



## Staff Report to the Zoning Administrator

Application Number: **03-0295**

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**Applicant:** Roger Haas / AT&T Wireless

**Agenda Date:** May 6, 2004

**Owner:** Caltrans

**Agenda Item #:** 6

**APN:** No APN (along Highway 1 right of way).

**Time:** After 11:00 a.m.

The reference APN (adjacent APN, not ~~in~~ project) is  
59-041-33.

**Project Description:** Proposal to co-locate a "microcell" wireless communication facility on an existing utility pole.

**Location:** Project site located in the Highway 1 right-of-way on the inland side, about 0.3 mile before the Highway 1 bridge over Wilder Creek (at Wilder Ranch State Park), when traveling north from Santa Cruz.

**Supervisorial District:** Third District (District Supervisor: Wormhoudt)

**Permits Required:** Coastal Development Permit and Commercial Development Permit

### Staff Recommendation:

- Approval of Application 03-0295, based on the attached findings and conditions.
- Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.

### Exhibits

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| A. Project plans                 | G. Applicant-submitted Project      |
| B. Findings                      | Description and Supplemental        |
| C. Conditions                    | Information                         |
| D. Categorical Exemption (CEQA   | H. Map of signal gap with this site |
| determination)                   | turned off                          |
| E. Location maps (2 pgs.)        | I. Radio Frequency (RF) report      |
| F. Zoning map & General Plan map | J. Visual simulations               |

## Parcel Information

Parcel Size:	Not applicable – highway right of way
Existing Land Use - Parcel:	State highway route
Existing Land Use - Surrounding:	Agriculture, recreation
Project Access:	Highway 1
Planning Area:	Bonny Doon
Land Use Designation:	O-R (Parks, Recreation and <b>Open</b> Space)
Zone District:	SU (Special Use)
Coastal Zone:	<input checked="" type="checkbox"/> Inside <input type="checkbox"/> Outside
Appealable to Calif. Coastal Comm.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## Environmental Information

Geologic Hazards:	Not mapped/no physical evidence on site
Soils:	N/A
Fire Hazard:	Not a mapped constraint
Slopes:	N/A
Env. Sen. Habitat:	Coastal grassland community / no impact
Grading:	No grading proposed
Tree Removal:	No trees proposed to be removed
scenic:	Highway 1 scenic road
Drainage:	N/A
Traffic:	N/A
Roads:	Existing roads adequate
Parks:	N/A
Archeology:	Pole mounted equipment, no grading involved

## Services Information

Urban/Rural Services Line:	<input type="checkbox"/> Inside <input checked="" type="checkbox"/> Outside
Water Supply:	N/A
Sewage Disposal:	N/A
Fire District:	County Fire
Drainage District:	N/A

## Project Overview

AT&T Wireless is proposing to install a system of six "microcell" wireless communications facilities on existing utility poles on the inland side of the Highway 1 **right** of way, between the City of Santa Cruz and Davenport. The subject application 03-0295 is for one of the six sites. The geographic location of all six sites is shown on a USGS base map in Exhibit E.

At present AT&T Wireless **has** a wireless facility on Swift St. on the west side of the city of Santa **Cruz**, and **an** approved Coastal Permit for a co-located wireless facility on the pre-heater

tower at the Davenport Cement Plant. The six proposed microcell sites will fill in the wireless coverage on Highway 1 between Santa Cruz and the Cement Plant station.

Since AT&T Wireless has been purchased by Cingular Wireless, the permit conditions reflect the Transfer of Ownership requirements of the Wireless Communication Facilities Ordinance.

The proposed microcell facilities located on existing utility poles are encouraged (as a superior alternative to more visually intrusive monopole-type stations) by the County's Wireless Communication Facilities Ordinance. In the case of the winding, hilly terrain of this North Coast leg of Highway 1, low-power microcell facilities are also what is needed in order to reach topographically separated segments of Highway 1.

The Wireless Communication Facilities Ordinance qualifies these facilities on existing utility poles, by definition, as "co-located" facilities for which the Alternatives Analysis described in 13.10.662(c) is not required.

The system of six proposed microcell sites, and associated Coastal Permit application numbers, is summarized in Table 1 below.

The applicant has provided color maps of signal reach for the system of six proposed stations, showing how each site fills a signal gap that would exist with the other sites "on" and the subject site turned off. Exhibit H depicts this circumstance for the subject site.

**Table 1. Summary of six proposed sites.** The subject site is in bold type.

Application # (beginning furthest north)	AT&T Wireless Site Name	Location along <b>Hwy 1</b> , inland side (traveling in northerly direction)	AT&T Project # (parentheses) = "search ring" #
04-0118	Hwy 1 North /Laguna Rd.	<b>About 0.1 mi.</b> before Laguna Rd.	SNFCCA 1441A (8051A)
04-0120	Hwy 1 / Scaroni Rd.	Less <del>than</del> 0.1 mi. after <b>Back Ranch Rd.</b>	1450 (8055)
04-0121	Hwy 1 North / Farmlands	<b>About 1.2 mi.</b> after Dimeo Ln.	1443 (8053)
03-0294	Hwy 1 Dimeo Ln.	About 0.15 <b>mi.</b> after Dimeo Ln.	1444 (8054A)
04-0336	Hwy 1 / Landfill Site	About 0.3 <b>mi.</b> after <del>main</del> entrance to Wilder Ranch State Park	1451 (8059)
<b>03-0295</b>	<b>Hwy 1 / Granite Rock Quarry</b>	<b>About 0.3 mi. before Hwy. 1 bridge over Wilder Creek</b>	<b>1445 (8056B)</b>

## Project Setting

The subject site for this permit application is a utility pole in near-level terrain on the inland side of Highway 1. This point along the highway is about 0.3 miles before the Highway 1 bridge over Wilder Creek (at Wilder Ranch State Park), traveling north from Santa Cruz. This is before the main, signed entrance to Wilder Ranch State Park. The utility pole is nearest ~~an~~ old unmarked ranch road access point on the inland side of the highway. Land on either side of Highway 1, at this point, is part of Wilder Ranch State Park.

AT&T Wireless named this project site (on the plans) as "Hwy 1 / Granite Rock Quarry." For clarification about locations, as shown on the plans the project is in fact located as the highway passes through Wilder Ranch State Park and is not nearest the Granite Rock ~~Quarry~~ which lies to the west. There is another wireless facility, proposed under separate application 04-0336, which AT&T named "Hwy 1 / Landfill Site" and which is sited close by the ~~quarry~~ (but not close by the City of Santa Cruz sanitary landfill).

The proposed facility does not conflict ~~with~~ the recreational and agricultural use of the large public-ownership state park parcels adjacent to the highway right of way.

## Visual Resources

The applicant provided photosimulations of the proposed facility (Exhibit J).

The two 24" x 8" antennas mount flush on the utility pole, facing traffic. Painted to match, the narrow profile tends to disappear against the utility pole.

The visual impact of the proposed facility is negligible, in that the added antennas and equipment are small, fitted against the utility pole in matching color, and smaller than many of the other pieces of equipment attached to utility poles along the north coast segment of Highway 1. The antennas and equipment box meet the ordinance size limitations for microcell facilities in restricted coastal right-of-way areas.

For some of the six proposed sites listed in Table 1, where a PG&E transformer is not already available on the utility pole, PG&E may be providing electric power by means of installing a cylindrical transformer on the pole, in keeping with PG&E's provision of utility services. The transformer would blend in with the existing ~~similar~~ conditions of occasional transformers on other utility poles.

In sum, the project will blend in with the existing utilities infrastructure. The casual traveler would be hard pressed to note any difference before and after construction.

## Radio Frequency Emissions

A Radio Frequency (RF) report ~~has~~ been prepared for this project by a qualified consulting engineer (Exhibit I). The proposed facility will result in a maximum ambient RF level of less than 1% of the applicable public exposure limit.

## Conclusion

As proposed and conditioned, the project is consistent with all applicable codes and policies of the Zoning Ordinance and General Plan/LCP. Please see Exhibit "B" ("Findings") for a complete listing of findings and evidence related to the above discussion.

## Staff Recommendation

- e **APPROVAL** of Application Number **03-0295**, based on the attached findings and conditions.
- e Certification that the proposal is exempt from further Environmental Review under the California Environmental Quality Act.

Supplementary reports and information referred to in this report are on file and available for viewing at the Santa Cruz County Planning Department, and are hereby made a part of the administrative record for the proposed project.

The County Code and General Plan, as well as hearing agendas and additional information are available online at: [www.co.santa-cruz.ca.us](http://www.co.santa-cruz.ca.us)

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## Coastal Development Permit Findings

1. That the project is a use allowed in one of the basic zone districts, other than the Special Use (SU) district, listed in section 13.10.170(d) as consistent with the General Plan and Local Coastal Program LUP designation.

This finding can be made, in that the property is zoned SU (Special Use), a designation which allows wireless communication facilities at Level V permit review, including that the SU district allows uses as are allowed in the PR (Parks, Recreation, and Open Space) zone district. The proposed "microcell" wireless communication facility is a permitted use within the zone district, consistent with the site's O-R (Parks, Recreation and Open Space) General Plan designation.

2. That the project does not conflict with any existing easement or development restrictions such as public access, utility, or open space easements.

This finding can be made, in that the proposal does not conflict with any existing easement or development restriction such as public access, utility, or open space easements in that the project is designed and coordinated to occupy space within the existing utilities infrastructure.

3. That the project is consistent with the design criteria and special use standards and conditions of this chapter pursuant to section 13.20.130 *et seq.*

This finding can be made, in that the proposed facility will be co-located on an existing utility pole and will blend with the existing utility infrastructure to reduce potential visual impact.

4. That the project conforms with the public access, recreation, and visitor-serving policies, standards **and** maps of the General Plan and Local Coastal Program land use plan, specifically Chapter 2: figure 2.5 and Chapter 7, and, as to any development between and nearest public road and the sea or the shoreline of any body of water located within the coastal zone, such development is in conformity with the public access and public recreation policies of Chapter 3 of the Coastal Act commencing with section 30200.

This finding can be made, in that the project site is not located between the shoreline and the first public road and the project will be located on an existing utility pole on the inland side of a public right of way. Consequently, the "microcell" wireless communication facility will not interfere with public access to the beach, ocean, or any nearby body of water. Further, the project site is not identified as a priority acquisition site in the County Local Coastal Program.

5. That the proposed development is in conformity with the certified local coastal program.

**This** finding can be made, in that the proposed project is designed and located in a manner that will minimize potential impacts to visual resources, and that the construction of the proposed project will not impede access to the beach or other recreational resources.

## Development Permit Findings

1. That the proposed location of the project and the conditions under which it would be operated or maintained will not be detrimental to the health, safety, or welfare of persons residing or working in the neighborhood or the general public, and will not result in inefficient or wasteful use of energy, and will not be materially injurious to properties or improvements in the vicinity.

This finding can be made, in that the maximum ambient RF level due to the proposed facility will be less than 1% of the applicable public exposure limit.

The proposed project will not result in inefficient or wasteful use of energy, in that the proposed microcell facility is a low power, localized station limited to filling in a documented signal gap that would otherwise exist.

The project will not be materially injurious to properties or improvements in the vicinity in that the project will be co-located on an existing utility pole, resulting in a negligible visual impact.

2. That the proposed location of the project and the conditions under which it would be operated or maintained will be consistent with all pertinent County ordinances and the purpose of the zone district in which the site is located.

This finding can be made, in that microcell wireless communication facilities co-located on existing utility poles are allowed as an exception to the restricted areas (including the inland side of Coastal right-of-ways) prohibition, without the requirement of further alternatives analysis, per County Code section 13.10.661(c)(3). The antennas and equipment box also meet the size limitations for restricted areas.

The project site is located within the SU (Special Use) zone district, in which wireless communication facilities are an allowed use.

3. That the proposed use is consistent with all elements of the County General Plan and with any specific plan which has been adopted for the area.

This finding can be made, in that the proposed microcell wireless communication facility will be co-located on an existing utility pole. Microcell wireless communication facility installations that are co-located on existing utility poles, such as this proposal, are an environmentally superior alternative to larger wireless communication facility installations and their associated visual and environmental impacts.

The site of the proposed project is within the Highway 1 scenic comdor. The proposed project complies with General Plan Policy 5.10.3 (Protection of Public Vistas), in that the co-located microcell facility minimizes visual and environmental impacts, due to the small size of the proposed facility and the presence of an existing utility pole and utilities infrastructure. The existing public views from the scenic highway will remain relatively unchanged as a result of this project.

The property is located in the SU (Special Use) zone district, which is consistent with the O-R (Parks, Recreation and Open Space) General Plan designation. Wireless communication facilities are an allowed use in this zone district.

A specific plan has not been adopted for this portion of the County.

4. That the proposed use will not overload utilities and will not generate more than the acceptable level of traffic on the streets in the vicinity.

This finding can be made, in that the proposed "microcell" wireless communication facility can access electric power already available at the site, and will require only periodic inspection by maintenance personnel, which will not impact traffic levels in the vicinity.

5. That the proposed project will complement and harmonize with the existing and proposed land uses in the vicinity and will be compatible with the physical design aspects, land use intensities, and dwelling unit densities of the neighborhood.

This finding can be made, in that the proposed facility will be co-located on ~~an~~ existing utility pole. This proposed design will adequately mitigate any potential visual resource impacts.

6. The proposed development project is consistent with the Design Standards and Guidelines (sections 13.11.070 through 13.11.076), and any other applicable requirements of this chapter.

This finding can be made, in that the proposed facility will be co-located on ~~an~~ existing utility pole and will blend with the existing utilities infrastructure to reduce potential visual resource impacts.



## Wireless Communication Facility, Use Permit Findings

1. The development of the proposed wireless communications facility as conditioned will not significantly affect any designated visual resources, environmentally sensitive habitat resources (as defined in the Santa Cruz County General Plan/LCP Sections 5.1, 5.10, and 8.6.6.), and/or other significant County resources, including agricultural, open space, and community character resources; *or* there are no other environmentally equivalent and/or superior and technically feasible alternatives to the proposed wireless communications facility as conditioned (including alternative locations and/or designs) with less visual and/or other resource impacts and the proposed facility has been modified by condition and/or project design to minimize and mitigate its visual and other resource impacts.

This finding can be made, in that the proposed microcell wireless communication facility will be co-located on an existing utility pole. Facilities that are co-located on existing utility poles, such as ~~this~~ proposal, are an environmentally superior alternative to larger facilities and the associated visual and environmental impacts.

The use of such co-located facilities in place of larger wireless communication facility installations, when technically feasible, minimizes the visual and environmental impacts associated with the construction of wireless communication facilities due to the small size of the facilities and the presence of an existing pole and utilities infrastructure.

The proposed project will not have an impact on north coast agricultural lands or other significant County resources, again because of the small sized facility located on an existing utility pole.

2. The site is adequate for the development of the proposed wireless communications facility and, for sites located in one of the prohibited and/or restricted areas set forth in Sections 13.10.661(b) and 13.10.661 (c), that the applicant has demonstrated that there are not environmentally equivalent or superior and technically feasible: (1) alternative sites outside the prohibited and restricted areas; and/or (2) alternative designs for the proposed facility as conditioned.

This finding can be made, in that there is an existing utility pole, and in that installation of microcell wireless communications facilities co-located on existing utility poles is allowed as an exception to the restricted areas prohibition without the requirement of further alternatives analysis, per County Code section 13.10.661(c)(3).

3. The subject property upon which the wireless communications facility is *to* be built is in compliance ~~with~~ all rules and regulations pertaining to zoning uses, subdivisions and any other applicable provisions of this title (County Code 13.10.660) and that all zoning violation abatement costs, if any, have been paid.

~~This~~ finding can be made, in that the project site is located within a public right-of-way and is used for the purpose of public access and utilities ~~infrastructure~~.

No zoning violation abatement fees are applicable to the subject property or project.

4. The proposed wireless communication facility **as** conditioned will not create a hazard for aircraft in flight.

This finding can be made, in that the **proposed** wireless communications facility will be located on an existing utility pole, which is too low to interfere with an aircraft in flight.

5. The proposed wireless communication facility as conditioned is in compliance with all FCC and California PUC standards and requirements.

This finding **can** be made, in that the maximum ambient RF levels due to the proposed facility are calculated to be less than one percent of the public exposure limit.

6. For wireless communication facilities in the coastal zone, the proposed wireless communication facility as conditioned is consistent with all applicable requirements of the Local Coastal Program.

This finding **can** be made, in that the proposed wireless communication facility is designed and located in a manner that will minimize potential impacts to scenic, agricultural, and other resources, and that the construction of the proposed facility will not impede access to the beach or other recreational resources.

## Conditions of Approval

Exhibit **A** Project Plans, entitled "Hwy 1/ Granite Rock ~~Quarry~~," '8 sheets, prepared by CH2MHill, dated 6/9/03.

- I. Considering that AT&T Wireless has been purchased by Cingular Wireless, this permit approval and these permit conditions are applicable to and binding on the new owning entity, notwithstanding how the name is changed, and the Transfer of Ownership requirements stated in section VI below shall be met.
- II. This permit authorizes the construction of a wireless communications facility on an existing utility pole as indicated on the approved Exhibit "A" for this permit. Prior to exercising any rights granted by this permit including, without limitation, any construction or site disturbance, the applicant shall:
  - A. Sign, date, and return to the Planning Department one copy of the approval to indicate acceptance and agreement with the conditions thereof.
  - B. Obtain a Building Permit from the Santa Cruz County Building Official.
  - C. Obtain applicable permits and approvals from Caltrans such as an Encroachment Permit and/or a Site License Agreement, including any updated or finalized approvals as may be required by Caltrans.
  - D. Obtain applicable authorization or agreements from the Joint Pole Authority or other entity(s) responsible for use of the utility pole.
- III. The applicant shall obtain all required approvals from the California Public Utilities Commission (CPUC) and the Federal Communications Commission (FCC) for this wireless communication facility.
- IV. Prior to issuance of a Building Permit the applicant/owner shall:
  - A. Submit Final Building Permit Plans for review and approval by the Planning Department. The final plans shall be in substantial compliance with the plans marked Exhibit "A" on file with the Planning Department. The final plans shall include the following additional information:
    1. An indication of the proposed colors and materials of the proposed wireless communication facility, depicted in 8.5 x 11" paper format. All colors and materials must be non-reflective and blend with the existing utilities infrastructure.
    2. Details showing compliance with any fire department requirements.
  - B. To ensure that the storage of hazardous materials on the site does not result in

adverse environmental impacts, the applicant shall submit a Hazardous Materials Management Plan for review and approval by the County Department of Environmental Health Services, if required.

- C. Meet all requirements and pay any applicable plan check fee of the County Fire district.
- V. All construction shall be performed according to the approved plans for the Building Permit. Prior to final building inspection, the applicant/owner must meet the following conditions:
  - A. Construction and maintenance access shall be made by personnel on foot. No new vehicle access shall be constructed.
  - B. All site improvements shown on the final approved Building Permit plans shall be installed.
  - C. All inspections required by the building permit shall be completed to the satisfaction of the County Building Official.
  - D. The Hazardous Materials Management Plan, if required, shall be approved by the County Department of Environmental Health Services.
  - E. Pursuant to Sections 16.40.040 and 16.42.100 of the County Code, if at any time during site preparation, excavation, or other ground disturbance associated with this development, any artifact or other evidence of an historic archaeological resource or a Native American cultural site is discovered, the responsible persons shall immediately cease and desist from all further site excavation and notify the Sheriff-Coroner if the discovery contains human remains, or the Planning Director if the discovery contains no human remains. The procedures established in Sections 16.40.040 and 16.42.100, shall be observed.
- VI. Operational Conditions
  - A. Operation of the facility shall be in conformance with the County's Wireless Communication Facilities Ordinance, and with requirements of Caltrans, the Joint Pole Authority, and any other regulatory authority.
  - B. Transfer of Ownership. In the event that the original permittee (or original permit applicant) sells or has sold its interest in a wireless communication facility, the succeeding carrier shall assume all responsibility concerning the project and shall be held responsible to the County for maintaining consistency with all project conditions of approval, including proof of liability insurance. A new contact name, if changed, for the project shall be provided by the succeeding carrier to the Planning Department Within 30 days of transfer of interest in the facility.

- C. The exterior finish and materials of the wireless communication facility must be maintained when needed to continue to blend with the existing utilities infrastructure. Additional paint and/or replacement materials shall be installed as necessary to blend the wireless communication facility with the existing utilities infrastructure.
- D. The operator of the wireless communication facility must submit within 90 days of commencement of normal operations (or within 90 days of any major modification of power output of the facility) a written report to the Santa Cruz County Planning Department documenting the measurements and findings with respect to compliance with the established Federal Communications Commission (FCC) Non-Ionizing Electromagnetic Radiation (NEIR) exposure standard. The wireless communication facility must remain in continued compliance with the NEIR standard established by the FCC at all times. Failure to submit required reports or to remain in continued compliance with the NEIR standard established by the FCC will be a violation of the terms of this permit.
- E. The use of temporary generators to power the wireless communication facility is not allowed. Any generator used during construction shall not be left running while personnel are not present and shall not be left onsite overnight.
- F. If, in the future, the pole based utilities are relocated underground at this location, the operator of the wireless communication facility must abandon the facility and be responsible for the removal of all permanent structures and the restoration of the site as needed to re-establish the area consistent with the character of the surrounding natural landscape.
- G. If, as a result of future scientific studies and alterations of industry-wide standards resulting from those studies, substantial evidence is presented to Santa Cruz County that radio frequency transmissions may pose a hazard to human health and/or safety, the Santa Cruz County Planning Department shall set a public hearing and in its sole discretion, may revoke or modify the conditions of this permit.
- H. If future technological advances would allow for reduced visual impacts resulting from the proposed telecommunication facility, the operator of the wireless communication facility must make those modifications which would allow for reduced visual impact of the proposed facility as part of the normal replacement schedule. If, in the future, the facility is no longer needed, the operator of the wireless communication facility must abandon the facility and be responsible for the removal of all permanent structures and the restoration of the site as needed to re-establish the area consistent with the character of the surrounding natural landscape.
- I. Any modification in the type of equipment shall be reviewed and acted on by the Planning Department staff. The County may deny or modify the conditions at this

time, or the Planning Director may refer it for public hearing before the Zoning Administrator.

- J. A Planning Department review that includes a public hearing shall be required for any **future** co-location at this wireless communications facility.
  - K. In the event that future County inspections of the subject property disclose noncompliance with any Conditions of this approval or any violation of the County Code, the owner shall pay to the County the full cost of such County inspections, including any follow-up inspections and/or necessary enforcement actions, up to and including permit revocation.
- VII. As a condition of this development approval, the holder of this development approval ("Development Approval Holder"), is required to defend, indemnify, and hold harmless the COUNTY, its officers, employees, **and** agents, from and against any claim (including attorneys' fees), against the COUNTY, its officers, employees, and agents to attack, set aside, void, or annul this development approval of the COUNTY or any subsequent amendment of this development approval which is requested by the Development Approval Holder.
- A. COUNTY shall promptly notify the Development Approval Holder of any claim, action, or proceeding against which the COUNTY seeks to be defended, indemnified, or held harmless. COUNTY shall cooperate fully in such defense. If COUNTY fails to notify the Development Approval Holder within sixty (60) days of any such claim, action, or proceeding, or fails to cooperate fully in the defense thereof, the Development Approval Holder shall not thereafter be responsible to defend, indemnify, or hold harmless the COUNTY if such failure to notify or cooperate was significantly prejudicial to the Development Approval Holder.
  - B. Nothing contained herein shall prohibit the COUNTY from participating in the defense of any claim, action, or proceeding if both of the following occur:
    - 1. COUNTY bears its own attorney's fees and costs; and
    - 2. COUNTY defends the action in good faith.
  - C. Settlement. The Development Approval Holder shall not be required to pay or perform any settlement unless such Development Approval Holder **has** approved the settlement. When representing the County, the Development Approval Holder shall not enter into **any** stipulation or settlement modifying or affecting the interpretation or validity of any of the terms or conditions of the development approval without the prior written consent of the County.
  - D. Successors Bound. "Development Approval Holder" shall include the applicant and the successor(s) in interest, transferee(s), and assign(s) of the applicant.

Application # 03-0294

APN: No APN

Owner: Caltrans

- E. Within 30 days of the issuance of this development approval, the Development Approval Holder shall record in the *office* of the Santa Cruz County Recorder ~~an~~ agreement which incorporates the provisions of this condition, or this development approval shall become null and void.

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Minor variations to ~~this~~ permit which do not affect the overall concept or density may be approved by the Planning Director at the request of the applicant or ~~staff~~ in accordance with Chapter 18.10 of the County Code.

Please note: **This** permit expires two years from the effective date unless you obtain the required permits and commence construction.

Approval Date: \_\_\_\_\_

Effective Date: \_\_\_\_\_

Expiration Date: \_\_\_\_\_

\_\_\_\_\_  
Don Bussey  
Deputy Zoning Administrator

\_\_\_\_\_  
Jack Nelson  
Project Planner

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Appeals: **Any** property owner, or other person aggrieved, or any other person whose interests **are** adversely affected by any act or determination of the Zoning Administrator, may appeal the act or determination to the **Planning** Commission in accordance with chapter 18.10 of the ~~Santa~~ Cruz County Code.

# CALIFORNIA ENVIRONMENTAL QUALITY ACT

## NOTICE OF EXEMPTION

The Santa Cruz County Planning Department **has** reviewed the project described below and has determined that it is exempt **from** the provisions of CEQA as specified in Sections 15061 - 15332 of CEQA for the reason(s) which have been specified in this document.

Application Number: 03-0295

Assessor Parcel Number: No AFN, Highway 1 right of way

Project Location: Highway 1 right-of-way on the inland side, about 0.3 mile before the Highway 1 bridge over Wilder Creek (at Wilder Ranch State Park), when traveling north from Santa Cruz.

**Project Description: "microcell" wireless communication facility, on existing utility pole**

**Person or Agency Proposing Project: Roger Haas / AT&T Wireless**

**Contact Phone Number: (408) 672-5610**

- A.        The **proposed** activity is not a project under CEQA Guidelines Section 15378.  
B.        The proposed activity is not subject to CEQA as specified under CEQA Guidelines Section 15060(c).  
C.        **Ministerial Project** involving only the use of **fixed** standards or objective measurements without personal judgment.  
D.        **Statutory Exemption** other than a Ministerial Project (CEQA Guidelines Section 15260 to 15285).

Specify type:

- E.   **X**   **Categorical Exemption**

Specify type: Class 3 - New Construction or Conversion of Small Structure (Section 15303)

F. **Reasons why the project is exempt:**

Construction of a utility pole mounted "microcell" wireless facility that is not anticipated to generate **any** environmental impacts.

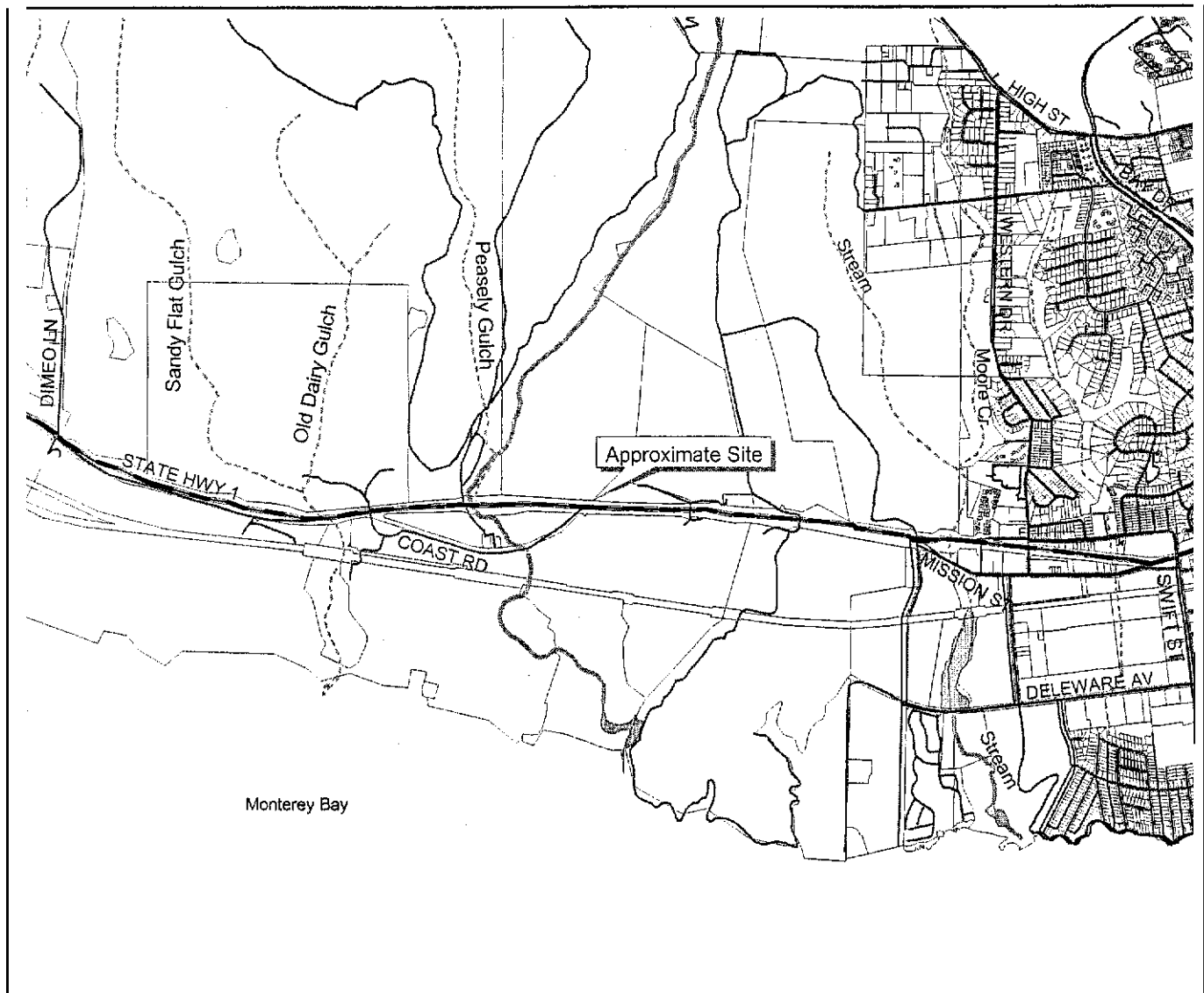
In addition, none of the conditions described in Section 15300.2 apply to this project

\_\_\_\_\_  
Jack Nelson, Project Planner

Date: \_\_\_\_\_



# Location Map



0.5 0 0.5 1 1.5 Miles

Map created by Santa Cruz County  
Planning Department:  
July 2003



EXHIBIT E

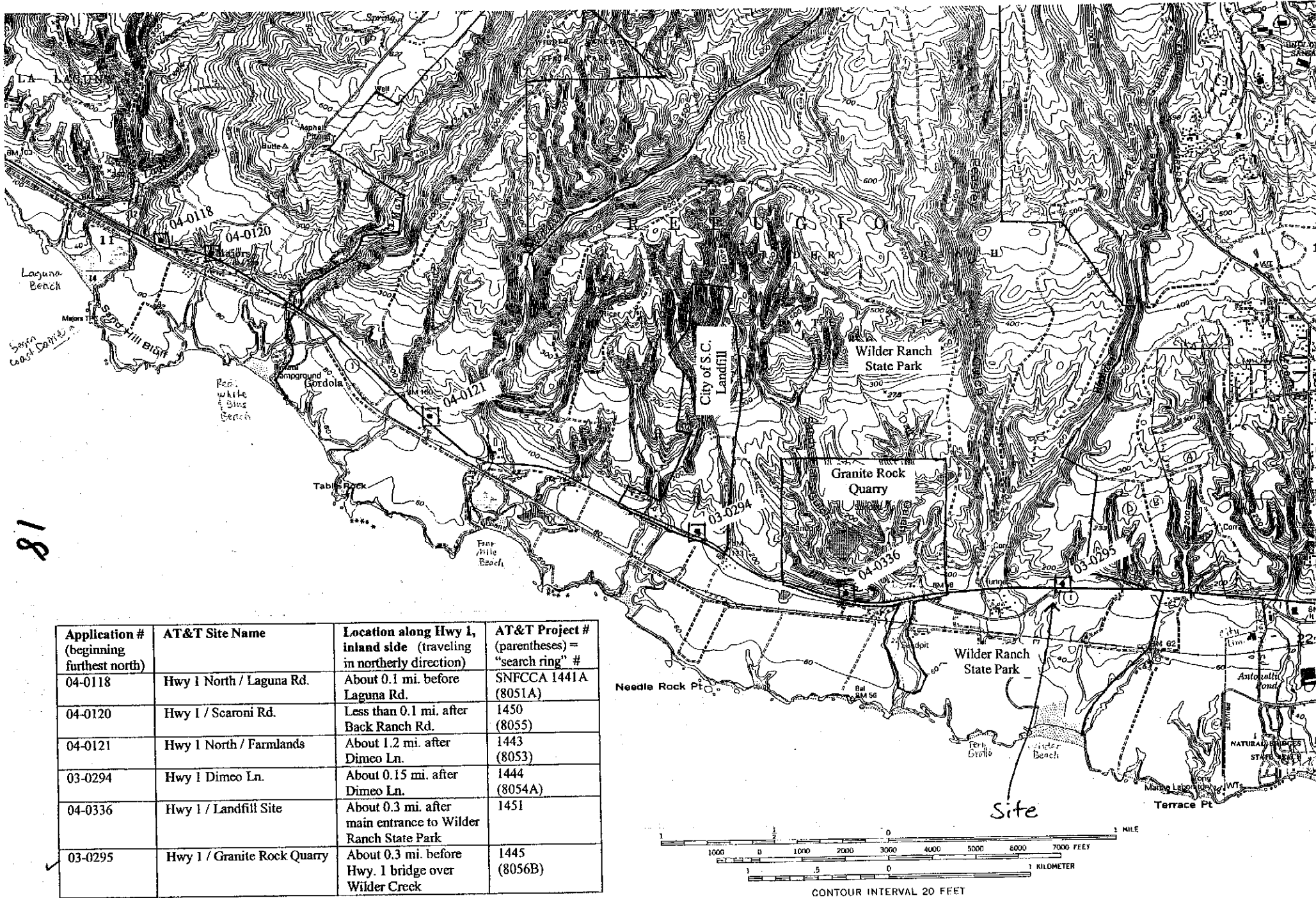
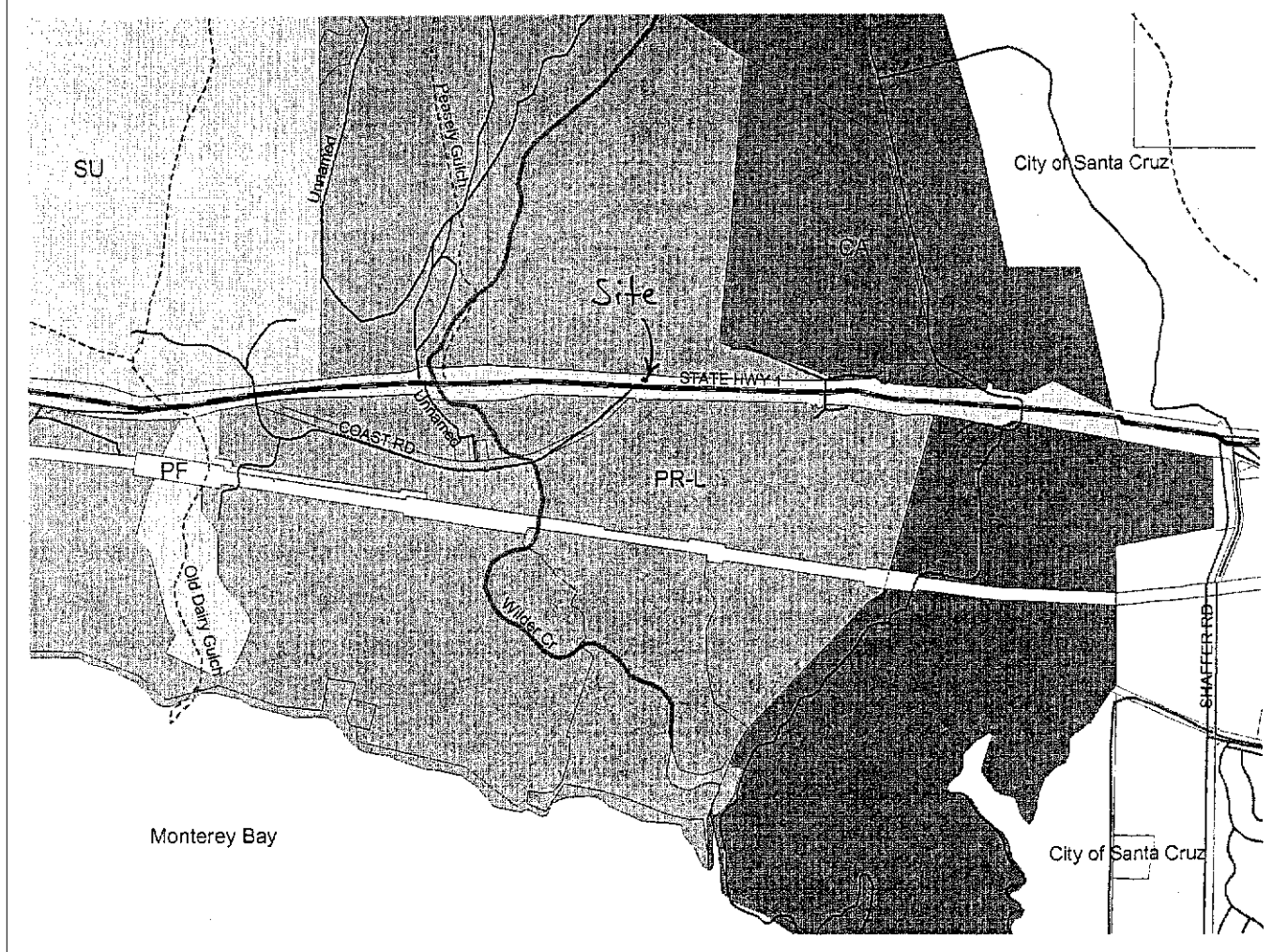


EXHIBIT E

# Zoning Map



0.25 0 0.25 0.5 Miles

## Legend

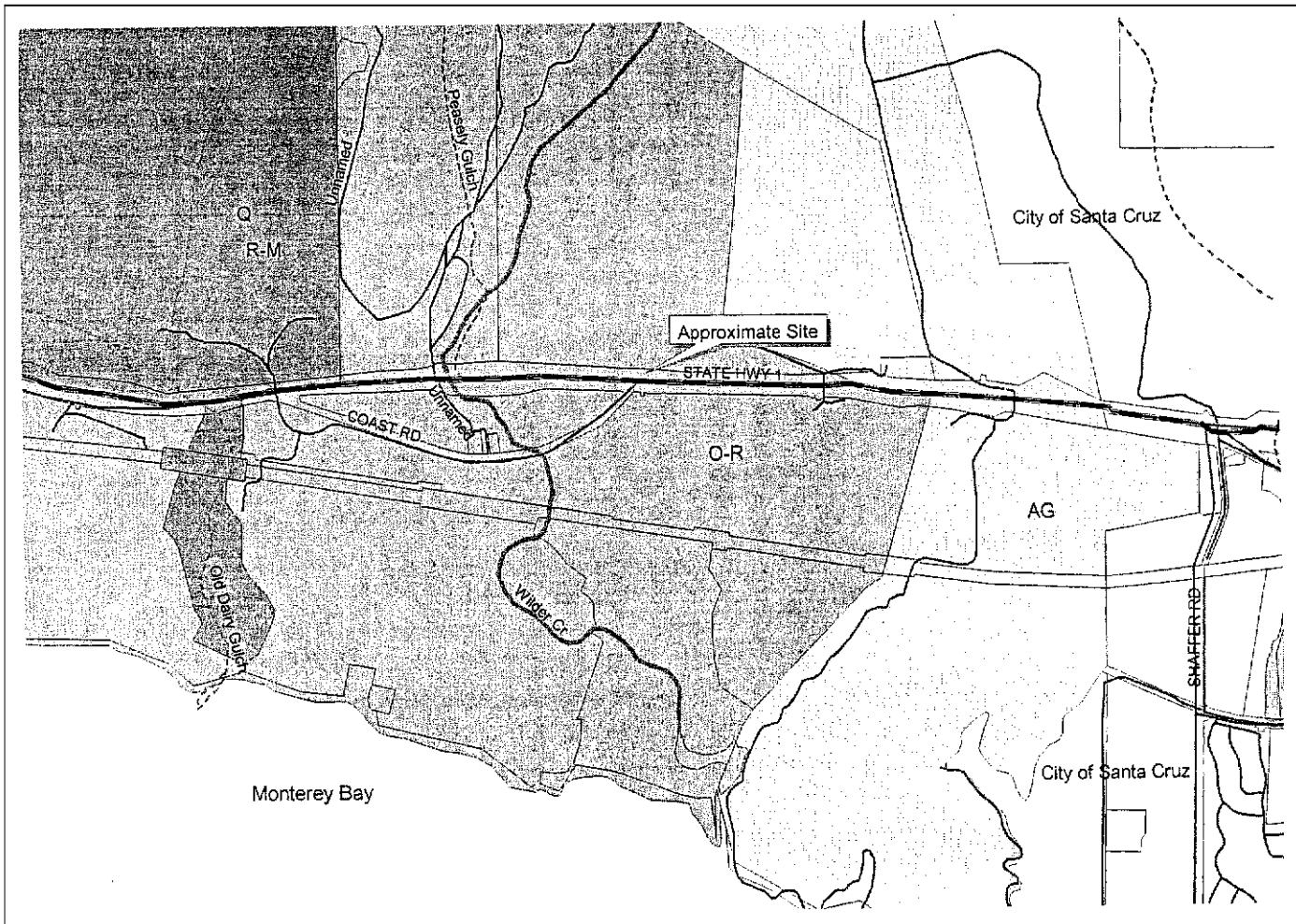
	Parcel boundaries
	State highways
	Streets
	Intermittent Stream
	CA
	PR
	PF
	SU



Map created by Santa Cruz County  
Planning Department:  
July 2003

EXHIBIT F

# General Plan Map



0.25 0 0.25 0.5 Miles

## Legend

	Parcel boundaries
	State highways
	Streets
	Perennial Stream
	Intermittent Stream
	Agriculture
	Parks and Recreation
	Mountain Residential



Map created by Santa Cruz County  
Planning Department  
July 2003

EXHIBIT F



**AT&T**

**WIRELESS SERVICES**

### Project Description

#### Nature of Request

AT&T Wireless Services (AWS) seeks approval of a Conditional Use Permit, and related permits to allow the construction of a communication facility within a Caltrans ROW, located on an (e) wood utility pole. Our proposal is designed to blend in with the (e) utility pole, see photosimulations, which blends in with the surroundings. This site is being proposed in accordance with AWS' FCC license requirements.

#### Property Description

The subject property is located adjacent to Wilder State Park, on the inland side, on Highway 1, in Santa Cruz. We have been asked to reflect the APN# no APN spec, (closest reference 049-131-23) as requested by Santa Cruz Planning Staff. The proposal is within the jurisdiction of Santa Cruz County. Caltrans has given us authority to act on their behalf in regards of this proposal, per the attached LOA.

The property is located within an existing Caltrans Right-of-Way, which falls under County control but is not defined by a specific zoning designation. We have been informed during our pre-application meeting; the County does allow installation of wireless telecommunications facilities as a conditional use pursuant to Section 13.10.659.21.8F.2 of the Planning Code. The proposed use matches the present use, as the project does not deviate nor substantially increase the visual blight of the present use/site.

#### Project Description

AT&T proposes to install a communication facility that will consist of Two (2) flat panel antennas mounted on the existing 47' 10" wood utility pole, at a Centerline elevation of 27' 0". Our equipment will be mounted at approximately 7' 0", above grade. Both the antennas and equipment will be painted brown to mitigate potential visual impacts. All associated conduits, field verified, will also be painted brown to match the (e) wood pole.

The antennas will be flush mounted to the (e) pole, with a maximum distance from the pole at approximately 7", which would be difficult to capture at 55 MPH from a motorists perspective. The antenna dimensions are the following: 7.5" wide, 24.5" in length, and 1.8" thick. The proposed dimensions for the equipment, which will be mounted to the same pole (at 7"), are 16" wide, 21" in length, and 8" thick.

Access to the project site will be via the (E) Highway 1 Caltrans ROW, per the approval provided by Caltrans.

**EXHIBIT G**

**21**

*The Lyle Company  
Representing AT&T Wireless*

### **Statement of Operations**

The proposed AT&T communication facility only requires electrical and telephone services, which are readily available to the building/site. No nuisances will be generated by the proposed facility, nor will the facility injure the public health, safety, morals or general welfare of the community. AT&T technology does not interfere with any other forms of communication devices whether public or private. Construction of this facility will actually enhance wireless communications for residents or motorists traveling along Rural Santa Cruz County by providing seamless service to numerous customers.

As mentioned before, upon completion of construction, fine-tuning of the AT&T facility may be necessary, meaning the site will be adjusted once or twice a month by a service technician for routine maintenance. No additional parking spaces are needed at the project site for maintenance activities. The site is entirely self-monitored and connects directly to a central office where sophisticated computers alert personnel to any equipment malfunction or breach of security.

Because AT&T's facility will be un-staffed, there will be no regular hours of operation and no impact to existing traffic patterns. An existing dirt road will provide ingress and egress allowing access to the technician who arrives infrequently to service the site. No on-site water or sanitation services will be required as a part of this proposal.

### **Zoning Analysis**

AT&T's proposed facility will be located within an (e) Caltrans Right-of-Way, therefore according to the County we fall outside any applicable Zoning Districts. Pursuant to the County of Santa Cruz Wireless Telecommunications Services (WTS) Facilities Siting Guidelines the proposed use is allowed subject to approval of a Level 5 Conditional Use Permit. The proposal is consistent with the County design, siting and review guidelines for commercial antenna installation. It is also important to mention we are open to collocation however, the RF criteria would be determined by another carrier. Both the Joint Pole Authority and Caltrans would have to examine placement of another carrier, where they look at the remaining space on the (e) wood pole, including a structural analysis.

Additionally, as mentioned above, the proposal includes the placement of electronic equipment which AT&T wireless has designed the base facility in the "least visual obtrusive manner". Please see the "Supplemental Information", Exhibit D, section for more in-depth analysis of Zoning as it follows your Interim Wireless Ordinance.

### **Compliance with Federal Regulations**

AT&T will comply with all FCC rules governing construction requirements, technical standards, interference protection, power and height limitations, and radio frequency standards. In addition, the company will comply with all FAA rules on site location and operation.



**AT&T**

**WIRELESS SERVICES**

**Supplemental Application Information**

**(1) Pre-Application Meeting**

The Lyle Company has met with both Jack Nelson and Frank Baron on May 21<sup>st</sup> 2003. Both planners responded well to the proposal, and no issues were raised wherein we would need to modify the proposal.

**(2) Submittal Information**

• *Corresponding letters reference Santa Cruz County Ordinance for WTS Information shall include, but not limited to, the following:*

**(i) Identity & Legal Status of the Applicant**

AT&T Wireless PCS, LLC,  
a Delaware Limited Liability Company,  
d/b/a AT&T Wireless

**(ii) Name, Address, Telephone Number**

AT&T Wireless, Inc.  
651 Gateway Blvd.  
So. San Francisco, Ca 94060  
415-559-2121

**(iii) Name, Address, Telephone Number of Owner & Agent representing the Owner**

Lyle Company, LLC  
1787 Granada Drive  
Concord, Ca 94519  
Contact Representative: Jason Osborne (415) 559-2121

**(iv) Address, Parcel Map Description. Lats/Longs**

Granite Rock Quarry/  
Caltrans ROW

36° 57' 44.21" N  
122° 04' 41.93" W NAD83

**(v) Narrative & Map of future Sites (5 Year Plan)**

The build-out **plan** of AT&T is determined by RF engineers who design the system to allow for the maximum blanketing coverage, while using the least amount of sites in the area. This limits the number of visual impacts in the area, and can potentially save AT&T money, thus **keeping** the prices of wireless services to a minimum, while still offering the same great service. AT&T has designed this current, 3G (3<sup>rd</sup> Generation), system to facilitate between thirty-three (33) to thirty-five (35) sites throughout Santa Cruz County. Preliminary research of sites have determined that approximately seventeen (17) of these sites fall within the Counties Jurisdictional control, while the remaining are spread through the City of Santa Cruz, Watsonville, and Capitola.

I have submitted, on 3.5" floppy disk, a detailed **list** and map location of AT&T sites spread throughout the County to Frank Baron.

**(vi) Wireless Services to be provided**

Benefits to the Community

Wireless technology can provide many benefits to the County of Santa Cruz residents, businesses and motorists that travel or live near the proposed project site. These benefits include:

- Quick access to 911 emergency allowing motorists to summon emergency aid and report dangerous situations.
- Support for emergency services by providing wireless communications access to paramedics, firefighters, and law enforcement agencies that use this technology.
- The ability to transmit data over the airwaves allowing for immediate access to vital information to emergency services.
- Communication capabilities in remote areas, enhancing the safety of travelers by allowing immediate access to emergency assistance.
- Provide quality wireless communications including voice, paging, digital data
- Enhance the communication **services** of those residents who conduct business and professional services for Santa Cruz County.

**(vii) California Public Utilities Commission**

AT&T Wireless is registered with the CPUC under General Order 159A

- 1) AT&T Wireless Services of California, LLC (U-3010-C)
- 2) AT&T Wireless PCS, LLC (U-3074-C)



**(viii) Federal Communications Commission**

AT&T Wireless is registered with the Telecommunications Bureau as

**Market Number:** BTA404

**Call Sign:** KNLG542

File Number: 0000030525

**(ix) FCC Compliance with NIER Standards**

i have included an EMF study, which describes NIER/EMF compliance issues regarding the proposal. This report is submitted respectively by Hammett & Edison, an outside consultant that examines the safety of Cellular installations.

**(x) Security Considerations**

The area surrounding our proposal is accessible to the general public, as it is located on Highway One (1). Normally our sires have a locked gate for access issues however; in this case we can only state our equipment will be out of reach from the Public. We are also forbidden from including a gate to protect the site, as Caltrans needs 100% access to their public ROW (Right-of-Way). We feel that the site is hidden, which not only benefits the aesthetic value, but also keeps any potential visitors from actually interfering with the equipment/antennas. The equipment/antennas will be painted brown to match the color of the (e) pole in an **effort** to mitigate potential security issues.

Federal Law also mandates that **all** areas, in compliance with FCC guidelines, shall include a ANSI compiiant RF sign in a visible place for workers approaching the site, and once construction of the site is scheduled AT&T will provide this sign.

**(xi) Facility Design Alternatives**

This project includes the installation of two **antennas**, and ancillary equipment, which will be mounted to an (e) wood utility pole **In** regards to design alternatives. our only option was to utilize a "MacroCell" site, as previously proposed over a year ago by a number of different carriers (Sprint, AT&T, and Verizon) The idea behind a 'MicroCell', is to minimize **all** visual impact from motorists. Due to the sensitive nature of this area, we feel this is the **only** design that eliminates visual impact

Therefore, the only feasible design was to use (e) wood poles located in the RON', and mount all ancillary equipment and antennas to the pole, while painting it brown to match

(xii) Other Information Required

We will submit all other information as the Planning Director or governing body may require, per the requirement stipulated in the Interim Ordinance (soon to be finalized).

(xiii) Visual Simulation Study

I have included a Photosimulation; Exhibit F, for your review, the picture is taken from the 'best' vantage point, to depict the 'true' impact of the site. They are taken a 1/8-mile due west and east. This location is not visually obtrusive to traffic, as the site blends in with the surroundings, per the intention of its design.

(xiv) Alternative Site Analysis

AT&T evaluated a number of 'MacroCell' sites in the area, which was submitted to Santa Cruz County over a year ago. The location was 5209 Coast Road, where AT&T proposed a MacroCell site on the coastal side of Highway One (I), and included three (3) equipment cabinets to operate the site. The antennas were to be located on wood cross arms however, they were proposed to extend beyond the (e) frame of the pole, see included photosimulations, and created increased visual blight compared to the proposal before you. I have included a generic map and photosimulations to reflect the alternate location.

Summary of Alternative Sites Analysis

Our goal in determining the site location was based on minimizing the cumulative impact of Cellular sites in the area. As mentioned above, numerous carriers have tried to design a cell site on the North Coast, adjacent to Highway 1, and we felt this proposal created minimal impact to the scenic area. Our proposal is located on the inland side of the Highway, which **was** recommended by Santa **Cruz** County staff during our pre-application meetings for sites in this area.

Amendment

The applicant agrees to notify within 30-days of any change of information required and submitted as part of this ordinance.

Technical Review

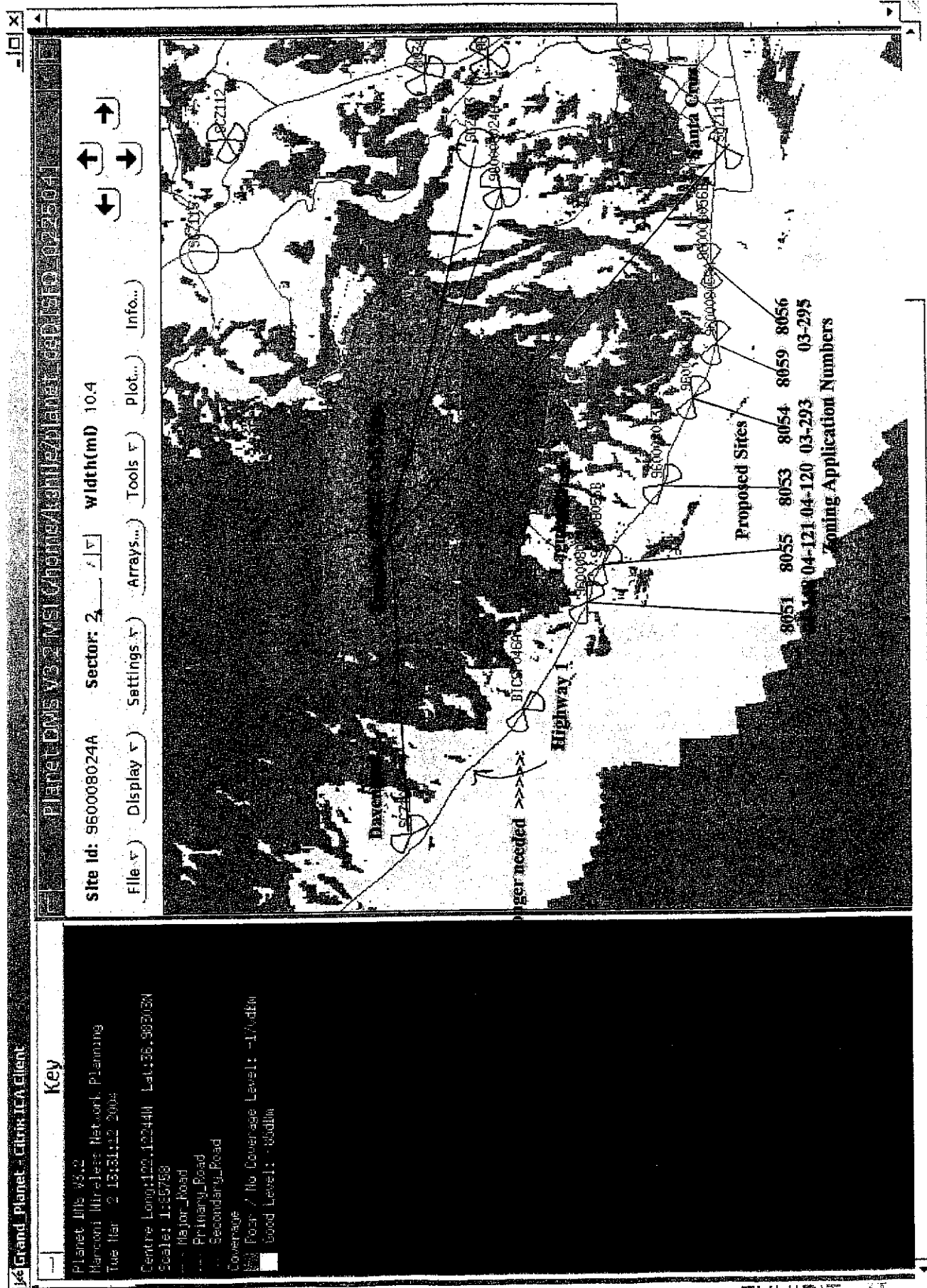
An independent technical expert, at the direction of the County of Santa Cruz and notification by, may review any technical materials submitted for review.

**Fees**

A check in the amount of **\$5000.00**, check #10641, is attached for an initial payment of processing the application submitted on behalf of AT&T wireless.



# All Existing and Planned Sites ON



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**AT&T Wireless • Proposed Base Station (Site No. 960008056B)  
650 Highway 1 • Santa Cruz, California**

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

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained by AT&T Wireless, a telecommunications carrier, to evaluate a proposed new base station (Site No. 960008056B) to be located near 650 Highway 1 in Santa Cruz, California, for compliance with appropriate guidelines limiting human exposure to radio frequency electromagnetic fields.

**Prevailing Exposure Standards**

The U.S. Congress requires that the Federal Communications Commission ("FCC") evaluate its actions for possible significant impact on the environment. In Docket 93-62, effective October 15, 1997, the FCC adopted the human exposure limits for field strength and power density recommended in Report No. 86, "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," published in 1986 by the Congressionally chartered National Council on Radiation Protection and Measurements ("NCRP"). Separate limits apply for occupational and public exposure conditions, with the latter limits generally five times more restrictive. The more recent Institute of Electrical and Electronics Engineers ("IEEE") Standard C95.1-1999, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz," includes nearly identical exposure limits. A summary of the FCC's exposure limits is shown in Figure 1. These limits apply for continuous exposures and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

The most restrictive thresholds for exposures of unlimited duration to radio frequency ("RF") energy for several personal wireless services are as follows:

Personal Wireless Service	Approx. Frequency	Occupational Limit	Public Limit
Personal Communication ("PCS")	1,950 MHz	5.00 mW/cm <sup>2</sup>	1.00 mW/cm <sup>2</sup>
Cellular Telephone	870	2.90	0.58
Specialized Mobile Radio	855	2.85	0.57
[most restrictive frequency range]	30-300	1.00	0.20

**General Facility Requirements**

Base stations typically consist of *two* distinct parts: the electronic transceivers (also called "radios" or "cabinets") 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 about 1 inch thick. Because of the short wavelength of the frequencies assigned by the FCC for wireless services, the antennas require line-of-sight paths for their signals to propagate well and so are installed at some height above ground. The antennas are designed to concentrate their energy toward the

**AT&T Wireless • Proposed Base Station (Site No. 9600080568)  
650 Highway 1 • Santa Cruz, California**

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 the power level from an energy source decreases with the square of the distance from it (the "inverse square law"). The conservative nature of this method for evaluating exposure conditions has been verified by numerous field tests.

**Site and Facility Description**

Based upon information provided by AT&T, including zoning drawings by CH2M Hill, dated June 9, 2003, it is proposed to mount two ARC Wireless Model PCS-DS-14-06514-OD directional panel antennas on an existing 47<sup>1</sup>/<sub>2</sub>-foot utility pole located west of 650 Highway 1 in Santa Cruz. The antennas would be mounted at an effective height of about 27 feet above ground and would be oriented toward 90°T and 265°T, to provide service to surrounding areas. The effective radiated power in any direction during peak operation periods would be 40 watts, representing the simultaneous operation of four channels at 10 watts each. There are reported no other wireless telecommunications base stations installed nearby.

**Study Results**

The maximum ambient RF level at any ground level location within 1,000 feet due to the proposed AT&T operation is calculated to be 0.00079 mW/cm<sup>2</sup>, which is 0.079% of the applicable public limit. It should be noted that this result includes several "worst-case" assumptions and therefore is expected to overstate actual power density levels. Figure 3 attached provides the specific data required under Santa Cruz County Code Section 13.10.659(g)(2)(ix), for reporting the analysis of RF exposure conditions.

**Recommended Mitigation Measures**

Since they are to be mounted on a tall pole, the AT&T antennas *are* not accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines.

**AT&T Wireless • Proposed Base Station (Site No. 960008056B)  
650 Highway 1 • Santa Cruz, California**

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 pole, should be allowed while the base station 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 pole 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 AT&T Wireless base station proposed near 650 Highway 1 in Santa Cruz, California, can comply with the prevailing standards for limiting human exposure to radio frequency energy and, therefore, need not for *this* reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations.

**Authorship**

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration Nos. E-13026 and M-20676, which expire on June 30, 2005. 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.

June 30, 2003



William F. Hammett, P.E.

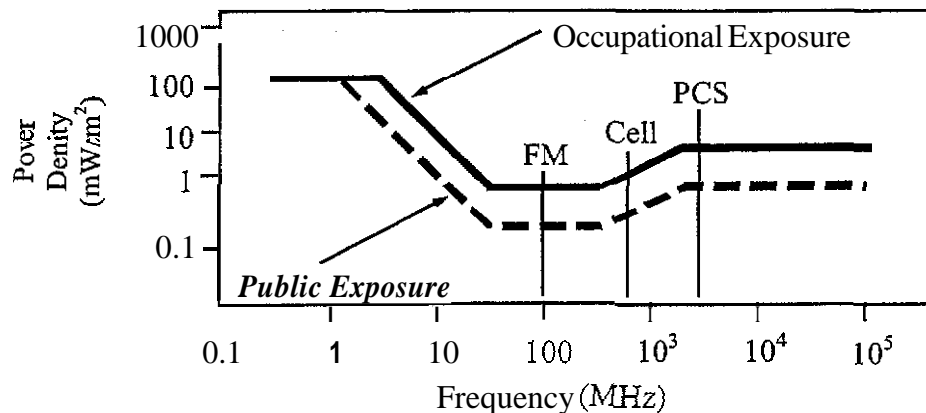
\* Warning signs should comply with ANSI C95.2 color, symbol, and content conventions. In addition, contact information should be provided (e.g., a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.

## 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, which are nearly identical to the more recent Institute of Electrical and Electronics Engineers Standard C95.1-1999, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz." These limits apply for continuous exposures from all sources and are intended to provide a prudent margin of safety for all persons, regardless of age, gender, size, or health.

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

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

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, which are nearly identical to the more recent Institute of Electrical and Electronics Engineers Standard C95.1-1999, "Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz." 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. 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 cell sites. The near field zone is the distance from an antenna before which the manufacturer's published, far field antenna patterns have formed; the near field is assumed to be in effect for increasing D until three conditions have been met:

$$1) D > \frac{2h^2}{\lambda} \qquad 2) D > 5h \qquad 3) D > 1.6\lambda$$

where h = aperture height of the antenna, in meters, and  
 $\lambda$  = wavelength of the transmitted signal, in meters

The FCC Office of Engineering and Technology Bulletin No. 65 (August 1997) gives this formula for calculating power density in the near field zone about an individual RF source:

$$\text{power density } S = \frac{180}{\theta_{BW}} \times \frac{0.1 \times P_{net}}{\pi \times D \times h}, \text{ in mW/cm}^2,$$

where  $\theta_{BW}$  = half-power beamwidth of antenna, in degrees, and  
 $P_{net}$  = net power input to the antenna, in watts.

The factor of 0.1 in the numerator converts to the desired units of power density. This formula has been built into a proprietary program that calculates the distances to the FCC public and occupational limits.

**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 ERF' (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

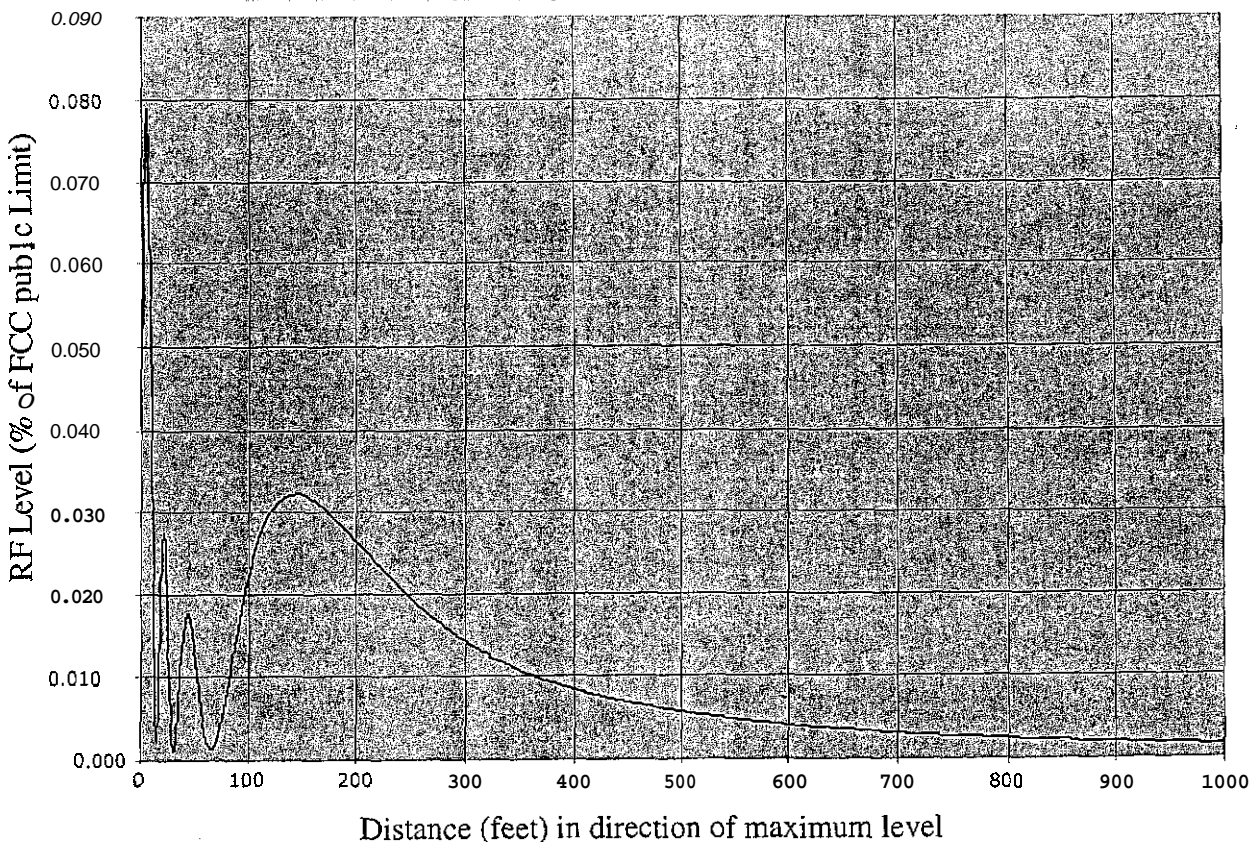
The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 ( $1.6 \times 1.6 = 2.56$ ). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired 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 at the site, to obtain more accurate projections.

**AT&T Wireless • Proposed Base Station (Site No. 960008056B)  
650 Highway 1 • Santa Cruz, California**

**Compliance with Santa Cruz County Code §13.10.659(g)(2)(ix)**

"Compliance with the FCC's non-ionizing electromagnetic radiation (NIE) standards or other applicable standards shall be demonstrated for any new wireless communication facility through submission, at the time of application for the necessary permit or entitlement, of NIE calculations specifying NIE levels in the area surrounding the proposed facility. Calculations shall be made of expected NIE exposure levels during peak operation periods at a range of distances from fifty (50) to one thousand (1,000) feet, taking into account cumulative NIE exposure levels from the proposed source in combination with all other existing NIE transmission sources within a one-mile radius. This should also include a determination of the public would be kept at a safe distance from any NIE transmission source associated with the proposed wireless communication facility, consistent with the NIE standards of the FCC, or any potential future superceding standards."

**Calculated Cumulative NIE Exposure Levels during Peak Operation Periods**



Distance (feet)	50	100	200	300	500	750	1,000
RF level (% limit)	0.013%	0.022%	0.026%	0.014%	0.0054%	0.0024%	0.0014%

Calculated using formulas in FCC Office of Engineering Technology Bulletin No. 65 (1997), considering terrain variations within 1,000 feet of site.

Maximum effective radiated power (peak operation) - 40 watts

Effective AT&T antenna height above ground - 27 feet

Other sources nearby - None

Other sources within one mile - No AM, FM, or TV broadcast stations  
No two-way stations close enough to affect compliance

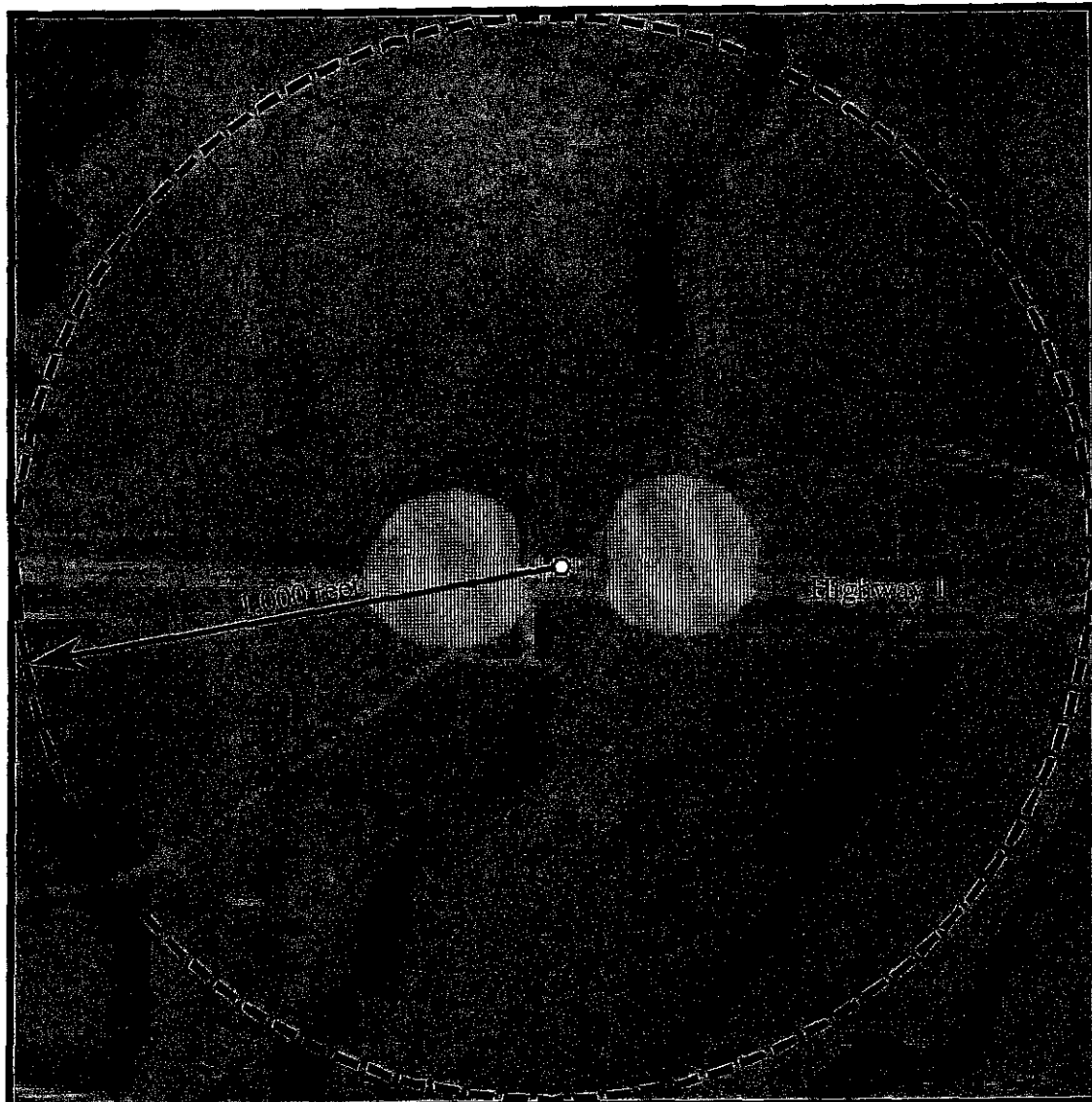
Antennas are mounted on tall pole



**HAMMETT & EDISON, INC.**  
CONSULTING ENGINEERS  
SAN FRANCISCO

AT&T Wireless • Proposed Base Station (Site No. 9600080566)  
650 Highway 1 • Santa Cruz, California

Calculated Cumulative NIER Exposure Levels  
Within 1,000 Feet of Proposed Site



Aerial photo from Mapquest.

Legend

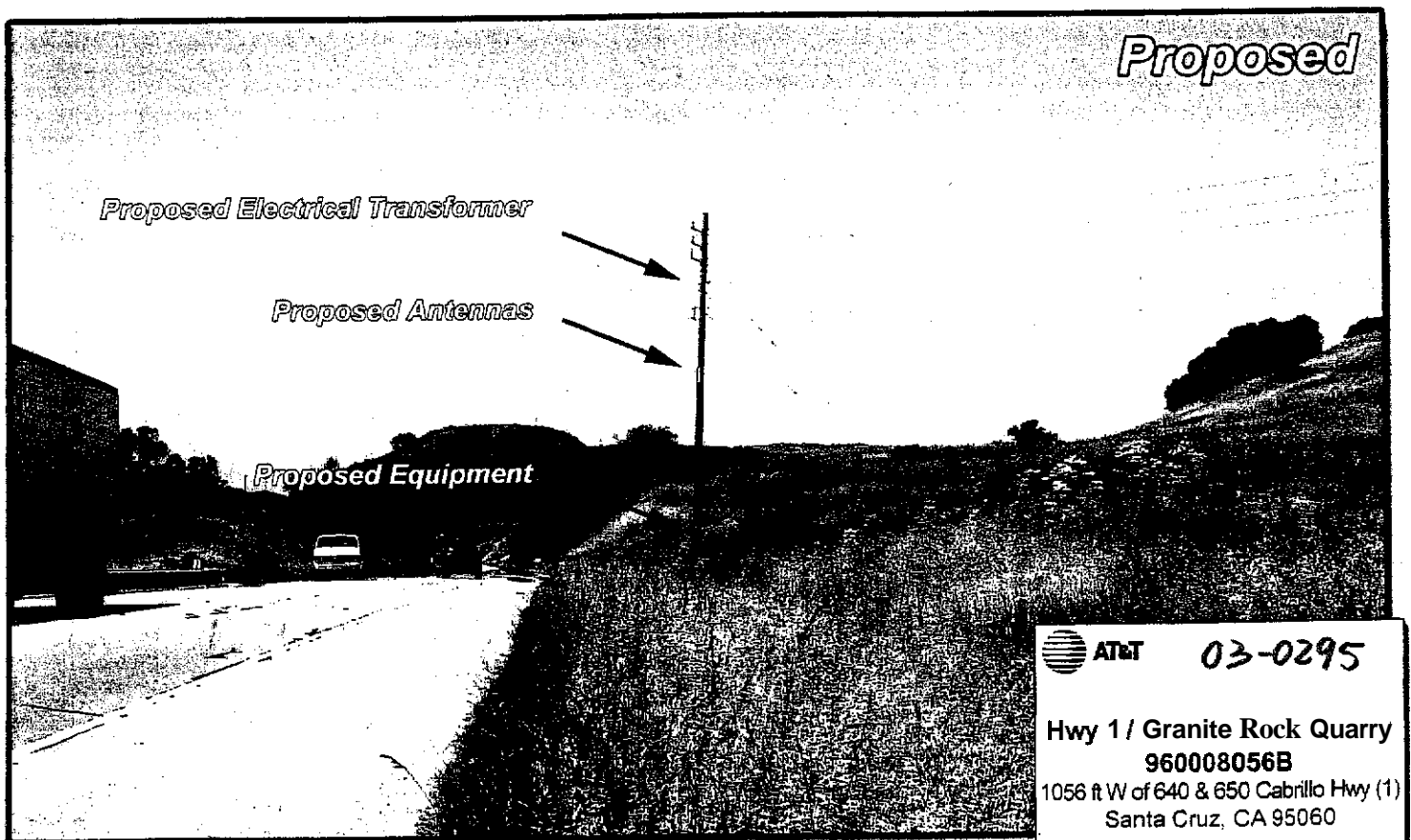
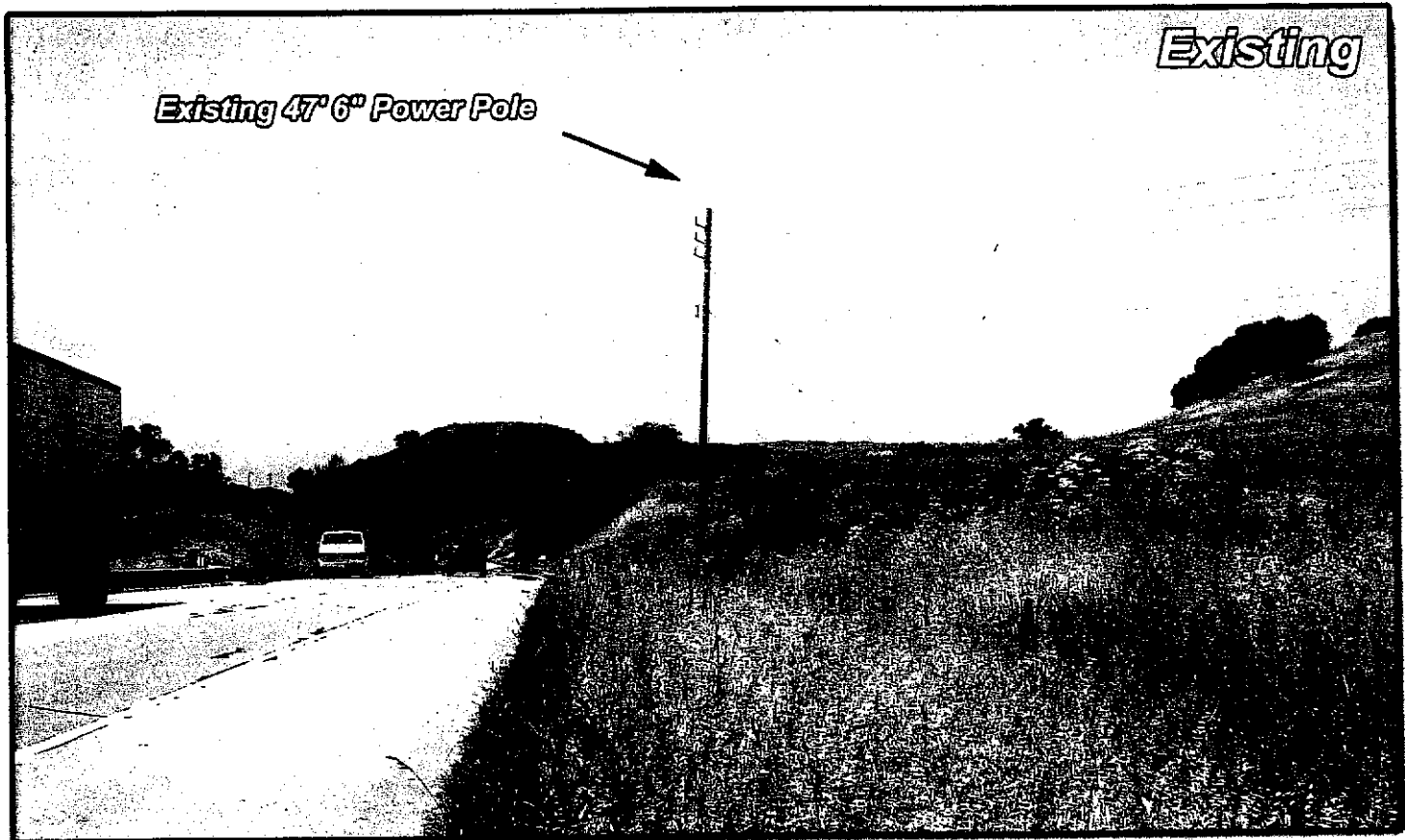
blank - less than 0.01% of FCC public limit (*i.e.*, more than 10,000 times below)  
▒ - 0.01% and above near ground level (highest level is 0.079%)


Calculated using formulas in FCC Office of Engineering Technology Bulletin No. 65 (1997), considering terrain variations within 1,000 feet of site. See text for further information.



HAMMETT & EDISON, INC.  
CONSULTING ENGINEERS  
SAN FRANCISCO

# Existing/Proposed View as seen from Hwy 1 "Northbound"- looking West



 **AT&T**    **03-0295**

**Hwy 1 / Granite Rock Quarry**  
**960008056B**  
1056 ft W of 640 & 650 Cabrillo Hwy (1)  
Santa Cruz, CA 95060

# Existing/Proposed View as seen from Hwy 1 Southbound-looking East

