Case File Number: DR13-049 **August 28, 2013**

Location:	**The Public Right of Way near 6925 Pinehaven Road on joint utility pole # 110133965 (See map on reverse)**
Assessors Parcel Numbers:	**(048G-7434-032-00) the parcel adjacent to the right of way**
Proposal:	To install two panel antennas (two-feet long and 10- inches wide, each) for a wireless telecommunications facility (AT&T wireless) on a pre-approved 7-foot extension to an existing 37'-5" high joint utility pole; at 17' above grade, locate a battery-backup equipment box (2'x2'x1.5'); at 12' above grade, locate an equipment cabinet (4'x1'x1'); at 10' above grade, locate a 1'x1'x4" optical demarcation unit; At 8' above grade, locate a 1'x3"x8"safety shut-off switch and electricity meter; all equipment would be painted to match pole; relocation of existing climbing pegs to accommodate new equipment.
Applicant:	New Cingular Wireless PCS,LLC./AT&T Mobility
Contact Person/ Phone Number:	Matthew Yergovich (415) 596-3474
Owner:	Pacific Gas & Electric.
Case File Number:	**DR13-049**
Planning Permits Required:	Major Design Review to install a wireless Telecommunications Macro Facility to on existing PG&E pole located in the public right of way in a residential zone.
General Plan:	Hillside Residential
Zoning:	RH-4 Hillside Residential-4 Zone.
Environmental Determination:	Exempt, Section 15301 of the State CEQA Guidelines; minor additions and alterations to an existing facility Exempt, Section 15183 of the State CEQA Guidelines; projects consistent with a community plan, General Plan or zoning.
Historic Status:	Not a Potential Designated Historic Property; Survey rating: n/a
Service Delivery District:	2
City Council District:	1
Date Filed:	2/4/2013
Finality of Decision:	Appealable to City Council within 10 Days
For Further Information:	Contact case planner Catherine Payne at **(510) 238-6168** or cpayne@oaklandnet.com

SUMMARY

The proposal is to install a wireless Telecommunications Macro Facility on an existing 37' high PG&E utility pole located in the public right-of-way (ROW) near 6925 Pinehaven Road. New Cingular Wireless PCS for AT&T Mobility (the Applicant) proposes to install two panel antennas (two-feet long and 10- inches wide, each) for a wireless telecommunications facility (AT&T wireless) on a pre-approved 7-foot extension to an existing 37'-5" high joint utility pole (for a total height of 47'-4", including antenna mounted on top of pole extension); at 17' above grade, locate a battery-backup equipment box (2'x2'x1.5'); at 12' above grade, locate an equipment cabinet (4'x1'x1'); at 10' above grade, locate a 1'x1'x4" optical demarcation unit; At 8' above grade, locate a 1'x3"x8"safety shut-off switch and electricity meter; all equipment would be painted to match pole; relocation of existing climbing pegs to accommodate new equipment. Staff believes

CITY OF OAKLAND PLANNING COMMISSION

Case File: DR13-049
Applicant: New Cingular Wireless PCS, LLC / AT&T Mobility
Address: The Public Right-of-Way near 6925 Pinehaven Road on joint utility pole #110133965
Zone: RH-4

that the proposed project, subject to conditions of approval, is designed to meet the established zoning and telecommunication regulations and recommends approval of the Major Design Review application.

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.

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 FCC standards in this regard. See, 47 U.S.C. 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. 47 U.S.C.332(c)(7)(B)(ii). See 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, contact Steve Markendorff, Chief of the Broadband Branch, Commercial Wireless Division, Wireless Telecommunications Bureau, at (202) 418-0640 or e-mail "smarkend@fcc.gov".

PROJECT DESCRIPTION

The Applicant proposes installation of a wireless Telecommunications Macro Facility on an existing 37' high PG&E utility pole located in the public right-of-way (ROW) near 6925 Pinehaven Road. New Cingular Wireless PCS for AT&T Mobility (the Applicant) proposes to install two panel antennas (two-feet long and 10- inches wide, each) for a wireless telecommunications facility (AT&T wireless) on a pre-approved 7-foot extension to an existing 37'-5" high joint utility pole (for a total height of 47'-4", including antenna mounted on top of pole extension); at 17' above grade, locate a battery-backup equipment box (2'x2'x1.5'); at 12' above grade, locate an equipment cabinet (4'x1'x1'); at 10' above grade, locate a 1'x1'x4" optical demarcation unit; At 8' above grade, locate a 1'x3"x8"safety shut-off switch and electricity meter; all equipment would be painted to match pole; relocation of existing climbing pegs to accommodate new equipment. No portion of the telecommunication facilities will be located on the ground within City of Oakland public ROW. The proposed antennas and associated equipment will not be accessible to the public (See Attachment A).

PROPERTY DESCRIPTION

The existing 37'-5" high joint utility pole is located near 6925 Pinehaven Road in the City of Oakland public ROW. The area is wooded with trees partially obscuring views of the pole. The terrain slopes upward to the west. The nearest occupied residential property is adjacent to the subject pole (the detached garage and driveway are adjacent to the pole, and the house is located downslope and away from the pole). The site is located in a residential zone.

GENERAL PLAN ANALYSIS

The subject property is located within the Hillside Residential General Plan designation. The Hillside Residential Land Use Classification is intended "to identify, create, maintain and enhance neighborhood residential areas that are characterized by detached, single unit structures on hillside lots." The proposed telecommunication facilities will be mounted on the existing PG&E utility pole within the City of Oakland public ROW. Visual impacts will be mitigated since the antennas' "climb through" installation is typically not the most aesthetically pleasing; given the topography, mature vegetation, and lack of close homes, the facilities would be camouflaged and blend in with the existing heavily wooded area. In addition, the equipment cabinet box would be painted to match the existing utility pole. Therefore, the proposed unmanned wireless telecommunication facility would not adversely affect or detract from the residential characteristics of the neighborhood.

ZONING ANALYSIS

The project site is located in the RH-4 Residential Zone. The intent of the RH-4 Zone is: "to create, preserve, and enhance areas for single-family estate living at very low densities in spacious environments and is typically appropriate to portions of the Oakland hill area." The proposed antenna is located within 30 feet of the nearest residential building (a garage). The project requires Regular Design, with special findings, to allow the installation of telecommunication facilities on an existing PG&E pole located in the public ROW in the RH-4 Zone. As shown in the attached findings, the project meets the special findings required to approve the Design Review in order to ensure that the facility is concealed to the extent feasible. While the antennas' "climb through" installation is typically not the most aesthetically pleasing, the visual effect would be minimal given the color treatment and wooded context.

Staff finds that the proposed application meets the applicable RH-4 Hillside Residential zoning regulations for telecommunication facilities.

ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines lists projects that qualify for categorical exemptions from environmental review under CEQA. The proposed project is categorically exempt from the environmental review requirements pursuant to Section 15301, additions and alterations to existing facilities, and Section 15183, projects consistent with a General Plan or Zoning.

KEY ISSUES AND IMPACTS

Regular Design Review

Sections 17.136.040 and 17.128.070 of the City of Oakland Planning Code require Major Design Review for Macro Telecommunication facilities that are attached to utility poles in the RH-4 zone or that are located within one hundred (100) feet of the boundary of any residential zone. The required findings for Major Design Review are listed and included in staff's evaluation as part of this report.

Project Site

Section 17.128.110 of the City of Oakland Telecommunication Regulations indicate that new wireless facilities shall generally be located on designated properties or facilities in the following 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 non-residential zones.
D. Existing commercial or industrial structures in residential zones.
E. Other non-residential uses in residential zones.
F. Residential uses in non-residential zones.

G. Residential uses in residential zones.

*Facilities locating on an A, B or C ranked preference do not require a site alternatives analysis. Since the proposed project involves locating the installation of new antennas and associated equipment cabinets on an existing utility pole, the proposed project meets: (B) quasi-public facilities on an existing PG&E utility pole within the public ROW.

Project Design

Section 17.128.120 of the City of Oakland Telecommunications Regulations indicates that 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 & 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. Site design alternatives analysis shall, at a minimum, consist of:

a. Written evidence indicating why each 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 project meets design criteria (C) since the antennas will be mounted on existing PG&E pole expansion and will be camouflaged partially by the existing mature trees, and the equipment cabinet box and battery backup box will match the color of the existing joint utility pole to minimize potential visual impacts from public view. City of Oakland Planning staff have reviewed (see Attachment A, alternative site analysis letter) and determined that the site selected conforms to all other telecommunication regulation requirements.

Project Radio Frequency Emissions Standards

Section 17.128.130 of the City of Oakland Telecommunication Regulations require that the applicant submit the following verifications including requests for modifications to existing facilities:

a. The telecommunications regulations require that the applicant submit written documentation demonstrating that the emissions from the proposed project are within the limits set by the Federal Communications Commission. In the document (Attachment B) prepared by Hammett & Edison RF Compliance Experts, Inc. Inc. Registered Professional Engineer, the proposed project was evaluated for compliance with appropriate guidelines limiting human exposure to radio frequency electromagnetic fields. According to the report on the proposal, the project will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, the proposed site will 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.

b. 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.

The RF emissions report states that the proposed project will not cause a significant impact on the environment. Additionally, staff recommends 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

Staff believes that the proposed project is designed to meet the established zoning and telecommunication regulations and recommends approval of the Major Design Review application.

RECOMMENDATIONS:

1. Affirm staff's environmental determination; and

2. Approve Design Review application DR13-049 subject to the attached findings and conditions of approval

Prepared by:

Catherine Payne
Planner III

Approved by:

Scott Miller
Zoning Manager

Approved for forwarding to the
City Planning Commission

Rachel Flynn, Director
Department of Planning and Building

ATTACHMENTS:

A. Project Plans & Photo simulations & Alternative Site Analysis
B. Hammett & Edison, Inc., Consulting Engineering RF Emissions Report

FINDINGS FOR APPROVAL

FINDINGS FOR APPROVAL:
This proposal meets all the required findings under Section 17.136.050.(B), of the Non-Residential Design Review criteria and all the required findings under Section 17.128.070(B), of the telecommunication facilities (Macro) Design Review criteria and as set forth below: Required findings are shown in **bold** type; reasons your proposal satisfies them are shown in normal type.

17.136.050(B) – NONRESIDENTIAL DESIGN REVIEW CRITERIA:

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

The project consists of a wireless Telecommunications Macro Facility on an existing 37' high PG&E utility pole located in the public right-of-way (ROW) near 6925 Pinehaven Road. New Cingular Wireless PCS for AT&T Mobility (the Applicant) proposes to install two panel antennas (two-feet long and 10- inches wide, each) for a wireless telecommunications facility (AT&T wireless) on a pre-approved 7-foot extension to an existing 37'-5" high joint utility pole; at 17' above grade, locate a battery-backup equipment box (2'x2'x1.5'); at 12' above grade, locate an equipment cabinet (4'x1'x1'); at 10' above grade, locate a 1'x1'x4" optical demarcation unit; At 8' above grade, locate a 1'x3"x8"safety shut-off switch and electricity meter; all equipment would be painted to match pole; relocation of existing climbing pegs to accommodate new equipment. No portion of the telecommunication facilities will be located on the ground within City of Oakland public right-of-way. The proposed antennas and equipment cabinet attached to the utility pole are partially camouflaged to blend-in with the existing surrounding heavily wooded area. Therefore, the proposal will have minimal visual impacts from public view.

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

The proposal improves wireless telecommunication service in a wooded hillside residential area. The installation will be camouflaged to blend-in with the existing surrounding wooded area to have minimal visual impacts on public views. It will protect the value of private and public investments in the area.

3. That the proposed design conforms in all significant respects with the Oakland General Plan and with any applicable design review guidelines or criteria, district plan, or development control map which have been adopted by the Planning Commission or City Council.

The subject site is located within the Hillside Residential General Plan designation classification which is intended to create, maintain, and enhance neighborhood residential areas that are characterized by detached, single unit structures on hillside lots. The proposed unmanned wireless telecommunication facility will be located on an existing joint utility pole and will not adversely affect or detract from the residential characteristics of the neighborhood. Visual impacts will be minimized since the area is heavily wooded with trees partially obscuring view of the pole. Therefore, the Project conforms to the General Plan and applicable design review criteria.

17.128.070(B) DESIGN REVIEW CRITERIA FOR MACRO FACILITIES

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

The proposed antennas will be painted to match the existing joint utility pole blend with surroundings.

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

The proposed antennas will be mounted on a joint utility pole and painted to match the existing pole to blend with surroundings.

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

The proposed antennas will be mounted on an existing joint utility pole and painted to match the utility pole and will therefore be camouflaged to blend-in with existing surrounding wooded area.

4. Equipment shelters or cabinets shall be screened from the public view by using landscaping, or materials and colors consistent with surrounding backdrop:

The associated equipment will be attached to the existing utility pole and painted to match the pole and blend with surroundings.

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

The proposed equipment cabinets will be compatible with the existing utility-related equipment.

6. For antennas attached to the roof, maintain a 1:1 ratio 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.

N/A

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 antennas will be mounted at the top of the joint utility pole and will not be accessible to the public due to their location. The equipment accommodation and battery backup boxes will also be inside singular equipment box and attached to the pole at a height of at least 8' above grade.

STANDARD CONDITIONS:

1. Approved Use

Ongoing

a) The project shall be constructed and operated in accordance with the authorized use as described in the application materials for case number **DR13-049**, and the plans dated **December 19, 2012** and submitted on **February 4, 2013** and as amended by the following conditions. Any additional uses or facilities other than those approved with this permit, as described in the project description and the approved plans, will require a separate application and approval.

Any deviation from the approved drawings, Conditions of Approval or use shall require prior written approval from the Director of City Planning or designee.

b) This action by the City Planning Commission ("this Approval") includes the approvals set forth below. This Approval includes: **installation of a wireless Telecommunications Macro Facility on an existing 37' high PG&E utility pole located in the public right-of-way (ROW) near 6925 Pinehaven Road. New Cingular Wireless PCS for AT&T Mobility (the Applicant) proposes to install two panel antennas (two-feet long and 10- inches wide, each) for a wireless telecommunications facility (AT&T wireless) on a pre-approved 7-foot extension to an existing 37'-11" high joint utility pole; at 17' above grade, locate a battery-backup equipment box (2'x2'x1.5'); at 12' above grade, locate an equipment cabinet (4'x1'x1'); at 10' above grade, locate a 1'x1'x4" optical demarcation unit; At 8' above grade, locate a 1'x3"x8"safety shut-off switch and electricity meter; all equipment would be painted to match pole; relocation of existing climbing pegs to accommodate new equipment. No portion of the telecommunication facilities will be located on the ground within City of Oakland public right-of-way. The proposed antennas and associated equipment will not be accessible to the public.**

2. Effective Date, Expiration, Extensions and Extinguishment

Ongoing

Unless a different termination date is prescribed, this Approval shall expire **two calendar years** from the approval date, 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 permit, 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 for this project may invalidate this Approval if the said extension period has also expired.

3. Scope of This Approval; Major and Minor Changes

Ongoing

The project is approved pursuant to the **Oakland Planning Code** only. Minor changes to approved plans may be approved administratively by the Director of City Planning or designee. Major changes to the approved plans shall be reviewed by the Director of City Planning or

designee to determine whether such changes require submittal and approval of a revision to the approved project by the approving body or a new, completely independent permit.

4. Conformance with other Requirements

Prior to issuance of a demolition, grading, P-job, or other construction related permit

a) The project applicant shall comply with all other applicable federal, state, regional and/or local codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Building Services Division, the City's Fire Marshal, and the City's Public Works Agency.

b) The applicant shall submit approved building plans for project-specific needs related to fire protection to the Fire Services Division for review and approval, including, but not limited to automatic extinguishing systems, water supply improvements and hydrants, fire department access, and vegetation management for preventing fires and soil erosion.

5. Conformance to Approved Plans; Modification of Conditions or Revocation

Ongoing

a) Site shall be kept in a blight/nuisance-free condition. Any existing blight or nuisance shall be abated within 60-90 days of approval, unless an earlier date is specified elsewhere.

b) The City of Oakland reserves the right at any time during construction to require certification by a licensed professional that the as-built project conforms to all applicable zoning requirements, including but not limited to approved maximum heights and minimum setbacks. Failure to construct the project in accordance with approved plans may result in remedial reconstruction, permit revocation, permit modification, stop work, permit suspension or other corrective action.

c) Violation of any term, conditions or project description relating to the Approvals 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 Approvals 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.

6. Signed Copy of the Conditions

With submittal of a demolition, grading, and building permit

A copy of the approval letter and conditions shall be signed by the property owner, notarized, and submitted with each set of permit plans to the appropriate City agency for this project.

7. Indemnification

Ongoing

a) To the maximum extent permitted by law, the applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the City of Oakland Redevelopment Agency, the Oakland City Planning Commission and its respective agents, officers, and employees (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, (1) an approval by the City relating to a development-related application or subdivision or (2) implementation of an approved development-related project. The City may elect, in its sole discretion, to participate in the defense of said Action and the 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 applicant shall execute a Letter Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Letter of Agreement shall survive termination, extinguishment or invalidation of the approval. Failure to timely execute the Letter Agreement does not relieve the applicant of any of the obligations contained in this condition or other requirements or conditions of approval that may be imposed by the City.

8. Compliance with Conditions of Approval
Ongoing
The project applicant shall be responsible for compliance with the recommendations in any submitted and approved technical report and all the Conditions of Approval set forth below at its sole cost and expense, and subject to review and approval of the City of Oakland.

9. Severability
Ongoing
Approval of the project would not have been granted but for the applicability and validity of each and every one of the specified conditions, and if any 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 Management
Prior to issuance of a demolition, grading, and/or construction permit
The project applicant may be required to pay for on-call special inspector(s)/inspections as needed during the times of extensive or specialized plan check review, or construction. The project applicant may also be required to cover the full costs of independent technical and other types of peer review, monitoring and inspection, including without limitation, third party plan check fees, including inspections of violations of Conditions of Approval. The project applicant shall establish a deposit with the Building Services Division, as directed by the Building Official, Director of City Planning or designee.

12. Days/Hours of Construction Operation

Ongoing throughout demolition, grading, and/or construction
The project applicant shall require construction contractors to limit standard construction activities as follows:

a) Construction activities are limited to between 7:00 AM and 7:00 PM Monday through Friday, except that pile driving 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. Monday through Friday.

b) Any construction activity proposed to occur outside of the standard hours of 7:00 am to 7:00 pm Monday through Friday for special activities (such as concrete pouring which may require more continuous amounts of time) shall be evaluated on a case by case basis, with criteria including the proximity of residential uses and a consideration of resident's preferences for whether the activity is acceptable if the overall duration of construction is shortened and such construction activities shall only be allowed with the prior written authorization of the Building Services Division.

c) Construction activity shall not occur on Saturdays, with the following possible exceptions:

i. Prior to the building being enclosed, requests for Saturday construction for special activities (such as concrete pouring which may require more continuous amounts of time), shall be evaluated on a case by case basis, with criteria including the proximity of residential uses and a consideration of resident's preferences for whether the activity is acceptable if the overall duration of construction is shortened. Such construction activities shall only be allowed on Saturdays with the prior written authorization of the Building Services Division.

ii. After the building is enclosed, requests for Saturday construction activities shall only be allowed on Saturdays with the prior written authorization of the Building Services Division, and only then within the interior of the building with the doors and windows closed.

d) No extreme noise generating activities (greater than 90 dBA) shall be allowed on Saturdays, with no exceptions.

e) No construction activity shall take place on Sundays or Federal holidays.

f) 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.

PROJECT SPECIFIC CONDTIONS:

12. Radio Frequency Emissions
Prior to the final building permit sign off.
The applicant shall submit a certified RF emissions report stating the facility is operating within the acceptable standards established by the regulatory Federal Communications Commission.

13. Operational
Ongoing.
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.

14. Equipment cabinets

Prior to the final building permit

The applicant shall submit revised elevations showing associated equipment cabinet are concealed within singular equipment box painted to match utility pole, to the Oakland Planning Department for review and approval.

RECEIVED
FEB 4 2013
City of Oakland
Planning & Zoning Division

at&t

OAKHILLS AT&T SOUTH NETWORK
OAKS-074A
(PROW) 6925 PINEHAVEN RD, OAKLAND, CA 94611

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

LEGEND & SYMBOLS

- CENTERLINE
- PROPERTY/LEASE LINE
- PROPOSED CONDUIT
- POWER CONDUIT
- TELEPHONE CONDUIT
- AERIAL ELECTRICAL LINE
- COAXIAL CABLE/CONDUIT
- OVERHEAD CONDUCTORS
- CHAIN LINK FENCING
- SPOT ELEVATION (DATUM)
- FLAG NOTE
- ITEM BALLOON (DETAIL SHEETS)
- DETAIL REFERENCE
- SECTION REFERENCE

ABBREVIATIONS

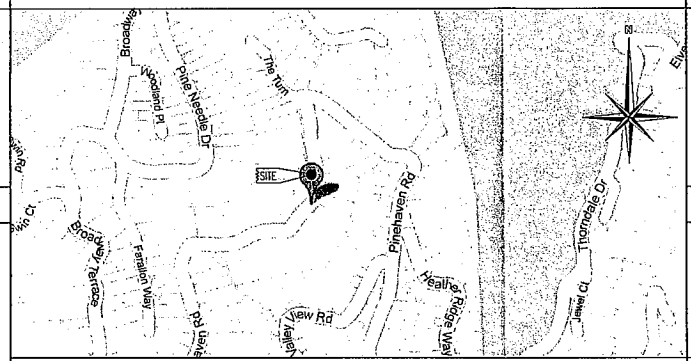
AL	ALUMINUM	FLR	FLOOR	PRELIM	PRELIMINARY
ALY	ALLOY	FT	FOOT	PWR	POWER
ANT	ANTENNA	FS	FARSIDE	QTY	QUANTITY
AGL	ABOVE GROUND LEVEL	FSTNR	FASTENER	R	RADIUS
		GALV	GALVANIZED	RAD	RADIATION
AMSL	ABOVE MEAN SEA LEVEL	GA	GAUGE	RC	RAD CENTER
		GEN	GENERATOR	RCVR	RECEIVER
APVD	APPROVED	GND	GROUND/GROUNDING	ALY	ALLOY
APPROX	APPROXIMATE	ID	INSIDE DIAMETER	RELOC	RELOCATED
AR, A/R	AS REQUIRED	INTL	INTERNAL	REQD	REQUIRED
BAT	BATTERY	MAX	MAXIMUM	SH	SHEET
BC	BOLT CIRCLE	MFR	MANUFACTURER	SPLY	SUPPLY
BLDG	BUILDING	MTD	MOUNTED	SS	STAINLESS STL
BRKT	BRACKET	MTG	MOUNTING	STD	STANDARD
CAB	CABINET	MTR	METER	STL	STEEL
CL	CENTERLINE	MAX	MAXIMUM	STRL	STRUCTURAL
CONC	CONCRETE	MIN	MINIMUM	SQ	SQUARE
CND	CONDUIT	(N)	NEW	SW	SWITCH
DN	DOWN	NS	NEARSIDE	THD	THREAD
(E)	EXISTING	NTS	NOT TO SCALE	THK	THICK
EA	EACH	OC	ON CENTER	TRMD	TRIMED
EL	ELEVATION	OD	OUTSIDE DIAMETER	TYP	TYPICAL
EMBED	EMBEDMENT	(P)	PROPOSED	UBC	UNIFORM BUILDING CODE
EMER	EMERGENCY	PLYWD	PLYWOOD		
ENCL	ENCLOSURE	PL	PLACES	W/	WITH
EQPT	EQUIPMENT	PNL	PANEL	W/O	WITHOUT
EQ SP	EQUAL SPACE	P/O	PART OF	XFMR	TRANSFORMER
HGT	HEIGHT	POSN	POSITION	XMTR	TRANSMITTER
(F)	FUTURE				

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. CALIFORNIA BUILDING CODE CBC-2010
2. CALIFORNIA ADMINISTRATIVE CODE. (INCL. TITLES 24 & 25) 2010.
3. ANSI / EIA-222-F LIFE SAFETY CODE NFPA
4. BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA)
5. CALIFORNIA ELECTRICAL CODE CEC-2010.
6. CALIFORNIA MECHANICAL CODE CMC-2010.
7. CALIFORNIA PLUMBING CODE CPC 2010.
8. LOCAL BUILDING CODE(S).
9. CITY AND/OR COUNTY ORDINANCES.
10. MUST COMPLY TO LATEST CALIFORNIA FIRE CODE. (AND LATEST MUNICIPAL FIRE CODE).
11. CALIFORNIA GENERAL ORDER 95 AND 128.

VICINITY MAP



DRIVING DIRECTIONS

FROM: 2678 BISHOP RANCH DR, SAN RAMON, CA
DISTANCE: 25.3 MILES (32 MIN)

TO: 6925 PINEHAVEN RD, OAKLAND, CA 94611

1. HEAD SOUTHWEST ON BISHOP DR TOWARD SUNSET DR 499 FT
2. TAKE THE 1ST LEFT ONTO SUNSET DR 0.1 MI
3. TURN RIGHT ONTO SCHUSLER CANYON RD 0.2 MI
4. MERGE ONTO I-680 N VIA THE RAMP TO SACRAMENTO 10.9 MI
5. TAKE EXIT 459 TO MERGE ONTO CA-24 W/STATE ROUTE 24 W TOWARD LAFAYETTE/OAKLAND 10.9 MI
6. TAKE THE EXIT ONTO CA-13 S 1.3 MI
7. TAKE EXIT 4 FOR MONTICA AVENUE E TOWARD THORNHILL DRIVE 0.3 MI
8. MERGE ONTO MONTICA AVE 374 FT
9. TURN LEFT ONTO THORNHILL DR 0.8 MI
10. TURN LEFT ONTO PINEHAVEN RD 0.5 MI
11. TAKE THE 2ND LEFT TO STAY ON PINEHAVEN RD 0.1 MI
12. DESTINATION WILL BE ON THE LEFT

SIGNATURE BLOCK

APPROVED BY:	INITIALS:	DATE:
MUNICIPAL AFFAIRS:		
RF MANAGER:		
CONSTRUCTION MANAGER:		
PROJECT MANAGER:		
APPLICANT AGENT:		
APPLICANT:		

PROJECT DESCRIPTION

THESE DRAWINGS DEPICT A PORTION OF A DISTRIBUTED ANTENNA SYSTEM (DAS) TELECOMMUNICATIONS NETWORK, TO BE CONSTRUCTED BY EXTENET SYSTEMS AND OWNED AND OPERATED BY NEW CINGULAR WIRELESS PCS, LLC, IN THE PUBLIC RIGHT OF WAY PURSUANT TO AUTHORITY GRANTED BY THE CALIFORNIA PUBLIC UTILITIES COMMISSION.

THE MAIN COMPONENTS OF THIS INSTALLATION ARE:
THE ADDITION OF TWO (2) 27.75"X10.625"X6.25" PANEL ANTENNAS, ONE (1) BBU CABINET, ONE (1) RADIO UNIT, ASSOCIATED ELECTRICAL COMPONENTS, AND MOUNTING BRACKETS AS REQUIRED, LOCATED ON AN EXISTING PG&E UTILITY POLE.

DRAWING INDEX

T1	TITLE SHEET & PROJECT INFORMATION
T2	GENERAL NOTES AND SCHEDULES
A1	SITE PLAN
A2	UTILITY POLE ELEVATIONS / RISER DETAILS
D1	EQUIPMENT DETAILS

BUILDING / SITE DATA

LATITUDE:	37.846691	TYPE OF CONSTRUCTION:	ATTACHMENTS TO EXISTING WOOD POLE
LONGITUDE:	-122.210088	AREA OF CONST:	-
ELEVATION:	N / A	HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
JURISDICTION:	CITY OF OAKLAND		
A.P.N.:	48G-7413-003-200	TITLE 24 REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. THIS PROJECT IS EXEMPT.
ZONING:	PUBLIC RIGHT OF WAY		
OCCUPANCY:	U, UNMANNED		

PROJECT TEAM

PROPERTY OWNER:
NAME: PUBLIC RIGHT OF WAY
ADDRESS: 6925 PINEHAVEN RD, OAKLAND, CA 94611

CONSTRUCTION MANAGER:
EXTENET SYSTEMS CA, LLC.
CONTACT: KEN BOOKER
PHONE: (510) 406-0829

MUNICIPAL AFFAIRS:
EXTENET SYSTEMS CA, LLC.
CONTACT: BILL STEPHENS
PHONE: (510) 612-2511

APPLICANT:
NEW CINGULAR WIRELESS PCS, LLC
4430 ROSEWOOD DR, BLDG 3
PLEASANTON, CA 94588-3050
CONTACT: VAN MULLER
PHONE: (510) 258-1703

APPLICANT AGENT:
MATTHEW YERGOVICH
EXTENET SYSTEMS REAL ESTATE CONTRACTOR FOR AT&T MOBILITY
1826 WEBSTER ST
SAN FRANCISCO, CA 94115
PHONE: (415) 596-3474
EMAIL: myergo@gmail.com

ARCHITECT:
ACI COMMUNICATIONS, INC
5711 RESEARCH DRIVE
CANTON, MI 48188
CONTACT: GARY GETCHELL
PHONE: (510) 292-8918

at&t
NEW CINGULAR WIRELESS PCS, LLC
4430 ROSEWOOD DR, BLDG 3
PLEASANTON, CA 94588-3050

PROJECT INFORMATION:
OAKHILLS AT&T SOUTH NETWORK NODE 074A
6925 PINEHAVEN RD, OAKLAND, CA 94611

CURRENT ISSUE DATE:
12/19/12

ISSUED FOR:
ZONING

BY:	DATE:	DESCRIPTION:	REV:
ACI	12/19/12	POLE INFO CORRECTED	1
ACI	11/17/12	ZDs	0
BY	DATE	DESCRIPTION	REV

PLANS PREPARED BY:

ACI
Aero Communications Inc.
1-800-825-4ACI
5711 Research Drive
Canton, MI 48188
ACI NUMBER: OAKS-074A

CONSTRUCTED BY:

net SYSTEMS YOUR NETWORK EVERYWHERE.
3030 Warrenville Rd, Suite 340
Lisle, IL 60532
www.extenet.com

SEAL OF APPROVAL:

SHEET TITLE:
TITLE SHEET AND PROJECT INFORMATION

SHEET NUMBER: T1
REVISION: 1
12/19/12

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEY MONUMENTS AND/OR VERTICAL CONTROL BENCHMARKS WHICH ARE DISTURBED OR DESTROYED BY CONSTRUCTION. A LAND SURVEYOR MUST FIELD LOCATE, REFERENCE, AND/OR PRESERVE ALL HISTORICAL OR CONTROLLING MONUMENTS PRIOR TO ANY EARTHWORK. IF DESTROYED, SUCH MONUMENTS SHALL BE REPLACED WITH APPROPRIATE MONUMENTS BY A LAND SURVEYOR. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED AS REQUIRED BY THE PROFESSIONAL LAND SURVEYORS ACT

2. IMPORTANT NOTICE: SECTION 4216 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER, CALL UNDERGROUND SERVICE ALERT, TOLL FREE 1-800-227-2600, TWO DAYS BEFORE YOU DIG

3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE POT HOLE AND LOCATING OF ALL EXISTING UTILITIES THAT CROSS THE PROPOSED TRENCH LINE AND MUST MAINTAIN A 6" MINIMUM VERTICAL CLEARANCE.

4. IF ANY EXISTING HARDSCAPE OR LANDSCAPE INDICATED ON THE APPROVE PLANS IS DAMAGED OR REMOVED DURING DEMOLITION OR CONSTRUCTION, IT SHALL BE REPAIRED AND/OR REPLACED IN KIND PER THE APPROVED PLANS.

5. CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNAL LOOPS, CONDUIT, AND LANE STRIPING DAMAGED DURING CONSTRUCTION.

6. THIS PROJECT WILL BE INSPECTED BY ENGINEERING AND FIELD ENGINEERING DIVISION.

7. MANHOLES OR COVERS SHALL BE LABELED EXISTING.

8. CONTRACTOR SHALL IMPLEMENT AN EROSION CONTROL PROGRAM DURING THE PROJECT CONSTRUCTION ACTIVITIES. THE PROGRAM SHALL MEET THE APPLICABLE REQUIREMENTS OF THE STATE WATER RESOURCE CONTROL BOARD.

9. THE CONTRACTOR SHALL HAVE EMERGENCY MATERIALS AND EQUIPMENT ON HAND FOR UNFORESEEN SITUATIONS, SUCH AS DAMAGE TO UNDERGROUND WATER, SEWER, AND STORM DRAIN FACILITIES WHEREBY FLOWS MAY GENERATE EROSION AND SEDIMENT POLLUTION.

CALTRANS NOTES

1. ANY REMOVED OR DAMAGED STRIPING AND MARKINGS SHALL BE REPLACED IN KIND AS PER CALTRANS STANDARDS AND AT PERMITTEE'S EXPENSE.

Call before you dig
811 / 1-800-227-2600
www.usanorth.org

SPECIAL NOTES

1. INDEMNIFICATION CLAUSE: THE CONTRACTOR AGREES AND SHALL:
ASSUME SOLE AND COMPLETE RESPONSIBILITY OF THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTIES. THAT THESE REQUIREMENTS SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND CONDITIONS. THE CONTRACTOR FURTHER AGREES TO DEFEND INDEMNIFY AND HOLD CARRIER, REPRESENTATIVES, AND ENGINEERS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT.

2. PRIOR TO THE BEGINNING OF ANY CONSTRUCTION AND THROUGHOUT THE COURSE OF CONSTRUCTION WORK, THE CONTRACTOR SHALL FULLY COMPLY WITH "CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH" ACT OF 1973 INCLUDING ALL REVISIONS AND AMENDMENTS THERETO

3. ALL WORK SHALL CONFORM TO THE LATEST EDITIONS OF G095,128 AND THE STANDARD "SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" AS ADOPTED BY THE CITY, COUNTY OR STATE AS MODIFIED BY STANDARD PLANS AND ADDENDUMS

4. THE EXISTENCE AND LOCATION OF UTILITIES AND OTHER AGENCY'S FACILITIES AS SHOWN HEREON ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. OTHER FACILITIES MAY EXIST. THE CONTRACTOR SHALL VERIFY PRIOR TO THE START OF CONSTRUCTION AND SHALL USE EXTREME CARE AND PROTECTIVE MEASURES TO PREVENT DAMAGE TO THESE FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITY OR AGENCY FACILITIES WITHIN THE LIMITS OF WORK, WHETHER THEY ARE SHOWN ON THIS PLAN OR NOT.

5. THE CONTRACTOR SHALL NOTIFY THE CITY, COUNTY OR STATE ENGINEER INSPECTION DEPARTMENT, AT LEAST TWO DAYS BEFORE START OF ANY WORK REQUIRING THEIR INVOLVEMENT.

6. THE CITY, COUNTY OR STATE SHALL SPECIFY THE EXPIRATION PERIOD OF THE PERMIT FOR THIS CONSTRUCTION PROJECT.

7. THE MINIMUM COVER FOR ALL CONDUITS PLACED UNDERGROUND SHALL BE 30 INCHES TO THE FINISHED GRADE AT ALL TIMES.

8. THE CONTRACTOR SHALL THICKEN ALL CURB AND GUTTERS AND DOPE ALL CONCRETE DRIVEWAYS AND WALKWAYS AT THE DIRECTION OF THE CITY, COUNTY OR STATE ENGINEER.

9. ALL AC AND/OR CONCRETE PAVEMENT SHALL BE REPLACED AT THE DIRECTION OF THE CITY, COUNTY OR STATE ENGINEERS.

10. ALL SHRUBS, PLANTS OR TREES THAT HAVE BEEN DAMAGED OR DISTURBED DURING THE COURSE OF THE WORK, SHALL BE REPLANTED AND/OR REPLACED SO AS TO RESTORE THE WORK SITE TO ITS ORIGINAL CONDITION.

11. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROCESSING OF ALL APPLICANT PERMIT FORMS ALONG WITH THE REQUIRED LIABILITY INSURANCE FORMS. CLEARLY DEMONSTRATING THAT EXTENEX, THE CITY, COUNTY OR STATE IS ALSO INSURED WITH THE REQUIRED LIABILITY INSURANCE IN THE AMOUNT OF $1,000,000.00 FOR THIS CONSTRUCTION PROJECT.

12. VAULTS, PEDESTALS, CONDUITS AND OTHER TYPES OF SUBSTRUCTURE ARE EITHER SPECIFIED ON THIS PLAN OR WILL BE SPECIFIED BY THE CONSTRUCTION ENGINEER. ANY AND ALL DEVIATIONS FROM THE SPECIFIED TYPES OF MATERIAL MUST BE APPROVED BY THE SYSTEM ENGINEER, IN WRITING BEFORE INSTALLATION THEREOF.

13. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES IN INCLUDING SEWER LATERALS & WATER SERVICES TO POTENTIAL LOTS BOTH VERTICAL AND HORIZONTAL PRIOR TO COMMENCING IMPROVEMENT OPERATIONS.

14. CONTRACTOR SHALL HAVE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISION IS NECESSARY BECAUSE OF LOCATION OF EXISTING UTILITIES.

15. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE FROM EXISTING RECORDS AND CORROBORATED, WHERE POSSIBLE, WITH FIELD TIES. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE LOCATIONS SHOWN, BOTH HORIZONTAL AND VERTICALLY, PRIOR TO CONSTRUCTION. IF EXISTING LOCATIONS VARY SUBSTANTIALLY FROM THE PLANS, THE ENGINEER SHOULD BE NOTIFIED TO MAKE ANY CONSTRUCTION CHANGES REQUIRED.

EROSION AND SEDIMENT CONTROL NOTES

TEMPORARY EROSION/SEDIMENT CONTROL PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW.

1. ALL REQUIREMENTS OF THE CITY, COUNTY AND STATE "STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED GRADING/IMPROVEMENTS CONSISTENT WITH THE APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WATER QUALITY TECHNICAL REPORT (WQTR), AND/OR WATER POLLUTION CONTROL PLAN (WPCP).

2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.

3. FOR INLETS LOCATED AT SUMPS ADJACENT TO TOP OF SLOPES, THE CONTRACTOR SHALL ENSURE THAT WATER DRAINING TO THE SUMP IS DIRECTED INTO THE INLET AND THAT A MINIMUM OF 1.00' FREEBOARD EXISTS AND IS MAINTAINED ABOVE THE TOP OF THE INLET. IF FREEBOARD IS NOT PROVIDED BY GRADING SHOWN ON THESE PLANS THE CONTRACTOR SHALL PROVIDE IT VIA TEMPORARY MEASURES, I.E. GRAVEL BAGS OR BYKES.

4. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.

5. THE CONTRACTOR OR QUALIFIED PERSON SHALL CHECK AND MAINTAIN ALL LINED AND UNLINED DITCHES - AFTER EACH RAINFALL.

6. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.

7. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS THREATENED.

8. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.

9. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.

10. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.

11. ALL EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED GRADING PLAN SHALL BE INCORPORATED HEREIN. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.

12. GRADED AREAS AROUND THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE FACE OF THE SLOPE AT THE CONCLUSION OF EACH WORKING DAY.

13. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT

14. THE CONTRACTOR SHALL ONLY GRADE, INCLUDING CLEARING AND GRUBBING FOR THE AREAS FOR WHICH THE CONTRACTOR OR QUALIFIED PERSON CAN PROVIDE EROSION/SEDIMENT CONTROL MEASURES.

15. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURE AND OTHER RELATED CONSTRUCTION ACTIVITIES.

GENERAL NOTES

SCALE: NTS | 2

ROW GROUND CONSTRUCTION NOTES:

1. 120/240 POWER REQUIRED FOR 3-WIRE SERVICE.
2. GC TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, OR NON-USED VERTICALS OFF THE POLE.
3. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MUNICIPAL, COUNTY, STATE, FEDERAL, G095 AND G0128 STANDARDS AND REGULATIONS.
4. CALL USA 48 HOURS PRIOR TO EXCAVATING AT (800) 227-2600.
5. ALL LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
6. ALL EQUIPMENT TO BE BONDED.
7. METERING CABINET REQUIRES 3' CLEARANCE AT DOOR OPENING.
8. CAULK CABINET BASE AT PAD.

STANDARD GROUNDING NOTES:

1. GROUND TESTED AT 5 OHMS OR LESS.
2. 5/8"x8' ROD, CAD WELD BELOW GRADE
3. #6 GROUND AND BOND WIRE.
4. WOOD MOLDING, STAPLED EVERY 3' AND AT EACH END
5. GROUNDS 3' FROM POLE.
6. PLACE 3 #10GA WIRES FROM BREAKER TO METER BOX.

STANDARD CONDUIT NOTES:

1. FOR UNDERGROUND USE SCHEDULE 40.
2. FOR RISERS USE SCHEDULE 80.
3. PLACE 2" GALVANIZED STEEL CONDUIT FOR ANY CONDUIT UNDER 3", STUB UP 10' THEN CONVERT TO SCHEDULE 80.
4. CONVERT 4" CARRIER CONDUIT TO 3" AT BASE OF POLE.
5. GC TO STUB UP POLE 10' w/3" POWER CONDUIT. POWER CO. TO CONVERT FROM 3" SCH. 80 TO 2" SCH. 80 FROM TOP OF STUB UP.
6. ALL CONDUIT WILL BE MAN DRILLED AND EQUIPPED WITH 3/8" PULL ROPE.

STANDARD TRENCHING NOTES:

1. MAINTAIN 40" MINIMUM COVER FOR ELECTRICAL CONDUIT.
2. MAINTAIN 30" MINIMUM COVER FOR COMMUNICATIONS CONDUIT.
3. SAND SHADING MINIMUM 1" UNDER CONDUITS, AND 6" COVERING ON TOP REQUIRED.
4. ALL ELECTRICAL SERVICE CONDUITS FROM POWER COMPANY, WHETHER FROM POLES, TRANSFORMERS, OR OTHER LOCATIONS; WILL BE SLURRY BACKFILLED.
5. IN STREET SLURRY TO GRADE AND MILL DOWN 1-1/2" FOR AC CAP.
6. IN DIRT SLURRY 18" FROM GRADE, AND FILL WITH 95% COMPACTION NATIVE SOIL FOR BALANCE.
7. PLACE WARNING TAPE IN TRENCH 12" ABOVE ALL CONDUITS AND #18 WARNING TAPE ABOVE GROUND RING.

ROW UTILITY POLE CONSTRUCTION NOTES:

1. NO BOLT THREADS TO PROTRUDE MORE THAN 1-1/2".
2. FILL ALL HOLES LEFT IN POLE FROM REARRANGEMENT OF CLIMBERS.
3. ALL CLIMB STEPS NEXT TO CONDUIT SHALL HAVE EXTENDED STEPS.
4. CABLE NOT TO IMPEDE 15" CLEAR SPACE OFF POLE FACE (12:00).
5. 90° SHORT SWEEPS UNDER ANTENNA ARM. ALL CABLES MUST ONLY TRANSITION ON THE INSIDE OR BOTTOM OF ARMS (NO CABLE ON TOP OF ARMS).
6. USE CABLE CLAMPS TO SECURE CABLE TO ARMS: PLACE 2" CARRIER CABLE ID TAGS ON BOTH SIDES OF ARMS.
7. USE 90° CONNECTOR AT CABLE CONNECTION TO ANTENNAS.
8. PLACE GPS ON ARM WITH SOUTHERN SKY EXPOSURE AT MINIMUM 6" FROM TRANSMIT ANTENNA, WHICH IS 24" AWAY FROM CENTER OF POLE.
9. USE 1/2" CABLE ON ANTENNAS UNLESS OTHERWISE SPECIFIED.
10. FILL VOID AROUND CABLES AT CONDUIT OPENING WITH FOAM SEALANT TO PREVENT WATER INTRUSION.

WIND LOADING INFORMATION

ANTENNA/MOUNT ARM AREA TOTAL	82.52 SQ. FT.
TOP GRADE	47'-4"
BOTTOM GRADE	37'-5"
METER/BREAKER AREA TOTAL	14.62 SQ. FT.
TOP GRADE	8'-11"
BOTTOM GRADE	6'-0"
BATTERY BACK-UP AREA TOTAL	40.5 SQ. FT.
TOP GRADE	18'-9"
BOTTOM GRADE	16'-6"
PRISM DECK AREA TOTAL	50.77 SQ. FT.
TOP GRADE	15'-9"
BOTTOM GRADE	11'-7"
PRISM DECK (FUT.) AREA TOTAL	--
TOP GRADE	--
BOTTOM GRADE	--
COAX RISER SIZE	3"Ø
COAX RISER TOP GRADE	44'-0"
COAX RISER BTM GRADE	11'-7"
PWR RISER SIZE	1"ø
PWR RISER TOP GRADE	30'-0"
PWR RISER BTM GRADE	8'-0"

ANTENNA & CABLE SCHEDULE

ANTENNA SECTOR	AZIMUTH	ANTENNA MAKE / MODEL	COAXIAL CABLE LENGTH	CABLES PER SECTOR	CABLE SIZE
SECTOR ALPHA	0°	KATHREIN 840-10525	35'/3"	2/4	1/2"
SECTOR BETA	70°	KATHREIN 840-10525	35'/3"	2/4	1/2"
SECTOR GAMMA					

NOTE: CONTRACTOR TO FIELD VERIFY CABLE LENGTHS PRIOR TO ORDERING, FABRICATION, OR INSTALLATION OF CABLES.

ROW CONSTRUCTION GENERAL NOTES

SCALE: NTS | 3

LOADING AND ANTENNA CABLE SCHEDULES

SCALE: NTS | 1

at&t
NEW CINGULAR WIRELESS PCS, LLC
4430 ROSEWOOD DR, BLDG 3
PLEASANTON, CA 94588-3050

PROJECT INFORMATION:

OAKHILLS AT&T
SOUTH NETWORK
NODE 074A
6925 PINEHAVEN RD,
OAKLAND, CA 94611

CURRENT ISSUE DATE:
12/19/12

ISSUED FOR:
ZONING

BY	DATE	DESCRIPTION	REV
ACI	12/19/12	POLE INFO CORRECTED	1
ACI	11/17/12	ZDs	0

PLANS PREPARED BY:

ACI
Acro Communications Inc.
1-800-825-4ACI
5711 Research Drive
Canton, MI 48188

ACI NUMBER: OAKS-074A

CONSTRUCTED BY:

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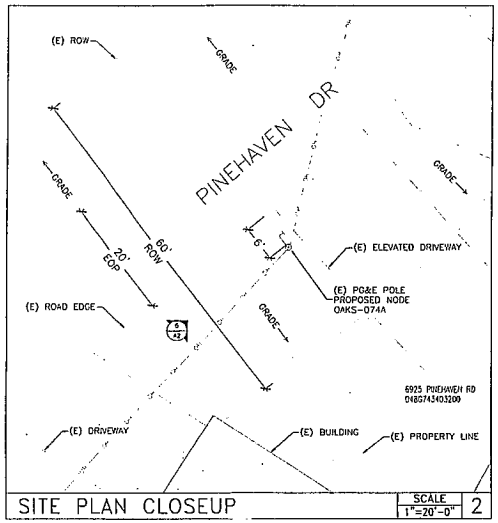
Lisle, IL 60532
www.exlenet.com

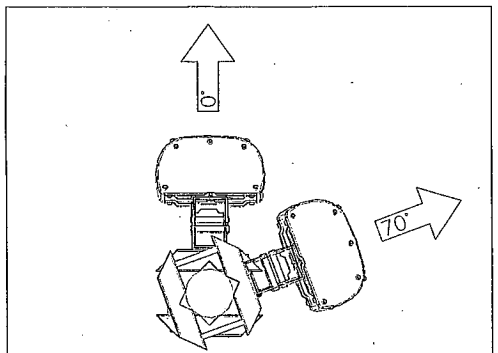
SEAL OF APPROVAL:

SHEET TITLE:
GENERAL NOTES
AND
SCHEDULES

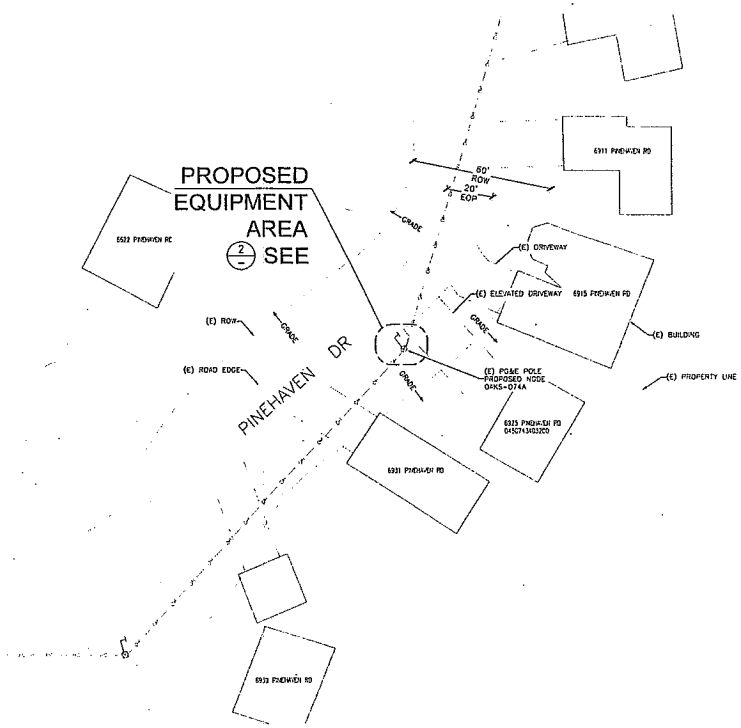
SHEET NUMBER: T2 | REVISION: 1 | 12/19/12



SITE PLAN CLOSEUP | SCALE 1"=20'-0" | 2



ANTENNA AZIMUTHS | SCALE NTS | 3



SITE PLAN | 0' 5' 15' 25' 50' | SCALE 1"=50'-0" | 1

at&t
NEW CINGULAR WIRELESS PCS, LLC
4430 ROSEWOOD DR, BLDG 3
PLEASANTON, CA 94588-3050

PROJECT INFORMATION:

OAKHILLS AT&T
SOUTH NETWORK
NODE 074A
6925 PINEHAVEN RD.
OAKLAND, CA 94611

CURRENT ISSUE DATE:

12/19/12

ISSUED FOR:

ZONING

BY:	DATE:	DESCRIPTION:	REV:
ACI	12/19/12	POLE INFO CORRECTED	1
ACI	11/17/12	ZDs	0
BY	DATE	DESCRIPTION	REV

PLANS PREPARED BY:

ACI
Acts Communications Inc.
1-800-825-4ACI
5711 Research Drive
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ACI NUMBER: OAKS-074A

CONSTRUCTED BY:

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Lisle, IL 60532
www.extanet.com

SEAL OF APPROVAL:

SHEET TITLE:

SITE PLAN

SHEET NUMBER: A1 | REVISION: 1 12/19/12

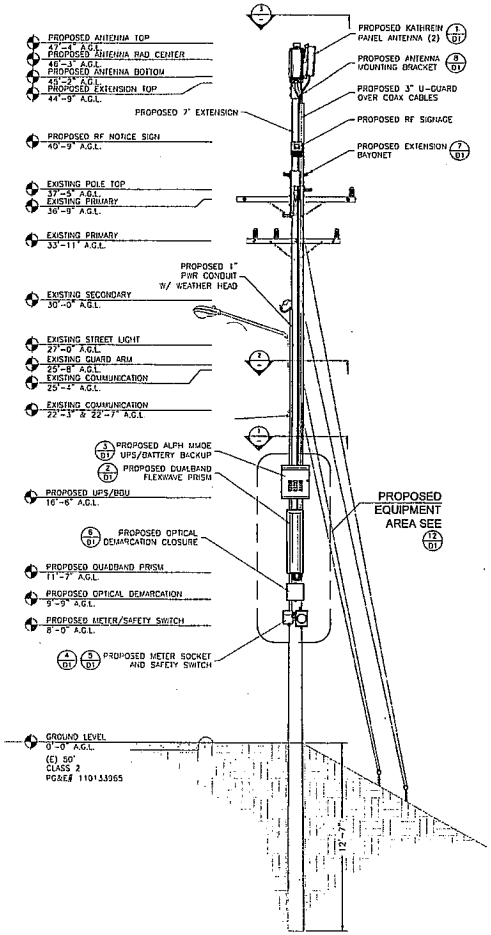
COMMUNICATIONS MAKE-READY

1. INSTALL PG&E 1" SCH 80 CONDUIT AT 4:30 POSITION FOR POWER SERVICE.
2. INSTALL 3" SCH 80 U-GUARD AT 1:00 POSITION OVER COAX.
3. INSTALL RADIO, BBU, OPTINIB, METER SOCKET, & SAFETY SWITCH 4" OFF OF POLE (USING UNISTRUTS) AT 3:00 POSITION.
4. INSTALL CLIMBING PEGS AT 9:00 & 12:00 POSITION, 8'-6" AGL TO COMM ZONE.

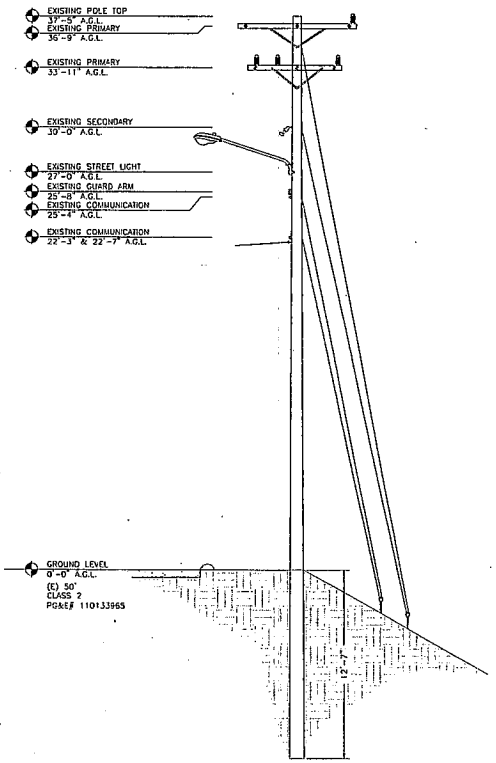
POWER MAKE-READY

1. INSTALL 7' POLE TOP EXTENSION.
2. INSTALL (2) PANEL ANTENNAS W/ MOUNTING BRACKET ON POLE TOP EXTENSION AT 44'-9" AGL.
3. INSTALL COMBINERS AND (4/8) 1/2" COAX.
4. INSTALL PG&E WEATHER HEAD AND 1" SCH 80 CONDUIT AT 4:30 POSITION FOR POWER SERVICE.
5. INSTALL 3" SCH 80 U-GUARD AT 1:00 POSITION OVER COAX.
6. PROVIDE 120/240 3-WIRE SINGLE PHASE, 100 AMP SERVICE TO 1" PG&E CONDUIT AT 4:30 POSITION TO METER SOCKET FROM SECONDARY 30'-0" AGL.

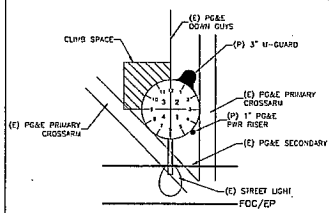
MAKE-READY NOTES | 4



PROPOSED ELEVATION SOUTHWEST | SCALE 1/8"=1'-0" | 6

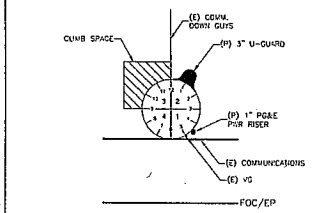


EXISTING ELEVATION SOUTHWEST | SCALE 1/8"=1'-0" | 5



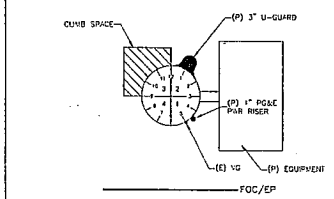
PINEHAVEN RD

POWER SPACE PLAN VIEW | 3



PINEHAVEN RD

COMM. SPACE PLAN VIEW | 2



PINEHAVEN RD

EQUIP. SPACE PLAN VIEW | 1

at&t

NEW CINGULAR WIRELESS PCS, LLC
4430 ROSEWOOD DR, BLDG 3
PLEASANTON, CA 94588-3050

PROJECT INFORMATION:

OAKHILLS AT&T SOUTH NETWORK NODE 074A

6925 PINEHAVEN RD,
OAKLAND, CA 94611

CURRENT ISSUE DATE:

12/19/12

ISSUED FOR:

ZONING

BY:	DATE:	DESCRIPTION:	REV:
ACI	12/19/12	POLE INFO CORRECTED	1
ACI	11/17/12	ZDs	0
BY	DATE	DESCRIPTION	REV

PLANS PREPARED BY:

ACI
Aero Communications Inc.
1-800-825-4ACI
5711 Research Drive
Canton, MI 48188

ACI NUMBER: OAKS-074A

CONSTRUCTED BY:

net SYSTEMS YOUR NETWORK EVERYWHERE
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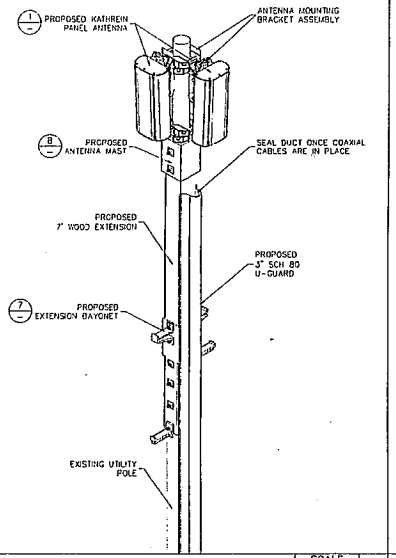
SEAL OF APPROVAL:

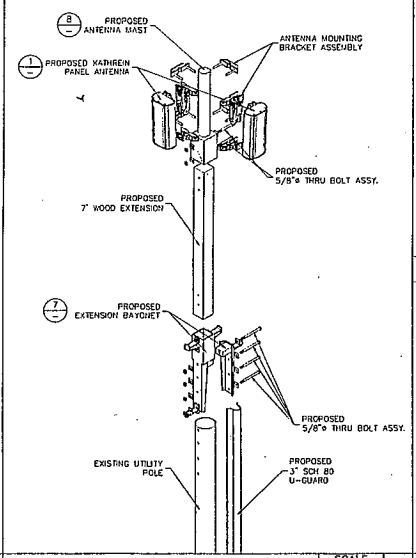
SHEET TITLE:

ELEVATIONS & RISER DETAILS

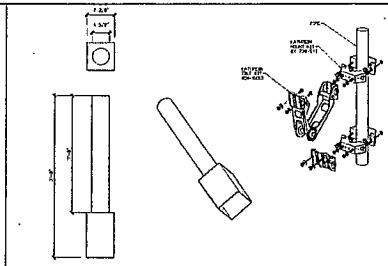
SHEET NUMBER: A2 | REVISION: 1 12/19/12



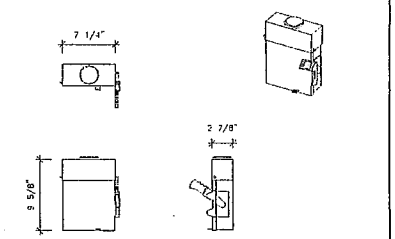
ANTENNA CONFIGURATION — SCALE 3/8"=1'-0" — 13



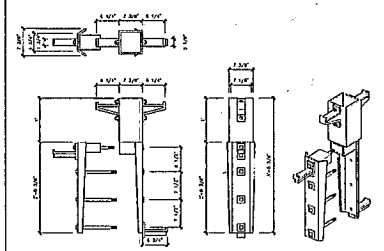
POLE TOP ANTENNA ASSEMBLY — SCALE 1/4"=1'-0" — 11



POLE TOP EXTENSION ANTENNA MAST W/ BRKTS — SCALE 3/8"=1'-0" — 8



SQUARE D D321NRB SAFETY SWITCH — SCALE 3/4"=1'-0" — 4



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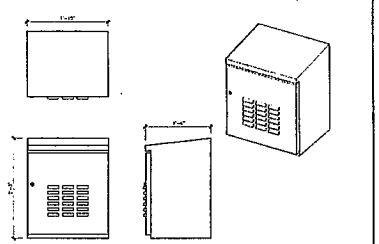
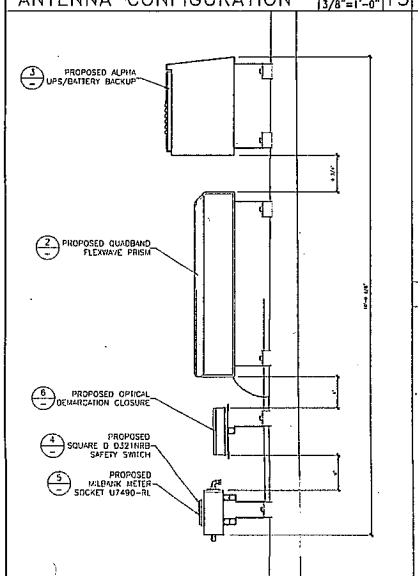
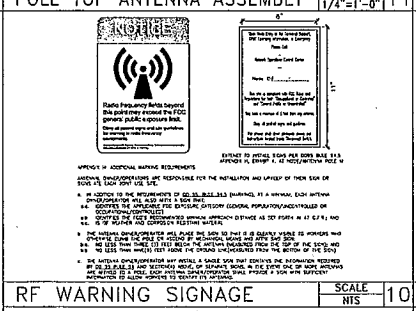


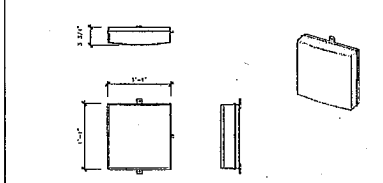
ALPHA MMOE UPS/BATTERY BACKUP — SCALE 3/8"=1'-0" — 3



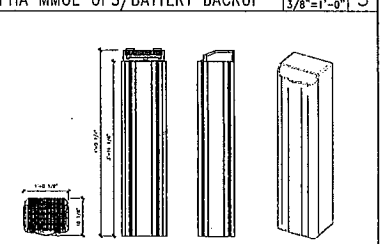
EXTENET EQUIPMENT CONFIG. — SCALE 3/8"=1'-0" — 12



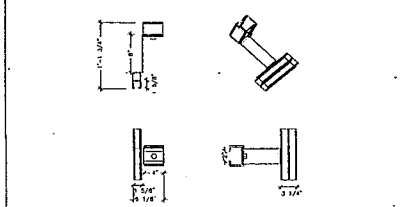
RF WARNING SIGNAGE — SCALE NTS — 10



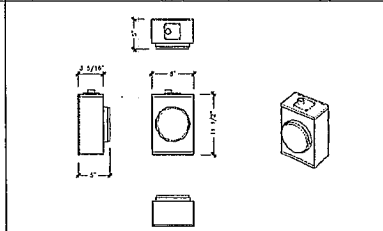
AFL OPTINID 760 XL OPTICAL DEMARCATION CLOSURE — SCALE 1/2"=1'-0" — 6



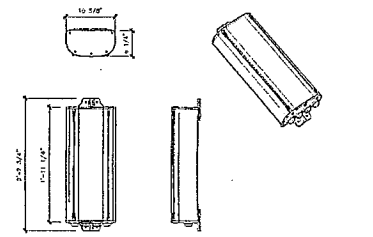
QUADBAND FLEXWAVE PRISM — SCALE 3/8"=1'-0" — 2



LADDER BRACKET — SCALE 1/2"=1'-0" — 9



MILBANK METER SOCKET U7490-RL — SCALE 1/2"=1'-0" — 5



KATHREIN PANEL ANTENNA — SCALE 1/2"=1'-0" — 1

at&t

NEW CINGULAR WIRELESS PCS, LLC
4430 ROSEWOOD DR, BLDG 3
PLEASANTON, CA 94588-3050

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ACI	11/17/12	ZDs	0
BY	DATE	DESCRIPTION	REV

PLANS PREPARED BY:

ACI
Acro Communications Inc.
1-800-825-4ACI
5711 Research Drive
Canton, MI 48188

ACI NUMBER: OAKS-074A

CONSTRUCTED BY:

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Lisle, IL 60532
www.extenet.com

SEAL OF APPROVAL:

SHEET TITLE:

EQUIPMENT DETAILS

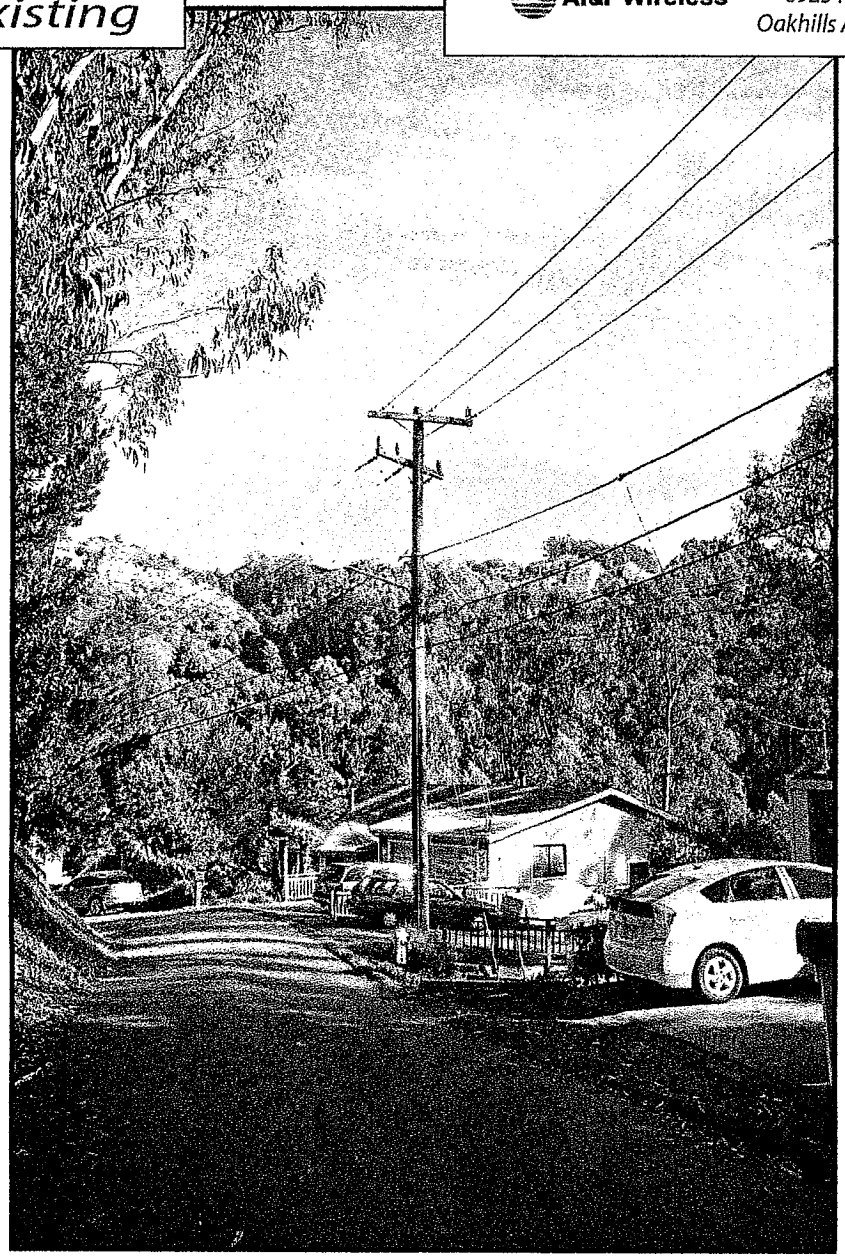
SHEET NUMBER: D1 REVISION: 1 12/19/12

view from Pinehaven Road looking northeast at site

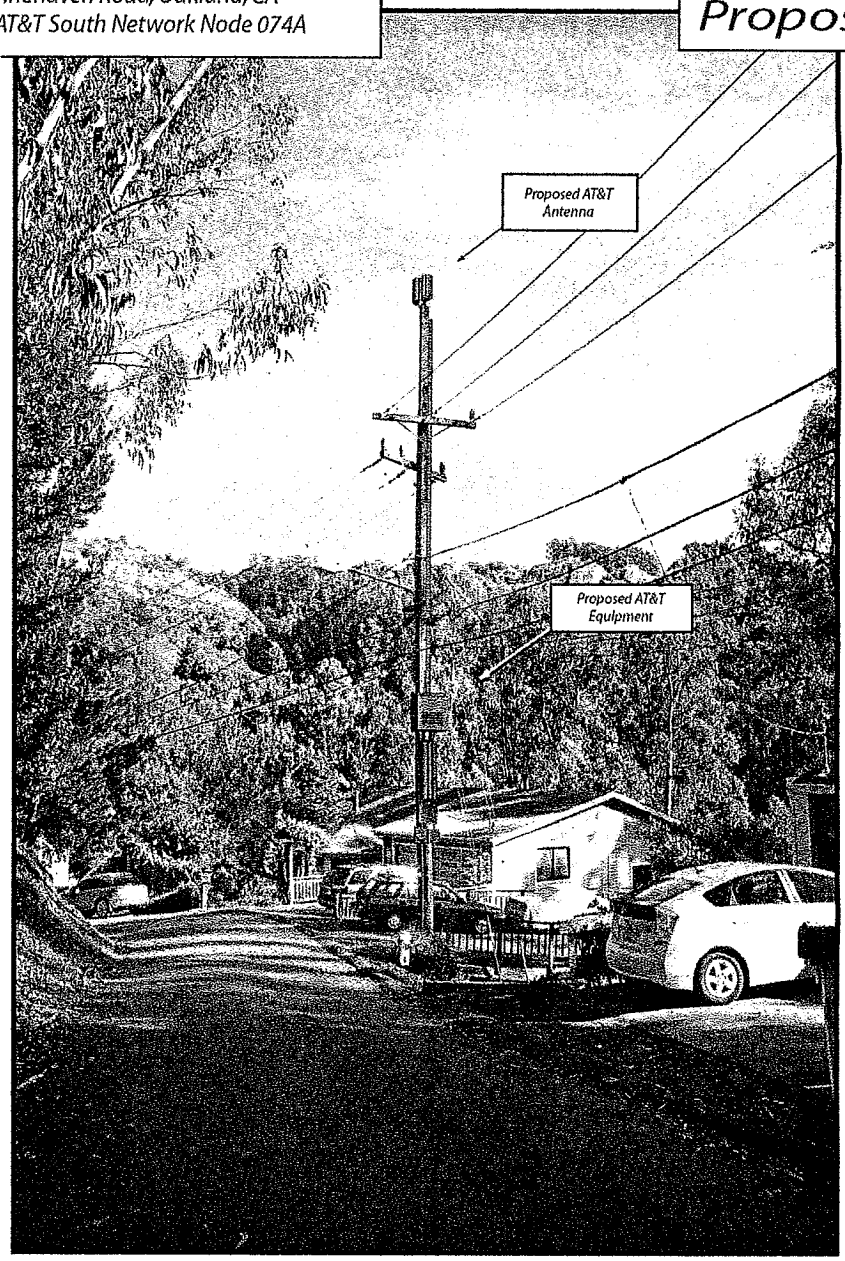
AT&T Wireless

6925 Pinehaven Road, Oakland, CA
Oakhills AT&T South Network Node 074A

Existing



Proposed



AdvanceSim
Photo Simulation Solutions
Contact (925) 202-8507

DR13049

Planning Commission, August 28, 2013

Attachment B

New Cingular Wireless, LLC • 32 Proposed Distributed Antenna System Nodes
Oakland Hills • Oakland, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of New Cingular Wireless, LLC, a wireless telecommunications service provider, to evaluate 32 distributed antenna system (DAS) nodes proposed to be located in the Oakland Hills area of Oakland, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

New Cingular Wireless proposes to install two directional panel antennas on 32 existing or proposed utility poles sited in the Oakland Hills area of 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

Base stations typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units.

The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A small antenna for reception of GPS signals is also required, mounted with a clear view of the sky. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the horizon, with very little energy wasted toward the sky or the ground. Along with the low power of such facilities, this means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

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

Site and Facility Description

Based upon information provided by New Cingular Wireless, that carrier proposes to install 32 new nodes, listed in Table 1 below, in the Oakland Hills area of Oakland. Each node would consist of two Kathrein Model 840-10525 directional panel antennas installed on a new or existing utility pole to be sited in a public right-of-way. The antennas would be mounted with no downtilt at an effective height of about 35 feet above ground and would be oriented in different directions, as shown in Table 1. The maximum effective radiated power in any direction would be 219 watts, representing simultaneous operation by New Cingular Wireless at 104 watts for PCS, 61 watts for cellular, and 54 watts for 700 MHz service. There are reported no other wireless telecommunications base stations at the site or nearby.

Node #	Approximate Address	Antenna Orientations	
Node 35	Grizzly Peak Boulevard and Golf Course Drive	116°T	321°T
Node 36	2501 Grizzly Peak Boulevard	65°T	248°T
Node 37	7541 Claremont Avenue	54°T	240°T
Node 39	8071 Claremont Avenue	36°T	215°T
Node 41	Grizzly Peak Boulevard and Skyline Boulevard	149°T	283°T
Node 42	6616 Pine Needle Drive	73°T	344°T
Node 46	1265 Mountain Boulevard	30°T	105°T
Node 47	5925 Sherwood Drive	13°T	285°T
Node 48	Skyline Boulevard and Elverton Drive	153°T	325°T
Node 49	1732 Indian Way	24°T	306°T
Node 50	5612 Merriewood Drive	46°T	110°T
Node 51	5658 Grisborne Avenue	87°T	355°T
Node 52	5826 Mendoza Drive	61°T	121°T
Node 53	6133 Snake Road	43°T	119°T
Node 54	2052 Tampa Avenue	0°T	100°T
Node 55	8211 Skyline Boulevard	98°T	158°T
Node 56	6837 Aitken Drive	65°T	316°T
Node 57	6415 Westover Drive	137°T	302°T
Node 58	6828 Saroni Drive	20°T	100°T
Node 59	2189 Andrews Street	37°T	88°T
Node 60	5879 Scarborough Drive	33°T	81°T
Node 62	2997 Holyrood Drive	21°T	88°T
Node 63	2679 Mountain Gate Way	0°T	80°T
Node 64	Mountain Boulevard and Ascot Drive	29°T	110°T
Node 70	75 Castle Park Way	0°T	70°T
Node 71	3343 Crane Way	72°T	355°T
Node 74	6925 Pinehaven Road	0°T	70°T
Node 75	6776 Thornhill Drive	66°T	127°T
Node 77	6659 Girvin Drive	100°T	180°T
Node 78	7380 Claremont Avenue	55°T	200°T
Node 79	6757 Sobrante Road	70°T	159°T
Node 81	Shepherd Canyon Road and Escher Drive	56°T	209°T

Table 1. New Cingular Wireless Nodes Evaluated

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed operation through is calculated to be 0.0026 mW/cm^2, which is 0.50% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building* is 1.2% of the

* Including nearby residences located at least 9 feet from any pole, based on photographs from Google Maps.

public limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

Recommended Mitigation Measures

Due to their mounting locations on utility poles, the New Cingular Wireless antennas 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, no access within 3 feet directly in front of the antennas themselves, such as might occur during maintenance work on the poles, should be allowed while the pertinent node is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory warning signs† at the antennas and/or on the poles below the antennas, 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.

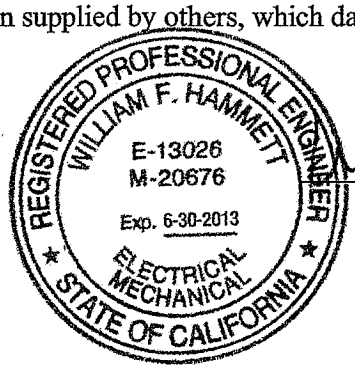
Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that the proposed operation of these New Cingular Wireless nodes located in Oakland, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Posting explanatory signs is recommended to establish compliance with occupational exposure limitations.

† Warning signs should comply with OET-65 color, symbol, and content recommendations. Signage may also need to comply with the requirements of California Public Utilities Commission General Order No. 95.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2013. This work has been carried out under his direction, and all statements are true and correct of his own knowledge except, where noted, when data has been supplied by others, which data he believes to be correct.



William F. Hammett, P.E.
707/996-5200

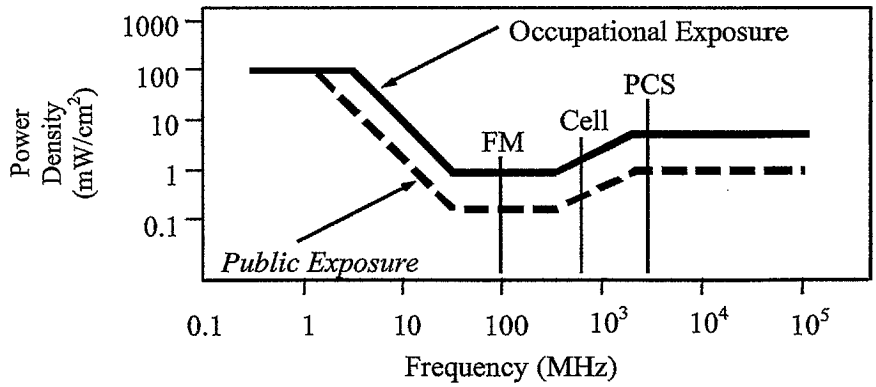
December 13, 2012

FCC Radio Frequency Protection Guide

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

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

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



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

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

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

Near Field.

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

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

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

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

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

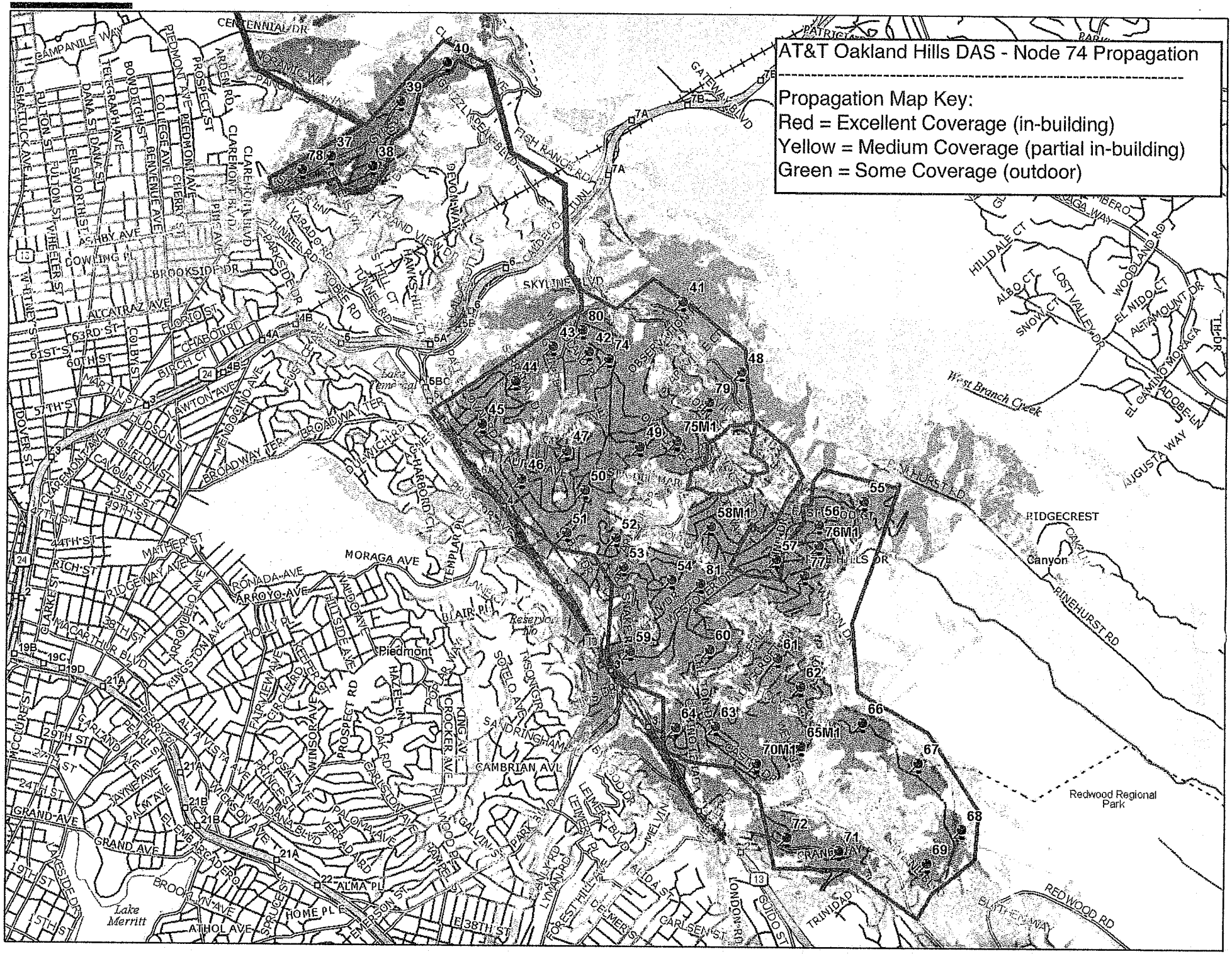
Far Field.

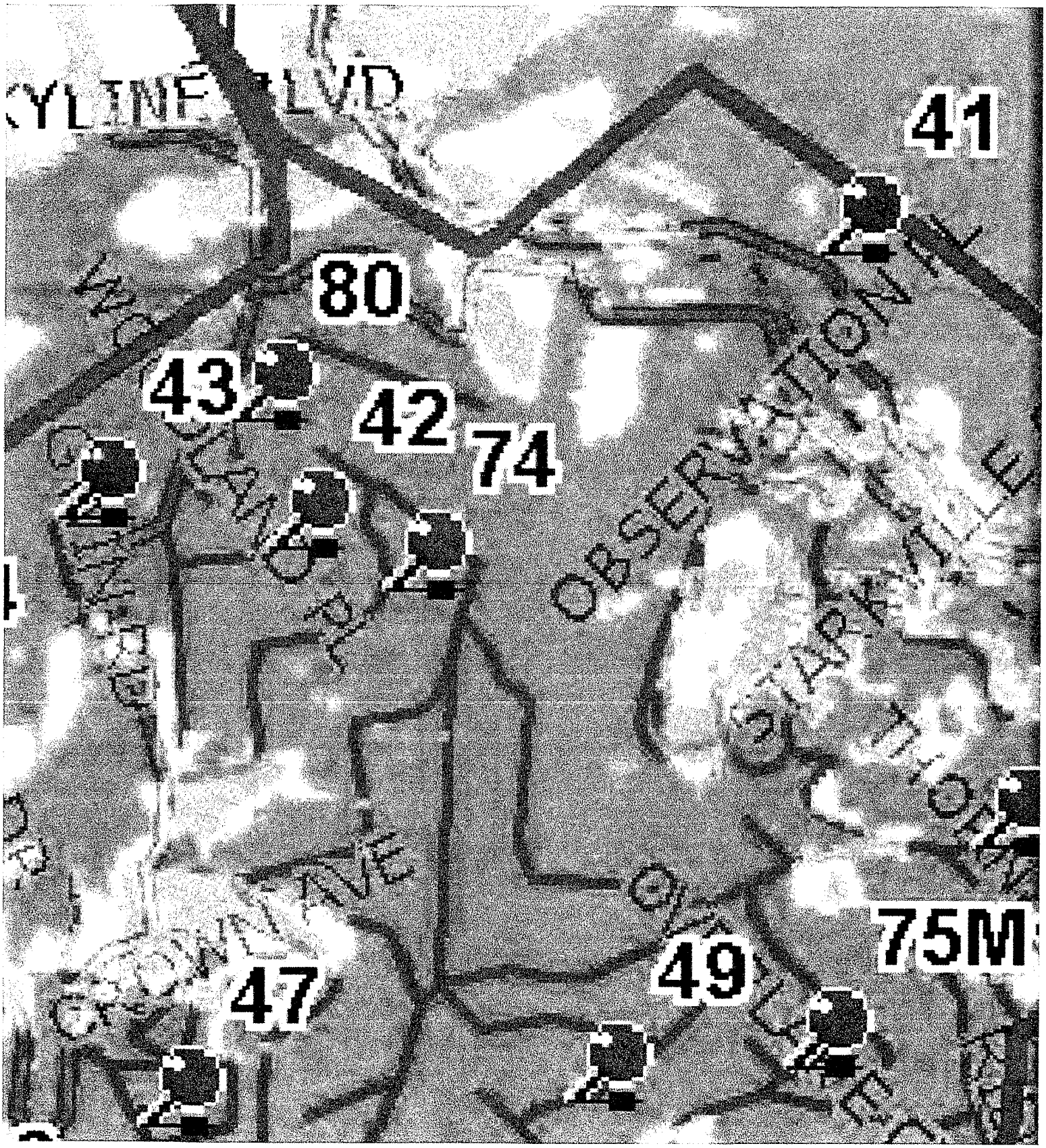
OET-65 gives this formula for calculating power density in the far field of an individual RF source:

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

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

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


AT&T Oakland Hills DAS - Node 74 Propagation
Propagation Map Key:
Red = Excellent Coverage (in-building)
Yellow = Medium Coverage (partial in-building)
Green = Some Coverage (outdoor)
Piedmont
Lake Merritt
Redwood Regional Park
RIDGECREST
Canyon
West Branch Creek
MORAGA AVE
SKYLINE BLVD
CAMBRIAN AVE
PINEHURST RD
REDWOOD RD
GRAND AVE
BROADWAY TER
ALCATRAZ AVE
ASHBY AVE
BROOKSIDE DR
CENTENNIAL DR
GATEWAY BLVD
FISH RANCH RD
75M1
58M1
76M1
65M1
70M1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