

<b>Location:</b>	Utility pole in public right-of-way adjacent to: 5506 Thornhill Drive
<b>Assessor's Parcel Numbers:</b>	Nearest adjacent lot: 048F-7362-001-00
<b>Proposal:</b>	To install a new "small cell site" Macro Wireless Communications Facility to improve services by placing one canister antenna (48" high and 14.6" in diameter) at the top of a wooden utility pole located in the public Right-of-Way. The antenna would be up to 69'-10" and related equipment to mounted on the pole above ground level.
<b>Applicant / Phone Number:</b>	Christy Beltran/ The CBR Group, Inc. (for: Verizon) (415)806-2323
<b>Owner:</b>	PG&E
<b>Case File Number:</b>	PLN17463
<b>Planning Permits Required:</b>	Regular Design Review with additional findings for Macro Telecommunications Facility in the public right-of-way in a residential zone
<b>General Plan:</b>	Hillside Residential
<b>Zoning:</b>	Hillside Residential – 4 Zone (RH-4)
<b>Environmental Determination:</b>	Exempt, Section 15301 of the State CEQA Guidelines: Existing Facilities; Exempt, Section 15302: Replacement or Reconstruction; Exempt, Section 15303: New Construction of Small Structures; Section 15183: Projects Consistent with a Community Plan, General Plan or Zoning
<b>Historic Status:</b>	NHP
<b>City Council District:</b>	4
<b>Date Filed:</b>	November 10, 2017
<b>Action to be Taken:</b>	Decision based on staff report
<b>Finality of Decision:</b>	<i>Appealable to City Council within 10 days</i>
<b>For Further Information:</b>	Contact case planner <b>Marilu Garcia</b> at <b>(510) 238-5217</b> or <a href="mailto:mgarcia2@oaklandnet.com">mgarcia2@oaklandnet.com</a>

**SUMMARY**

The applicant requests Planning Commission approval of a Regular Design Review to establish a Macro Telecommunications Facility ("small cell site"). The purpose is to enhance existing wireless services. The project involves attaching an antenna and equipment to a wooden utility pole and a ground cabinet located in the public right-of-way along the freeway in a residential neighborhood.

Staff recommends approval, subject to conditions, as described in this report.

**BACKGROUND**

For several years in the City of Oakland, telecommunications carriers have proposed facility installation within the public right-of-way, instead of private property. These facilities typically consist of antennas and associated equipment attached to utility poles or street light poles. Poles are often replaced with replicas for technical purposes. The main purpose is to enhance existing service, given increasing technological demands for bandwidth, through new technology and locational advantages. The City exercises zoning jurisdiction over such projects in response to a 2009 State Supreme Court case decision

# CITY OF OAKLAND PLANNING COMMISSION



0 100 200 400 600 800 Feet



Case File: PLN17463

Applicant: Christy Beltran, The CBR Ground, Inc. (for: Verizon)

Address: Utility pole in public right-of-way adjacent to 5506 Thornhill Drive

Zone: RH-4

(Sprint v. Palos Verdes Estates). Pursuant to the Planning Code, utility or joint pole authority (JPA) sites are classified by staff as "Macro Facilities," and street light pole sites (lamps, not traffic signals) as "Monopole Facilities." For JPA poles, only Design Review approval may be required, as opposed to Design Review and a Conditional Use Permit, for example. For non-JPA pole sites, such as City light poles, projects also require review by the City's Public Works Agency (PWA) and Real Estate Division, and involve other considerations such as impacts to historical poles. The PWA may also review projects involving street lights. In either case, the practice has been to refer all such projects to the Planning Commission for decision when located in or near a residential zone.

Several projects for new DAS (distributed antenna services) facilities have come before the Planning Commission for a decision and have been installed throughout the Oakland Hills. Some applications have been denied due to view obstructions or propinquity to residences. Improved practices for the processing of all types of sites incorporating Planning Commission direction have been developed as a result. Conditions of approval typically attach requirements such as painting and texturing of approved components to more closely match utility poles in appearance. Approvals do not apply to any replacement project should the poles be removed for any reason. As with sites located on private property, the Federal Government precludes cities from denying an application on the basis of emissions concerns if a satisfactory emissions report is submitted. More recent Federal changes have streamlined the process to service existing facilities.

Currently, telecommunications carriers are in the process of attempting to deploy "small cell sites." These projects also involve attachment of antennas and equipment at public right-of-way facilities such as poles or lights for further enhancement of services. However, components are now somewhat smaller in size than in the past. Also, sites tend to be located in flatland neighborhoods and Downtown where view obstructions are less likely to be an issue. Good design and placement is given full consideration nonetheless, especially with the greater presence of historic structures in Downtown. Additionally, given the sheer multitude of applications, and, out of consideration for Federal requirements for permit processing timelines, staff may develop alternatives to traditional staffing and agendizing.

## **TELECOMMUNICATIONS BACKGROUND**

### **Limitations on Local Government Zoning Authority under the Telecommunications Act of 1996**

Section 704 of the Telecommunications Act of 1996 (TCA) provides federal standards for the siting of "Personal Wireless Services Facilities." "Personal Wireless Services" include all commercial mobile services (including personal communications services (PCS), cellular radio mobile services, and paging); unlicensed wireless services; and common carrier wireless exchange access services. Under Section 704, local zoning authority over personal wireless services is preserved such that the FCC is prevented from preempting local land use decisions; however, local government zoning decisions are still restricted by several provisions of federal law. Specifically:

- Under Section 253 of the TCA, no state or local regulation or other legal requirement can prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.
- Further, Section 704 of the TCA imposes limitations on what local and state governments can do. Section 704 prohibits any state and local government action which unreasonably discriminates among personal wireless providers. Local governments must ensure that its wireless ordinance

does not contain requirements in the form of regulatory terms or fees which may have the “effect” of prohibiting the placement, construction, or modification of personal wireless services.

- Section 704 also preempts any local zoning regulation purporting to regulate the placement, construction and modification of personal wireless service facilities on the basis, either directly or indirectly, on the environmental effects of radio frequency emissions (RF) of such facilities, which otherwise comply with Federal Communication Commission (FCC) standards in this regard. (See 47 U.S.C. Section 332(c)(7)(B)(iv) (1996)). This means that local authorities may not regulate the siting or construction of personal wireless facilities based on RF standards that are more stringent than those promulgated by the FCC.
- Section 704 mandates that local governments act upon personal wireless service facility siting applications to place, construct, or modify a facility within a reasonable time (See 47 U.S.C.332(c)(7)(B)(ii) and FCC Shot Clock ruling setting forth “reasonable time” standards for applications deemed complete).
- Section 704 also mandates that the FCC provide technical support to local governments in order to encourage them to make property, rights-of-way, and easements under their jurisdiction available for the placement of new spectrum-based telecommunications services. This proceeding is currently at the comment stage.

For more information on the FCC’s jurisdiction in this area, consult the following:

Competition & Infrastructure Policy Division (CIPD) of the Wireless Telecommunications Bureau, main division number: (202) 418-1310.

Main division website:

<https://www.fcc.gov/general/competition-infrastructure-policy-division-wireless-telecommunications-bureau>

Tower siting:

<https://www.fcc.gov/general/tower-and-antenna-siting>

## **SITE DESCRIPTION**

The project site consists of an existing wooden utility pole that measures 56’-11” in height and is located in the public right-of-way. The pole hosts power lines on one horizontal post towards its top. The pole is located in proximity to 5506 Thornhill Drive. This property is used a single-family home, approximately 37-feet in distance to the northeast. The property adjacent to the east is vacant. The neighborhood consists of detached single-family homes. Highway 13 is located southwest.

## **PROJECT DESCRIPTION**

The proposal is to establish a Macro Telecommunications Facility (“small cell site”). The project involves the following:

- Replace existing 56’-11” pole with 65’-6” pole;
- Install (1) canister antenna measuring 48” high and 14.6” in diameter on the top of the pole up to 69’-10” in height;
- Install (1) new power cabinet on pole;
- Install (2) new utility disconnect switch on pole;
- Install (3) RRU-units on the pole
- Install (1) electrical meter on the pole



- Paint the proposed antennas and associated equipment to match the pole and/or other utilities located on the pole.

### GENERAL PLAN ANALYSIS

The site is located in a Hillside Residential area under the General Plan's Land Use and Transportation Element (LUTE). The intent of the area is to: *"create, maintain, and enhance neighborhood residential areas that are characterized by detached, single unit structures on hillside lots. Typical lot sizes range from approximately 8,000 square feet to one acre in size."* Given residents' and visitors' increasing reliance upon cellular service for phone and internet, the proposal for a Macro Telecommunications Facility that is not adjacent to a primary living space or historic structure conforms to this intent.

Staff therefore finds the proposal, as conditioned, to conform to the General Plan.

### ZONING ANALYSIS

The site is located within the Hillside Residential Zone (RH-4). The intent of the RH-4 Zone is: *"to create, maintain, and enhance areas for single-family dwellings on lots of six thousand five hundred (6,500) to eight thousand (8,000) square feet and is typically appropriate in already developed areas of the Oakland Hills."* Per OMC Sections 17.13.02, 17.128.070, 17.136.040 and 2015 Telecom Zoning Bulletin, a Macro Telecommunication facility with a ground equipment cabinet in the RH-4 zone requires a Major Conditional Use Permit and a Regular Design Review with additional findings.

Additionally, new wireless telecommunications facilities may also be subject to a Site Alternatives Analysis, Site Design Alternatives Analysis, and a satisfactory radio-frequency (RF) emissions report. Staff analyzes the proposal in consideration of these requirements in the 'Key Issues and Impacts' section of this report. Given increased reliance upon cellular service for phone and Wi-Fi, the proposal for a Macro Telecommunications Facility that is not adjacent to a primary living space or historic structure conforms to this intent.

Staff finds the proposal, as conditioned, to conform to the Planning Code.

### ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines categorically exempts specific types of projects from environmental review. Section 15301 exempts projects involving 'Existing Facilities'; Section 15302 exempts projects involving 'Replacement or Reconstruction'; and, Section 15303 exempts projects involving 'Construction of Small Structures.' The proposal fits all of these descriptions. The project is also subject to Section 15183 for 'Projects consistent with a community plan, general plan or zoning.' The project is therefore exempt from further Environmental Review.

### KEY ISSUES AND IMPACTS

The proposal to establish a Macro Telecommunications Facility is subject to the following Planning Code development standards, which are followed by staff's analysis in relation to this application:

#### **17.128.070 Macro Telecommunications Facilities.**

##### **A. General Development Standards for Macro Telecommunications Facilities.**

- 1. The Macro Facilities shall be located on existing buildings, poles or other existing support structures, or shall be post mounted.**

The facility involves attachment to a replacement of an existing wooden utility pole hosting power lines.

**2. The equipment shelter or cabinet must be concealed from public view or made compatible with the architecture of the surrounding structures or placed underground. The shelter or cabinet must be regularly maintained.**

Recommended conditions of approval require painting and texturing the antenna and equipment to match the appearance of the wooden utility pole.

**3. Macro Facilities may exceed the height limitation specified for all zones but may not exceed fifteen (15) feet above the roof line or parapet. Placement of an antenna on a nonconforming structure shall not be considered to be an expansion of the nonconforming structure.**

This standard is inapplicable because the proposal does not involve attachment to a roofed structure.

**4. Ground post mounted Macro Facilities must not exceed seventeen (17) feet to the top of the antenna.**

This standard is inapplicable because the proposal does not involve ground post mounting.

**5. The applicant shall submit written documentation demonstrating that the emissions from the proposed project are within the limits set by the Federal Communications Commission.**

This standard is met by the proposal; a satisfactory emissions report has been submitted and is attached to this report (Attachment F).

**17.128.110 Site location preferences.**

**New wireless facilities shall generally be located on the following properties or facilities in order of preference:**

- A. Co-located on an existing structure or facility with existing wireless antennas.**
- B. City-owned properties or other public or quasi-public facilities.**
- C. Existing commercial or industrial structures in Nonresidential Zones (excluding all HBX Zones and the D-CE-3 and D-CE-4 Zones).**
- D. Existing commercial or industrial structures in Residential Zones, HBX Zones, or the DCE-3 or D-CE-4 Zones.**
- E. Other Nonresidential uses in Residential Zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.**
- F. Residential uses in Nonresidential Zones (excluding all HBX Zones and the D-CE-3 and D-CE-4 Zones).**
- G. Residential uses in Residential Zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.**

Facilities locating on an A, B or C ranked preference do not require a site alternatives analysis. Facilities proposing to locate on a D through G ranked preference, inclusive, must submit a site alternatives analysis as part of the required application materials. A site alternatives analysis shall, at a minimum, consist of: a. The identification of all A, B and C ranked preference sites within one thousand (1,000) feet of the proposed location. If more than three (3) sites in each preference order exist, the three such closest to the proposed location shall be required. b. Written evidence indicating why each such identified alternative cannot be used. Such evidence shall be in sufficient detail that independent verification, at the applicant's expense, could be obtained if required by the City of Oakland Zoning Manager. Evidence should indicate if the reason an alternative was rejected was technical (e.g. incorrect height, interference from existing RF sources, inability to cover required area) or for other concerns (e.g. refusal to lease, inability to provide utilities).

A site alternatives analysis is not required because the proposal conforms to 'B' as it would be located on a quasi-public facility (utility pole with power lines). Nonetheless, the applicant has submitted an analysis which is attached to this report (Attachment E).

**17.128.120 Site design preferences.**

New wireless facilities shall generally be designed in the following order of preference:

- A. Building or structure mounted antennas completely concealed from view.
- B. Building or structure mounted antennas set back from roof edge, not visible from public right-of-way.
- C. Building or structure mounted antennas below roof line (facade mount, pole mount) visible from public right-of-way, painted to match existing structure.
- D. Building or structure mounted antennas above roof line visible from public right-of-way.
- E. Monopoles.
- F. Towers.

Facilities designed to meet an A or B ranked preference do not require a site design alternatives analysis. Facilities designed to meet a C through F ranked preference, inclusive, must submit a site design alternatives analysis as part of the required application materials. A site design alternatives analysis shall, at a minimum, consist of: a. Written evidence indicating why each such higher preference design alternative cannot be used. Such evidence shall be in sufficient detail that independent verification could be obtained if required by the City of Oakland Zoning Manager. Evidence should indicate if the reason an alternative was rejected was technical (e.g. incorrect height, interference from existing RF sources, inability to cover required area) or for other concerns (e.g. inability to provide utilities, construction or structural impediments).

The proposal most closely conforms to 'C' (Building or structure mounted antennas below roof line (facade mount, pole mount) visible from public right-of-way, painted to match existing structure), and the applicant has submitted a satisfactory site design alternatives analysis (Attachment E).

**17.128.130 Radio frequency emissions standards.**

The applicant for all wireless facilities, including requests for modifications to existing facilities, shall submit the following verifications:

- a. With the initial application, a RF emissions report, prepared by a licensed professional engineer or other expert, indicating that the proposed site will operate within the current acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.
- b. Prior to commencement of construction, a RF emissions report indicating the baseline RF emissions condition at the proposed site.
- c. Prior to final building permit sign off, an RF emissions report indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.

A satisfactory report is attached to this report (Attachment F).

**Analysis**

The proposed site design would not be situated on a historic pole or structure, create a view obstruction, or be directly adjacent to a primary living space such as a living room or bedroom window. Staff requested a slimmer design consisting of tucking the antenna in closer to the pole. The applicant responded that this was not feasible due to the technological requirements by the Public Utilities Commission and subscriber demands. The proposal is located along the Highway 13 corridor and nearby vegetation. Staff finds the proposal is the less intrusive alternative and will improve wireless communication services in this area. Draft conditions of approval stipulate that the components be painted and textured to match the wooden utility pole for camouflaging.

**Outreach**

The applicant held a community meeting open to the public to introduce the proposed technology on October 2, 2017.

In conclusion, staff recommends approval subject to recommended Conditions of Approval.

**RECOMMENDATIONS:**

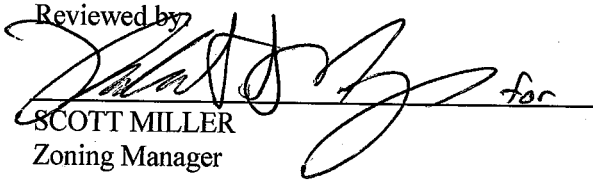
1. Affirm staff's environmental determination.
2. Approve the Regular Design Review subject to the attached Findings and Conditions of Approval.

Prepared by:

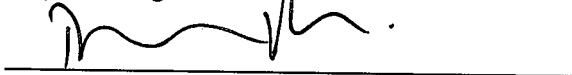


MARILU GARCIA  
Planner I

Reviewed by

 for  
SCOTT MILLER  
Zoning Manager

Approved for forwarding to the  
City Planning Commission:

  
DARIN RANELLETTI, Deputy Director  
Planning Bureau

**ATTACHMENTS:**

- A. Findings
- B. Conditions of Approval
- C. Plans
- D. Applicant's Photo-Simulations
- E. Site Alternatives Analysis/Site Design Alternatives Analysis
- F. RF Emissions Report by Hammett & Edison, Inc.
- G. CPUC Compliance Letter
- H. Applicant's Proof of Public Notification Posting

**ATTACHMENT A: FINDINGS**

This proposal meets the required findings under Regular Design Review Criteria for Nonresidential Facilities (OMC Sec. 17.136.050(B)) and Telecommunications Regulations/Design Review Criteria for Macro Telecommunications Facilities (OMC Sec. 17.128.070(B)), as set forth below. Required findings are shown in **bold type**; explanations as to why these findings can be made are in normal type.

**REGULAR DESIGN REVIEW CRITERIA FOR NON-RESIDENTIAL FACILITIES (OMC SEC. 17.136.050(B))**

**1. That the proposal will help achieve or maintain a group of facilities which are well related to one another and which, when taken together, will result in a well-composed design, with consideration given to site, landscape, bulk, height, arrangement, texture, materials, colors, and appurtenances; the relation of these factors to other facilities in the vicinity; and the relation of the proposal to the total setting as seen from key points in the surrounding area. Only elements of design which have some significant relationship to outside appearance shall be considered, except as otherwise provided in Section 17.136.060;**

The proposal involves the attachment of one antenna and equipment to a replaced utility pole painted and texturized to match the pole in appearance. The antenna will be placed on top of the pole and will have no projection over the streets. The facility will not adversely affect and detract from the characteristics of the neighborhood as it is proposed to be located adjacent to Highway 13 and away from residential uses.

**2. That the proposed design will be of a quality and character which harmonizes with, and serves to protect the value of, private and public investments in the area;**

The proposal will not create a view obstruction, be directly adjacent to a primary living space such as a living room or bedroom window, or be located on an historic structure. Improving wireless services in this area will enable better response from emergency services such as police, fire department and emergency response teams.

**3. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control**

The site is located in a Hillside Residential area under the General Plan's Land Use and Transportation Element (LUTE). The intent of the area is to: *"create, maintain, and enhance neighborhood residential areas that are characterized by detached, single unit structures on hillside lots. Typical lot sizes range from approximately 8,000 square feet to one acre in size."* Given residents' and visitors' increasing reliance upon cellular service for phone and internet, the proposal for a Monopole Telecommunications Facility that is not adjacent to a primary living space or historic structure conforms to this intent.

**TELECOMMUNICATIONS REGULATIONS/DESIGN REVIEW CRITERIA FOR MACRO TELECOMMUNICATIONS FACILITIES (OMC SEC. 17.128.070(B))**

**1. Antennas should be painted and/or textured to match the existing structure.**

The antenna and related equipment will be painted and texturized to match the pole in appearance for camouflaging will be the least intrusive design, as required by conditions of approval.

**2. Antennas mounted on architecturally significant structures or significant architectural detail of the building should be covered by appropriate casings which are manufactured to match existing architectural features found on the building.**

This finding is inapplicable because the antenna will not be mounted onto an architecturally significant structure but to a wooden utility pole.

**3. Where feasible, antennas can be placed directly above, below or incorporated with vertical design elements of a building to help in camouflaging.**

The antenna is proposed to be located on top of the pole.

**4. Equipment shelters or cabinets shall be screened from the public view by using landscaping, or materials and colors consistent with surrounding backdrop or placed underground or inside existing facilities or behind screening fences.**

Conditions of approval require painting and texturing to match the pole in appearance for camouflaging. No cabinet is proposed.

**5. Equipment shelters or cabinets shall be consistent with the general character of the area.**

The proposal is adjacent to Highway 13. No cabinet is proposed.

**6. For antennas attached to the roof, maintain a 1:1 ratio (example: ten (10) feet high antenna requires ten (10) feet setback from facade) for equipment setback; screen the antennas to match existing air conditioning units, stairs, or elevator towers; avoid placing roof mounted antennas in direct line with significant view corridors.**

This finding is inapplicable because the antenna would be attached to a pole and not to a roofed structure.

**7. That all reasonable means of reducing public access to the antennas and equipment has been made, including, but not limited to, placement in or on buildings or structures, fencing, anti-climbing measures and anti-tampering devices.**

The minimal clearance to the facility will be 7-feet.

**ATTACHMENT B: CONDITIONS OF APPROVAL**

**Approved Use**

The project shall be constructed and operated in accordance with the authorized use as described in the approved application materials, **staff report** and the approved plans **dated October 9, 2017**, as amended by the following conditions of approval and mitigation measures, if applicable (“Conditions of Approval” or “Conditions”).

**2. Effective Date, Expiration, Extensions and Extinguishment**

This Approval shall become effective immediately, unless the Approval is appealable, in which case the Approval shall become effective in ten calendar days unless an appeal is filed. Unless a different termination date is prescribed, this Approval shall expire **two calendar years** from the Approval date, or from the date of the final decision in the event of an appeal, unless within such period all necessary permits for construction or alteration have been issued, or the authorized activities have commenced in the case of a permit not involving construction or alteration. Upon written request and payment of appropriate fees submitted no later than the expiration date of this Approval, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit or other construction-related permit for this project may invalidate this Approval if said Approval has also expired. If litigation is filed challenging this Approval, or its implementation, then the time period stated above for obtaining necessary permits for construction or alteration and/or commencement of authorized activities is automatically extended for the duration of the litigation.

**3. Compliance with Other Requirements**

The project applicant shall comply with all other applicable federal, state, regional, and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City’s Bureau of Building, Fire Marshal, and Public Works Department. Compliance with other applicable requirements may require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition #4.

**4. Minor and Major Changes**

- a. Minor changes to the approved project, plans, Conditions, facilities, or use may be approved administratively by the Director of City Planning.
- b. Major changes to the approved project, plans, Conditions, facilities, or use shall be reviewed by the Director of City Planning to determine whether such changes require submittal and approval of a revision to the Approval by the original approving body or a new independent permit/approval. Major revisions shall be reviewed in accordance with the procedures required for the original permit/approval. A new independent permit/approval shall be reviewed in accordance with the procedures required for the new permit/approval.

**5. Compliance with Conditions of Approval**

- a. The project applicant and property owner, including successors, (collectively referred to hereafter as the “project applicant” or “applicant”) shall be responsible for compliance with all the Conditions of Approval and any recommendations contained in any submitted and approved technical report at his/her sole cost and expense, subject to review and approval by the City of Oakland.
- b. The City of Oakland reserves the right at any time during construction to require certification by a licensed professional at the project applicant’s expense that the as-built project

conforms to all applicable requirements, including but not limited to, approved maximum heights and minimum setbacks. Failure to construct the project in accordance with the Approval may result in remedial reconstruction, permit revocation, permit modification, stop work, permit suspension, or other corrective action.

- c. Violation of any term, Condition, or project description relating to the Approval is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approval or alter these Conditions if it is found that there is violation of any of the Conditions or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it, limit in any manner whatsoever the ability of the City to take appropriate enforcement actions. The project applicant shall be responsible for paying fees in accordance with the City's Master Fee Schedule for inspections conducted by the City or a City-designated third-party to investigate alleged violations of the Approval or Conditions.

#### **6. Signed Copy of the Approval/Conditions**

A copy of the Approval letter and Conditions shall be signed by the project applicant, attached to each set of permit plans submitted to the appropriate City agency for the project, and made available for review at the project job site at all times.

#### **7. Blight/Nuisances**

The project site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within 60 days of approval, unless an earlier date is specified elsewhere.

#### **8. Indemnification**

- a. To the maximum extent permitted by law, the project applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the Oakland Redevelopment Successor Agency, the Oakland City Planning Commission, and their respective agents, officers, employees, and volunteers (hereafter collectively called "City") from any liability, damages, claim, judgment, loss (direct or indirect), action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) (collectively called "Action") against the City to attack, set aside, void or annul this Approval or implementation of this Approval. The City may elect, in its sole discretion, to participate in the defense of said Action and the project applicant shall reimburse the City for its reasonable legal costs and attorneys' fees.
- b. Within ten (10) calendar days of the filing of any Action as specified in subsection (a) above, the project applicant shall execute a Joint Defense Letter of Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Joint Defense Letter of Agreement shall survive termination, extinguishment, or invalidation of the Approval. Failure to timely execute the Letter of Agreement does not relieve the project applicant of any of the obligations contained in this Condition or other requirements or Conditions of Approval that may be imposed by the City.

#### **9. Severability**

The Approval would not have been granted but for the applicability and validity of each and every one of the specified Conditions, and if one or more of such Conditions is found to be invalid by a



court of competent jurisdiction this Approval would not have been granted without requiring other valid Conditions consistent with achieving the same purpose and intent of such Approval.

**10. Job Site Plans**

*Ongoing throughout demolition, grading, and/or construction*

At least one (1) copy of the stamped approved plans, along with the Approval Letter and Conditions of Approval, shall be available for review at the job site at all times.

**11. Special Inspector/Inspections, Independent Technical Review, Project Coordination and Monitoring**

The project applicant may be required to cover the full costs of independent third-party technical review and City monitoring and inspection, including without limitation, special inspector(s)/inspection(s) during times of extensive or specialized plan-check review or construction, and inspections of potential violations of the Conditions of Approval. The project applicant shall establish a deposit with the Bureau of Building, if directed by the Building Official, Director of City Planning, or designee, prior to the issuance of a construction-related permit and on an ongoing as-needed basis.

**12. Public Improvements**

The project applicant shall obtain all necessary permits/approvals, such as encroachment permits, obstruction permits, curb/gutter/sidewalk permits, and public improvement (“p-job”) permits from the City for work in the public right-of-way, including but not limited to, streets, curbs, gutters, sidewalks, utilities, and fire hydrants. Prior to any work in the public right-of-way, the applicant shall submit plans for review and approval by the Bureau of Planning, the Bureau of Building, and other City departments as required. Public improvements shall be designed and installed to the satisfaction of the City.

**13. Construction Days/Hours**

Requirement: The project applicant shall comply with the following restrictions concerning construction days and hours:

- a. Construction activities are limited to between 7:00 a.m. and 7:00 p.m. Monday through Friday, except that pier drilling and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m.
- b. Construction activities are limited to between 9:00 a.m. and 5:00 p.m. on Saturday. In residential zones and within 300 feet of a residential zone, construction activities are allowed from 9:00 a.m. to 5:00 p.m. only within the interior of the building with the doors and windows closed. No pier drilling or other extreme noise generating activities greater than 90 dBA are allowed on Saturday.
- c. No construction is allowed on Sunday or federal holidays.

Construction activities include, but are not limited to, truck idling, moving equipment (including trucks, elevators, etc.) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

Any construction activity proposed outside of the above days and hours for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case-by-case basis by the City, with criteria including the urgency/emergency nature of the work, the proximity of residential or other sensitive uses, and a consideration of nearby residents’/occupants’ preferences. The project applicant shall notify property owners and occupants located within 300 feet at least 14 calendar days prior to construction activity proposed outside of

the above days/hours. When submitting a request to the City to allow construction activity outside of the above days/hours, the project applicant shall submit information concerning the type and duration of proposed construction activity and the draft public notice for City review and approval prior to distribution of the public notice.

When Required: During construction

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

## **PROJECT-SPECIFIC CONDITIONS**

### **14. Emissions Report**

Requirement: A RF emissions report shall be submitted to the Planning Bureau indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.

Requirement: Prior to a final inspection

When Required: Prior to final building permit inspection sign-off

Initial Approval: N/A

Monitoring/Inspection: N/A

### **15. Camouflage**

Requirement: The antenna, related equipment and ground cabinet shall be painted, texturized, and maintained matte brown, and the equipment and any other accessory items including cables, to better camouflage the facility to the utility pole.

When Required: Prior to a final inspection

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

### **16. Operational**

Requirement: Noise levels from the activity, property, or any mechanical equipment on site shall comply with the performance standards of Section 17.120 of the Oakland Planning Code and Section 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the Planning and Zoning Division and Building Services.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

### **17. Possible District Undergrounding PG&E Pole**

Requirement: Should the City light pole be permanently removed for purposes of district undergrounding or otherwise, the telecommunications facility can only be re-established by applying for and receiving approval of a new application to the Oakland Planning Bureau as required by the regulations.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: N/A

**18. Graffiti Control Requirement:**

- a. During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation:
- b. The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following:
  - i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system.
  - ii. For galvanized poles, covering with new paint to match the color of the surrounding surface.
  - iii. Replace pole numbers.

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building





# HWY 13 SC5

5506 THORNHILL DRIVE  
OAKLAND, CA 94619  
STRUCTURE TYPE: PG&E POLE  
LOCATION CODE: 427182

## Attachment C

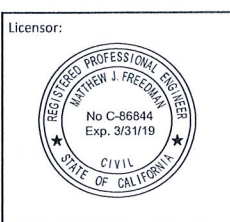
Prepared For:  
**verizon**  
2785 MITCHELL DRIVE, SUITE 9  
WALNUT CREEK, CA 94598

Prepared For:

Site Number:  
427182  
Site Name:  
HWY 13 SC5  
Site Address:  
5506 THORNHILL DRIVE  
OAKLAND, CA 94619

County:  
ALAMEDA COUNTY

Engineer:  
**THE CBR GROUP**  
841 ARNOLD DRIVE, SUITE A  
MARTINEZ, CA 94553  
www.TheCBRGroup.com



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Issued For:  
CONSTRUCTION

REV	DATE	DESCRIPTION	BY
B	11/27/17	100% CD'S FOR REVIEW	JG
A	07/17/17	90% CD'S FOR REVIEW	FG

Sheet Title:  
TITLE SHEET

Sheet Number:  
**T-1**

PROJECT DESCRIPTION
THIS IS AN UNMANNED WIRELESS TELECOMMUNICATION FACILITY FOR VERIZON WIRELESS SYSTEMS CONSISTING OF THE INSTALLATION AND OPERATION OF AN ANTENNA AND ASSOCIATED EQUIPMENT. SCOPE OF WORK CONSISTS OF THE FOLLOWING: 1. INSTALL (1) (N) CANISTER ANTENNA ON (N) REPLACEMENT POLE WITH A 65'-6" A.G.L. (75'-0" POLE). 2. INSTALL (3) (N) RRU UNIT ON (N) REPLACEMENT POLE. 3. INSTALL (2) (N) DISCONNECT SWITCHES ON (N) REPLACEMENT POLE. 4. INSTALL (1) (N) ELECTRICAL METER ON (N) REPLACEMENT POLE. 5. INSTALL (N) FCC SIGNAGE ON (N) REPLACEMENT POLE. 6. INSTALL (N) GROUND RODS AND BUSS BAR. 7. INSTALL (3) (N) CONDUITS FOR POWER, TELCO AND COAX. 8. INSTALL (1) (N) POWER CABINET ON (N) REPLACEMENT POLE. 9. INSTALL (1) (N) HANDHOLE AT GROUND LEVEL. 10. NO TREE TRIMMING WORK IS REQUIRED.
SITE COMPLETION CHECKLIST
<ul style="list-style-type: none"> <li>ANTENNAS, MOUNTING BRACKETS, POLE EXTENSIONS, PVC CONDUIT, CABLING AND RADIO RELAY UNITS TO BE PAINTED MATTE BROWN.</li> <li>CABLING TO BE INSTALLED IN A TIDY MANNER WITHOUT EXCESS CABLE LOOPS.</li> <li>SPACING OF SUPPORT ELEMENTS-SUPPORT EQUIPMENT (E.G. METER, LOAD CENTER AND RRUS) TO BE CLUSTERED (VERTICALLY) AS CLOSE AS IS TECHNICALLY FEASIBLE ON POLE.</li> <li>FCC MANDATED RF WARNING SIGNAGE SHALL FACE OUT TO STREET WHEN PLACED IN FRONT OF, OR NEAR A WINDOW. SIGNAGE SHALL FACE TOWARD BUILDING IF THERE IS NO WINDOW.</li> <li>PROPOSED UTILITY ROUTES TO BE DETERMINED BY UTILITY PROVIDER.</li> </ul>

CODE COMPLIANCE
ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
1) 2016 CALIFORNIA BUILDING CODE (CBC) WITH CALIFORNIA AMENDMENTS, BASED ON THE 2009 IBC
2) 2016 CALIFORNIA RESIDENTIAL CODE (CRC) WITH APPENDIX H, PATIO COVERS, BASED ON THE 2009 IRC
3) 2016 CALIFORNIA HISTORICAL BUILDING CODE (CHBC)
4) 2016 CALIFORNIA EXISTING BUILDING CODE (CEBC), BASED ON THE 2009 IBC
5) 2016 CALIFORNIA GREEN BUILDINGS STANDARDS CODE (CGBSC)
6) 2016 CALIFORNIA FIRE CODE (FC), BASED ON THE 2009 IFC, WITH CALIFORNIA AMENDMENTS
7) 2016 CALIFORNIA MECHANICAL CODE (CMC), BASED ON THE 2009 UMC
8) 2016 CALIFORNIA PLUMBING CODE (CPC), BASED ON THE 2009 UPC
9) 2016 CALIFORNIA ELECTRICAL CODE (CEC) WITH CALIFORNIA AMENDMENTS, BASED ON THE 2008 NEC
10) 2016 CALIFORNIA ENERGY CODE (CEC)
11) ANSI / EIA-TIA-222-G
12) 2015 NFPA 101, LIFE SAFETY CODE
13) 2015 NFPA 72, NATIONAL FIRE ALARM CODE
14) 2015 NFPA 13, FIRE SPRINKLER CODE
15) G.O. 95



RADIO FREQUENCY DATA PLAN	
REVISION LEVEL	DATE:
-	xx/xx/xxxx

**GENERAL CONTRACTOR NOTES**

DO NOT SCALE DRAWINGS

THESE DRAWINGS ARE FORMATTED TO BE FULL SIZE AT 24" x 36". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOBSITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME.

PROJECT TEAM
<b>APPLICANT / LESSEE:</b> VERIZON WIRELESS 2785 MITCHELL DRIVE, BLDG 9 WALNUT CREEK, CA 94598 CONTACT: CHRIS MOLLER PH: (925) 339-2778 EMAIL: chris.moller@verizonwireless.com
<b>SITE ACQUISITION MANAGER (APPLICANT AGENT FOR VERIZON):</b> THE CBR GROUP 841 ARNOLD DRIVE, SUITE A MARTINEZ, CA 94553 CONTACT: CHRISTY BELTRAN PH: (415) 806-2323 EMAIL: christy@thecbrgroup.com
<b>CONSTRUCTION:</b> VERIZON WIRELESS 2785 MITCHELL DRIVE, BLDG 9 WALNUT CREEK, CA 94598 CONTACT: DENNIS RAINES PH: (707) 514-5700 EMAIL: Dennis.Raines@verizonwireless.com
<b>ENGINEER:</b> THE CBR GROUP 841 ARNOLD DRIVE, SUITE A MARTINEZ, CA 94553 CONTACT: MATT FREEDMAN PH: (925) 798-2100 EMAIL: matt@thecbrgroup.com
<b>RF ENGINEER:</b> VERIZON WIRELESS 2785 MITCHELL DRIVE, BLDG 9 WALNUT CREEK, CA 94598 CONTACT: KATY QIAN PH: (916) 508-9382 EMAIL: junfeng.qian@verizonwireless.com

PROJECT INFORMATION	
<b>SITE INFORMATION:</b>	<b>POLE OWNER:</b>
SITE NUMBER: 427182	PG&E
SITE NAME: HWY 13 SC5	<b>POWER AGENCY:</b>
SITE ADDRESS: 5506 THORNHILL DRIVE OAKLAND, CA 94619	PG&E 77 BEALE STREET SAN FRANCISCO, CA 94105 PH: (800) 743-5000
A.P.N. NUMBER: R.O.W.	<b>TELEPHONE AGENCY:</b>
CURRENT USE: UTILITY POLE	AT&T CALIFORNIA 5001 EXECUTIVE PARKWAY SAN RAMON, CA 94583
PROPOSED USE: UTILITY POLE & TELECOMMUNICATIONS FACILITY	
JURISDICTION: CITY OF OAKLAND	
LATITUDE: 37.831814	
LONGITUDE: -122.215030	
GROUND ELEVATION: 599.6'± A.M.S.L.	
ZONING: RH-4	

SHEET INDEX		REV
T-1	TITLE SHEET	B
1	UTILITY JUNCTION POLE HWY 13 SC 5 (RIGHT OF WAY EXHIBIT)	B
A-1	OVERALL SITE PLAN	B
A-2	EXISTING AND PROPOSED EQUIPMENT AND ANTENNA PLANS	B
A-3	EXISTING AND PROPOSED SOUTHWEST ELEVATION	B
A-4	EXISTING AND PROPOSED NORTHWEST ELEVATION	B
A-5	EQUIPMENT AND CONSTRUCTION DETAILS	B
A-6	EQUIPMENT AND CONSTRUCTION DETAILS	B
E-1	ELECTRICAL GROUND DIAGRAMS, SINGLE LINE DIAGRAM	B
E-2	ELECTRICAL DETAILS	B
TCP	TRAFFIC CONTROL PLAN	B

OCCUPANCY AND CONSTRUCTION TYPE
OCCUPANCY : S-2 (UNMANNED)
CONSTRUCTION TYPE: IIB
<b>HANDICAP REQUIREMENTS</b> FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, ACCESSIBILITY ACCESS AND REQUIREMENTS ARE NOT REQUIRED, IN ACCORDANCE WITH CALIFORNIA STATE ADMINISTRATIVE CODE, PART 2, TITLE 24, SECTION 1103B.1, EXCEPTION 1 & SECTION 1134B.2.1, EXCEPTION 4.



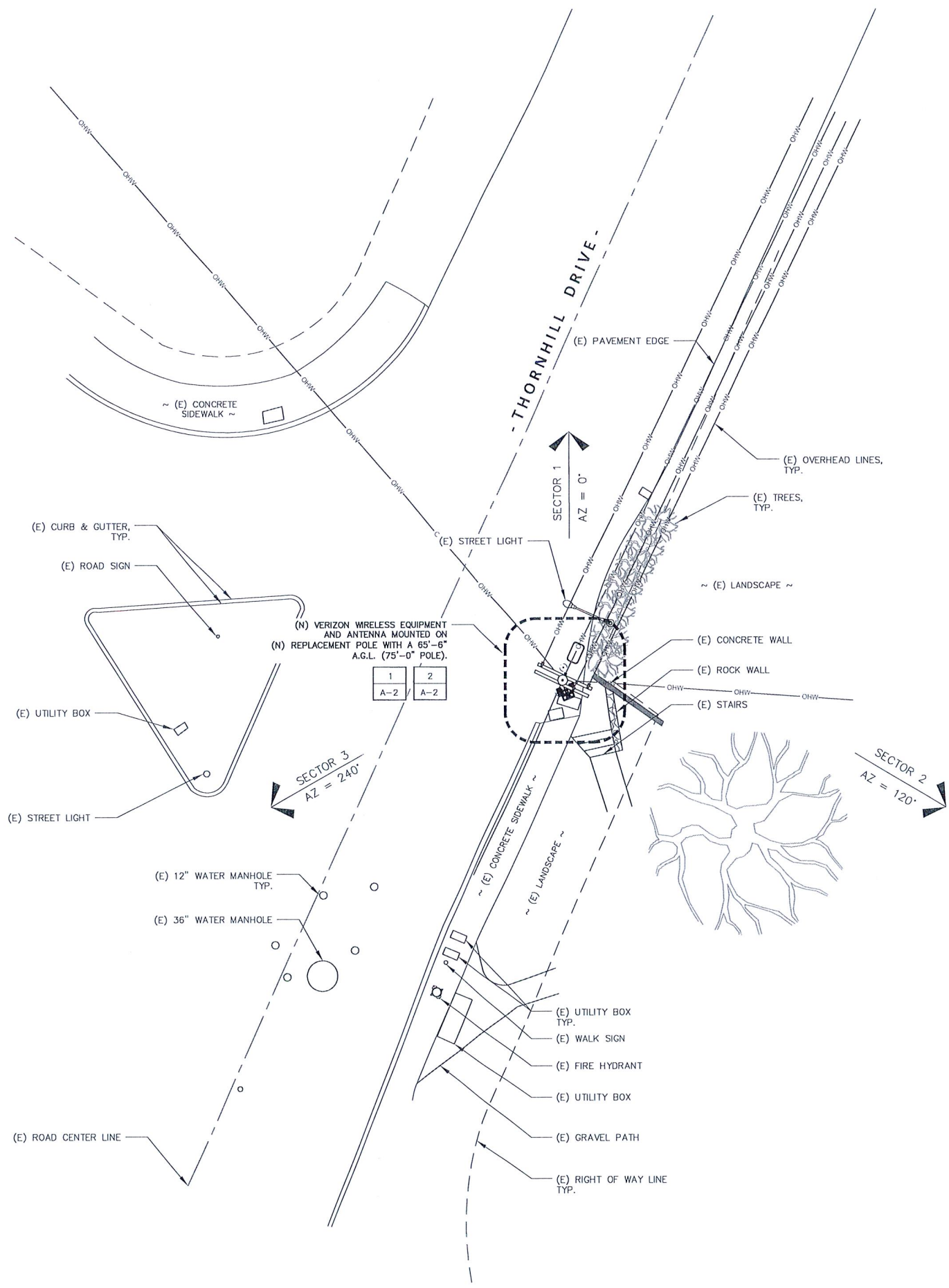


- 2 GRID REFERENCE
- 1  
A-2 DETAIL REFERENCE
- X  
X-Y ELEVATION REFERENCE
- X  
X-Y SECTION REFERENCE
- CENTERLINE
- - - PROPERTY/LEASE LINE
- MATCH LINE
- WORK POINT
- GROUND CONDUCTOR
- TELEPHONE CONDUIT
- ELECTRICAL CONDUIT
- COAXIAL CABLE
- O/H OVERHEAD SERVICE CONDUCTORS
- ▨ GROUT OR PLASTER
- ▨ (E) BRICK
- ▨ (E) MASONRY
- ▨ CONCRETE
- ▨ EARTH
- ▨ GRAVEL
- ▨ PLYWOOD
- ▨ SAND
- ▨ WOOD CONTINUOUS
- ▨ WOOD BLOCKING
- ▨ STEEL
- (N) NEW
- (E) EXISTING
- ⊔ NEW ANTENNA
- ⊔ EXISTING ANTENNA
- ⊔ GROUND ROD
- ⊔ GROUND BUS BAR
- MECHANICAL GRND. CONN.
- CADWELD
- ⊗ GROUND ACCESS WELL
- ⊔ ELECTRIC BOX
- ⊔ TELEPHONE BOX
- ☀ LIGHT POLE
- FND. MONUMENT
- ⊕ SPOT ELEVATION
- △ SET POINT
- △ REVISION

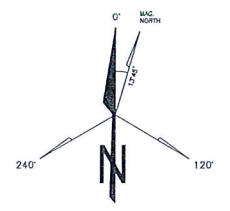
2 SYMBOLS  
N.T.S.

1 OVERALL SITE PLAN

- MORAGA AVENUE -



SCALE: 1/8" = 1'-0"  
0' 4' 8' 16' 24'

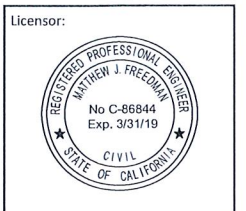


Prepared For:  
**verizon**  
2785 MITCHELL DRIVE, SUITE 9  
WALNUT CREEK, CA 94598

Prepared For:

Site Number:  
427182  
Site Name:  
HWY 13 SC5  
Site Address:  
5506 THORNHILL DRIVE  
OAKLAND, CA 94619  
County:  
ALAMEDA COUNTY

Engineer:  
**THE CBR GROUP**  
841 ARNOLD DRIVE, SUITE A  
MARTINEZ, CA 94553  
www.TheCBRGroup.com



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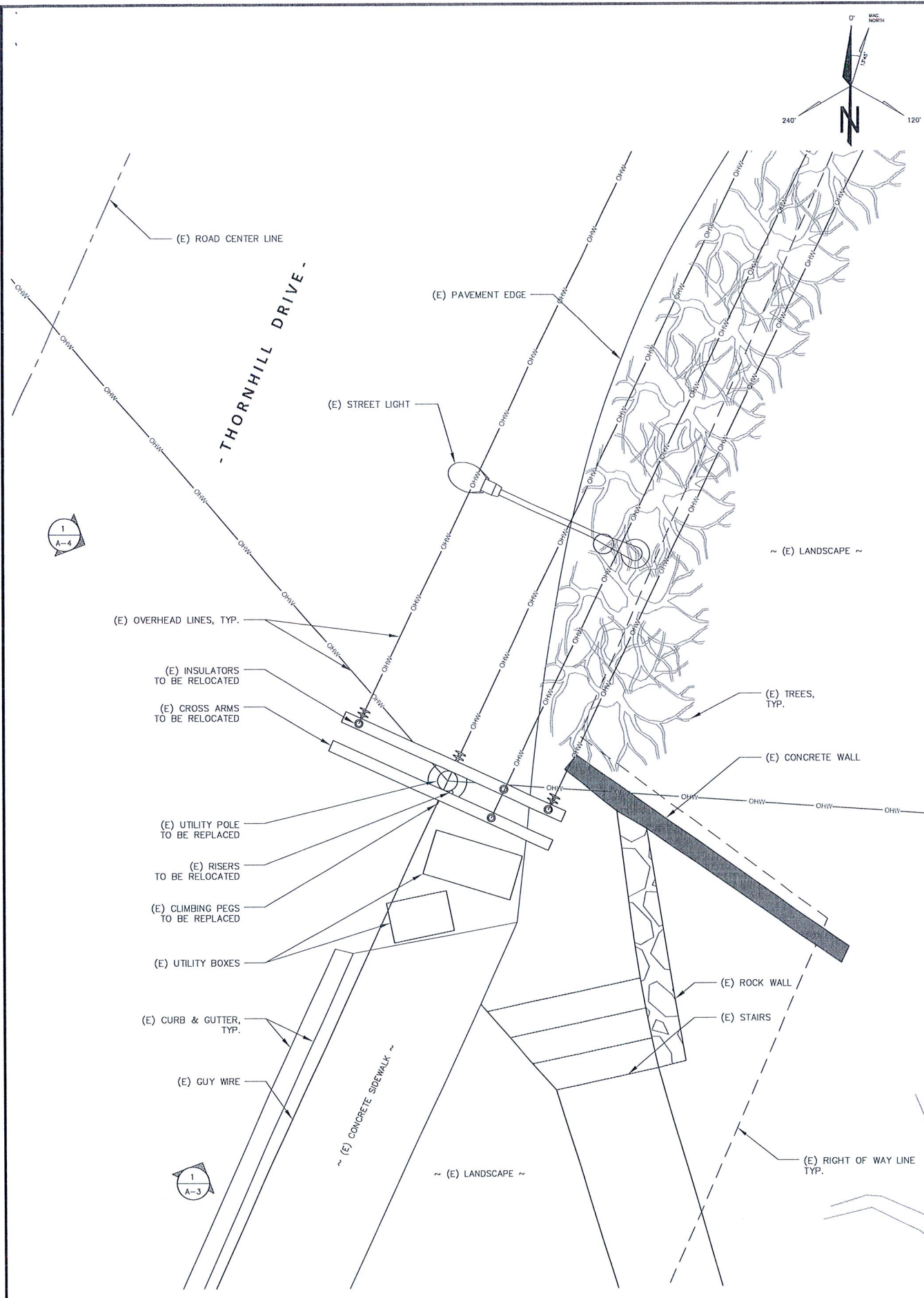
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CONSTRUCTION

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A	07/17/17	90% CD'S FOR REVIEW	FG

Sheet Title:  
OVERALL SITE PLAN

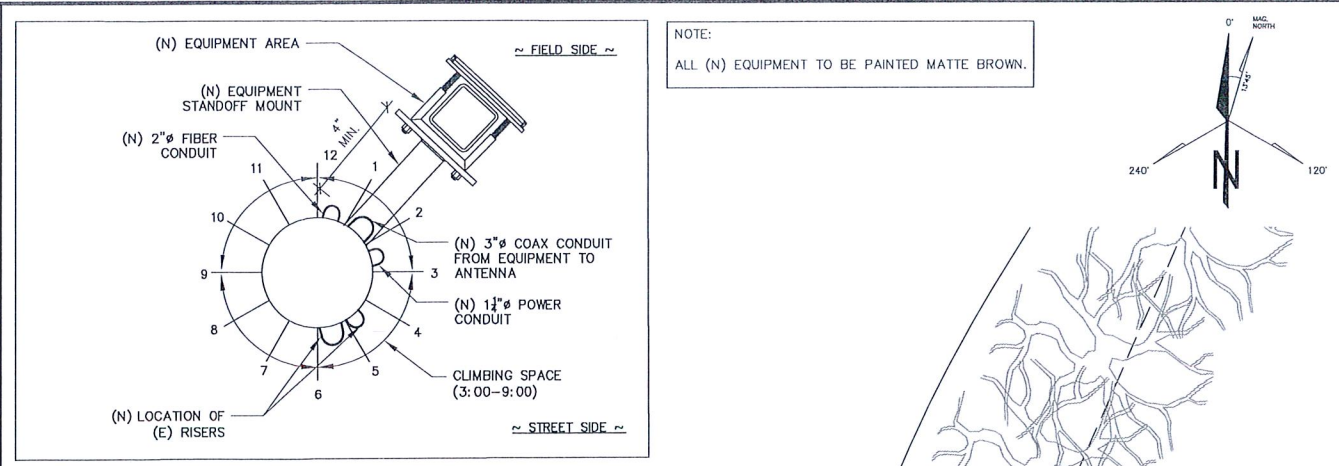
Sheet Number:  
**A-1**





1 EXISTING EQUIPMENT AND ANTENNA

SCALE: 1/2" = 1'-0"



2 PROPOSED EQUIPMENT AND ANTENNA

SCALE: 1/2" = 1'-0"

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 MARTINEZ, CA 94553  
 www.TheCBRGroup.com

Licenser:  
  
 REGISTERED PROFESSIONAL ENGINEER  
 MATTHEW J. FREEDMAN  
 No. C-86844  
 Exp. 3/31/19  
 CIVIL  
 STATE OF CALIFORNIA

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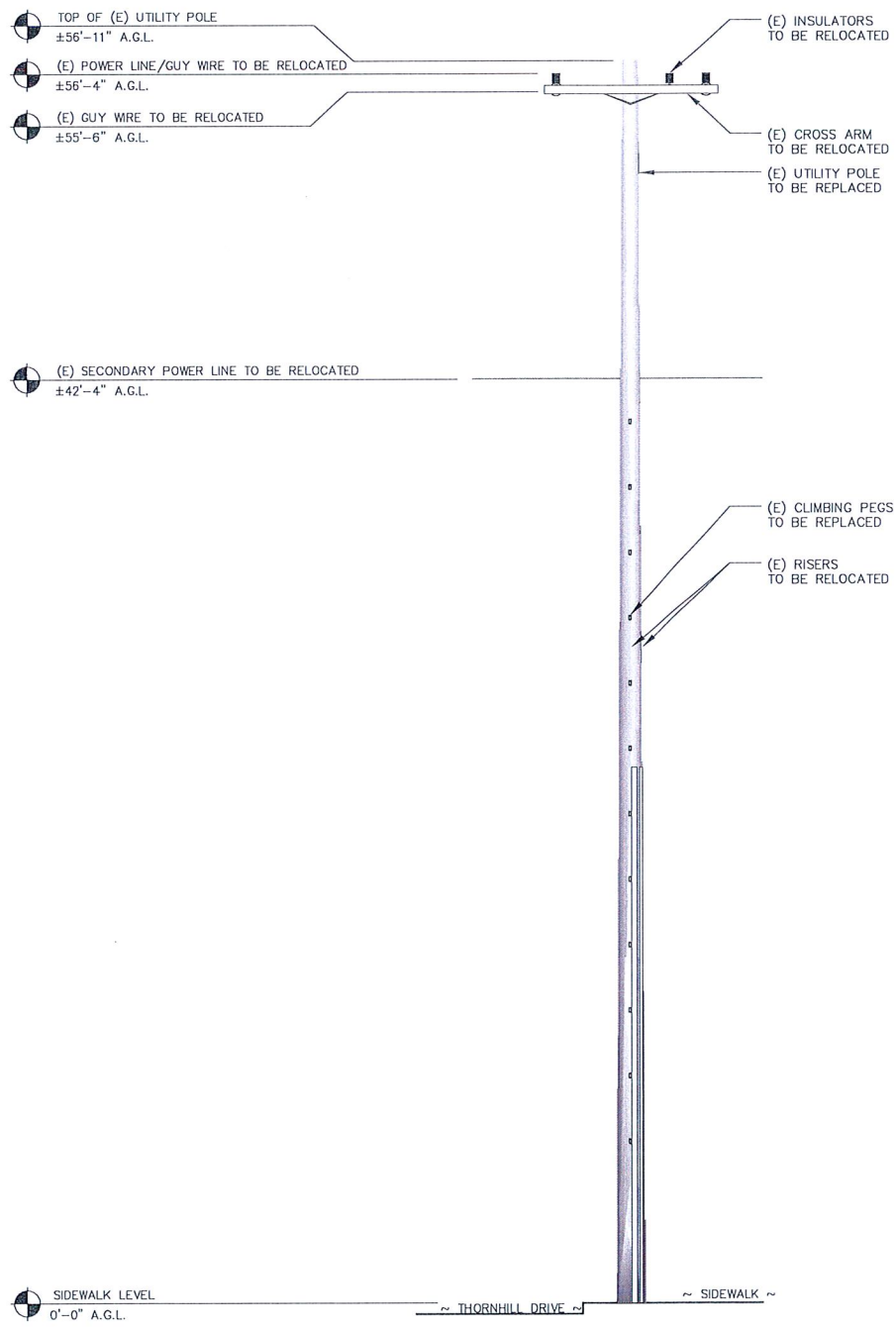
Issued For:  
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A	07/17/17	90% CD'S FOR REVIEW	FG

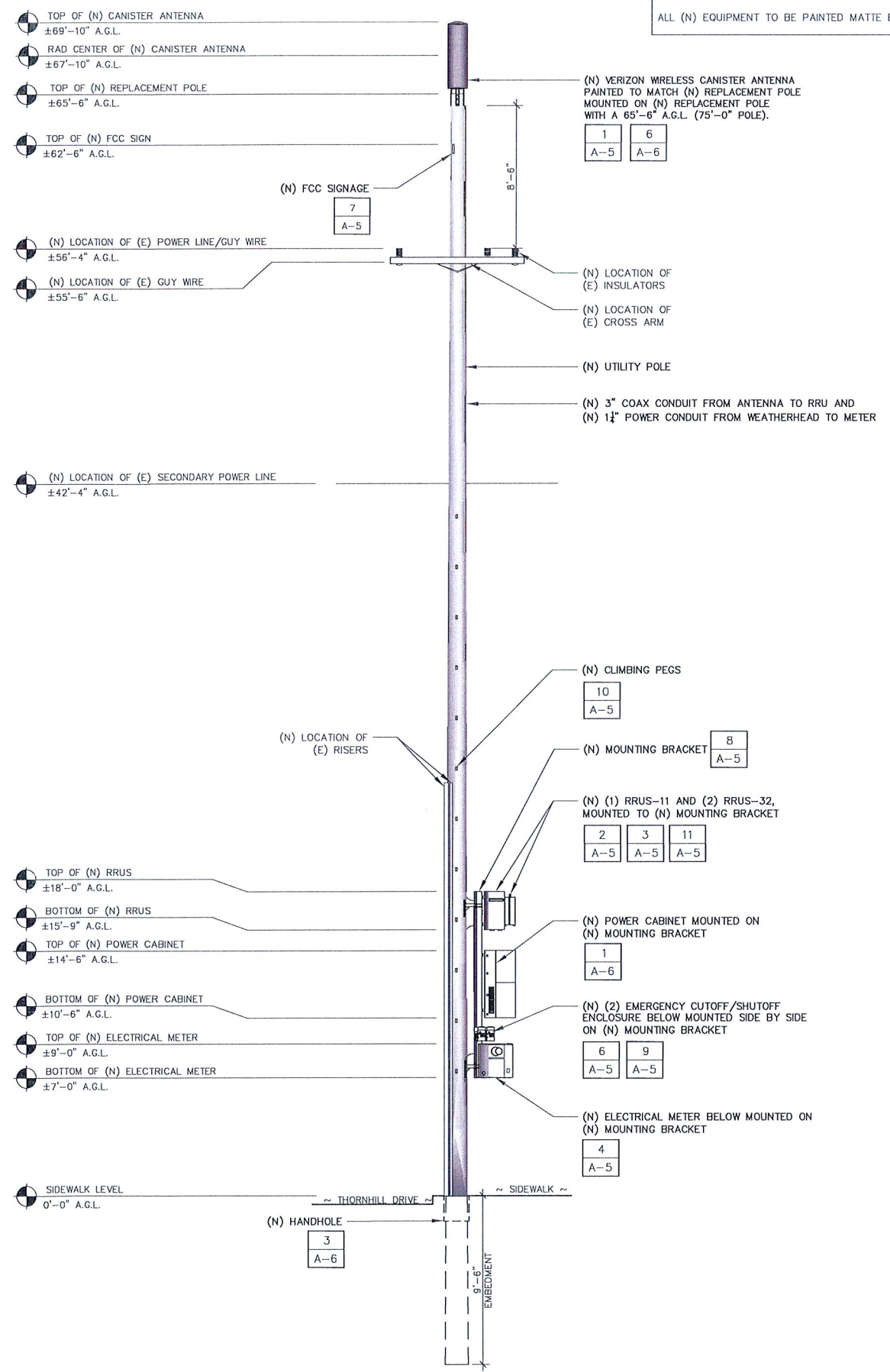
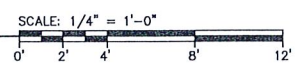
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EXISTING AND PROPOSED  
EQUIPMENT AND  
ANTENNA PLANS

Sheet Number:  
**A-2**

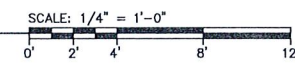




1 EXISTING SOUTHWEST ELEVATION



2 PROPOSED SOUTHWEST ELEVATION



NOTE:  
ALL (N) EQUIPMENT TO BE PAINTED MATTE BROWN.

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427182  
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Licenser:  
  
REGISTERED PROFESSIONAL ENGINEER  
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No C-86844  
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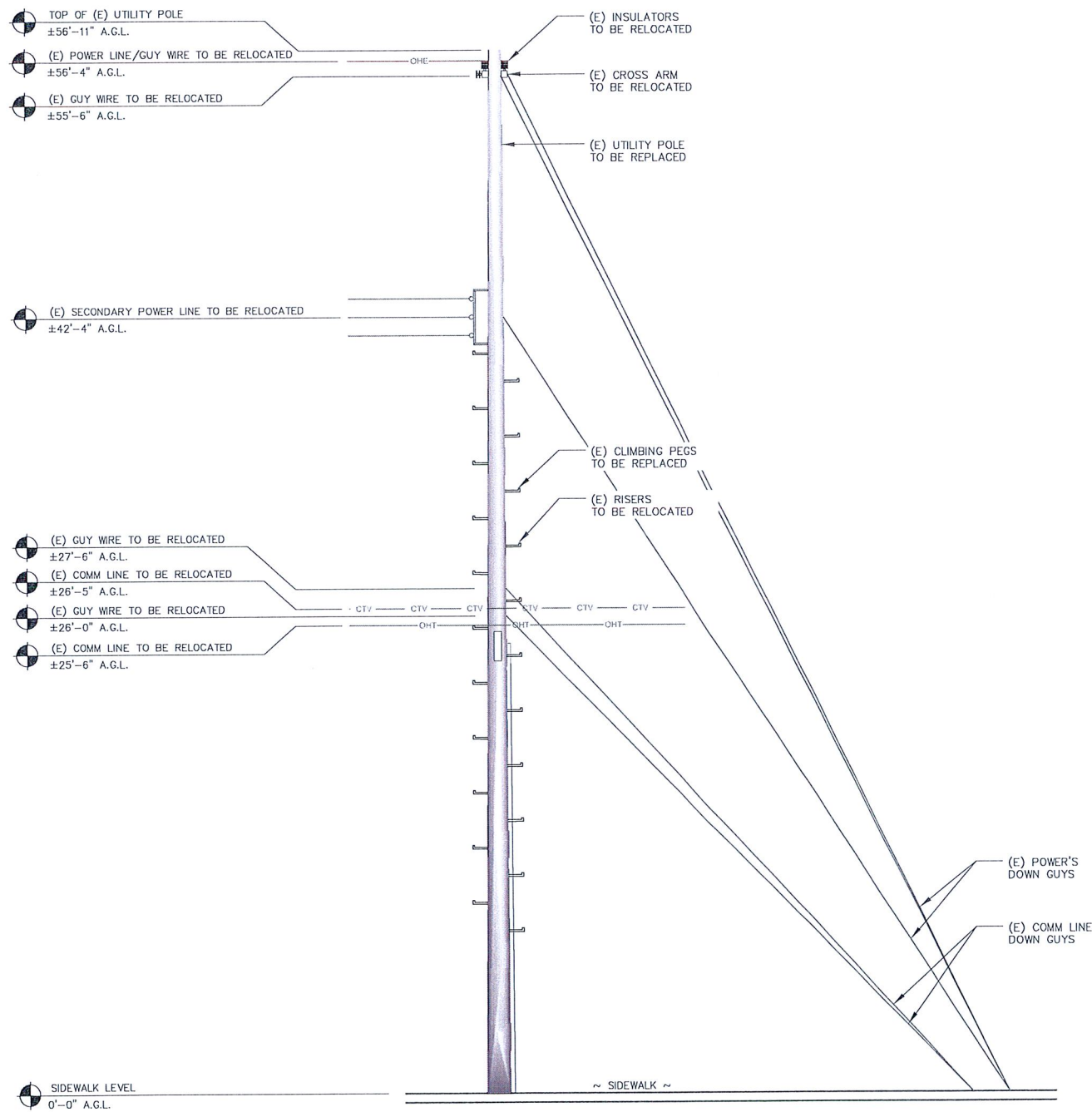
Issued For:  
CONSTRUCTION

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A	07/27/17	90% CD'S FOR REVIEW	FG

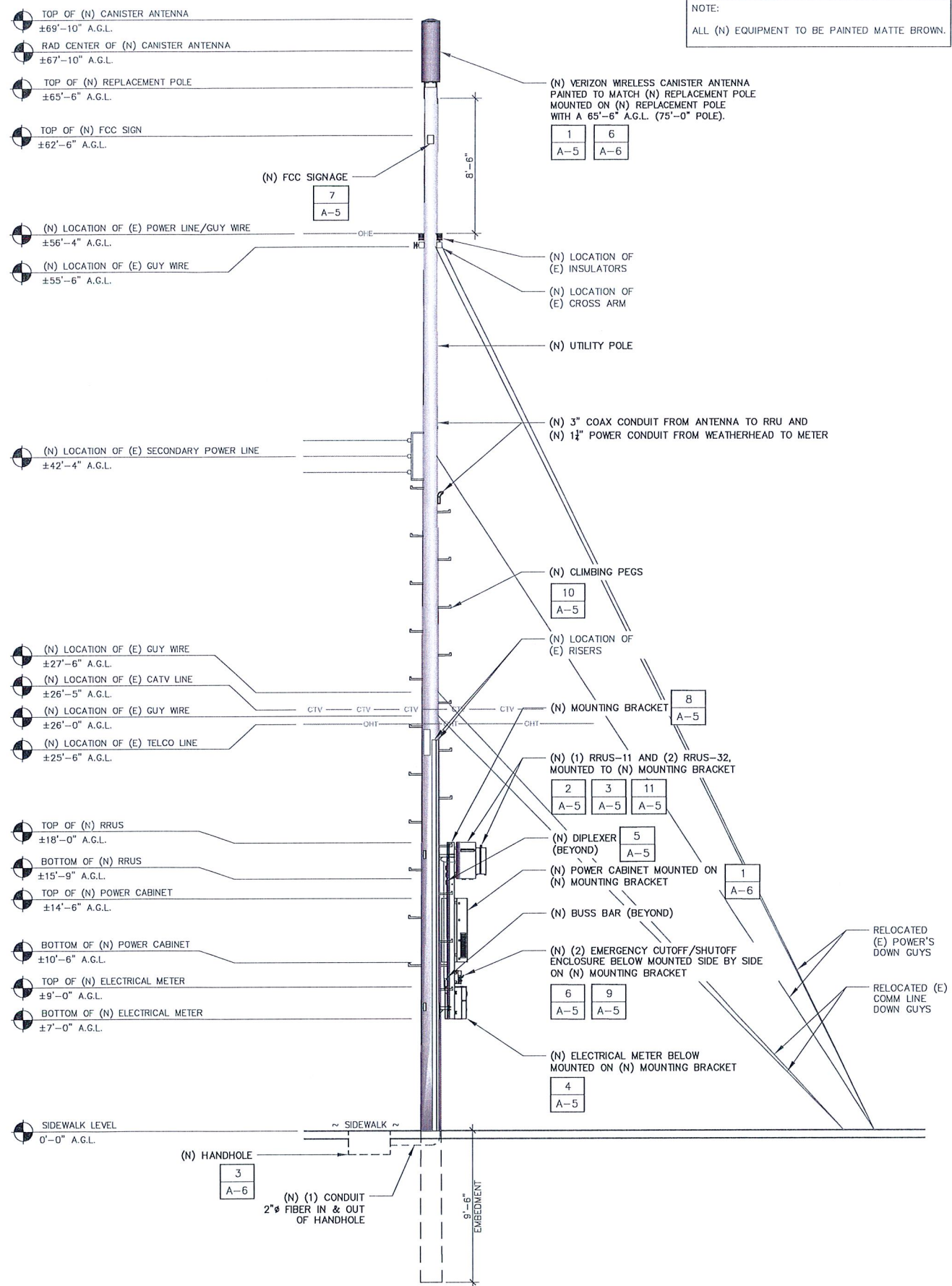
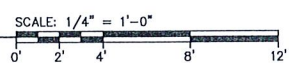
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EXISTING AND PROPOSED  
SOUTHWEST ELEVATIONS

Sheet Number:  
**A-3**

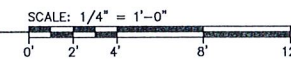




1 EXISTING NORTHWEST ELEVATION



2 PROPOSED NORTHWEST ELEVATION



NOTE:  
ALL (N) EQUIPMENT TO BE PAINTED MATTE BROWN.

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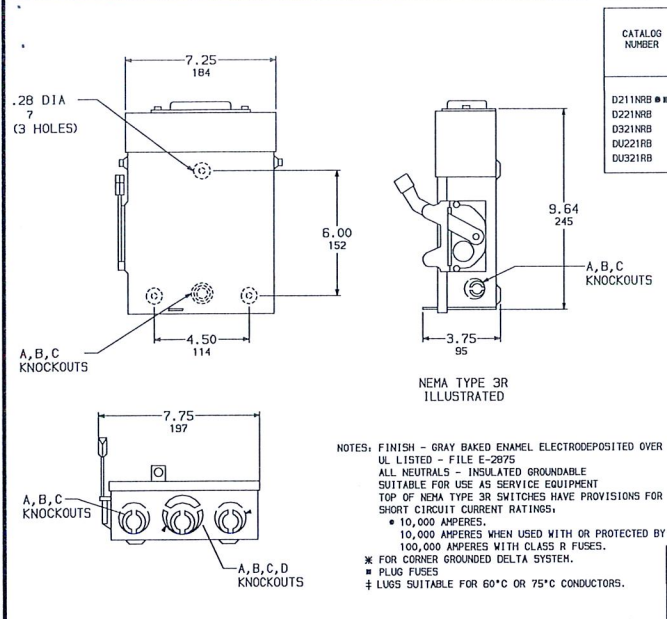
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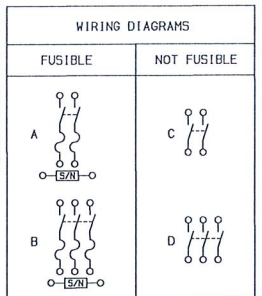
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EXISTING AND PROPOSED  
NORTHWEST ELEVATIONS

Sheet Number:  
**A-4**





CATALOG NUMBER	VOLTAGE RATINGS	WIRING DIAG.	HORSEPOWER RATINGS						
			120VAC			240VAC			
			STD.	MAX.	STD.	MAX.	STD.	MAX.	
D211NRB	240VAC	A	1/2	2	1 1/2	-	3	-	-
D221NRB	240VAC	A	-	-	1 1/2	3	3	7 1/2	3
D231NRB	240VAC	B	-	-	1 1/2	3	3	7 1/2	3
D221IRB	240VAC	C	-	-	-	-	3	-	-
D2321IRB	240VAC	D	-	-	-	-	3	7 1/2	-



DUAL DIMENSIONS, INCHES MILLIMETERS

TERMINAL LUGS †			
AMPERES	MAX. WIRE	MIN. WIRE	TYPE
30	# 6 AWG	# 12 AWG	AL
	# 6 AWG	# 14 AWG	CU

KNOCKOUTS				
SYMBOL	A	B	C	D
CONDUIT SIZE	.50	.75	1	1.25

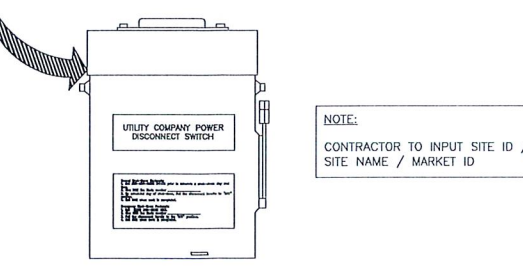
GENERAL DUTY SAFETY SWITCHES  
VISIBLE BLADE TYPE  
30 AMPERE  
ENCLOSURE - NEMA TYPE 3R RAINPROOF

**SQUARE D COMPANY**

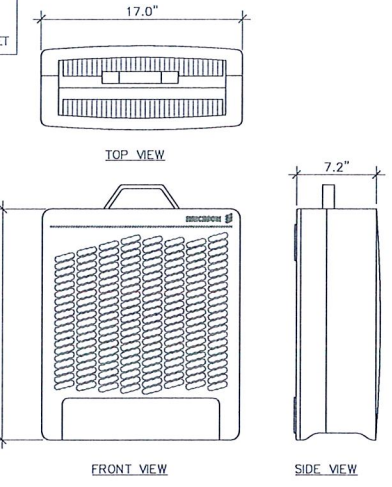
DWG. NO. 1852

Normal Shut-Down Protocols:  
1. Call 800-264-6620 24HRS prior to schedule a shut-down day and time.  
2. Give NOC the Node number \_\_\_\_\_  
3. On scheduled day of shut-down, Pull the disconnect handle to "OFF" position.  
4. Call NOC when work is completed.

Emergency Shut-Down Protocols:  
1. Call (800) 264-6620 NOC.  
2. Give NOC the Node number \_\_\_\_\_  
3. Pull the disconnect handle to the "OFF" position.  
4. Call NOC when work is completed.



MANUFACTURER: ERICSSON  
MODEL: RRUS-11  
DEPTH: 182 mm / 7.2 in.  
LENGTH: 500 mm / 19.7 in.  
WIDTH: 431 mm / 17.0 in.  
WEIGHT: 23 kg / 60.0 lb.  
FREQUENCY: REFER TO RF DATA SHEET



SHUTDOWN DISCONNECT SWITCH

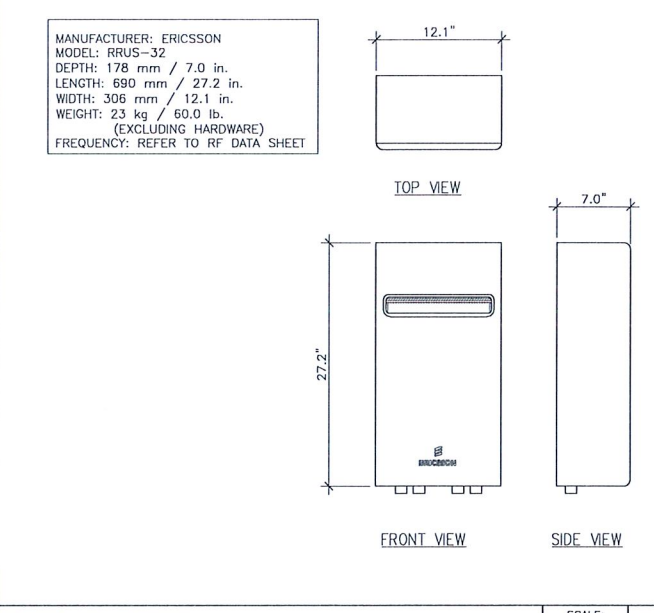
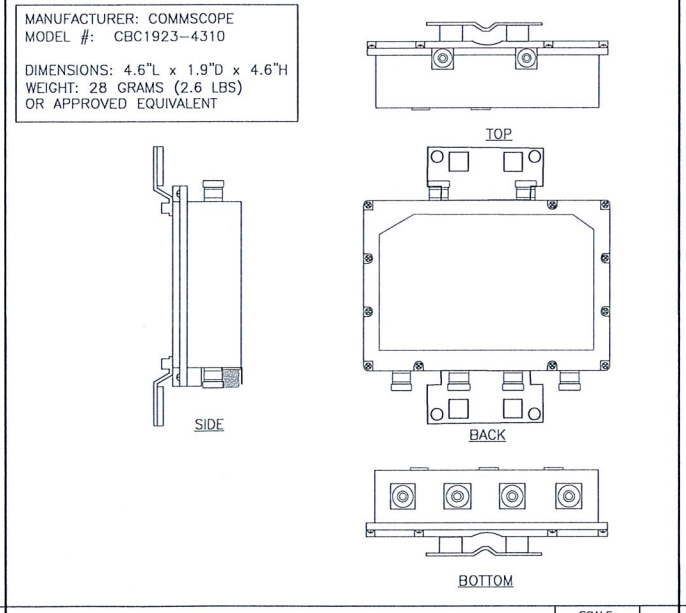
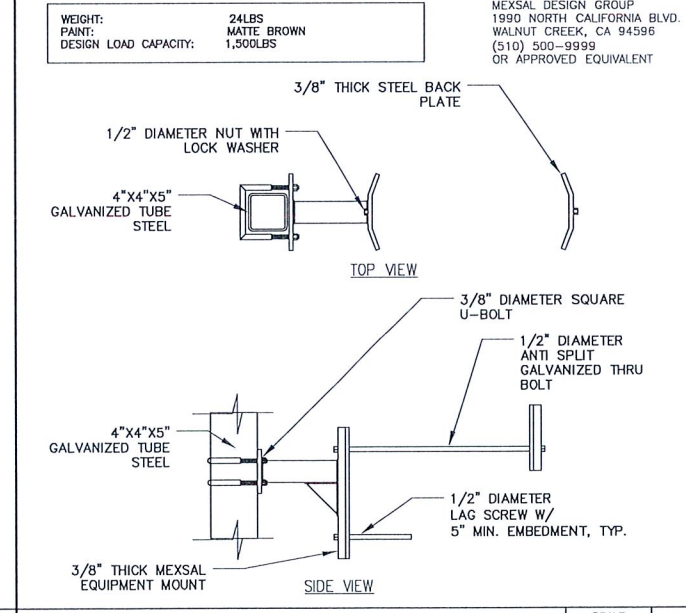
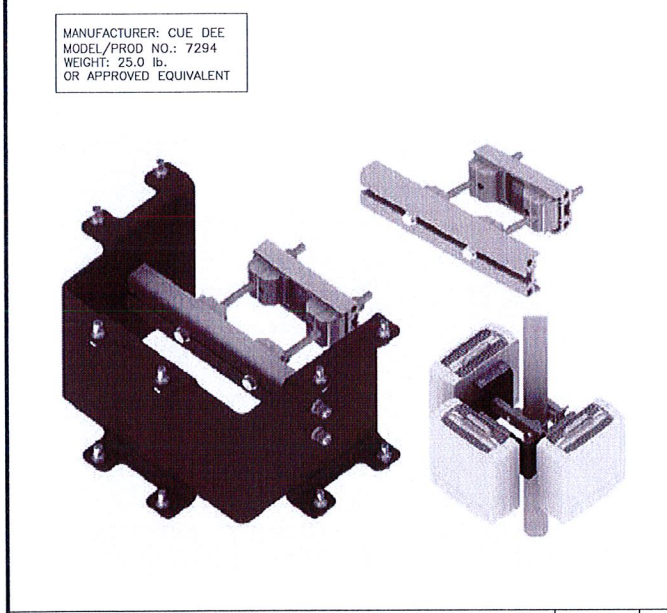
SCALE: 9  
N.T.S.

SHUTDOWN DISCONNECT BOX

SCALE: 6  
N.T.S.

RRUS-11 DETAIL

SCALE: 3  
N.T.S.

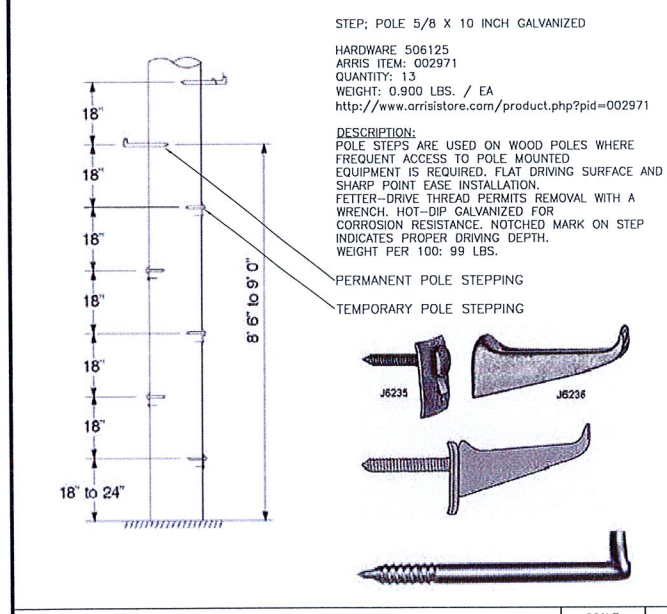


RRU SUPPORT

EQUIPMENT MOUNT DETAIL

DIPLEXER DETAIL

RRUS-32 DETAIL



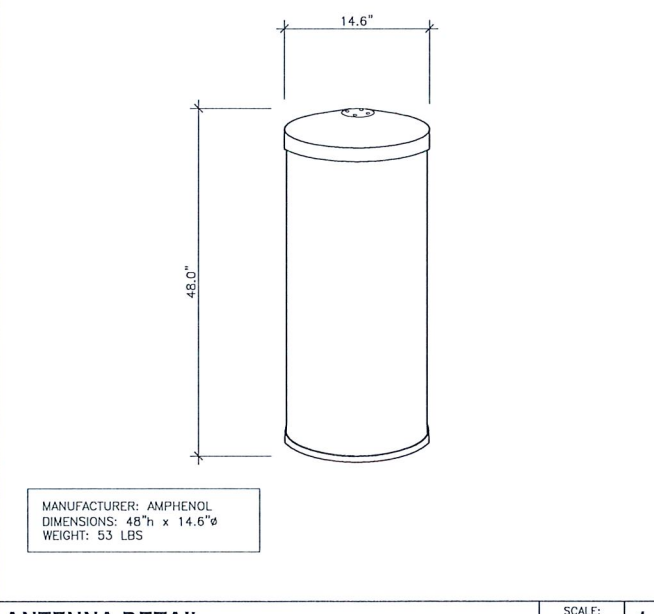
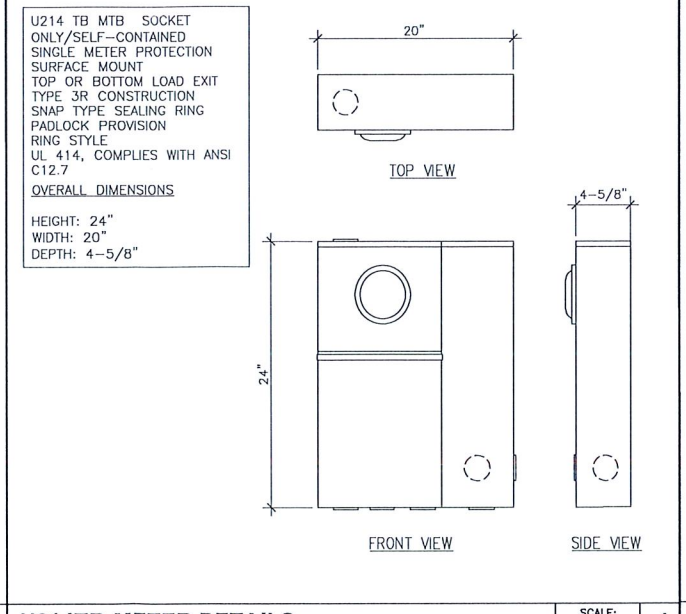
**CAUTION**

Transmitting Antenna(s)

Radio frequency fields beyond this point MAY EXCEED the FCC Occupational exposure limit. Obey all posted signs and site guidelines.  
Call Verizon Wireless at 1-800-264-6620 prior working beyond this point.

STATE: \_\_\_\_\_ SWITCH: \_\_\_\_\_  
SITE ID: \_\_\_\_\_  
SECTOR/NODE: \_\_\_\_\_

RSI 6404.5D



POLE STEPPING DETAILS

CAUTION SIGN

U214TB METER DETAILS

ANTENNA DETAIL

Prepared For:

**verizon**

2785 MITCHELL DRIVE, SUITE 9  
WALNUT CREEK, CA 94598

Prepared For:

Site Number:  
427182

Site Name:  
HWY 13 SC5

Site Address:  
5506 THORNHILL DRIVE  
OAKLAND, CA 94619

County:  
ALAMEDA COUNTY

Engineer:

**THE CBR GROUP**

841 ARNOLD DRIVE, SUITE A  
MARTINEZ, CA 94553  
[www.TheCBRGroup.com](http://www.TheCBRGroup.com)

Licensor:

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REV	DATE	DESCRIPTION	BY
B	11/27/17	100% CD'S FOR REVIEW	JG
A	07/17/17	90% CD'S FOR REVIEW	FG

Sheet Title:  
EQUIPMENT AND CONSTRUCTION DETAILS

Sheet Number:  
**A-5**



REV	DATE	DESCRIPTION	BY
B	11/27/17	100% CD'S FOR REVIEW	JG
A	07/17/17	90% CD'S FOR REVIEW	FG

NOT USED SCALE: 7 N.T.S.

NOT USED SCALE: 5 N.T.S.

NOT USED SCALE: 2 N.T.S.

**Amphenol ANTENNA SOLUTIONS**

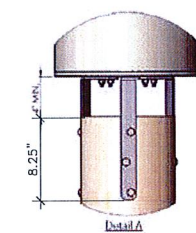
**WB3X-MKS-01**  
 Utility Pole Mounting Kit for Cylindrical Antennas

**Mounting Instructions**

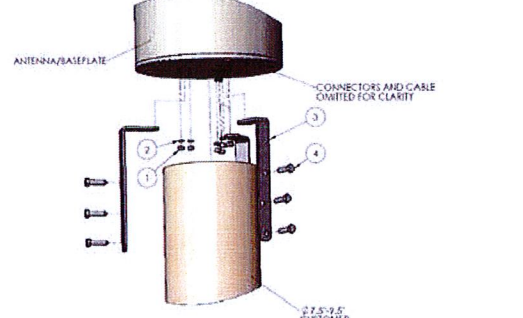
- Step 1: Attach pole mount bracket from kit to antenna base plate using hardware items 1 and 2. Tighten to 18 Nm (131 Ft-Lb).
- Step 2: Attach pole mount bracket from kit to antenna base plate using hardware items 3 and 4. Tighten to 18 Nm (131 Ft-Lb).
- Step 3: Make all electrical connections with weatherproofing sealant and/or other as required.

Part No.	Description	Quantity
Item 1	Flat Washer 3/8" x 1/2"	4
Item 2	Flat Washer 3/8" x 1/2"	4
Item 3	Pole Mount Bracket	1
Item 4	Flat Washer 3/8" x 1/2" Long	4

Material: Aluminum  
 Weight: 2.7 kg (6 lbs)



INSTALL



ANTENNA/BASEPLATE

CONNECTORS AND CABLE OMITTED FOR CLARITY

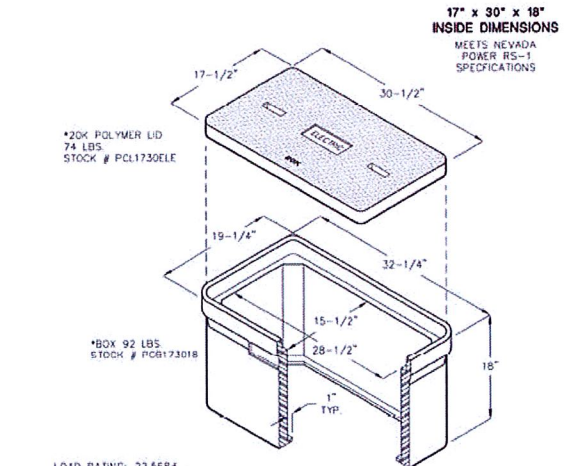
27.5" x 9.5" CUSTOMER UTILITY POLE

Quick Release Antenna Mounting Kit is designed to allow for quick removal of antenna and base plate as a result of normal maintenance and operational conditions. Excess operational conditions will cause the antenna mounting kit to fail. Such failure may result in damage to equipment. Improper use may result in damage to equipment and/or injury.

REV: 1/15/10 www.amphenol-antennas.com 1 of 1

WB3X-MKS-01 ANTENNA MOUNT DETAIL SCALE: 6 N.T.S.

TRENCH DETAIL SCALE: 4 N.T.S.



**17" x 30" x 18" INSIDE DIMENSIONS**  
 MEETS NEVADA POWER RS-1 SPECIFICATIONS

\*LID: 20K POLYMER LID  
 74 LBS  
 STOCK # PCL1730ELE

\*BOX: 92 LBS  
 STOCK # PCB17301B

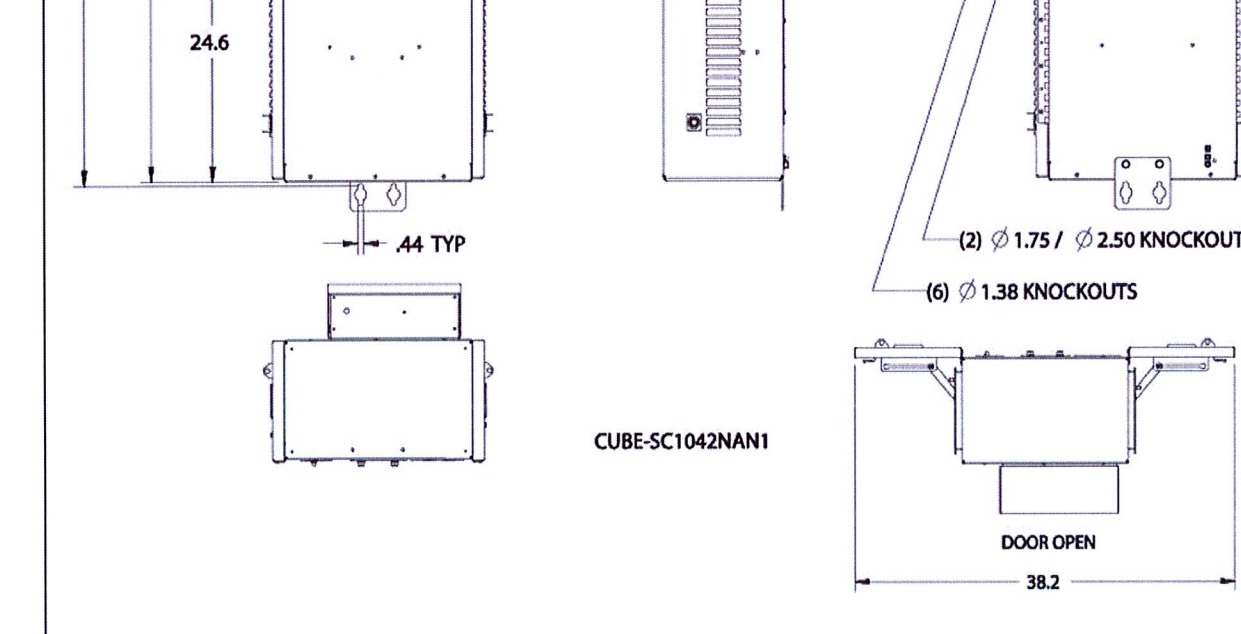
LOAD RATING: 22,568#  
 VERTICAL TEST LOAD OVER  
 A 10" X 10" TEST AREA.

\*FOR USE IN SIDEWALKS,  
 ROADWAY MEDIANS AND  
 BEHIND CURB LOCATIONS  
 WHERE NO DELIBERATE  
 VEHICULAR TRAFFIC IS  
 PLANNED.

FOR COMPLETE DESIGN  
 AND PRODUCT INFORMATION,

WHEN ORDERING:  
 Standard Nev. Power  
 RSI kit includes box & lid as  
 shown. Items may be ordered  
 individually for replacement.  
 Refer to individual stock number  
 when ordering.

HANDHOLE DETAIL SCALE: 3 N.T.S.



**CUBE-SC1042NAN1**

Dimensions: 50.3, 48.0, 24.6, 19.4, 6.9, 3.0, 15.4, 10.5, 7.9, 4.9, 2.1, 1.6, 3.0, 4.6, 14.3, 14.0

(2) Ø 1.75 / Ø 2.50 KNOCKOUTS  
 (6) Ø 1.38 KNOCKOUTS

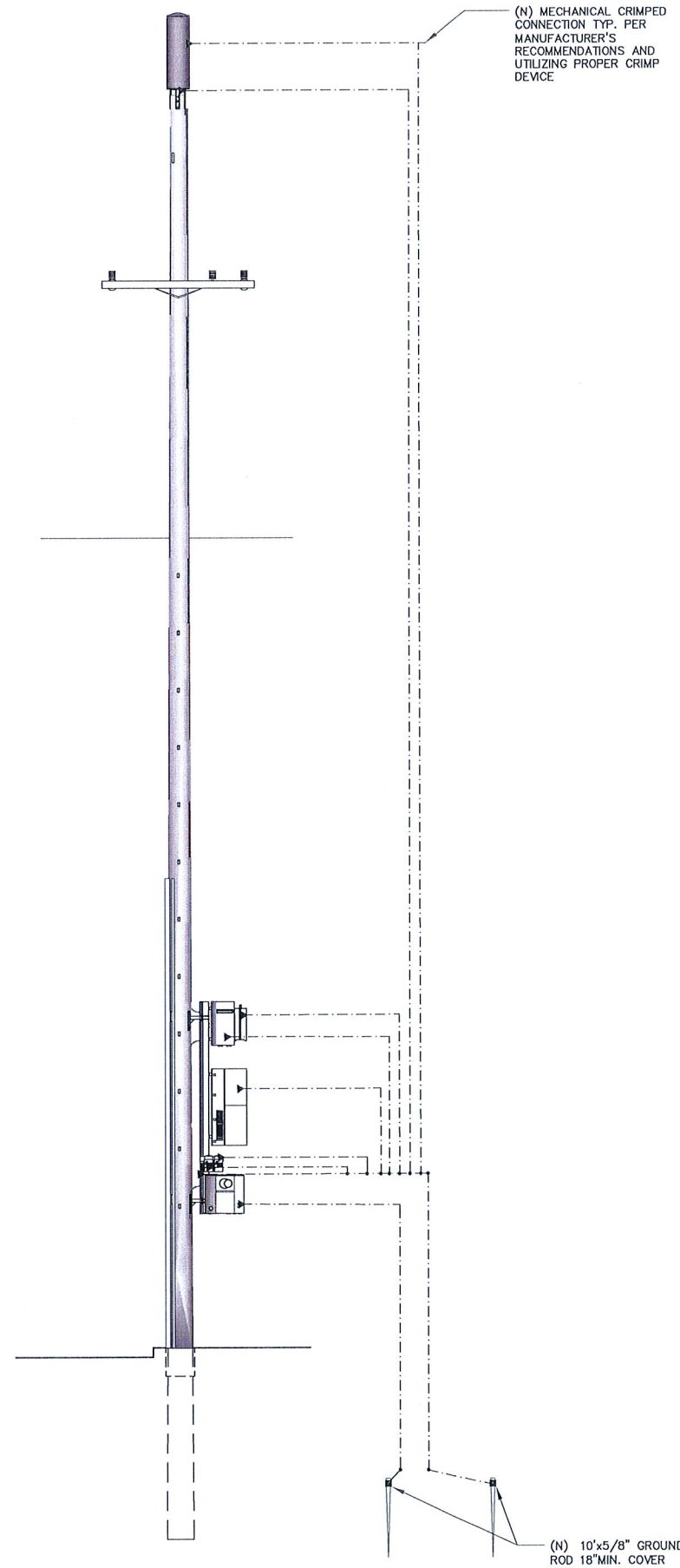
DOOR OPEN

38.2

.44 TYP

POWER CABINET ( CUBE-SC104NNN3 ) DETAIL SCALE: 1 N.T.S.





1 POLE GROUNDING DIAGRAM

POWER AND TELCO CONNECTIONS:

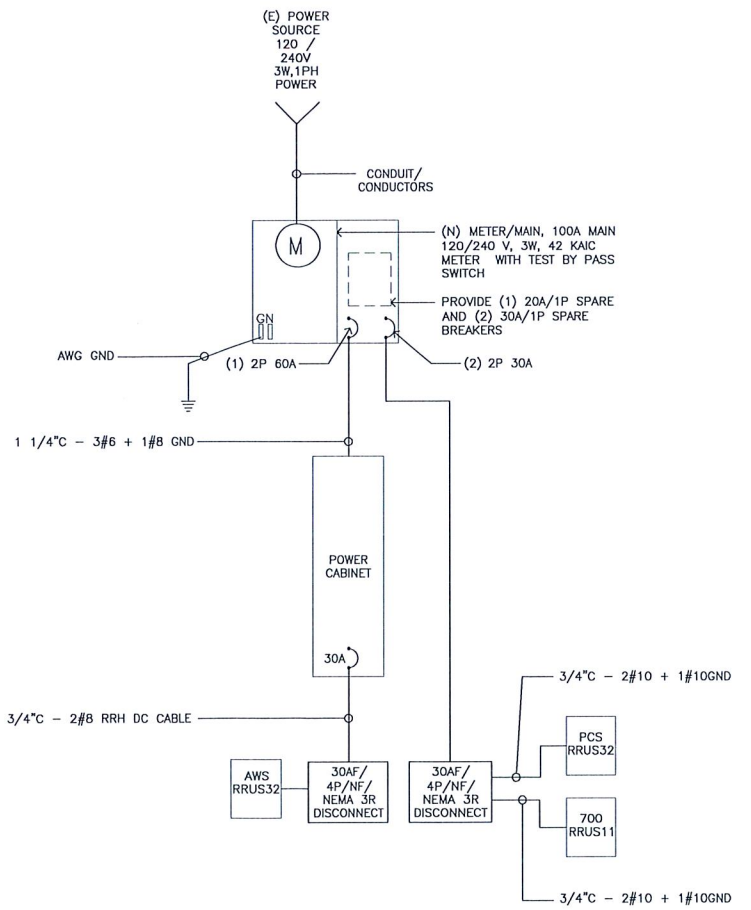
1. POWER AND TELCO POINT OF CONNECTION AND ROUTE ARE PRELIMINARY AND SUBJECT TO CHANGE TO CONFIRMATION BY THE UTILITY COMPANIES RESPECTIVELY.
2. CONTRACT SHALL COORDINATE WITH UTILITY COMPANY FOR FINAL AND EXACT WORK/MATERIALS REQUIREMENTS AND CONSTRUCT TO UTILITY ENGINEERING PLAN AND SPECIFICATIONS ONLY WHERE APPLICABLE PRE PROJECT SCOPE OF WORK.
3. CONTRACT SHALL FURNISH AND INSTALL CONDUIT, PULL WIRES, CABLE PULL BOXES, CONCRETE ENCASUREMENT OF CONDUIT, TRANSFORMER PAD, BARRIERS, RISER TRENCHING, BACK FILL AND UTILITY FEES, AND INCLUDE REQUIREMENTS IN THE SCOPE.
4. CONTRACTOR SHALL LABEL ALL MAIN DISCONNECT SWITCHES AS REQUIRED BY CODE.

POWER AND TELCO CONNECTIONS:

1. SUBCONTRACTOR SHALL PROVIDE METER WITH DIST. PANEL AND BREAKERS FOR POWER TO THE BTS UNITS AND THE BTS/UTILITY CABINET.
2. ALL SERVICE EQUIPMENT AND INSTALLATIONS SHALL COMPLY WITH THE N.E.C. AND UTILITY COMPANY AND LOCAL CODE REQUIREMENTS.
3. SUBCONTRACTOR SHALL PROVIDE ELECTRICAL SERVICE ENTRANCE EQUIPMENT WITH FAULT CURRENT RATINGS GREATER THAN THE AVAILABLE FAULT CURRENT FROM THE POWER UTILITY.
4. FIELD ROUTE CONDUIT TO CABINETS AS REQUIRED.
5. MAXIMUM ONE WAY CIRCUIT RUN NOT TO EXCEED 75 FEET.

GENERAL ELECTRICAL NOTES:

1. PROVIDE ALL ELECTRICAL WORK & MATERIALS AS SHOWN ON THE DWGS, AS CALLED FOR HEREIN, & AS IS NECESSARY TO FURNISH A COMPLETE INSTALLATION.
2. THE INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ADOPTED CALIFORNIA ELECTRICAL CODE, STATE OF CALIFORNIA TITLE 24, ALL OTHER APPLICABLE CODES AND ORDINANCES & THE REQUIREMENTS OF THE FIRE MARSHALL. ALL EQUIPMENT & WIRING SHALL BEAR THE APPROVAL STAMP OF UNDERWRITERS LABORATORY (UL) OR AN APPROVED TESTING LABORATORY, PAYMENT FOR ALL INSPECTION FEES AND PERMITS ARE PART OF THIS CONTRACT.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY AND GOOD CONDITION OF ALL MATERIALS & EQUIPMENT FOR THE ENTIRE INSTALLATION & UNIT COMPLETION OF WORK, ERECT & MAINTAIN APPROVED & SUITABLE BARRIERS, PROTECTIVE DEVICES & WARNING SIGNS, BE FULLY RESPONSIBLE FOR ANY LOSS OR INJURY TO PERSONS OR PROPERTY RESULTING FROM NEGLIGENCE AND/OR ENFORCEMENT OF ALL SAFETY PRECAUTIONS & WARNINGS.
4. COORDINATE THE ELECTRICAL INSTALLATION WITH ALL OTHER TRADES.
5. ALL SAW CUTTING, TRENCHING, BACK FILLING & PATCHING SHALL BE PART OF THIS CONTRACT.
6. FINALIZE ALL ELECTRICAL SERVICE ARRANGEMENTS, INCLUDING VERIFICATION OF LOCATIONS, DETAILS, COORDINATION OF THE INSTALLATION & PAYMENT OF ACCRUED CHARGES WITH LOCAL POWER COMPANY, VERIFY LOCATION FOR FACILITIES & DETAILS WITH POWER UTILITY, IN ADDITION TO THE REQUIREMENTS SHOWN IN THE CONTRACT DOCUMENTS, WORK SHALL COMPLY WITH CONSTRUCTION STANDARDS & SERVICE REQUIREMENTS OF THE RESPECTIVE UTILITIES, INCLUDING ANY SUPPLEMENTAL DWGS ISSUED & SHALL BE SUBJECT TO APPROVAL OF THESE UTILITIES.
7. ALL WIRING SHALL BE COPPER. INSULATION FOR BRANCH CIRCUIT CONDUCTORS SHALL BE TYPE "THWN" CONDUCTORS LARGER AND #6 AWG MAY BE TYPE "THWN" OR "TWN".
8. PROVIDE CONDUIT SEALS FOR ALL CONDUITS PENETRATING WEATHERPROOFING OR WEATHERPROOF ENCLOSURE ENVELOPE. MASTIC SEAL ALL CONDUIT OPENING PENETRATIONS COMPLETELY WATER TIGHT.
9. UNLESS SHOWN OTHERWISE, FUSED DISCONNECT SWITCHES SHALL BE PROVIDED WITH LOW-PEAK, S/DUAL ELEMENT FUSES SIZED TO EQUIPMENT NAMEPLATE FUSE CURRENT RATING. MOTOR STARTERS SHALL BE PROVIDED WITH SIMILARLY SIZED FUSIBLE ELEMENTS, SWITCHES AND OTHER OUTDOOR EQUIPMENT SHALL BE RATED NEMA 3R AND/OR UL LISTED FOR WET ENVIRONMENT.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING THE GROUNDING SYSTEM AND ENSURING A 5 OHM OR LESS GROUNDING PATH, ADDITIONAL GROUND RODS AND/OR CHEMICAL ROD SYSTEM SHALL BE USED TO ACHIEVE THIS REQUIREMENT.



LOAD CALCULATIONS - VERIZON WIRELESS

EXISTING LOAD: 0 AMPS  
 NEW LOAD: 10.0 AMPS MAX.  
 NEW TOTAL LOAD: 10.0 AMPS MAX.

POWER AND TELCO DESIGN IS BASED ON INITIAL SITE VISIT.  
 CONTRACTOR SHALL OBTAIN CURRENT UTILITY COORDINATOR PLANS PRIOR TO START OF CONSTRUCTION.  
 AVAILABLE FAULT CURRENT PER UTILITY.  
 NOTE: CONTRACTOR TO CHECK WITH UTILITY TO ENSURE ELECTRICAL METER IS BRACED FOR ACTUAL FAULT CURRENT.

2 SINGLE LINE DIAGRAM  
 N.T.S.

Prepared For:  
**verizon**  
 2785 MITCHELL DRIVE, SUITE 9  
 WALNUT CREEK, CA 94598

Prepared For:

Site Number:  
 427182  
 Site Name:  
 HWY 13 SC5  
 Site Address:  
 5506 THORNHILL DRIVE  
 OAKLAND, CA 94619  
 County:  
 ALAMEDA COUNTY

Engineer:  
  
 841 ARNOLD DRIVE, SUITE A  
 MARTINEZ, CA 94553  
 www.TheCBRGroup.com

Licenser:

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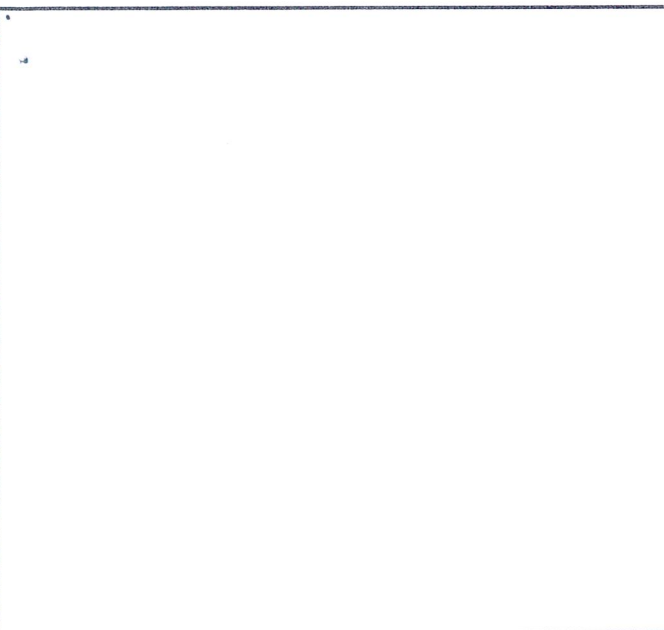
Issued For:  
 CONSTRUCTION

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B	11/27/17	100% CD'S FOR REVIEW	JG
A	07/17/17	90% CD'S FOR REVIEW	FG

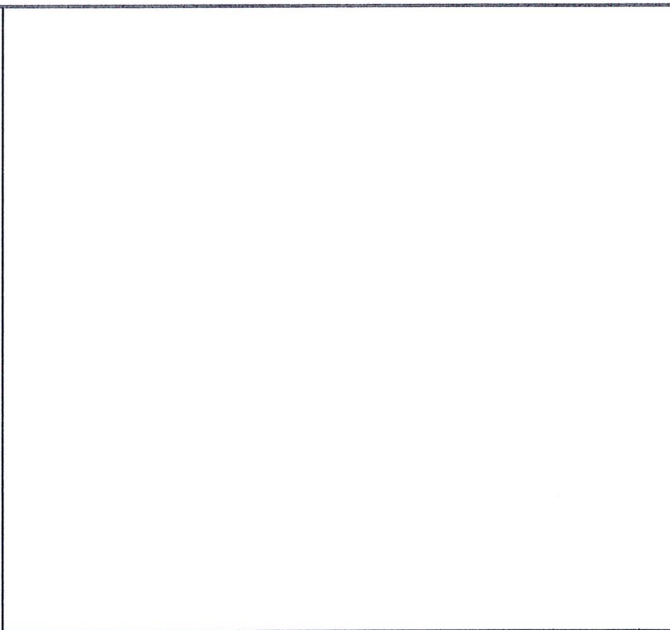
Sheet Title:  
 ELECTRICAL GROUND  
 DIAGRAMS, SINGLE LINE  
 DIAGRAM

Sheet Number:  
**E-1**

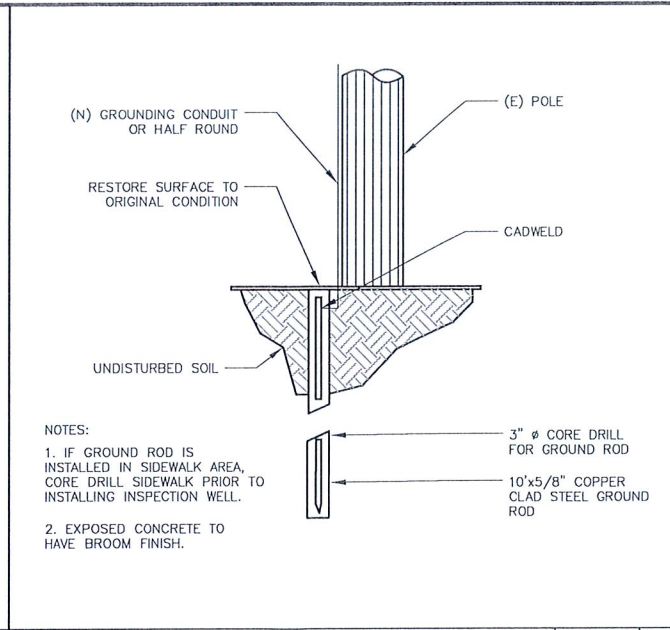




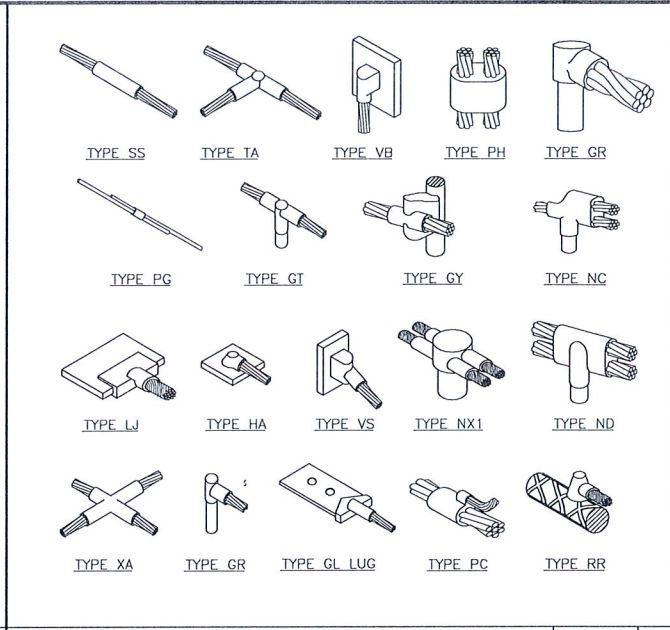
NOT USED SCALE: N.T.S 10



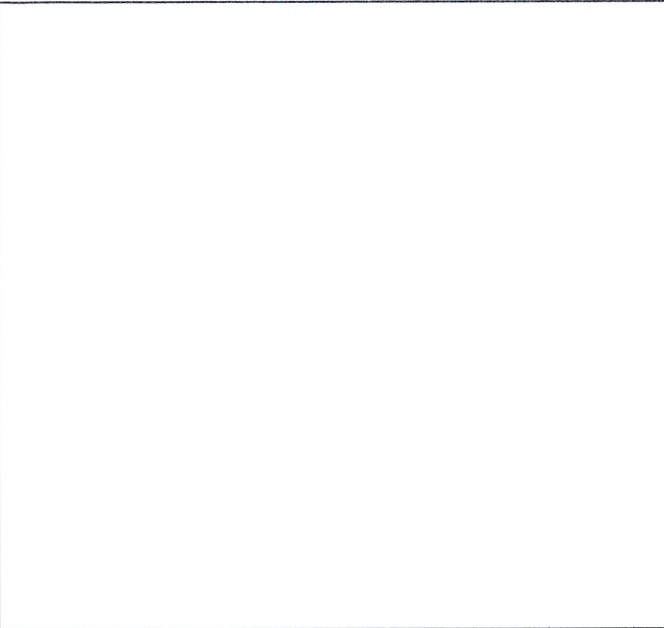
NOT USED SCALE: N.T.S 4



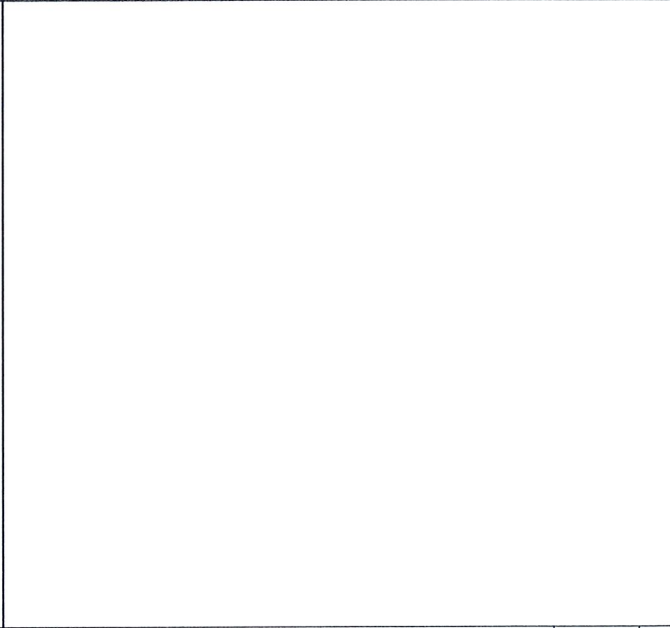
POLE GROUNDING ROD SCALE: N.T.S 7



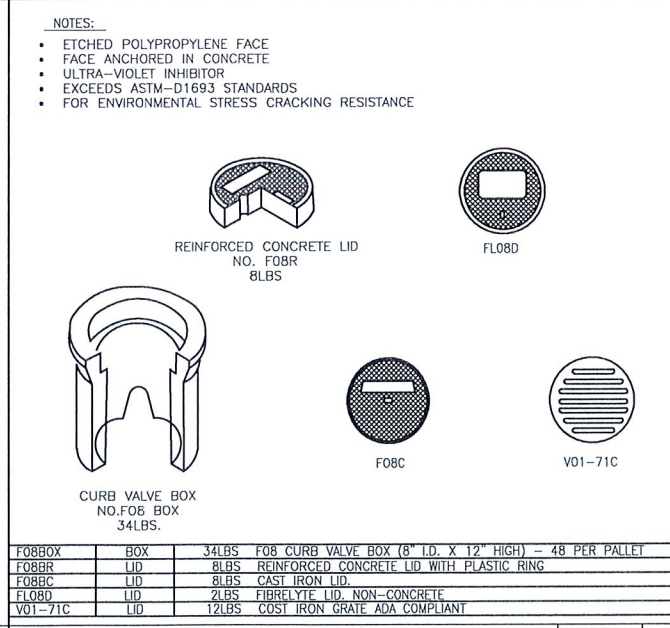
EXOTHERMIC WELD CONNECTION SCALE: N.T.S 3



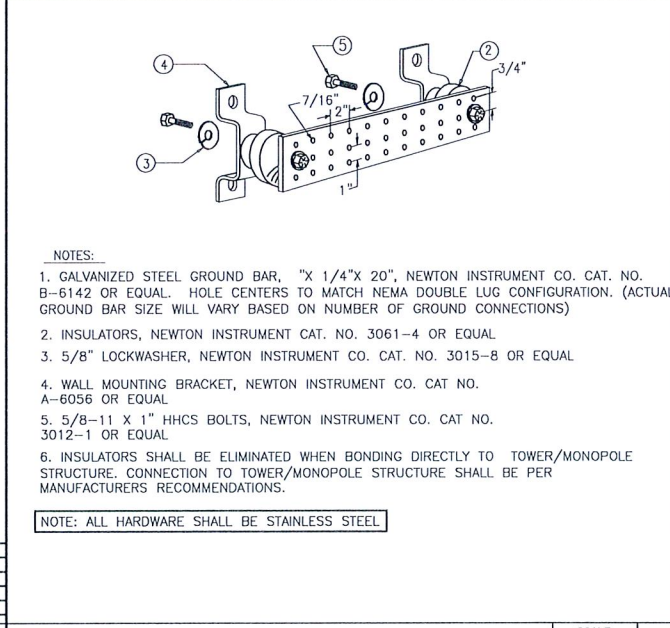
NOT USED SCALE: N.T.S 11



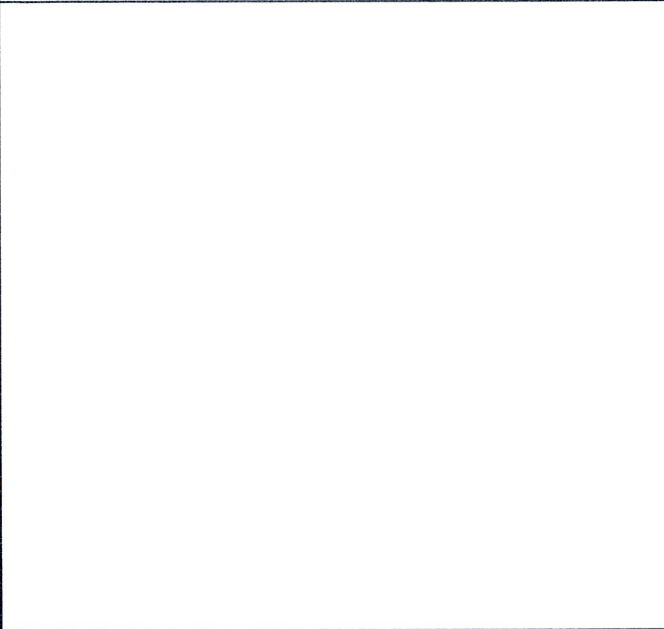
NOT USED SCALE: N.T.S 8



F08 BOX GROUND WELL DETAIL SCALE: N.T.S 5



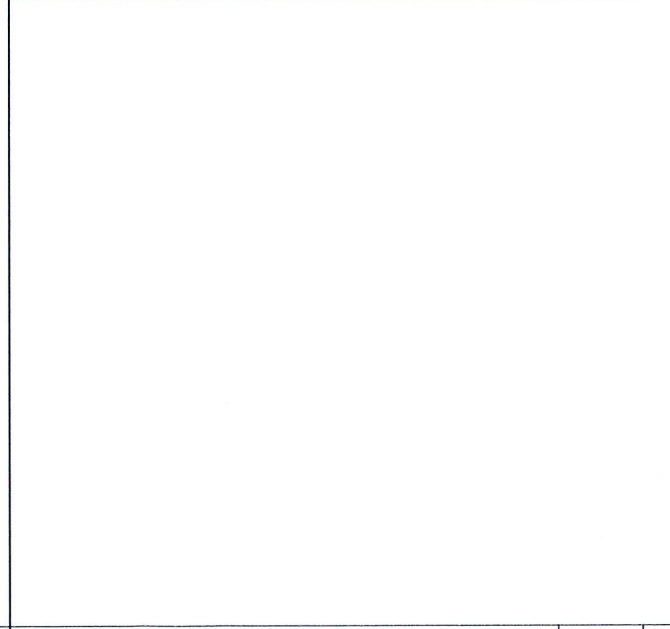
BUSS BAR SCALE: N.T.S 2



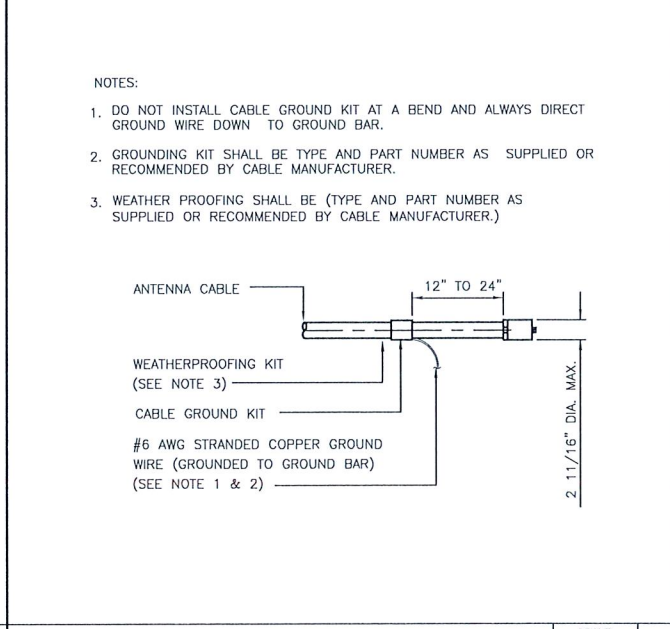
NOT USED SCALE: N.T.S 12



NOT USED SCALE: N.T.S 9



NOT USED SCALE: N.T.S 6



CONNECTION OF CABLE GND. KIT TO ANTENNA SCALE: N.T.S 1

Prepared For:  
**verizon**  
 2785 MITCHELL DRIVE, SUITE 9  
 WALNUT CREEK, CA 94598

Prepared For:

Site Number:  
 427182  
 Site Name:  
 HWY 13 SC5  
 Site Address:  
 5506 THORNHILL DRIVE  
 OAKLAND, CA 94619  
 County:  
 ALAMEDA COUNTY

Engineer:  
  
 841 ARNOLD DRIVE, SUITE A  
 MARTINEZ, CA 94553  
 www.TheCBRGroup.com

Licenser:

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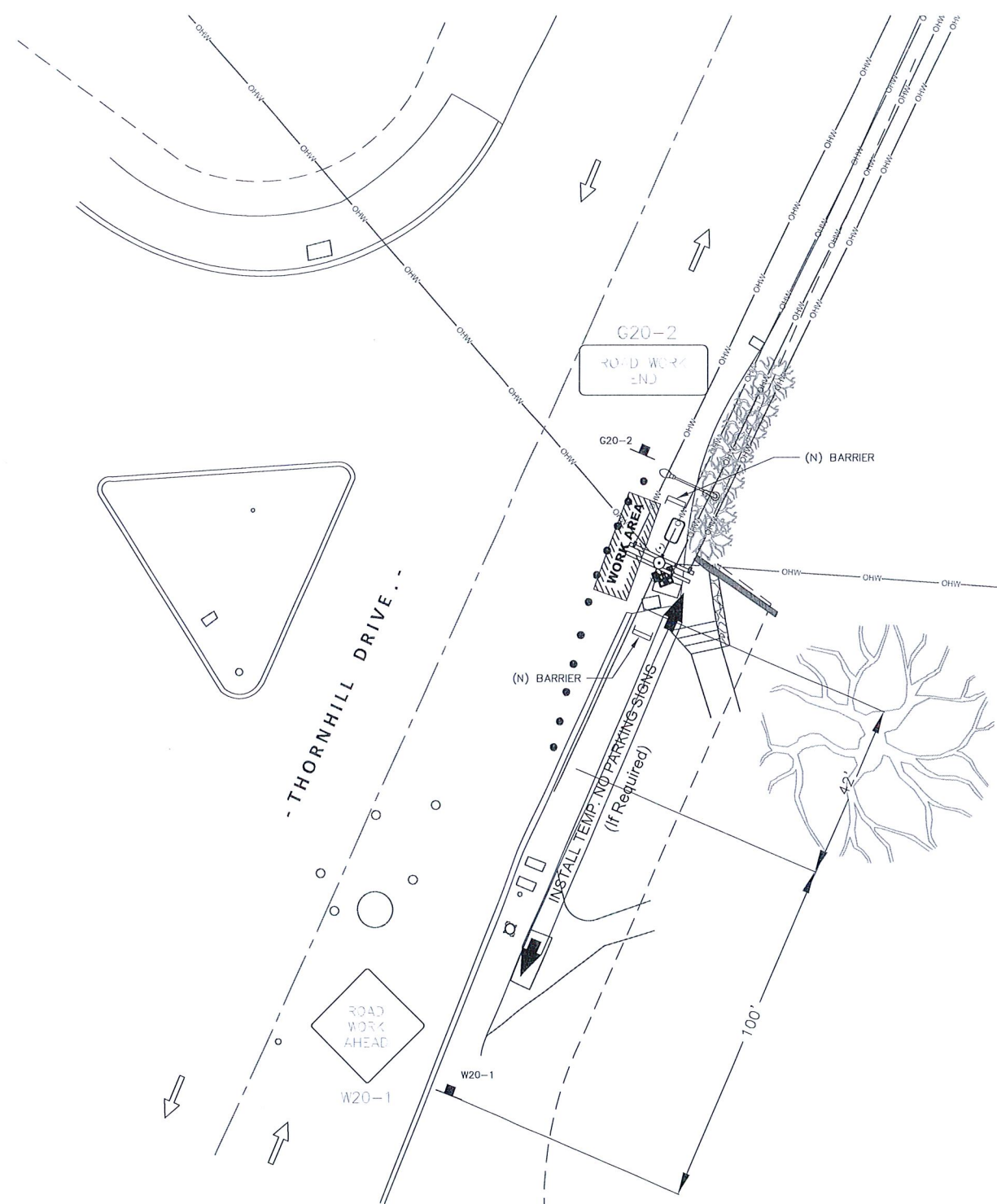
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REV	DATE	DESCRIPTION	BY
B	11/22/17	100% CD'S FOR REVIEW	JG
A	07/17/17	90% CD'S FOR REVIEW	FG

Sheet Title:  
 ELECTRICAL DETAILS

Sheet Number:  
**E-2**





GENERAL TRAFFIC CONTROL NOTES

TRAFFIC SHALL CONFORM TO THE 2014 CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE 2012 WATCH HANDBOOK.

ACCESS TO DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES

ONE LANE OF TRAFFIC IN EACH DIRECTION AND ALL HIGH VOLUME TURNING LANES SHALL BE MAINTAINED AT ALL TIMES ON ALL STREETS AT A MINIMUM LANE WIDTH OF 10 FEET.

ANY CONFLICTING SIGNS, STRIPING AND PAVEMENT MARKINGS SHALL BE REMOVED OR COVERED BEFORE TRAFFIC CONTROL IS IN PLACE. ANY SIGN, STRIPING OR PAVEMENT MARKING REMOVED OR COVERED SHALL BE REPLACED WHEN TRAFFIC CONTROL IS NO LONGER NECESSARY.

SAFE PEDESTRIAN ACCESS SHALL BE MAINTAINED AT ALL TIMES.

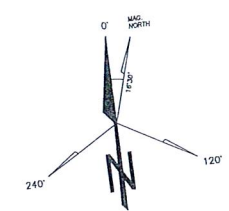
- NOTES:
- FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, ACCESSIBILITY ACCESS AND REQUIREMENTS ARE NOT REQUIRED, IN ACCORDANCE WITH CALIFORNIA STATE ADMINISTRATIVE CODE, PART 2, TITLE 24, SECTION 1103B.1, EXCEPTION 1 & SECTION 1134B.2.1, EXCEPTION 4.
  - STREET SIDE PARKING AVAILABLE ON BOTH SIDES OF THE STREET.

TABLE 6H-3 & 6H-4 - FROM THE 2014 CALIFORNIA MUTCD

POSTED SPEED LIMIT - MPH	MERGING TAPER LENGTH "L" - FEET	SHIFTING TAPER LENGTH "L/2" - FEET	SHOULDER TAPER LENGTH "L/3" - FEET	SIGN SPACING ADVANCE OF TAPER & BETWEEN SIGNS - FEET
20	80	40	27	100
25	125	63	42	100
30	180	90	60	250
35	245	123	82	250
40	320	160	107	250
45	540	270	180	350
50	600	300	200	350
55	660	330	220	350

MAINTAIN DRIVEWAY ACCESS AT ALL TIME

- LEGEND**
- TYPE III BARRICADE W/ SIGN
  - TYPE II BARRICADE W/ SIGN
  - CHANNELIZING DEVICE
  - TRAFFIC CONE WITH CLIP ON SIGN
  - SIGN
  - SIGNALIZED INTERSECTION
  - ARROW PANEL (FLASHING ARROW) (WHERE REQUIRED)
  - HIGH LEVEL WARNING DEVICE (FLAGTREE) (OPTIONAL)
  - FLAGGER
  - TANS TOW AWAY NO STOPPING \_\_\_ TO \_\_\_ (SHOW HOURS)
  - TANSAT TOW AWAY NO STOPPING ANY TIME
  - WORK ZONE (ACTIVITY AREA) LIMITS
  - DIRECTION OF TRAFFIC (NOT PAVEMENT MARKING)
  - ROADWAY DESIGNATION (A THROUGH D)
  - SITE



Prepared For:  
**verizon**  
2785 MITCHELL DRIVE, SUITE 9  
WALNUT CREEK, CA 94598

Prepared For:

Site Number:  
427182

Site Name:  
HWY 13 SC5

Site Address:  
5506 THORNHILL DRIVE  
OAKLAND, CA 94619

County:  
ALAMEDA COUNTY

Engineer:  
**THE CBR GROUP**  
841 ARNOLD DRIVE, SUITE A  
MARTINEZ, CA 94553  
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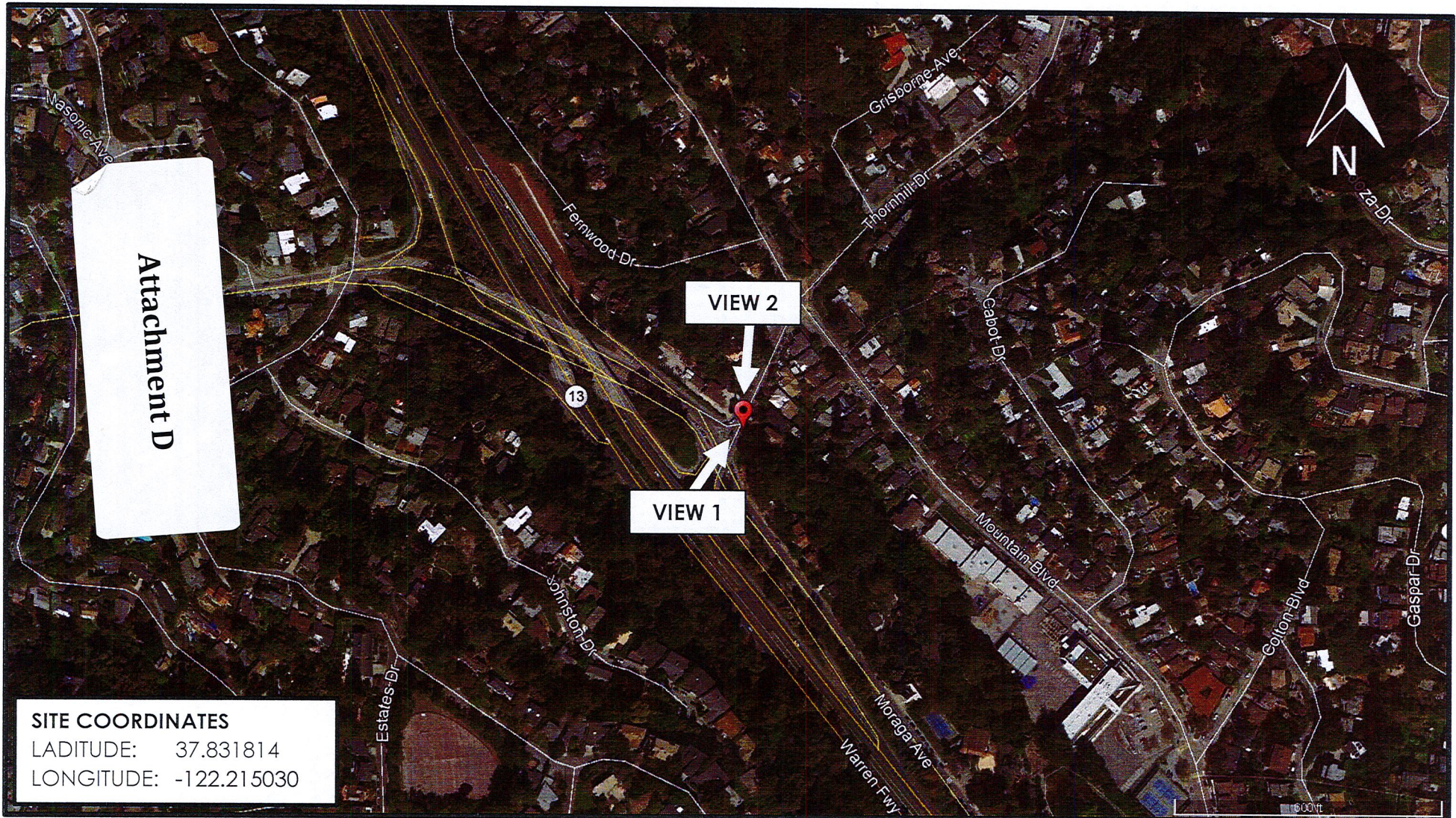
REV	DATE	DESCRIPTION	BY
B	11/27/17	100% CD'S FOR REVIEW	JG
A	07/17/17	90% CD'S FOR REVIEW	FG

Sheet Title:  
TRAFFIC CONTROL PLAN

Sheet Number:  
**TCP**



# PROPOSED SITE LOCATION



**SITE COORDINATES**  
LATITUDE: 37.831814  
LONGITUDE: -122.215030

**HIGHWAT 13 SC5**  
5506 THORNHILL DRIVE  
OAKLAND, CA 94619  
Location Code: 427182

**SHOT MAP**  
**VERIZON NODE: "HIGHWAT 13 SC5"**  
Verizon Location Code: 427182

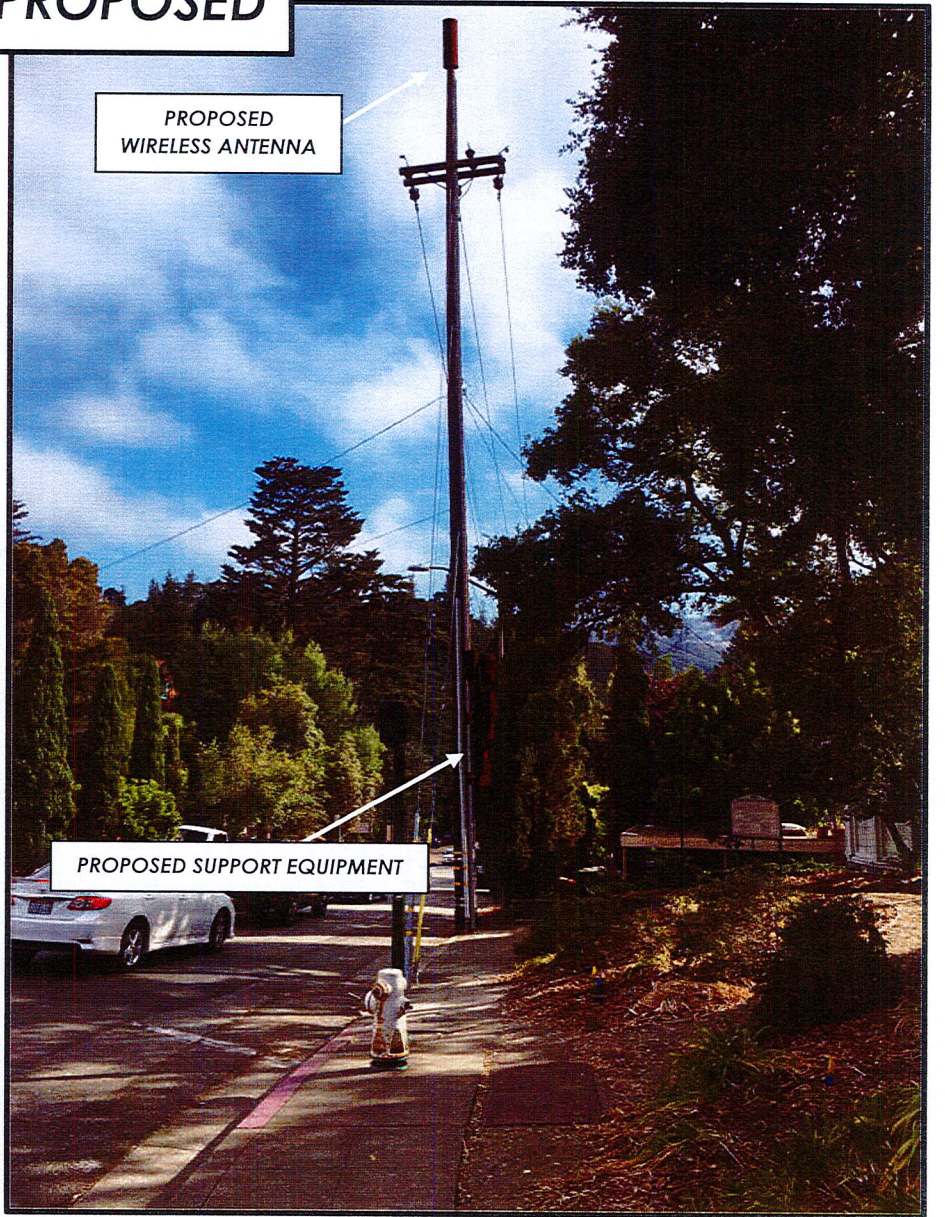
 **THE CBR GROUP**  
The CBR Group  
841 Arnold Dr, Suite A  
Martinez, CA 94553  
info@thecbrgroup.com



**EXISTING**



**PROPOSED**



**HIGHWAT 13 SC5**  
5506 THORNHILL DRIVE  
OAKLAND, CA 94619  
Location Code: 427182

**VIEW 1: LOOKING NORTHEAST ALONG THORNHILL DRIVE**  
PHOTOSIMS PRODUCED 08/24/2017

 **THE CBR GROUP**  
The CBR Group  
841 Arnold Dr., Suite A  
Martinez, CA 94553  
info@thecbrgroup.com





**EXISTING**



**PROPOSED**



**HIGHWAT 13 SC5**  
5506 THORNHILL DRIVE  
OAKLAND, CA 94619  
Location Code: 427182

**VIEW 2: LOOKING SOUTH ACROSS  
THORNHILL DRIVE**  
PHOTOSIMS PRODUCED 08/24/2017



The CBR Group  
841 Arnold Dr., Suite A  
Martinez, CA 94553  
info@thecbrgroup.com







VERIZON SMALL CELL  
FOR HWY 13 POLYGON  
ALTERNATIVE SITE ANALYSIS

Attachment E

Verizon Small Cell Node "Hwy 13 SC5" (near 5506 Thornhill Drive)

Prepared September 08, 2017





## OVERVIEW

- Verizon is proposing to install a small cell standalone project in the area to improve network coverage and capacity.
- A small cell is just like the name implies. A small cell augments Verizon's capacity in a given area. It consists of a radio, antenna, power and a fiber connection. Small Cells are short range mobile cell sites used to complement larger macro cells (or cell towers). Small cells enable the Verizon network team to strategically add capacity to high traffic areas.
- Demand for wireless data services has nearly doubled over the last year, and is expected to grow 650% between 2013 and 2018 according to Cisco. It's part of Verizon's network strategy to provide reliable service and to stay ahead of this booming demand for wireless data.



## ALTERNATIVE ANALYSIS

- In addition to the proposed existing wooden utility pole location for this Node, Verizon considered poles immediately adjacent to the proposed pole to explain why it was selected.
- Existing antenna towers, monopoles, and rooftops located more than 150 feet from the proposed location are not viable alternatives for the small cell network because they do not meet Radio Frequency Coverage requirements, i.e., network objectives.
- The Node site is low in height, has low power, and is a reduced size antenna site that provides coverage to small areas.
- Cells interact with each other, and are laid out in a logical pattern to provide optimal coverage conditions to address service, capacity, reliability, and access for users. This network architecture in Small Cells is geographically very tight, and precludes alternative locations at greater distances.



# SHOT MAP OF PROPOSED SITE LOCATION AND ALTERNATIVES CONSIDERED





**TARGET POLE  
(5506 THORNHILL DRIVE)**

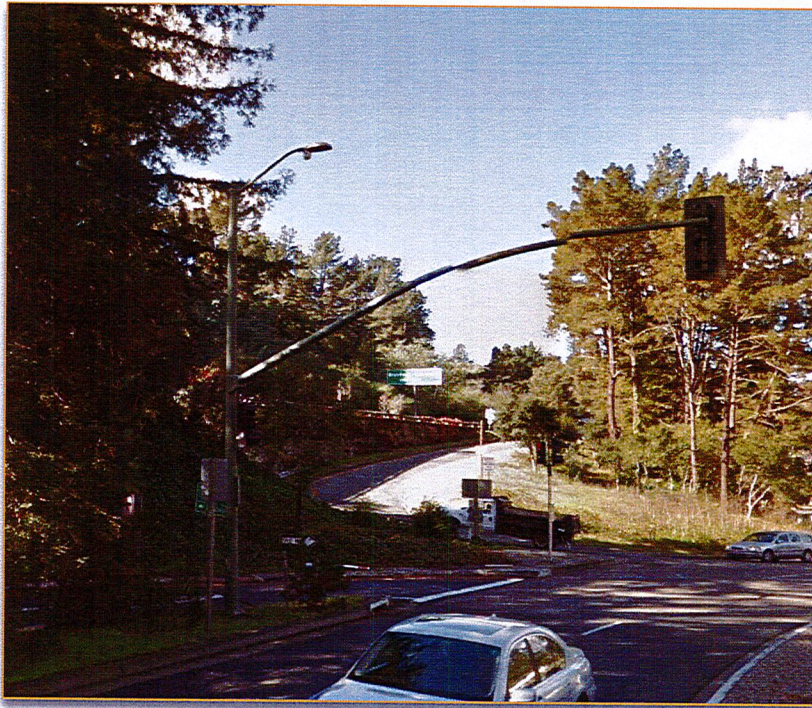


Node - TARGET POLE

The target pole location is a wood utility pole located in the Public ROW. The nearest address is 5506 Thornhill Drive.



## ALTERNATE SITE #1 (6100 MORAGA AVE)



### Node - Alternative Site #1

This alternative location is a metal utility pole located in the Public ROW. The nearest address is 6100 Moraga Ave.

### Pole Elimination Justification:

This candidate was eliminated as the City does not have a Master License Agreement in place for Verizon to locate equipment on the existing City Light Pole.



## ALTERNATE SITE #2 (5506 THORNHILL DRIVE)

Node - Alternative Site #2

This alternative location is a metal utility pole located in the Public ROW. This pole is located on 5506 Thornhill Drive.

Pole Elimination Justification:

This candidate was eliminated as the City does not have a Master License Agreement in place for Verizon to locate equipment on the existing City Light Pole.





## ALTERNATE SITE #3 (5534 THORNHILL DR)



### Node - Alternative Site #3

This alternative location is a wood utility pole located in the Public ROW. The nearest address is 5534 Thornhill Dr.

### Pole Elimination Justification:

This pole is not feasible for Verizon to locate on as it will not comply with G095 JPA Pole Standards as it will cause the climbing space to be blocked once Verizon equipment was added on the pole due to the electrical configuration.



## ALTERNATE SITE #4 (5556 Thornhill Dr)



### Node - Alternative Site #4

This alternative location is a wood utility pole located in the Public ROW. This pole is located on 5556 Thornhill Dr.

### Pole Elimination Justification:

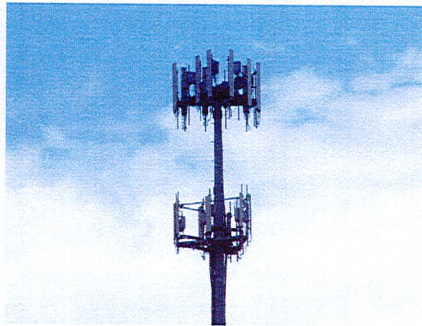
This pole is not feasible for Verizon to locate on as the equipment would be too close to the driveway.



## LEAST INTRUSIVE MEANS

Small Cell facilities are small form factor, smaller radio frequency footprint base stations that allow carriers to place appropriate facilities in areas where full size radio base stations are not appropriate. Some equipment is located in a switch or Hub facility some miles away, further reducing the scale and quantity of equipment on site. This proposal is consistent with the least intrusive means to provide coverage for current generation of service within a residential district.

Typical Macro facility – industry standard sized colocateable facility with full compliment of radios



Small Cell example similar to this proposal





THANK YOU

The CBR Group, Inc.

Christy Beltran

415.806.2323

[Christy@thecbrgroup.com](mailto:Christy@thecbrgroup.com)

**Verizon Wireless • Proposed Small Cell (Node “Highway 13 SC5”)  
5506 Thornhill Drive • Oakland, California**

**Statement of Hammett & Edison, Inc., Consulting Engineers**

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate its small cell (Node “Highway 13 SC5”) proposed to be sited in Oakland, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

**Executive Summary**

Verizon proposes to install one cylindrical antenna on a utility pole to be sited in the public right-of-way at 5506 Thornhill Drive in Oakland. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

**Prevailing Exposure Standard**

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 human 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 FCC limit for exposures of unlimited duration to radio frequency energy for various wireless services are as follows:

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5–80 GHz	5.00 mW/cm <sup>2</sup>	1.00 mW/cm <sup>2</sup>
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 this standard, and there is considered to be no compounding effect from simultaneous exposure to power line and radio frequency fields.

**General Facility Requirements**

Small cells typically consist of two distinct parts: the electronic transceivers (also called “radios”) that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are typically mounted on the support pole or placed in a cabinet at ground level, and they are connected to



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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 describes the calculation methodologies, reflecting the facts that a directional antenna’s radiation pattern is not fully formed at locations very close by (the “near-field” effect) and that at greater distances the power level from an energy source decreases with the square of the distance from it (the “inverse square law”). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

### **Site and Facility Description**

Based upon information provided by Verizon, including drawings by The CBR Group, dated August 9, 2017, it is proposed to install one Amphenol Model CUUT070X12Fxyz0, 4-foot tall, tri-directional cylindrical antenna, with three directions activated, on top of a new utility pole, to replace the existing utility pole sited in the public right-of-way near the residence located at 5506 Thornhill Drive in Oakland. The antenna would employ no downtilt, would be mounted at an effective height of about 68 feet above ground, and would have its principal directions oriented toward 0°T, 120°T, and 240°T. The maximum effective radiated power in any direction would be 2,590 watts, representing simultaneous operation at 1,250 watts for AWS, 1,130 watts for PCS, and 210 watts for 700 MHz service. There are reported no other wireless base stations at the site or nearby.

### **Study Results**

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.0023 mW/cm<sup>2</sup>, which is 0.30% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building is 0.24% 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 Verizon antenna would not be accessible to unauthorized persons, and so no mitigation measures are necessary to comply with the FCC public exposure



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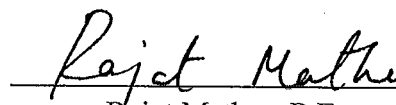
guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antenna. No access within 9 feet at the same height as the Verizon antenna, such as might occur during certain maintenance activities at the top of the pole, should be allowed while the small cell 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.

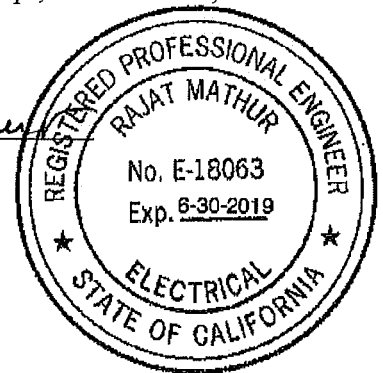
### **Conclusion**

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the small cell proposed by Verizon Wireless at 5506 Thornhill Drive in Oakland, 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 small cells. Training authorized personnel and posting explanatory signs are recommended to establish compliance with occupational exposure limits.

### **Authorship**

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-18063, which expires on June 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.

  
Rajat Mathur, P.E.  
707/996-5200



September 25, 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.

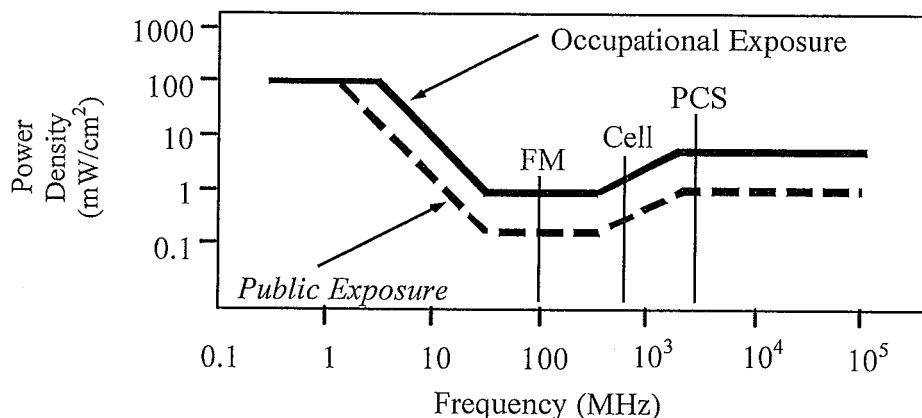


## FCC Radio Frequency Protection Guide

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



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





**Assessment by Calculation of Compliance with FCC Exposure Guidelines**

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

**Near Field.**

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

For a panel or whip antenna, power density  $S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}$ , in mW/cm<sup>2</sup>,

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

- where  $\theta_{BW}$  = half-power beamwidth of the antenna, in degrees, and
- $P_{net}$  = net power input to the antenna, in watts,
- $D$  = distance from antenna, in meters,
- $h$  = aperture height of the antenna, in meters, and
- $\eta$  = aperture efficiency (unitless, typically 0.5-0.8).

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

**Far Field.**

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

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

- where ERP = total ERP (all polarizations), in kilowatts,
- RFF = relative field factor at the direction to the actual point of calculation, and
- $D$  = distance from the center of radiation to the point of calculation, in meters.

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



## DECLARATION OF JESUS G. ROMAN

I, Jesús G. Román, declare and state:

1. I am the Associate General Counsel for GTE Mobilnet of California Limited Partnership dba Verizon Wireless (GTE Mobilnet). My business address is 15505 Sand Canyon Avenue, Irvine, CA 92618. My phone number is 949-286-7202.

2. I am providing this declaration in connection with establishing that GTE Mobilnet is authorized to use the Right of Way and operate in California pursuant to a Certificate of Public Convenience and Necessity (CPCN) with the California Public Utilities Commission (CPUC) and because it is deemed pursuant to law to hold a Wireless Identification Registration (WIR). GTE Mobilnet holds a CPCN by virtue of CPUC Decision No. 85-04-008. CPUC Decision 94-10-031, implementing Federal legislation that prohibits states from erecting barriers to wireless service entry, explicitly recognized that a wireless provider with a CPCN (like Mobilnet) is deemed to satisfy the WIR requirement, stating: "Such carriers are deemed to have complied with the Wireless Identification Registration requirement." See D.94-10-031, 1994 Cal. PUC LEXIS 700, \*7, 56 CPUC2d 578 (Cal. P.U.C. Oct. 12, 1994).

3. The CPUC maintains a publicly available database of public utilities that have authority to operate in California. The CPUC assigns a Utility Number to each such public utility. GTE Mobilnet's CPCN can be verified by visiting the CPUC's website <https://apps.cpuc.ca.gov/apex/f?p=102:1:0::NO:RP::> and entering GTE Mobilnet into the "Search Utility Name" field. Doing this will show the utility name as GTE Mobilnet of Ca., Ltd. Ptnrshp and show the dba as Verizon Wireless. It will also show the Utility number assigned to GTE Mobilnet as 3002. Graphically, it shows this:

The screenshot shows the California Public Utilities Commission's Utility Contact System Search interface. The search results table is as follows:

Utility Name	Alias (DBA Name)	Utility Number	Street Address	City	State	Zip	Phone Number	Email	Utility Type	CPCN Approval Date
GTE Mobilnet of Ca., Ltd. Ptnrshp	VERIZON WIRELESS	3002	201 SPEAR STREET	SAN FRANCISCO	CA	94105	(415) 228-1465	rudyr@vzw.com	CEC	
GTE Mobilnet of Ca., Ltd. Ptnrshp	VERIZON WIRELESS	3002	ONE GTE PLACE	ALPHARETTA	GA	30004	(878) 339-4261		CEC	
GTE Mobilnet of Ca., Ltd. Ptnrshp	VERIZON WIRELESS	3002	3105 CLIMBERLAND BLVD SUITE 700	ATLANTA	GA	30339	(908) 306-7445		CEC	
GTE Mobilnet of Ca., Ltd. Ptnrshp	VERIZON WIRELESS	3002	618 FM 1560 WEST BTE 400	HOUSTON	TX	77090			CEC	

Below the table, there is a link: [Save Search Results as a CSV Spreadsheet](#). The page number is 1 - 4.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on October 6, 2017 at Simi Valley, CA.

Jesús G. Román  
Associate General Counsel

**Attachment G**









November 30, 2017

*Via Hand Delivery*

Ms. Marilu Garcia  
City of Oakland  
Planning Department  
250 Frank H. Ogawa Plaza, Suite 2114  
Oakland, CA 94612

RE: Planning Applications:

- Hwy 13 SC003, PLN17461, 3065 Monterey Blvd.
- Hwy 13 SC004, PLN17462, 2820 Mountain Blvd.
- Hwy 13 SC005, PLN17463, 5506 Thornhill Dr.
- Hwy 13 SC008, PLN17464, 206 Glenwood Glade

Applicant: Verizon Wireless, c/o The CBR Group, Inc. LLC ("AT&T")  
Pole Owner: PG&E

Dear Ms. Garcia:

Please find attached 40 copies of a letter from Verizon Legal where they received significant amount of support of the above referenced projects from residents within the area.

We kindly request that Planning include these letters with each application packets that are being distributed to the commissioners.

Respectfully Submitted,

Christy Beltran  
The CBR Group, agent for Verizon Wireless  
415-806-2323 / Christy@TheCBRGroup.com

Attachments



**verizon**<sup>✓</sup>

**Verizon Wireless**

15505 Sand Canyon Ave, Bldg. D  
Irvine, CA 92618

November 28, 2017

Planning Commission  
City of Oakland  
250 Frank H. Ogawa Plaza  
Oakland, California 94612

Re: 730 Supporters for Verizon Wireless Small Cells  
Highway 13, Oakland

To Whom It May Concern:

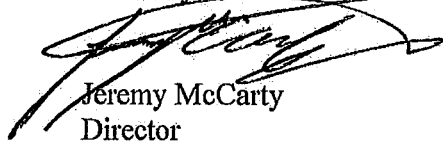
I am the Verizon Wireless Marketing Director over the team that maintains and manages all data and information messages that are sent to Verizon Wireless customers in California. In connection with the application referred to above, Verizon Wireless arranged for a text message to be sent to customers with billing addresses within ZIP codes 94602, 94611 and 94618 in the Highway 13 area of Oakland. The entire text message sent reads as follows:

Free Verizon Message: Reply YES to this text to show your support for improved Verizon Wireless service along Highway 13. Add a message to tell the City that you support adding small cells to existing utility poles along Highway 13 between Highway 24 and Redwood Rd. Include your email address for updates.

The text message above was sent on November 17, 2017. As of November 28, 2017, we have received 730 affirmative text message responses indicating support for the proposed facility and 30 respondents opposed. Text messages received confirmed the need to provide improved Verizon Wireless service along Highway 13 in Oakland. Samples of the text messages of support received from Verizon Wireless customers appear on the attached pages.

I am available to verify the above information as you may require.

Sincerely,



Jeremy McCarty

Director

Customer Relationship Management

Attachment

**Sample Text Messages of Support  
Verizon Wireless Small Cells  
Highway 13, Oakland**

?Yes This is the worst cell service I found in Oakland we just moved

?Yes. I? support adding small cells to existing utility poles along

GYES.??I? would like to see improved cell service on my regular free

I absolutely support this.

I support adding the extra small cells.

I support adding cell radios to Highway 13 corridor.

I support adding small cells to exist poles!!!!

I support adding small cells to existing utility poles along Highwa

I support adding small cells to utility poles along Highway 13.

I use my phone ?=?? everyday on that freeway. Ann Wilson

I? support for improved Verizon Wireless service along Highway 13.

YES - add small cells to boost service

Yes We should be supported with great quality wireless in the Oakland Hills.

Yes better cell service now!

YES Our phone reception in the hills is very spotty, so any improvement would be much appreciated. Thanks

Yes I do support improved Verizon wireless service along the highway 13/24 corridor.

Yes I support cells along Ryan 13

Yes I support improving Verizon wireless service on hwy 13 between redwood road and hwy 24.

YES I support more cell poles along Hwy 13.

YES please add more service to highway 13!



Yes please improve cell connectivity along highway 13.

YES reception in this area is awfull Verizon is supposed to be everywhere! Fix it! Give me a reason not to change providers.

Yes this support for improving Rison wireless along Highway 13 on existing poles

YES We need strong cell service on Highway 13 and the hills in general.

Yes yes yes!

Yes! I need better coverage in my house! I live right along 13

YES! I support adding small cells to existing utility poles along Highway 13 between Highway 34 and Redwood Road.

Yes! Cell service in the Oakland hills is generally terrible. More cells needed!

YES! Islanders who live in 94611 --like me-- need better service. THANKX

Yes! Safety and common sense demands this upgrade.

YES! We need better cell coverage in the Oakland hills / Highway 13. Thanks!

Yes!! If the poles are already in place there is no further detracton. The cell reception is NOT good in this area!! Thanks you

YES!! YES!!!

YES, I live in the Highway 13 cooridor and I'd definitely like the wireless system improved here.

Yes, also how about better service along hwy 24, too?

Yes, but the service in the Rockridge neighborhood is horrible. One bar and 1X at best.

Yes, everyone in Oakland needs this essential service!

Yes, i absolutely support more cell towers and service for hw 13 and into the oakland hills.

Yes, I do support adding cells to this area. I live off Rte 13 and

Yes, I support adding small cells to existing utility poles along H

YES, I support adding small cells to existing utility poles along Highway 13.

Yes, i want cell service from small cells to be installed.

YES, reception in the oakland hills is terrible.

Yes, Verizon needs to improve it's service in the Bay area

YES. I support improved Verizon wireless coverage along Highway 13 corridor by adding small cells to existing utility poles.

Yes. And along Moraga Ave as well. Cell coverage in these areas should be improved in these highly traveled areas.

Yes. I support adding small cells along Hgw 13 & 24.

YES. I support adding small cells to existing utility poles along Highway 13 between Highway 24 and Redwood Rd.

YES. Please add cell sites to improve cell phone service along 13 and 24.

YES. Please add more cell towers in the Hills!

Yes. We have spotting coverage in this area with continual dropping of ca

Yes. Coverage is a problem in Montclair. Need better coverage!

Yes. I have to be in a certain place in my home to get reliable reception. I would like to see more cells along highway13 to improve service.

Yes. I live in the area & cell phone service is weak.

Yes. I support adding small cells to existing utility poles along Highway 13 between Highway 24 and Redwood Rd.

YES. I support adding small cells to existing utility poles along Hwy 13 btw hwy 24 and redwood rd.

Yes. I would definitely support small cells to existing Powe poles along high way 13.

Yes. Reception is terrible

YES. Service has been awful since April.

YES. We need better Verizon reception.



Yes. We support adding cells along highway 13 as we live near there and our cell reception has been less than adequate esp at home.

YES. We support adding small cells to existing utility poles along Highway 13 between Highway 24 and Redwood Rd.

YES. We support adding small cells to existing Utility poles alongside Hwy 13 between Hwy 24 and Redwood rd

Yes.. add the small cells please.

Yes.we have been waiting for better Verizon service near Highway 13.

Yes-I 1000% support adding small cells-service is horrendous here.