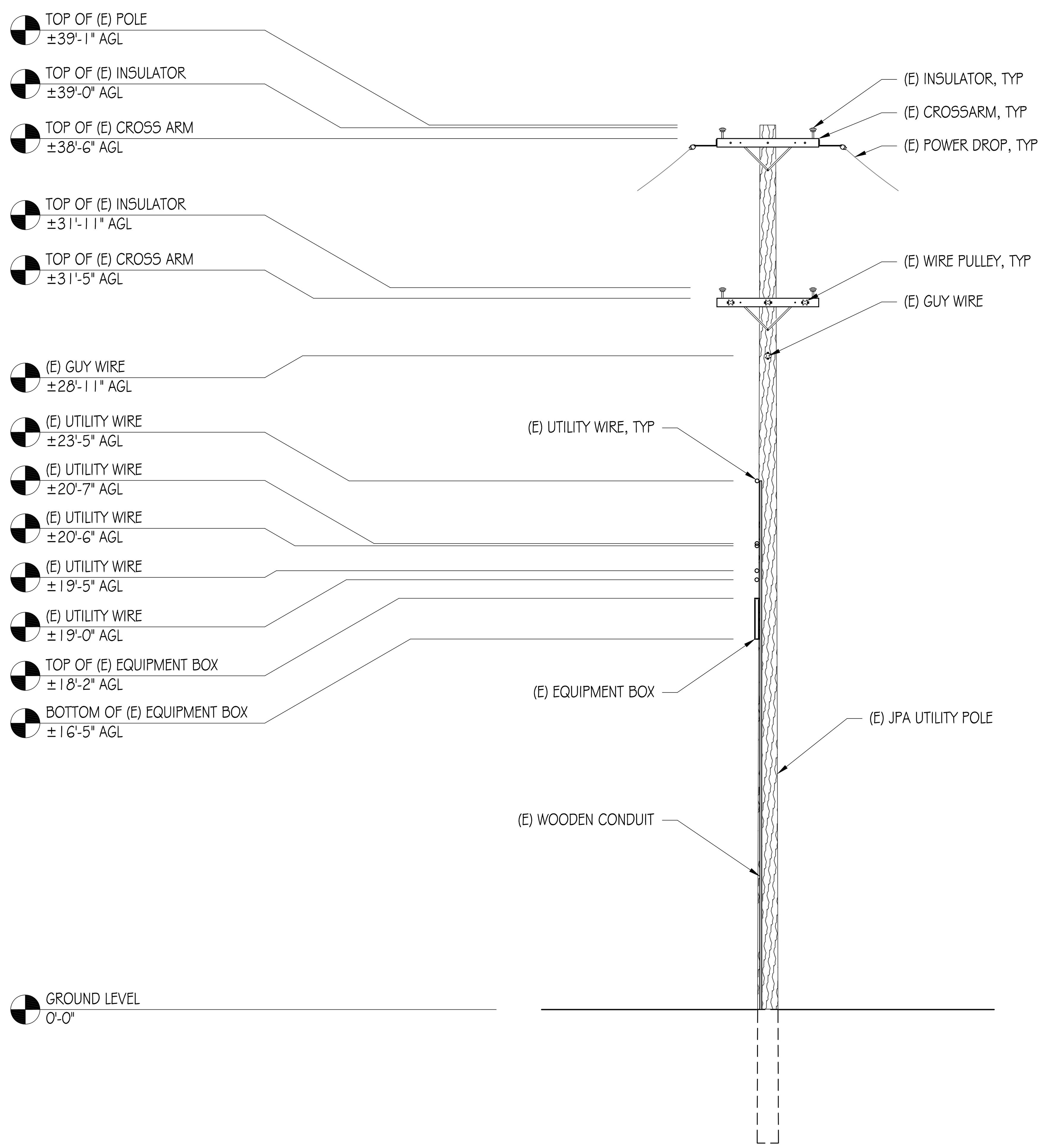
DRAWN BY:	T. WEBB
CHECKED BY:	T. DiCARLO
APPROVED BY:	B. McCOMB
DATE:	11/27/17

SHEET TITLE:

EQUIPMENT PLAN & ANTENNA PLANS

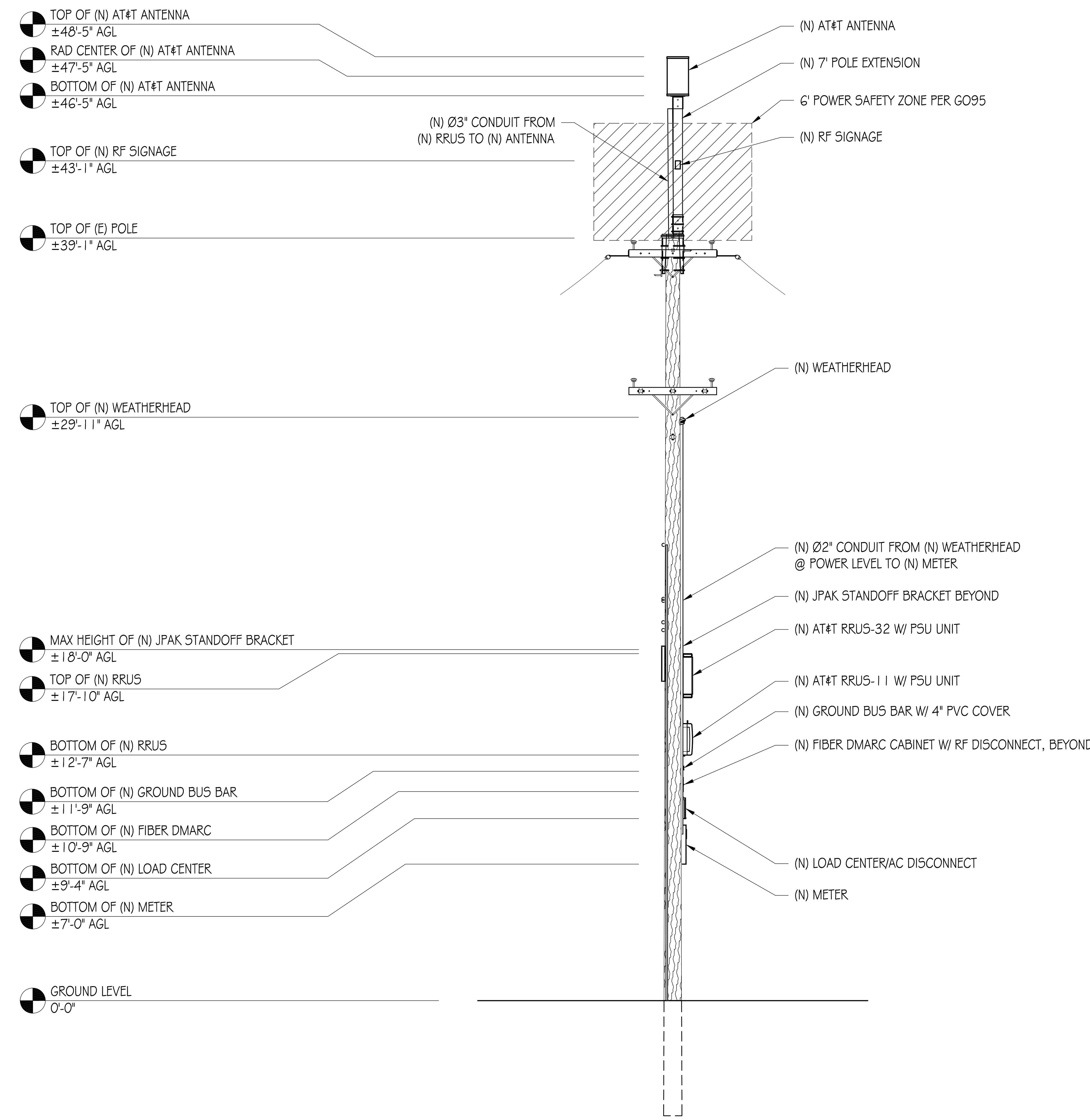
SHEET NUMBER

A-2



EXISTING SOUTHEAST ELEVATION

1/4"=1'-0"



NEW SOUTHEAST ELEVATION

1/4"=1'-0"

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	11/27/17	CD 100%

DRAWN BY: T. WEBB

CHECKED BY: T. DiCARLO

APPROVED BY: B. McCOMB

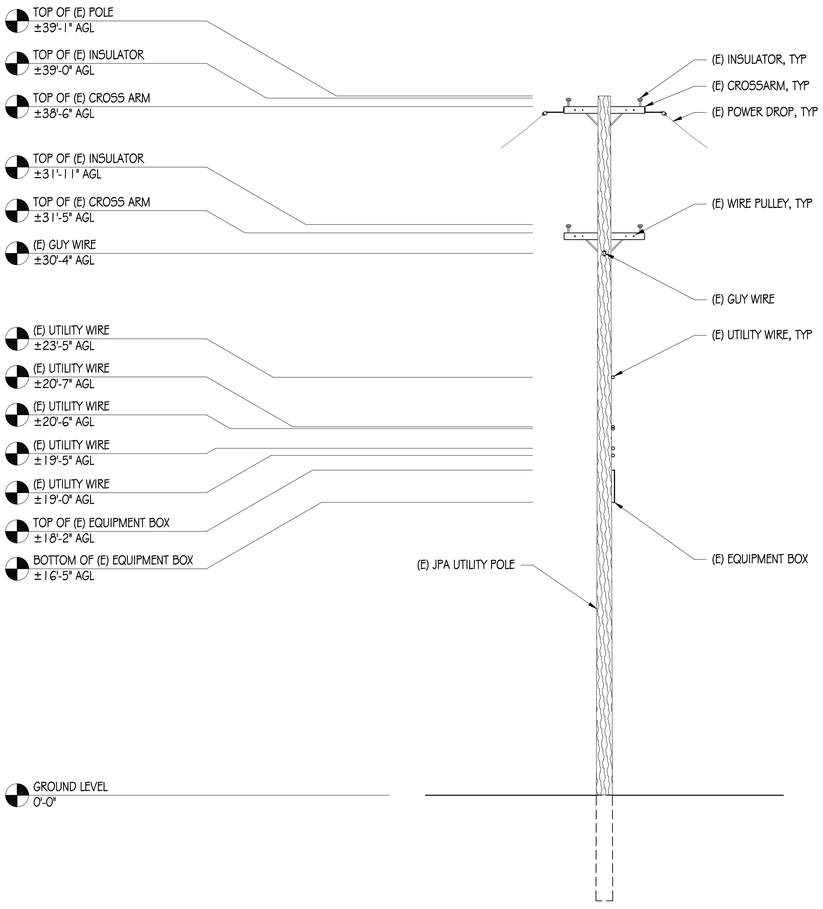
DATE: 11/27/17

SHEET TITLE:

ELEVATIONS

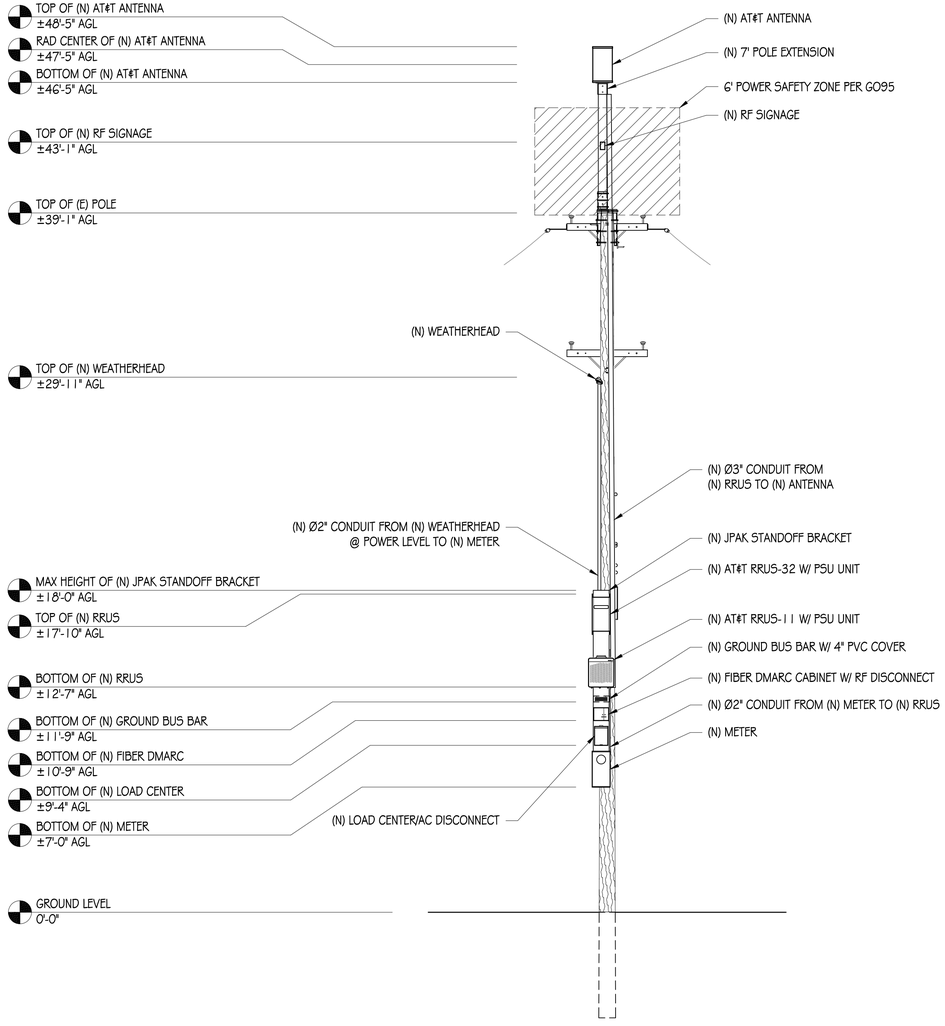
SHEET NUMBER

A-3



EXISTING NORTHWEST ELEVATION

1/4"=1'-0"



NEW NORTHWEST ELEVATION

1/4"=1'-0"

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	10/27/17	CD 90%
	11/27/17	CD 100%

DRAWN BY:	T. WEBB
CHECKED BY:	T. DiCARLO
APPROVED BY:	B. McCOMB
DATE:	11/27/17

SHEET TITLE:

ELEVATIONS

SHEET NUMBER

A-4

POLE-TOP EXTENSION NOTES:

1. THIS UNIT MEETS GENERAL ORDER (G.O.) 95 REQUIREMENTS FOR STRENGTH IN CLASS 6 POLES AND THEREFORE MAY BE USED TO SUPPORT EQUIPMENT ON THESE CLASSES OF POLES. IT MAY BE USED ON LARGER CLASS POLES, BUT MAY NOT BE USED TO SUPPORT EQUIPMENT ON THEM.

2. THE UNIT MAY BE GUYED.

3. THE BRACKET IS MADE TO FIT POLES WITH DIAMETERS OF 8"-11". THEREFORE, DEPENDING UPON THE ACTUAL POLE-TOP DIAMETER, TO FIT POLES OF CLASS 3 AND SMALLER, A BRACKET ADAPTER MAY BE REQUIRED.

4. UNITS ARE SUPPLIED WITH THE WOOD BAYONET ASSEMBLED.

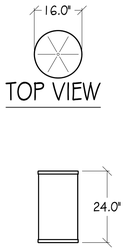
5. A POLE STEP KIT IS REQUIRED.

6. ATTACH THE BRACKET ASSEMBLY ACROSS THE LINE DIRECTION WITH THE CROSS ARM.

7. ALL DETAILS SHOWN ON THIS PAGE ARE FOR REFERENCE ONLY. THE POLE-TOP EXTENSION AND ANTENNA MOUNTING SYSTEMS ARE PER UTILITY COMPANY STANDARDS AND ARE SUBJECT TO CHANGE AT THEIR DISCRETION. BOTH THE POLE-TOP EXTENSION AND ANTENNA MOUNTING SYSTEM SHALL BE INSTALLED BY THE UTILITY COMPANY.

KMW FX-OM2L10H2

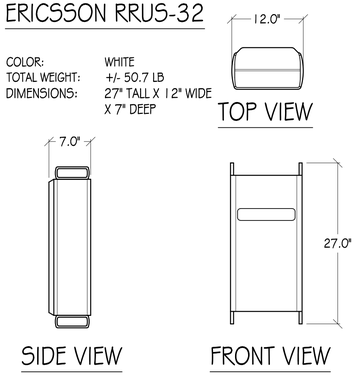
WIND AREA:	2.38 SQ FT
WEIGHT:	TBD
DIMENSIONS:	Ø16.0" X 24.0" TALL
RF CONNECTORS:	(12) 4.3-10 FEMALE



1 ANTENNA
1/2"=1'

ERICSSON RRUS-32

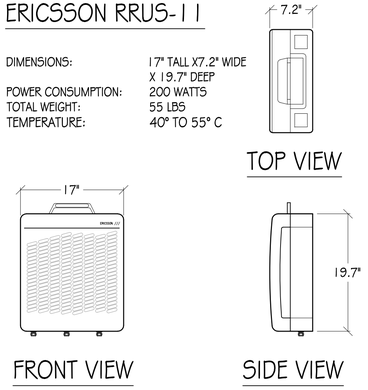
COLOR:	WHITE
TOTAL WEIGHT:	+/- 50.7 LB
DIMENSIONS:	27" TALL X 12" WIDE X 7" DEEP



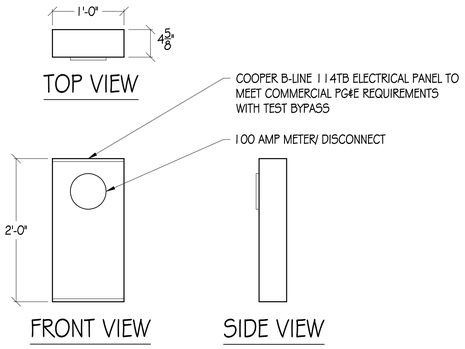
2 RRUS-32
1"=1'

ERICSSON RRUS-11

DIMENSIONS:	17" TALL X7.2" WIDE X 19.7" DEEP
POWER CONSUMPTION:	200 WATTS
TOTAL WEIGHT:	55 LBS
TEMPERATURE:	40° TO 55° C



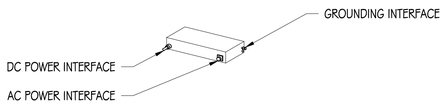
3 RRUS-11 DETAIL
1"=1'



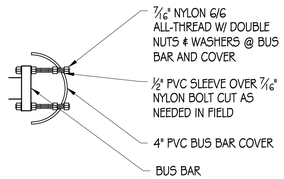
4 METER DETAIL
1"=1'

ERICSSON PSU AC 08

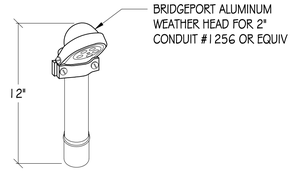
DIMENSIONS:	2.72" X 10.79" X 7.09"
WEIGHT:	11.46 LBS



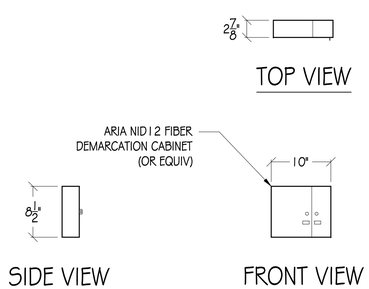
5 AC POWER MODULE
NTS



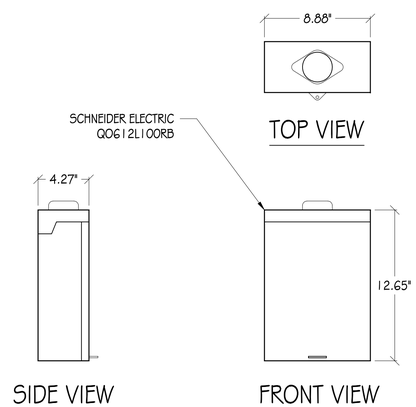
6 BUS BAR COVER
6"=1'



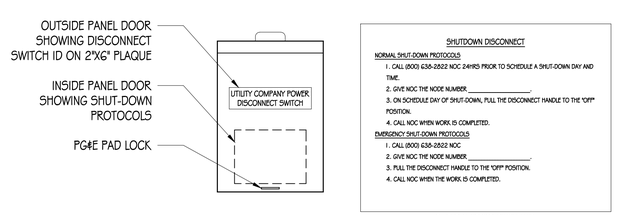
7 WEATHER HEAD
NTS



8 ARIA NID12 FIBER DMARC
1"=1'



9 LOAD CENTER/AC DISCONNECT
1"=6"



10 DISCONNECT SIGNAGE
3"=1'

NOTES:
1. SITE ID WILL BE SWITCH #, SITE # & SITE NAME
2. SIGN PROVIDED BY GC MOUNTED TO OUTSIDE OF SERVICE DISCONNECT

at&t
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SAN RAMON, CA 94583

MODUS
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REGISTERED PROFESSIONAL ENGINEER
BRET A. McCOMB
C 61891
EXP 09-30-18
CIVIL
STATE OF CALIFORNIA

CRAN_RSFR_SFOK3_041

ROW ADJCT TO 431 SEQUOIA AVE
ATHERTON, CA 94061

ISSUE STATUS

△	DATE	DESCRIPTION
	10/27/17	CD 90%
	11/27/17	CD 100%

DRAWN BY:	T. WEBB
CHECKED BY:	T. DiCARLO
APPROVED BY:	B. McCOMB
DATE:	11/27/17

SHEET TITLE:

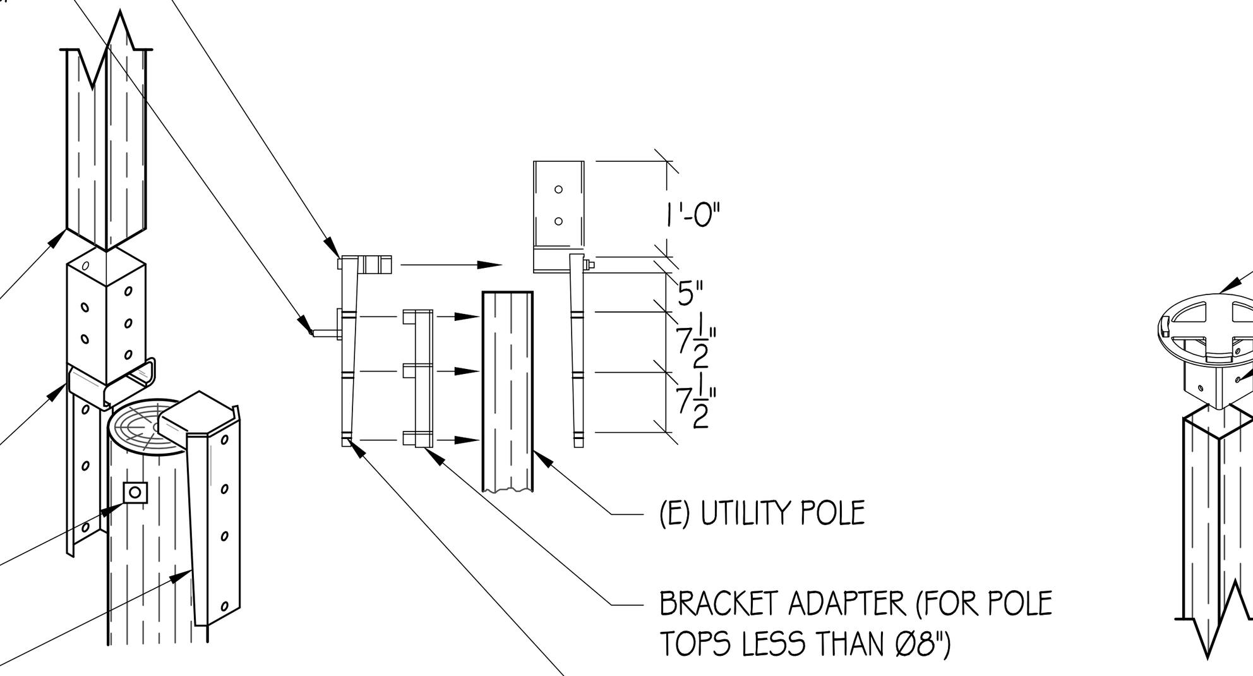
DETAILS

SHEET NUMBER

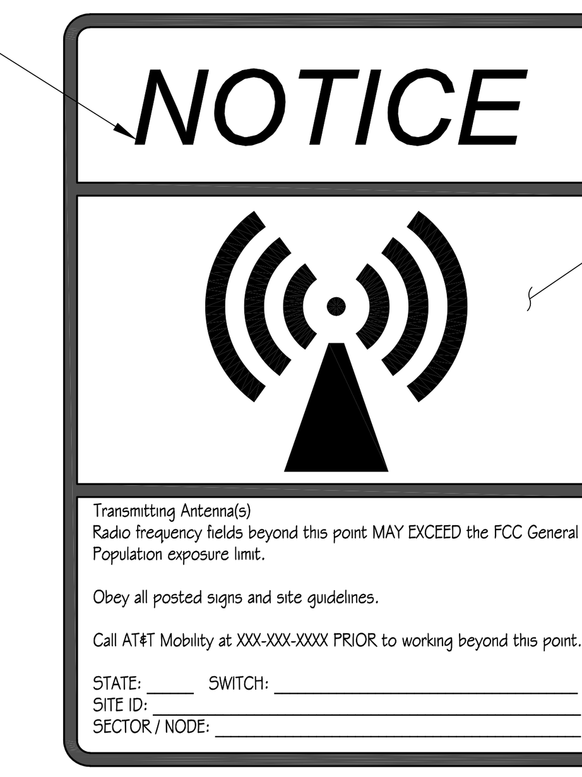
A-5

STRUCTURAL STEEL NOTES:

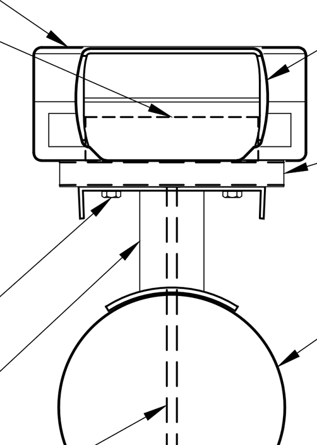
1. ALL STEEL CONSTRUCTION INCLUDING FABRICATION, ERECTION AND MATERIALS SHALL COMPLY WITH ALL REQUIREMENTS OF THE AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND THE 2016 CBC.
2. ALL STRUCTURAL STEEL SHALL BE ASTM A36 UNLESS OTHERWISE NOTED. ALL WF (WIDE FLANGE) & WT (TEE) SHAPES TO BE ASTM A992 (F_Y=50,000 PSI) UNLESS NOTED OTHERWISE. ALL STRUCTURAL TUBING (TS OR HSS) SHALL BE ASTM A500 GRADE B (F_Y=46,000 PSI). ALL STEEL PIPE SHALL BE ASTM A53 (TYPE E OR S, GRADE B (F_Y=35,000 PSI)) SCHEDULE 40 WITH OUTSIDE DIAMETERS GIVEN UNLESS OTHERWISE NOTED.
3. ALL WELDING SHALL BE PERFORMED USING E70XX ELECTRODES AND SHALL CONFORM TO AISC & AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC SPECIFICATION. PAINTED SURFACES SHALL BE TOUCHED UP.
4. ALL WELDING SHALL BE PERFORMED BY QUALIFIED, CERTIFIED WELDERS.
5. BOLTS SHALL BE GALVANIZED ASTM A325 MINIMUM. BOLTED CONNECTIONS SHALL BE BEARING TYPE. SEE PLANS FOR LOCATION, NUMBER, & SIZE OF BOLTS. SPECIAL INSPECTION NOT REQUIRED U.O.N.
6. THREADED RODS SHALL BE ASTM F593 CW 304/316 STAINLESS STEEL . BOLTED CONNECTIONS SHALL BE BEARING TYPE. SEE PLANS FOR LOCATION, NUMBER, & SIZE OF BOLTS.
7. ALL HOLES FOR BOLTED CONNECTIONS SHALL BE 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER. USE STANDARD AISC GAGE AND PITCH FOR BOLTS EXCEPT AS NOTED OTHERWISE. HOLES FOR ANCHOR BOLTS IN BASE PLATES MAY BE AISC "OVERSIZE" HOLES WHERE ACCOMPANIED BY OVERSIZED HARDENED HDG WASHERS.
8. ALL SHOP FABRICATED STEEL STRUCTURAL MEMBERS FOR EXTERIOR USE SHALL BE HOT DIP GALVANIZED PER ASTM A123 AFTER FABRICATION & PAINTED PER CUSTOMER SPECIFICATIONS AS REQUIRED. STEEL FOR INTERIOR USE SHALL BE SHOP COAT OR GALVANIZED & PAINTED PER PLAN.
9. ALL FIELD FABRICATED GALVANIZED STEEL THAT IS CUT, GROUND, DRILLED, WELDED OR DAMAGED SHALL BE TREATED WITH "ZINC RICH" COLD GALVANIZING SPRAY OR COATING. NO RAW STEEL SHALL BE EXPOSED.
10. AT ALL WEB STIFFENER PLATES LEAVE 3/4"Ø (OR K, WHICHEVER IS LARGER) HOLE @ WEB/FLANGE INTERSECTION UNLESS NOTED OTHERWISE.



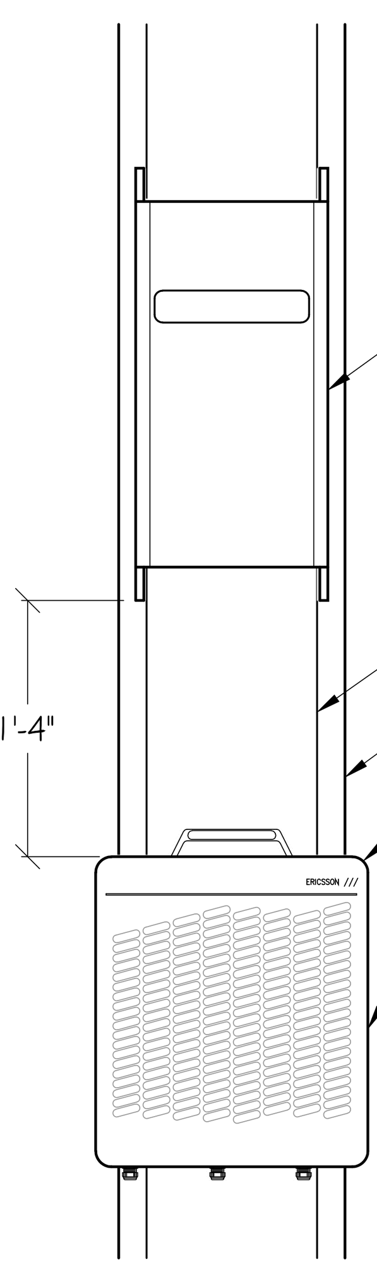
1 POLE TOP EXTENSION ASSEMBLY
1/2"=1'



2 NOTICE SIGNAGE
NTS

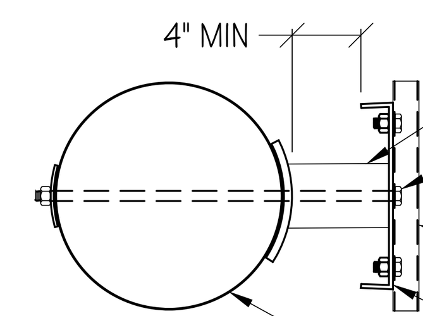


PLAN VIEW

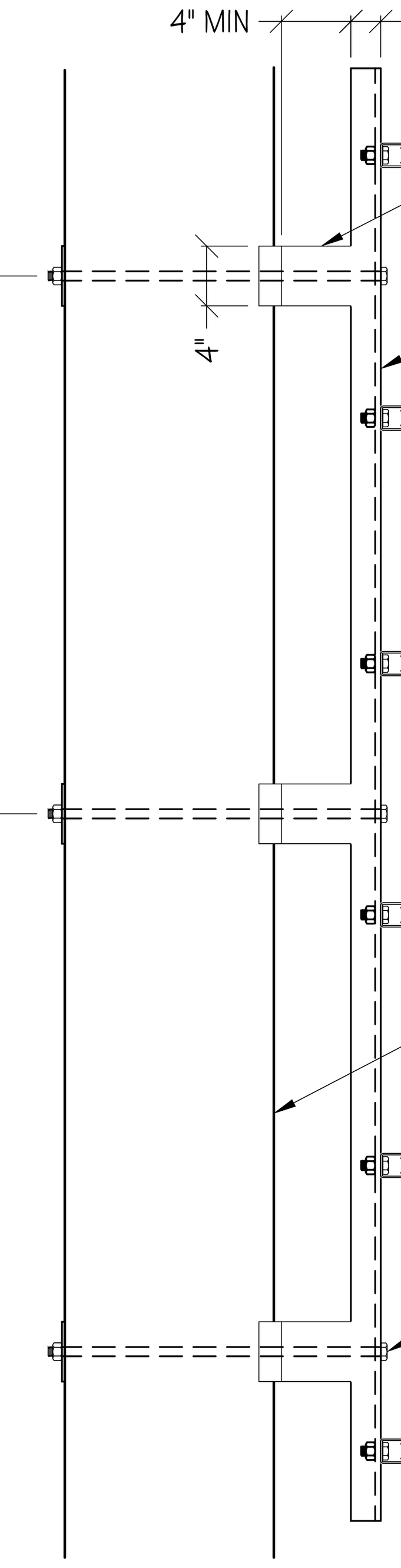


FRONT VIEW

3 RRU MOUNTING DETAIL
1"=1'

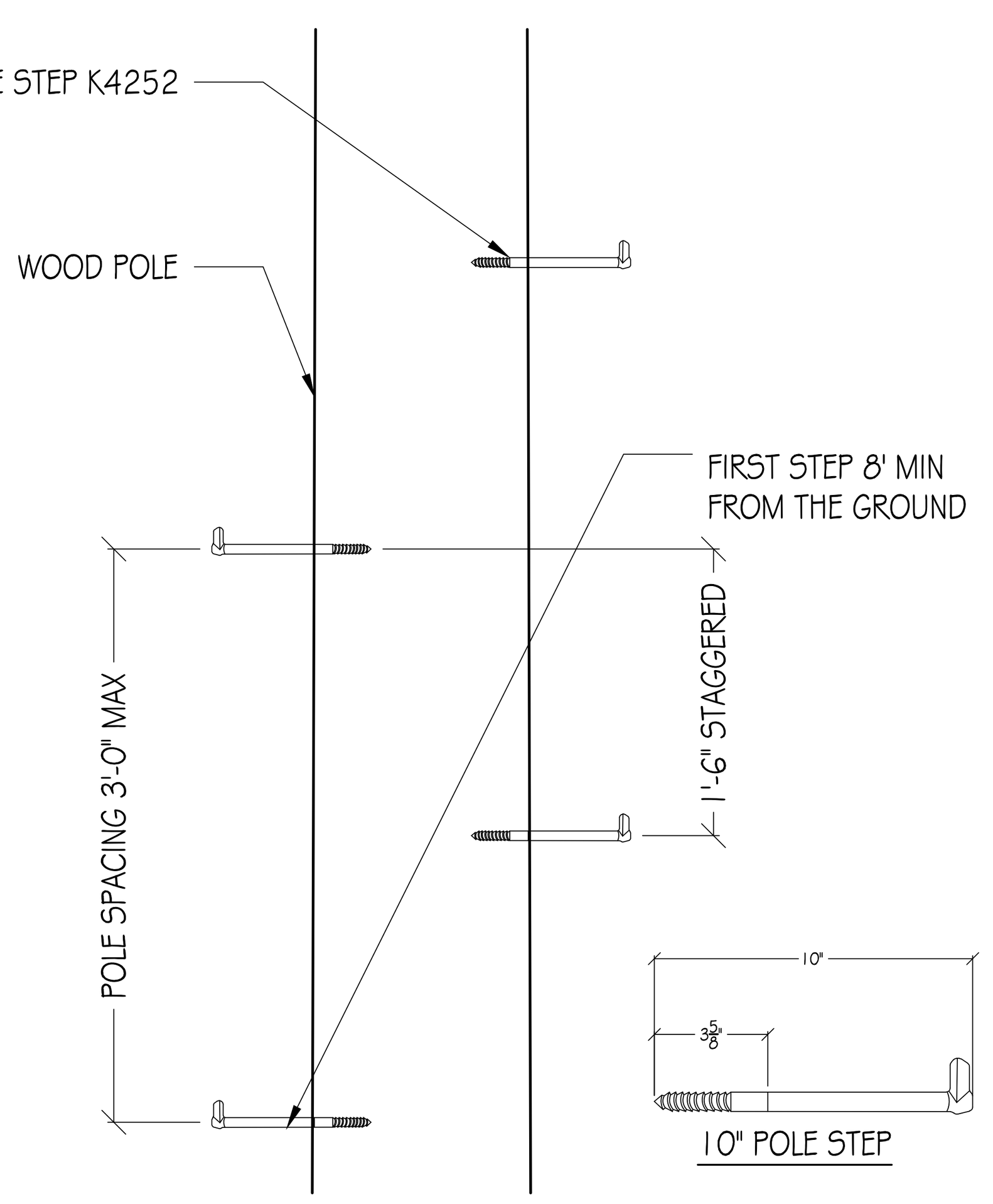


TOP VIEW



FRONT VIEW

4 JPAK STANDOFF DETAIL
1"=1'



5 POLE STEP
1"=1'
NOTE: POLE STEP TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS

AT&T MOBILITY
5001 EXECUTIVE PARKWAY
SAN RAMON, CA 94583

240 STOCKTON STREET, 3RD FLOOR
SAN FRANCISCO, CA 94108

PRECISION DESIGN & Drafting, INC.
Phone: (530) 823-6546 www.pdnd.com
11768 Atwood Rd, Suite 20 Auburn, CA 95603

REGISTERED PROFESSIONAL ENGINEER
BRET A. McCOMB
C 69891
EXP 09-30-18
CIVIL
STATE OF CALIFORNIA

CRAN_RSFR_SFOK3_041

ROW ADJCT TO 431 SEQUOIA AVE
ATHERTON, CA 94061

ISSUE STATUS

△	DATE	DESCRIPTION
	10/27/17	CD 90%
	11/27/17	CD 100%

DRAWN BY: T. WEBB
CHECKED BY: T. DiCARLO
APPROVED BY: B. McCOMB
DATE: 11/27/17

SHEET TITLE:
DETAILS

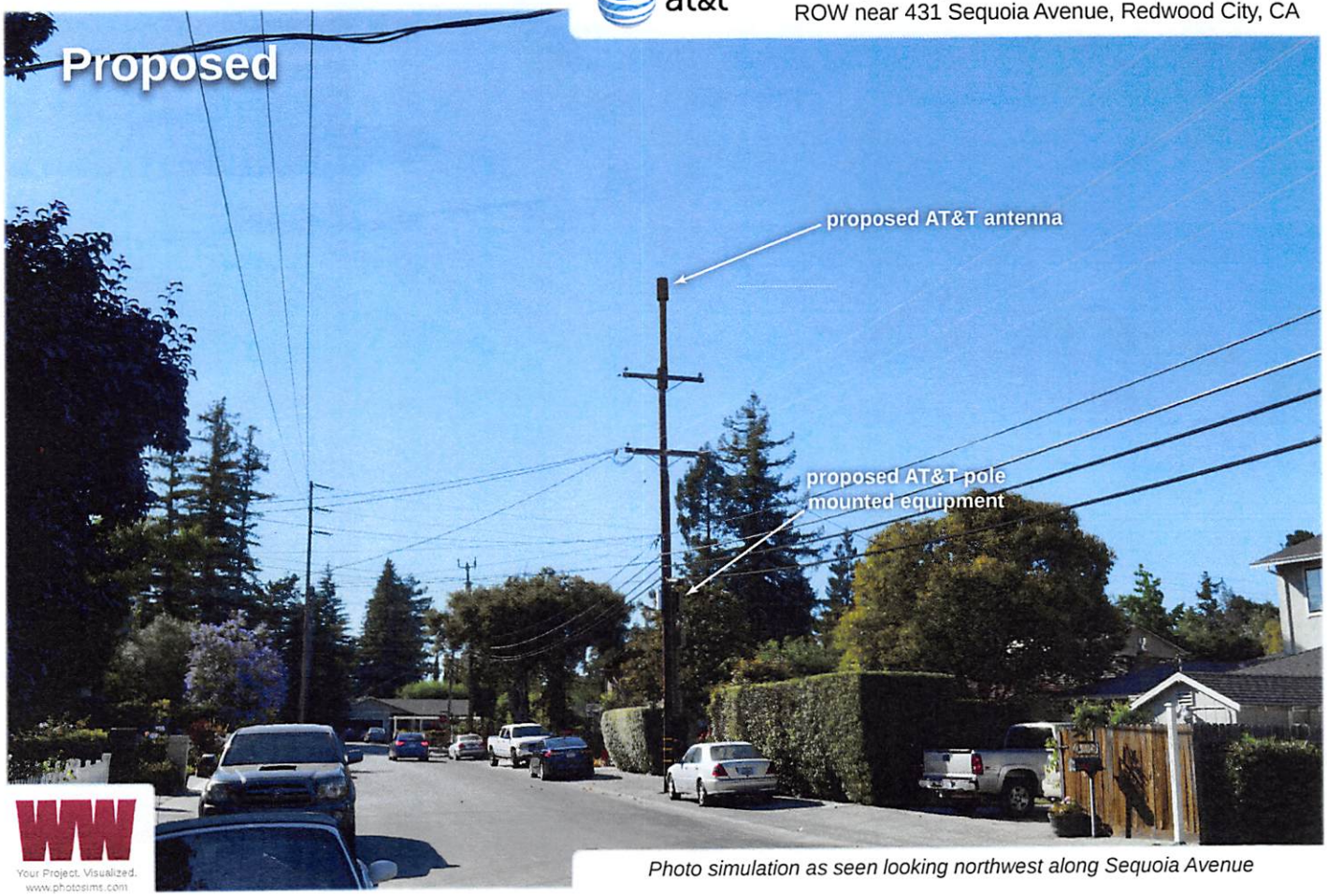
SHEET NUMBER
A-6

County of San Mateo - Planning and Building Department

ATTACHMENT D

at&t

CRAN_RSFR_SFOK3_041
ROW near 431 Sequoia Avenue, Redwood City, CA

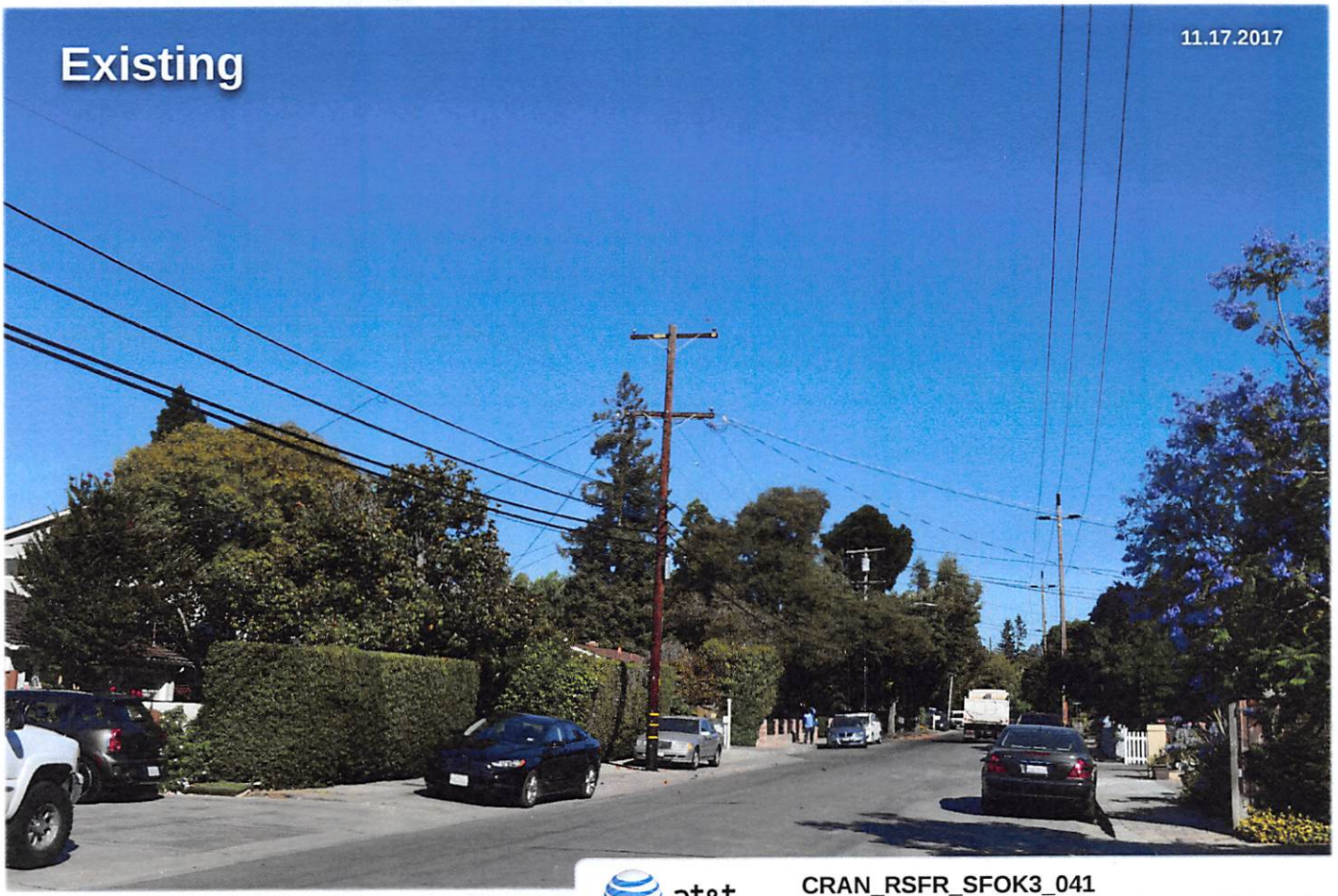


Your Project. Visualized.
www.photosims.com

Photo simulation as seen looking northwest along Sequoia Avenue

Existing

11.17.2017



at&t

CRAN_RSFR_SFOK3_041
ROW near 431 Sequoia Avenue, Redwood City, CA

Proposed

Your Project. Visualized.
www.photosims.com

Photo simulation as seen looking southeast along Sequoia Avenue

County of San Mateo - Planning and Building Department

ATTACHMENT E

PLN2017-00500

County of San Mateo - Planning and Building Department

ATTACHMENT F

AT&T Mobility • Proposed DAS Node (Site No. SFOK3-041)
431 Sequoia Avenue • Atherton, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of AT&T Mobility, a personal wireless telecommunications carrier, to evaluate the addition of Node No. SFOK3-041 to be added to the AT&T distributed antenna system ("DAS") in Atherton, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

AT&T proposes to install an omnidirectional antenna on a utility pole sited in the public right-of-way at 431 Sequoia Avenue in Atherton. 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

Power line frequencies (60 Hz) are well below the applicable range of these standards, and there is considered to be no compounding effect from simultaneous exposure to power line and radio frequency fields.

General Facility Requirements

Wireless nodes typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to a central "hub" (which in turn are connected to the traditional

wired telephone lines), and the passive antenna(s) that send the wireless signals created by the radios out to be received by individual subscriber units. The radios are often located on the same pole as the antennas and are connected to the antennas by coaxial cables. 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. 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 AT&T, including drawings by Precision Design and Drafting, Inc., dated October 27, 2017, it is proposed to install one KMW Model FX-OM2L10H2-06T, 2-foot tall, omnidirectional cylindrical antenna, on an extension to be added to the top of the utility pole sited in the public right-of-way in front of the two-story residence located at 431 Sequoia Avenue in Atherton. The antenna would employ 6° downtilt and would be mounted at an effective height of about 47½ feet above ground. The maximum effective radiated power in any direction would be 510 watts, representing simultaneous operation of 370 watts for PCS and 140 watts for 700 MHz service. There are reported no other wireless telecommunications base stations at this site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed AT&T operation is calculated to be 0.0037 mW/cm^2, which is 0.69% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 1.2% 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.

Recommended Mitigation Measures

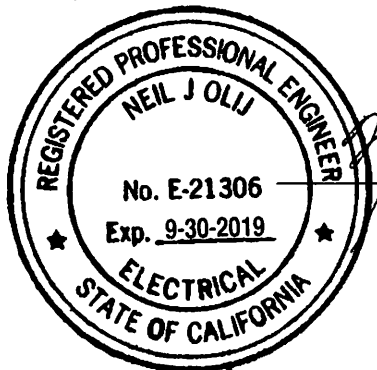
Due to its mounting location and height, the AT&T antenna would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antenna. No access within 4 feet at the same height as the AT&T antenna, such as might occur during certain maintenance activities near the top of the pole, should be allowed while the node is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. It is recommended that an explanatory sign* be posted at the antenna and/or on the pole below the antenna, 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 node proposed by AT&T Mobility at 431 Sequoia Avenue in Atherton, 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 nodes.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-21306, which expires on September 30, 2019. This work has been carried out 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.



Neil J. Olij, P.E.
707/996-5200

November 29, 2017

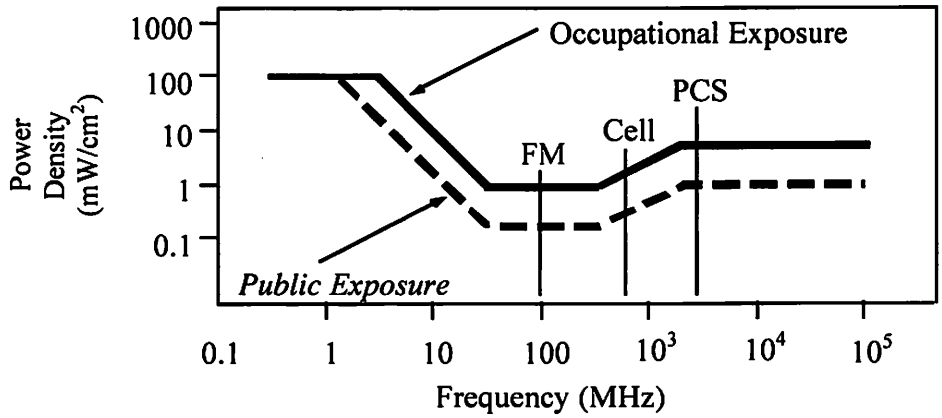
* Signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (*e.g.*, a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required. Signage may also need to comply with the requirements of California Public Utilities Commission General Order No. 95.

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



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^2,

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^2,

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:

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

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 of San Mateo - Planning and Building Department

ATTACHMENT G

San Mateo County

Application for Appeal

RECEIVED
MAY 0 2 2018
San Mateo County
Planning and Building Department

County Government Center • 455 County Center, 2nd Floor
Redwood City • CA • 94063 • Mail Drop PLN 122
Phone: 650 • 363 • 4161 Fax: 650 • 363 • 4849

☒ To the Planning Commission

☐ To the Board of Supervisors

Name: Mehmet Emre Sargin

Address: 443 Sequoia Ave
Redwood city, CA

Phone, W: 895 H: 7222855

Zip: 94061

Permit Numbers involved:

PLN - 2017 - 00500

~~PLN - 2017 - 00500~~

I hereby appeal the decision of the:

☐ Staff or Planning Director

☒ Zoning Hearing Officer

☐ Design Review Committee

☐ Planning Commission

made on April 19 2018, to approve/deny the above-listed permit applications.

I have read and understood the attached information regarding appeal process and alternatives.

☒ yes ☐ no

Appellant's Signature:

Date: 05/02/2018

Planning staff will prepare a report based on your appeal. In order to facilitate this, your precise objections are needed. For example: Do you wish the decision reversed? If so, why? Do you object to certain conditions of approval? If so, then which conditions and why?

I'd like to receive reports comparing the simulated RF energy and the actual readings in the field tests for the same antenna and same height above the ground.

~~what~~ process do we have to ensure that the RF energy stays within the proposed limits over the years of operation?

I'd like to see the specs regarding the hearing noise that will be introduced by the equipment that powers the antenna.

I'd like to have a written statement on the location of the RF safety signs.

There are several concerns regarding the negative effect of ~~nearby~~ wireless antennas to nearby house values as Trisha mentioned during the hearing.

County of San Mateo - Planning and Building Department

ATTACHMENT H

Example of proposed RF Notice Sign
Located at or right below proposed antenna

County of San Mateo - Planning and Building Department

ATTACHMENT I

Wireless Communications Initiative Study

Wireless Facilities Impact on Property Values

November 2012

Background

Wireless technology has dramatically changed the way the world communicates. There are over 6 billion wireless phones being used worldwide. In the United States the number of wireless phones is greater than the population. Conversely, with the advent of smart phones and wireless devices, there is increasing strain being put our already stressed wireless infrastructure. The goal of the Wireless Communications Initiative (WCI) is to enable the deployment of a 21st century wireless infrastructure. Silicon Valley is clearly driving wireless innovation and the region has consistently been an early adopter of these products.

However, compared to feature phones, smartphones place 24 times the demand on wireless networks, and smart devices such as tablets command 120 times as much. Carriers are trying to respond to this revolution in technology by deploying what is called Next Generation technology. Carriers tout the capacity of their 4G or LTE (Long Term Evolution) networks as significantly more efficient in managing the burgeoning demand placed on networks by applications such as streaming video.

The significant challenge facing the next phase in technology deployment is the need to place wireless facilities in residential neighborhoods. These facilities need to be closer to consumers to allow signals to be accessible within homes. This is increasingly important given that about 30 percent of homes rely solely on wireless phone service. In addition, almost 400,000 calls to 911 are made each day using wireless phones. Access to a wireless network has now become a public safety imperative.

Carriers are working with cities to identify neighborhood sites for wireless facilities. However, this task has been made more difficult in some cases when a few residents raise concerns about the placement of wireless towers. These residents oppose carrier applications because of

trepidations related to Radio Frequency (RF) emissions or suspicions about a negative impact on property values. The anxiety that wireless towers impact property values has been a powerful argument used by opponents to carrier applications. Oftentimes, anecdotal evidence is used to bolster these arguments, absent any factual evidence regarding the veracity of these claims.

Carrier and city attempts to address these concerns can lead to long delays in deploying and upgrading wireless facilities. It isn't unusual for a single application to be delayed for a year or more while community concerns are being addressed.

This study has been designed to assess the actual effects of wireless facilities on property values. We have the capability to consider wireless facilities that have been in place for several years. We can look at hundreds of recent real estate transactions to determine what effects are present.

The Study Partners

The Santa Clara County Association of REALTORS® and the Silicon Valley Association of REALTORS® (SILVAR) partnered with WCI to produce the study. The members of these two organizations are involved with most transactions involving single family residences in Silicon Valley. The Associations are over 100 years old and have a rich history paralleling the growth of the region. The organizations represent thousands of real estate agents who have a deep commitment to furthering the professionalism of the industry.

In addition, WCI partnered with MLS Listings to perform the actual data analysis. MLSListings, Inc. was founded in 2007 by a collaboration between several established regional multiple listing services, notably Silicon Valley's RE InfoLink and California's Central Valley MLS. The company created by this merger, MLSListings Inc. serves nearly 16,000 subscribers and 6,000 firms. MLSListings typically handles listings totaling nearly $70 billion annually.

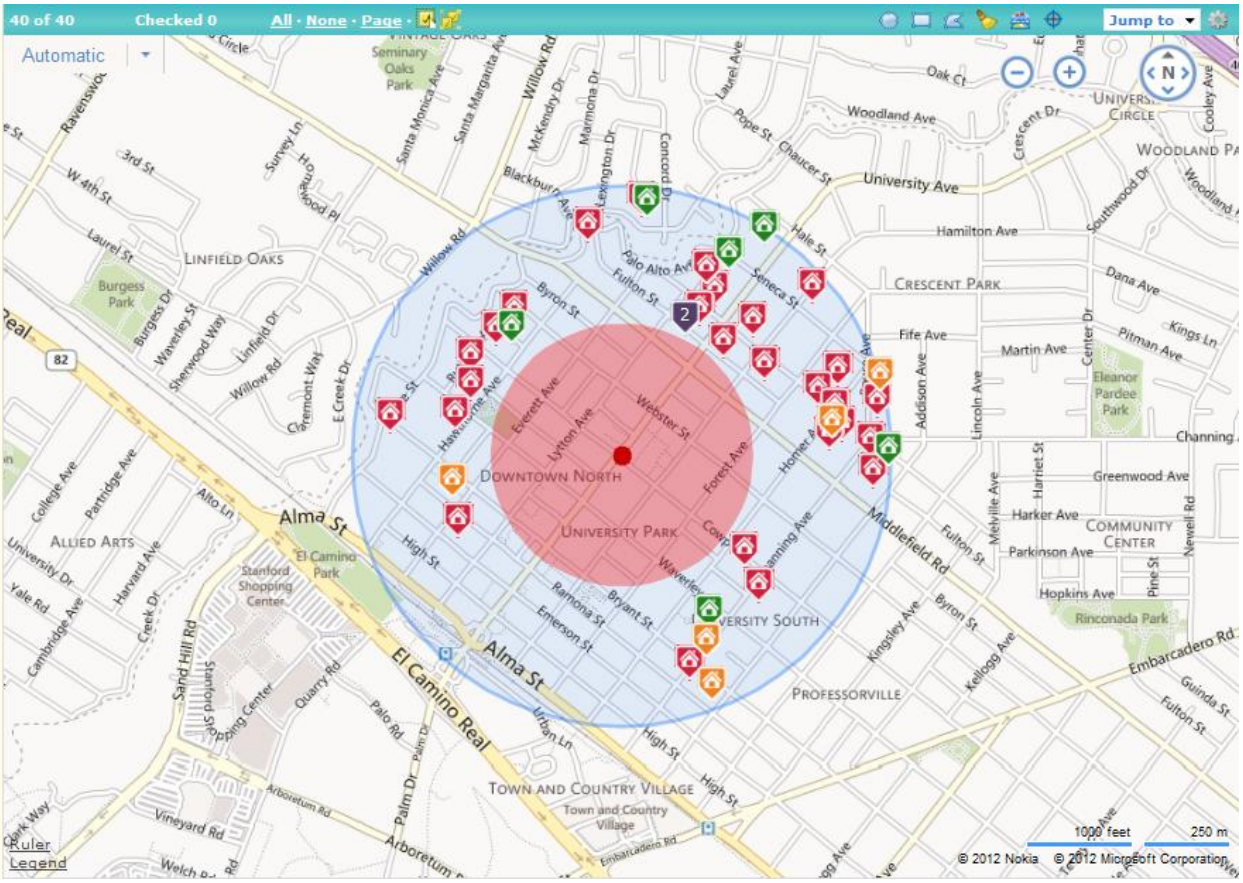
See Appendix B for more information about these organizations.

The Methodology

The data was compiled using over 1600 single-family home transactions from January to September 2012. A total of 70 wireless sites were selected in Palo Alto, Redwood City, Saratoga and San Jose. The survey compared the "list" and "sale" price for transactions based on the distant from the wireless facility. The transactions were grouped by those 1) within 1/8th of a mile, 2) 1/8 to a quarter mile and 3) a quarter to one-half mile.

In addition, the study included all types of wireless facilities. These facilities may be A) a wireless tower, B) equipment placed on buildings (e.g. church, offices) or C) placed on a utility structure (e.g. pole, tower).

See Appendix D for sample photographs of the sites.



Sample MLS listing data query

The chart below displays the aggregated results for the study. The list and sale prices are an aggregate of the all of the transactions that occurred within the specified distance from the wireless site during January to September 2012. The fourth column is derived as a percentage of the sale price to the list price.

	Total List Price	Total Sale Price	%List to Sale
Palo Alto			
0-0.125 mile	$ 33,093,000	$ 34,243,125	**103%**
0.125-0.25	$ 219,641,507	$ 233,276,629	**106%**
0.25-0.5	$ 1,058,288,821	$ 1,094,507,081	**103%**
Redwood City			
0-0.125 mile	$ 9,111,888	$ 9,306,000	**102%**
0.125-0.25	$ 36,670,398	$ 36,738,500	**100%**
0.25-0.5	$ 91,938,794	$ 92,571,249	**101%**
Saratoga			
0-0.125 mile	$ 11,116,000	$ 11,168,000	**100%**
0.125-0.25	$ 77,914,560	$ 77,601,045	**100%**
0.25-0.5	$ 353,092,390	$ 350,550,126	**99%**
San Jose			
0-0.125 mile	$ 29,024,249	$ 28,695,250	**99%**
0.125-0.25	$ 57,135,400	$ 57,075,940	**100%**
0.25-0.5	$ 157,404,541	$ 158,404,215	**101%**

A listing of the addresses for the wireless sites is in Appendix A.

Conclusion

It is quite clear from the data that the distance from a wireless facility has no apparent impact on the value or sale price of a home. The relationship between the list and sale price remained the same no matter how close the property was to the wireless facility. In addition, we see that all the cities in the survey had similar results. The sites across all cities represent a variety of properties including those in neighborhoods with higher priced homes versus those in communities with more moderately priced homes.

Most real estate professionals believe there are multiple factors that affect property values. These professionals still believe in the old adage that there are three factors: location, location, location. However, it is quite obvious that the overall economic climate can have an overriding effect on the real estate market. This year has seen a significantly stronger market for home sales, both in the number of transactions and sellers' ability to obtain their asking price. Other factors that tend to impact property values include schools and access to transportation.

This study should provide a data-based explanation of the relationship between home values and the proximity to wireless facilities. The conclusions can be understood to suggest that communities and carriers have done well in considering the placement of the technology. The Wireless Communications Initiative believes this continued commitment to resolving deployment issues will benefit our region and its neighborhoods.

(Appendix A)

Wireless Facilities Included In Study

Palo Alto

1082 Coronado

101 Alma St

1985 Louis Road

3990 El Camino

305 N California

10950 Channing

1501 Page Mill Rd

200 Page Mill Rd

2047 bayshore

2300 Geng Rd

260 Sheridan

2666 E Bayshore Rd

2675 Hanover St

2701 Middlefield Rd

300 Pasteur Dr

3000 Alexis

3141 Maddux Dr

3401 & 3431 Hillview

345 Hamilton Ave

3475 Deer Creek Rd

3600 W Bayshore Rd

3600 Middlefied

3672 Middlefied

3862 Middleflied

4009 Miranda

4243 Manuela Ave

4249 El Camino Real

488 University Ave

525 University Ave

531 Stanford Ave

695 Arastradero

711 Colorado

724 Arastradero

850 Webster St

855 El Camino

900 Blake Wilbur Dr

799 Arastradero

760 Porter

3000 El Camino Real

675 El Camino Real

2595 E Bayshore

Junipero & Stanford

Page Mill & Foothill

Redwood City

3025 Jefferson Ave

468 Grand St

1175 Palomar

1251 Annette

2900 Whipple Ave

Saratoga

14407 Big Basin Way

14000 Fruitvale

13000 Glen Brae

13750 Prune Blossom

14091 Quito Rd

12770 Saratoga Ave

1777 Saratoga Ave

13601 Saratoga Ave

20508 Saratoga Los Gatos

19491 Saratoga Los Gatos

12393 Saratoga Sunnyvale

12413 Saratoga Sunnyvale

Hwy 9 & Quito

San Jose

2827 Flint Ave

930 Remillard Ct

3675 Payne Ave

144 S Jackson

366 Saint Julie Dr

1529 Newport Ave

1200 Fleming Ave

2110 Story Rd

1635 Park Ave

1700 Moffat St

Disclaimer: the data was pulled on 10/2/2012 pulling only single family residence (class 1 in MLSListings, Inc.) with a time frame of all sales from 1/1/2012 to 10/2/2012

Appendix B

Santa Clara County Association of REALTORS®

History

Santa Clara County Association of REALTORS®, established in 1896, has a long and rich history paralleling the history of Santa Clara Valley. SCCAOR, the first trade association in California, is the largest real estate board in Northern California, and was listed as one of the nation's top 20 associations by the Foundation of the American Society of Association Executives. It has come a long way since its first members took potential buyers to preview properties in horse-drawn buggies.

Over the years, its members have made very significant contributions, both in the real estate industry and to the quality of life in Santa Clara County, through their community service activities. Santa Clara County Association of REALTORS®'s history is one of recognizing changing needs in the real estate industry, economy, and technology, and leading the way in responding to those needs.

Santa Clara County Association of REALTORS® was the first real estate board in California to employ a Government Affairs Director to represent the interest of property owners, REALTORS® and the real estate industry, at all levels of government. Threats to property rights remain an increasingly "hot" item on legislative agendas.

The Board's educational activities for members and the public consistently win state and national awards for high quality and leadership, including the Real Estate Assistants Program, developed in 1994. Ongoing classes and seminars provide Members with the most current, professional education for the benefit of their clients and their careers.

In support of the many communities our members serve, SCC REALTORS® FOUNDATION, a nonprofit corporation designed to direct Member's monetary contributions to the most vital community needs, was formed in 1991.

Integrity, strength and innovation are the foundation of Santa Clara County Association of REALTORS®'s history. In the same tradition, established during the past century, we are committed to being an industry leader, bringing positive action and service to our Members and communities for the next 100 years.

The Silicon Valley Association of REALTORS®

The Silicon Valley Association of REALTORS® (SILVAR) is a professional trade organization representing over 4000 REALTORS® and Affiliate members engaged in the real estate business on the Peninsula and in the South Bay. SILVAR promotes the highest ethical standards of real estate practice, serves as an advocate for homeownership and homeowners, and represents the interests of property owners in Silicon Valley.

It is the duty and responsibility of every REALTOR® member of this Association to abide by the "Code of Ethics" of the National Association of REALTORS®. The term "REALTOR®" is a registered collective membership mark which identifies a real estate professional who is a member of the National Association of REALTORS® & who subscribes to its strict Code of Ethics.

MLSListings, Inc. was founded in 2007 as a collaboration between several established regional multiple listing services, notably Silicon Valley's RE InfoLink and California's Central Valley MLS. As the company created by this merger, MLSListings Inc. serves nearly 16,000 subscribers and 6,000 firms in Santa Clara, Santa Cruz, Monterey, San Mateo, San Benito, Merced, San Joaquin and Stanislaus Counties – an area of approximately 28,000 square miles, reaching from San Francisco to Big Sur, and including some of the most valuable real estate in the world. MLSListings typically handles listings totaling nearly $70 billion annually.

In April, 2008, MLSListings, Inc. joined with three other Northern California MLS services – San Francisco MLS, Bay Area Real Estate Services, and MetroList Services – in an unprecedented alliance to share multiple listing data throughout Northern California. This new alliance serves nearly 50,000 brokers in 19 Northern California Counties, a total population of nearly 9 million people.

Appendix C

Wireless Site Photographs (Sampling)

366 St. Julie Drive, San Jose

2110 Story Road, San Jose

3675 Payne, San Jose

12770 Saratoga Ave, Saratoga

14407 Big Basin Way

675 El Camino, Palo Alto

1082 Colorado St. Palo Alto

1985 Louis Road, Palo Alto

4009 Miranda, Palo Alto

4243 Manuela, Palo Alto, CA

2575 Hanover, Palo Alto

County of San Mateo - Planning and Building Department

ATTACHMENT J

AT&T Mobility • DAS Node Measurement Study
Phase I, Twelve Joint Pole Locations • Palo Alto, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by AT&T Mobility, a wireless telecommunications carrier, to evaluate Phase I of the distributed antenna system located in Palo Alto, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

AT&T Mobility had installed Phase I of an outside Distributed Antenna System (oDAS) in Palo Alto, consisting of twelve pole-cap antennas. All exposure levels under the existing conditions for anyone in publicly accessible areas near any of these nodes were well below the federal standard.

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 wireless services are as follows:

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm^2	1.00 mW/cm^2
BRS (Broadband Radio)	2,600	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

Antennas for base station use 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 FCC limits without being physically very near the antennas.

Site Description

AT&T had installed 2-foot panel antennas with cylindrical shrouds above the top of existing utility poles at twelve locations within the City of Palo Alto, as tabulated in Figure 2. The sites were visited by Mr. Sammit Nene, a qualified engineer employed by Hammett & Edison, Inc., during normal business hours on March 15 and 21, 2013, non-holiday weekdays. Access to the antennas was restricted by their mounting heights. There were observed no other wireless telecommunications base stations located near any of these sites.

Measurement Results

The measurement equipment used was a Wandel & Goltermann Type EMR-300 Radiation Meter with Type 8 Isotropic Electric Field Probe (Serial No. P-0036) and a Narda Broadband Field Meter Type NBM-520 with Type EF-0391 Isotropic Electric Field Probe (Serial No. D-0454). The meters and probes were under current calibration by the manufacturer. Power density measurements were taken at ground-level locations along the sidewalks and streets near each of the twelve DAS nodes. At each location, the maximum measured level was compared with the most restrictive FCC public exposure limit of 0.2 mW/cm^2.

The maximum observed power density level for a person at ground near any of the twelve nodes was 0.00022 mW/cm^2, which is 0.11% of the most restrictive public limit, as shown in Figure 2. The three-dimensional perimeter of RF levels equal to the public exposure limit did not reach any publicly accessible areas.

Exposure levels for a person on the second floor of a nearby residence (that is, about 16½ feet above ground) were evaluated at Node #N14A, with the maximum measured power density at any distance from the pole equal to 0.000054 mW/cm^2, which is 0.011% of the most restrictive public limit for the frequencies authorized for use by AT&T.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that the AT&T Mobility outside Distributed Antenna System in Palo Alto, California, as installed and operating at the time of visit complies with the FCC guidelines limiting public exposure to radio frequency energy and, therefore, does 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.

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, 2013. This work has been carried out 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, P.E.
707/996-5200

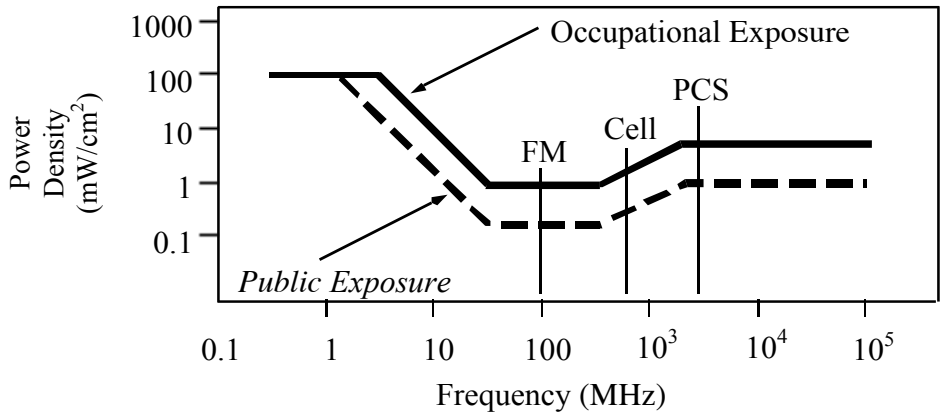
April 23, 2013

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



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.

AT&T Mobility • DAS Node Measurement Study
Phase I, Twelve Joint Pole Locations • Palo Alto, California

Tabulation of Measurement Results

AT&T Node #	Site Address	Maximum Measured Exposure Level: Power Density, mW/cm^2	Maximum Measured Exposure Level: vs. FCC Public Limit*
N1B	2101 Waverly Street near Santa Rita Avenue	0.00016	0.080%
N3A	2704 Louis Road near Amarillo Avenue	0.00022	0.11%
N5B	255 N. California Avenue near Ramona Street	0.00013	0.065%
N9A	765 Oregon Avenue near Ross Road	0.000034	0.017%
N10B	179 Lincoln Avenue near Emerson Street	0.00013	0.065%
N13A	1851 Bryant Street near Seale Avenue	0.00012	0.060%
N14A	1401 Emerson Street near Kellogg Avenue	0.000092	0.046%
N16A	1880 Park Boulevard near Leland Avenue	0.00017	0.085%
N16B	134 Park Boulevard near Ash Street	0.000092	0.046%
N20A	2326 Webster Street near Oregon Avenue	0.000042	0.021%
N21A	968 Dennis Drive near Burnham Way	0.00012	0.060%
N29A	1248 Waverly Street near Melville Avenue	0.00011	0.055%

* Most restrictive FCC public exposure limit is 0.2 mW/cm^2.

County of San Mateo - Planning and Building Department

ATTACHMENT K

AT&T Mobility Radio Frequency Statement
San Mateo County, CA Small Cell Node 41

This small cell node is necessary to help close a significant service coverage gap in AT&T wireless network. Specifically, an antenna sector on a nearby macro site is experiencing, or is forecasted to experience, capacity restraints that reduce mobile data speeds to the extent that fewer users served by that sector will be able to reliably stream video. Competition and customer demand require that AT&T design and maintain its network so that users experience average data service sufficient to reliably stream video. Any areas that do not meet this minimal video streaming standard represent a service coverage gap that must be closed.

The nearby macro antenna sector's capacity restraints are cause by the extraordinary increase in mobile data usage. Since introduction of the iPhone in 2007, mobile data usage increased 250,000% on AT&T's network, and AT&T forecasts its customers' growing demand for mobile data services to continue. Updating its mobile network to handle this surge is critical as customers increasingly use their mobile phones as their primary communication devices (more than 70% of American households rely exclusively or primarily on wireless phones) and rely on their mobile phones to do more (E911, video streaming, GPS, web access, text, etc.). In fact, the FCC estimates that 70% of 911 calls are placed by people using wireless phones. And with AT&T's selection by the federal First Responder Network Authority, FirstNet, as the wireless service provider to build and manage the nationwide first responder wireless network, each new or modified facility will enhance its capability to strengthen first responder communications.

Users in poor signal quality areas use a disproportionate share of resources from the cellular network. By placing the proposed node in a poor signal quality area where there is a high density of user traffic, the macro site serving the area will be offloaded and will provide better service to other areas that it covers. A side benefit is that the node will enable high data speeds, and ultimately 5G services, to those nearby users. To provide the necessary capacity relief and close this service coverage gap, AT&T plans to place small cell nodes in poor signal quality areas in high usage areas served by the targeted macro antenna sector. Each small cell node will work with the other small cell nodes in the area to offload network traffic carried by the nearby macro antenna sector and improve mobile data service throughout the effective service area.

AT&T uses industry standard simulation tools to identify the areas in its network where capacity restraints and interference will affect data speeds and service quality. This information is developed from many sources including terrain and clutter databases that simulate the environment, traffic maps that

simulate the density of users in the environment, and propagation models that simulate signal relative to interference in the presence of terrain and clutter variation. AT&T evaluates signal quality based on the Signal to Interference and Noise Ratio (SINR), which directly affects data speeds.

This small cell node that AT&T proposes in this portion of Redwood City is needed to close a service coverage gap. This service coverage gap is roughly bordered by Milton Street to the north, Beresford Avenue to the east, Stockbridge Avenue to the south, and Santiago Avenue to the west. The gap area is significant because it encompasses hundreds of homes in residential neighborhoods, The proposed small cell node, along with the other small cells in the area, will offload network traffic from surrounding macro sites during current and future peak demand periods, which will improve signal quality and data speeds, allowing customers to reliably stream video.

My conclusions are based on my knowledge of the proposed small cell locations and with AT&T's wireless network in the surrounding area. I have a BSC Honors Degree in Microelectronics Engineering from University of Ulster, and have 33 years-experience in the wireless communications industry.

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Philip Dale
AT&T Mobility Services LLC
Network, Planning & Engineering
RAN Design & RF Engineering
October 1, 2018