Commission Date: December 12, 2012

SUBJECT: Proposed Verizon Wireless Cellular Antenna Project at Sunken Gardens Golf Course

REPORT IN BRIEF

Verizon Wireless Corporation contacted the City and proposed the construction of a wireless antenna project to enhance communications for their customers at Sunken Gardens Golf Course. (Please see Attachment A, Project Site Plans.) Following this request, staff has taken steps to review this project consistent with City Council's direction received on October 10, 2006. That is, staff has reviewed the possible new driving range structure and cell tower that would be completed within the scope of this project, facilitated public meetings for the near neighbors, and initiated negotiations for a potential lease agreement.

BACKGROUND

The proposed project would place an 85' foot antenna tower on site along with a 640 square foot building for a driving range golf ball cleaning/dispensing facility (400 square feet) and cellular equipment storage (240 square feet). To avoid using additional space for related electronic equipment, Verizon has proposed replacement and enlargement of the existing golf structure. Replacing the building through this project would meet the needs of Verizon Wireless and provide a new facility for golfers.

If the project is approved, telecommunications would be improved in this neighborhood; the City would save future infrastructure costs for replacement of the range facility and receive ongoing revenues of approximately $2,300 monthly.

Staff met with near neighbors at Sunken Gardens on Thursday, October 25, 2012, at 12:00 p.m. and again at 7:00 p.m. to discuss this project and gather community input. (Please see Attachment B, Invitation to Public Meetings.) Those that attended the meetings shared both opposing and supportive views, asked questions and expressed concerns. Potential health impacts were the most common concern expressed. Staff provided an overview of related federal laws and City policies as well as the cellular project review process approved by City Council on October 10, 2006 (Please see Attachment C, Cellular Tower Proposal for Sunken Gardens Golf Course).

EXISTING POLICY

From the Sunnyvale Municipal Code:

Chapter 19.54. WIRELESS TELECOMMUNICATION FACILITIES

19.54.010. Purpose and intent.

(a) The purpose and intent of this chapter is to provide a uniform and comprehensive set of standards for the development, siting and installation of wireless telecommunication facilities and antennas. The regulations contained herein are designed to protect and promote public health, safety, community welfare and the aesthetic quality of the city as set forth within the goals, objectives and policies of the general plan, the telecommunications policy and the city-wide design guidelines, while at the same time providing for managed development of wireless telecommunications infrastructure in accordance with the guidelines and intent of the Telecommunications Act of 1996.

(b) It is intended that the city shall apply these regulations in furtherance of the goals and policy objectives as set forth in the telecommunications policy, recognizing the city's roles as regulator, service provider, facilitator and user, including but not limited to the following:

(1) To retain control of public property within the confines of state and federal legislation to regulate wireless telecommunications services;

(2) To promote universal access to wireless telecommunications services;

(3) To use wireless telecommunications to maintain and enhance information resources and services;

(4) To promote use of wireless telecommunications technology, where appropriate and within the scope of available resources, to enhance the economic vitality of Sunnyvale;

(5) To facilitate the creation of an advanced wireless telecommunications infrastructure, within given resources, for citizens, businesses, industries and schools.

(c) Consistent with the foregoing purpose and objectives, and pursuant to the city's inherent police power authority to regulate such uses through zoning, building and safety requirements, the city seeks to:

(1) Protect the city from potential adverse effects of wireless telecommunication facility development;

(2) Retain local responsibility for management of the use of public rights-of-way;

(3) Facilitate the development of high-quality wireless telecommunications infrastructure and services to serve the citizens and business community of the city;

(4) Ensure that the wireless telecommunications infrastructure is designed to enhance and not interfere with the city's emergency response network;

(5) Streamline the process for obtaining necessary permits for wireless telecommunication facilities while at the same time ensuring compliance with all applicable zoning, building, health and safety requirements under this code. (Ord. 2623-99 § 1 (part): prior zoning code § 19.70.010).

19.54.160. Public property and public right-of-way.

(a) The city manager or the manager's designee may establish terms and conditions under which any public property or facility or right of way may be made available by lease or franchise as a location for wireless telecommunication facility

(b) No wireless telecommunication facility shall be constructed in or upon a public property or facility owned by the city, unless the telecommunications provider seeking to operate the facility has obtained a lease from the city, authorizing the provider to occupy the property or facility. The lease shall include the standard set forth in this chapter.

From the Open Space and Recreation Sub-Element:

B. Programming: The City strives to develop and implement passive and active recreation and enrichment programs that:

- provide constructive opportunities for fitness, well-being, healthy coping and stress management;
- highlight cultural practices and traditions reflective of a diverse community;
- promote activities that foster interaction among diverse parts of the community;
- encourage creative expression, education, skill development, and personal enrichment;
- contribute to the creation of a healthy community; and
- promote community participation in recreation for all ages.

It is the City's policy, therefore, to:

1. Leverage available resources by pursuing co-funded and/or cooperative agreements for provision and maintenance of programs, facilities, and services, in order to maximize benefits to the community. Partners may include, but are not limited to, school districts, non-profit groups, governmental agencies and businesses.

From Section 704 of the Federal Telecommunications Act of 1996.

No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions.

DISCUSSION

As the demand for cellular telephones increases, the need for complete signal coverage throughout Sunnyvale also increases. Therefore, more cellular antenna projects have been proposed throughout Sunnyvale. In order to improve wireless signal strength, cellular companies are seeking permission to install cellular antennas within residential neighborhoods at city-owned facilities. This is the case at Sunken Gardens Golf Course where Verizon Wireless Corporation has proposed this project.

The current use of land, in this instance, is a decades old facility that has been used for a golf course and driving range. The proposed project would replace and enlarge the existing driving range building to accommodate the electronic equipment for the antenna. The size of the driving range building would increase from 400 square feet to 640 square feet. An 85' high slim-line monopole would be located just to the west of the building and in the middle of a row of approximately 30 Palm trees that range from 60-85' high. Wireless panel antennas would be affixed to the pole and concealed within a radome. If approved, service to golfers would be enhanced as they make use of a new driving range building with improved functionality and aesthetics.

Neighborhood Input Meetings:

Use of park land is of interest to the community and staff facilitated public meetings with a Verizon Wireless representative to gather neighbor input. Staff met with near neighbors on Thursday October 25, 2012 at 12:00 p.m. and again at 7:00 p.m. to discuss this project and gather community input. Those that attended the meetings expressed opinions, asked questions, and shared both opposing and supportive views of the project. (Please see Attachment D, Summary of Neighbor Input.)

The most common concern expressed was that of potential health risks related to the proposed antenna systems. Specifically, staff shared the following portion of federal code with attendees:

Section 704 of the Telecommunications Act of 1996.

No State or local government or instrumentality thereof may regulate the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."

Therefore, as long as the facilities comply with federal regulations as currently specified in lease agreements, the City does not have a health and safety related reason to deny such uses. A good deal of conversation revolved around the emissions limits which are set by the Federal Communications Commission and approved by Congress. Emissions, as calculated by the independent engineering consultant, are noted in Attachment C, Engineer's Report dated June 12, 2012. According to this report, emissions at ground level are estimated at 0.0028 mW/cm2, which is 0.49% of the applicable public limit. The maximum calculated level at the top-floor elevation of any nearby building would be 0.65% of the public exposure limit. The City's limitations, as contained in existing written agreements for cellular installations, note that operators must maintain systems within limits of FCC regulations. Although this system is estimated to operate well below federal limits, the City does not require that this particular system operate at levels lower than federally established standards.

A few residents were concerned over the amount of noise generated by the equipment on the ground and contained in the cellular provider's portion of the new building. The amount of sound generated inside of the building is estimated at 62-69 decibels. The amount of sound generated immediately outside of the building is estimated to be less than 45 decibels and this is within limits allowed by the City as noted in municipal code 19.4.030.(a) Noise and Sound Level :

"Operational noise shall not exceed seventy-five dBA at any point on the property line of the premises upon which the noise or sound is generated or produced; provided, however, that the noise or sound level shall not exceed fifty dBA during nighttime or sixty dBA during daytime hours at any point on adjacent residentially zoned property. If the noise occurs during nighttime hours and the enforcing officer has determined that the noise involves a steady, audible tone such as a whine, screech or hum, or is a staccato or intermittent noise (e.g., hammering) or includes music or speech, the allowable noise or sound level shall not exceed forty-five dBA."

Similar equipment at Ortega Park is located within 150' of residences and there have been no complaints about noise. The nearest residences at Sunken Gardens would be more than 150' away from the equipment building. There would be no permanent back-up generator and a roll-up generator would only be used in the case of an emergency power outage that lasted longer than 4-6

hours. The equipment could be run for up to 12 hours using batteries permanently located in the building.

Some residents expressed concern regarding the lease revenue value of the proposed facility to the City. The estimated yearly lease revenue is approximately $28,000 per year. While this is not a large percentage of all revenues received yearly by the City, it does reflect new revenue that is not provided through increases to residents' taxes or user fees. This amount is consistent with payments received from other companies for similar cellular facilities in Sunnyvale when comparing total compensation to the City including lease revenue and capital improvements. All lease revenue will go to the Golf and Tennis Enterprise Fund and utilized to maintain and improve the City's golf courses and tennis center.

Residents questioned whether other cellular company antennas would be placed at Sunken Gardens and what life span the proposed lease would have. Regarding additional antenna systems, to date no other companies have proposed placement of antennas at Sunken Gardens Golf Course. However, approval or denial of any additional antennas would have to go through the process required for any new cellular facilities. The proposed term of the lease would be consistent with Sunnyvale's other park cellular antenna leases that have an initial five-year term with three five-year extensions provided. With all extensions granted, the proposed lease would have a maximum term of twenty years.

FISCAL IMPACT

Removal and replacement of the Sunken Gardens Golf Course Driving Range building at the expense of the Verizon Corporation would save the City approximately $180,000 - $280,000 in infrastructure costs required to replace the current building. Funds for the replacement of the building are currently budgeted in FY 2012/13 and would have been funded by the Park Dedication Fund. If not needed for replacement of this particular building, these funds could be returned to the Park Dedication Fund reserve and re-programmed for future use in the FY 2013/14 Recommended Budget.

Establishing a long-term lease with Verizon or facilities including a cellular antenna system would result in ongoing income to the Golf and Tennis Fund. While negotiation of such a lease is not completed, staff anticipates approximately $2,300 per month, or $27,600 annually, in new revenue. Over the maximum twenty-year term, the City would receive approximately $700,000 in new revenue. If approved, these revenues would be programmed into the Golf and Tennis Fund 20-year financial plan for the FY 2013/14 Recommended Budget.

PUBLIC CONTACT

Public Contact was made through posting of the Parks and Recreation Commission agenda on the City's official-notice bulletin board, on the City's Web site, and the availability of the agenda and report in the Office of the City Clerk.

Public meetings were conducted at the Sunken Gardens Golf Course restaurant building on Thursday, October 25, 2012, at 12 p.m. and 7 p.m. Notification of these meetings was provided through posting fliers at Sunken Gardens Golf Course, notifying local Neighborhood Associations and through direct mail delivery by U.S.P.S. to neighbors that live within 500 feet of the golf course.

ALTERNATIVES

1. Recommend that the Planning Commission approve the proposed cellular antenna project substantially as proposed by Verizon Wireless and as noted in Attachment A.
2. Recommend that the Planning Commission approve the proposed cellular antenna project as proposed by Verizon Wireless and as noted in Attachment A and including specific changes to plans.
3. Recommend that the Planning Commission not approve the proposed cellular antenna project as proposed by Verizon Wireless and as noted in Attachment A.
4. Other recommendation as appropriate.

RECOMMENDATION

Staff recommends that the Parks and Recreation Commission make the following recommendation to Planning Commission regarding this project:

1. Recommend that the Planning Commission approve the proposed cellular antenna project substantially as proposed by Verizon Wireless and as noted in Attachment A.

This action is consistent with City policy and goals and would enhance the ability of the City to provide high quality recreational facilities and programs at Sunken Gardens Golf Course. A potential lease agreement would provide ongoing financial support to the Golf and Tennis Fund and allow Park Dedication Funds allocated for the replacement of the driving range building to be used for other golf course capital improvements. Benefits to the community include improved cellular communications in that section of the City and support existing City Council Policy on this subject. Antenna system emissions would be within the applicable FCC public limits.

Prepared by:

Mike Abney, Administrative Analyst

Reviewed by:

Scott Morton, Superintendent of Parks and Golf

Approved by:

Kent Steffens, Director, Public Works

Attachments

A. Project Site Plans
B. Invitation to Public Meetings
C. Engineer's report on RF exposure conditions
D. Summary of Neighbor Input

ATTACHMENT A

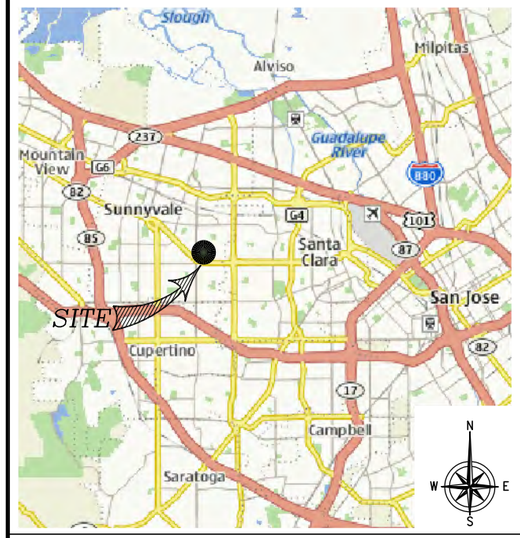
verizon wireless

WOLFE ROAD

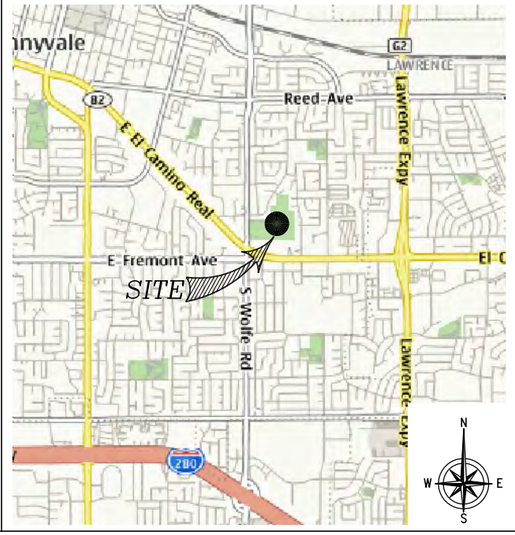
117412

1010 S. WOLFE ROAD
SUNNYVALE, CA. 94086

VICINITY MAP - N.T.S.



AREA MAP - N.T.S.



SIGNATURE BLOCK

VERIZON WIRELESS EQUIPMENT ENGINEER: SIGNATURE DATE	VERIZON WIRELESS REAL ESTATE: SIGNATURE DATE
VERIZON WIRELESS CONSTRUCTION: SIGNATURE DATE	VERIZON WIRELESS RF ENGINEER: SIGNATURE DATE
PROPERTY OWNER: SIGNATURE DATE	AGENT–LEASING: SIGNATURE DATE
AGENT–CONSTRUCTION: SIGNATURE DATE	AGENT–ZONING: SIGNATURE DATE

CODE COMPLIANCE

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

1. CALIFORNIA ADMINISTRATIVE CODE (INCL TITLE 24 & 25)
2. 2010 CALIFORNIA BUILDING CODE
3. CITY/COUNTY ORDINANCES
4. BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA)
5. 2010 CALIFORNIA MECHANICAL CODE
6. 0 ANSI/EIA–222–G LIFE SAFETY CODE NFPA–101
7. 2010 CALIFORNIA PLUMBING CODE
8. 2010 CALIFORNIA ELECTRICAL CODE
9. LOCAL BUILDING CODE
10. CALIFORNIA STREETS AND HIGHWAYS CODE

BUILDING/ SITE DATA LEGEND

LATITUDE:	37° 21' 21.11" N (NAD83)
LONGITUDE:	122° 00' 38.14" W (NAD83)
ELEVATION:	95.4' AMSL (NAVD 88)
A.P.N.:	213–47–009
ZONING:	E
OCCUPANCY:	U, UNMANNED
TYPE OF CONSTRUCTION:	V–B
AREA OF CONST.:	640.0' SQ FT
HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
TITLE 24 REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. TITLE 24 IS EXEMPT.

PROJECT DATA

PROPERTY OWNER:
CITY OF SUNNYVALE
650 WEST OLIVE AVE
SUNNYVALE, CA 94088
CONTACT: YVETTE BLACKFORD
PHONE: (408) 730–7655

APPLICANT:
VERIZON WIRELESS
WALNUT CREEK EXECUTIVE PARK
2785 MITCHELL DRIVE BUILDING 9
WALNUT CREEK, CA 94598

LEASING MANAGER:
RIDGE COMMUNICATIONS, INC.
12667 ALCOSTA BOULEVARD, SUITE 175
SAN RAMON, CA 94583
CONTACT: JOHN MCGAUGHEY
PHONE: (925) 498–2340

ZONING MANAGER:
RIDGE COMMUNICATIONS
12667 ALCOSTA BLVD., SUITE 175
SAN RAMON, CA 94583
CONTACT: CLARENCE CHAVIS
PHONE: (925) 498–2340

SURVEYOR:
FORESIGHT LAND SURVEYING AND CIVIL ENGINEERING
930 TAHOE BLVD. #802–152
INCLINE VILLAGE, NV 89451
CONTACT: JIM SCHURICHT
PHONE: (925) 389–8180

ARCHITECT:
DELTA GROUPS ENGINEERING, INC.
2362 McGAW AVENUE
IRVINE, CA 92614
CONTACT: HAROLD TRIAS
PHONE: (925) 468–0115

STRUCTURAL ENGINEER:
DELTA GROUPS ENGINEERING, INC.
2362 McGAW AVENUE
IRVINE, CA 92614
CONTACT: ALBERT TENG
PHONE: (949) 622–0333

CONSTRUCTION MANAGER:
RIDGE COMMUNICATIONS
12667 ALCOSTA BLVD., SUITE 175
SAN RAMON, CA 94583
CONTACT: KEITH SCHMID
PHONE: (408) 679–1141

SHEET INDEX

DRIVING DIRECTIONS

FROM: VERIZON WIRELESS REGIONAL OFFICE
IN WALNUT CREEK, CA
2785 MITCHELL DRIVE
WALNUT CREEK, CA 94598

TO: 1010 S. WOLFE ROAD,
SUNNYVALE, CA. 94086

DISTANCE: 52.69 MILES

1. HEAD TOWARD N WIGET LN ON MITCHELL DR.
2. TURN LEFT ONTO N WIGET LN.
3. TURN RIGHT ONTO YGNACIO VALLEY RD.
4. TURN LEFT AND TAKE RAMP ONTO SINCLAIR FWY (I–680 S) TOWARD SAN JOSE
5. TAKE EXIT #12/CA–262/I–880/MISSION BLVD ONTO MISSION BLVD (CA–262 W) TOWARD I–880/MISSION BLVD WEST/WARM SPRINGS DISTRICT
6. TAKE LEFT RAMP ONTO NIMITZ FWY (I–880 S) TOWARD SAN JOSE.
7. TAKE THE CA–237 W/MTN VIEW EXIT ONTO CA–237 W.
8. TAKE THE LAWRENCE EXPWY/CARIBBEAN DRIVE EXIT ONTO N LAWRENCE EXPY (CR–G2 S)
9. TAKE RAMP TOWARD EL CAMINO REAL
10. TURN RIGHT ONTO EL CAMINO REAL (CA–82 N)
11. RIGHT ONTO S WOLFE RD. YOUR DESTINATION ON S WOLFE RD IS ON THE RIGHT

PROJECT DESCRIPTION

INSTALLATION OF A WIRELESS COMMUNICATIONS FACILITY, INCLUDING THE REMOVAL OF AN EXISTING 14'–0"x30'–0" WOOD FRAMED MAINTENANCE/BALL WASHER FACILITY W/ PROPOSED 32'–0"x20'–0" SHELTER: LOCATION OF PROPOSED 12'–0"x20'–0" VERIZON WIRELESS EQUIPMENT ROOM. THE REMOVAL OF EXISTING PLUM TREE AND REPLACED WITH A PROPOSED 85'–0" HIGH SLIM LINE MONOPOLE: LOCATION OF SIX (6) PROPOSED VERIZON WIRELESS PANEL ANTENNAS CONEALED INSIDE A PROPOSED 12'–0" HIGH X 36ø RADOME. ALSO, THE INSTALLATION OF TWO (2) PROPOSED GPS ANTENNAS MOUNTED ON THE PROPOSED REPLACEMENT SHELTER EAVES AND ASSOCIATED UTILITIES AND COAXIAL CABLE LINES.

verizon wireless
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

PROJECT INFORMATION:
WOLFE ROAD
117412
1010 S WOLFE ROAD
SUNNYVALE, CA. 94086
SANTA CLARA COUNTY

CURRENT ISSUE DATE:
05/15/12

ISSUED FOR:
ZONING (100%)

REV.:	DATE:	DESCRIPTION:	BY:
4	10/23/12	ZONING (100%)	JK
3	06/14/12	ZONING (100%)	JK
2	05/15/12	ZONING (90%)	JK
1	05/02/12	ZONING (80%)	JK

PLANS PREPARED BY:
DELTA GROUPS ENGINEERING, INC.
CONSULTING ENGINEERS
5635 WEST LAS POSITAS, SUITE 403
PLEASANTON, CA 94588
TEL: (925) 468–0115 FAX: (925) 468–0355

CONSULTANT:

SEAL OF APPROVAL:

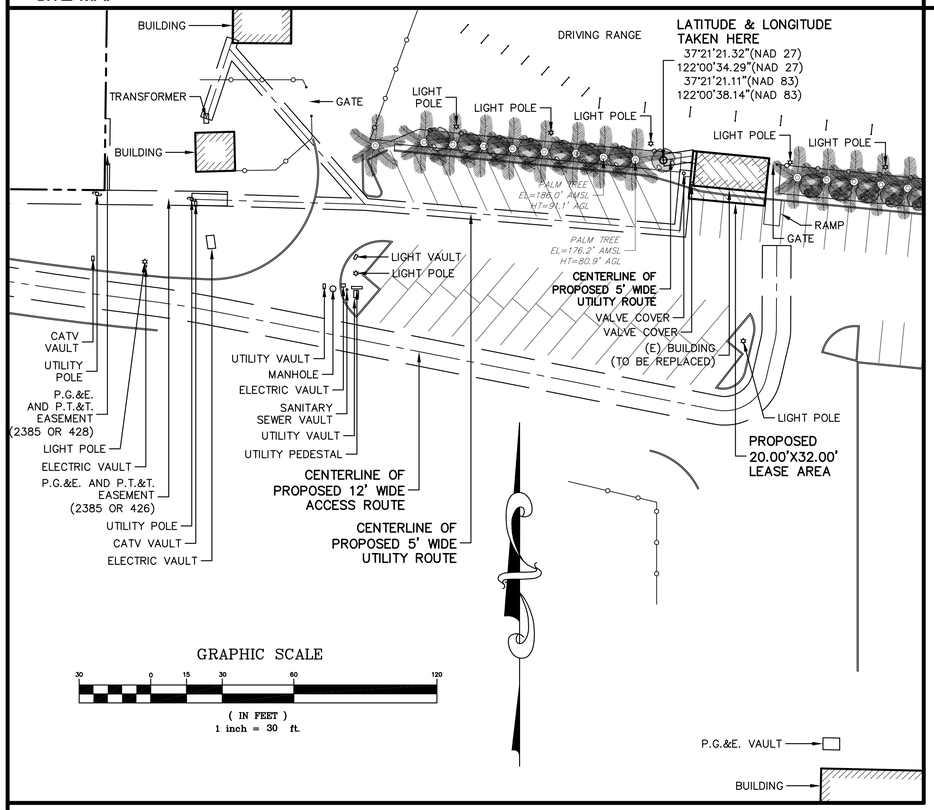
SHEET TITLE:
TITLE SHEET

SHEET NUMBER: T1
REVISION: 4
P12RC002

ATTACHMENT A

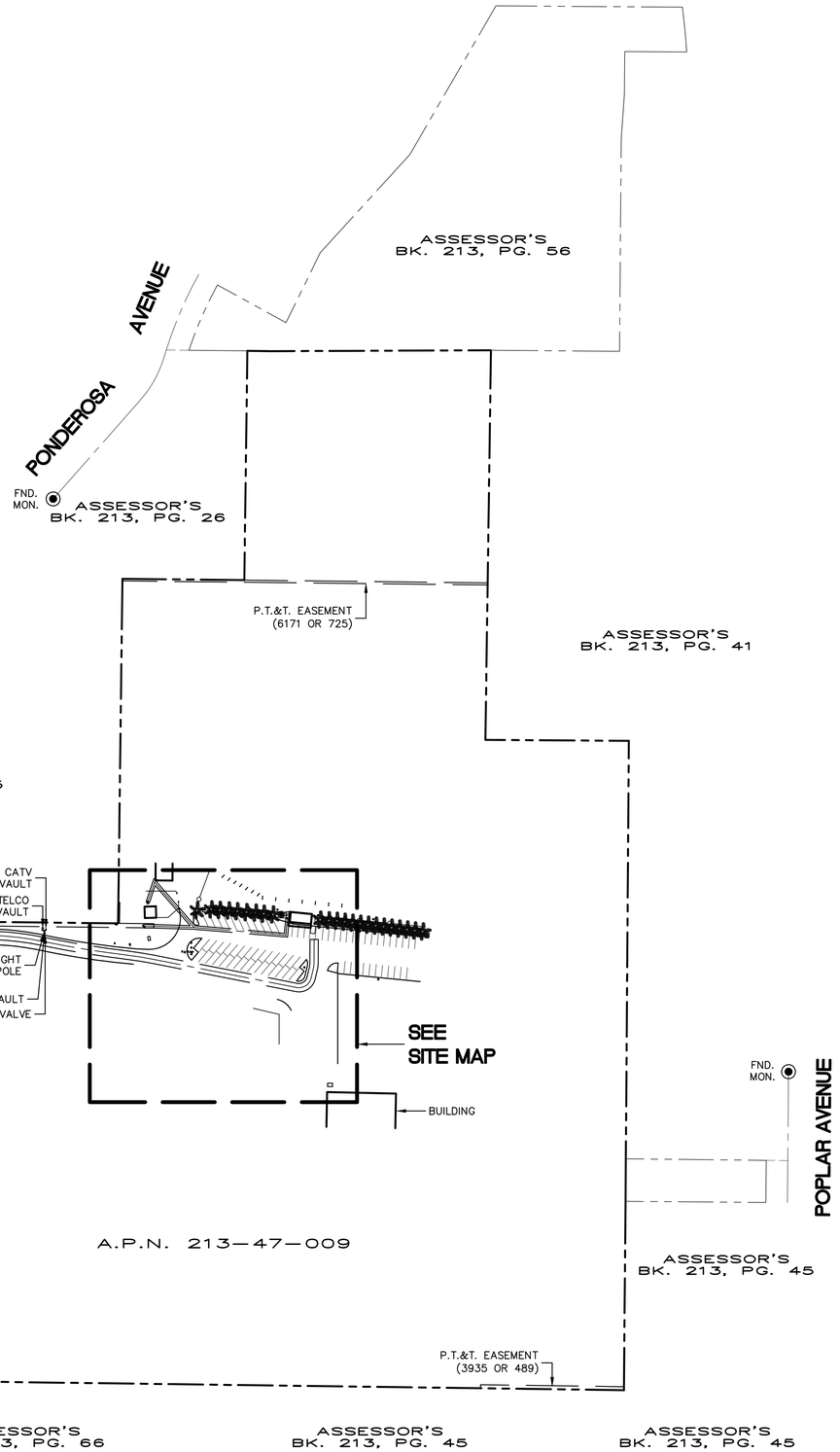
SITE MAP

SCALE: 1"=30'



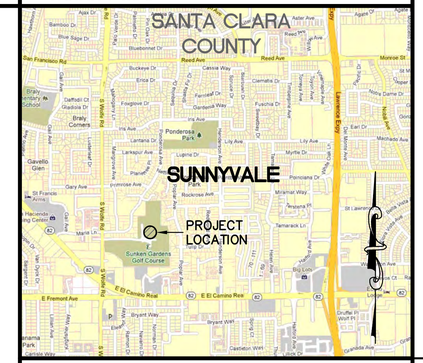
OVERALL SITE MAP

SCALE: 1"=100'



VICINITY MAP

NOT TO SCALE



GENERAL NOTES

PROPERTY INFORMATION

OWNER: CITY OF SUNNYVALE
ADDRESS: 650 WEST OLIVE AVE.
SUNNYVALE, CA 94088

SITE: WOLFE ROAD
1010 S. WOLFE ROAD
SUNNYVALE, CA 94086

ASSESSOR'S PARCEL NUMBER: 213-47-009
EXISTING GROUND ELEVATION: ELEV=95.4'±AMSL

LESSOR'S LEGAL DESCRIPTION

LEGAL DESCRIPTION IS FOUND IN NORTH AMERICAN TITLE COMPANY TITLE REPORT FILE NUMBER 54606-1145073-12, DATED APRIL 6, 2012.

TITLE REPORT

TITLE REPORT WAS AVAILABLE AT THE TIME OF FIELD SURVEY. TITLE REPORT PROVIDED BY NORTH AMERICAN TITLE COMPANY TITLE REPORT FILE NUMBER 54606-1145073-12, DATED APRIL 6, 2012.

BASIS OF BEARING

BEARINGS SHOWN HEREON ARE BASED UPON U.S. STATE PLANE NAD83 COORDINATE SYSTEM *STATE PLANE COORDINATE ZONE* 3, DETERMINED BY GPS OBSERVATIONS.

BENCHMARK

ELEVATIONS BASED UPON GPS DERIVED ORTHOMETRIC HEIGHTS, APPLYING GEOID 99 SEPARATIONS (NAVD88).

FLOOD ELEVATION

FLOOD PLAIN ELEVATION OF PROJECT AREA IN ZONE X, AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD, AS SHOWN ON FEMA FIRM MAP COMMUNITY PANEL NUMBER 06085C0207H, DATED MAY 18, 2009.

SURVEY DATE

4/6/12

SURVEYOR'S NOTES

ALL EASEMENTS CONTAINED WITHIN SAID TITLE REPORT AFFECTING THE IMMEDIATE AREA SURROUNDING THE LEASE HAVE BEEN PLOTTED. SURVEYOR HAS NOT PERFORMED A SEARCH OF PUBLIC RECORDS TO DETERMINE ANY DEFECT IN TITLE ISSUED. THE BOUNDARY SHOWN HEREON IS PLOTTED FROM RECORD INFORMATION AND DOES NOT CONSTITUTE A BOUNDARY SURVEY OF THE PROPERTY.

UTILITY NOTES

SURVEYOR DOES NOT GUARANTEE THAT ALL UTILITIES ARE SHOWN OR THEIR LOCATIONS ARE ACCURATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND DEVELOPER TO CONTACT U.S.A. AND ANY OTHER INVOLVED AGENCIES TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. REMOVAL, RELOCATION AND/ OR REPLACEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR.

LEGEND

——— — ———	PROPERTY LINE
——— ———	EASEMENT LINE
-o-o-o-o-	FENCE LINE
AGL	ABOVE GROUND LEVEL
AMSL	ABOVE MEAN SEA LEVEL

Foresight
Land Surveying & Civil Engineering
Jim Schuricht
ph 925-389-8180
email: foresight@comcast.net

REVISIONS

NO.	DATE	DESCRIPTION
1	04/19/12	ISSUED FOR REVIEW
2	05/29/12	REV. PER REDLINES
3	06/19/12	REV. PER REDLINES

117412
WOLFE ROAD
1010 S. WOLFE ROAD
SUNNYVALE, CA 94086

DRAWN:	DATE: 06/19/12
JOB NO.	1204
SHEET NO.	C-1

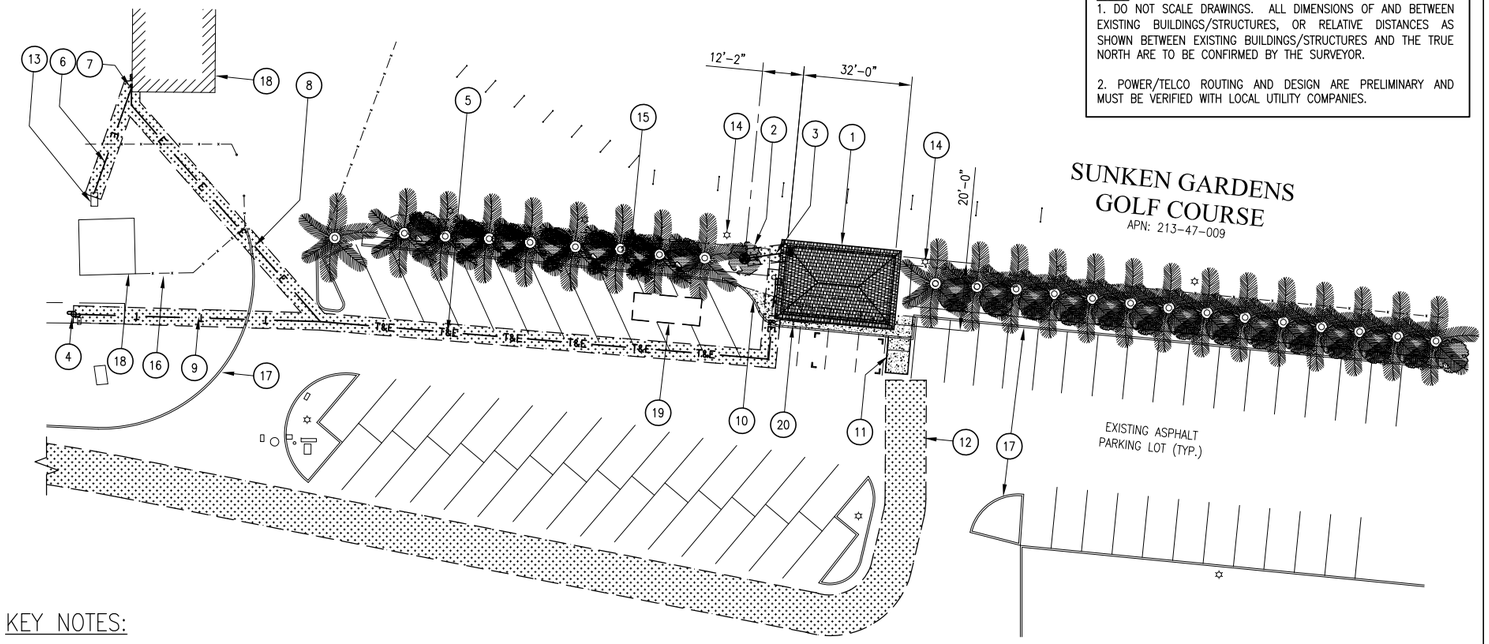
C:\Users\Public\PROJECTS\WOLFE ROAD\dwg\WOLFE ROAD 2012-06-19.dwg 6/19/2012 9:32:24 AM PDT

BOUNDARY SHOWN IS BASED ON RECORD INFORMATION AND FOUND MONUMENTATION.
THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES SHOWN ARE APPROXIMATE.

ATTACHMENT A

NOTES:
1. DO NOT SCALE DRAWINGS. ALL DIMENSIONS OF AND BETWEEN EXISTING BUILDINGS/STRUCTURES, OR RELATIVE DISTANCES AS SHOWN BETWEEN EXISTING BUILDINGS/STRUCTURES AND THE TRUE NORTH ARE TO BE CONFIRMED BY THE SURVEYOR.

2. POWER/TELCO ROUTING AND DESIGN ARE PRELIMINARY AND MUST BE VERIFIED WITH LOCAL UTILITY COMPANIES.



KEY NOTES:

1. EXISTING 14'-0"x30'-0" SHELTER TO BE REMOVED AND REPLACED WITH PROPOSED 32'-0"x20'-0" SHELTER: LOCATION OF PROPOSED 12'-0"x20'-0" VERIZON WIRELESS EQUIPMENT ROOM (240.0" SQ. FT. TOTAL) (1/A2)
2. PROPOSED 85'-0" HIGH SLIM LINE MONOPOLE: LOCATION OF PROPOSED VERIZON WIRELESS PANEL ANTENNAS CONCEALED INSIDE NEW 12'-0"H x 36"ø RADOME.
3. PROPOSED CONDUIT CABLE UNDERGROUND ROUTING WITHIN A 5'-0" WIDE ANTENNA CABLE EASEMENT (APPROX. 13'-0" LF FROM PROPOSED MONOPOLE TO PROPOSED EQUIPMENT AREA
4. EXISTING JOINT POLE (PROPOSED VERIZON WIRELESS TELCO P.O.C.)
5. PROPOSED POWER/TELCO JOINT TRENCH UNDERGROUND ROUTING WITHIN A PROPOSED 5'-0" UTILITIES EASEMENT (APPROX. 160'-0" L.F. FROM START OT JOINT TRENCH TO EQUIPMENT AREA)
6. PROPOSED POWER UNDERGROUND ROUTING WITHIN A PROPOSED 5'-0" UTILITIES EASEMENT (APPROX. 20'-0" L.F. FROM (E) TRANSFORMER TO NEW METER)
7. PROPOSED VERIZON WIRELESS POWER METER (TYP.)
8. PROPOSED POWER UNDERGROUND ROUTING WITHIN A PROPOSED 5'-0" UTILITIES EASEMENT (APPROX. 90'-0" L.F. FROM NEW METER TO START OF JOINT TRENCH)
9. PROPOSED TELCO UNDERGROUND ROUTING WITHIN A PROPOSED 5'-0" UTILITIES EASEMENT (APPROX. 75'-0" L.F. FROM (E) POLE/PROPOSED TELCO P.O.C. TO START OF JOINT TRENCH)
10. PROPOSED CONCRETE SIDEWALK/CURB EXTENSION (TO MATCH EXISTING)
11. EXISTING CONCRETE RAMP TO BE REMOVED AND REPLACED WITH NEW RAMP (PER ADA STANDARDS)
12. PROPOSED 12'-0" WIDE ACCESS EASEMENT OVER EXISTING ASPHALT ROAD (APPROX. 1100'-0" L.F. TO EQUIPMENT AREA FROM PUBLIC RIGHT-OF-WAY ALONG S. WOLFE ROAD)
13. EXISTING PG&E TRANSFORMER (PROPOSED VERIZON WIRELESS POWER P.O.C.)
14. EXISTING LIGHT STANARD TO REMAIN (TYP.)
15. EXISTING TREE / LANDSCAPING (TYP.)
16. EXISTING CHAIN LINK FENCE (TYP.)
17. EXISTING CURB (TYP.)
18. EXISTING BUILDING (TYP.)
19. APPROXIMATE LOCATION OF TEMPORARY 20'-0" LONG FACILITY FOR CITY/GOLF COURSE BALL WASHER IN SEA CONTAINER
20. PROPOSED BOLLARD (TYP. OF 6)

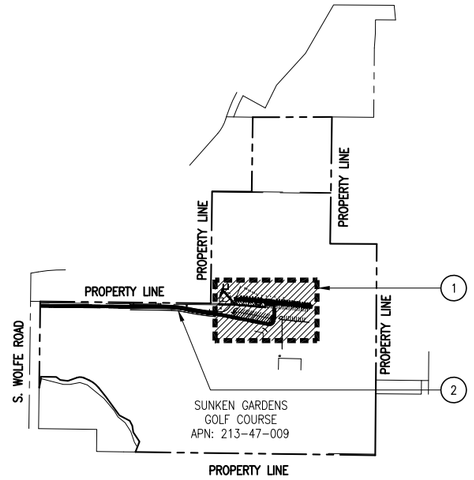
ENLARGED SITE PLAN

SCALE: 1 inch = 20 ft (20' 0' 20' 40')

2

UNUSED

3



KEY NOTES:

1. EXISTING 14'-0"x30'-0" SHELTER TO BE REMOVED AND REPLACED WITH PROPOSED 32'-0"x20'-0" SHELTER: LOCATION OF PROPOSED 12'-0"x20'-0" VERIZON WIRELESS EQUIPMENT ROOM (240.0" SQ. FT. TOTAL) (2/–)
2. PROPOSED 12'-0" WIDE ACCESS EASEMENT OVER EXISTING ASPHALT ROAD (APPROX. 1100'-0" L.F. TO EQUIPMENT AREA FROM PUBLIC RIGHTOF-WAY ALONG S. WOLFE ROAD)

OVERALL SITE PLAN

1

verizon wireless
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

PROJECT INFORMATION:

WOLFE ROAD
117412
1010 S WOLFE ROAD
SUNNYVALE, CA. 94086
SANTA CLARA COUNTY

CURRENT ISSUE DATE:
05/15/12

ISSUED FOR:
ZONING (100%)

REV.:	DATE:	DESCRIPTION:	BY:
4	10/23/12	ZONING (100%)	JK
3	06/14/12	ZONING (100%)	JK
2	05/15/12	ZONING (90%)	JK
1	05/02/12	ZONING (80%)	JK

PLANS PREPARED BY:
DELTA GROUPS ENGINEERING, INC.
CONSULTING ENGINEERS
5635 WEST LAS POSITAS, SUITE 403
PLEASANTON, CA 94588
TEL: (925) 468-0115 FAX: (925) 468-0355

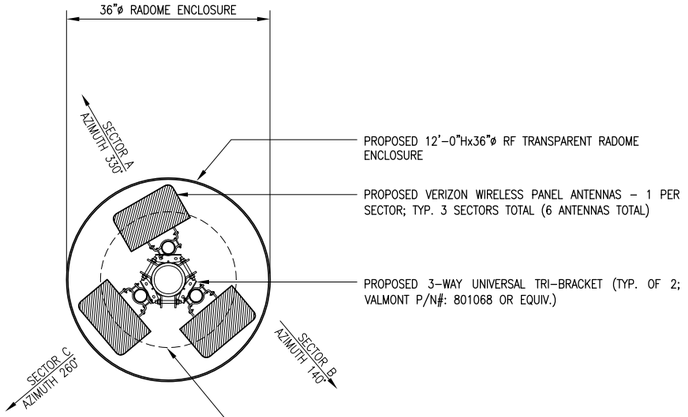
CONSULTANT:

SEAL OF APPROVAL:

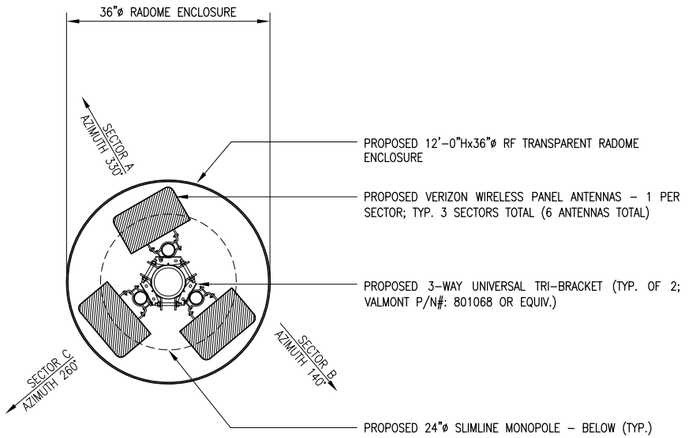
SHEET TITLE:
OVERALL SITE PLAN & ENLARGED SITE PLAN

SHEET NUMBER: A1
REVISION: 4
P12RC002

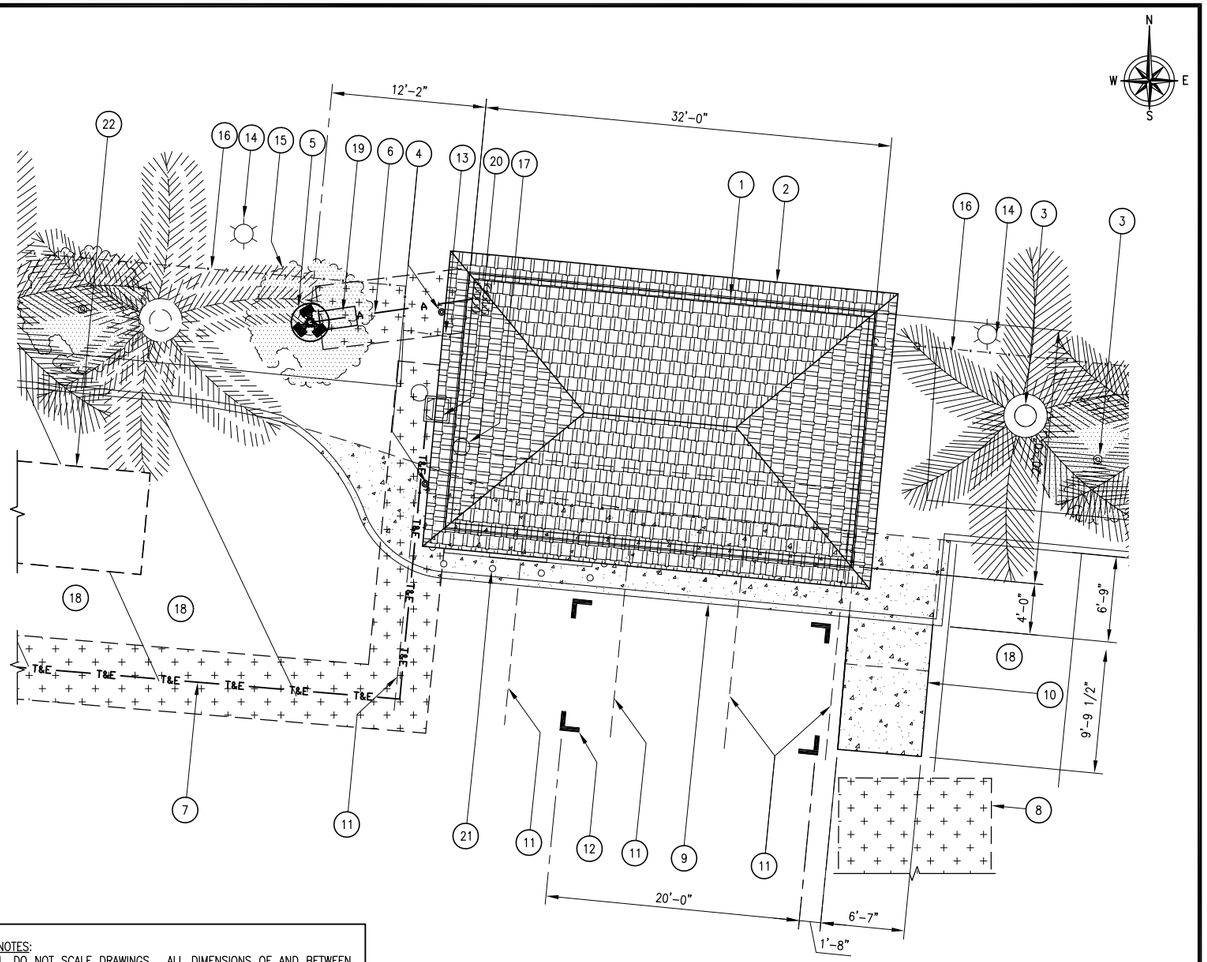
ATTACHMENT A



ANT. LAYOUT @ 82' RAD | SCALE: 1 inch = 1 ft | 1' 0' 1' 2' | 2



ANT. LAYOUT @ 77' RAD | SCALE: 1/2 inch = 1 ft | 2 0' 2' 4' | 3



NOTES:
1. DO NOT SCALE DRAWINGS. ALL DIMENSIONS OF AND BETWEEN EXISTING BUILDINGS/STRUCTURES, OR RELATIVE DISTANCES AS SHOWN BETWEEN EXISTING BUILDINGS/STRUCTURES AND THE TRUE NORTH ARE TO BE CONFIRMED BY THE SURVEYOR.

2. POWER/TELCO ROUTING AND DESIGN ARE PRELIMINARY AND MUST BE VERIFIED WITH LOCAL UTILITY COMPANIES.

KEY NOTES:

1. PROPOSED 32'-0"x20'-0" SHELTER (REPLACEMENT TO EXISTING 14'-0"x30'-0" SHELTER) - LOCATION OF PROPOSED VERIZON WIRELESS EQUIPMENT (1/A3)
2. PROPOSED SHELTER ROOF (TYP.)
3. LOCATION OF EXISTING TREE / LANDSCAPING TO REMAIN (TYP.)
4. PROPOSED VERIZON WIRELESS GPS ANTENNA (TYP. OF 2) W/ MIN SEPERATION OF 10'-0"
5. PROPOSED 85'-0" HIGH SLIM LINE MONOPOLE REPLACEMENT TO EXISTING PLUM TREE: LOCATION OF PROPOSED VERIZON WIRELESS PANEL ANTENNAS (2/-) (3/-)
6. PROPOSED CONDUIT CABLE UNDERGROUND ROUTING WITHIN A 5'-0" WIDE ANTENNA CABLE EASEMENT (SEE 2/A1 FOR CONTINUATION)
7. PROPOSED POWER/TELCO UNDERGROUND ROUTING WITHIN A PROPOSED 5'-0" UTILTIES EASEMENT (SEE 2/A1 FOR CONTINUATION)
8. PROPOSED 12'-0" WIDE ACCESS EASEMENT OVER EXISTING ASPHALT ROAD (SEE 2/A1 FOR CONTINUATION)
9. PROPOSED CONCRETE SIDEWALK/CURB EXTENSION (TO MATCH EXISTING)
10. EXISTING CONCRETE RAMP TO BE REMOVED AND REPLACED WITH NEW RAMP (PER ADA STANDARDS)
11. EXISTING PARKING STRIPING TO BE REMOVED (TYP. OF 4 PARKING SPACES TO BE REMOVED)
12. PROPOSED PARALLEL PARKING STRIPING (TYP. OF 1 PARKING SPACES TO BE ADDED)
13. EXISTING PORTION OF CHAIN LINK FENCE TO BE REMOVED (TYP.)
14. EXISTING LIGHT STANARD TO REMAIN (TYP.)
15. EXISTING PLUM TREE / LANDSCAPING TO BE REMOVED
16. EXISTING CHAIN LINK FENCE (TYP.)
17. EXISTING VALVE TO BE RELOCATED (CONTRACTOR TO VIF)
18. EXISTING PARKING SPACE (TYP.)
19. PROPOSED CABLE ENTRY DOGHOUSE LOCATED AT BASE OF MONOPOLE
20. PROPOSED STEP-DOWN TRANSFORMER - MOUNTED ON A PROPOSED CONCRETE PEDESTAL (TYP.)
21. PROPOSED BOLLARD (TYP. OF 6)
22. APPROXIMATE LOCATION OF TEMPORARY 20'-0" LONG FACILITY FOR CITY/GOLF COURSE BALL WASHER IN SEA CONTAINER

EQUIPMENT AREA PLAN | SCALE: 3/16 inch = 1 ft | 6' 0' 6' 12' | 1

verizon wireless
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

PROJECT INFORMATION:

WOLFE ROAD
117412
1010 S WOLFE ROAD
SUNNYVALE, CA. 94086
SANTA CLARA COUNTY

CURRENT ISSUE DATE:
05/15/12

ISSUED FOR:
ZONING (100%)

REV.:	DATE:	DESCRIPTION:	BY:
4	10/23/12	ZONING (100%)	JK
3	06/14/12	ZONING (100%)	JK
2	05/15/12	ZONING (90%)	JK
1	05/02/12	ZONING (80%)	JK

PLANS PREPARED BY:
DELTA GROUPS ENGINEERING, INC.
CONSULTING ENGINEERS
5635 WEST LAS POSITAS, SUITE 403
PLEASANTON, CA 94588
TEL: (925) 468-0115 FAX: (925) 468-0355

CONSULTANT:

SEAL OF APPROVAL:

SHEET TITLE:
EQUIPMENT AREA PLAN & ANTENNA LAYOUT

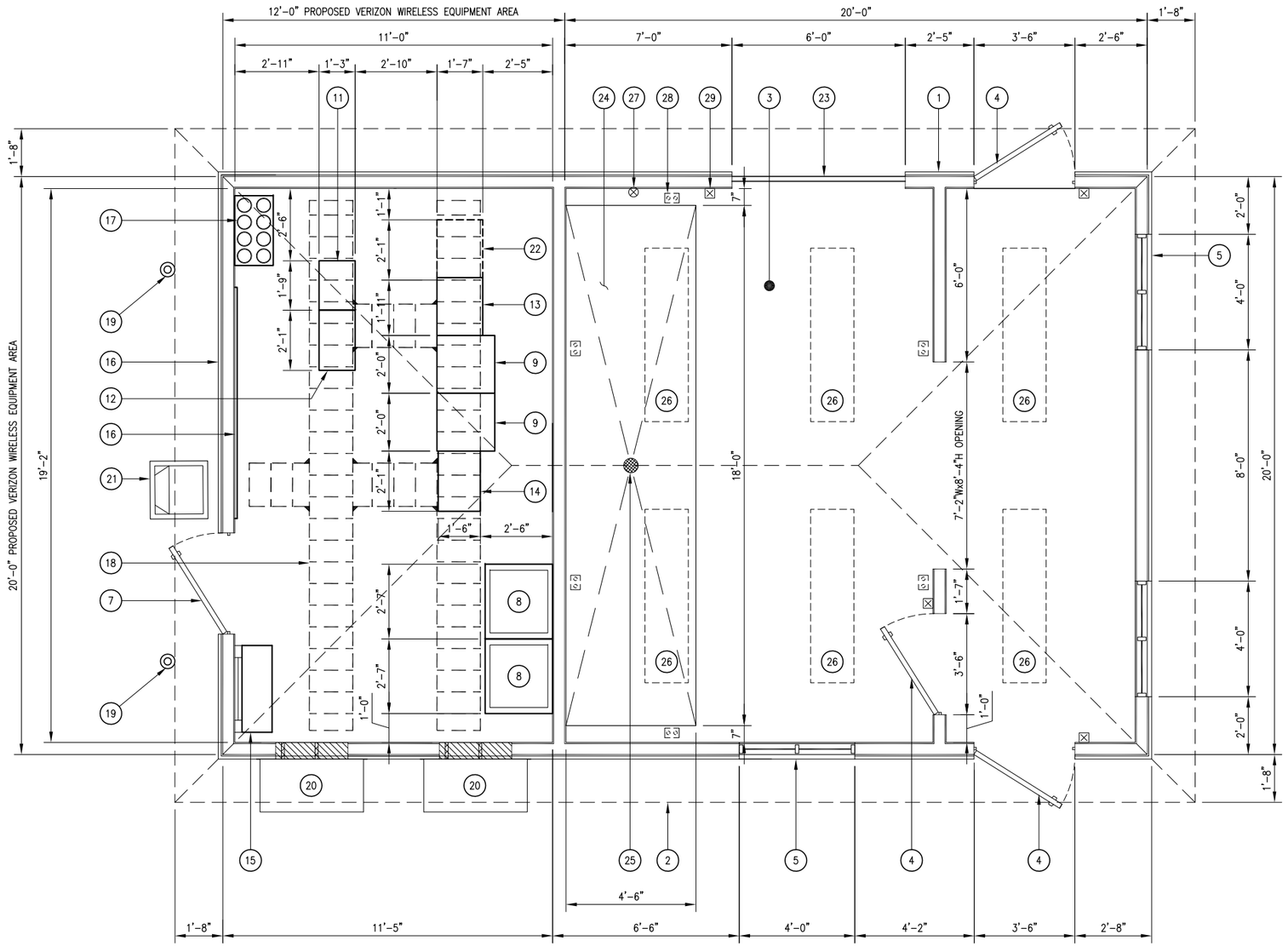
SHEET NUMBER: A2 | REVISION: 4

P12RC002

ATTACHMENT A

KEY NOTES:

1. PROPOSED 32'-0"x20'-0" SHELTER (REPLACEMENT TO EXISTING 14'-0"x30'-0" SHELTER) – LOCATION OF PROPOSED 12'-0"x20'-0" VERIZON WIRELESS EQUIPMENT ROOM (240.0" SQ. FT. TOTAL)
2. OUTLINE OF PROPOSED ROOF LINE (TYP.)
3. PROPOSED 20'-0"x20'-0" BALL WASHER/MAINTENANCE FACILITY (TOTAL OF 400.0' SQ FT)
4. PROPOSED (3'-6"Hx6'-8"W) MAINTENANCE FACILITY ACCESS DOOR (TYP.)
5. PROPOSED (3'-0"Hx4'-0"W) WINDOW (TYP.)
6. PROPOSED 12'-0"x20'-0" VERIZON WIRELESS EQUIPMENT ROOM (240.0" SQ. FT. TOTAL)
7. PROPOSED VERIZON WIRELESS EQUIPMENT ROOM ACCESS DOOR (TYP.)
8. PROPOSED 4x6 RACK WITH 24 NSB170FT (2040Ah) AND 31" X 28" CONTAINMENT TRAY (TYP.)
9. PROPOSED MOD CELL: INDOOR 850 VERSION 4.0B (TYP.)
10. MOD CELL #2 = INDOOR 1900 VERSION 4.0B
11. PROPOSED MISCELLANEOUS RACK (TYP.)
12. PROPOSED FIBER RACK (TYP.)
13. PROPOSED LTE RACK (TYP.)
14. PROPOSED PBM: EMERSON NETSUR DC POWER PLANT (TYP.)
15. PROPOSED MAIN AC POWER DISTRIBUTION PANEL (TYP.)
16. PROPOSED TELCO BACKBOARD (TYP.)
17. PROPOSED 6"ø CONDUIT STUB UP (TYP. OF 6)
18. PROPOSED OVERHEAD CABLE BRIDGE (TYP.)
19. PROPOSED VERIZON WIRELESS GPS ANTENNA (TYP. OF 2) W/ MIN SEPERATION OF 10'-0"
20. PROPOSED HVAC UNIT (TYP.)
21. PROPOSED STEP-DOWN TRANSFORMER – MOUNTED ON A PROPOSED CONCRETE PEDESTAL (TYP.)
22. FUTURE LTE RACK (TYP.)
23. PROPOSED 6'-0" WIDE ROLL-UP DOOR (TYP.)
24. PROPOSED 18'-0"x4'-6" CONCRETE DRAIN PAN (SLOPE TO DRAIN (TYP.)
25. PROPOSED FLOOR DRAIN (TYP.)
26. PROPOSED OVERHEAD FLUORESCENT LIGHTING (TYP.)
27. PROPOSED HOSE BIB (TYP.)
28. PROPOSED CEILING MOUNTED ELECTRICAL OUTLETS (TYP.)
29. PROPOSED LIGHT SWITCH (TYP.)



NOTES:
1. DO NOT SCALE DRAWINGS. ALL DIMENSIONS OF AND BETWEEN EXISTING BUILDINGS/STRUCTURES, OR RELATIVE DISTANCES AS SHOWN BETWEEN EXISTING BUILDINGS/STRUCTURES AND THE TRUE NORTH ARE TO BE CONFIRMED BY THE SURVEYOR.

2. POWER/TELCO ROUTING AND DESIGN ARE PRELIMINARY AND MUST BE VERIFIED WITH LOCAL UTILITY COMPANIES.

3. WALLS TO BE WATERPROOF (CONCRETE BOARD)

EQUIPMENT LAYOUT

SCALE: 1/2 inch = 1 ft (2 0' 2' 4')

1

verizon wireless
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

PROJECT INFORMATION:

WOLFE ROAD
117412
1010 S WOLFE ROAD
SUNNYVALE, CA. 94086
SANTA CLARA COUNTY

CURRENT ISSUE DATE:
05/15/12

ISSUED FOR:
ZONING (100%)

REV.:	DATE:	DESCRIPTION:	BY:
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1	05/02/12	ZONING (80%)	JK

PLANS PREPARED BY:

DELTA GROUPS ENGINEERING, INC.
CONSULTING ENGINEERS
5635 WEST LAS POSITAS, SUITE 403
PLEASANTON, CA 94588
TEL: (925) 468-0115 FAX: (925) 468-0355

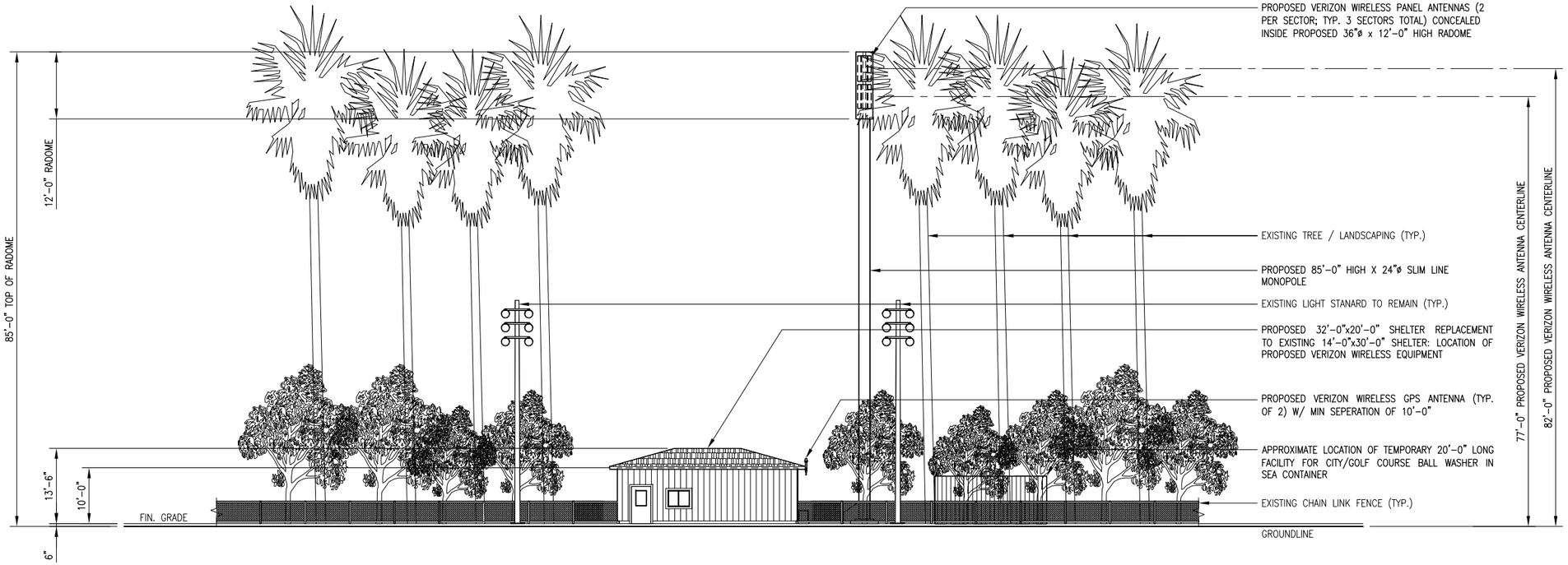
CONSULTANT:

SEAL OF APPROVAL:

SHEET TITLE:
EQUIPMENT LAYOUT

SHEET NUMBER: A3
REVISION: 4
P12RC002

ATTACHMENT A

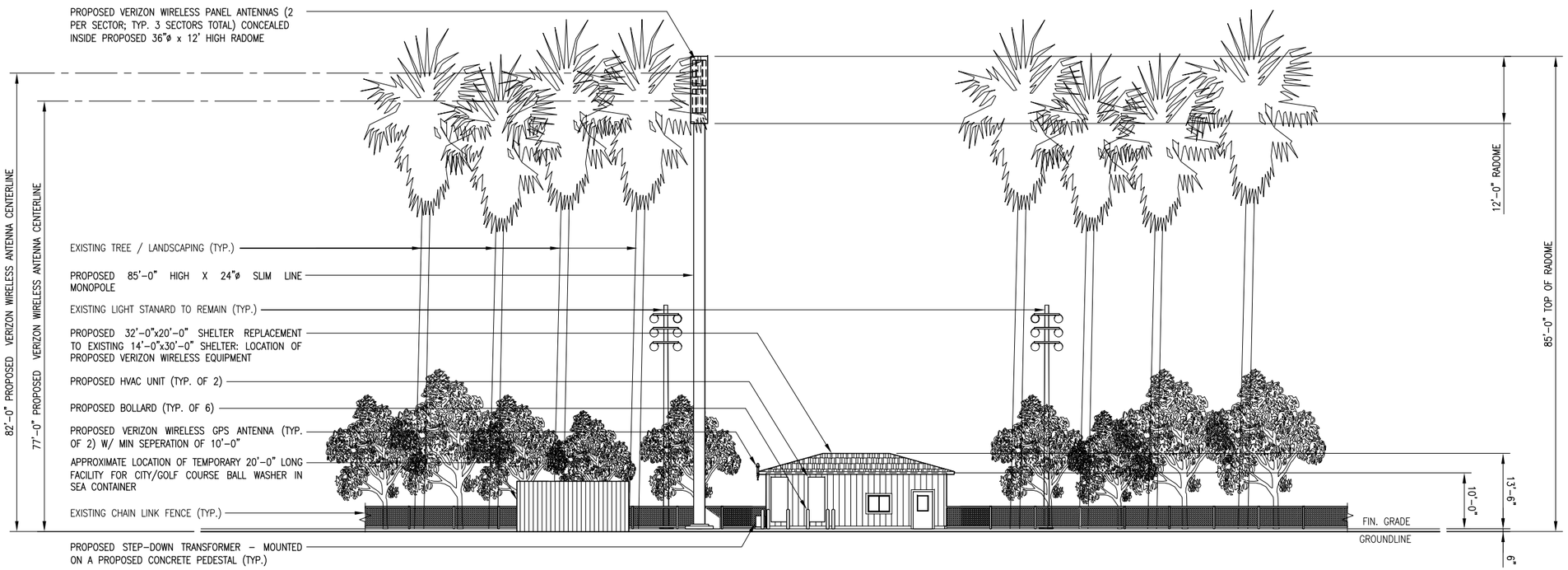


NORTH ELEVATION

SCALE: 1 inch = 10 ft

10' 0' 10' 20'

1



SOUTH ELEVATION

SCALE: 1 inch = 10 ft

10' 0' 10' 20'

2

verizon wireless

2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

PROJECT INFORMATION:

WOLFE ROAD
117412
1010 S WOLFE ROAD
SUNNYVALE, CA. 94086
SANTA CLARA COUNTY

CURRENT ISSUE DATE:

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2	05/15/12	ZONING (90%)	JK
1	05/02/12	ZONING (80%)	JK

PLANS PREPARED BY:

DELTA GROUPS ENGINEERING, INC.
CONSULTING ENGINEERS
5635 WEST LAS POSITAS, SUITE 403
PLEASANTON, CA 94588
TEL: (925) 468-0115 FAX: (925) 468-0355

CONSULTANT:

SEAL OF APPROVAL:

SHEET TITLE:

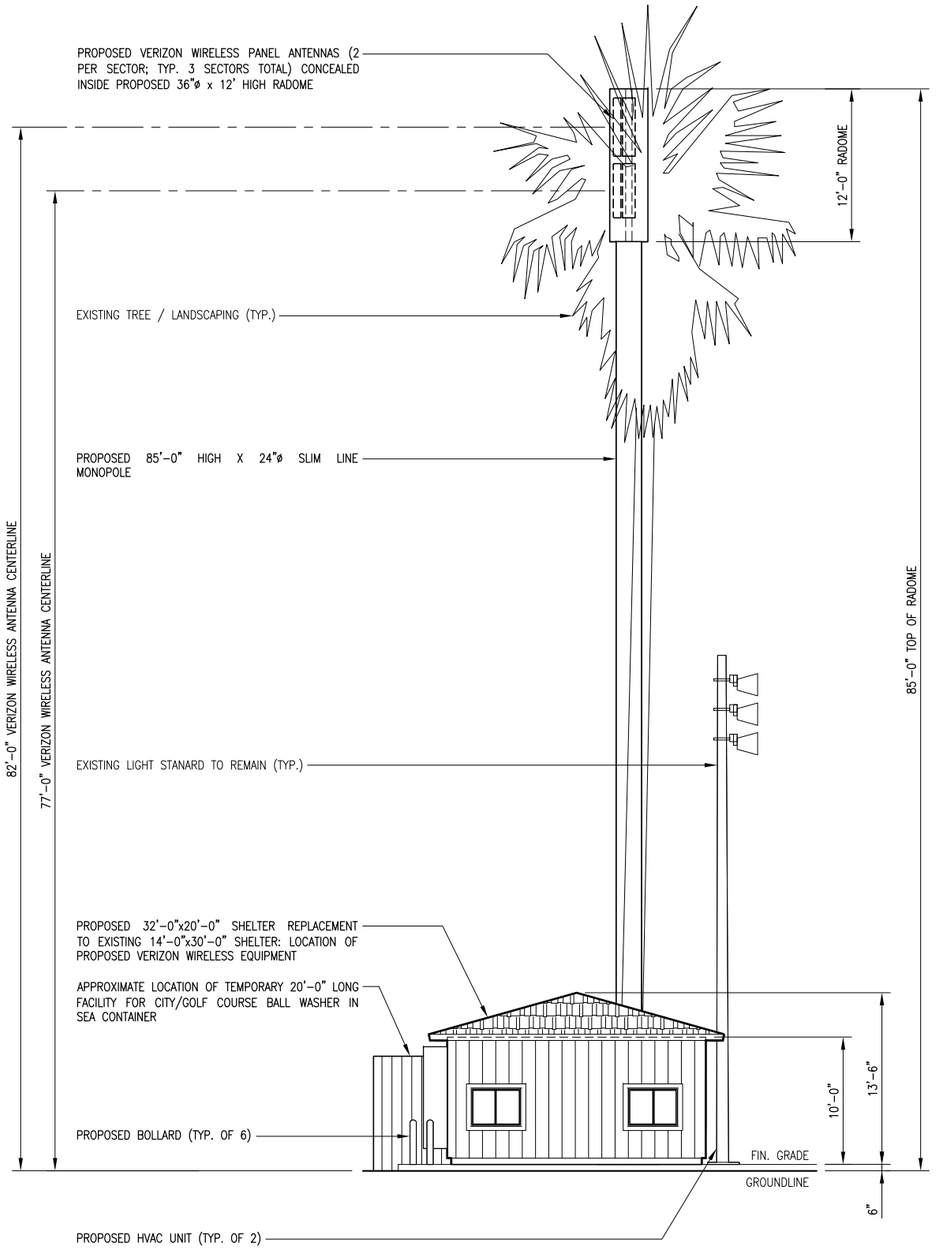
NORTH & SOUTH ELEVATIONS

SHEET NUMBER: A4

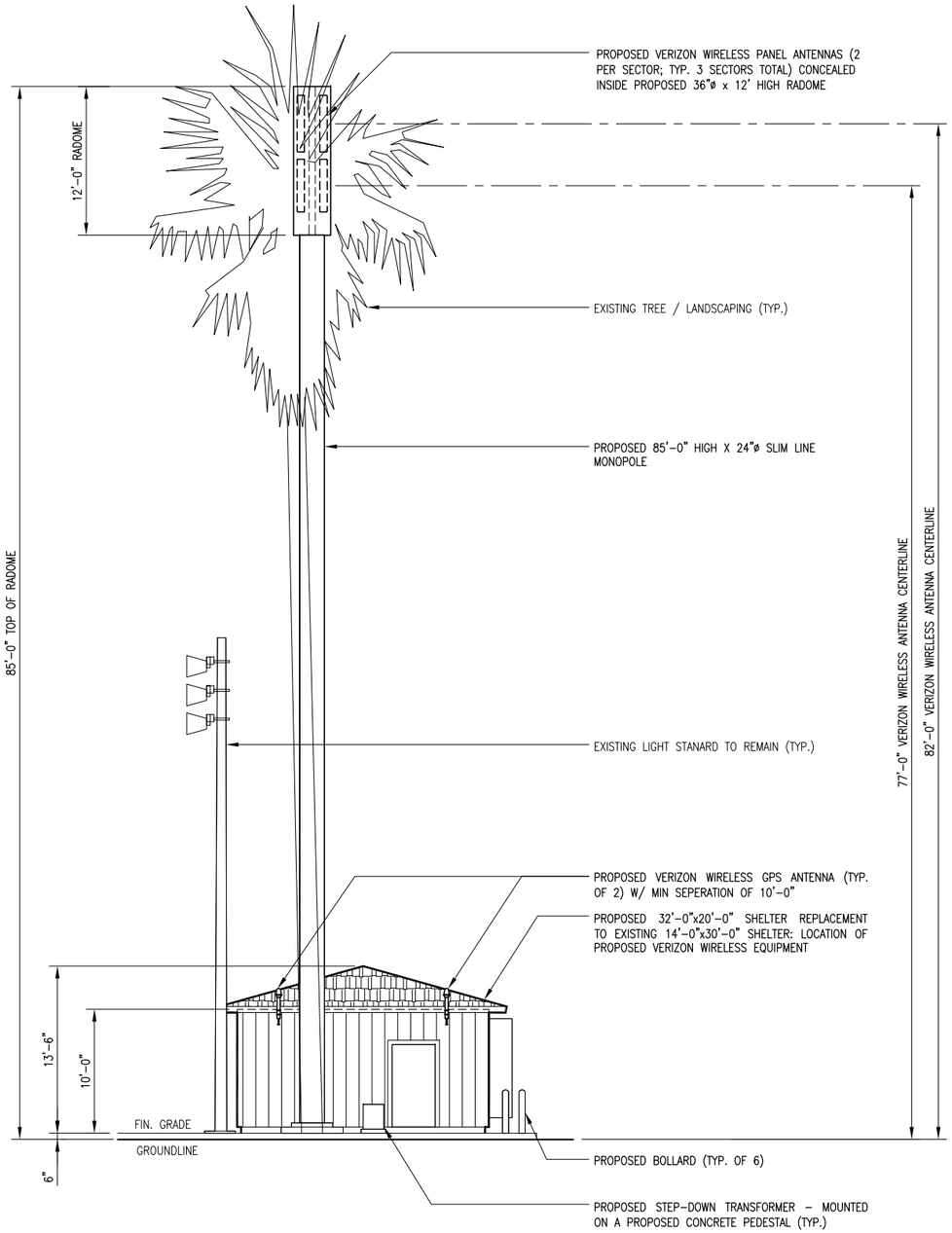
REVISION: 4

P12RC002

ATTACHMENT A



EAST ELEVATION | SCALE: 3/16 inch = 1 ft | 6' 0' 6' 12' | 2



WEST ELEVATION | SCALE: 3/16 inch = 1 ft | 6' 0' 6' 12' | 1

verizon wireless
2785 MITCHELL DRIVE, SUITE 9
WALNUT CREEK, CA 94598

PROJECT INFORMATION:

WOLFE ROAD
117412
1010 S WOLFE ROAD
SUNNYVALE, CA. 94086
SANTA CLARA COUNTY

CURRENT ISSUE DATE:

05/15/12

ISSUED FOR:

ZONING (100%)

REV.:	DATE:	DESCRIPTION:	BY:
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1	05/02/12	ZONING (80%)	JK

PLANS PREPARED BY:

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CONSULTING ENGINEERS
5635 WEST LAS POSITAS, SUITE 403
PLEASANTON, CA 94588
TEL: (925) 468-0115 FAX: (925) 468-0355

CONSULTANT:

SEAL OF APPROVAL:

SHEET TITLE:

WEST & EAST ELEVATIONS

SHEET NUMBER: A5 REVISION: 4

P12RC002

ATTACHMENT B

Cell Phone Tower at Sunken Gardens Golf Course

Public Meeting Notice

Join the discussion as the City of Sunnyvale studies the possibility of allowing a cell phone tower at Sunken Gardens Golf Course. The demand for better cell phone coverage has cell phone companies exploring the placement of towers on public grounds. The purpose of this meeting is to gather information from the community for a decision by the Parks and Recreation Commission and the City Council.

Discussion Topics:

- Why is the City considering this?
- What are the benefits?
- What are other cities doing about the placement of cell phone towers on city property

Join the discussion!
Thursday,
October 25, 2012
12 p.m. – 1 p.m.
7 p.m. – 8 p.m.
Sunken Gardens Golf Course Clubhouse Building
1010 S Wolfe Road
Sunnyvale

Send comments or questions to parks@ci.sunnyvale.ca.us or call the Parks and Golf Administrative offices at (408) 730-7506, TDD (408) 730-7501.

Verizon Wireless • Proposed Base Station (Site No. 117414 "Wolfe Road")
1010 South Wolfe Road • Sunnyvale, 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. 117414 "Wolfe Road") proposed to be located at 1010 South Wolfe Road in Sunnyvale, 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 a tall pole to be installed at the Sunken Gardens Golf Course, located at 1010 South Wolfe Road in Sunnyvale. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm^2	1.00 mW/cm^2
BRS (Broadband Radio)	2,600	5.00	1.00
AWS (Advanced Wireless)	2,100	5.00	1.00
PCS (Personal Communication)	1,950	5.00	1.00
Cellular	870	2.90	0.58
SMR (Specialized Mobile Radio)	855	2.85	0.57
700 MHz	700	2.40	0.48
[most restrictive frequency range]	30–300	1.00	0.20

General Facility Requirements

Base stations typically consist of two distinct parts: the electronic transceivers (also called "radios" or "channels") that are connected to the traditional wired telephone lines, and the passive antennas that send the wireless signals created by the radios out to be received by individual subscriber units. The transceivers are often located at ground level and are connected to the antennas by coaxial cables. A small antenna for reception of GPS signals is also required, mounted with a clear view of the sky.

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

Computer Modeling Method

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

Site and Facility Description

Based upon information provided by Verizon, including zoning drawings by Delta Groups Engineering, Inc., dated May 15, 2012, it is proposed to install six Amphenol directional panel antennas – three Model HTXCW631518M000 and three HTXC6315M000 – within a cylindrical enclosure on top of a new 73-foot steel pole to be installed north of the parking lot at the Sunken Gardens Golf Course, located at 1010 South Wolfe Road in Sunnyvale. The antennas would be mounted in stacked pairs (one of each) at effective heights of about 77 and 82 feet above ground and would be oriented with up to 4° downtilt toward 140°T, 230°T, and 330°T. The maximum effective radiated power in any direction would be 2,960 watts, representing simultaneous operation at 960 watts for PCS, 1,600 watts for cellular, and 400 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 0.0028 mW/cm^2, which is 0.49% of the applicable public exposure limit. The maximum calculated level at the top-floor elevation of any nearby building* would be 0.65% of the public exposure limit. It should be noted that these results include several "worst-case"

* Including residences located at least 250 feet away, based on photographs from Google Maps.

assumptions and therefore are expected to overstate actual power density levels from the proposed operation.

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. To prevent occupational exposures in excess of the FCC guidelines, no access within 10 feet directly in front of the antennas themselves, such as might occur during maintenance work on the pole, should be allowed while the base station is in operation, unless other measures can be demonstrated to ensure that occupational protection requirements are met. Posting explanatory warning signs† at the antennas and/or on the pole below the antennas, such that the signs would be readily visible from any angle of approach to persons who might need to work within that distance, would be sufficient to meet FCC-adopted guidelines.

Conclusion

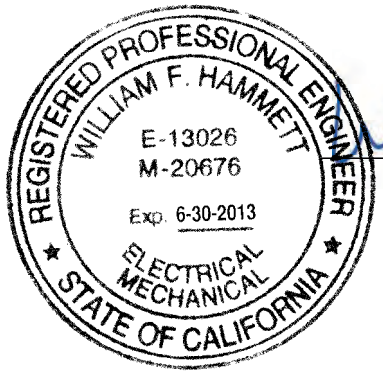
Based on the information and analysis above, it is the undersigned's professional opinion that operation of the base station proposed by Verizon Wireless at 1010 South Wolfe Road in Sunnyvale, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations. Posting explanatory signs is recommended to establish compliance with occupational exposure limitations.

† Warning signs should comply with OET-65 color, symbol, and content recommendations. Contact information should be provided (*e.g.*, a telephone number) to arrange for access to restricted areas. The selection of language(s) is not an engineering matter, and guidance from the landlord, local zoning or health authority, or appropriate professionals may be required.

Verizon Wireless • Proposed Base Station (Site No. 117414 "Wolfe Road")
1010 South Wolfe Road • Sunnyvale, California

Authorship

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



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

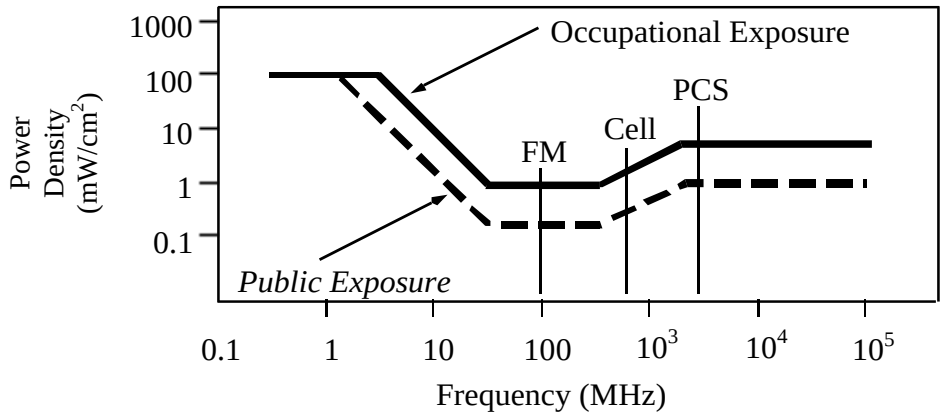
June 12, 2012

FCC Radio Frequency Protection Guide

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

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

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



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

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

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

Near Field.

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

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

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

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

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

Far Field.

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

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.

ATTACHMENT D

Summary of Neighbor Input for Placement of a Cell Tower at Sunken Gardens Golf Course

Following is a summary of resident input provided during two meetings held on October 25, 2012 for the proposed project at Sunken Gardens Golf Course. These meetings were announced via a mailing that was sent to all residents within a one thousand foot radius of the golf course, contact with local neighborhood associations, and flyers at park sites. This is not a verbatim accounting of all statements provided at both meetings; rather, this summary provides a listing of comments that were shared by several persons and comments shared indicating some consensus on the topics. Resident input is as follows:

- Why can't it be located somewhere else?
- If it has to be located on that site then put it near the entrance off of Wolfe Road.
- Is the tower just for Verizon?
- Don't allow other cell providers to locate on the same tower.
- Are there other similar cell towers in the area?
- How many cell towers are on the west side of the city as opposed to other areas?
- What is Verizon's coverage in the area currently? It seems that current service in the area is adequate.
- Will adjacent property values go down?
- Will it cause health and safety problems for nearby residents?
- Is the radiation cumulative?
- Is there an amplification effect for radiation from other cell towers in the area?
- Will the engineering study be replicated?
- What is the projected amount of radiation at 5 stories high?
- Can the RF consultant and their report be trusted when they were hired by the Cellular Company?
- How noisy will the associated equipment be as measured in decibels at prescribed distances?
- What is the allowable sound limit?
- Will there be a back-up generator and if so, how noisy will it be?
- What guarantee is there that it will be quiet enough and not disturb nearby neighbors?
- Will the sound of the equipment be amplified if other cell providers are allowed to locate on the same tower?
- Can a sound study be done before approving the use permit?