

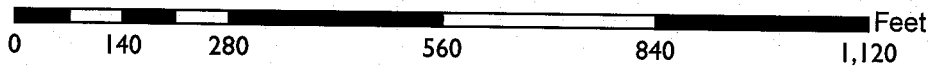
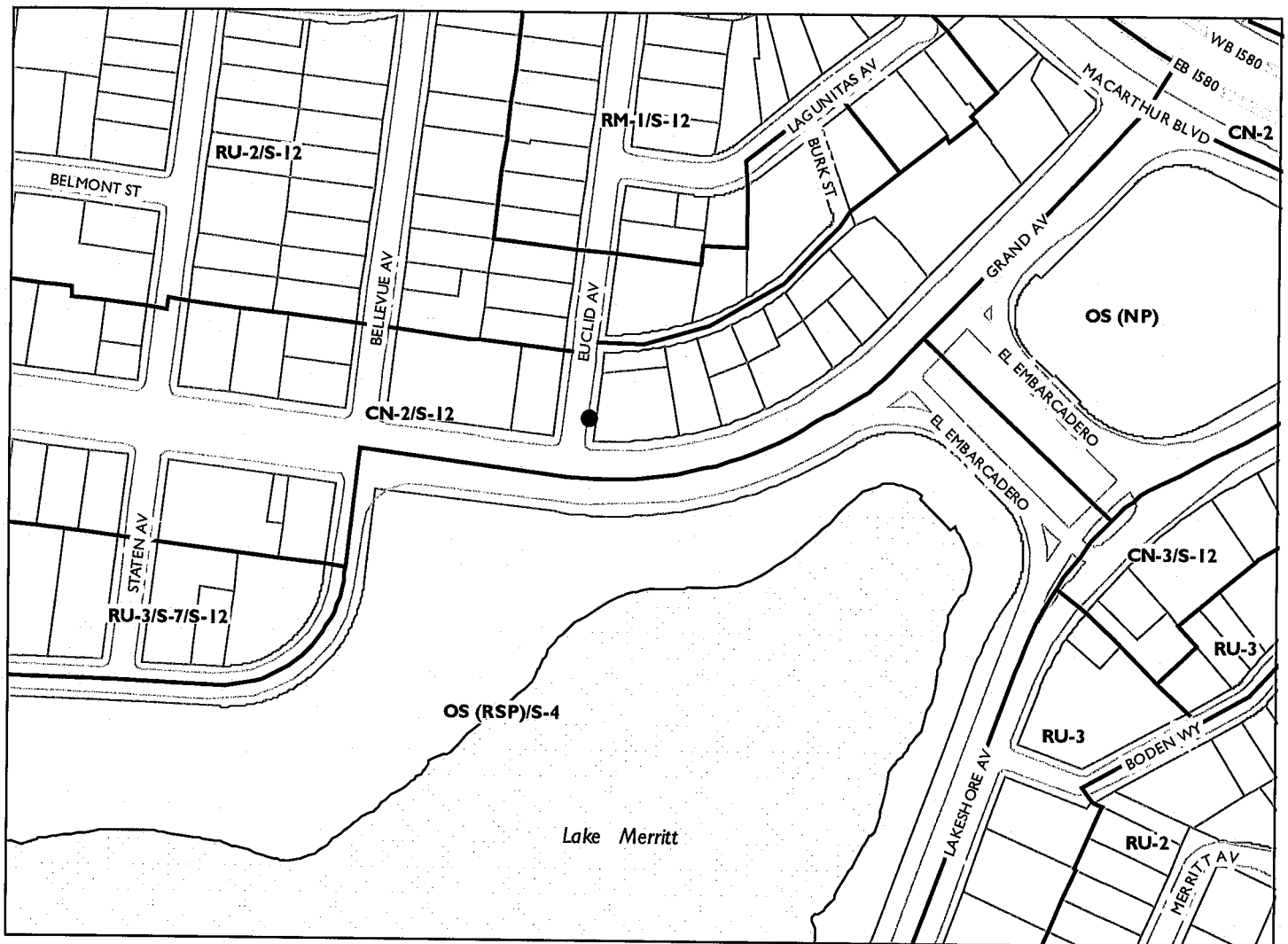
Locations:	Utility pole in public right-of-way adjacent to: 1) Case # PLN17200; 500 Grand Ave, along Euclid Ave (APN: 010 - 0780-015-08); Submitted: 5/24/17; Zoning: CN-2 Neighborhood Commercial / S-12 Residential Parking Combining; General Plan: Neighborhood Center Mixed Use; Council District: 3 (see map on reverse)
Proposal:	To consider a request for one (1) application to install a new "small cell site" Macro Telecommunications Facility on a replacement to an existing utility pole by attaching an antenna to the top of the pole and mounting equipment to the side.
Applicant / Phone Number:	Ms. Ana Gomez-Abarca / Black & Veatch (913) 458-9148
Owner:	Extenet, et al.
Planning Permits Required:	Regular Design Review with additional findings for Macro Telecommunications Facility in Residential Zone
Environmental Determination:	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
Historic Status:	Non-historic properties
Action to be Taken:	Approve with Conditions
Finality of Decision:	<i>Appealable to City Council</i>
For Further Information:	Contact case planner Aubrey Rose AICP at (510) 238-2071 or by email at arose@oaklandnet.com

EXECUTIVE SUMMARY

The applicant requests Planning Commission approval to establish one (1) small cell wireless telecommunications facility on a replacement utility poles located in the public right-of-way (sidewalk) in a commercial district. The project involves side-mounting antennas within a shroud and equipment to the replacement pole as described in the submitted plans to enhance wireless services in those areas.

Regular Design Review is required for the installation of a new Macro Telecommunications Facility near a residential zone. The proposed project, antenna and associated equipment would be similar to other utility poles and equipment within the same area and around the City. The antenna shroud and associated equipment would be painted grey or brown to match the pole and/or other utilities located on the pole. As result, the proposed telecommunication facility is an appropriate location and would not significantly increase negative visual impacts to adjacent neighboring residential properties. The project meets all the required findings for approval of this one (1) small cell site.

CITY OF OAKLAND PLANNING COMMISSION



Case File: PLN17200
Applicant: Ana Gomez-Abarca/Black & Veatch
Address: Utility pole in public right-of-way adjacent to 500 Grand Ave
Zone: CN-2 / S-12

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

PROPERTY DESCRIPTION

The site consists of a wooden utility pole located in the sidewalk towards the curb; the Subject corner property contains an open parking lot. The closest residence is approximately one hundred feet from the pole. Utilities are undergrounded along Grand Avenue which contains decorative City street light poles. Following is a site-specific description:

1) 500 Grand Avenue, along Euclid Avenue: existing 30'-9" pole

PROJECT DESCRIPTION

The site is proposed for:

- Replacing the pole with a 38-foot pole;
- Installation of a sheathed antenna to the top of the pole to measure up to 44'-5" in height;
- Installation of equipment to the side of the pole at 8'-10" to approximately 15'-10" in height;
- Ground mounting a 4-foot tall PG&E pedestal containing a utility meter next to the pole (cannot be pole-mounted or vaulted, per PG&E);
- Paint the proposed antennas and associated equipment grey or brown to match the pole and/or other utilities located on the pole.

No portion of the telecommunication facilities, per se, would be located at grade. The proposed antenna and associated equipment would not be accessible to the public.

SURROUNDING USES

The proposed site is located along a commercial corridor adjacent to the Adams Point neighborhood and across from Lakeside Park at Lake Merritt. The closest properties consist of multi-story residential and mixed use buildings.

SIMILAR CASES

Records show that the Planning Commission has approved approximately 70 Macro Telecommunications Facilities requiring Design Review throughout the City since 2016.

GENERAL PLAN ANALYSIS

The site is classified Neighborhood Center Mixed Use per the Oakland General Plan's Land Use and Transportation Element (LUTE). This classification is intended *"To identify, create, maintain and enhance mixed use neighborhood commercial centers. These centers are typically characterized by smaller scale pedestrian-oriented, continuous street frontage with a mix of retail, housing, office, active open space, eating and drinking places, personal and business services, and smaller scale education, cultural, or entertainment uses."* The proposed telecommunication facilities would be mounted on existing wooden utility poles within the City of Oakland public right-of-way. The proposed unmanned wireless telecommunication facility would not adversely affect the characteristics of the neighborhood.

ZONING ANALYSIS

The proposed telecommunication facility is located within the CN-2 Neighborhood Commercial Zone (with S-12 Residential Parking Combining Zone overlay). Section 17.136.040 and 17.128.070 of the City of Oakland Planning Code requires a Regular Design Review permit for Macro Telecommunication facilities that are attached to utility poles in this zone; such projects are decided by the Planning Commission for sites within one hundred (100) feet of the boundary of any residential zone. Special findings are also required for Design Review approval to ensure that the facility is concealed to the greatest extent possible. The project design is discussed later in this report, and the required findings for Regular Design Review are listed and included in staff's evaluation later in this report.

ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines list the projects that qualify as categorical exemptions from environmental review. The proposed project is categorically exempt from the environmental review requirements pursuant to Section 15301, minor additions and alterations to an existing utility pole; Section 15302, replacement or reconstruction of existing utility systems and/or facilities; Section 15303, new construction or conversion of small structures, and Section 15183, projects consistent with the General Plan or Zoning.

KEY ISSUES AND IMPACTS

The proposal to establish eight Macro Telecommunications Facilities 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 project involves attachment to the replacement of an existing 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 antennas and all components to match the appearance of the utility pole and power line posts.

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 C).

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.**

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

The project is located close to an area with existing residential structures. The project applicant considered alternative sites on other utility poles in this area; however, none of these sites are as desirable from a service coverage perspective or from an aesthetics perspective to minimize visual impacts. The proposed project is in an underserved area. Staff has reviewed the applicant's alternative sites analysis and determined that the site selected conforms to the telecommunication regulation requirements.

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 C).

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.**

In the analysis prepared by Hammett & Edison, Inc. (Attachment C), the proposed project was evaluated for compliance with appropriate guidelines limiting human exposure to radio frequency electromagnetic fields. According to the report, the project would comply with the prevailing standards for limiting public exposure to radio frequency energy, and therefore, the proposed site would operate within the current acceptable thresholds as established by the Federal government or any such agency that may be subsequently authorized to establish such standards. The RF emissions report states that the proposed project would not cause a significant impact on the environment. Additionally, the Planning Code requires that, prior to the final building permit sign off, the applicant submit a certified RF emissions report stating that the facility is operating within acceptable thresholds established by the regulatory Federal agency.

CONCLUSION

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. The project meets all the required findings for approval and would provide an essential telecommunication service to the community and the City of Oakland at large. It would also be available to emergency services such as police, fire department and emergency response teams. Staff believes that the proposal is designed to meet the established zoning and telecommunication regulations and recommends supporting the Regular Design Review application.

RECOMMENDATIONS:

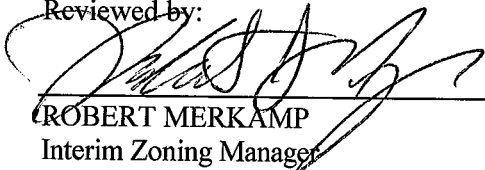
1. Affirm staff's environmental determination.
2. Approve the Regular Design Reviews subject to the attached Findings and Conditions of Approval.

Prepared by:



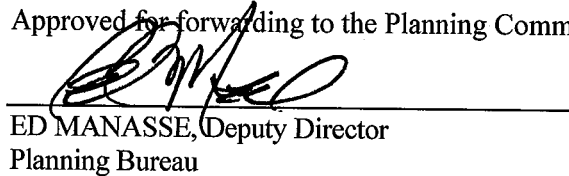
AUBREY ROSE, AICP
Planner III

Reviewed by:



ROBERT MERKAMP
Interim Zoning Manager

Approved for forwarding to the Planning Commission:



ED MANASSE, Deputy Director
Planning Bureau

ATTACHMENTS:

- A. Findings
- B. Conditions of Approval
- C. Plans / Photo-Simulations / Site Analyses / RF Report / Proof of 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 proposed design will create a building or set of buildings that are well related to the surrounding area in their setting, scale, bulk, height, materials, and textures:

The attachment of a small antenna and equipment to a non-historic utility pole, painted and texturized to match the pole and power line posts in appearance for camouflaging, will be the least intrusive design. The antenna will project upward and will not be adjacent to any existing residential living space (approximately 100-feet).

2. That the proposed design will protect, preserve, or enhance desirable neighborhood characteristics;

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.

3. The project will provide a necessary function without negatively impacting surrounding opens pace and hillside residential properties.

The proposal will enhance essential services in urbanized commercial and residential neighborhoods.

4. That the proposed design will be sensitive to the topography and landscape.

The proposed antenna and equipment will not be ground mounted.

5. That, if situated on a hill, the design and massing of the proposed building relates to the grade of the hill.

This finding is inapplicable because the site is nearly level.

6. 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 map which have been adopted by the Planning Commission or City Council.

The site is classified Neighborhood Center Mixed Use per the Oakland General Plan's Land Use and Transportation Element (LUTE). This classification is intended *"To identify, create, maintain and enhance mixed use neighborhood commercial centers. These centers are typically characterized by smaller scale pedestrian-oriented, continuous street frontage with a mix of retail, housing, office, active open space, eating and drinking places, personal and business services, and smaller scale education, cultural, or entertainment uses."* The proposed telecommunication facilities would be mounted on existing wooden utility poles within the City of Oakland public right-of-way. The proposed unmanned wireless telecommunication facility would not adversely affect the characteristics of the neighborhood.

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 will be painted and texturized to match the poles 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 will be located parallel to the host utility pole above posts hosting power lines.

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.

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

Equipment will be attached to the utility pole with an unobtrusive design.

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 antennas will 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 8'-10".

Attachment B: Conditions of Approval

1. 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 February 26, 2018 and submitted May 24, 2017**, as amended by the following conditions of approval and mitigation measures, if applicable (“Conditions of Approval” or “Conditions”). Case Numbers:

- 1) **500 Grand Avenue**

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 shall be painted, texturized, and maintained matte grey or brown, and the equipment and any other accessory items including cables gray, 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 Wooden Utility 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.

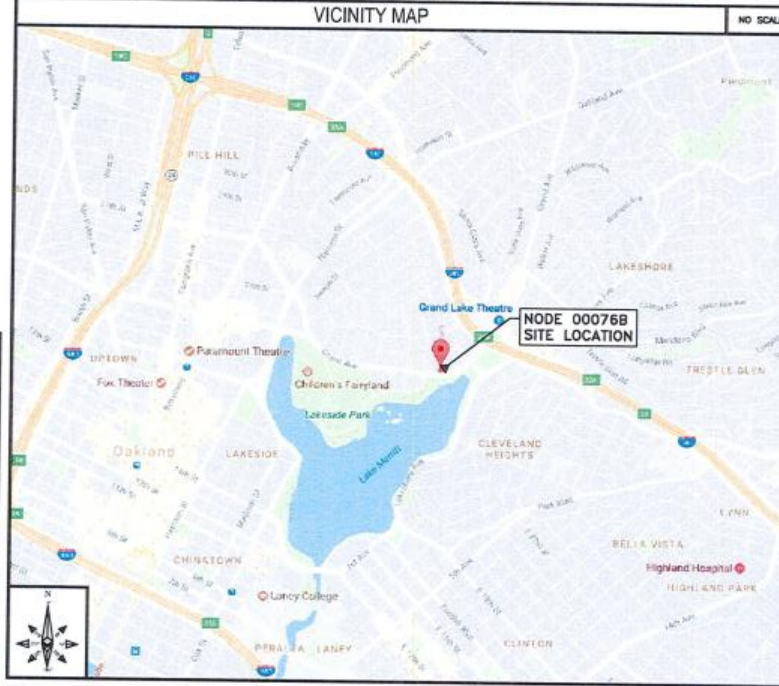
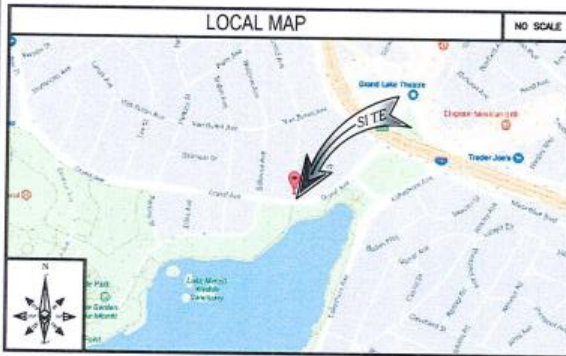
When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

NW-CA-DTOAKLAN 00076B

ADJACENT TO (IN PROW)
500 GRAND AVENUE
OAKLAND, CA 94610



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 (AS APPLICABLE). NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- 1: IBC - 2015
- 2: CALIFORNIA BUILDING STANDARDS CODE - 2016
- 3: CALIFORNIA GENERAL ORDER 95
- 4: CALIFORNIA MECHANICAL CODE 2016
- 5: CALIFORNIA PLUMBING CODE 2016
- 6: CALIFORNIA ELECTRICAL CODE 2016
- 7: CITY AND/OR COUNTY ORDINANCES
- 8: 2012 INTERNATIONAL FIRE CODE
- 9: BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA) *EFFECTIVE UNTIL JANUARY 1ST, 2017

PROJECT DESCRIPTION

THESE DRAWINGS DEPICT THE INSTALLATION OF A WIRELESS TELECOMMUNICATIONS NODE IN THE PUBLIC RIGHT OF WAY. HARDWARE AND ANCILLARY EQUIPMENT TO BE INSTALLED AS DESCRIBED HEREIN.

GENERAL PROJECT NOTES

1. PRIOR TO SUBMITTING A BID, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF/HERSELF WITH THE SCOPE OF WORK AND ALL CONDITIONS AFFECTING THE NEW PROJECT.
2. CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS OF THE JOB SITE AND CONFIRM THAT WORK AS INDICATED ON THESE CONSTRUCTION DOCUMENTS CAN BE ACCOMPLISHED AS SHOWN PRIOR TO COMMENCEMENT OF ANY WORK.
3. ALL FIELD MODIFICATIONS BEFORE, DURING OR AFTER CONSTRUCTION SHALL BE APPROVED IN WRITING BY AN EXTENET SYSTEMS REPRESENTATIVE.
4. INSTALL ALL EQUIPMENT AND MATERIALS PER THE MANUFACTURER'S RECOMMENDATIONS, UNLESS INDICATED OTHERWISE.
5. NOTIFY EXTENET SYSTEMS, IN WRITING, OF ANY MAJOR DISCREPANCIES REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS, AND DESIGN INTENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATIONS FROM AN EXTENET SYSTEMS REPRESENTATIVE, AND ADJUSTING THE BID ACCORDINGLY.
6. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF THE WORK UNDER THE CONTRACT.
7. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS AND FINISHES THAT ARE TO REMAIN. CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY OCCUR DURING THE CONSTRUCTION TO THE SATISFACTION OF AN EXTENET SYSTEMS REPRESENTATIVE.
8. CONTRACTOR PLANS TO ILLUSTRATE THE AS-BUILT CONDITION OF THE SITE, FOLLOWING THE FINAL INSPECTION BY EXTENET, THE CONTRACTOR SHALL PROVIDE EXTENET SYSTEMS WITH ONE COPY OF ALL RED-LINED DRAWINGS.
9. VERIFY ALL FINAL EQUIPMENT WITH AN EXTENET SYSTEMS REPRESENTATIVE. ALL EQUIPMENT LAYOUT, SPECS, PERFORMANCE INSTALLATION AND THEIR FINAL LOCATION ARE TO BE APPROVED BY EXTENET SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS/HER WORK WITH THE WORK AND CLEARANCES REQUIRED BY OTHERS RELATED TO SAID INSTALLATIONS.



INTERNAL REVIEW

CONSTRUCTION SIGNATURE	DATE
RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE



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PROJECT NO.	DRAWN BY	CHECKED BY
192417.6131	YJD	LW

REV	DATE	DESCRIPTION
2	02/16/16	REVISED POWER ROUTE
1	11/15/17	AMENDED POWER EQUIPMENT
0	11/06/17	ISSUES FOR CONSTRUCTION



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

EXTENET SYSTEMS (CA) LLC
2000 CROW CANYON PLACE
SUITE 210
SAN RAMON, CA 94583

SITE ADDRESS
00076B
ADJACENT TO (IN PROW)
500 GRAND AVENUE
OAKLAND, CA 94610

SHEET TITLE
TITLE SHEET

SHEET NUMBER
T-1

SHEET INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
GN-1	GENERAL NOTES AND LEGEND
C-1	OVERALL SITE PLAN
C-2	UTILITY POLE ELEVATIONS
C-2.1	RISER DETAILS AND EQUIPMENT CLEARANCES
C-3	EQUIPMENT DETAILS
C-4	EQUIPMENT DETAILS
	*PEDESTAL DETAILS
	ELECTRICAL DETAILS

PROJECT INFORMATION

POLE OWNER	APPLICANT
<p>OWNER: EXTENET SYSTEMS CALIFORNIA, LLC.</p> <p>ADDRESS: 2000 CROW CANYON PLACE, SUITE 210, SAN RAMON, CA 94583</p> <p>PHONE: -</p>	<p>COMPANY: EXTENET SYSTEMS CALIFORNIA, LLC.</p> <p>CONTACT: CHARLES LINDSAY</p> <p>ADDRESS: 2000 CROW CANYON PLACE, SUITE 210, SAN RAMON, CA 94583</p> <p>PHONE: (510) 910-7787</p> <p>E-MAIL: CLINDSAY@EXTENETSYSTEMS.COM</p>

AGENT	ENGINEER	PROJECT DATA
<p>COMPANY: BLACK & VEATCH</p> <p>CONTACT: ANA GOMEZ-ABARCA, EXECUTION MANAGER, TELECOM</p> <p>ADDRESS: 2999 DAK ROAD, SUITE 490, WALNUT CREEK, CA 94597</p> <p>PHONE: (913) 458-8148 D (925) 949-5902 F</p> <p>EMAIL: GOMEZABARCA@BV.COM</p>	<p>COMPANY: BLACK & VEATCH</p> <p>ENGINEER: LEE WRIGHT</p> <p>PHONE: (913) 458-9793</p> <p>E-MAIL: WRIGHTL@BV.COM</p>	<p>LATITUDE: 37.808844°</p> <p>LONGITUDE: -122.251611°</p> <p>POLE #: 110133550</p> <p>ELEVATION: 34' AMSL</p> <p>ZONING JURISDICTION: CITY OF OAKLAND</p> <p>ZONING DISTRICT: CN-2/S-12</p> <p>NEAREST A.P.N.: 010-078001508</p> <p>OCCUPANCY: U, UNMANNED</p> <p>CONSTRUCTION TYPE: ATTACHMENTS TO A WOOD UTILITY POLE</p> <p>TITLE 24 REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. THIS PROJECT IS EXEMPT.</p>

UNDERGROUND SERVICE ALERT
UTILITIES PROTECTION CENTER, INC.
811
48 HOURS BEFORE YOU DIG

"X17" PLOT, DRAWINGS WILL BE HALF SCALE

FOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON SITE. SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

ATTACHMENT C

GENERAL NOTES

- THESE NOTES SHALL BE CONSIDERED A PART OF THE WRITTEN SPECIFICATIONS, CONTRACT AND CONSTRUCTION DOCUMENTS.
- THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THESE PLANS AND IN THE CONTRACT DOCUMENTS.
- PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTOR(S) SHALL VISIT THE JOB SITE(S) AND BE RESPONSIBLE FOR ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS, AND CONFIRM THAT THE WORK MAY BE ACCOMPLISHED PER THE CONTRACT DOCUMENTS. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO BID SUBMITTAL.
- THE CONTRACTOR SHALL RECEIVE WRITTEN AUTHORIZATION TO PROCEED ON ANY WORK NOT CLEARLY DEFINED OR IDENTIFIED IN THE CONTRACT AND CONSTRUCTION DOCUMENTS BEFORE STARTING ANY WORK.
- ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES, INCLUDING APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. IF THESE RECOMMENDATIONS ARE IN CONFLICT WITH THE CONTRACT AND CONSTRUCTION DOCUMENTS AND/OR APPLICABLE CODES OR REGULATIONS, REVIEW AND RESOLVE THE CONFLICT WITH DIRECTION FROM THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO PROCEEDING.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATION OF ALL PORTIONS OF THE WORK UNDER THE CONTRACT INCLUDING CONTACT AND COORDINATION WITH THE IMPLEMENTATION ENGINEER AND WITH THE AUTHORIZED REPRESENTATIVE OF ANY OUTSIDE POLE OR PROPERTY OWNER.
- THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO PAVING, CURBS, VEGETATION, GALVANIZED SURFACE OR OTHER EXISTING ELEMENTS AND UPON COMPLETION OF THE WORK, REPAIR ANY DAMAGE THAT OCCURRED DURING CONSTRUCTION TO THE SATISFACTION OF EXTENET.
- CONTRACTOR IS TO KEEP THE GENERAL AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH, AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY, LEAVE PREMISES IN CLEAN CONDITION DAILY.
- PLANS ARE INTENDED TO BE DIAGRAMMATIC ONLY AND SHOULD NOT BE SCALED UNLESS OTHERWISE NOTED. RELY ONLY ON ANNOTATED DIMENSIONS AND REQUEST INFORMATION IF ADDITIONAL DIMENSIONS ARE REQUIRED.
- THE EXISTENCE AND LOCATION OF UTILITIES AND OTHER AGENCY'S FACILITIES WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. OTHER FACILITIES MAY EXIST. CONTRACTOR SHALL VERIFY LOCATIONS PRIOR TO START OF CONSTRUCTION AND USE EXTREME CARE AND PROTECTIVE MEASURES TO PREVENT DAMAGE TO THESE FACILITIES. CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF UTILITIES OR OTHER AGENCY'S FACILITIES WITHIN THE LIMITS OF THE WORK, WHETHER THEY ARE IDENTIFIED IN THE CONTRACT DOCUMENTS OR NOT.
- THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (800) 227-2600, AT LEAST TWO WORKING DAYS PRIOR TO THE START OF ANY EXCAVATION.

DEFINITIONS

- "TYPICAL" OR "TYP" MEANS THAT THIS ITEM IS SUBSTANTIALLY THE SAME ACROSS SIMILAR CONDITIONS. "TYP" SHALL BE UNDERSTOOD TO MEAN "TYPICAL WHERE OCCURS" AND SHALL NOT BE CONSIDERED AS WITHOUT EXCEPTION OR MODIFICATION OF SPECIFIC CONDITIONS.
- "SIMILAR" MEANS COMPARABLE TO CHARACTERISTICS FOR THE CONDITION NOTED. VERIFY DIMENSIONS AND ORIENTATION ON PLAN.
- "AS REQUIRED" MEANS AS REQUIRED BY REGULATORY REQUIREMENTS, BY REFERENCED STANDARDS, BY EXISTING CONDITIONS, BY GENERALLY ACCEPTED CONSTRUCTION PRACTICE, OR BY THE CONTRACT DOCUMENTS.
- "ALONG" MEANS ACCURATELY LOCATE FINISH FACES OF MATERIALS IN THE SAME PLANE.
- THE TERM "VERIFY" OR "V.F." SHALL BE UNDERSTOOD TO MEAN "VERIFY IN FIELD WITH ENGINEER" AND REQUIRES THAT THE CONTRACTOR CONFIRM INTENTION REGARDING NOTED CONDITION AND PROCEED ONLY AFTER RECEIVING DIRECTION.
- WHERE THE WORDS "OR EQUAL" OR WORDS OF SIMILAR MEANT FOLLOW A MATERIAL SPECIFICATION, THEY SHALL BE UNDERSTOOD TO REQUIRE SIGNED APPROVAL OF ANY DEVIATION TO SAID SPECIFICATION PRIOR TO CONTRACTOR'S ORDERING OR INSTALLATION OF SUCH EQUAL PRODUCT.
- FURNISH & SUPPLY ONLY; OTHERS TO INSTALL. INSTALL, INSTALL ITEMS FURNISHED BY OTHERS. PROVIDE, FURNISH AND INSTALL.

FIELD WELDING NOTES:

- WELDING TO BE PERFORMED BY AWS CERTIFIED WELDER FOR THE TYPE OF AND POSITION INDICATED. ALL WORK MUST BE IN CONFORMANCE WITH LATEST EDITION OF AWS D1.1.
- GRIND SURFACES TO BE WELDED WITH A SILICON CARBIDE WHEEL PRIOR TO WELDING TO REMOVE ALL GALVANIZING WHICH MAY OTHERWISE BE CONSUMED IN THE WELD METAL. APPLY ANTI-SPATTER COMPOUND AFTER GRINDING.
- WELDING TECHNIQUE MUST MANAGE TEMPERATURE RISE ON THE INSIDE SURFACE OF THE POLE AND ALSO VOLATILIZE ANY REMAINING ZINC WITHIN THE BASE METAL WITH MINIMUM SPATTER. USE AN E70 (LOW HYDROGEN) ELECTRODE. USE LARGEST DIAMETER ELECTRODE COMPATIBLE WITH WELDING POSITION AND MATERIAL THICKNESS. STRICTLY FOLLOW ALL MANUFACTURER'S INSTRUCTIONS FOR STORAGE AND USE OF ELECTRODES. AVOID REMOVING ELECTRODES FROM MANUFACTURER'S PACKAGING UNTIL READY FOR IMMEDIATE USE.
- WELDING MAY PRODUCE TOXIC FUMES. REFER TO ANSI STANDARD Z49.1 "SAFETY IN WELDING AND CUTTING" FOR PROPER PRECAUTIONS.
- UPON COMPLETION OF WELDING, APPLY GALV-A-STICK ZINC COATING TO ALL UNPROTECTED SURFACES. APPLY A SECOND LAYER OF COLD GALVANIZING SPRAY COMPOUND CONTAINING A MINIMUM ZINC CONTENT OF 90% IF NECESSARY. APPLY A FINAL COAT OF COMPATIBLE PAINT TO MATCH SURROUNDING SURFACES.

ANTENNA MOUNTING

- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
- PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNWELTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5R AS DEFINED BY THE INTD. ANTENNA DOWNWELTS SHALL BE WITHIN +/- 0.5R AS DEFINED BY THE INTD.

TORQUE REQUIREMENTS

- ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
- ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
 - RF CONNECTION BOTH SIDES OF THE CONNECTOR.
 - GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLD SURFACE. EXAMPLE OF SOLD SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
- ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
- ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
- ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
- ALL DN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4 - 29.5 NM).
- ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7 - 2.3 NM).

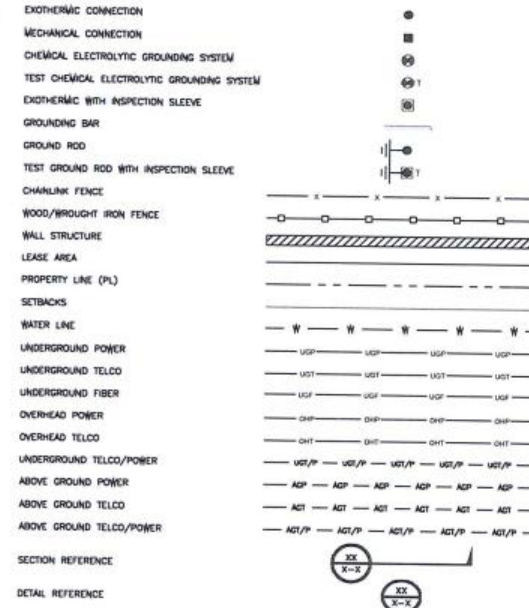
ROW UTILITY POLE CONSTRUCTION NOTES

- NO BOLT THREADS TO PROTRUDE MORE THAN 1-1/2" (38MM).
- FILL ALL HOLES LEFT IN POLE FROM REARRANGEMENT OF CLAMBERS.
- ALL CLAMB STEPS NEXT TO CONDUIT SHALL HAVE EXTENDED STEPS.
- CABLE NOT TO WEDGE 15" (381MM) CLEAR SPACE OFF POLE FACE (1200).
- 90 SHORT SKETCHES UNDER ANTENNA ARM. ALL CABLES MUST ONLY TRANSITION ON THE INSIDE OR BOTTOM OF ARMS (NO CABLE ON TOP OF ARMS).
- USE 90 CONNECTOR AT CABLE CONNECTION TO ANTENNAS.
- USE 1/2" (015M) CABLE ON ANTENNAS UNLESS OTHERWISE SPECIFIED.
- FILL VOID AROUND CABLES AT CONDUIT OPENING WITH FOAM SEALANT TO PREVENT WATER INTRUSION.
- AN ELECTROMAGNETIC INTERFERENCE (EMI) PLACARD SHALL BE AFFIXED TO THE POLE WHERE VISIBLE TO CRAFT WORKERS AND BETWEEN THE EQUIPMENT AND ANTENNA.
- PLACARDS STATING "POWER DISCONNECT PROCEDURES INSIDE SHROUD" SHALL BE PLACED INSIDE ANTENNA SHROUD AND ON EXTERIOR OF AC DISCONNECT.
- BUSS BAR CONNECTIONS SHALL BE DOUBLE LOGGED AND COATED IN NO-OX TO RESIST CORROSION.

NODE SITE POWER SHUT DOWN PROCEDURES

- FOR NON EMERGENCY/SCHEDULED POWER SHUT DOWN
 - CALL EXTENET SYSTEMS NOC (NETWORK OPERATIONS CENTER) (866)982-5327
 - 24 HOURS PRIOR TO SCHEDULED POWER SHUT OFF
 - PROVIDE THE FOLLOWING INFORMATION
 - NOC SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER
 - YOUR NAME AND REASON FOR POWER SHUTOFF
 - PROVIDE DURATION OF OUTAGE
 - UNLOCK DISCONNECT BOX, FLIP BOTH BREAKERS TO THE OFF POSITION
 - POWER SHUT OFF VERIFICATION WITH APPROVED PQ&E PROCEDURES
 - NOTIFY EXTENET NOC UPON COMPLETION OF WORK
 - REINSTALL LOCK ON DISCONNECT BOX
- EMERGENCY POWER SHUT OFF
 - CALL EXTENET SYSTEMS NOC (NETWORK OPERATIONS CENTER) (866)982-5327
 - PROVIDE THE FOLLOWING INFORMATION
 - NOC SITE NUMBER IDENTIFIED ON SITE NUMBERING STICKER
 - YOUR NAME AND REASON FOR POWER SHUTOFF
 - PROVIDE DURATION OF OUTAGE
 - UNLOCK DISCONNECT BOX, FLIP BOTH BREAKERS TO THE OFF POSITION
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 - NOTIFY EXTENET NOC UPON COMPLETION OF WORK
 - REINSTALL LOCK ON DISCONNECT BOX

LEGEND



GENERAL NOTES AND LEGENDS



INTERNAL REVIEW	
CONSTRUCTION SIGNATURE	DATE
RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE



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PROJECT NO.	DRAWN BY	CHECKED BY
192417.6131	YJD	LW

REV	DATE	DESCRIPTION
2	05/19/18	REVISED POWER ROUTE
1	11/15/17	ADDED POWER EQUIPMENT
0	11/09/17	ISSUED FOR CONSTRUCTION



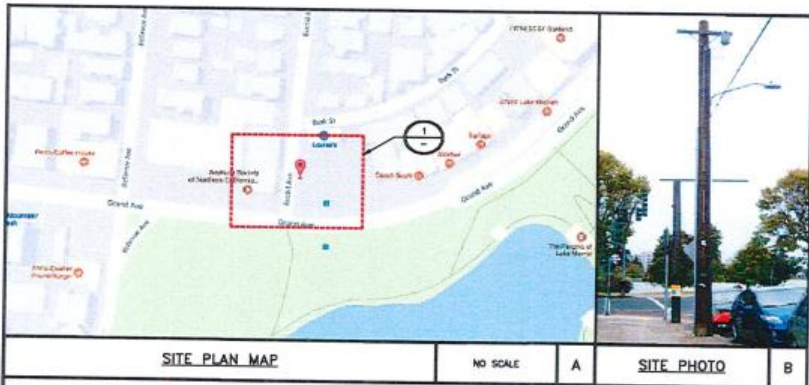
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EXTENET SYSTEMS (CA) LLC
2000 CROW CANYON PLACE
SUITE 210
SAN RAMON, CA 94583

SITE ADDRESS
00076B
ADJACENT TO (IN PROW)
500 GRAND AVENUE
OAKLAND, CA 94610

SHEET TITLE
GENERAL NOTES
AND LEGEND

SHEET NUMBER
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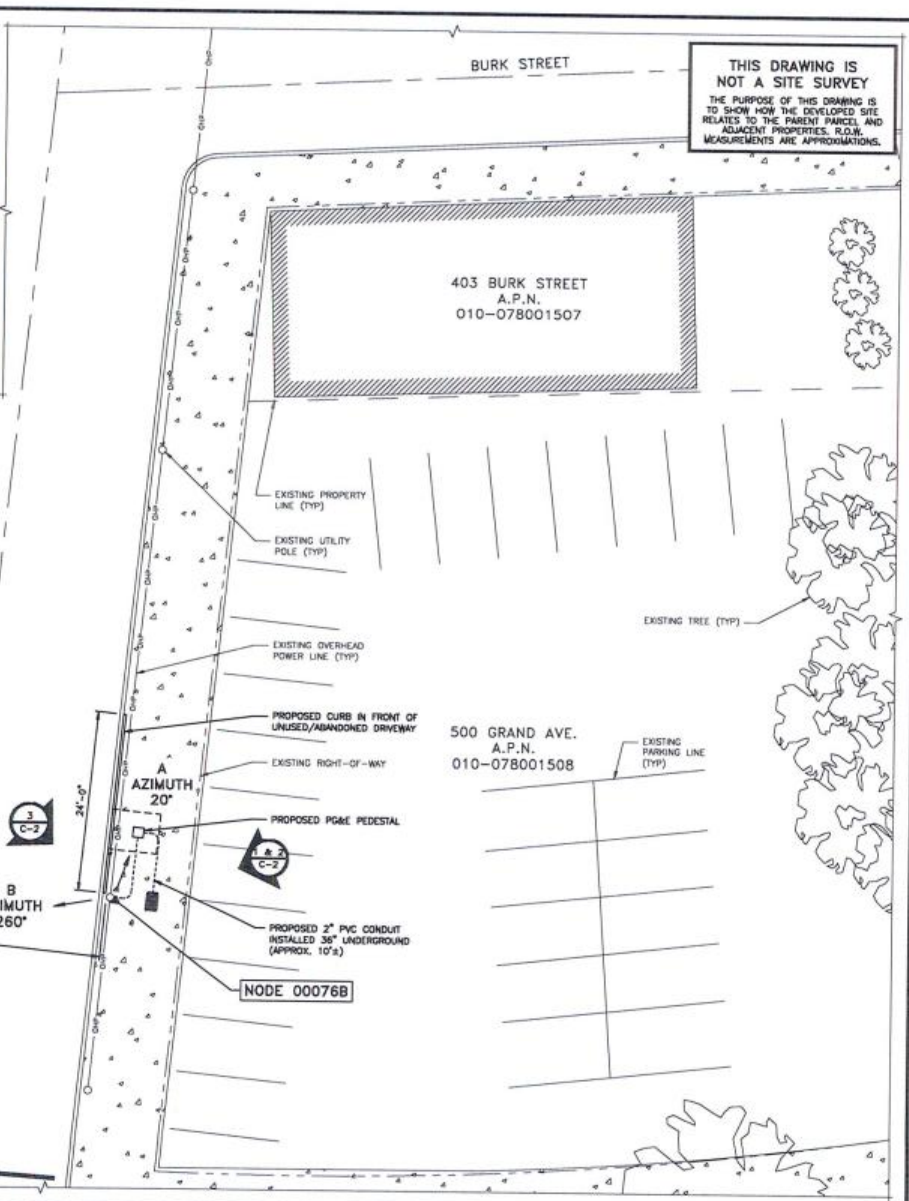
SITE PLAN MAP

NO SCALE

A

SITE PHOTO

B



THIS DRAWING IS NOT A SITE SURVEY
 THE PURPOSE OF THIS DRAWING IS TO SHOW HOW THE DEVELOPED SITE RELATES TO THE PARENT PARCEL AND ADJACENT PROPERTIES. R.O.M. MEASUREMENTS ARE APPROXIMATIONS.

403 BURK STREET
 A.P.N.
 010-078001507

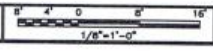
490 GRAND AVENUE
 A.P.N.
 010-077901300

500 GRAND AVE.
 A.P.N.
 010-078001508

EUCLID AVENUE

GRAND AVENUE

OVERALL SITE PLAN



INTERNAL REVIEW	
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RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE

BLACK & VEATCH
 BLACK & VEATCH CORPORATION
 2998 OAK ROAD
 SUITE 450
 WALNUT CREEK, CA 94597

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 2000 CROW CANYON PLACE
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 OVERALL SITE PLAN

SHEET NUMBER
C-1

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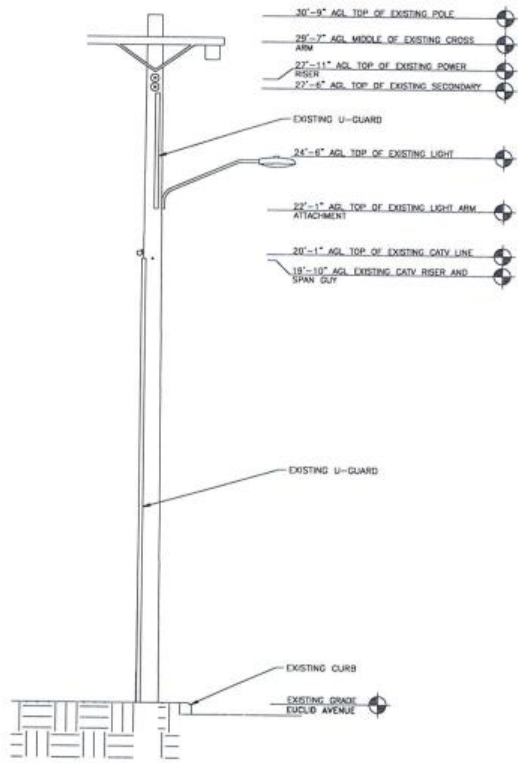
THESE DRAWINGS HAVE BEEN CREATED BASED ON THE ASSUMPTION THAT THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING. IT IS THE RESPONSIBILITY OF THE POLE OWNER TO CONFIRM THAT THE PROPOSED LOADING IS WITHIN THE ORIGINAL DESIGN CAPACITY OF THE STRUCTURE.

CARRIER MAKE-READY

- CONTRACTOR TO REMOVE EXISTING TIMBER POLE AND INSTALL NEW 45'-0" TIMBER POLE WITH 7'-0" EMBODIMENT.
- CONTRACTOR TO INSTALL (1) PANEL ANTENNA w/ ANCILLARY ELECTRONICS AND HARDWARE ON PROPOSED ANTENNA SIDE ARM MOUNT.
- CONTRACTOR TO INSTALL (2) RADIOS w/ ANCILLARY ELECTRONICS AND HARDWARE ON PROPOSED 108" CHANNEL MOUNT.
- CONTRACTOR TO INSTALL (1) 2" SCH. 80 PVC CONDUIT WITH WEATHERHEAD FOR POWER.
- CONTRACTOR TO INSTALL (1) 2" SCH. 80 PVC CONDUIT WITH WEATHERHEAD FOR COAX AND FIBER CABLES.
- CONTRACTOR TO INSTALL (1) FIBER SPLICE BOX ON PROPOSED 108" CHANNEL MOUNT.
- CONTRACTOR TO INSTALL (1) RF SHUTDOWN ON PROPOSED 108" CHANNEL MOUNT.
- CONTRACTOR TO INSTALL (1) METER ON PROPOSED 60" CHANNEL MOUNT.
- EXTENET APPROVED CONTRACTOR TO INSTALL (1) NEW FIBER OPTIC CABLE AT 21'-1" ON PROPOSED CROSS ARM.
- CONTRACTOR TO INSTALL REQUIRED RF SIGNAGE 3'-0" BELOW PROPOSED ANTENNA MOUNT.
- CONTRACTOR TO INSTALL APPROXIMATELY 24'-0"± LF PROPOSED CURB IN FRONT OF UNUSED DRIVEWAY.

NOTES

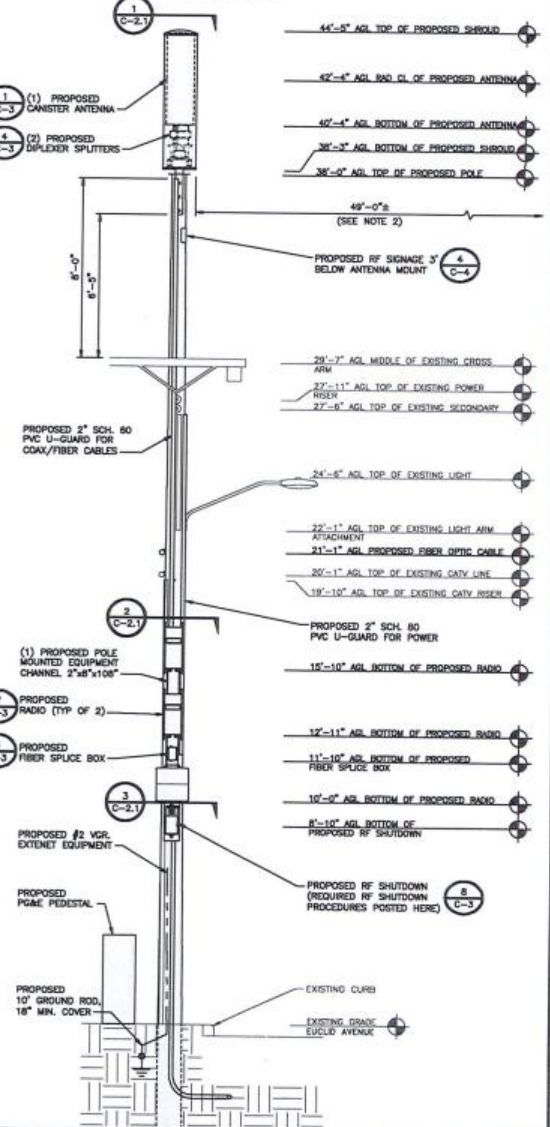
- ALL PROPOSED/ANCILLARY EQUIPMENT TO BE PAINTED MESA BROWN TO MATCH EXISTING UTILITY POLE.
- DISTANCE FROM ANTENNA FACE TO NEAREST BUILDING (454 EUCLID AVENUE), SEE SHEET C-1 FOR ORIENTATION.
- ANTENNA SHROUD NOT EXTREMELY SHOWN FOR CLARITY.



EXISTING SOUTHWEST ELEVATION



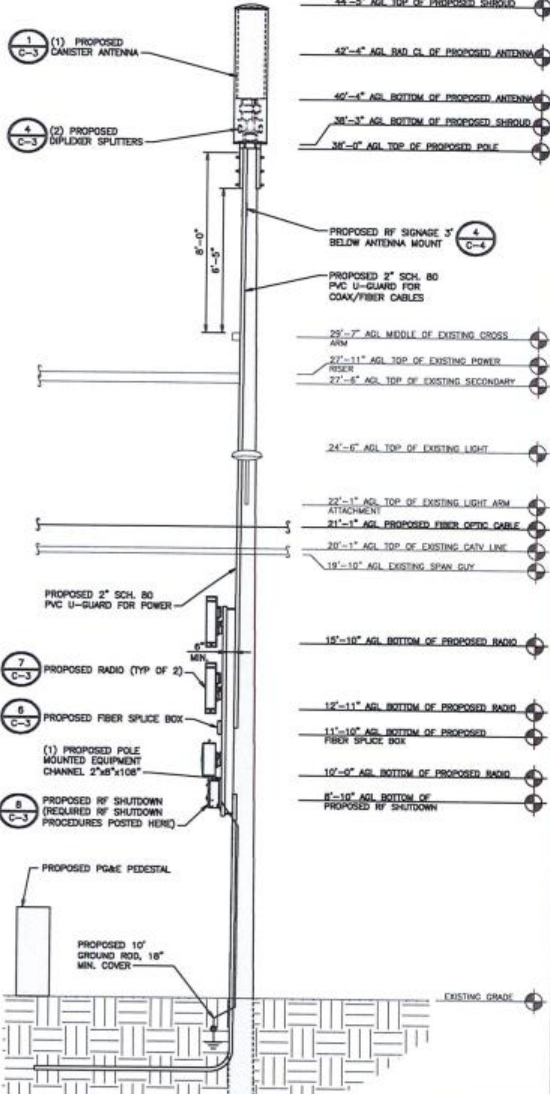
1



PROPOSED NORTHEAST ELEVATION



2



PROPOSED NORTHWEST ELEVATION



3

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BLACK & VEATCH

BLACK & VEATCH CORPORATION
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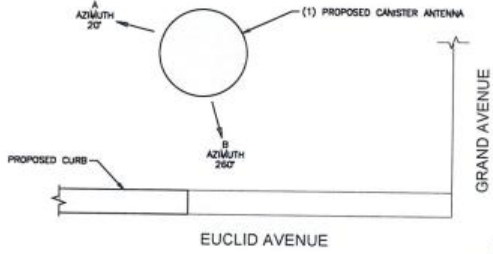
SITE ADDRESS
00076B
ADJACENT TO (IN PROW)
500 GRAND AVENUE
OAKLAND, CA 94610

SHEET TITLE
UTILITY POLE ELEVATIONS

SHEET NUMBER
C-2

NOTE

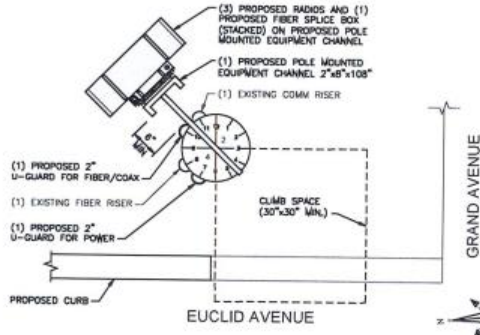
ANTENNA SHOULD NOT ENTIRELY SHOWN FOR CLARITY.



ANTENNA PLAN VIEW

NO SCALE

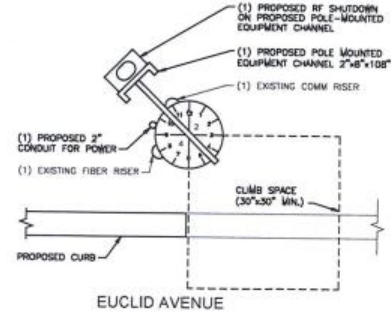
1



RADIO PLAN VIEW

NO SCALE

2



RF SHUTDOWN PLAN VIEW

NO SCALE

3



INTERNAL REVIEW	
CONSTRUCTION SIGNATURE	DATE
RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE

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BLACK & VEATCH CORPORATION
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PROJECT NO.	DRAWN BY	CHECKED BY
192417.6131	YJC	LW

REV	DATE	DESCRIPTION
2	02/16/18	REVISED POWER ROUTE
1	11/15/17	ADDED POWER EQUIPMENT
0	11/09/17	SKETCH FOR CONSTRUCTION



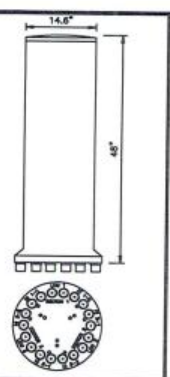
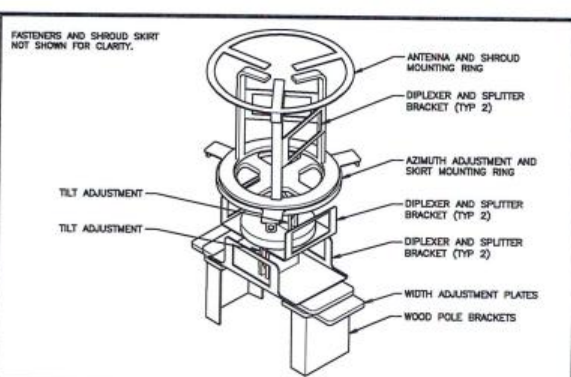
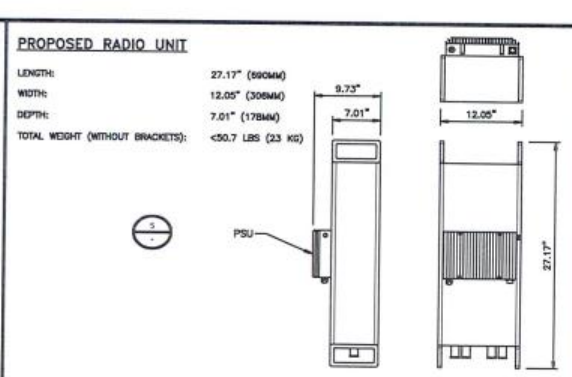



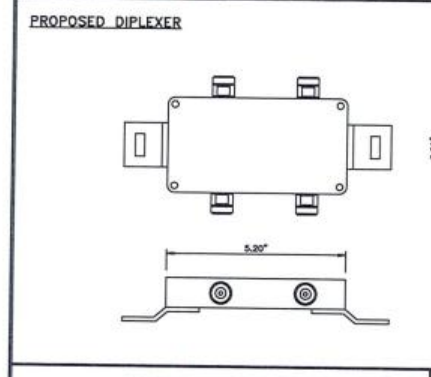
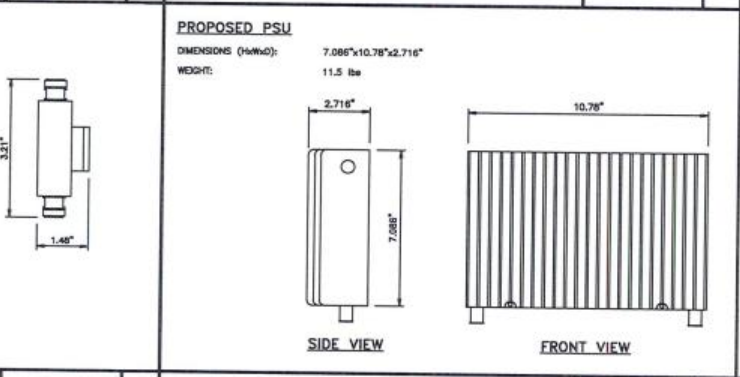
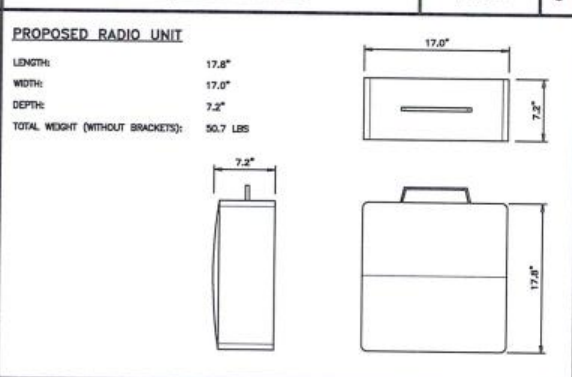
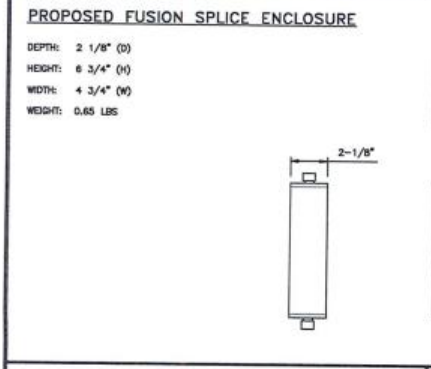
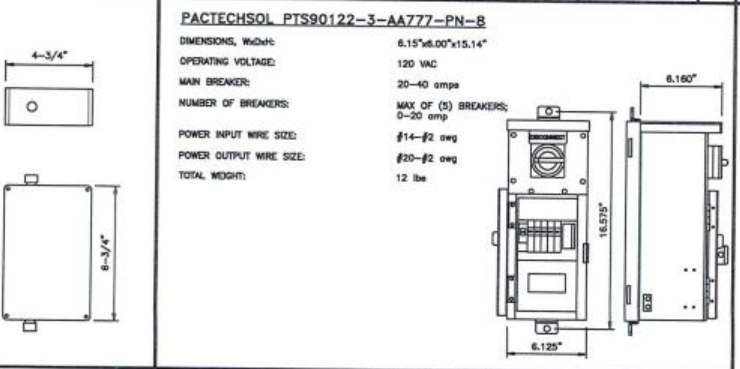
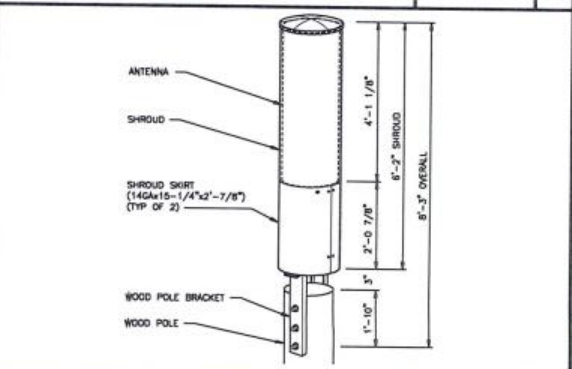
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EXTENET SYSTEMS (CA) LLC
2000 CROW CANYON PLACE
SUITE 210
SAN RAMON, CA 94583

SITE ADDRESS
00076B
ADJACENT TO (IN PROW)
500 GRAND AVENUE
OAKLAND, CA 94610

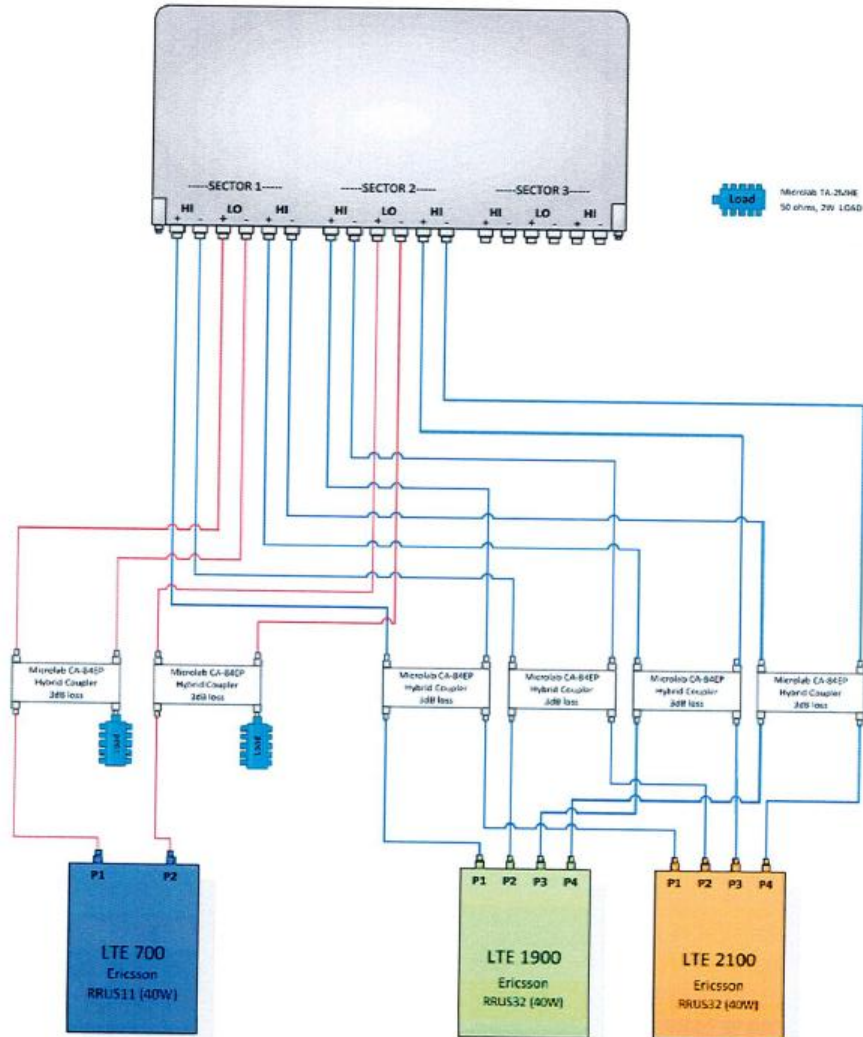
SHEET TITLE
RISER DETAILS

SHEET NUMBER
C-2.1

<p>PROPOSED ANTENNA</p> <p>RADOME COLOR: LIGHT GREY RADOME MATERIAL: FIBERGLASS, UV RESISTANT DIAMETER: 14.6" (371mm) HEIGHT: 48.0" (1219mm) TOTAL WEIGHT (WITHOUT BRACKETS): 42.0 lbs (19.1 kg) CONNECTOR INTERFACE: 4.1/9.5 OR 4.3/10 OR 7/16" DIN FEMALE RF CONNECTOR LOCATION: BOTTOM RF CONNECTOR QUANTITY: 18</p> 	<p>FASTENERS AND SHROUD SKIRT NOT SHOWN FOR CLARITY.</p> 	<p>PROPOSED RADIO UNIT</p> <p>LENGTH: 27.17" (690MM) WIDTH: 12.05" (306MM) DEPTH: 7.01" (178MM) TOTAL WEIGHT (WITHOUT BRACKETS): <50.7 LBS (23 KG)</p> 	 <p>INTERNAL REVIEW</p> <p>CONSTRUCTION SIGNATURE: _____ DATE: _____ RF SIGNATURE: _____ DATE: _____ REAL ESTATE SIGNATURE: _____ DATE: _____</p>  <p>BLACK & VEATCH</p> <p>BLACK & VEATCH CORPORATION 2898 OAK ROAD SUITE 480 WALNUT CREEK, CA 94597</p> <p>THESE DRAWINGS ARE COPYRIGHTED AND ARE THE PROPERTY OF BLACK & VEATCH. PRODUCED SOLELY FOR THE USE OF OUR CLIENT. ANY REPRODUCTION OR USE OF THE INFORMATION CONTAINED WITHIN SAID DRAWINGS IS PROHIBITED WITHOUT WRITTEN CONSENT BY BLACK & VEATCH.</p> <p>PROJECT NO. 192417.6131 DRAWN BY YUG CHECKED BY LW</p> <table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> <tr> <td>2</td> <td>02/16/18</td> <td>REVISED POWER ROUTE</td> </tr> <tr> <td>1</td> <td>11/16/17</td> <td>AMENDED POWER EQUIPMENT</td> </tr> <tr> <td>0</td> <td>11/08/17</td> <td>ISSUED FOR CONSTRUCTION</td> </tr> </table>  <p>IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.</p> <p>EXTENET SYSTEMS (CA) LLC 2000 CROW CANYON PLACE SUITE 210 SAN RAMON, CA 94583</p> <p>SITE ADDRESS 00076B ADJACENT TO (IN PROW) 500 GRAND AVENUE OAKLAND, CA 94610</p> <p>SHEET TITLE EQUIPMENT DETAILS</p> <p>SHEET NUMBER C-3</p>	REV	DATE	DESCRIPTION	2	02/16/18	REVISED POWER ROUTE	1	11/16/17	AMENDED POWER EQUIPMENT	0	11/08/17	ISSUED FOR CONSTRUCTION
REV	DATE	DESCRIPTION													
2	02/16/18	REVISED POWER ROUTE													
1	11/16/17	AMENDED POWER EQUIPMENT													
0	11/08/17	ISSUED FOR CONSTRUCTION													
<p>ANTENNA SPECIFICATIONS</p> <p>NO SCALE 1</p>	<p>POLE TOP MOUNT DETAIL</p> <p>NO SCALE 2</p>	<p>RADIO #1 SPECIFICATIONS</p> <p>NO SCALE 3</p>													
<p>PROPOSED DIPLEXER</p> 	<p>PROPOSED PSU</p> <p>DIMENSIONS (1/4" MIN): 7.086"x10.78"x2.716" WEIGHT: 11.5 lbs</p> 	<p>PROPOSED RADIO UNIT</p> <p>LENGTH: 17.8" WIDTH: 17.0" DEPTH: 7.2" TOTAL WEIGHT (WITHOUT BRACKETS): 50.7 LBS</p> 													
<p>DIPLEXER SPECIFICATIONS</p> <p>NO SCALE 4</p>	<p>PSU POWER CONVERTER DETAIL</p> <p>NO SCALE 5</p>	<p>RADIO #2 SPECIFICATIONS</p> <p>NO SCALE 6</p>													
<p>PROPOSED FUSION SPlice ENCLOSURE</p> <p>DEPTH: 2 1/8" (D) HEIGHT: 6 3/4" (H) WIDTH: 4 3/4" (W) WEIGHT: 0.65 LBS</p> 	<p>FACTECSOL PTS90122-3-AA777-PN-B</p> <p>DIMENSIONS, WxDxH: 6.15"x6.00"x15.14" OPERATING VOLTAGE: 120 VAC MAIN BREAKER: 20-40 amps NUMBER OF BREAKERS: MAX OF (5) BREAKERS; 0-20 amp POWER INPUT WIRE SIZE: #14-#2 awg POWER OUTPUT WIRE SIZE: #20-#2 awg TOTAL WEIGHT: 12 lbs</p> 	<p>ANTENNA MOUNT ASSEMBLY DETAIL</p> 													
<p>FIBER SPlice BOX SPECIFICATIONS</p> <p>NO SCALE 7</p>	<p>SHUTDOWN SPECIFICATIONS</p> <p>NO SCALE 8</p>	<p>ANTENNA MOUNT ASSEMBLY DETAIL</p> <p>NO SCALE 9</p>													

NW-CA-DTOAKLAN-VZW
(Option 9)

Amphenol CUUT070X12FxyS



ANTENNA CONFIGURATION

NO SCALE 1

- NOTES
- EXTENET TO INSTALL SIGNS PER 60265 RULE 94.5 APPENDIX H, EXHIBIT A: AT NODE/ANTENNA POLE.
 - SPECIFIC EMI PLACARD WILL BE PLACED AFTER EMI REPORT.

NOTICE

Radio frequency fields beyond this point may exceed the FCC general public exposure limit. Obey all posted signs and site guidelines for working in radio frequency environments. Workers shall maintain a minimum approach distance of 30 inches. EXTENET SYSTEMS: 1-866-892-5327 VZW NW-CA: DTOAKLAN-00076B

CAUTION

Beyond this point: Radio frequency fields at this site may exceed FCC rules for human exposure. For your safety, obey all posted signs and site guidelines for working in radio frequency environments. Workers shall maintain a minimum approach distance of 30 inches. EXTENET SYSTEMS: 1-866-892-5327 VZW NW-CA: DTOAKLAN-00076B

RF SIGNAGE DETAIL

NO SCALE 2

extenet mConnectivity SYSTEMS Everywhere

INTERNAL REVIEW _____ DATE _____
 CONSTRUCTION SIGNATURE _____ DATE _____
 RF SIGNATURE _____ DATE _____
 REAL ESTATE SIGNATURE _____ DATE _____

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 BLACK & VEATCH CORPORATION
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 SUITE 490
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PROJECT NO.	DRAWN BY	CHECKED BY
192417.6131	YJC	LW

REV	DATE	DESCRIPTION
2	05/16/18	REVISED POWER HOUR
1	11/16/17	ADDED POWER EQUIPMENT
0	11/29/17	ISSUED FOR CONSTRUCTION

EXP. 9/30/18
 CIVIL
 STATE OF CALIFORNIA

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EXTENET SYSTEMS (CA) LLC
 2000 CROW CANYON PLACE
 SUITE 210
 SAN RAMON, CA 94583

SITE ADDRESS
 00076B
 ADJACENT TO (IN PROW)
 500 GRAND AVENUE
 OAKLAND, CA 94610

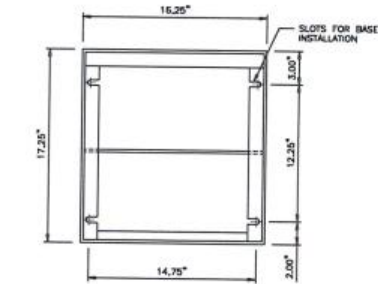
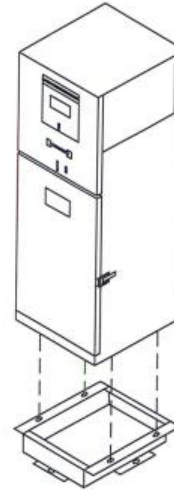
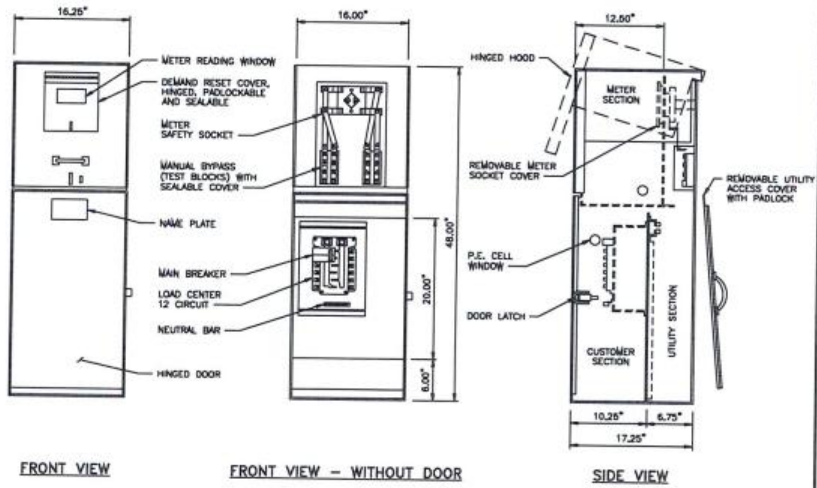
SHEET TITLE
 EQUIPMENT DETAILS

SHEET NUMBER
C-4

NOT USED

NO SCALE 4

MYERS MEUG16-M100 CALTRANS TYPE III-BF



BOTTOM VIEW - MOUNTING SLOT DETAIL

METER PEDESTAL DETAIL

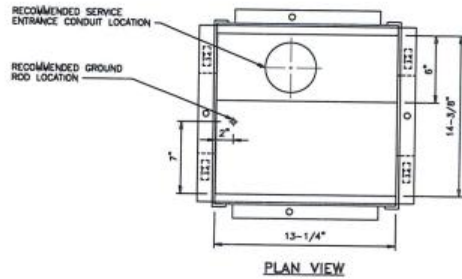
NO SCALE A

METER PEDESTAL BASEPLATE DETAIL

NO SCALE B

NOTES

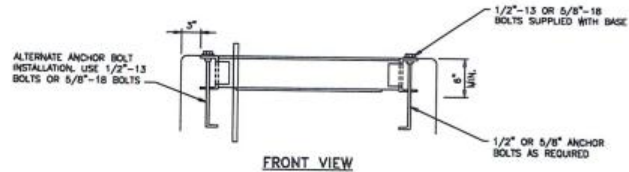
MINIMUM CLEARANCE REQUIRED 36" PER NEC 110-16, TYPICAL FRONT AND BACK.
FOUNDATION DIMENSIONS AND DEPTH PER JOB SPECIFICATIONS.



PLAN VIEW



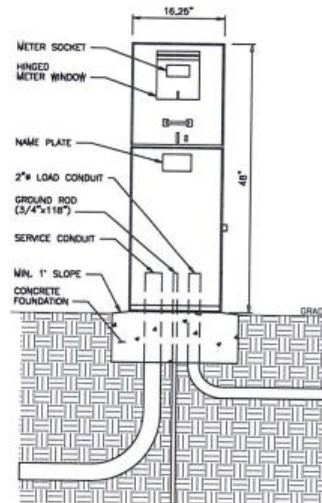
SIDE VIEW



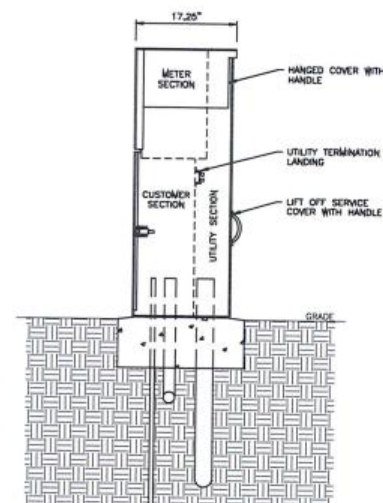
FRONT VIEW

BASEPLATE DETAIL

NO SCALE C



METER PEDESTAL CONDUIT DETAIL



NO SCALE D



INTERNAL REVIEW	
CONSTRUCTION SIGNATURE	DATE
RF SIGNATURE	DATE
REAL ESTATE SIGNATURE	DATE



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PROJECT NO.	DRAWN BY	CHECKED BY
192417.6131	YJG	LW

REV	DATE	DESCRIPTION
2	02/16/18	REVISED POWER ROUTE
1	11/15/17	AMENDED POWER EQUIPMENT
0	11/09/17	BROKEN FOR CONSTRUCTION



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SUITE 210
SAN RAMON, CA 94583

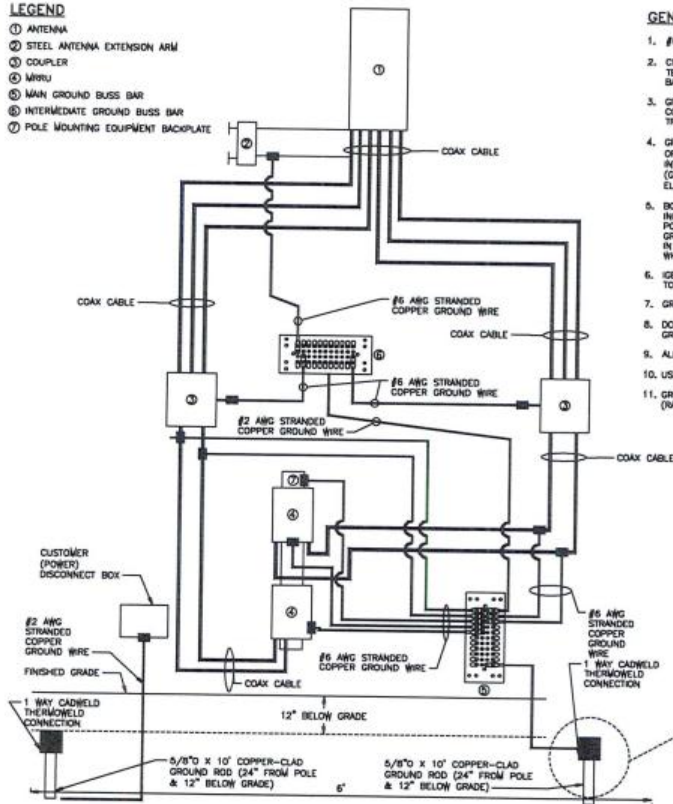
SITE ADDRESS
000768
ADJACENT TO (IN PROW)
500 GRAND AVENUE
OAKLAND, CA 94610

SHEET TITLE
METER PEDESTAL DETAILS

SHEET NUMBER
C-5

LEGEND

- ① ANTENNA
- ② STEEL ANTENNA EXTENSION ARM
- ③ COUPLER
- ④ WRRU
- ⑤ MAIN GROUND BUSS BAR
- ⑥ INTERMEDIATE GROUND BUSS BAR
- ⑦ POLE MOUNTING EQUIPMENT BACKPLATE

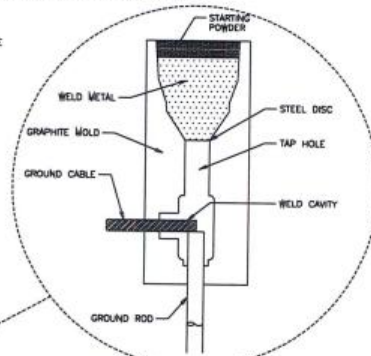


CONCEPTUAL WOOD POLE GROUNDING DETAIL

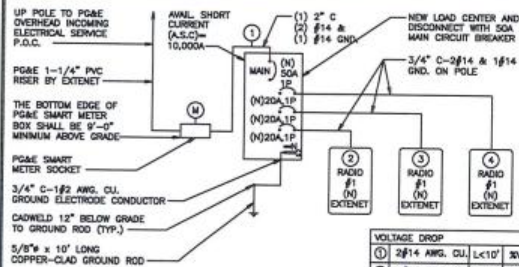
NO SCALE 1

GENERAL GROUNDING NOTES

1. #6 GREEN COATED WIRE TO BE USED.
2. CRIMP (COMPRESSION) TYPE TWO HOLE BOLTED TONGUE CONNECTORS SHALL BE USED TO TERMINATE STRANDED GROUND CONDUCTORS. CONNECTORS SHALL BE TIN PLATED, LONG BARREL LUG.
3. GROUND WIRES SHALL BE INSERTED THE ENTIRE LENGTH OF THE LUG. PROVIDE ANTI-OXIDANT COMPOUND ON THE CONDUCTOR BEFORE CRIMPING. CONTRACTOR TO INSTALL A TRANSPARENT HEAT SHRINK INSULATING TUBING ALONG ENTIRE LENGTH OF CRIMP.
4. GROUND CONDUCTORS RUN ALONG POLE SURFACE SHALL BE COVERED BY 3/8" HARD WOOD OR DOUGLAS FIR W/DR WOOD MOLDING. CORROSION RESISTANT (GALVANIZED) STAPLE AT 2" INTERVALS TO BE USED FOR WGR. THE GROUNDING CONDUCTOR FROM THE GROUND ROD (GROUND ELECTRODE) TO THE MESSANGER SHALL BE CONTINUOUS, UNLESS SUITABLE ELECTRICAL COMPRESSION CONNECTIONS ARE USED.
5. BOND WIRES AND GROUND WIRES SHALL HAVE A CLEARANCE OF NOT LESS THAN 1 1/2" INCHES FROM METAL PINS, BOLTS, AND OTHER HARDWARE ON WOOD CROSSARMS AND WOOD POLES EXCEPT WHERE THE HARDWARE IS EXTENDED TO BE CONNECTED TO THE BOND OR GROUND WIRES, AND IN BEING SO CONNECTION DOES NOT VIOLATE OTHER RULES OF OGS, IN WHICH CASE SUITABLE ELECTRICAL CONTACT SHALL BE MADE.
6. IGB TO BE MOUNTED DIRECTLY TO ANTENNA SUPPORT ARM. MGB TO BE MOUNTED DIRECTLY TO POLE MOUNT EQUIPMENT BACKPLATE.
7. GROUND BUSS BAR LENGTH TO VARY BASED ON NUMBER OF GROUND ATTACHMENTS.
8. DO NOT INSTALL CABLE GROUNDING KITS ON BENDS. CONTRACTOR SHALL ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
9. ALL OGS & NEC GROUNDING RULES TO BE FOLLOWED AT ALL TIMES.
10. USE GROUND LUG TO BOND ANTENNA SUPPORT ARM TO IGB.
11. GROUND LEAD FOR EACH DEVICE IS TYPICAL; SITE MAY HAVE 2, 3, 4 OR MORE WRRU (RADIO) AND/OR COUPLER (DUPLEXER) UNITS.



CADWELD THERMOWELD CONNECTOR



VOLTAGE DROP			
①	2#14 AWG. CU	L<10'	XVD=NEGL.
②	2#14 AWG. CU	L<10'	XVD=NEGL.
③	2#14 AWG. CU	L<10'	XVD=NEGL.
④	2#14 AWG. CU	L<10'	XVD=NEGL.

ELECTRICAL ONE-LINE DIAGRAM

NO SCALE 2

NOT USED

NO SCALE 4



INTERNAL REVIEW	
CONSTRUCTION SIGNATURE	DATE
RF SIGNATURE	DATE
SUB. STATE SIGNATURE	DATE



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PROJECT NO.	DRAWN BY	CHECKED BY
192417.6131	YAC	LW

REV	DATE	DESCRIPTION
2	02/16/18	REVISED POWER ROUTE
1	11/15/17	ISSUED POWER EQUIPMENT
0	11/09/17	ISSUED FOR CONSTRUCTION



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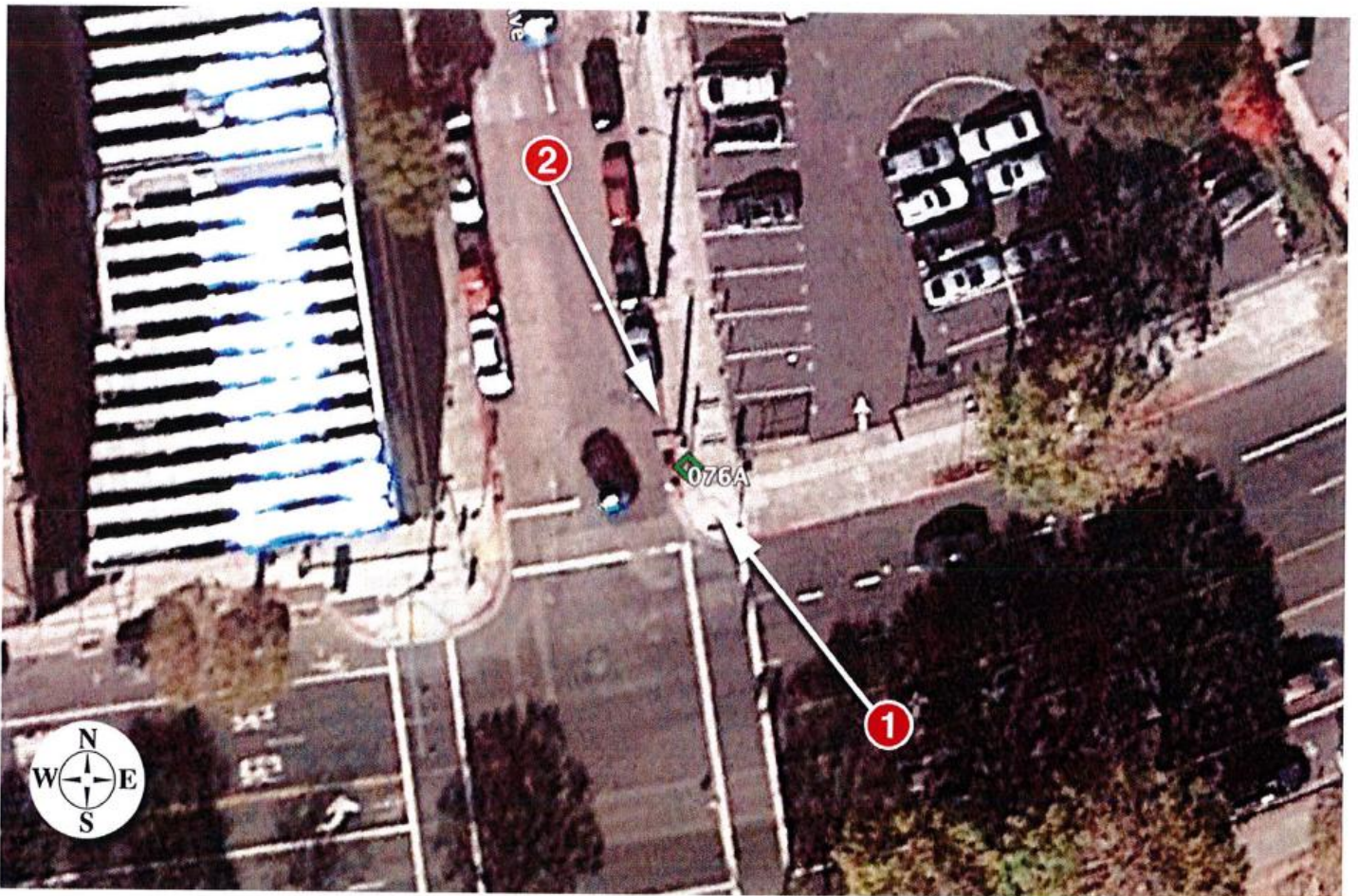
EXTENET SYSTEMS (CA) LLC
2000 CROW CANYON PLACE
SUITE 210
SAN RAMON, CA 94583

SITE ADDRESS
00076B
ADJACENT TO (IN PROW)
500 GRAND AVENUE
OAKLAND, CA 94610

SHEET TITLE
ELECTRICAL DETAILS

SHEET NUMBER

E-1



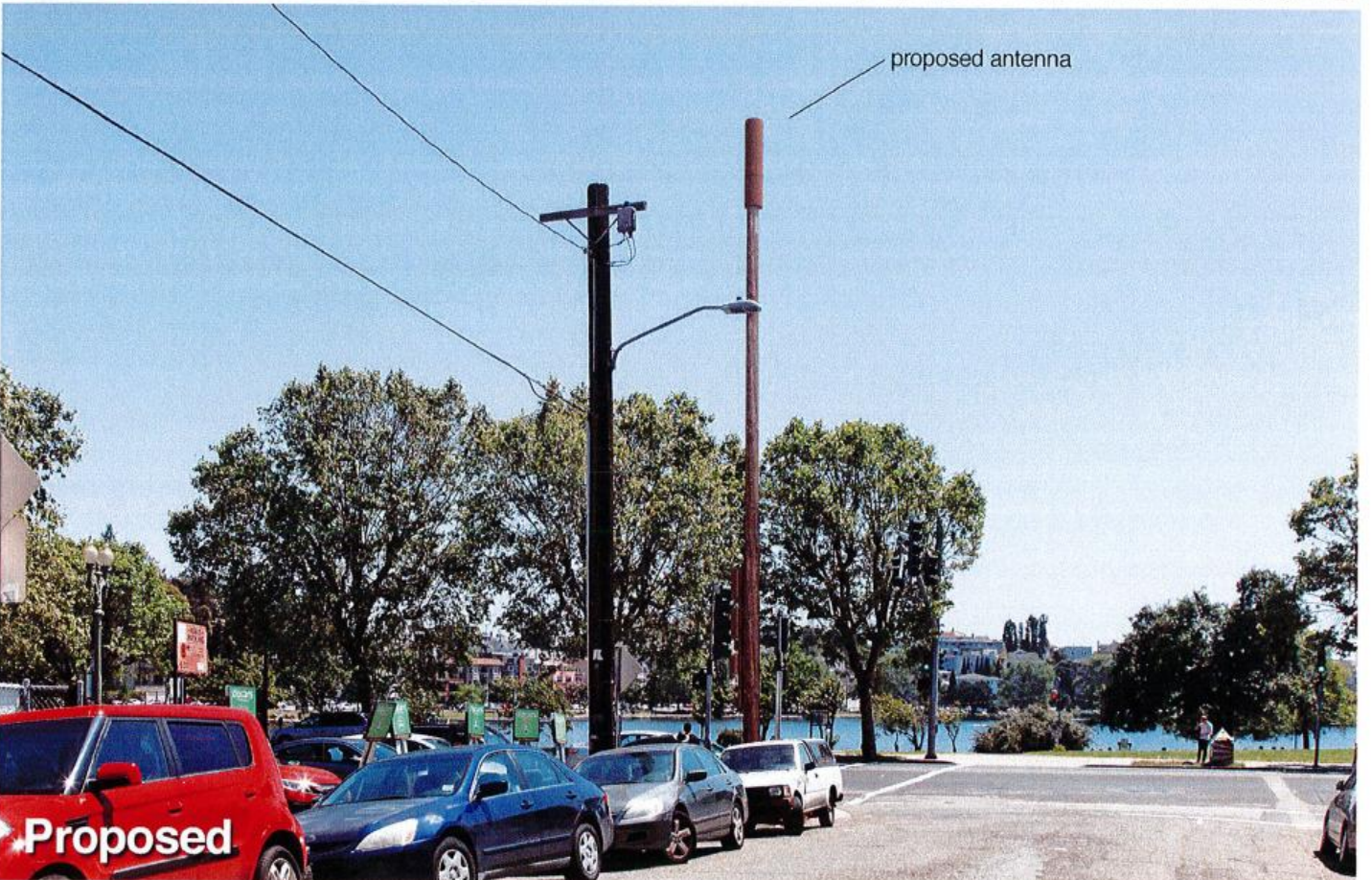


Existing



proposed antenna

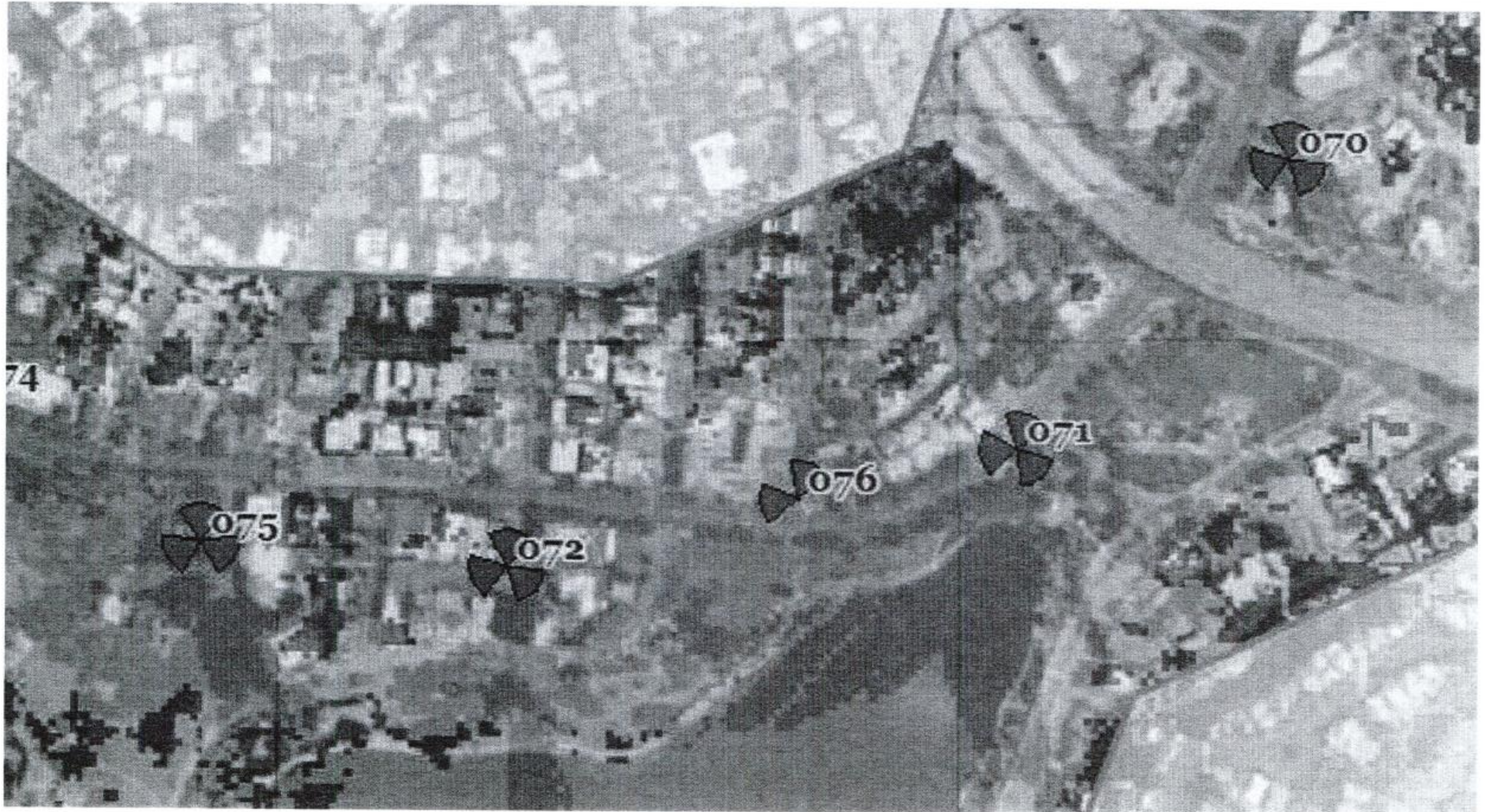
Proposed





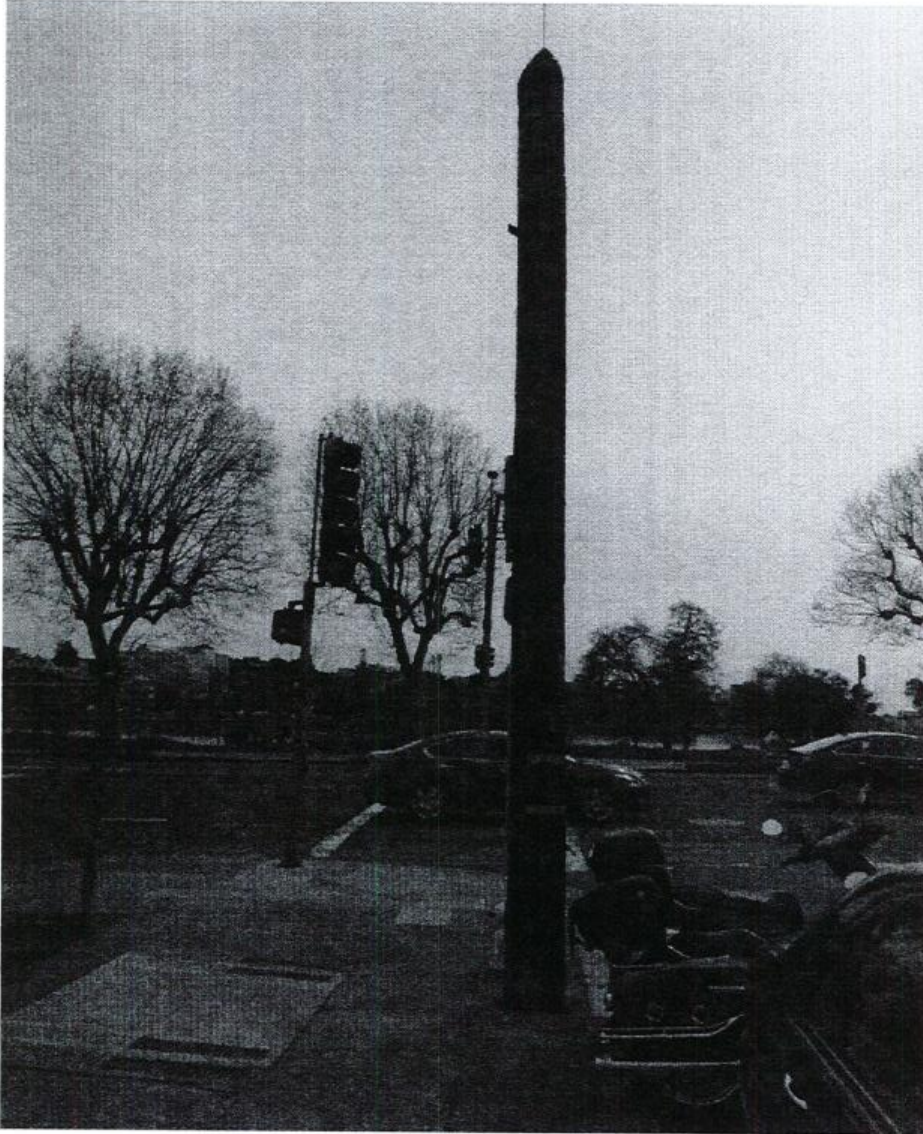
**EXTENET OAKLAND
NODE 00076A
500 GRAND AVENUE
ALTERNATIVE SITE ANALYSIS**

PROPAGATION MAP OF NODES 00076A



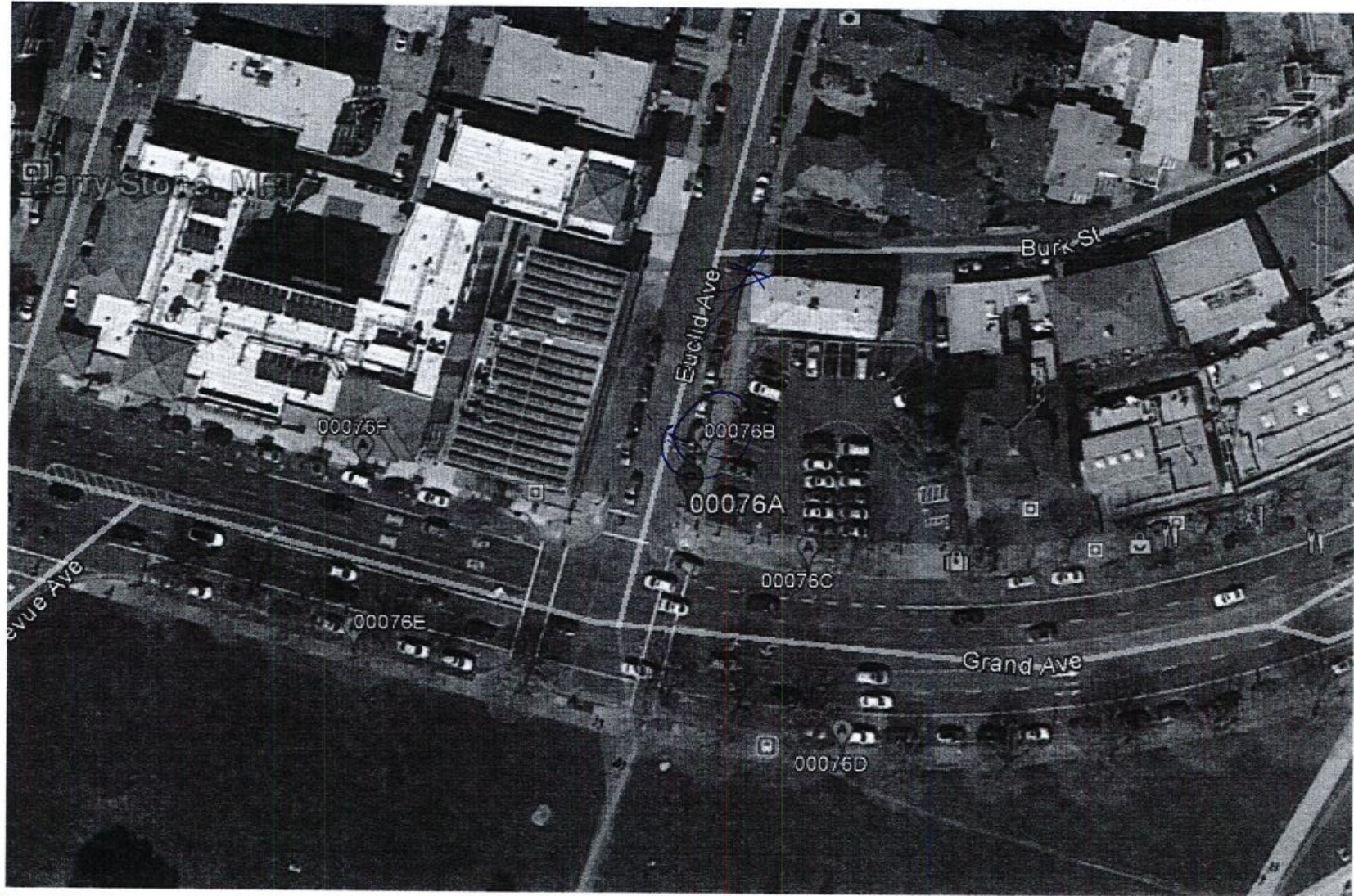
This propagation map depicts the ExteNet proposed Node 00076A in relation to surrounding proposed ExteNet small cell nodes.

00076A - PROPOSED LOCATION



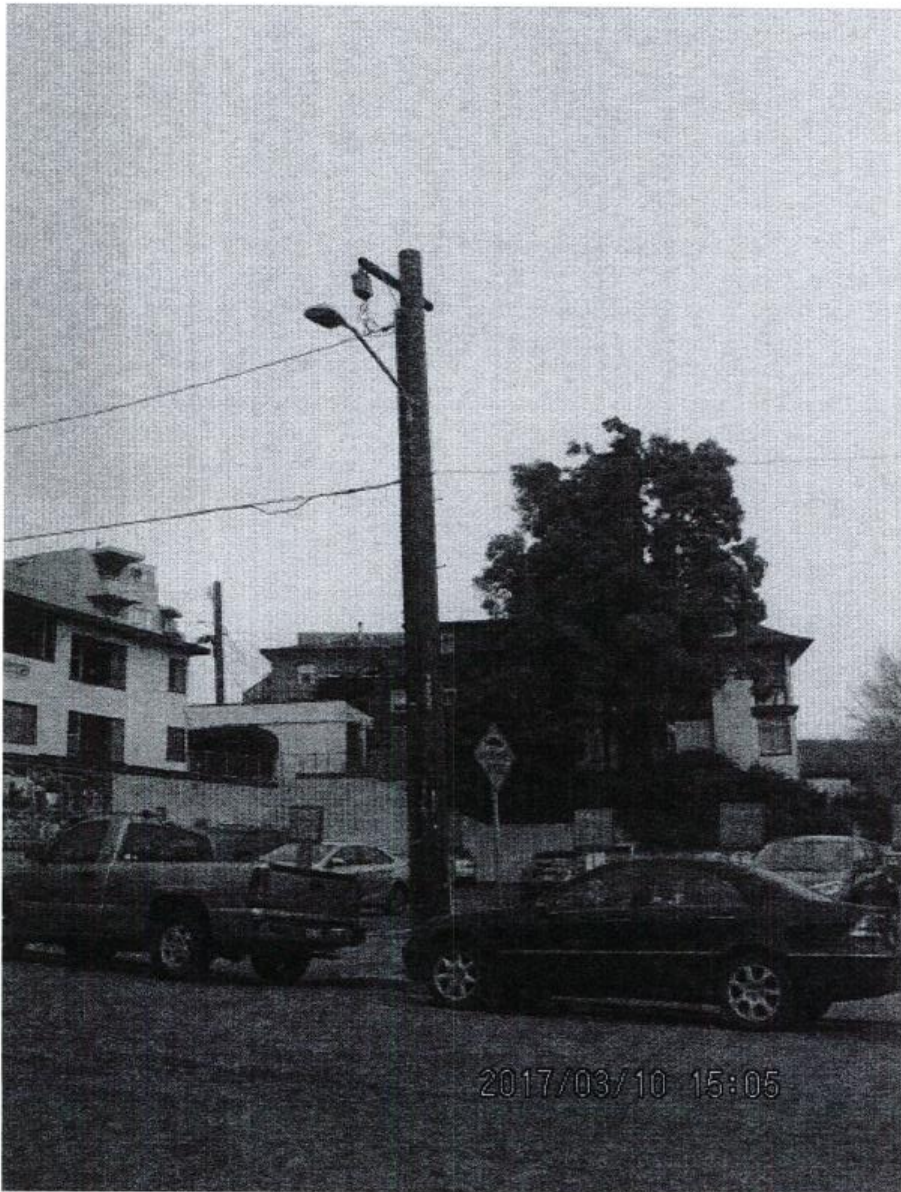
- The location for ExteNet's proposed Node 00076A is a wood utility pole located adjacent to 500 Grand Avenue (37.808774, -122.251616).
- ExteNet's objective is to provide Verizon wireless coverage and capacity as well as high speed wireless internet to the Oakland area.
- ExteNet evaluated this site and nearby alternatives to verify that the selected site is the least intrusive means to close Verizon's significant service coverage gap.

MAP OF ALTERNATIVE POLES EVALUATED FOR NODE 00076A



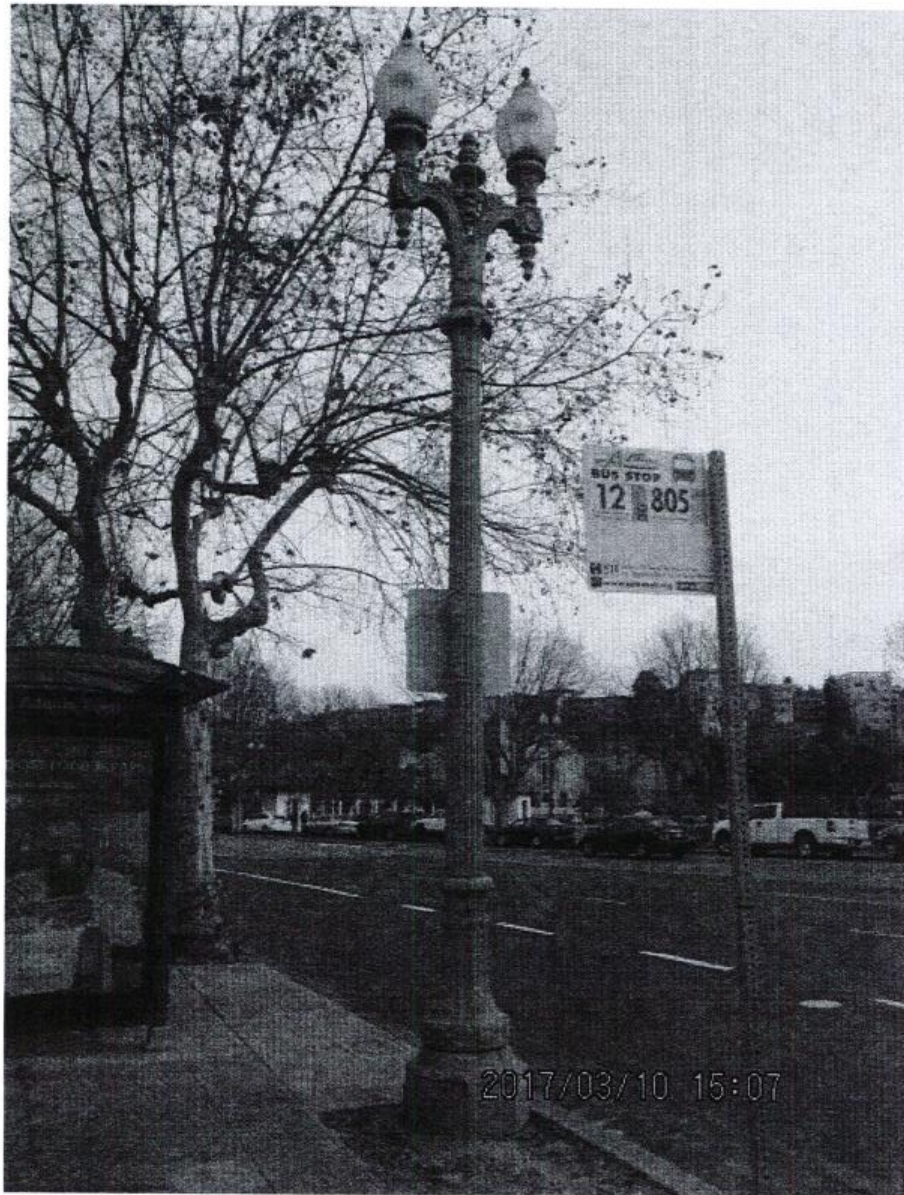
- The above maps depict ExteNet's proposed Node 00076A in relation to other poles in the area that were evaluated as possibly being viable alternative candidates.
- The following is an analysis of each of those 5 alternative locations.

ALTERNATIVE NODE 00076B



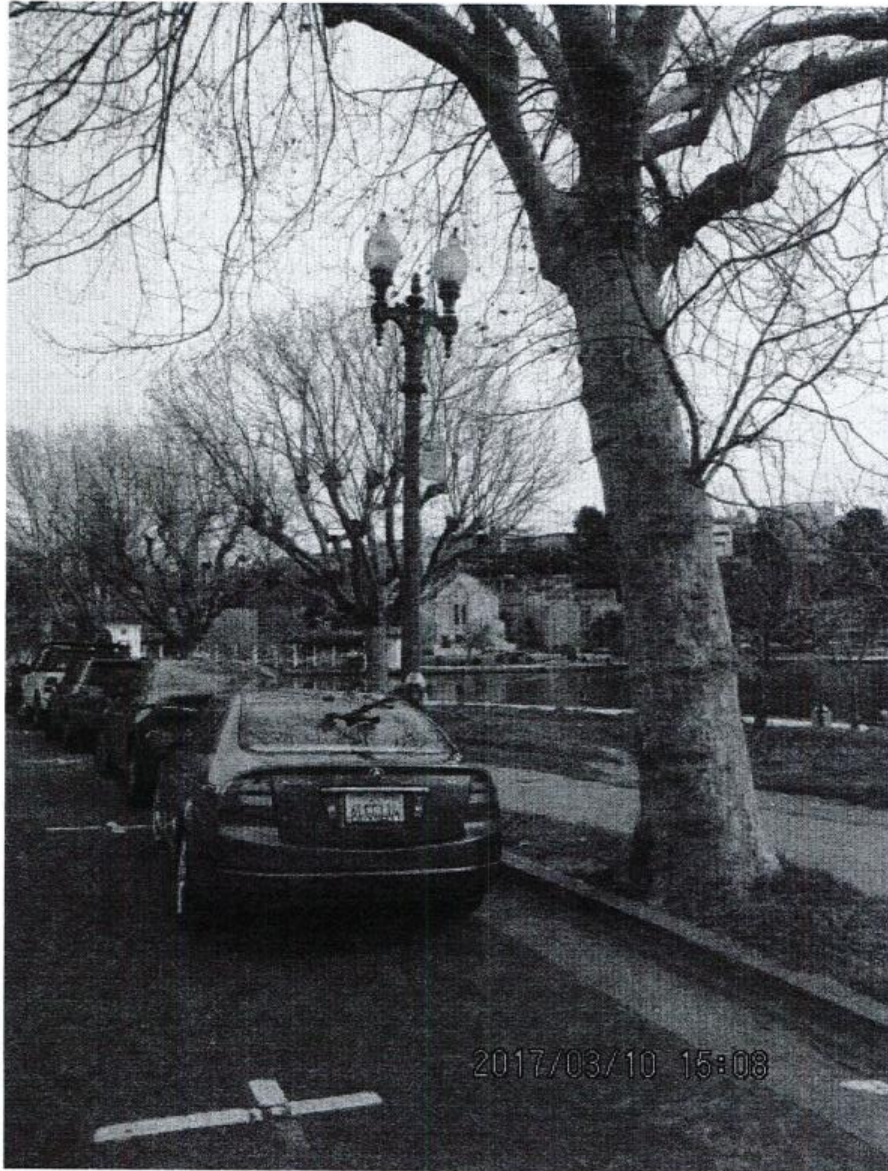
- Node 00076B is a utility pole next to 454 Euclid Avenue (37.808843, -122.251605).
- This pole is not a viable alternative candidate because the existing pole does not have the proper height requirement to facilitate our proposed wireless installation. The existing pole will need to be replaced by a taller pole.

ALTERNATIVE NODE 00076C



- Node 00076C is a metal light pole near 500 Grand Avenue (37.808717, -122.251404).
- This pole is not a viable alternative candidate because the existing pole does not have the proper height requirement to facilitate our proposed wireless installation. The existing pole will need to be replaced by a taller pole.
- This pole is not a viable alternative because it is a decorative metal light pole.
- This pole is not a viable alternative because a nearby tree trimming would be required to facilitate a wireless facility here, possibly requiring tree removal.
- This pole is not a viable alternative candidate because this pole is located too close to primary Node 00071B.

ALTERNATIVE NODE 00076D



- Node 00076D is a metal light pole near 500 Grand Avenue (37.808486, -122.251303).
- This pole is not a viable alternative candidate because the existing pole does not have the proper height requirement to facilitate our proposed wireless installation. The existing pole will need to be replaced by a taller pole.
- This pole is not a viable alternative because a nearby tree trimming would be required to facilitate a wireless facility here, possibly requiring tree removal.
- This pole is not a viable alternative because it is a decorative metal light pole.
- This pole is not a viable alternative candidate because this pole is located too close to primary Node 00071B.

ALTERNATIVE NODE 00076E



- Node 00076E is a metal light pole near 493 Grand Avenue (37.808517, -122.252127).
- This pole is not a viable alternative candidate because the existing pole does not have the proper height requirement to facilitate our proposed wireless installation. The existing pole will need to be replaced by a taller pole.
- This pole is not a viable alternative because it is a decorative metal light pole.
- This pole is not a viable alternative candidate because this pole is located too close to primary Node 00072A.

ALTERNATIVE NODE 00076F



- Node 00076F is a metal light pole near 472 Grand Avenue (37.808759, -122.252166).
- This pole is not a viable alternative candidate because the existing pole does not have the proper height requirement to facilitate our proposed wireless installation. The existing pole will need to be replaced by a taller pole.
- This pole is not a viable alternative because the signal will be blocked by a tall building.
- This pole is not a viable alternative because it is a decorative metal light pole.
- This pole is not a viable alternative candidate because this pole is located too close to primary Node 00072A.

ALTERNATIVE SITE ANALYSIS CONCLUSION

Based on ExteNet's analysis of alternative sites, the currently proposed Node 00076A is the least intrusive location from which to fill the surrounding significant wireless coverage gaps.



extenetSM
SYSTEMS

Thank You!

**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 00076B)
500 Grand Avenue • Oakland, California**

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of ExteNet Systems CA, LLC, a wireless telecommunications facilities provider, to evaluate the addition of Node No. 00076B to the ExteNet distributed antenna system (“DAS”) in Oakland, California, for compliance with appropriate guidelines limiting human exposure to radio frequency (“RF”) electromagnetic fields.

Executive Summary

ExteNet proposes to install a cylindrical antenna on top of a utility pole in the public right-of-way near 500 Grand Avenue in Oakland. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm ²	1.00 mW/cm ²
BRS (Broadband Radio)	2,600	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.35	0.47
[most restrictive frequency range]	30–300	1.00	0.20

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

General Facility Requirements

Wireless nodes typically consist of two distinct parts: the electronic transceivers (also called “radios” or “channels”) that are connected to a central “hub” (which in turn are connected to the traditional wired telephone lines), and the passive antenna(s) that send the wireless signals created by the radios out to be received by individual subscriber units. The radios are often located on the same pole as the



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

Computer Modeling Method

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

Site and Facility Description

Based upon information provided by ExteNet, including drawings by Black & Veatch Corporation, dated February 16, 2018, it is proposed to install one Amphenol Model CUUT070X12F 4-foot tall, tri-directional cylindrical antenna, with two directions activated, on top of a new utility pole, to replace the existing utility pole sited in the public right-of-way on the east side of Euclid Avenue, adjacent to the parking lot at 500 Grand Avenue in Oakland. The antenna would employ no downtilt, would be mounted at an effective height of about 42½ feet above ground, and would have its principal directions oriented toward 20°T and 260°T. T-Mobile on proposes to operate from this facility with a maximum effective radiated power in any direction of 3,900 watts, representing simultaneous operation at 1,880 watts for AWS, 1,700 watts for PCS, and 320 watts for 700 MHz service. There are reported no other wireless telecommunications base stations at this site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed T-Mobile operation is calculated to be 0.0051 mW/cm², which is 0.56% of the applicable public exposure limit. The maximum calculated level at the top-floor elevation of any nearby building is 1.1% 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.



**ExteNet Systems CA, LLC • Proposed DAS Node (Site No. 00076B)
500 Grand Avenue • Oakland, California**

Recommended Mitigation Measures

Due to its mounting location and height, the ExteNet antenna would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. To prevent occupational exposures in excess of the FCC guidelines, it is recommended that appropriate RF safety training be provided to all authorized personnel who have access to the antenna. No access within 13 feet directly in front of the antenna itself, such as might occur during certain maintenance activities at the top of the pole, should be allowed while the node is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory signs* on the pole at or below the antenna, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the node proposed by ExteNet Systems CA, LLC, near 500 Grand Avenue, 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 nodes. Training personnel and posting signs is recommended to establish compliance with occupational exposure limitations.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-21306, which expires on September 30, 2019. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.


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



March 16, 2018

* 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.

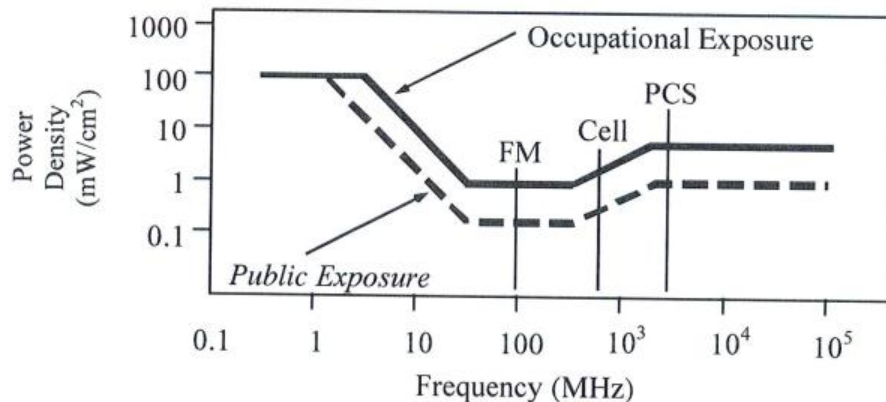


FCC Radio Frequency Protection Guide

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 ²)	
0.3 – 1.34	614	<i>614</i>	1.63	<i>1.63</i>	100	<i>100</i>
1.34 – 3.0	614	<i>823.8/f</i>	1.63	<i>2.19/f</i>	100	<i>180/f²</i>
3.0 – 30	1842/f	<i>823.8/f</i>	4.89/f	<i>2.19/f</i>	900/f ²	<i>180/f²</i>
30 – 300	61.4	<i>27.5</i>	0.163	<i>0.0729</i>	1.0	<i>0.2</i>
300 – 1,500	3.54√ <i>f</i>	<i>1.59√f</i>	√ <i>f</i> /106	<i>√f/238</i>	<i>f</i> /300	<i>f/1500</i>
1,500 – 100,000	137	<i>61.4</i>	0.364	<i>0.163</i>	5.0	<i>1.0</i>



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



RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

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

Near Field.

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

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

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

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

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

D = distance from antenna, in meters,

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

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

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

Far Field.

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

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

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

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

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

The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 ($1.6 \times 1.6 = 2.56$). 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.



Verizon and ExteNet Systems Radio Frequency Statement

Small Cell Node 00076A: Utility Pole in Public Right-of-Way

500 Grand Avenue, Oakland, CA 94610

We are the radio frequency (RF) engineers assigned to the proposed wireless telecommunications facility ("Node 00076A"), which is a Small Cell Node to be located on a utility light pole in the public right-of-way adjacent to 500 Grand Avenue, Oakland, CA 94610 (the "Property"). Based on our knowledge of the Property and with Verizon's wireless network, as well as our review of Verizon's records with respect to the Property and its wireless telecommunications facilities in the surrounding areas, we have concluded that the work associated with this permit request is needed to address wireless capacity needs in the area surrounding the Property.

Verizon's existing macro cell network facilities currently do not adequately serve its customers' capacity needs in this area. Existing macro cells are experiencing, or will be experiencing shortly, voice and data congestion. To stay ahead of the customer's needs for voice and data, Verizon needs to construct a new small cell wireless telecommunications facility. This facility will off-load voice and data traffic from adjacent macro cells. The additional capacity will result in better user access to the network, improved voice quality, higher data rates and lower latency when using data services. This small cell proposal is essential to resolving capacity challenges created by the rapidly growing consumer reliance on wireless devices. Verizon and ExteNet target the design and placement of small cell networks to ensure customers receive reliable service quality.

Engineers at Verizon and ExteNet use various data sources and tools to determine the need for small cells. These include statistical reports that show which sites are congested; call geo-data reports that show geographically where subscriber calls are concentrated; and population density maps that indicate where subscribers are likely to use their mobile devices. After the areas are identified that require traffic offloading, propagation modeling tools are used, along with actual field drive data, to place the small cells in the optimal locations to carry voice and data traffic. The propagation tools contain terrain and clutter databases that allow for the simulation of signal propagation.



Amr Kharaba - Verizon Wireless RF Engineer
June 29, 2017



Dimitri Gogas - ExteNet RF Engineer
June 29, 2017



Attachment H



May 18, 2017

City Planner
Planning Department
City of Oakland
250 Frank Ogawa Plaza, 2nd Floor
Oakland, CA 94612

Re: Proposed ExteNet Small Cell Node Installation
Applicant: ExteNet Systems (California) LLC
Nearest Site Address: Public Right of Way near 500 Grand Avenue
Site ID: NW-CA-DTOAKLAN Node 00076A
Latitude/Longitude: 37.808774, -122.251616

Dear City Planner,

On behalf of ExteNet Systems (California) LLC, this letter and attached materials are to apply for a design review permit to install a small cell node in the public right-of-way near 500 Grand Avenue ("Node 00076A").¹ The following is an explanation of the existing site, a project description of the designed facility, the project purpose and justifications in support of this proposal.

A. Project Description.

The proposed location for our facility currently consists of an approximate 20 feet tall wood utility pole in the public right-of-way on the north of Grand Avenue just northeast with Euclid Avenue, at about 500 Grand Avenue. There is no power line mounted above ground level of the pole.

ExteNet proposes to swap the pole for a new pole measuring 38 feet above ground and to affix one canister antenna within an antenna shroud on top of the pole. The antenna, measuring 48 inches long and 14.6 inches in diameter, will be placed on top of the pole at 40 feet 10 inches. The top of the antenna shroud will be at 44 feet 11 inches. Six proposed diplexers measuring 5.20 inches wide, 3.21 inches long and 1.48 inches deep will be placed within the antenna shroud. One MRRU measuring 17.0 inches wide, 17.8 inches tall and 7.2 inches deep will be placed on the pole at 10 feet. Two MRRUs measuring 12.05 inches wide, 27.17 inches tall and 7.01 inches deep will be placed on the pole at 12 feet 8 inches and 15 feet 8 inches. A miniature emergency shut-off safety switch and electricity meter will be placed on the pole at about eight feet above ground. All equipment will be painted brown to match the utility pole. Our proposal is depicted in the attached design drawings and photographic simulations.

This is an unmanned facility that will operate at all times (24 hours per day, seven days per week) and will be serviced about once per year. Our proposal will greatly benefit the area by improving wireless telecommunications service as detailed below.

¹ ExteNet expressly reserves all rights concerning the city's jurisdiction to assert zoning regulation over the placement of wireless facilities in the public rights-of-way.

B. Project Purpose.

The purpose of this project is to provide Verizon wireless voice and data coverage to the surrounding area where there is currently a significant gap in service coverage. These wireless services include mobile telephone, wireless broadband, emergency 911, data transfers, electronic mail, Internet, web browsing, wireless applications, wireless mapping and video streaming. The proposed node is part of a larger small cell providing coverage to areas of Oakland that are otherwise very difficult or impossible to cover using traditional macro wireless telecommunications facilities due to the local topography and mature vegetation. The attached radio frequency propagation maps depict Verizon's larger small cell project. Further radio frequency details are set forth in the attached Radio Frequency Statement, including propagation maps depicting existing and proposed coverage in the vicinity of Node 00076A.

A small cell network consists of a series of radio access nodes connected to small telecommunications antennas, typically mounted on existing wooden utility poles within the public rights-of-way, to distribute wireless telecommunications signals. Small cell networks provide telecommunications transmission infrastructure for use by wireless services providers. These facilities allow service providers such as Verizon to establish or expand their network coverage and capacity. The nodes are linked by fiber optic cables that carry the signal stemming from a central equipment hub to a node antenna. Although the signal propagated from a node antenna spans over a shorter range than a conventional tower system, small cell can be an effective tool to close service coverage gaps.

C. Project Justification, Alternative Site and Design Analysis.

Node 00076A is an integral part of the overall small cell project, and it is located in a difficult coverage area near Bellevue Avenue. The coverage area consists of a primarily commercial neighborhood off of Grand Avenue, Euclid Avenue, Bellevue Avenue, and surrounding areas. Node 00076A will cover transient traffic along the roadways and provide in-building service to the surrounding residences as depicted in the propagation maps, which are exhibits to the attached Radio Frequency Statement.

Based on ExteNet's analysis of alternative sites the currently proposed Node 00076A is the least intrusive means to close Verizon's significant service coverage gap in the area. Node 00076A best uses existing utility infrastructure, adding small equipment without disturbing the character of the neighborhoods served. Deploying a small cell node at an existing pole location minimizes any visual impact by utilizing an inconspicuous spot. By installing antennas and equipment at this existing pole location, Verizon does not need to propose any new infrastructure in this coverage area.

The small cell node RF emissions are also much lower than the typical macro site, they are appropriate for the area, and they are fully compliant with the FCC's requirements for limiting human exposure to radio frequency energy. The attached radio frequency engineering analysis provided by Hammett & Edison, Inc., Consulting Engineers, confirms that the proposed equipment will operate well within (and actually far below) all applicable FCC public exposure limits. The facility will also comply with California Public Utility Commission (CPUC) General Orders 95 (concerning overhead line design, construction and maintenance) and 170 (CEQA review) that govern utility use in the public right-of-way.

This proposed redesign is a viable design developed according to our discussions with the Planning Department. As discussed with City Planning, Node 00076A is the least intrusive option. Also the proposed location is a good coverage option because it sits at a spot from which point Verizon can adequately propagate its wireless signal.

ExteNet considered alternative sites on other utility poles in this area but none of these sites is as desirable from construction, coverage or aesthetics perspectives. The proposed location is approximately equidistant from other small cell nodes that ExteNet plans to place in surrounding hard-to-reach areas, so that service coverage can be evenly distributed. The proposed facility is not in the path of any protected view sheds. The other utility poles in the area are more conspicuous than the proposed pole. In addition to the utility pole proposed to host Node 00076A, ExteNet considered alternative sites set forth in the attached Alternative Site Analysis.

Alternative designs were considered including placing equipment inside of a ground-mounted cabinet. However, the pole-mounted equipment would better suit the area because it would blend in with the pole. We also evaluated whether equipment could be undergrounded but unfortunately this is not possible because there is insufficient right-of-way space for the necessary equipment access and the equipment would be compromised from saturation by rainwater. The antennas cannot be undergrounded because they rely on a line-of-site in order to properly transmit a signal.

Drawings, propagation maps, photographic simulations, and a radio-frequency engineering analysis are included with this packet.

As this application seeks authority to install a wireless telecommunication facility, the FCC's Shot Clock Order² requires the city to issue its final decision on ExteNet's application within 150 days. We respectfully request expedited review and approval of this application. Feel free to contact me if you have any questions. Thank you.

Thank you.

Best Regards,

Ana Gomez/BA for ExteNet

Ana Gomez

Permitting Agent for ExteNet Systems

² See Petition for Declaratory Ruling to Clarify Provisions of Section 332(c)(7)(B), WT Docket No. 08-165, Declaratory Ruling, 24 F.C.C.R. 13994 (2009).