Staff Report to the Zoning Administrator

Application Number: 151068

Applicant: Verizon Wireless, C/O Maria Kim, Complete Wireless Consulting
Owner: Jessie Maragoni
APN: 051-441-20

Agenda Date: 2/19/2016

Agenda Item #: 2
Time: After 9:00 a.m.

Project Description:

Proposal to install 6 panel antennas with associated equipment at the 48 foot level of an existing 91 foot tall PG&E transmission line lattice tower, including outdoor equipment and a standby generator within a 650 square foot fenced lease area on a 22 acre Commercial Agricultural (CA) zoned parcel. Requires a Commercial Development Permit and a Federal Telecom Act Exception.

Location: Property located on the northwest side of Highway 152 (East Lake Avenue) approximately 1/2 mile northeast of the Holohan Road intersection.

Supervisorial District: 4th District (District Supervisor: Caput)

Permits Required: Commercial Development Permit
Technical Reviews: None
Staff Recommendation:

- Denial of Application 151068, based on the attached findings.

Exhibits

A.	Categorical Exemption (CEQA determination)	F.	Alternative Analysis/Project Necessity Statement
B.	Findings		
C.	Project plans		
D.	Assessor's, Location, Zoning and General Plan Maps	G.	Visual Simulations
		H.	Noise Study, prepared by Bollard Acoustical Consultants, dated March 17, 2015
E.	Radio Frequency Report, Prepared by Hammett & Edison, dated January 20, 2015		

Parcel Information

Parcel Size:	22 Acres
Existing Land Use - Parcel:	Agriculture-berry production
Existing Land Use - Surrounding:	Agriculture
Project Access:	Highway 152 (East Lake Avenue)
Planning Area:	Pajaro Valley
Land Use Designation:	AG(Agriculture)
Zone District:	CA (Commercial Agriculture)
Coastal Zone:	__ Inside _x_ Outside
Appealable to Calif. Coastal Comm.	__ Yes _x_ No

Environmental Information

Geologic Hazards:	Not mapped/no physical evidence on site
Soils:	N/A
Fire Hazard:	Not a mapped constraint
Slopes:	Site is flat
Env. Sen. Habitat:	Although the site is mapped for biotic resources, Environmental Planning staff indicated that there is no physical evidence of resources on site
Grading:	No grading proposed
Tree Removal:	No trees proposed to be removed
Scenic:	Not a mapped resource
Drainage:	Existing drainage adequate
Archeology:	Not mapped/no physical evidence on site

Services Information

Urban/Rural Services Line:	__ Inside _x_ Outside
Water Supply:	Pajaro Valley Water Management Agency
Sewage Disposal:	Septic
Fire District:	Pajaro Valley Fire Protection District
Drainage District:	Zone 7

Project Setting

The subject property is a parcel of approximately 22 acres in size, located on the northeast side of Highway 152 and in the CA (Commercial Agricultural) zone district. The entire property is developed with berry crops that are covered by hoop houses with exception of agricultural access roads, and residential development and a field equipment storage area located in the eastern portion of the site.

Overhead utility lines cross the subject property on the south central portion of the site from the northwest to the southeast. An existing 91 foot PG&E transmission tower is situated approximately 150 feet northwest of Highway 152.

Project Description

The applicant proposes to locate 6 wireless antennas at approximately the 48 foot elevation point on the existing PG&E tower and under the 50 foot elevation overall. The wireless communication facility includes three pairs of two antennas around the tower, with associated radio units and surge protectors attached behind the antennas.

An approximately 1,750 square foot area of berry crops is proposed to be removed for development of a proposed 650 square foot ground equipment lease area at the base of the existing tower. The equipment enclosure is approximately 16 feet by 34 feet in dimension within the lease area. The equipment enclosure includes four proposed equipment cabinets with internal cooling fans, and a 30 kilowatt generator with a 132 gallon fuel tank, and other associated wireless equipment.

Zoning & General Plan Consistency

Pursuant to County Code Section 13.10.661 (A) (Wireless Communications Ordinance), all new wireless communication facilities are required to obtain a commercial development permit with approval by the Zoning Administrator.

Proposed TCA Exception For WCF Being Located on Property Zoned "CA"

A Federal Telecom Act Exception is needed to allow the location of the proposed WCF on a parcel that is zoned Commercial Agriculture (CA), which is one of the "prohibited" zone districts as per the County's WCF Ordinance, which states that WCFs cannot be constructed in "prohibited areas" except as follows (as per Sec. 13.10.661(b)(4)):

> "If a Telecommunications Act Exception is approved pursuant to Section 13.10.668(a) that allows for siting a wireless communications facility within any of the ....prohibited areas, then such facility shall comply with the remainder of Sections 13.10.660 through 13.10.668 inclusive, and shall be co-located. Applicants proposing new wireless communication facilities in any of the above-listed prohibited areas must submit as part of their application an Alternatives Analysis, as described in Section 13.10.662(c) below. Non-collocated wireless communication facilities may be sited in the prohibited areas listed above only in situations where the applicant can prove that:
>
> (i) The proposed wireless communication facility would eliminate or substantially reduce one or more significant gaps in the applicant carrier's network; and
>
> (ii) There are no viable, technically feasible, and environmentally (e.g., visually) equivalent or superior potential alternatives (i.e., sites and/or facility types and/or designs) outside the prohibited areas identified in Section 13.10.661(b) that could eliminate or substantially reduce said significant gap(s).
>
> Any wireless communications facility and any associated development allowed in a prohibited area: (1) shall be sited and designed so that it is not visible from public vantage points to the maximum extent feasible; or (2) where some portion or all of such a facility and/or any associated development is unavoidably sited and/or

designed in a manner that makes it visible from public vantage points (and cannot be sited and/or designed to not be visible), that portion shall be screened and/or camouflaged so that it is inconspicuous and designed to blend seamlessly into the existing public view."

The applicant has submitted information indicating that the proposed WCF location is necessary to close a "significant gap" in the carrier's (Verizon's) network, and evidence indicating that only one of the potential sites is located in a permitted district and then this site is not viable. Only two sites were identified that were both technically feasible and viable. Of these two, one is located in a prohibited zone district (CA) requiring construction of a new wireless facility tower with potentially more visual impacts than the proposed facility and the other is located in a restricted zone district (PF-L) requiring a new facility and resulting in significantly more visual impacts than the proposed co-location facility. Restricted districts only allow facilities where the project will not result in significantly more visual impacts.

Of all potential alternative sites, the proposed site is the only viable and technically feasible macro cell alternative that minimizes visual impacts because it is proposed on an existing utility tower and does not require construction of a new wireless tower. Notwithstanding, the alternative analysis does not evaluate if there are other feasible alternatives such as micro cell options available to the carrier that would preclude the request to locate in a prohibited zone district. This would include small cell facilities located on power poles. In addition, the ordinance requires that the applicant identify two alternatives that are both technically feasible and viable that are located outside the prohibited zone district.

Commercial Agriculture Findings

Pursuant to County Code Section 13.10.314, all uses located within the Commercial Agricultural zone district are required to include special agricultural findings. These findings require that the proposed use will "enhance and support the continued operation of commercial agriculture on the parcel and will not reduce, restrict or adversely affect agricultural resources or the economic viability of commercial agricultural operations, of the area". Furthermore, the project is required "to remove no land from production (or potential production) if any non-farmable potential building site is available or if this is not possible, to remove as little land as possible from production. As proposed, the project does not meet these requirements. There are two areas on the subject property that are available to locate the equipment enclosure that will not require the removal of agricultural land. The lack of a current lease agreement for this area is not a sufficient reason to waive this requirement.

Recommended Project Revisions

A revised alternative analysis is recommended to be submitted that meets all the wireless code requirements in order for a determination that a Telecom Act Exception may be granted for the prohibited zone district. If a Telecom Act Exception is determined to be appropriate, the project is still recommended to comply with the Zone District standards, including Commercial Agriculture provisions intended to protect farmland. Project revisions include relocating the equipment enclosure to the east of the subject property as there is space available for the enclosure in this area meeting the CA zone district setbacks that would not require removal of crops. This should include landscaping the enclosure with drought tolerant landscaping. In addition, the noise study is required to address the revised equipment enclosure location to ensure compliance with the General Plan noise standards at the property line. Plans are also

recommended to include any noise attenuation design requirements.

Conclusion

The project, as proposed, is inconsistent with the wireless regulations and commercial agriculture regulations 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. The applicant is recommended to submit an application meeting the recommended project revisions noted.

Staff Recommendation

- **DENIAL** of Application Number 151068, based on the attached findings.

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

Report Prepared By: Sheila McDaniel
Santa Cruz County Planning Department
701 Ocean Street, 4th Floor
Santa Cruz CA 95060
Phone Number: (831) 454-2255
E-mail: Sheila.mcdaniel@santacruzcounty.us

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: 151068
Assessor Parcel Number: 051-441-20
Project Location: Property located on the northwest side of Highway 152 (2535 East Lake Avenue) approximately ½ mile northeast of the Holohan Road intersection.

Project Description: Proposal to install 6 panel antennas with associated equipment at the 48 foot level of an existing 91 foot tall PG&E transmission line lattice tower, including outdoor equipment and a standby generator within a 650 square foot fenced lease area on a 22 acre Commercial Agricultural (CA) zoned parcel. Requires a Commercial Development Permit and a Federal Telecom Act Exception.

Person or Agency Proposing Project: Maria Kim, Complete Wireless (for Verizon Wireless)

Contact Phone Number: (916) 247-6087

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).

E. __X__ **Categorical Exemption**

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

F. Reasons why the project is exempt:

Construction of a wireless communication facility attached to an existing 91 foot PG&E transmission line lattice tower with ground mounted equiment enclosure is not anticipated to generate any environmental impacts.

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

_____ Date:_____
Sheila McDaniel, Project Planner

EXHIBIT A

Revised Agricultural Development Findings

1. That the establishment or maintenance of this use will enhance or support the continued operation of commercial agriculture on the parcel and will not reduce, restrict or adversely affect agricultural resources, or the economic viability of commercial agricultural operations, of the area.

This finding cannot be made for project approval. The subject property is a fully developed commercial agriculture operation containing berry crops within hoop houses. The proposed wireless facility antennas are proposed on an existing PG&E transmission line lattice tower located in the central portion of the property. These improvements would not affect the agricultural operation and would provide economic support the agricultural property owner and, in turn, the continued agricultural operations at this location. However, an approximately 1,750 square foot area of berry crops is proposed to be removed for development of a proposed 650 square foot ground equipment lease area at the base of the existing tower. The project lease area and electrical conduit, extending from the lease area to the tower, requires removal of fully established berries that will result in the permanent conversion of agricultural land, a principal permitted use, to a non-agricultural activity. This activity will reduce, restrict and adversely affect current and future agricultural operations on the subject property and reduce the potential economic viability of the current commercial agricultural operation. The removal of existing crop area for development of an equipment enclosure is in conflict with this finding, in accordance with General Plan Policy 5.13.5, which requires CA zoned property be "maintained exclusively for long-term commercial agricultural uses. Allow principal permitted uses in the CA Zone District to include only agricultural pursuits for the commercial cultivation of plant crops, including food, flower, and fiber crops and raising of animals including grazing and livestock production and, outside the coastal zone, timber harvesting operations".

Furthermore, provided that a telecom act exception can be granted, pursuant to an accepted alternative analysis, there are two locations on the perimeter of subject property that do not require the removal of crops that are available for the proposed ground equipment area that would result in no crop removal. General Plan Policy 5.13.6 requires that uses are sited to avoid conflicts with the principal agricultural activities in the area and sited to avoid, where possible, or otherwise minimize the removal of land from agricultural production. The proposed use does not minimize the loss of agricultural land.

2 (a). That the use or structure is ancillary, incidental or accessory to the principal agricultural use of the parcel or that no other agricultural use is feasible for the parcel; or

This finding cannot be made for the proposed project. The current use on the property is berry crops. While the proposed project is incidental to a principal permitted agricultural use in that wireless facilities are specifically called out as an allowed use within the Commercial Agriculture Zone district pursuant to County Code Section 13.10.312, a portion of the proposed wireless use (equipment enclosure) would displace row crops when other locations exist where agricultural operations are less feasible. These areas are located at the perimeter of the fields in an area of roadway access and residential development. These areas are more appropriate for the proposed use and less feasible for agricultural activity.

2 (b). That no other agriculture use if feasible for the parcel; or

This finding does not apply to the project.

2 (c). That the use consists of an interim public use which does not impair long-term agricultural viability or consists of a permanent public use that will result in the production of recycled wastewater solely for agricultural irrigation and that limits and mitigates the impacts of facility construction on agriculture consistent with the requirements of SCCC 13.10.635; or

This finding does not apply to the project.

3. That single-family residential uses will be sited to minimize conflicts, and that all other uses will not conflict with commercial agricultural activities on site, where applicable, or in the area.

The project does not include single family residential uses. This finding does not apply to the proposed project.

4. That the use will be sited to remove no land from production (or potential production) if any non-farmable potential building site is available, or if this is not possible, to remove as little land as possible from production.

This finding cannot be made. There are alternate locations at either end of the property in an unfarmed area of the property for the proposed equipment enclosure that would result in removal of less agricultural land from production.

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 cannot be made, in that the project is located in a zoning district (Commercial Agriculture) that prohibits wireless communication facility (WCF) uses unless a telecom act exception can be granted for the proposed use. County Code Section 13.10.661.B(4) (b) (Exceptions to Prohibited Areas Prohibition) requires that "no viable, technically feasible, and environmentally (e.g. visually) equivalent or superior potential alternatives (i.e., sites and/or facility types and/or designs) outside the prohibited areas identified in subsection B (prohibited areas) of this section that could eliminate or substantially reduce said significant gap(s). Thus, a telecom exception cannot be granted as the required alternative analysis does not fully comply with the wireless ordinance requirements as it does not evaluate all technical options, such as microcells located on power poles, available to avoid potential location in this prohibited district.

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 cannot be made, in that the project is located in a zoning district (Commercial Agriculture) that prohibits wireless communication facility (WCF) uses unless a Telecom Act Exception can be granted for the proposed use. A telecom exception can only be granted if the required alternative analysis proves that there are no other options available to avoid location in a prohibited district. The alternative analysis did not evaluate whether micro cell options or other options are available to the wireless carrier.

See also agricultural findings.

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 WCF use is not consistent with the Policy 5.13.6 of the General Plan (Conditional uses on Commercial Agricultural zoned lands as the project is not designed to minimize conflicts with existing agricultural operations and does not avoid or minimize the removal of land from agriculture.

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 WCF is to be constructed on an existing 22 acre agricultural parcel, and that there is not expected to be any additional traffic generated by the proposed WCF project, thus the project will not adversely impact existing roads or intersections in the surrounding area.

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 project is located in a rural/agricultural area containing an agricultural land uses and agriculturally-related structures, including an existing utility tower. The proposed antennas would be located on the existing utility tower and be compatible with the character of the utility tower. The proposed WCF would be consistent with that context, and will blend-in seamlessly. The proposed equipment enclosure would not be visible to surrounding uses and be compatible.

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 wireless facility is located on an existing utility tower and blends in with the existing visual character of structure. The proposed equipment enclosure will not be visible from adjacent properties.

ZD DRAWING SIGN-OFF

DATE: TIME: % CWC-PLEASE RETURN BY:

COMPLETE Wireless Consulting, Inc.

	SIGNATURE	DATE
SITE ACQUISITION:		
PLANNING:		
CONSTRUCTION:		
MANAGEMENT:		

verizon WIRELESS

	SIGNATURE	DATE
CONSTRUCTION:		
REAL ESTATE:		
RF ENGINEER:		
EQUIPMENT ENGINEER:		
MW ENG./TRANSPORT:		

OTHER (IF APPLICABLE)

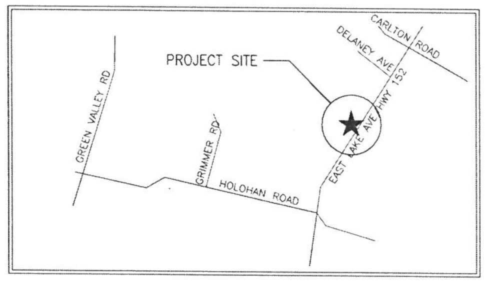
SIGNATURE	DATE

verizon WIRELESS

2785 Mitchell Drive, Walnut Creek, CA 94598

SANTA CRUZ FAIRGROUNDS

2535 EAST LAKE AVENUE
WATSONVILLE, CA 95076
APN: 051-441-20
SAP #: 40618383 VZN #: 280016
TOWER #: 012/070 MOSS LANDING-GREEN VALLEY #1, 115kV LINE



LOCATION PLAN

DIRECTIONS

FROM VERIZON OFFICE @ 2785 MITCHELL DRIVE, WALNUT CREEK, CA 94598:

1. HEAD NORTHEAST ON MITCHELL DR TOWARD OAK GROVE RD
2. TAKE THE 1ST LEFT ONTO OAK GROVE RD
3. TURN LEFT ONTO TREAT BLVD
4. TURN RIGHT ONTO N MAIN ST
5. TURN RIGHT ONTO THE INTERSTATE 680 S RAMP TO OAKLAND/SAN JOSE
6. MERGE ONTO I-680 S
7. TAKE THE EXIT ONTO US-101 S TOWARD LOS ANGELES
8. TAKE THE TENNANT AVE EXIT
9. TURN RIGHT ONTO TENNANT AVE
10. TURN LEFT ONTO BUTTERFIELD BLVD
11. CONTINUE ONTO WATSONVILLE RD
12. TURN RIGHT TO STAY ON WATSONVILLE RD
13. TURN RIGHT ONTO CA-152 W

DESTINATION WILL BE ON THE RIGHT

INDEX OF DRAWINGS

1.	T1.1	TITLE SHEET, LOCATION PLAN, PROJECT DATA
2.	C1	CIVIL SURVEY SHEET
3.	A1.1	OVERALL SITE PLAN, ENLARGED SITE PLAN
4.	A2.1	ENLARGED EQUIPMENT LAYOUT PLAN
5.	A2.2	ANTENNA LAYOUT PLAN
6.	A3.1	PROJECT ELEVATIONS

PROJECT DIRECTORY

APPLICANT:
VERIZON WIRELESS
2785 MITCHELL DRIVE
WALNUT CREEK, CA 94598

PROPERTY OWNER:
PACIFIC GAS & ELECTRIC
245 MARKET STREET 10TH FLOOR N10D
SAN FRANCISCO, CA 94105

ARCHITECT:
MANUEL S. TSIHLAS
MST ARCHITECTS, INC.
1520 RIVER PARK DRIVE
SACRAMENTO, CA 95815
916-567-9630
manuel@mstarchitects.com

CONSTRUCTION MANAGER:
SERJIO CABRERA
COMPLETE WIRELESS CONSULTING, INC.
2009 V STREET
SACRAMENTO, CA 95818
916-217-9219
scabrera@completewireless.net

PROJECT SUMMARY

ASSESSOR'S PARCEL NUMBER: 051-441-20
JURISDICTION: SANTA CRUZ COUNTY
OCCUPANCY: S-2 (UNMANNED TELECOMMUNICATIONS FACILITY) U (TOWER)
TYPE OF CONSTRUCTION: V-B
ZONING: COMMERCIAL AGRICULTURAL (CA)

CODE COMPLIANCE

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

2013 CALIFORNIA BUILDING STANDARDS CODE, TITLE 24, CALIFORNIA CODE OF REGULATIONS INCLUDING SUPPLEMENTS EFFECTIVE JULY 1, 2015

PART 1	CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE
PART 2	CALIFORNIA BUILDING CODE
PART 2.5	CALIFORNIA RESIDENTIAL BUILDING CODE
PART 3	CALIFORNIA ELECTRICAL CODE
PART 4	CALIFORNIA MECHANICAL CODE
PART 5	CALIFORNIA PLUMBING CODE
PART 6	CALIFORNIA ENERGY CODE
PART 8	CALIFORNIA HISTORICAL BUILDING CODE
PART 9	CALIFORNIA FIRE CODE
PART 10	CALIFORNIA EXISTING BUILDING CODE
PART 11	CALIFORNIA GREEN BUILDING STANDARDS CODE
PART 12	CALIFORNIA REFERENCE STANDARDS CODE

LOCAL COUNTY OR CITY ORDINANCES

ACCESSIBILITY REQUIREMENTS: THIS FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. ACCESSIBILITY NOT REQUIRED IN ACCORDANCE WITH THE 2013 CBC 11B-203.5, AND 11B-202.4 EXCEPTION 7.

PROJECT DESCRIPTION

PROPOSED VERIZON WIRELESS UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING:

- A 650 SQ. FT. LEASE AREA.
- A FENCE @ LEASE AREA PERIMETER.
- OUTDOOR EQUIPMENT.
- UNDERGROUND POWER & TELCO UTILITIES TO SITE.
- A STANDBY GENERATOR.
- UL2085 FUEL STORAGE TANK
- (6) ANTENNAS W/ASSOCIATED EQUIPMENT MOUNTED ON AN EXISTING PG&E TRANSMISSION TOWER.

PROJECT MILESTONES

05/12/2014	90% ZONING DOCUMENTS
06/23/2014	100% ZONING DOCUMENTS
09/19/2014	100% ZONING DOCUMENTS REV1
12/22/2014	100% ZONING DOCUMENTS REV2
01/15/2015	100% ZONING DOCUMENTS REV3
01/26/2015	100% ZONING DOCUMENTS REV4
02/18/2015	100% ZONING DOCUMENTS REV5
02/26/2015	100% ZONING DOCUMENTS REV6
09/08/2015	90% ZONING DOCUMENTS: ODE
11/03/2015	100% ZONING DOCUMENTS: ODE
XX/XX/XXXX	90% CONSTRUCTION DOCUMENTS
XX/XX/XXXX	100% CONSTRUCTION DOCUMENTS

COMPLETE Wireless Consulting, Inc.

MST ARCHITECTS
1520 River Park Drive, Sacramento, CA 95815
916-567-9630
www.MSTArchitects.com

verizon WIRELESS
SANTA CRUZ FAIRGROUNDS
2535 EAST LAKE AVENUE
WATSONVILLE, CA 95076

SHEET TITLE:
TITLE SHEET, LOCATION PLAN, PROJECT DATA

Revisions:
△ --
△ --
△ --
△ --
△ --

File: 162.974_T11.dwg
Drawn By: JCE
Checked By: MST
Scale: AS NOTED
Date: 09/08/15

Job No. 162.974

T1.1

EXHIBIT C

VERIZON WIRELESS
SANTA CRUZ FAIRGROUNDS LICENSE AREA

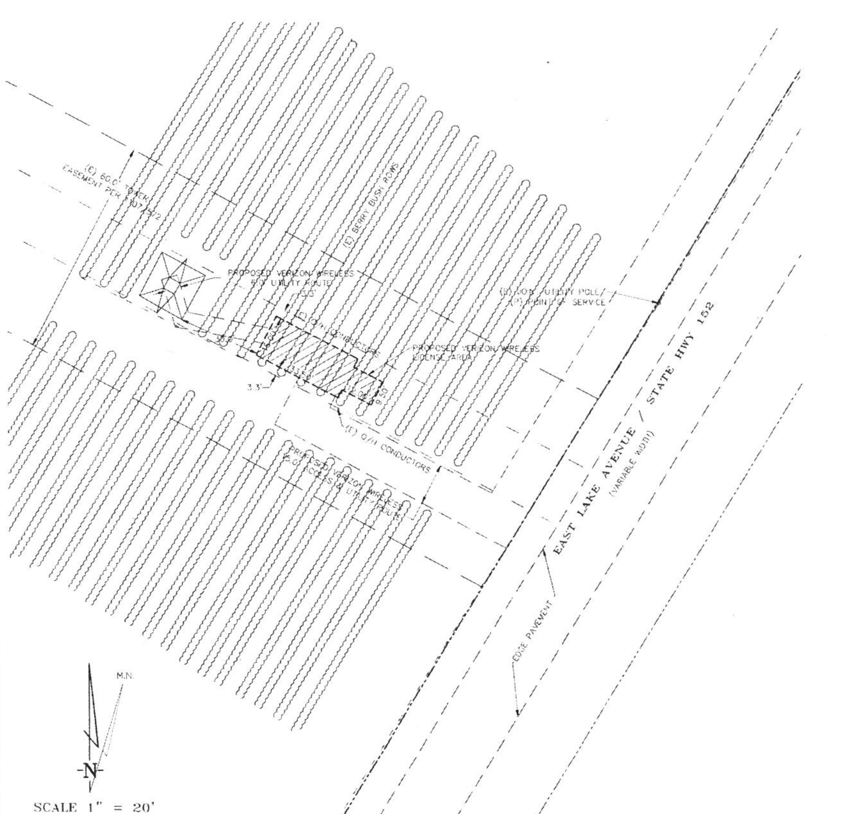
ALL THAT CERTAIN LICENSE AREA BEING A PORTION OF PARCEL OF LAND DESCRIBED IN DOCUMENT NUMBER 2009-0002617 OFFICIAL RECORDS OF SANTA CRUZ COUNTY, STATE OF CALIFORNIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST MOST CORNER OF THE AFOREMENTIONED PARCEL; THENCE ALONG THE SOUTHEASTERLY BOUNDARY THEREOF SOUTH 32°08'08" WEST 596.56 FEET, SOUTH 31°46'48" WEST 244.95 FEET; THENCE LEAVING SAID SOUTHEASTERLY BOUNDARY NORTH 58°11'12" WEST 69.53 FEET TO THE TRUE POINT OF BEGINNING; THENCE FROM SAID POINT OF BEGINNING SOUTH 27°25'01" WEST 9.50 FEET; THENCE NORTH 62°34'59" WEST 12.00 FEET; THENCE SOUTH 27°25'01" WEST 3.25 FEET; THENCE NORTH 62°34'59" WEST 33.50 FEET; THENCE NORTH 27°25'01" EAST 16.00 FEET; THENCE SOUTH 62°34'59" EAST 33.50 FEET; THENCE SOUTH 27°25'01" WEST 3.25 FEET; THENCE SOUTH 62°34'59" EAST 12.00 FEET TO THE POINT OF BEGINNING.

TOGETHER WITH A ROUTE FOR UTILITY PURPOSES SIX FEET IN WIDTH THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE NORTHWEST BOUNDARY OF THE ABOVE DESCRIBED LICENSE AREA WHICH BEARS SOUTH 62°34'59" WEST 8.00 FEET FROM THE NORTH MOST CORNER THEREOF; THENCE FROM SAID POINT OF BEGINNING NORTH 79°41'51" WEST 31.4 FEET TO AN EXISTING ELECTRICAL TRANSMISSION TOWER; THENCE ON SAID TOWER AS NECESSARY FOR THE PLACEMENT OF CELLULAR ANTENNAS AND APPURTENANCES.

ALSO TOGETHER WITH A ROUTE FOR ACCESS AND UTILITY PURPOSES, FIFTEEN FEET IN WIDTH, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS: BEGINNING AT A POINT ON THE SOUTHWEST BOUNDARY OF THE ABOVE DESCRIBED LICENSE AREA WHICH BEARS SOUTH 62°34'59" EAST 25.0 FEET FROM THE WEST MOST CORNER THEREOF; THENCE FROM SAID POINT OF BEGINNING SOUTH 27°25'01" WEST 12.00 FEET; THENCE SOUTH 62°34'59" EAST 88.2 FEET MORE OR LESS TO THE PUBLIC RIGHT OF WAY.

ALSO TOGETHER WITH A ROUTE FOR ACCESS AND UTILITY PURPOSES OVER AND ACROSS THE SOUTHEASTERLY 15.00 FEET OF THE NORTHERLY 868.5 FEET OF THE AFOREMENTIONED PARCEL OF LAND DESCRIBED IN DOCUMENT NUMBER 2009-0002617 OFFICIAL RECORDS OF SANTA CRUZ COUNTY.



LEASE AREA DETAIL

Project Name: Santa Cruz Fairgrounds

Project Site Location: 2535 E. Lake Avenue
Watsonville, CA 95076
Santa Cruz County

Date of Observation: 04-22-14

Equipment/Procedure Used to Obtain Coordinates: Trimble Pathfinder GeoXT post processed with Pathfinder Office software.

Type of Antenna Mount: Existing Transmission Tower

Coordinates (Centerline Lease Area)
Latitude: N 36°56'43.98" (NAD83) N 36°56'44.15" (NAD27)
Longitude: W 121°44'16.00" (NAD83) W 121°44'12.05" (NAD27)

ELEVATION of Ground at Structure (NAVD88) 99' AMSL
Height of Structure: 91.0' AGL

DATE OF SURVEY: 04-24-14

SURVEYED BY OR UNDER DIRECTION OF: KENNETH D. GEIL, RCE 14803

LOCATED IN THE COUNTY OF SANTA CRUZ, STATE OF CALIFORNIA

BEARINGS SHOWN ARE BASED UPON MONUMENTS FOUND AND RECORD INFORMATION. THIS IS NOT A BOUNDARY SURVEY.

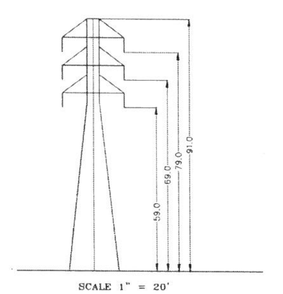
ELEVATIONS SHOWN ON THIS PLAN ARE BASED UPON U.S.G.S. N.A.V.D. 88 DATUM, ABOVE MEAN SEA LEVEL UNLESS OTHERWISE NOTED.

N.G.V.D. 1929 CORRECTION: SUBTRACT 2.87' FROM ELEVATIONS SHOWN.

CONTOUR INTERVAL: N.A.

ASSESSOR'S PARCEL NUMBER: 051-441-20

LANDLORD(S): PACIFIC GAS & ELECTRIC
245 MARKET ST. 10TH FLOOR N10D
SAN FRANCISCO, CA 94105



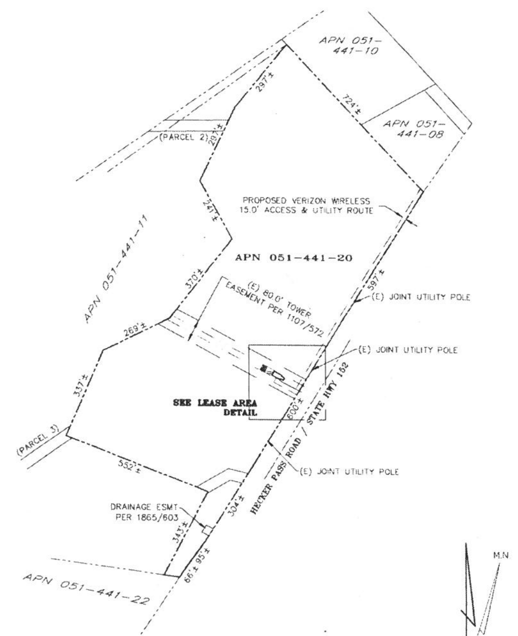
TOWER DIAGRAM

WATSONVILLE, CA

VICINITY MAP

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE, ARE THE EXCLUSIVE PROPERTY OF GEIL ENGINEERING AND THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE AND CARRIER FOR WHICH THEY ARE PREPARED. REUSE, REPRODUCTION OR PUBLICATION BY ANY METHOD, IN WHOLE OR IN PART, IS PROHIBITED EXCEPT BY WRITTEN PERMISSION FROM GEIL ENGINEERING. TITLE TO THESE PLANS AND/OR SPECIFICATIONS SHALL REMAIN WITH GEIL ENGINEERING WITHOUT PREJUDICE AND VISUAL CONTACT WITH THEM SHALL CONSTITUTE PRIMA FACIE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

TITLE HAS NOT BEEN REVIEWED FOR THIS PROJECT. BOUNDARY SHOWN IS BASED ON MONUMENTATION FOUND AND RECORD INFORMATION. THIS IS NOT A BOUNDARY SURVEY. THIS IS A SPECIALIZED TOPOGRAPHIC MAP WITH PROPERTY LINES AND EASEMENTS BEING A GRAPHIC DEPICTION BASED ON INFORMATION GATHERED FROM VARIOUS SOURCES OF RECORD AND AVAILABLE MONUMENTATION FOUND DURING THE FIELD SURVEY. NO EASEMENTS WERE RESEARCHED OR PLOTTED. PROPERTY LINES AND LINES OF TITLE WERE NOT INVESTIGATED NOR SURVEYED. NO PROPERTY MONUMENTS WERE SET.



SCALE 1" = 200'

OVERALL PROJECT AREA

DEPT	APPROVED	DATE
A&C		
RE		
RF		
INT		
EE/IN		
OPS		
LL/OUT		

Surveyor

GEIL ENGINEERING
ENGINEERING • SURVEYING • PLANNING
1226 HIGH STREET
AUBURN, CALIFORNIA 95603
phone: (530) 885-0426
fax: (530) 823-1309

Santa Cruz
Fairgrounds
2535 E. Lake Avenue
Watsonville, CA 95076

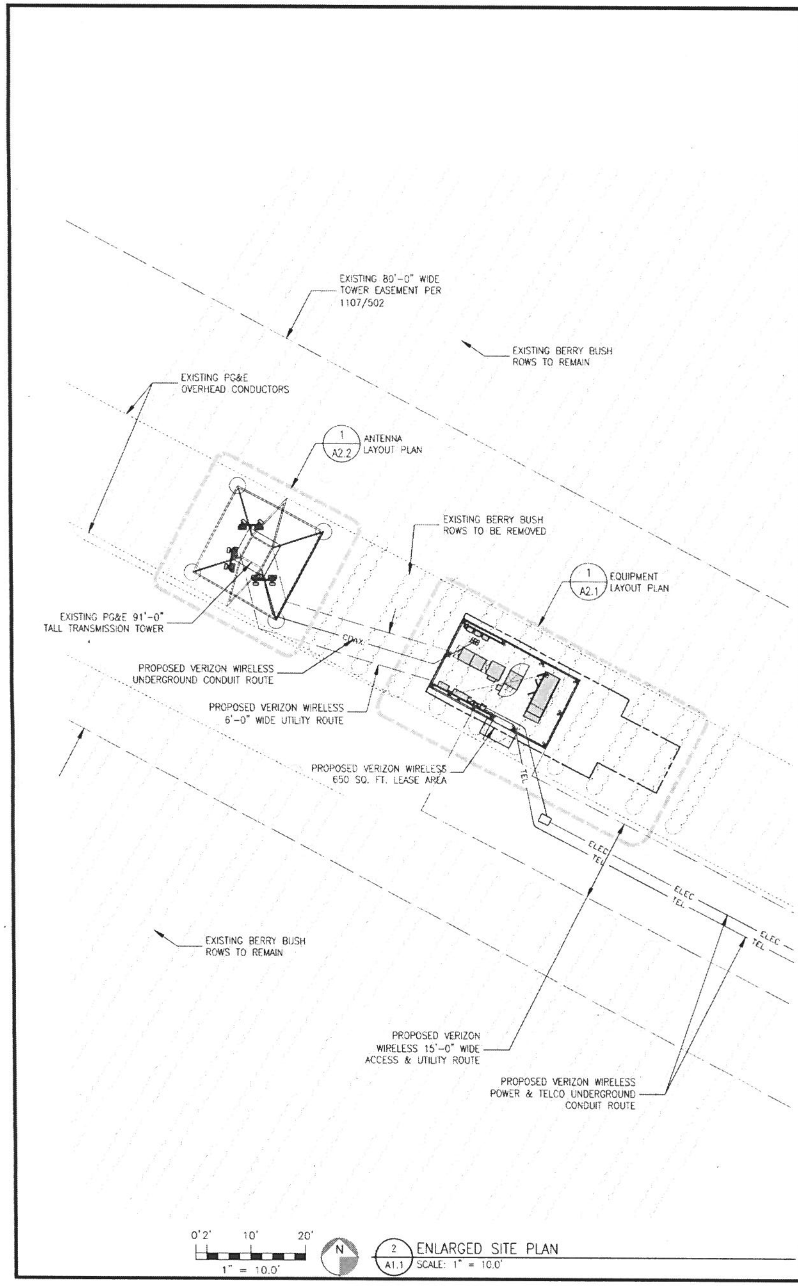
PLOT PLAN AND
SITE TOPOGRAPHY

REVISIONS

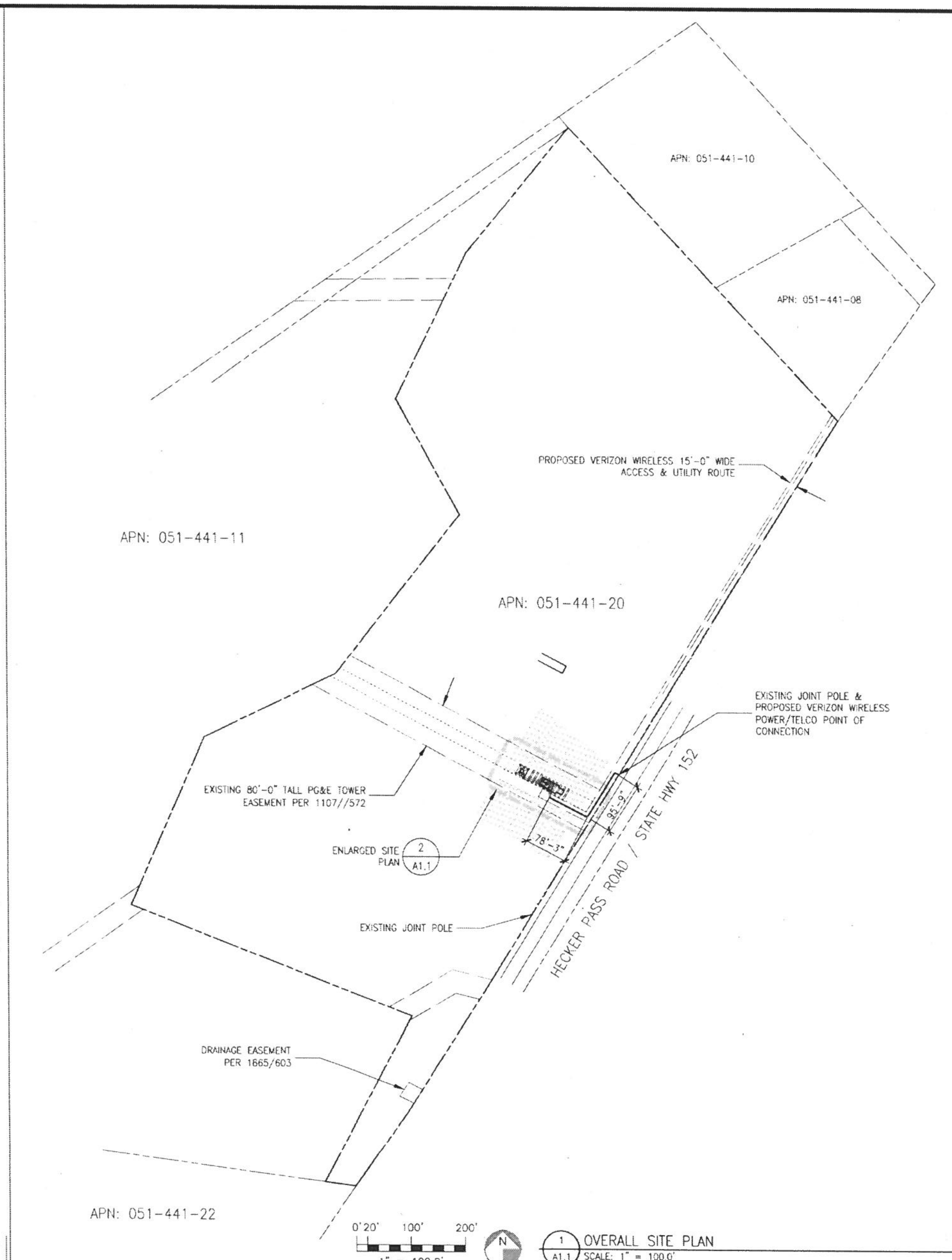
REV	05-04-14 DG	Preliminary Drawing	REV	
REV	05-13-14 DG	mod. lease area	REV	
REV	09-18-14 DG	license to lease	REV	
REV	12-18-14 DG	lease to license	REV	
REV			REV	

Sheet
C-1

EXHIBIT C



2 A1.1 ENLARGED SITE PLAN
SCALE: 1" = 10.0'



1 A1.1 OVERALL SITE PLAN
SCALE: 1" = 100.0'

MST ARCHITECTS
1520 River Park Drive, Sacramento, CA 95815
916-567-9630
www.MSTArchitects.com

COMPLETE Wireless Consulting, Inc.

verizon WIRELESS

SANTA CRUZ FAIRGROUNDS
2535 EAST LAKE AVENUE
WATSONVILLE, CA 95076

SHEET TITLE:
OVERALL SITE PLAN

Revisions:
△ --
△ --
△ --
△ --
△ --

File: 162.974_A11.dwg
Drawn By: TST
Checked By: MST
Scale: AS NOTED
Date: 06/08/15

Job No. 162.974

A1.1

EXHIBIT C

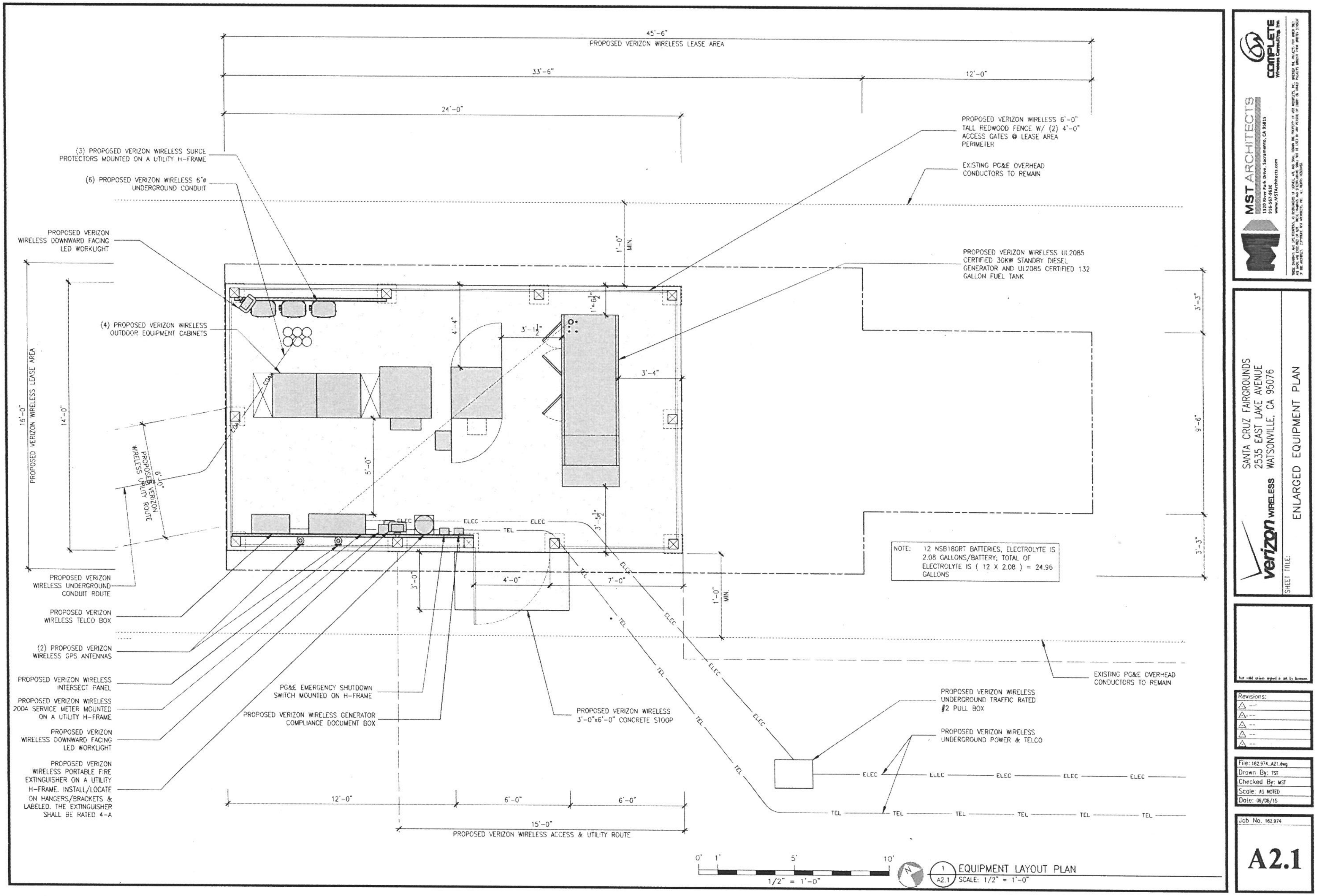
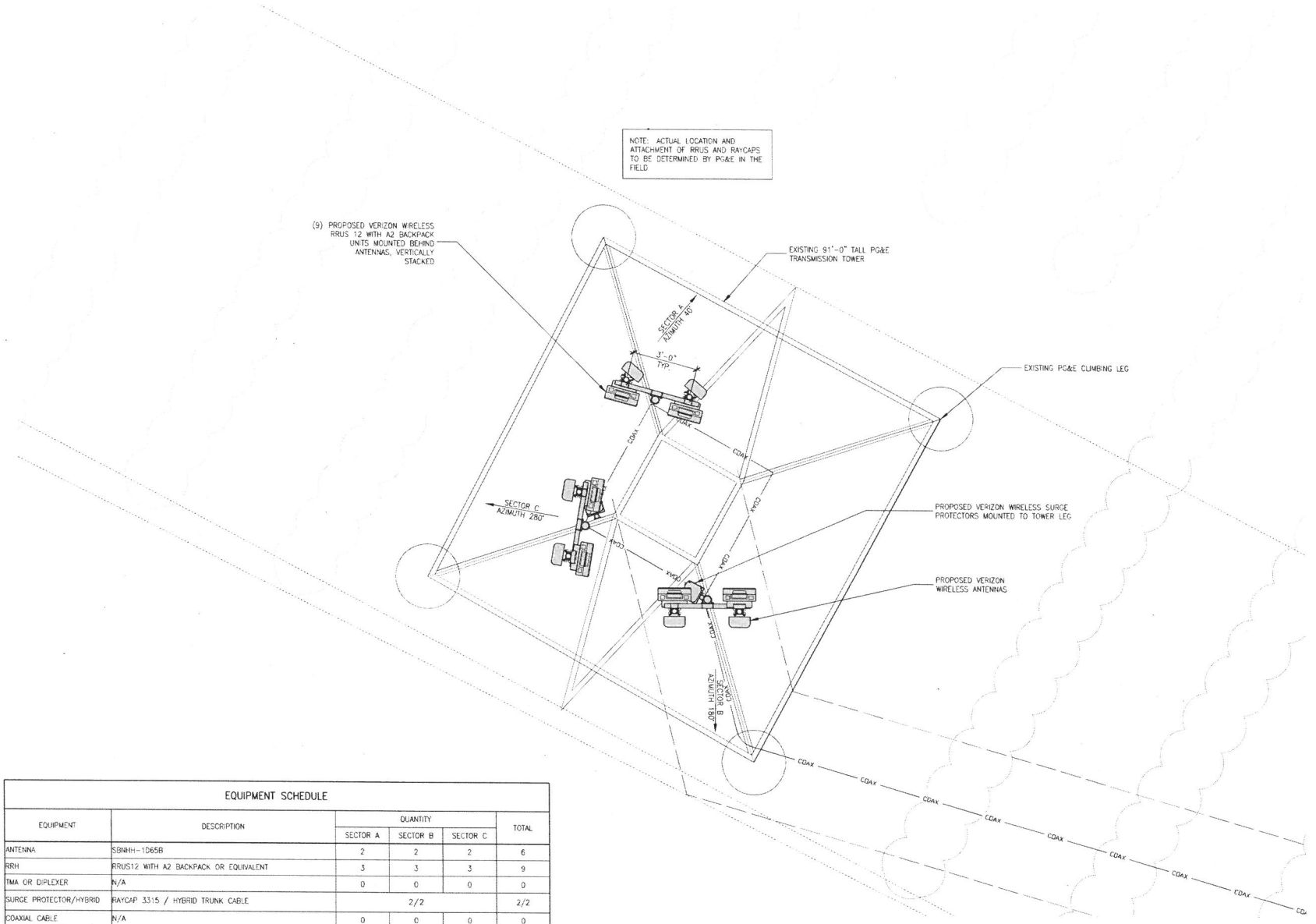

45'-6"
PROPOSED VERIZON WIRELESS LEASE AREA
33'-6"
12'-0"
24'-0"
(3) PROPOSED VERIZON WIRELESS SURGE PROTECTORS MOUNTED ON A UTILITY H-FRAME
(6) PROPOSED VERIZON WIRELESS 6"ø UNDERGROUND CONDUIT
PROPOSED VERIZON WIRELESS DOWNWARD FACING LED WORKLIGHT
(4) PROPOSED VERIZON WIRELESS OUTDOOR EQUIPMENT CABINETS
16'-0" PROPOSED VERIZON WIRELESS LEASE AREA
14'-0"
6'-0" PROPOSED VERIZON WIRELESS UTILITY ROUTE
PROPOSED VERIZON WIRELESS UNDERGROUND CONDUIT ROUTE
PROPOSED VERIZON WIRELESS TELCO BOX
(2) PROPOSED VERIZON WIRELESS GPS ANTENNAS
PROPOSED VERIZON WIRELESS INTERSECT PANEL
PROPOSED VERIZON WIRELESS 200A SERVICE METER MOUNTED ON A UTILITY H-FRAME
PROPOSED VERIZON WIRELESS DOWNWARD FACING LED WORKLIGHT
PROPOSED VERIZON WIRELESS PORTABLE FIRE EXTINGUISHER ON A UTILITY H-FRAME. INSTALL/LOCATE ON HANGERS/BRACKETS & LABELED. THE EXTINGUISHER SHALL BE RATED 4-A
PG&E EMERGENCY SHUTDOWN SWITCH MOUNTED ON H-FRAME
PROPOSED VERIZON WIRELESS GENERATOR COMPLIANCE DOCUMENT BOX
PROPOSED VERIZON WIRELESS 3'-0"x6'-0" CONCRETE STOOP
PROPOSED VERIZON WIRELESS 6'-0" TALL REDWOOD FENCE W/ (2) 4'-0" ACCESS GATES @ LEASE AREA PERIMETER
EXISTING PG&E OVERHEAD CONDUCTORS TO REMAIN
PROPOSED VERIZON WIRELESS UL2085 CERTIFIED 30KW STANDBY DIESEL GENERATOR AND UL2085 CERTIFIED 132 GALLON FUEL TANK
NOTE: 12 NSB180RT BATTERIES, ELECTROLYTE IS 2.08 GALLONS/BATTERY; TOTAL OF ELECTROLYTE IS (12 X 2.08) = 24.96 GALLONS
EXISTING PG&E OVERHEAD CONDUCTORS TO REMAIN
PROPOSED VERIZON WIRELESS UNDERGROUND TRAFFIC RATED #2 PULL BOX
PROPOSED VERIZON WIRELESS UNDERGROUND POWER & TELCO
ELEC
TEL
1'-0" MIN.
4'-4"
3'-1½"
3'-4"
5'-0"
4'-0"
3'-0"
7'-0"
3'-3"
9'-6"
12'-0"
6'-0"
15'-0"
PROPOSED VERIZON WIRELESS ACCESS & UTILITY ROUTE
0' 1' 5' 10'
1/2" = 1'-0"
1 A2.1 EQUIPMENT LAYOUT PLAN
SCALE: 1/2" = 1'-0"
MST ARCHITECTS
1520 River Park Drive, Sacramento, CA 95815
916-567-9630
www.MSTArchitects.com
COMPLETE Wireless Consulting, Inc.
verizon wireless
SANTA CRUZ FAIRGROUNDS
2535 EAST LAKE AVENUE
WATSONVILLE, CA 95076
SHEET TITLE:
ENLARGED EQUIPMENT PLAN
Revisions:
File: 162.974_A21.dwg
Drawn By: TST
Checked By: MST
Scale: AS NOTED
Date: 06/08/15
Job No. 162.974
A2.1

EXHIBIT C



1 A2.1 ANTENNA PLAN
SCALE: 1/2" = 1'-0"

EQUIPMENT SCHEDULE

EQUIPMENT	DESCRIPTION	QUANTITY			TOTAL
		SECTOR A	SECTOR B	SECTOR C	
ANTENNA	SBNHH-1D65B	2	2	2	6
RRH	RRUS12 WITH A2 BACKPACK OR EQUIVALENT	3	3	3	9
TMA OR DIPLEXER	N/A	0	0	0	0
SURGE PROTECTOR/HYBRID	RAYCAP 3315 / HYBRID TRUNK CABLE	2/2			2/2
COAXIAL CABLE	N/A	0	0	0	0
RET CABLE	N/A	0			0

MST ARCHITECTS
1535 River Park Drive, Sacramento, CA 95815
916-487-9535
www.MSTArchitects.com
COMPLETE Wireless Consulting, Inc.

verizon WIRELESS

SANTA CRUZ FAIRGROUNDS
2535 EAST LAKE AVENUE WATSONVILLE, CA 95076

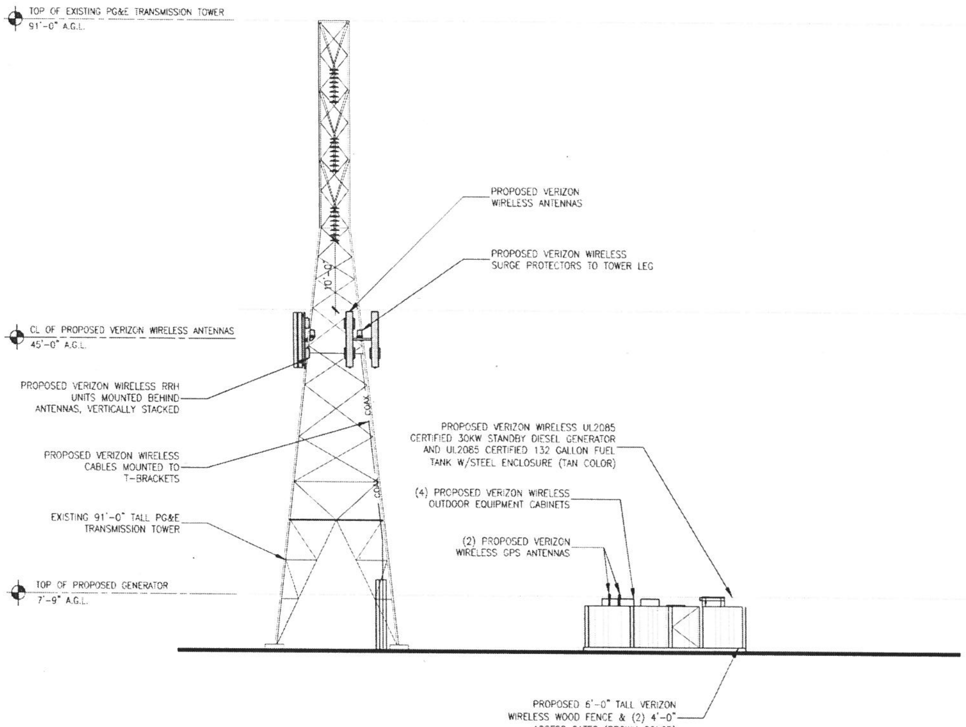
SHEET TITLE: ENLARGED ANTENNA PLAN

Revisions:
1 --
2 --
3 --
4 --
5 --

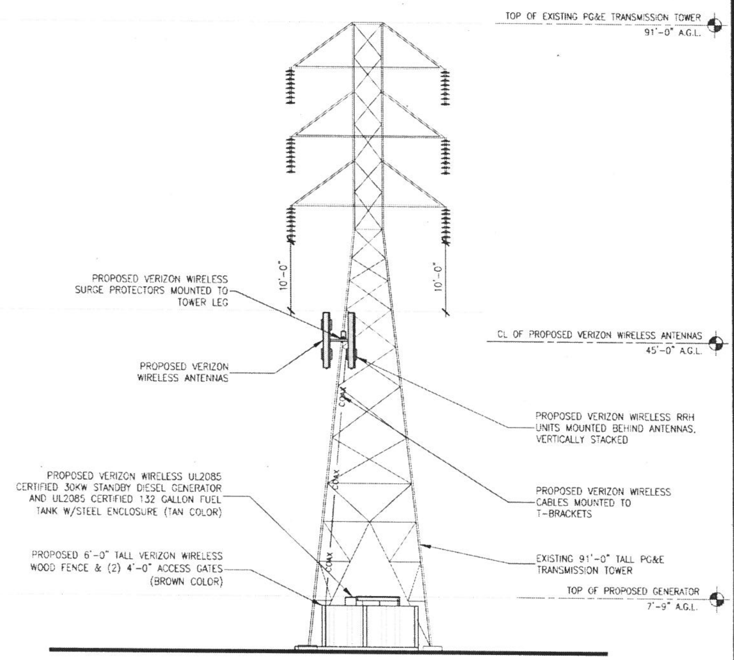
File: 162.974_A22.dwg
Drawn By: TST
Checked By: MGT
Scale: AS NOTED
Date: 09/08/15

Job No. 162.974

A2.2



2 A3.1 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



1 A3.1 EAST ELEVATION
SCALE: 1/8" = 1'-0"

MST ARCHITECTS
1520 River Park Drive, Sacramento, CA 95815
916-567-9630
www.MSTArchitects.com

COMPLETE Wireless Consulting, Inc.

verizon WIRELESS

SANTA CRUZ FAIRGROUNDS
2535 EAST LAKE AVENUE
WATSONVILLE, CA 95076

SHEET TITLE:
PROJECT ELEVATIONS

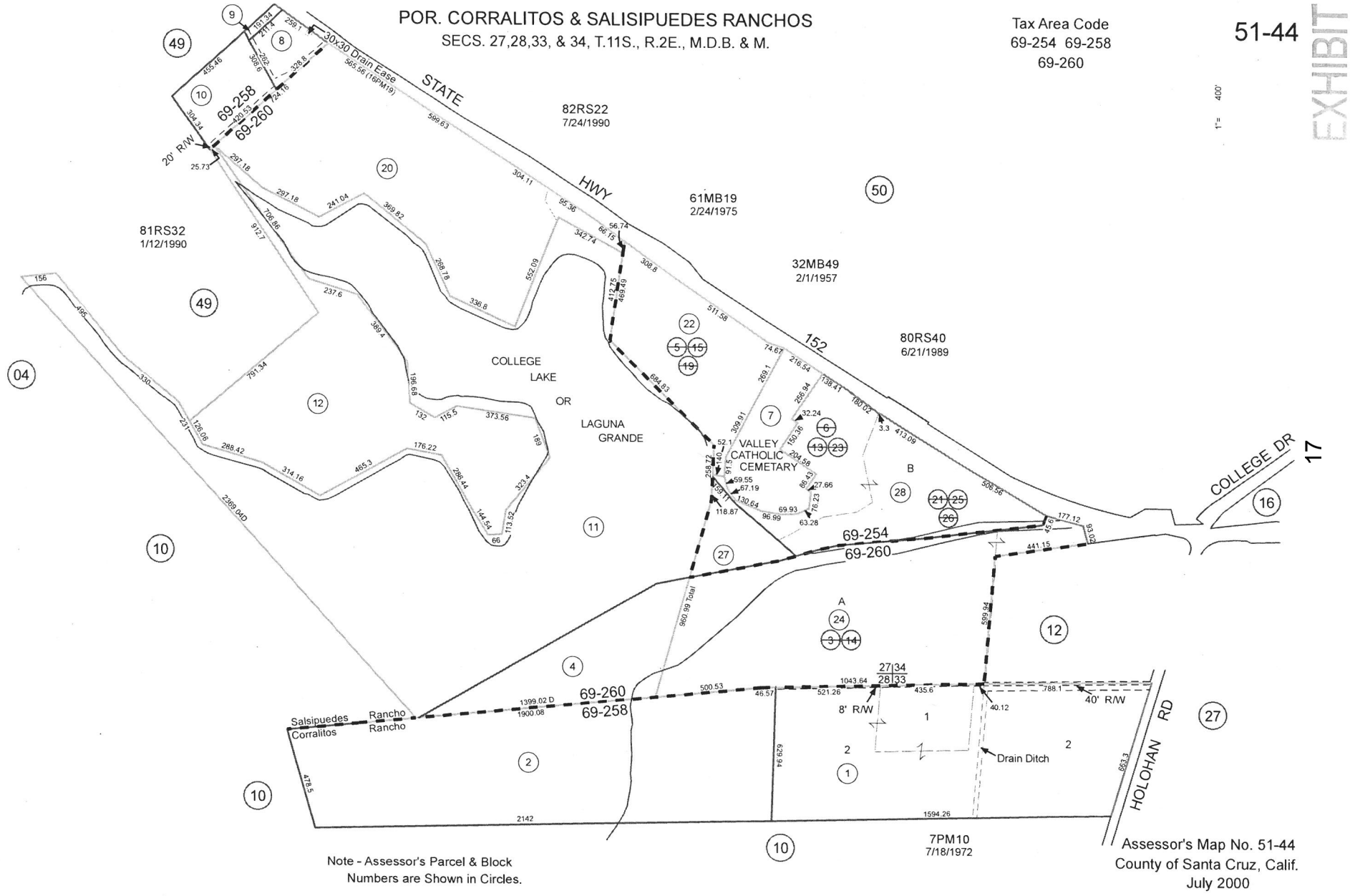
Revisions:
△ --
△ --
△ --
△ --
△ --

File: 162.974_A31.dwg
Drawn By: TST
Checked By: MST
Scale: AS NOTED
Date: 09/08/15

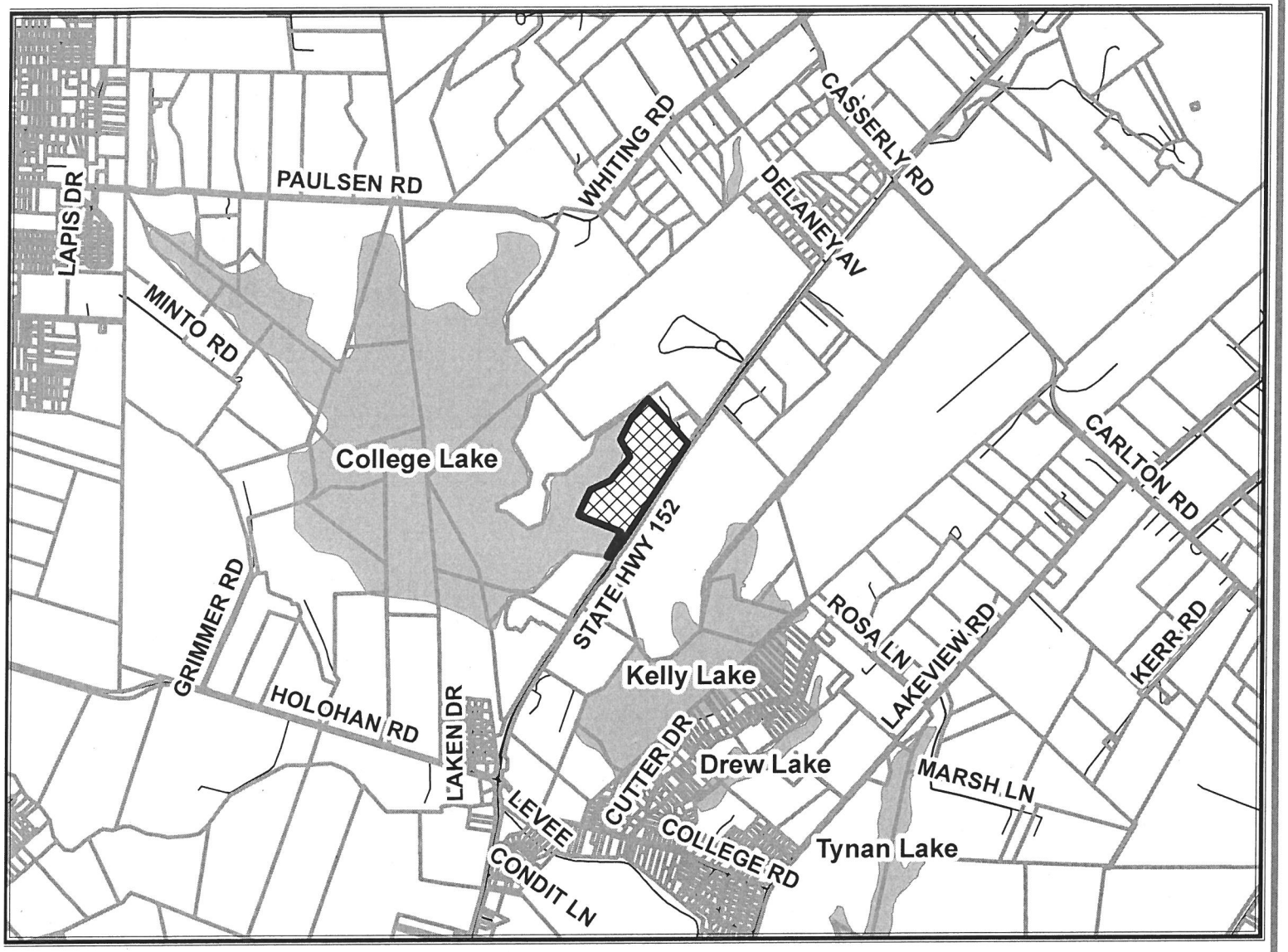
Job No. 162.974

A3.1

EXHIBIT C


POR. CORRALITOS & SALISIPUEDES RANCHOS
SECS. 27,28,33, & 34, T.11S., R.2E., M.D.B. & M.
Tax Area Code
69-254 69-258
69-260
51-44
1"= 400'
EXHIBIT D
FOR TAX PURPOSES ONLY
THE ASSESSOR MAKES NO GUARANTEE AS TO MAP ACCURACY NOR ASSUMES ANY LIABILITY FOR OTHER USES. NOT TO BE REPRODUCED ALL RIGHTS RESERVED
© COPYRIGHT SANTA CRUZ COUNTY ASSESSOR 2000
STATE HWY 152
30x30 Drain Ease
565.56 (16PM19)
82RS22
7/24/1990
61MB19
2/24/1975
32MB49
2/1/1957
80RS40
6/21/1989
81RS32
1/12/1990
7PM10
7/18/1972
69-258
69-260
69-254
20' R/W
8' R/W
40' R/W
COLLEGE LAKE
OR
LAGUNA GRANDE
VALLEY CATHOLIC CEMETARY
COLLEGE DR
HOLOHAN RD
Drain Ditch
Salsipuedes Rancho
Corralitos Rancho
Note - Assessor's Parcel & Block Numbers are Shown in Circles.
Assessor's Map No. 51-44
County of Santa Cruz, Calif.
July 2000
Electronically redrawn 7/24/00 KSA
Rev. 6/7/01 mvm (changed page refs.)
Rev. 12/8/08 CB (Spatial Adjustment)

Location Map



0 1,700 3,400 6,800 10,200 13,600 Feet

LEGEND

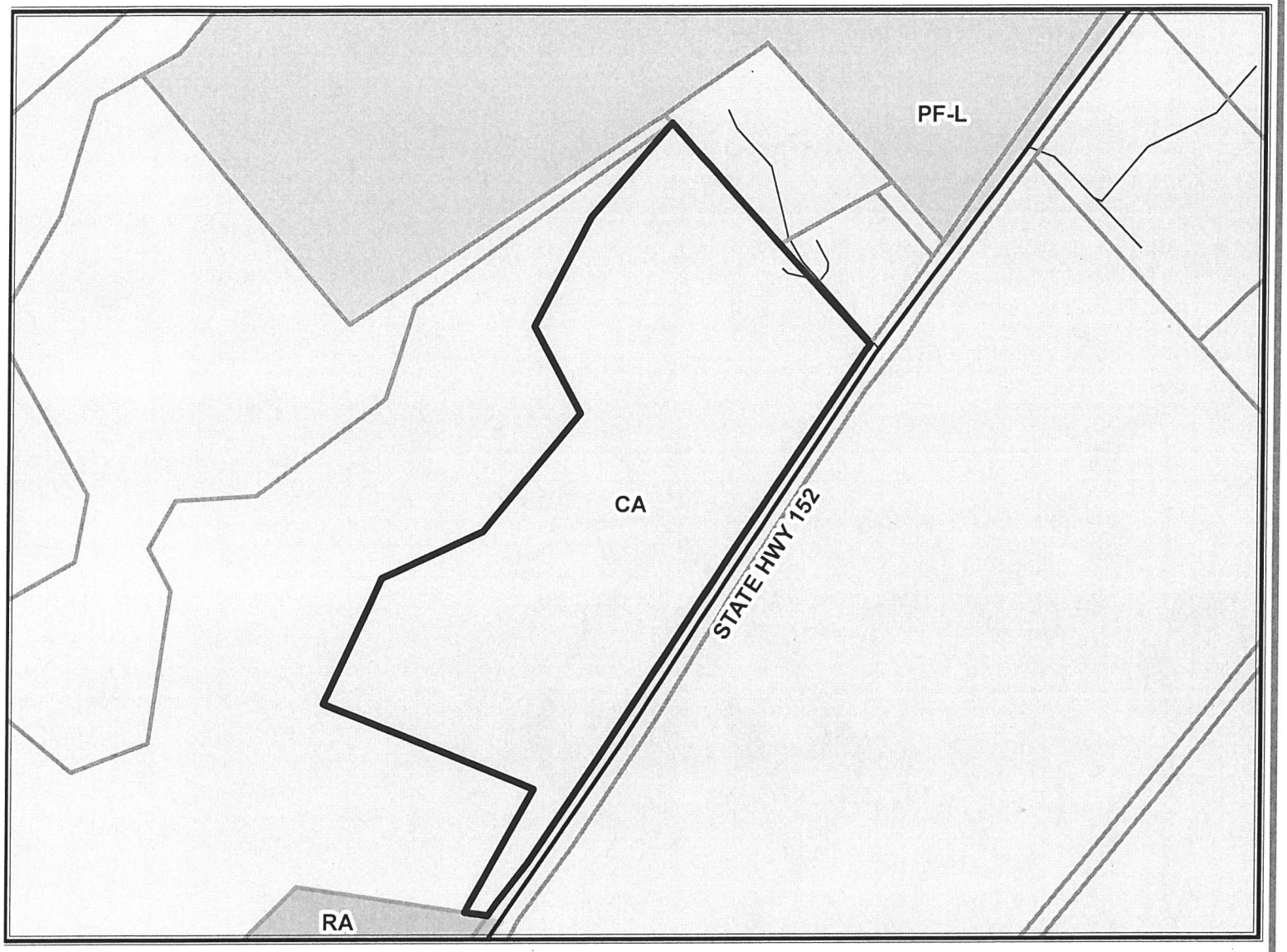
- APN: 051-441-20
- Assessors Parcels
- Street
- State Highways
- Lakes

N W E S

Map Created by
County of Santa Cruz
Planning Department
April 2015

EXHIBIT D

Zoning Map



0 337.5 675 1,350 2,025 2,700 Feet

LEGEND

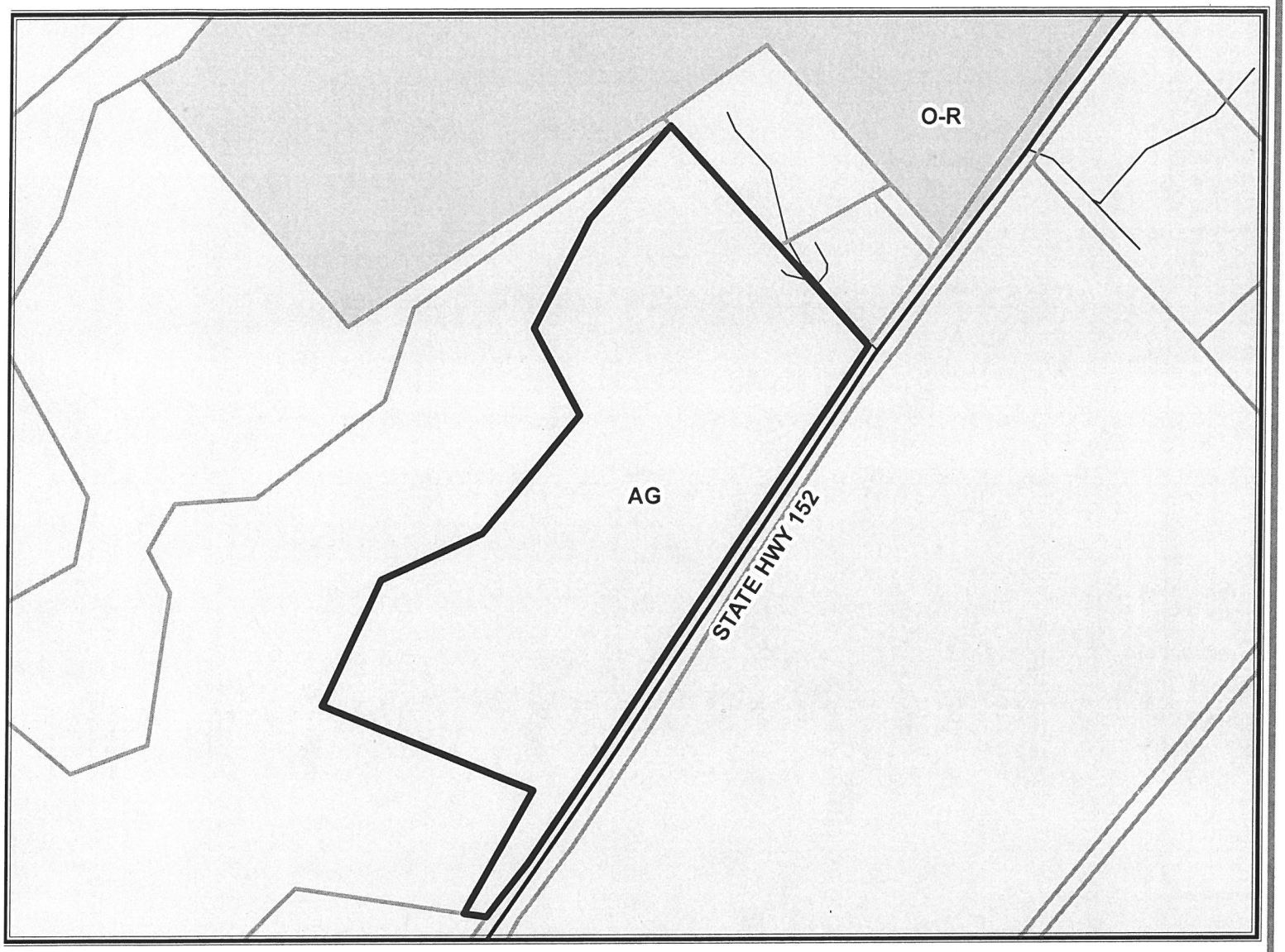
- APN: 051-441-20
- Assessors Parcels
- Street
- State Highways
- AGRICULTURE COMMERCIAL
- PUBLIC FACILITY
- AGRICULTURE RESIDENTIAL

N W E S

Map Created by
County of Santa Cruz
Planning Department
April 2015

EXHIBIT D

General Plan Designation Map



0 337.5 675 1,350 2,025 2,700 Feet

LEGEND

- APN: 051-441-20
- Assessors Parcels
- Street
- State Highways
- Agriculture
- Parks and Recreation

N
W E
S

Map Created by
County of Santa Cruz
Planning Department
April 2015

EXHIBIT D

Verizon Wireless • Proposed Base Station (Site No. 280016 "Santa Cruz Fairgrounds")
2535 East Lake Avenue • Watsonville, California

Statement of Hammett & Edison, Inc., Consulting Engineers

The firm of Hammett & Edison, Inc., Consulting Engineers, has been retained on behalf of Verizon Wireless, a personal wireless telecommunications carrier, to evaluate the base station (Site No. 280016 "Santa Cruz Fairgrounds") proposed to be located at 2535 East Lake Avenue near Watsonville, California, for compliance with appropriate guidelines limiting human exposure to radio frequency ("RF") electromagnetic fields.

Executive Summary

Verizon proposes to install directional panel antennas on the PG&E lattice tower sited at 2535 East Lake Avenue near Watsonville. 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
WCS (Wireless Communication)	2,300	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.40	0.48
[most restrictive frequency range]	30–300	1.00	0.20

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

General Facility Requirements

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. This means that it is generally not possible for exposure conditions to approach the maximum permissible exposure limits without being physically very near the antennas.

Computer Modeling Method

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

Site and Facility Description

Based upon information provided by Verizon, including zoning drawings by MST Architects, Inc., dated December 22, 2014, it is proposed to install nine Andrew directional panel antennas – three Model HBXX-6517DS and six Model LNX-6514DS – on the 91-foot PG&E lattice tower sited in open agricultural fields, set back to the northwest about 250 feet from Highway 152, about two miles northeast of Watsonville. The antennas would be mounted with no downtilt at an effective height of about 45 feet above ground and would be oriented in identical groups of three toward 40°T, 160°T, and 280°T, to provide service in all directions. The maximum effective radiated power in any direction 16,500 watts, representing simultaneous operation at 5,620 watts for AWS, 5,120 watts for PCS, 2,950 watts for cellular, and 2,810 watts for 700 MHz service. There are reported no other wireless telecommunications base stations at the site or nearby.

Study Results

For a person anywhere at ground, the maximum RF exposure level due to the proposed Verizon operation is calculated to be 0.013 mW/cm^2, which is 1.5% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building* is also 1.5% of

* Located at least 425 feet away, based on photographs from Google Maps.

EXHIBIT E

the public exposure limit. The maximum calculated level at the second-floor elevation of any nearby residence† is 0.76% of the public exposure limit. It should be noted that these results include several "worst-case" assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

No Recommended Mitigation Measures

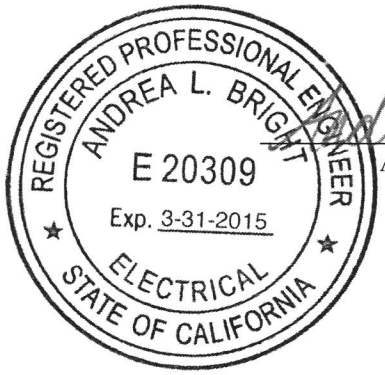
Due to their mounting locations, the Verizon antennas would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. It is presumed that PG&E already takes adequate precautions to ensure that there is no unauthorized access to its tower and that all authorized personnel receive appropriate training to prevent exposures in excess of the occupational limit.

Conclusion

Based on the information and analysis above, it is the undersigned's professional opinion that operation of the base station proposed by Verizon Wireless at 2535 East Lake Avenue near Watsonville, 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.

Authorship

The undersigned author of this statement is a qualified Professional Engineer, holding California Registration No. E-20309, which expires on March 31, 2015. This work has been carried out under her direction, and all statements are true and correct of her own knowledge except, where noted, when data has been supplied by others, which data she believes to be correct.



Andrea L. Bright, P.E.
707/996-5200

January 20, 2015

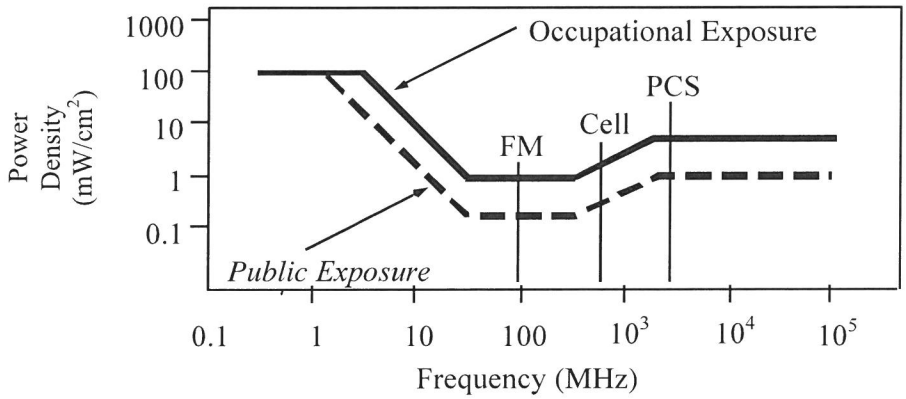
† Located at least 875 feet away, based on photographs from Google Maps.

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:

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

Verizon Wireless Cell Site Necessity Case

Prepared by Verizon Wireless
RF Engineering

Introduction:
There are two main drivers that prompt the creation of a cell site project, coverage and/or capacity. Most sites provide a mixture of both, but increasingly some sites are pure capacity.

Coverage is the need for expanded service often requested by our customers or emergency services personnel. While this initially meant providing coverage in vehicles, as usage patterns have shifted this now means improving coverage inside of buildings.

Capacity is the need for more bandwidth of service. In the simplest form this means a cell site can handle a limited number of voice calls, data mega bites, or total number of active users. When any one of these limits are met the user experience within the coverage area of that cell quickly starts to degrade during the busier hours of use.

Coverage is best shown in coverage maps. We use tools that take into account terrain, vegetation, building types, and cell site specifics to show predictions of the existing coverage and what we expect to see with a given cell site. The prediction models make some assumptions such as that the antennas are above the nearby ground clutter (Buildings and vegetation). Once the antennas fall below the ground clutter the models become inaccurate and cannot tell that specific trees or buildings are blocking the RF signal. Due to this, modeling of tower height requirements is frequently not accurate.

Capacity is best shown in graphs of usage growth and projected exhaustion. We utilize sophisticated programs to model current usage growth and project it into the future to determine when additional capacity will be required. The algorithms that predict capacity growth output numbers that are not easily explained. Since it takes 2-3 years on average to complete a cell site project, we have to be looking about 3 years into the future to meet future customer demand.

While data capacity may not seem urgent, beginning in 2014 voice traffic will begin to migrate from the older 3G voice technology to 4G VoLTE (Voice over IP). This will add additional load to the 4G network. Since voice is delay sensitive, exhaustion of the data network can cause degradation of voice calls including 911 calls.

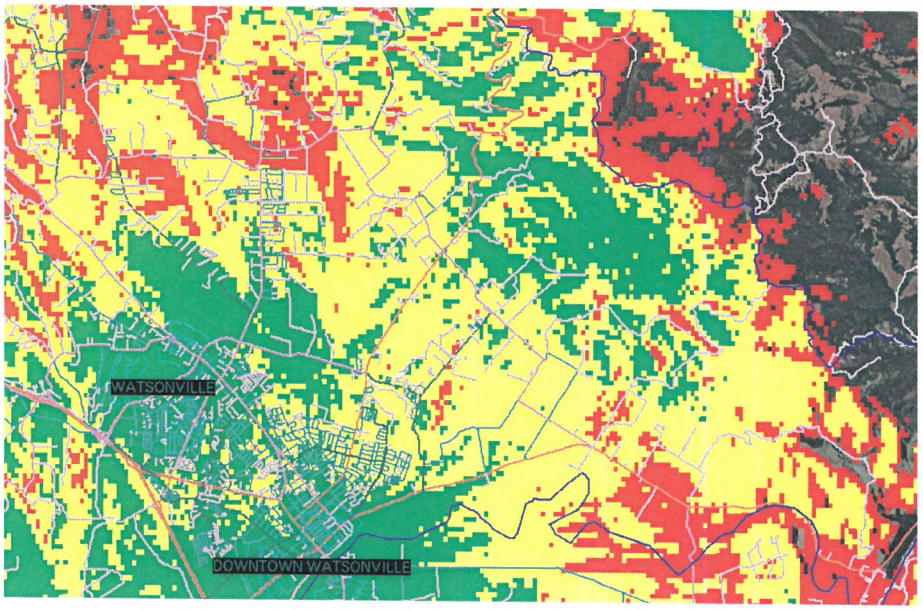
"Why do you need a site here???"

A good capacity cell will be close to the user population and have the traffic evenly spread around the site. When we cannot get a location that accomplishes being close to the customers and central to the usage, we end up having to build additional cells to meet the demands for service. Capacity sites are generally lower in height than a coverage site with a full cell needing to be above the ground clutter and a small cell being one that is at or below the ground clutter.

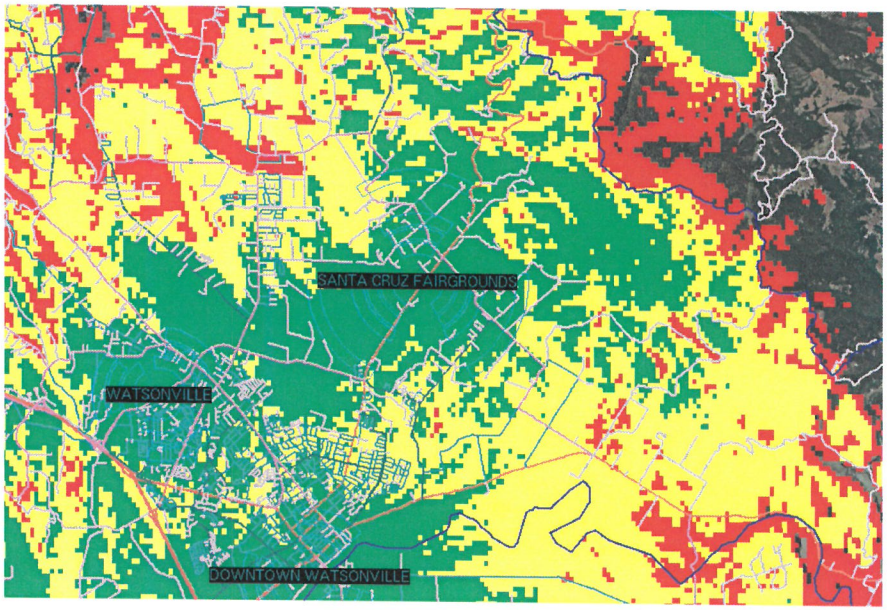
Where our customers use their wireless devices continues to evolve. While we once needed to cover highways and business districts, we are seeing increasing issues with high growth in residential areas. Current statistics show that about 1 of 3 American households no longer have a landline phone. To serve this need we have to increase the cells we have in or very near residential areas.

Need Case for: SANTA CRUZ FAIRGROUNDS

Before:

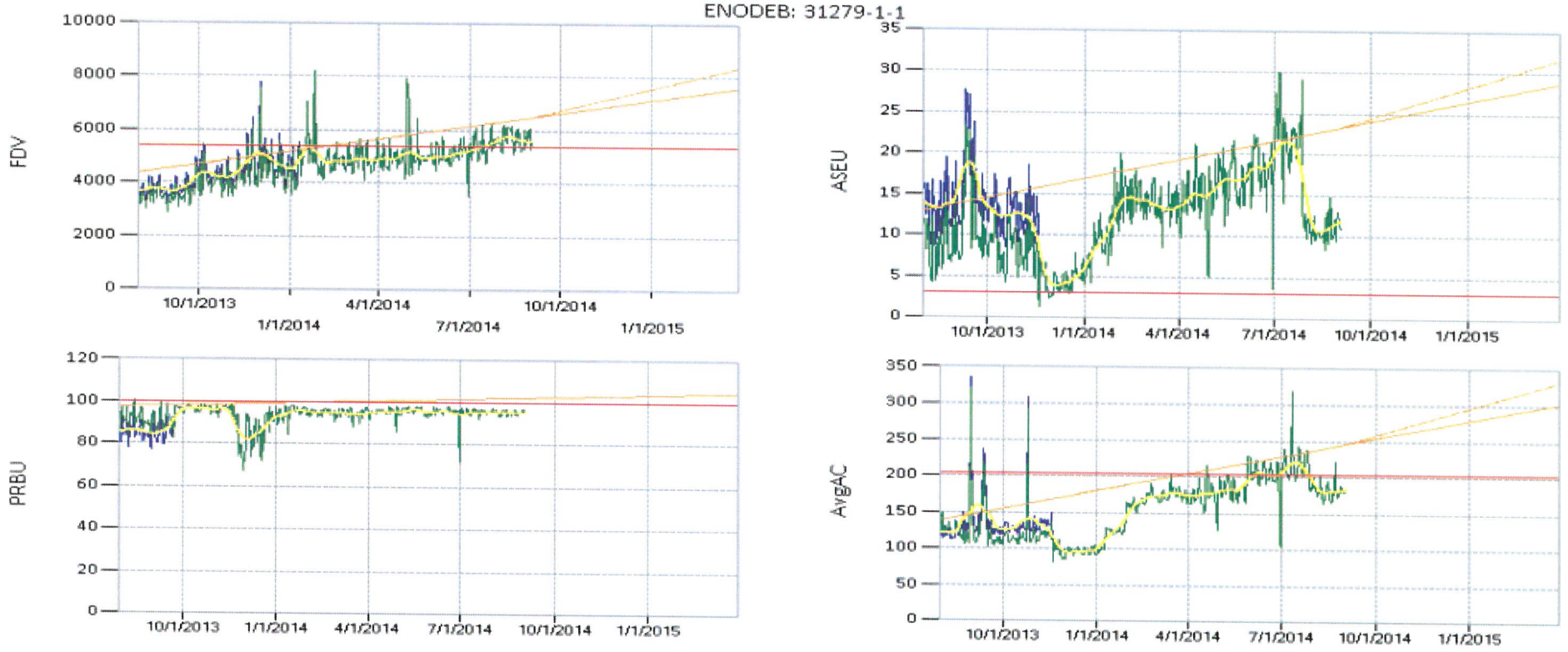


After:



The above before/after plots show the improvement in coverage realized from Northern part of Watsonville. The site is a combination of coverage and capacity site offloading traffic from Watsonville Alpha Sector, covering residential areas in the Northwest part of Watsonville, and also Santa Cruz Fairground where high data traffic is generated. Improved 4G LTE coverage shown in the diagram means users will experience seamless Voice over LTE service.

Need Case for: SANTA CRUZ FAIRGROUNDS



The above capacity plot shows that the sector of site Watsonville currently serving residential areas in Northern Watsonville and Santa Cruz Fairgrounds is already heavily overloaded. The site is suffering from too many simultaneous users, too many Mb of data, and too many users at the cell edge. Customers are now experiencing data rates below standard and we anticipate that Data and 4G VoLTE voice service will have very poor quality in this area.

PROJECT SUPPORT STATEMENT
VERIZON WIRELESS

Site Name: Santa Cruz Fairgrounds
Location: 2535 East Lake Avenue, Santa Cruz, CA 95076
APN: 051-441-20

Introduction

Verizon Wireless is seeking to improve communications service to residences, businesses and travelers in Santa Cruz County. Verizon maintains a strong customer base in Santa Cruz County and strives to improve coverage for both existing and potential customers. Verizon Wireless is currently experiencing a significant coverage gap for residential and commercial areas. Specifically, this site will provide coverage for residential and commercial areas along Hwy 152 while providing a capacity relief for Watsonville S1. This project will expand Verizon's existing network in an effort to improve call quality, signal strength, and wireless connection services. The increase in wireless signal strength will benefit residents, local businesses, and public safety communications systems in Santa Cruz County.

Location

Verizon Wireless proposes a new wireless communications facility on an existing PG&E tower with centerline of 45'. The property is located in Commercial Agriculture (CA) zoning and the subject parcel is also surrounded by similarly zoned parcels. This roughly 22.07 acre property is currently used for berry farming. The site is located well over 300' from the nearest residential land use.

Map of Project Location

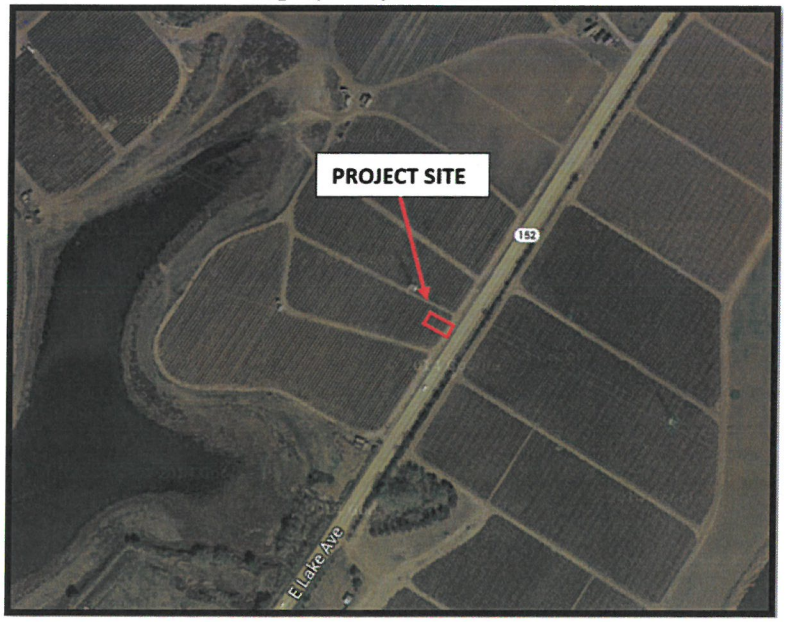


EXHIBIT F

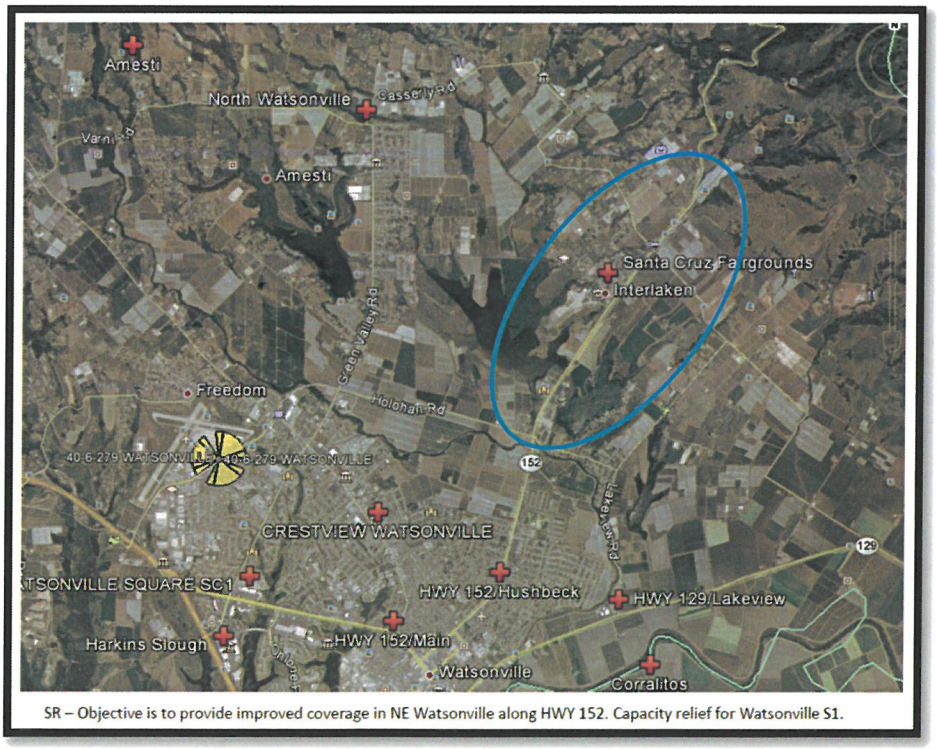
Proposed Facility

The proposed telecommunications facility, on an existing PG&E tower will consist of (6) Verizon Wireless panel antennas with (3) proposed antenna sectors and (2) antennas per sector with associated tower mounted equipment at a centerline of 45'. The equipment lease area will adjacent to the existing tower and will include an 11'-6" x 16'-10.5" equipment shelter along with a 30kw standby diesel generator and 132 gallon fuel tank. This lease area will be surrounded by a 6' tall wood fence, including (2) 4' access gates around the lease area perimeter. The power and telecommunications cables will be installed underground from the tower to the lease area. The unmanned facility will provide enhanced wireless network coverage 24 hours a day, 7 days a week.

Service Objective

The objective of the proposed facility is both to fill in a gap in coverage in the Santa Cruz County area, specifically in NE Watsonville along Hwy 152 as well as to provide support capacity to the existing overloaded facilities at Watsonville S1. In order to achieve this service objective, VZW identified a potential candidate "Search Ring". A Search Ring is a circle on a map that is determined by Verizon's Radio Frequency Engineer. The circle identifies the geographic area within which the proposed facility must be located to satisfy the intended service objective. In creating the Search Ring, the RF Engineer takes into account many factors, such as topography, proximity to existing structures, current coverage areas, existing obstructions, etc. The vast majority of the search area identified to meet VZW's coverage objectives is comprised of land that is zoned CA and partial RA and PF. For a visual representation of the Search Ring, see the images below.

Search Ring (Aerial)



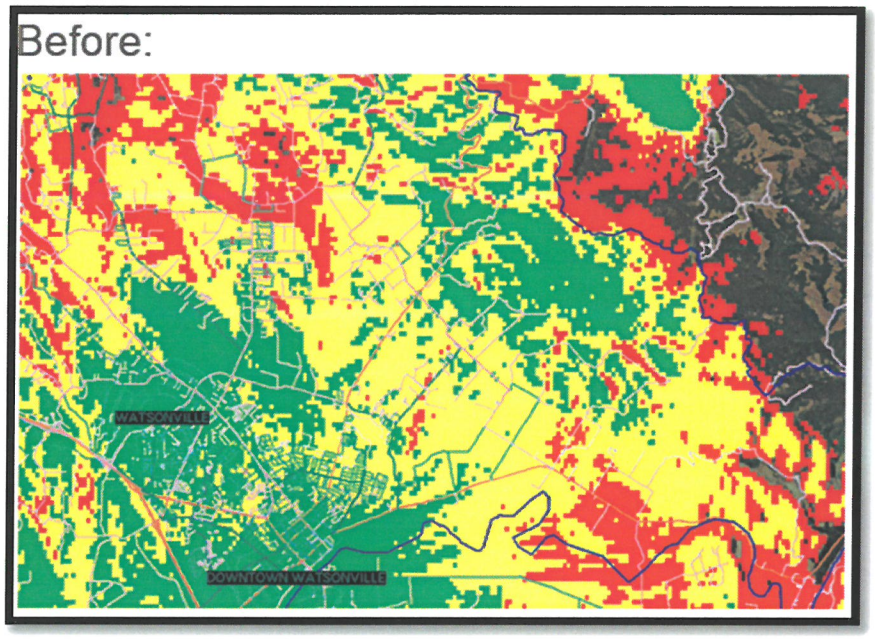
SR – Objective is to provide improved coverage in NE Watsonville along HWY 152. Capacity relief for Watsonville S1.

EXHIBIT F

Coverage Maps

Below is a visual depiction of the improved coverage to be provided by the proposed facility. The first map represents Verizon's existing coverage conditions in the area. The second map represents Verizon's the coverage conditions given approval of the proposed facility. The green areas on both maps represents areas with good indoor/outdoor coverage. The yellow areas on both maps below represents areas with good outdoor coverage. The red portions of the maps represent areas with poor quality outdoor coverage.

Existing Coverage



Proposed Coverage

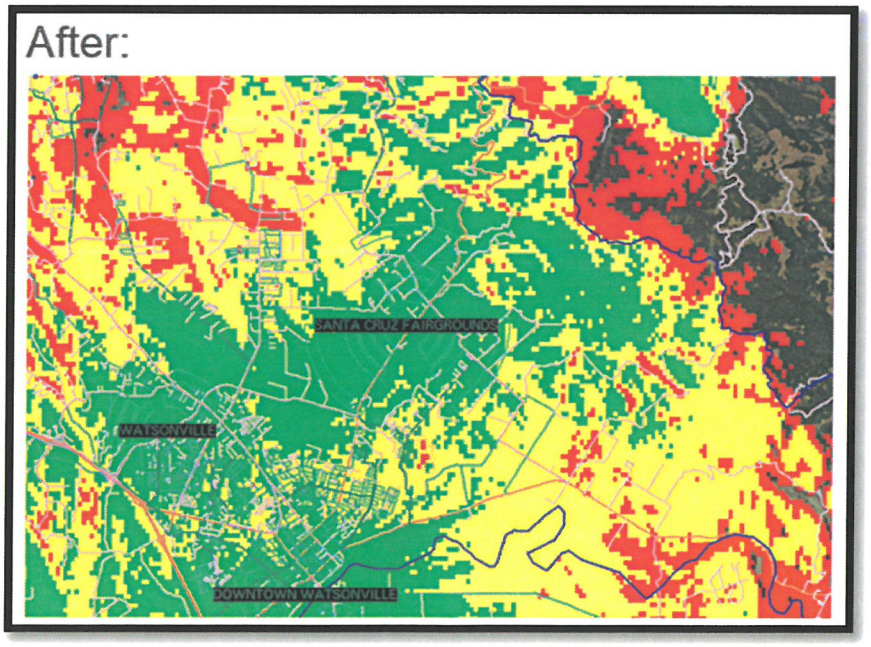


EXHIBIT F

Proposal of Facility within Agricultural (A) Zone

The site selection process outlined above represents a thorough and responsibly site search for a facility location that will adequately achieve the necessary service objective. The only feasible location that was identified, a co-location on an existing PG & E tower happens to be zoned (CA) and it is located within a prohibited zoning district as in (Section 13.10.661(B) (1) (a-e) Prohibited Areas).

However, Santa Cruz County's Zoning Ordinance states that wireless communication facilities that are co-located are allowed within the CA zoning designation with Zoning Adjustments Board approval of a Commercial Development Permit. Section 13.10.661(4)(a)(b), Exceptions to Prohibited Areas Prohibition.

As is outlined in Alternative Site Analysis below, the proposed location represents the only feasible location for the proposed facility and it is located within a prohibited zone. In addition to compliance with the necessary findings discussed above, the proposed facility has been located and designed in a manner that will minimize visual impacts. The existing vegetation (berry bushes) on this parcel completely screen the proposed ground equipment.

Minor Visual Impact (Co-Location)

In accordance with Santa Cruz County Code, the proposed co-location of antennas onto an existing PG&E tower is encouraged because it does not result in significant visual impacts. A major visual impact is created when co-location would result in more than (9) total individual antennas and/or more than (3) above-ground equipment shelters. Here, this proposed co-location has (9) total antennas and (1) equipment shelter and conforms to the County's requirements for creating a minor visual impact.

Alternative Site Analysis

The location of a wireless telecommunications facility to fulfill the above referenced service objective is dependent upon many different factors, such as topography, zoning regulations, existing structures, co-location opportunities, available utilities, access and a willing landlord. Wireless communication is a line-of-sight technology that requires facilities to be in relative close proximity to the wireless handsets in order to be served. Each proposed site is unique and must be investigated and evaluated on its own terms. Verizon strives to minimize visual and noise impacts for each facility and seeks to incorporate ways to preserve the local community character to the greatest extent feasible at all stages of site selection for a wireless telecommunication facility.

The site selection process for this proposed facility began in November 2013 with the issuance of the above reference Search Ring. When identifying feasible wireless facility locations, VZW first looks for collocation opportunities on existing towers, which could potentially allow for the satisfaction of the necessary coverage objectives. In this instance, there were no feasible collocation opportunities on existing towers exist within the necessary geographic area (the Search Ring). See the Existing Tower map below for further detail regarding existing towers. Once collocation opportunities on existing towers were exhausted, Verizon next looked for opportunities for roof-mounts, flush-mounts, façade-mounts, etc. Verizon was not able to find any building-mounted collocation opportunities within the necessary Search Ring.

Due to the lack of feasible collocation opportunities in this area, Verizon began a site search for feasible new build facility locations. The vast majority of the property in the search ring along Summit Road consists of residential dwellings and a mix of zoning prohibited areas with dense forest. Most sites have no sufficient centerline view over field obstructions. A total of 16 potential candidates were initially identified, contacted, and investigated for this search ring. The majority of the property owners are not interested in a wireless facility on their property. A few landlords expressed interest, however after meeting with them revealed less than desirable site locations. The additional site locations investigated had severe issues with access, lease space, zoning, setback, leasing, and topography.

After analyzing the relevant Santa Cruz County regulations (Section 13.10.660), Verizon identified all parcels within the Search Ring area which could serve as potential candidates for a new wireless facility location. A form letter was sent out to all of the (8) potential candidates identified. A draft of each of those letters has been attached for reference. Of the (8) property owners notified, (2) property owners showed an interest in having their property as a candidate for a new facility. Those (2) response letters have been attached. In addition, below is a summary of each the considered candidates, and the reason each candidate was or was not selected for the new facility location.

- D & D Ranch #4 (APN 110-091-10-000) Zoned CA
  This property is located in a prohibited zone for new wireless telecommunications facilities. This location would require a new tower and, in accordance with Santa Cruz County code, Verizon looked to colocation opportunities within the search area before investigating new construction locations.

  This location corresponds to the letter of interest, dated November 19, 2013, signed by Eire Stewart. This location was considered upon further discussion with the property owner.

- Fairgrounds (APN 051-491-01-000) Zoned PF-L
  This property is located in a public and community facilities zone that allows for new wireless telecommunications facilities and would offer a colocation opportunity. However, it is also within a Historic Landmark combining district and the proposed location was ultimately more desirable due to the height available on PG&E's existing tower.

  This location corresponds to the letter of interest, dated October 29, 2013.

- East Lake Ranch LLC (APN 051-492-15-000) Zoned CA
  This property is located in a prohibited zone for new wireless telecommunications facilities. This location would require a new tower and, in accordance with Santa Cruz County code, Verizon looked to colocation opportunities within the search area before investigating new construction locations.

- Garcia (APN 051-441-09-000) Zoned CA
  This property is located in a prohibited zone for new wireless telecommunications facilities. This location would require a new tower and, in accordance with Santa Cruz County code, Verizon looked to colocation opportunities within the search area before investigating new construction locations.

- Rosendale (APN 051-492-09-000) Zoned CA
  This property is located in a prohibited zone for new wireless telecommunications facilities. This location would require a new tower and, in accordance with Santa Cruz County code, Verizon looked to colocation opportunities within the search area before investigating new construction locations.

- Sanders-Fort (APN 051-551-10-000) Zoned RA
  This property is located in a residential zone that allows for new wireless telecommunications facilities with a hearing by the zoning administrator. However, this location would require a new towers and a colocation opportunity at the current proposed facility was available.

- Sciavon-Birlem (APN 051-551-01-000) Zoned C-1
  This property is located in a commercial zone that allows for new wireless telecommunications facilities with a hearing by the zoning administrator. Even though this location allows new wireless towers, in accordance with Santa Cruz County code, Verizon looked to colocation opportunities within the search area before investigating new construction opportunities.

- Wirtanen (APN 110-081-17-000) Zoned CA
  This property is located in a prohibited zone for new wireless telecommunications facilities. This location would require a new tower and, in accordance with Santa Cruz County code, Verizon looked to colocation opportunities within the search area before investigating new construction locations.

Aerial Image of Considered Candidates

The aerial image below shows the vicinity of the candidates listed above. In addition, aerial images (zoning maps) of each individual parcel have been attached to the included letters of interest.

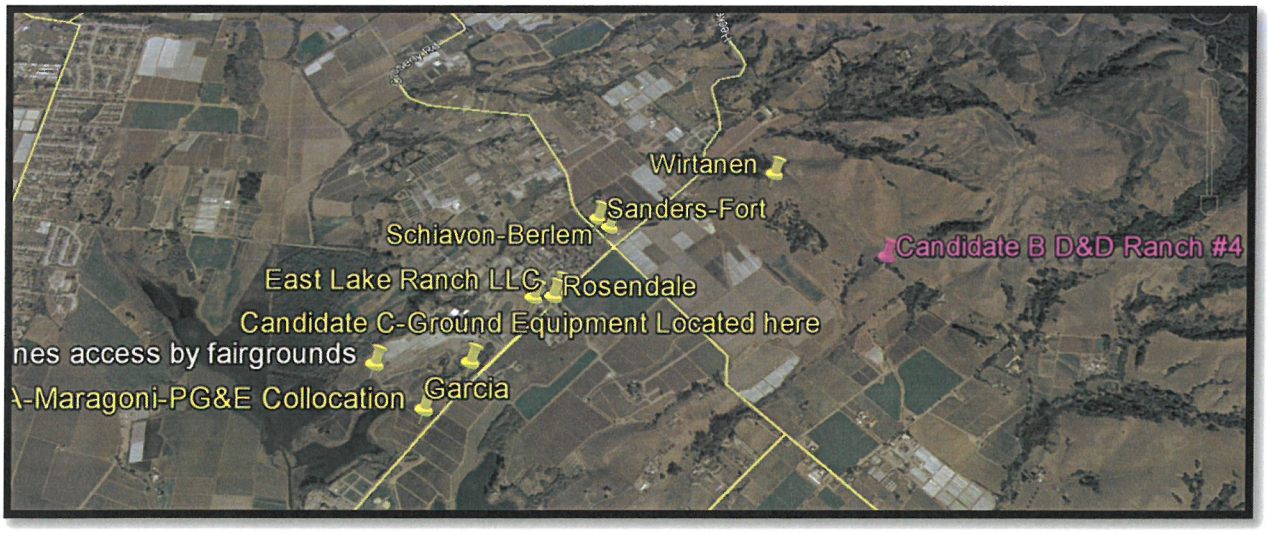


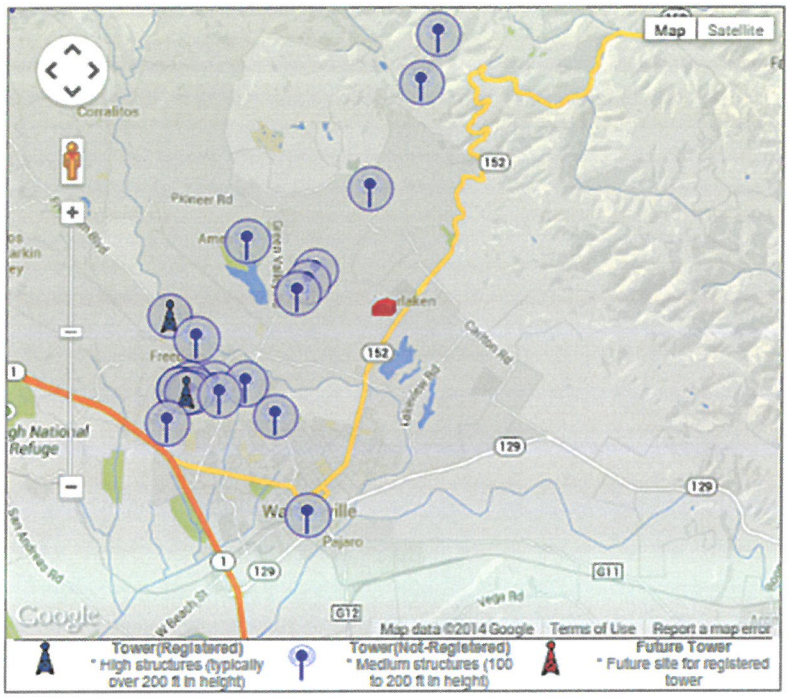
EXHIBIT F

Collocation Opportunities

The map below shows the locations of various towers within the area.

Existing Towers

• **Tower Structures - (2535 E Lake Ave, Watsonville, CA 95076)**



Tower(Registered) * High structures (typically over 200 ft in height)

Tower(Not-Registered) * Medium structures (100 to 200 ft in height)

Future Tower * Future site for registered tower

Tower Search Results!

Alert! 21 Towers (3 Registered,18 Not Registered) found within 4.00 miles of **2535 E Lake Ave, Watsonville, CA 95076.**

Info! The NEAREST Tower is 1.37 miles away and is owned by Pg & E.

Ok! No Applications for Future Towers detected as of 09/26/14.

Tower Type	ID Num	Site Owner	Height	Dist
Registered	(1)	Santa Cruz, County Of	120 feet	3.18 miles
	(2)	Coatt Llc	123 feet	3.29 miles
	(3)	H. A. Rider & Sons	60 feet	3.44 miles
Not Registered	(1)	Pg & E	90 feet	1.37 miles
	(2)	Pg & E	85 feet	1.42 miles
	(3)	Pg & E	85 feet	1.53 miles
	(4)	Pg & E	55 feet	1.68 miles
	(5)	At&t Mobility	73 feet	2.13 miles
	(6)	Blank	59 feet	2.40 miles
	(7)	Phillip E. Rather	192 feet	2.47 miles
	(8)	Pacific Bell	100 feet	2.70 miles
	(9)	Smiths Food & Drug Stores Inc	42 feet	2.80 miles
	(10)	Ledyard Properties	30 feet	2.84 miles
	(11)	Pg & E	80 feet	2.95 miles
	(12)	Metro Pcs, Inc.	60 feet	3.02 miles
	(13)	Blank	100 feet	3.21 miles
	(14)	Cellular One	130 feet	3.22 miles
	(15)	Pacific Bell Mobile Services	60 feet	3.38 miles
	(16)	Pacific Bell Mobile Services	49 feet	3.41 miles
	(17)	Pg & E	90 feet	3.60 miles
	(18)	Watsonville Community Hospital	80 feet	3.68 miles
Future		(No Towers Detected)		

EXHIBIT F

Topographic/Area Map

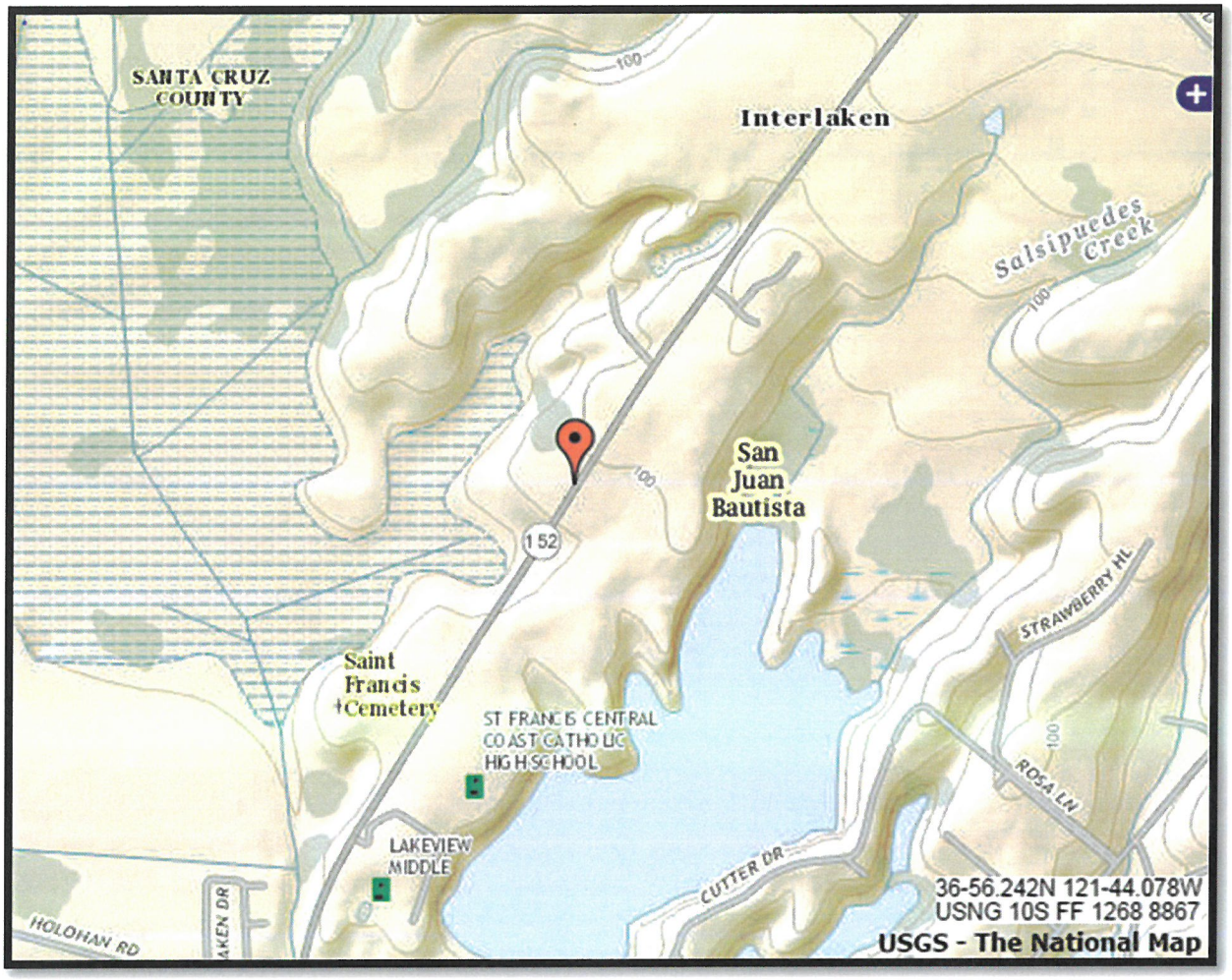


EXHIBIT F

Proximity Map and Ariel Photo 1500' Radius

EXHIBIT F

Safety Benefits of Improved Wireless Service

Verizon Wireless offers its customers multiple services such as voice calls, text messaging, mobile email, picture/video messaging, mobile web, navigation, broadband access, V CAST, and E911 services. Mobile phone use has become an extremely important tool for first responders and serves as a back-up system in the event of a natural disaster. Verizon Wireless will install a standby generator at this facility to ensure quality communication for the surrounding community in the event of a natural disaster or catastrophic event. This generator will be fully contained within the equipment shelter and will provide power to the facility in the event that local power systems are offline.

Lighting

Unless tower lighting is required by the FAA the only lighting on the facility will be a shielded motion sensor light by the door on the equipment shelter.

Maintenance and Standby Generator Testing

Verizon Wireless installs a standby generator and batteries at all of its cell sites. The generator and batteries serve a vital role in Verizon's emergency and disaster preparedness plan. In the event of a power outage, Verizon Wireless communications equipment will first transition to the back-up batteries. The batteries can run the site for a few hours depending upon the demand placed upon the equipment. Should the power outage extend beyond the capacity of the batteries, the back-up generator will automatically start and continue to run the site for up to 24 hours. The standby generator will operate for approximately 15 minutes per week for maintenance purposes, during the daytime. Back-up batteries and generators allow Verizon Wireless' communications sites to continue providing valuable communications services in the event of a power outage, natural disaster or other emergency.

Construction Schedule

The construction of the facility will be in compliance with all local rules and regulations. The typical duration is two months. The crew size will range from two to ten individuals. The construction phase of the project will last approximately two months and will not exceed acceptable noise levels.

Notice of Actions Affecting Development Permit

In accordance with California Government Code Section 65945(a), Verizon Wireless requests notice of any proposal to adopt or amend the: general plan, specific plan, zoning ordinance, ordinance(s) affecting building or grading permits that would in any manner affect this development permit. Any such notice may be sent to 2009 V Street, Sacramento, CA 95818.

ALTERNATIVE SITES ANALYSIS
VERIZON WIRELESS

Site Name: Santa Cruz Fairgrounds
Location: 2535 East Lake Avenue, Santa Cruz, CA 95076
APN: 051-441-20

With the submission of the information below, Verizon has delivered all the necessary requirements needed to provide a complete application for a Wireless Communications Facility. This project is exactly the type of wireless siting and wireless design that Santa Cruz County contemplates as its most preferred, collocated antennas on an existing tower.

The current ground equipment location is the least intrusive means necessary to fill Verizon's coverage gap in the area along Hwy 152. In consideration of the goals of Santa Cruz County's telecommunications requirements, all properties and parcels that required the construction of a new tower were eliminated from further consideration. In light of the County's strong preference for collocated facilities, Verizon looked to the existing PG&E towers that already traverse the length of Hwy 152. In this case, the least intrusive means to achieve the coverage requirements in this hilly area was to utilize the existing 91 ft. tall PG&E tower for its height and locate the associated ground equipment as close to the base of the tower as possible.

Due to PG&E overhead wires and conductors, all associated ground equipment is limited to the areas within PG&E's restrictions. Verizon always looks to first place all associated ground equipment within the footprint of the existing tower. However, because the base of the tower was too small to accommodate Verizon's ground equipment and due to PG&E's restrictions due to its own power lines, easements, and overhead lines, the associated equipment was instead located within the narrow pathway below the existing overhead conductors. Here, Verizon's 650 sq. ft. ground area dedicated to emergency backup equipment is located directly adjacent to the existing tower. Additionally, the underlying landowner, Ms. Jesse Maragoni, is willing and ready to have this area used to house Verizon's ground equipment and is fully in support of this proposed facility.

(C) Alternatives Analysis. For applications for wireless communication facilities proposed to be located in any of the prohibited areas specified in SCCC 13.10.661(B) and non-co-located wireless communication facilities proposed to be located in any of the restricted areas specified in 13.10.661(C), an alternatives analysis must be submitted by the applicant, subject to independent RF engineering review, which shall at a minimum:

> *(1) Identify and indicate on a map, at a minimum two viable, technically feasible, and potentially environmentally equivalent or superior alternative locations outside the prohibited and restricted areas which could eliminate or substantially reduce the significant gap(s) in the applicant carrier's network intended to be eliminated or substantially reduced by the proposed facility. If there are fewer than two such alternative locations, the applicant must provide evidence establishing that fact. The map shall also identify all locations where an unimpaired signal can be received to eliminate or substantially reduce the significant gap(s). For all non-co-located wireless communication facilities proposed in a restricted/prohibited area, the applicant must also*

evaluate the potential use of one or more microcell sites (i.e., smaller facilities often mounted upon existing or replacement utility poles), and the use of repeaters, to eliminate or substantially reduce said significant gaps in lieu of the proposed facility. For each alternative location so identified, the applicant shall describe the type of facility and design measures that could be used at that location so as to minimize negative resource impacts (e.g., the use of stealth camouflaging techniques).

The two most viable alternatives from Verizon's radio frequency (RF) engineer are identified below. In both cases, the ideal heights of these facilities would be higher than 55 ft. because both are situated further away from Hwy 152 than the proposed location. Neither of these locations are as ideal as the proposed facility, which is a preferred wireless communication facility because the existing structure, a PG&E transmission tower, is used to provide the necessary height.

Map Identifying the Alternative Locations

By choosing to collocate on the existing PG&E towers, Verizon seeks to eliminate the unnecessary and repetitive undertaking of providing photo simulations of monopoles and lattice towers in excess of 60 ft. when similarly situated PG&E towers already exist in the area and provide the least amount of visual impact along Hwy 152. Additionally, the existing PG&E towers provide the height necessary to fill the coverage gap in the vicinity without the construction of a new structure, pole, or tower.

Alterative Site 1

Address: 2601 E. Lake Avenue, Watsonville, CA 95076
APN: 051-491-01-000
Zone: PF-L

Of the two alternative sites, the above location is the second most feasible location other than the proposed location on the PG&E tower. It is the closest alternative site to the proposed location and provides coverage to Hwy 152. However, it is further set back from the road and the ground equipment will take up space that may affect traffic flow in the fairgrounds. This roughly

EXHIBIT F

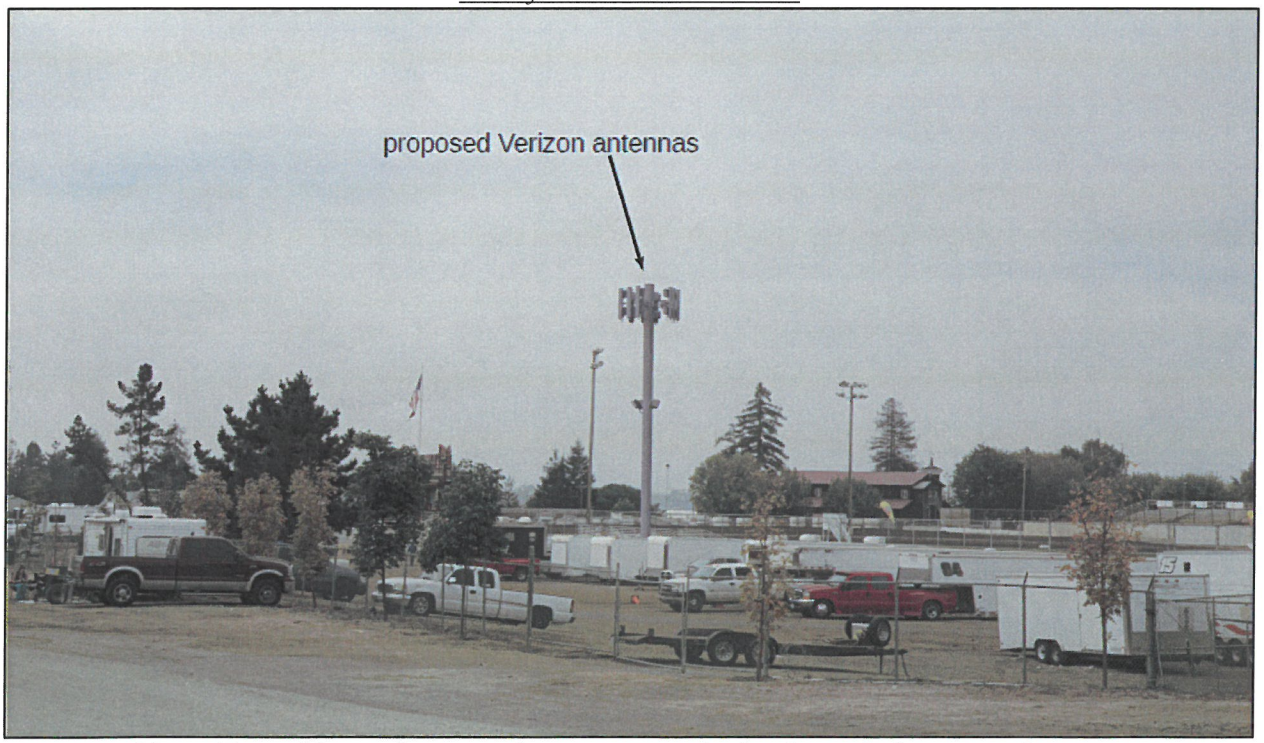
102 acre parcel is used as a county fairgrounds facility. The lease area is located in the eastern portion of the property.

This is a new build facility that will require removing and replacing the existing light pole near the racetrack at the fairgrounds. In order to be technically feasible, an existing 30 ft. light pole will be replaced with a 55 ft. tall monopole. Though Verizon's RF engineer requested a taller height for the monopole, this candidate was profiled with the absolute minimum height possible.

There are two proposed lease areas is 45 ft. x 20 ft. which is sufficiently sized to accommodate the outdoor equipment shelter and standby generator and 10 ft. x 10 ft. area for the footprint of the new light pole. There is direct access from a paved public roadway (E. Lake Avenue) through paved fairground easement and access gate. Due to the location of the light standard in the fairgrounds, the ground equipment will be located a small distance from the monopole, requiring a longer power and telco run from the tower to the associated equipment, located nearby.

To mimic the existing light standard and to keep from changing the character of the fairgrounds, the parking area, or traffic flow, the antennas cannot be camouflaged by stealthing, such as a faux pine tree, and instead are instead left un-screened in order to better match the mechanized-look of the light standard. Additionally, the lights must be reattached at 30 ft. tall, which was the original height of the light standard, in order to distribute light evenly throughout the fairgrounds and traffic way.

View from E. Lake Avenue



Note: For additional views, please see attached enlarged photo simulations.

EXHIBIT F

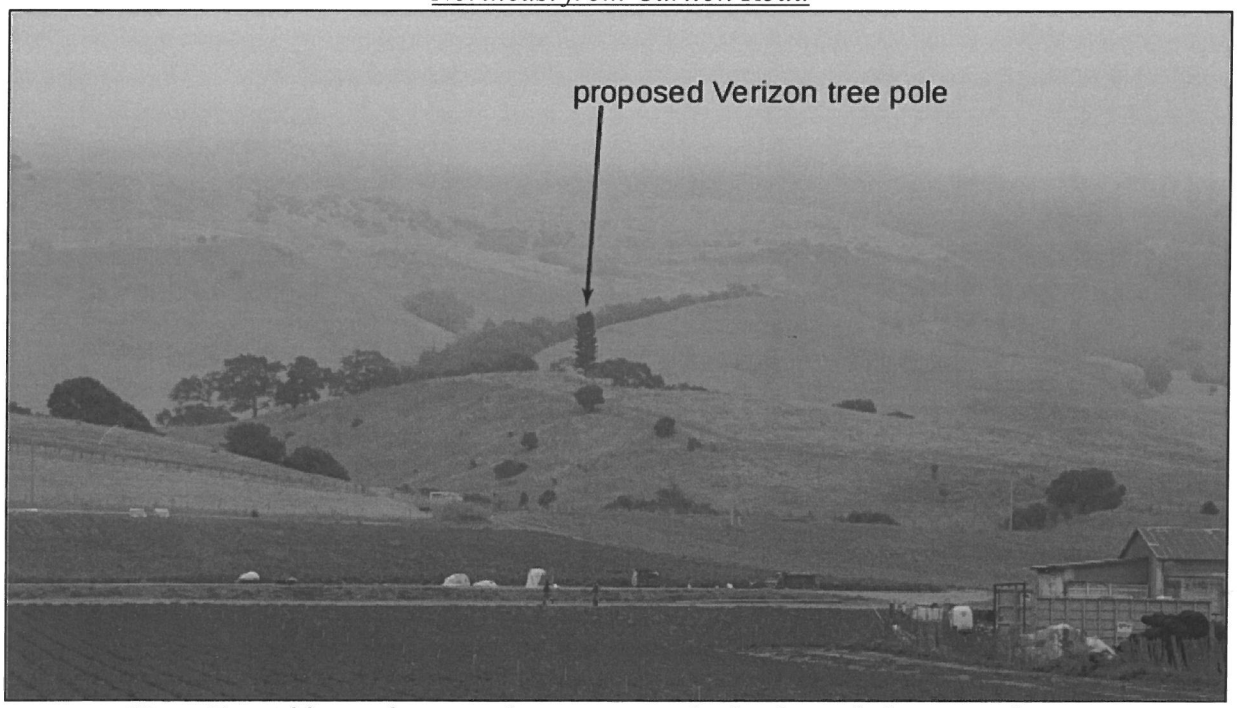
Alternative Site 2

Address: 153 Carlton Road, Watsonville, CA 96076
APN: 110-091-10-000
Zone: CA

This candidate is technically feasible, but located in a prohibited zone, CA, and is much further away from the RF objective of covering Hwy 152. This location could be feasible due to the natural elevation of the land. However, higher elevation requires the facility to be placed on a ridge, which would provide the required height, but will be more visible to travelers and commuters along Hwy 152.

This is a new build site proposing 60 ft. monopine yielding an antenna centerline of 51 ft. The site lies on a hilltop in the NE section of the ring. The proposed lease area is 50' x 50' which is sufficiently sized to accommodate Verizon's ground equipment and standby generator. There is direct access to a paved public roadway (Heckers Pass Road).

Northeast from Carlton Road



Note: For additional views, please see attached enlarged photo simulations.

Lastly, as a co-located facility, this project is not required to discuss micro-cells. However, these smaller facilities only have a 500 to 1,000 ft. radial range, which drastically depends on the surrounding terrain. These facilities are used for densely populated, urban areas and are usually used to cover one commercial mall or large commercial buildings. In a rural, hilly setting such as this objective area, small cells sites are not a viable option.

(2) Evaluate the potential for co-location with existing wireless communication facilities as a means to eliminate or substantially reduce the significant gap(s) in the applicant carrier's network intended to be eliminated or substantially reduced by the proposed facility.

This requirement is not applicable because this application is a co-location on an existing PG&E tower.

(3) Compare, across the same set of evaluation criteria and to similar levels of description and detail, the relative merits of the proposed site with those of each of the identified technically feasible alternative locations and facility designs. Such comparison analysis shall rank each of the alternatives (i.e., the proposed location/facility and each of the technically feasible location/design alternatives) in terms of impacts (i.e., from least to most environmentally damaging), and shall support such ranking with clear analysis and evidence.

Please see the information provided above under subsection (2).

(4) Include photo-simulations of each of the alternatives (i.e., the proposed location/facility and each of the technically feasible location/design alternatives).

Please see attached enlarged photosimulations of each location with additional views from the public rights-of-way.

(5) Document good faith and diligent attempts to rent, lease, purchase or otherwise obtain the use of at least two of the viable, technically feasible alternative sites which may be environmentally equivalent or superior to the proposed project site. The decision-making body may determine that an alternative site is not viable if good faith attempts to rent, lease, purchase or otherwise obtain the site have been unsuccessful.

Please see letters of interest previously submitted with the original application materials. Efforts to contact properties in the area began in early 2013.

Alternative Site 1

Address: 2601 E. Lake Avenue, Watsonville, CA 95076
APN: 051-491-01-000
Zone: PF-L

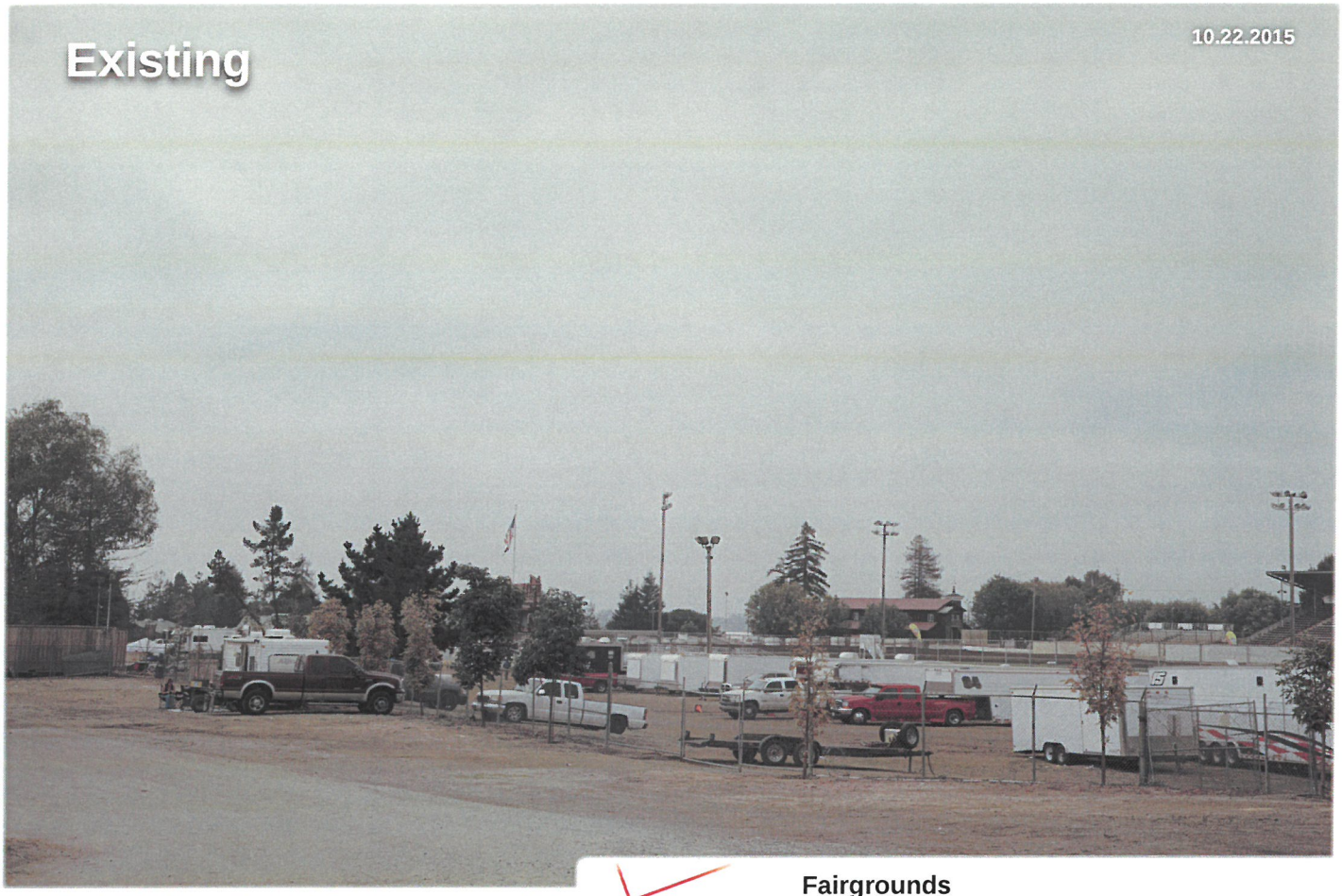
This property is located in a public and community facilities zone that allows for new wireless telecommunications facilities and would offer a colocation opportunity. However, it is also within a Historic Landmark combining district and the proposed location was ultimately more desirable due to the height available on PG&E's existing tower.

This location corresponds to the letter of interest, dated October 29, 2013.

Alternative Site 2

Address: 153 Carlton Road, Watsonville, CA 96076
APN: 110-091-10-000
Zone: CA

This location corresponds to the letter of interest, dated November 19, 2013, signed by Eire Stewart. This location was considered upon further discussion with the property owner.



verizon

Fairgrounds
2601 E Lake Avenue, Watsonville, CA 95076

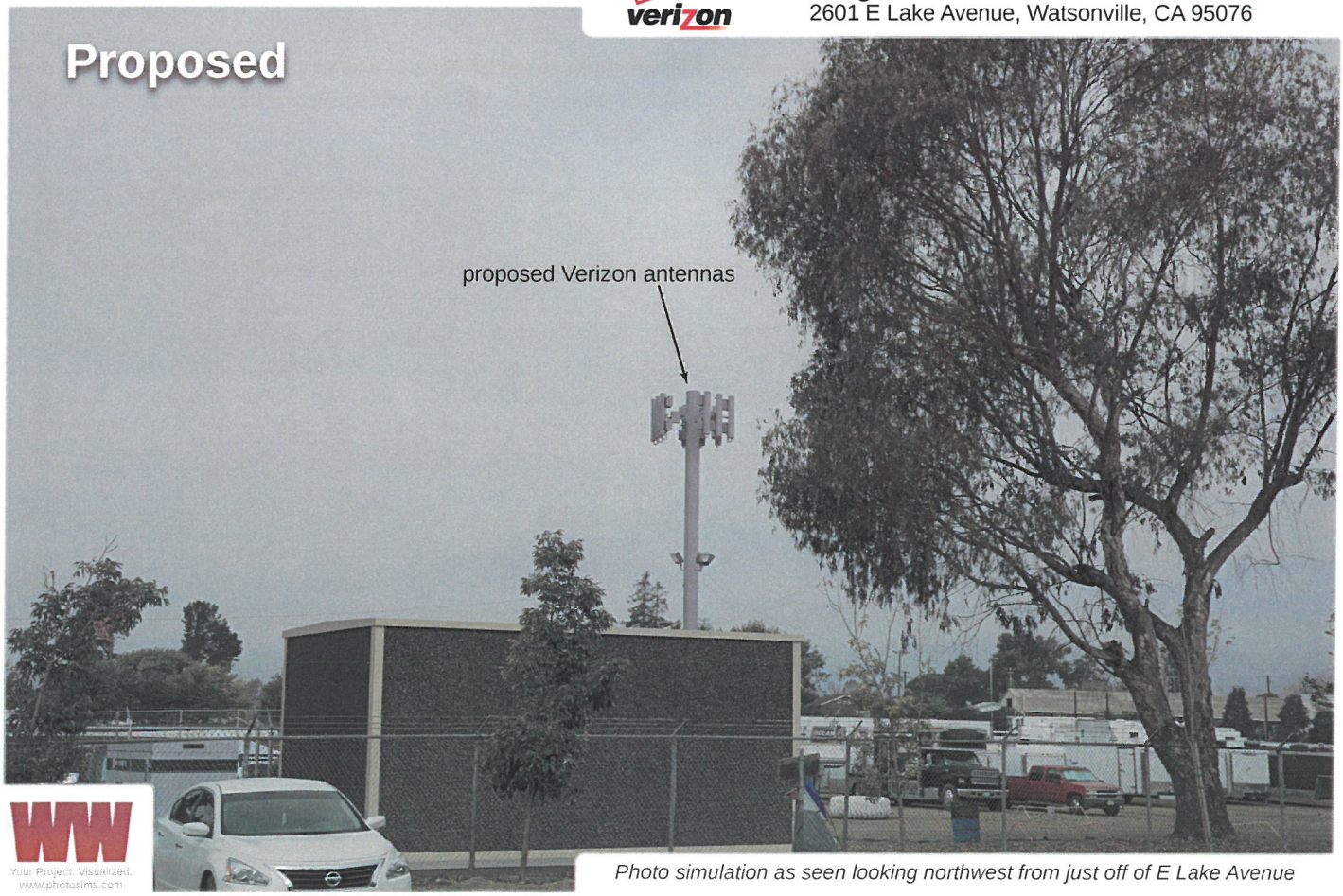
WW
Your Project. Visualized.
www.photosims.com

Photo simulation as seen looking southwest from the Horse Show Service Gate

EXHIBIT F

verizon

Fairgrounds
2601 E Lake Avenue, Watsonville, CA 95076



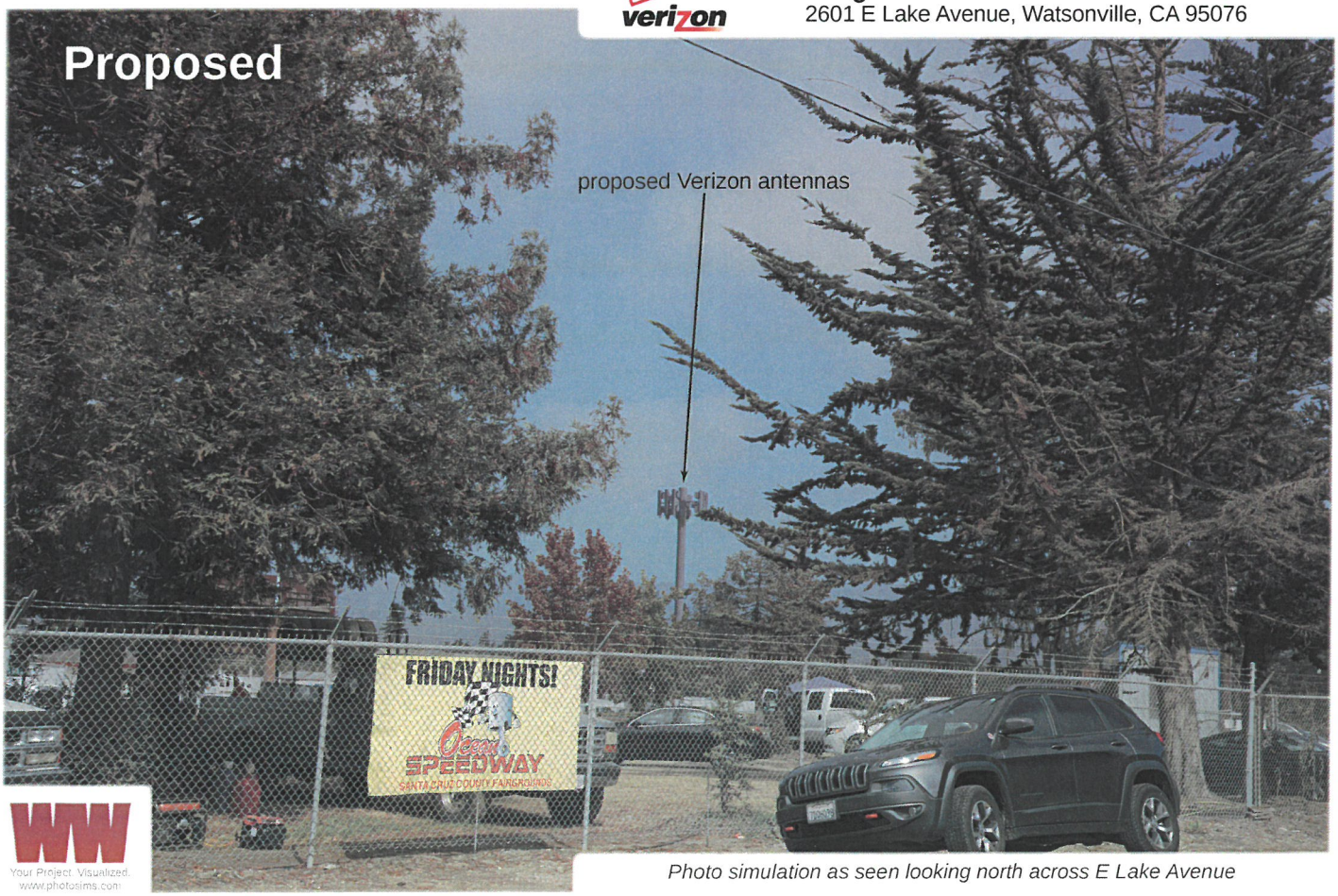
WW
Your Project. Visualized.
www.photosims.com

Photo simulation as seen looking northwest from just off of E Lake Avenue

EXHIBIT F

verizon

Fairgrounds
2601 E Lake Avenue, Watsonville, CA 95076



WW
Your Project. Visualized.
www.photosims.com

Photo simulation as seen looking north across E Lake Avenue

EXHIBIT F

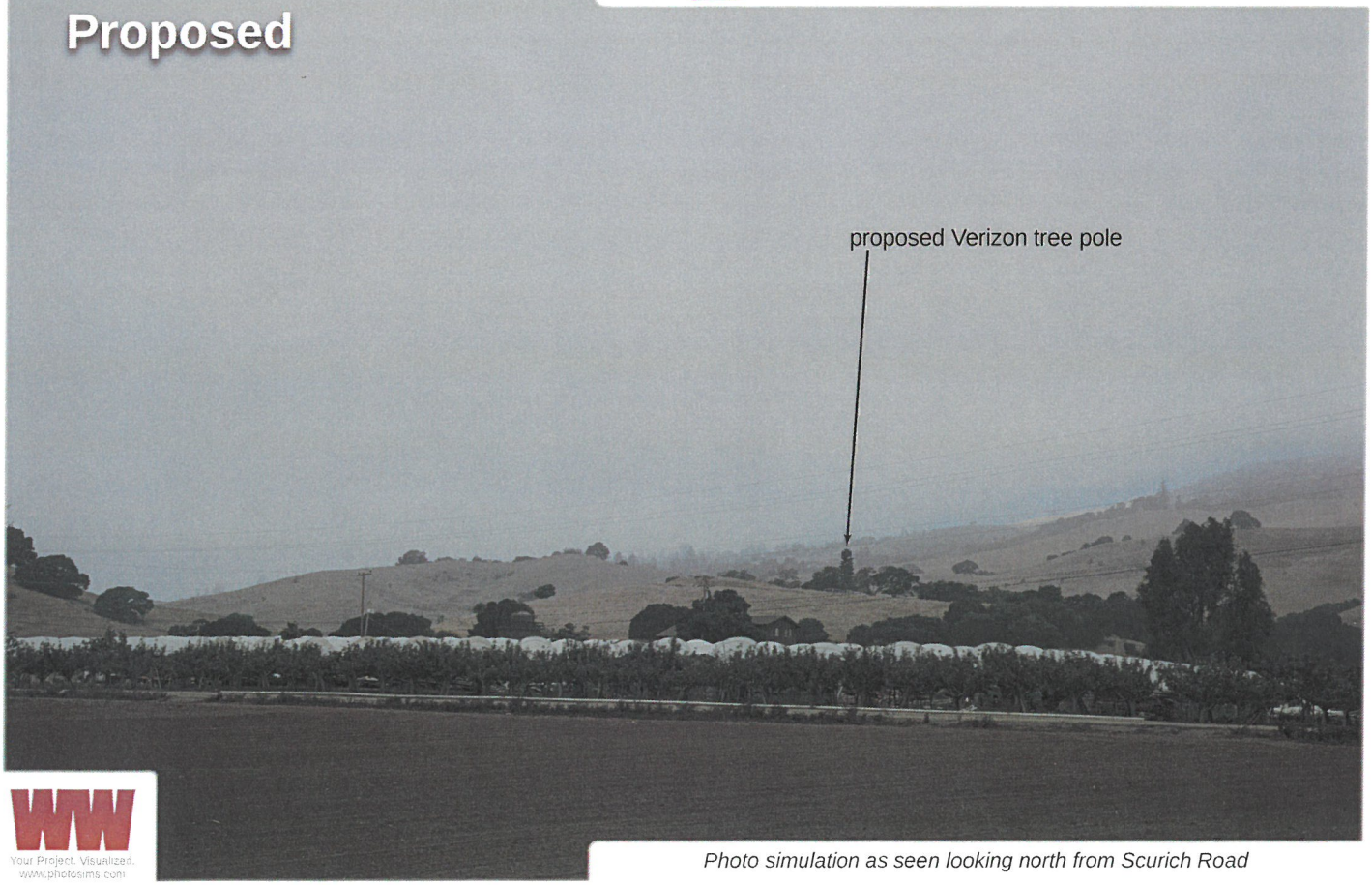
Existing

10.22.2015

verizon

D & D Ranch #4
153 Carlton Road, Watsonville, CA 96076

Proposed



WW
Your Project. Visualized.
www.photosims.com

Photo simulation as seen looking north from Scurich Road

EXHIBIT F

verizon

D & D Ranch #4
153 Carlton Road, Watsonville, CA 96076

WW
Your Project. Visualized.
www.photosims.com

Photo simulation as seen looking northeast from Carlton Road

EXHIBIT F

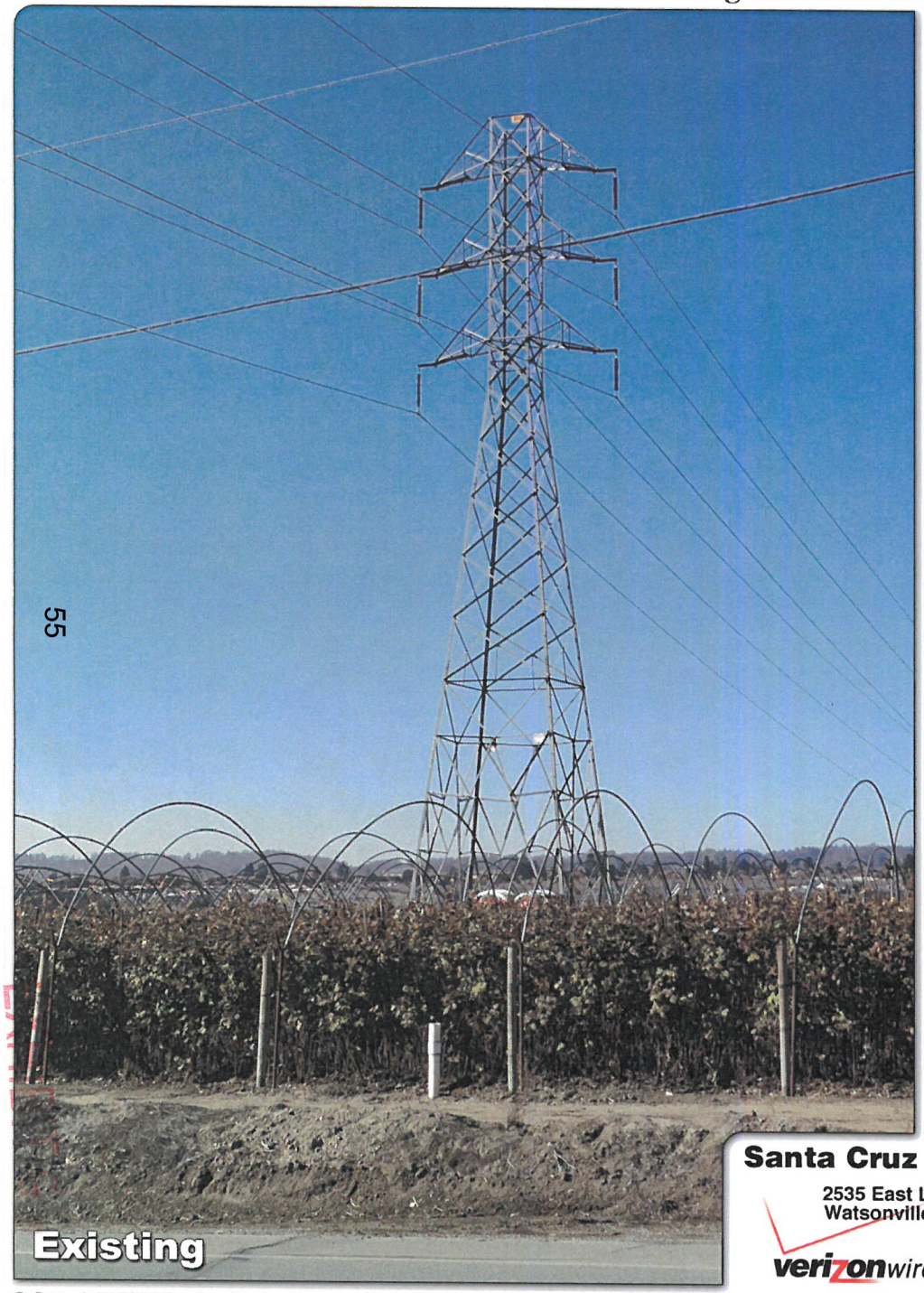
Santa Cruz Fairgrounds

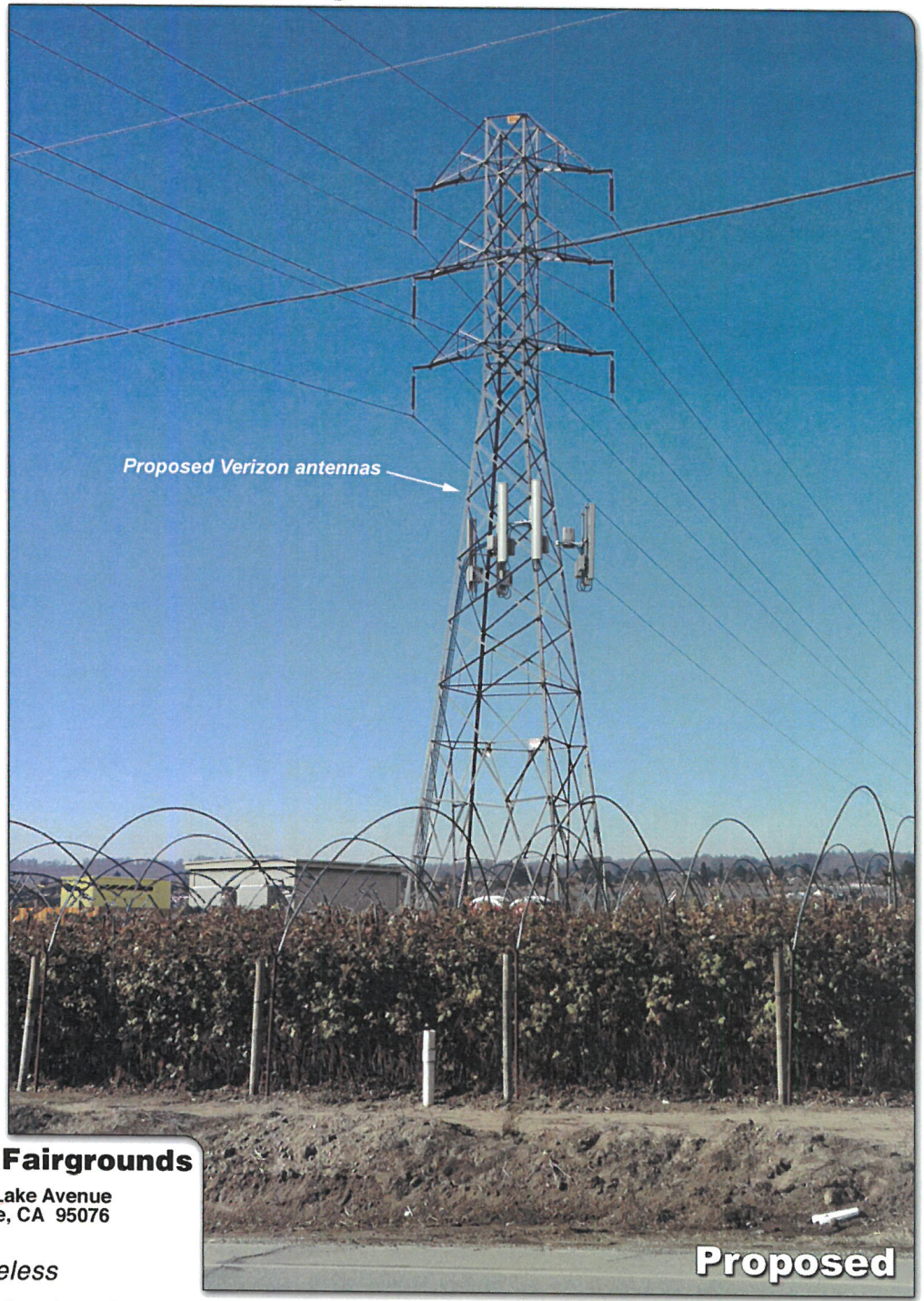
2535 East Lake Avenue
Watsonville, CA 95076

verizonwireless

Aerial photograph showing the viewpoints for the photosimulations.

Photosimulation of the view looking northwest from the nearest point along East Lake Avenue.





55

Santa Cruz Fairgrounds

2535 East Lake Avenue
Watsonville, CA 95076

verizonwireless

Santa Cruz Fairgrounds
2535 East Lake Avenue
Watsonville, CA 95076

verizonwireless

Photosimulation of the view looking southwest along East Lake Avenue (Hwy 152).

EXHIBIT 9

Environmental Noise Analysis

Santa Cruz Fairgrounds Cellular Facility

Santa Cruz County, California

BAC Job # 2014-130

Prepared For:

Complete Wireless Consulting

Attn: Danielle Hanover
2009 V Street
Sacramento, CA 95818

Prepared By:

Bollard Acoustical Consultants, Inc.

Paul Bollard, President

March 17, 2015

BOLLARD
Acoustical Consultants

3551 Bankhead Road • Loomis, CA 95650 • Phone: (916) 663-0500 • Fax: (916) 663-0501 • BACNOISE.COM

EXHIBIT H

Introduction

The Santa Cruz Fairgrounds Verizon Wireless Unmanned Telecommunications Facility Project (project) proposes adding antennas to an existing PG&E tower and proposes the addition of a pre-fabricated equipment shelter, and emergency diesel standby generator inside a fenced area located at 2535 East Lake Avenue in Watsonville (Santa Cruz County), California. The external HVAC units of the equipment shelter and the emergency diesel standby generator have been identified as primary noise sources associated with the project. Please see Figure 1 for the general site location. The studied site design is dated May 12, 2014.

Bollard Acoustical Consultants, Inc. has been contracted by Complete Wireless Consulting, Inc. to complete an environmental noise assessment regarding the proposed project cellular equipment operations. Specifically, the following addresses daily noise production and exposure associated with operation of the project emergency generator and external HVAC equipment.

Please refer to Appendix A for definitions of acoustical terminology used in this report.

Criteria for Acceptable Noise Exposure

Santa Cruz County General Plan Noise Element

The Santa Cruz County General Plan Noise Element provides regulations regarding noise levels produced by stationary (non-transportation) noise sources. The primary objective of the Noise Element is to prescribe policies that lead to the preservation and enhancement of the quality of life for the residents of Santa Cruz County by securing and maintaining an environment free from hazardous and annoying noise. These standards are summarized below in Table 1.

Table 1
Maximum Allowable Noise Exposure for Stationary Noise Sources
Santa Cruz County Noise Element of the General Plan

Noise Level Descriptor	Daytime 7 a.m. to 10 p.m.	Nighttime 10 p.m. to 7 a.m.
Hourly L_{eq}, dB	50	45
Maximum Level (L_{max}), dB	70	65

Source: Santa Cruz County Noise Element of the General Plan

Santa Cruz County Code

Section 13.10.663 of the Santa Cruz County Code states that backup generators shall only be operated during power outages and for testing and maintenance purposes. If the facility is located within 100 feet of a residential dwelling unit, noise attenuation measures shall be included to reduce noise levels at the facility to a maximum exterior noise level of 60 dB L_{dn} at the property line and a maximum interior noise level of 45 L_{dn} within the nearby residence.

EXHIBIT H

As shown in Figure 1, the proposed cellular facility is located approximately 870 feet away from the nearest residence. Because the proposed cellular facility would be located over 100 feet away from the nearest residence, the noise level criteria presented in Section 13.10.663 of the Santa Cruz County Code would not be applicable to this project. However, the project noise emissions would still be required to comply with the County of Santa Cruz General Plan Noise Element noise level criteria, presented previously in Table 1.

Discussion of Noise Standard Interpretation Relative to Cellular Facility Projects

Both the County General Plan Noise Element and Noise Ordinance apply the County's noise standards at the property line of the noise-sensitive receiving use. In cases where there are residences located in close proximity to the property lines, application of the noise standards at the project property lines ensures that adequate protection will be in place to ensure the residents are not adversely affected by noise.

Cellular projects are different than most noise-generating projects in that the cellular companies make efforts to locate their proposed equipment as far away from residences as practical, including the residence on the property being leased for the cellular equipment. The result is frequently that the cellular equipment is located far from residences but very close to residential property lines.

The high-frequency noise generated by cellular equipment cabinet cooling fans (the only source of noise associated with the equipment cabinets), dissipates rapidly over distance. As a result, if equipment cabinets are located adjacent to a property line, it's not uncommon for the fan noise to exceed property line noise standards even though the noise has dissipated rapidly within 50 to 100 feet from the cabinets. In addition, cellular cabinet fans frequently cycle off when temperatures drop during nighttime hours and cooling requirements are greatly diminished.

The other noise source associated with cellular projects is the emergency generator. The generator's function is to maintain communications during power outages. As a result, the only time the generator operates is during relatively infrequent power outages and for a period of 15 minutes during daytime hours twice a month to ensure the generator will be functional should a power outage occur.

With a level 2 acoustic enclosure, a typical cellular facility generator emits a noise level of 68 dB at a reference distance of 23 feet. If the generator is located within 10 feet of a residential property line, a condition which is not uncommon, the noise level while operating is approximately 75 dB at that property line. A level of 75 dB will exceed most nighttime property line noise standards even though the nearest residences may be hundreds of feet away and there is no noise-sensitivity at the property line.

Because the noise generation of cellular cabinet HVAC fans is low and dissipates rapidly, and cellular facility generators would only operate during nighttime hours to maintain vital communications during power outages, it is BAC's professional opinion that noise impacts associated with cellular facilities are more appropriately evaluated in the immediate vicinity of residences rather than at lines. In addition, because cellular facility generators operate for extended periods at night only emergency power outages, the noise created by emergency generator operations would appropriately be exempted from local noise provisions. Finally, it is BAC's professional opinion that noise

during routine, twice-monthly, daytime generator testing should be evaluated relative to local daytime maximum noise level standards.

BAC does not dictate noise policy, or interpretation of noise policy, to city or county planning departments. As a result, this analysis assesses noise impacts at residential property lines as required by the local noise standards. However, noise impacts are also evaluated in the immediate vicinity of existing residences where the actual noise sensitivity is greatest. The preceding discussion is provided to encourage planning departments to consider latitude in interpreting their noise standards in cases where cellular facilities are proposed near residential property lines but considerable distances from the nearest residences.

Project Noise Generation

Sources and Reference Noise Levels

Noise exposure from the proposed project HVAC units is expected to be approximately 67 dB (L_{eq}) at a distance of 10 feet from the equipment. This reference noise level of 67 dB at 10 feet is based on a Bard WA3S1 Wall-Mount Step Capacity Air Conditioner, which is reportedly similar to the type of equipment being proposed at the project site.

The generator which is proposed at this site would only operate during emergencies (power outages) and brief daytime periods for periodic maintenance/lubrication. A Generac Industrial Power Systems Model SD030 is proposed for use at this facility to maintain cellular service during emergency power outages. The noise emissions of this generator vary depending on the type of enclosure provided with the generator. The following reference noise levels at a measurement distance of 23 feet from the operating generator are provided by the equipment manufacturer (see Appendix B):

- Open Set 82 dBA
- Standard Enclosure 77 dBA
- Level 1 Acoustic Enclosure 70 dBA
- Level 2 Acoustic Enclosure 68 dBA

The project emergency generator would be tested during daytime hours only, and even then only for brief periods of time. The emergency generator would only operate at night during power outages. It is expected that nighttime operation of the project emergency generator would be exempt from the County's exterior noise exposure criteria due to the need for continuous cellular service provided by the project equipment. The generator was assumed to be equipped with the standard enclosure, resulting in a reference noise level of 77 dB at 23 feet.

Predicted Facility Noise Levels at Nearby Sensitive Receptors

As indicated in Figure 1, the cellular facility maintains a separation of 870-1,000 feet from the nearest existing residences, identified as receivers 1-2. The residence identified as receiver 1 is located the same parcel as the proposed facility (APN: 051-441-20). The nearest off-site residence is identified as receiver 2 on Figure 1. The project equipment maintains a separation of 870 feet from property line of receiver 2. Assuming standard spherical spreading loss (-6 dB per doubling of

distance), project-equipment noise exposure at the closest receivers was calculated and the results of those calculations are presented in Table 2.

Table 2
Summary of Project-Related Noise Exposure at Nearest Residences and Property Line
Santa Cruz Fairgrounds Verizon Wireless Telecommunications Facility Project

Nearest Receiver[1]	Distance from Cellular Equipment (feet)	Predicted Noise Levels (dBA)	
		HVAC	Generator[2]
1	870	28	45
2	1,000	27	44
Property Line	870	28	45

Notes:
1 Receiver locations are shown on Figure 1.
2 Generator equipped with Standard Enclosure utilized for project noise calculations (77 dB at 23 feet).

HVAC Noise Assessment

Because the proposed HVAC units could potentially be in operation during nighttime hours, the operation of the HVAC units would be subject to the County's hourly average nighttime noise level standard of 45 dB L_{eq}. As shown in Table 2, the predicted HVAC noise levels of 27-28 dB L_{eq} at the nearest existing residences would satisfy the Santa Cruz County 45 dB L_{eq} nighttime noise level standard. In addition, at the nearest residential property line to the north, predicted HVAC noise levels of 28 dB L_{eq} would also satisfy the County's nighttime noise level standard. As a result, no further consideration of noise mitigation measures would be warranted for this aspect of the project.

Generator Noise Assessment Relative to County's Daytime Maximum (70 dB L_{max}) Standard.

Because the project generator would only operate during daytime hours for brief periods required for testing and maintenance, and because generator noise is assumed to be exempt during emergency operations, noise from the generator could be subject to the County's maximum daytime noise level standard of 70 dB L_{max}. As shown in Table 2, the predicted generator noise levels of 44-45 dB L_{max} would satisfy the Santa Cruz County maximum daytime noise level standard of 70 dB L_{max}. As a result, no additional noise mitigation measures would be warranted for this aspect of the project if the County's maximum daytime noise standard is applicable.

Generator Noise Assessment Relative to County's Nighttime Average (45 dB L_{eq}) Standard

The County has indicated that they prefer generator noise be assessed relative to their nighttime average noise level standard of 45 dB L_{eq}. As shown in Table 2, the predicted generator noise levels of 44-45 dB L_{eq} would satisfy the Santa Cruz County average nighttime noise level standard of 45 dB L_{eq} at both the nearest property line and at the nearest residences. As a result, no further consideration of noise mitigation measures would be warranted for this aspect of the project.

Conclusions

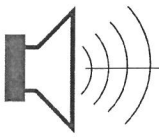
Based on the equipment noise level data and analyses presented above, project-related equipment noise exposure is expected to satisfy the applicable Santa Cruz County noise exposure limits at the closest residential receivers and at the nearest property line containing a residence. As a result, no additional noise mitigation measures would be warranted for this project.

This concludes our environmental noise assessment for the proposed Santa Cruz Fairgrounds Cellular Facility in Watsonville (Santa Cruz County), California. Please contact BAC at (916) 663-0500 or paulb@bacnoise.com with any questions or requests for additional information.

Appendix A

Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz.
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
Loudness	A subjective term for the sensation of the magnitude of sound.
Masking	The amount (or the process) by which the threshold of audibility is for one sound is raised by the presence of another (masking) sound.
Noise	Unwanted sound.
Peak Noise	The level corresponding to the highest (not RMS) sound pressure measured over a given period of time. This term is often confused with the Maximum level, which is the highest RMS level.
RT_{60}	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 sabin.
SEL	A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy of the event into a 1-s time period.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.

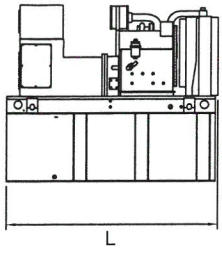


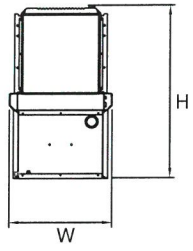
BOLLARD

Acoustical Consultants

GENERAC | INDUSTRIAL POWER

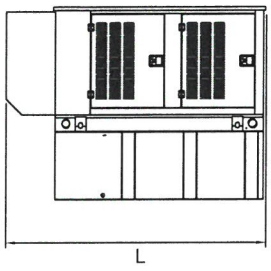
SD030 dimensions, weights and sound levels

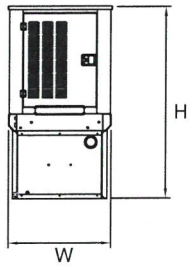




OPEN SET

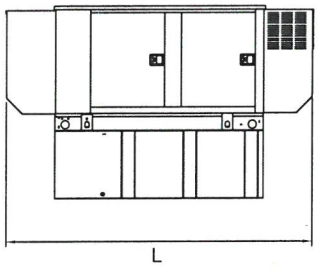
RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*
NO TANK	-	76	38	46	2060	82
20	54	76	38	59	2540	
48	132	76	38	71	2770	
77	211	76	38	83	2979	
109	300	93	38	87	3042	

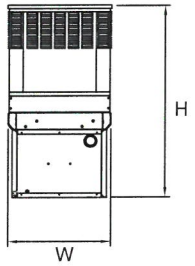




STANDARD ENCLOSURE

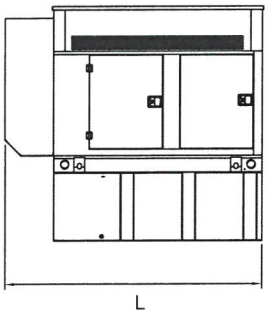
RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*
NO TANK	-	95	38	50	2362	77
20	54	95	38	63	2842	
48	132	95	38	75	3072	
77	211	95	38	87	3281	
109	300	95	38	91	3344	

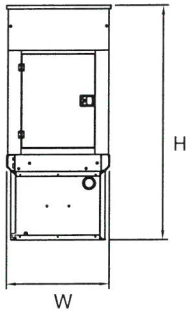




LEVEL 1 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*
NO TANK	-	113	38	50	2515	70
20	54	113	38	63	2995	
48	132	113	38	75	3225	
77	211	113	38	87	3434	
109	300	113	38	91	3497	





LEVEL 2 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*
NO TANK	-	95	38	62	2520	68
20	54	95	38	75	3000	
48	132	95	38	87	3230	
77	211	95	38	99	3439	
109	300	95	38	103	3502	

*All measurements are approximate and for estimation purposes only. Weights are without fuel in tank. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

Tank Options

○	MDEQ	OPT
○	Florida DERM/DEP	OPT
○	Chicago Fire Code	OPT
○	IFC Certification	CALL
○	ULC	CALL

Other Custom Options Available from your Generac Industrial Power Dealer

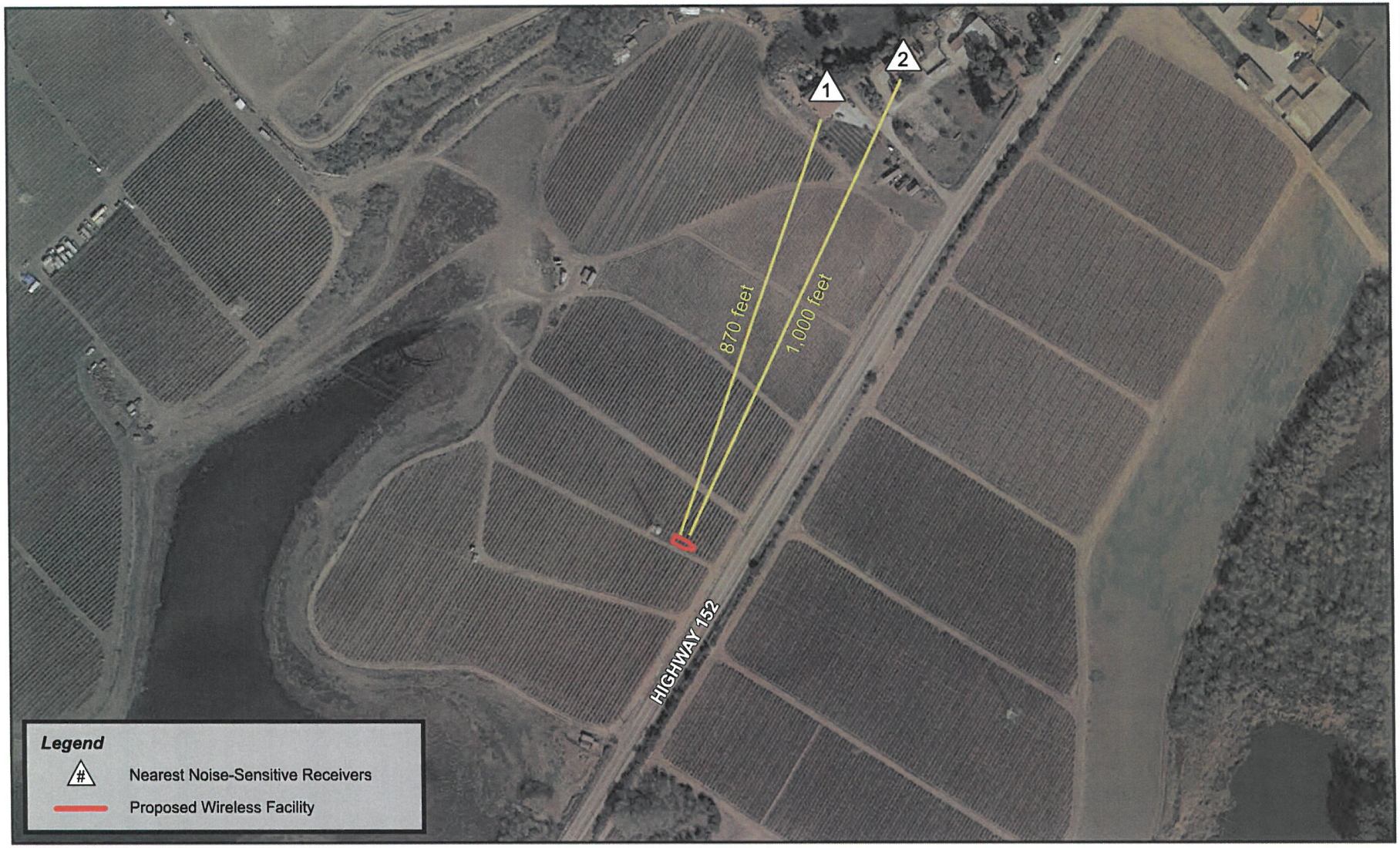
YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

Figure 1

Santa Cruz Fairgrounds Cellular Facility - Santa Cruz County, California

Project Area and Nearest Noise-Sensitive Receivers



BOLLARD
Acoustical Consultants

Scale (feet)
0 250 500

EXHIBIT H