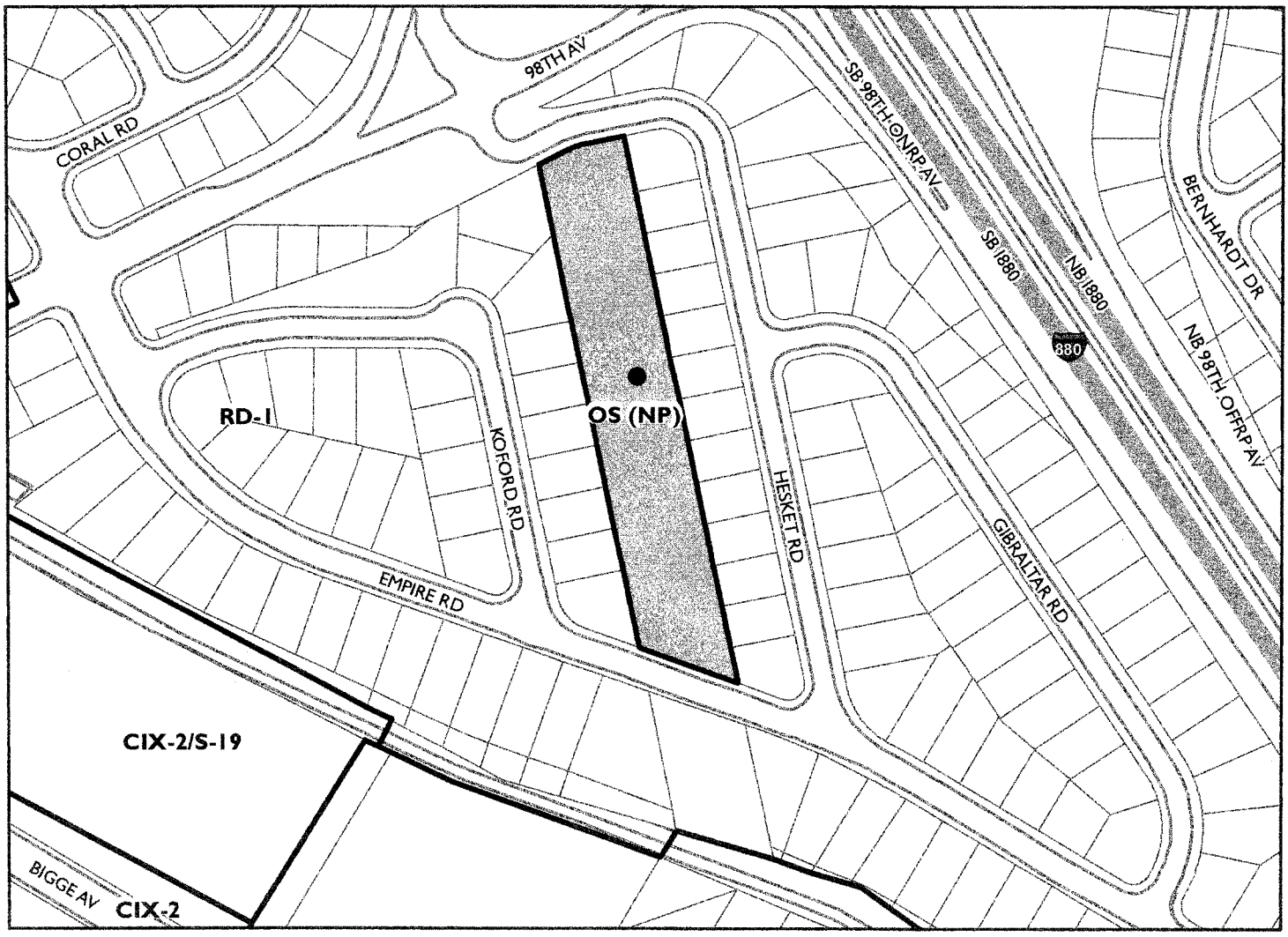
Location:	**Columbian Gardens Park, Empire Road; adjacent to 9902 Empire Road (See map on reverse)**
Assessors Parcel Numbers:	**(045-5322-030-00)**
Proposal:	The installation of a 10 foot extension to an existing 64.3 foot PG&E tower to create a Mini-Telecommunications Facility with six (6) antennas and a 646 square foot equipment area on the ground in a portion of Columbian Gardens Park owned by PG&E.
Applicant:	Complete Wireless for Verizon Wireless
Contact Person/	Maria Kim
Phone Number:	(916)247-6087
Owner:	Pacific Gas & Electric (PG&E)
Case File Number:	PLN15180
Planning Permits Required:	Regular Design Review for the installation of a 10 foot extension to an existing 64.3 foot PG&E tower to create a Mini-Telecommunications Facility with six (6) antennas and a 646 square foot equipment area on the ground. Major Conditional Use Permit for a Mini telecommunication facility within 100 feet of a residential zone.
General Plan:	Detached Unit Residential
Zoning:	OS- NP Open Space (Neighborhood Park)
Environmental Determination:	Exempt, Section 15301 of the State CEQA Guidelines; minor additions and alterations of existing facilities. Exempt, Section 15303 of the State CEQA Guidelines; new construction of Small Structures. Section 15183 of the State CEQA Guidelines; projects consistent with a community plan, General Plan or zoning.
Historic Status:	No Historic Record
Service Delivery District:	4
City Council District:	7
Date Filed:	3/26/15
Finality of Decision:	Appealable to City Council within 10 days
For Further Information:	Contact case planner **Michael Bradley** at **(510) 238-6935** or mbradley@oaklandnet.com

SUMMARY

The following staff report addresses the proposal for the installation of a 10 foot extension to an existing 64.3 foot PG&E tower (74.3 foot new total height) to create a Mini-Telecommunications Facility with six (6) antennas and a 646 square foot equipment area on the ground in a portion of Columbian Gardens Park owned by PG&E. Given the type of structure, this would be considered a "Mini" Telecommunications Facility. The site is located within an open space area, on a Pacific Gas and Electric (PG&E) site that is a portion of Columbian Gardens Park with

CITY OF OAKLAND PLANNING COMMISSION



Case File: PLN15080
Applicant: Complete Wireless Consulting for Verizon Wireless
Address: Columbian Gardens Park, Empire Road (APN: 045-5322-030-00)
Zone: OS-NP

power lines overhead. The site is located in the Open Space – Neighborhood Park Zone. The General Plan designation for the site is Detached Unit Residential.

On November 18, 2015 the project went before the Oakland Parks and Recreation Advisory Commission (PRAC). At that meeting PRAC voted unanimously, 6-0 to recommend approval of the project to the Planning Commission **(See Attachment D)**. With the recommendation of approval PRAC also requested three conditions to be considered for the project.
1. All on-site graffiti is removed within 72 hours. (Please see condition of approval #14 below)
2. That the Planning Commission request site improvements to the park of the applicant, Verizon Wireless. These improvements include but are not limited to, new swing-sets, play structures or other park related equipment that neighborhood residents can enjoy while visiting the park.
3. That a greater community outreach be completed by the applicant to the surrounding neighbors in the form of a community meeting in close proximity to the site.

TELECOMMUNICATIONS BACKGROUND

Limitations on Local Government Zoning Authority under the Telecommunications Act of 1996

Section 704 of the Telecommunications Act of 1996 (TCA) provides federal standards for the siting of "Personal Wireless Services Facilities." "Personal Wireless Services" include all commercial mobile services (including personal communications services (PCS), cellular radio mobile services, and paging); unlicensed wireless services; and common carrier wireless exchange access services. Under Section 704, local zoning authority over personal wireless services is preserved such that the FCC is prevented from preempting local land use decisions; however, local government zoning decisions are still restricted by several provisions of federal law.

Under Section 253 of the TCA, no state or local regulation or other legal requirement can prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.

Further, Section 704 of the TCA imposes limitations on what local and state governments can do. Section 704 prohibits any state and local government action which unreasonably discriminates among personal wireless providers. Local governments must ensure that its wireless ordinance does not contain requirements in the form of regulatory terms or fees which may have the "effect" of prohibiting the placement, construction, or modification of personal wireless services.

Section 704 also preempts any local zoning regulation purporting to regulate the placement, construction and modification of personal wireless service facilities on the basis, either directly or indirectly, on the environmental effects of radio frequency emissions (RF) of such facilities, which otherwise comply with FCC standards in this regard. See, 47 U.S.C. 332(c)(7)(B)(iv) (1996). This means that local authorities may not regulate the siting or construction of personal wireless facilities based on RF standards that are more stringent than those promulgated by the FCC.

Section 704 mandates that local governments act upon personal wireless service facility siting applications to place, construct, or modify a facility within a reasonable time. 47 U.S.C.332(c)(7)(B)(ii). See FCC Shot Clock ruling setting forth "reasonable time" standards for applications deemed complete.

Section 704 also mandates that the FCC provide technical support to local governments in order to encourage them to make property, rights-of-way, and easements under their jurisdiction available for the placement of new spectrum-based telecommunications services. This proceeding is currently at the comment stage.
For more information on the FCC's jurisdiction in this area, contact Steve Markendorff, Chief of the Broadband Branch, Commercial Wireless Division, Wireless Telecommunications Bureau, at (202) 418-0640 or e-mail "smarkend@fcc.gov".

PROJECT DESCRIPTION

The applicant (Verizon Wireless) is proposing the installation of a 10 foot extension to an existing 64.3 foot PG&E tower (74.3 foot new total height) to create a Mini-Telecommunications Facility with six (6) antennas. The equipment shelter is to contain the equipment cabinets on the ground below the existing PG&E lattice tower within a fenced and locked area. All proposed antennas and associated equipment will not be accessible to the public and the entire site is fenced and locked.
(See Attachment A)

PROPERTY DESCRIPTION

The subject property is a large 71,315 square foot portion of Columbian Gardens Park owned by PG&E, with frontage on Empire Road and the 98th Avenue South 880 on ramp. The site is adjacent to 9902 Empire Road. The subject property has a large open neighborhood park with playground equipment near Empire Road and large overhead power lines above.

GENERAL PLAN ANALYSIS

The subject property is located within the Detached Unit Residential General Plan designation. The Detached Unit Residential Use Classification is intended "to create, maintain, and enhance residential areas characterized by detached, single unit structures. The proposed unmanned wireless telecommunication facility with new antennas attached to an existing PG&E tower with an existing park and adjacent to a major highway will not adversely affect and detract from the civic, commercial or residential characteristics of the area, because the antennas will be mounted 64-74 feet above ground with the equipment area only occupying 646 square feet below the existing power lines. Therefore, the proposed unmanned wireless telecommunication facility will not adversely affect or detract from the open space characteristics of the area while providing and preserving a convenient and functional working and living environment.

ZONING ANALYSIS

The subject property is located in the OS –NP Open Space Neighborhood Park Zone. The OS zone is intended to create, preserve, and enhance land for permanent open space to meet the active and passive recreational needs of Oakland residents and to promote park uses which are compatible with surrounding land uses and the city's natural environment. The zone is typically appropriate in areas of public open space only.

The proposal for installation of a 10 foot extension to an existing 64.3 foot PG&E tower (74.3 foot new total height) to create a Mini-Telecommunications Facility with six (6) antennas and a

646 square foot equipment area on the ground in a portion of Columbian Gardens Park owned by PG&E and requires a Major Conditional Use Permit since the project is a new mini telecommunications facility within one hundred (100) feet of a residential zone, and Design Review to install a new mini telecommunication facility. Staff finds that the proposed application meets applicable OS-NP zoning and City of Oakland Telecommunication regulations.

ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines lists the projects that qualify as categorical exemptions from environmental review. The proposed project is categorically exempt from the environmental review requirements pursuant to Section 15301, additions and alterations to existing structures; Section 15303, new construction of small structures; and 15183, projects consistent with a community plan, general plan or zoning.

KEY ISSUES AND IMPACTS

1. Conditional Use Permit

Section 17.11.080 of the City of Oakland Planning Code requires a conditional use permit to install a Mini Telecommunication facility in the OS-NP zone. Furthermore, Section 17.134.020 defines a major and minor conditional use permit. Subsections (A)(3)(e and h) lists a major conditional use permit: "Mini Telecommunications Facilities in, or within three hundred (300) feet of the boundary of, any Residential or HBX Zone (e); and Any telecommunication facility in or within one hundred (100) feet of the boundary of any residential zone (h)." The required findings for a major and minor conditional use permit are listed and included in staff's evaluation as part of this report.

2. Project Site

Section 17.128.110 of the City of Oakland Telecommunication Regulations indicate that new wireless facilities shall generally be located on designated properties or facilities in the following order of preference:

A. Co-located on an existing structure or facility with existing wireless antennas.
B. City owned properties or other public or quasi-public facilities.
C. Existing commercial or industrial structures in non-residential zones.
D. Existing commercial or industrial structures in residential zones.
E. Other non-residential uses in residential zones.
F. Residential uses in non-residential zones.
G. Residential uses in residential zones.

*Facilities locating on an A, B or C ranked preference do not require a site alternatives analysis.

Since the proposed project involves locating the installation of a new mini facility with new antennas and associated equipment cabinets on a site, the proposed project meets (B) City owned properties or other public or quasi-public facilities.

3. Project Design

Section 17.128.120 of the City of Oakland Telecommunications Regulations indicates that new wireless facilities shall generally be designed in the following order of preference:

A. Building or structure mounted antennas completely concealed from view.
B. Building or structure mounted antennas set back from roof edge, not visible from public right-of way.
C. Building or structure mounted antennas below roof line (facade mount, pole mount) visible from public right-of-way, painted to match existing structure.
D. Building or structure mounted antennas above roof line visible from public right of-way.
E. Monopoles.
F. Towers.

* Facilities designed to meet an A or B ranked preference do not require a site design alternatives analysis. Facilities designed to meet a C through F ranked preference, inclusive, must submit a site design alternatives analysis as part of the required application materials. A site design alternatives analysis shall, at a minimum, consist of:

a. Written evidence indicating why each higher preference design alternative can not be used. Such evidence shall be in sufficient detail that independent verification could be obtained if required by the City of Oakland Zoning Manager. Evidence should indicate if the reason an alternative was rejected was technical (e.g. incorrect height, interference from existing RF sources, inability to cover required area) or for other concerns (e.g. inability to provide utilities, construction or structural impediments).

City of Oakland Planning staff has reviewed and determined that the site selected is conforming to all other telecommunication regulation requirements and meets D since the antennas would be visible from the public right-of-way and site design alternatives is, therefore, required. The project location is appropriate because the antennas installation will be on a quasi-public facility owned by PG&E, which is an appropriate location for the antennas to provide service to the adjacent residential zone without being constructed within the residential neighborhood, as well as provide service to the on-site PG&E facility and the major highway of 880 adjacent to the site. The applicant has looked at other sites and based on the residential neighborhood and the public utility nature of the site, this is the most suitable site for the proposed antennas.
(See Attachment C)

4. Project Radio Frequency Emissions Standards
Section 17.128.130 of the City of Oakland Telecommunication Regulations require that the applicant submit the following verifications including requests for modifications to existing facilities:

a. With the initial application, a RF emissions report, prepared by a licensed professional engineer or other expert, indicating that the proposed site will operate within the current

acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.
b. Prior to commencement of construction, a RF emissions report indicating the baseline RF emissions condition at the proposed site.
c. Prior to final building permit sign off, an RF emissions report indicating that the site is actually operating within the acceptable thresholds as established by the Federal government or any such agency who may be subsequently authorized to establish such standards.

The applicant states that the proposed project meets the radio frequency (RF) emissions standards as required by the regulatory agency. Submitted with the initial application was a RF emissions report, prepared by Hammett & Edison, Inc., (**attachment B**). The report states that the proposed project will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not cause a significant impact on the environment. Additionally, staff recommends that prior to the final building permit sign off; the applicant submits certified RF emissions report stating that the facility is operating within acceptable thresholds established by the regulatory federal agency.

CONCLUSION

City of Oakland planning staff believes that the proposed project and subject property can be developed to meet the established zoning and telecommunication regulations that were created and adopted to set certain criteria minimums and maximums for similar types of developments. Staff believes that the findings for approval can be made to support the Major Conditional Use Permit and Design Review.

RECOMMENDATIONS:

1. Affirm staff's environmental determination

2. Approve Major Conditional Use Permit, and Design Review application PLN15180 subject to the attached findings and conditions of approval.

Prepared by:

Michael Bradley
Planner II

Reviewed by:

Scott Miller
Zoning Manager

Reviewed by:

Darin Ranelletti, Deputy Director
Bureau of Planning

Approved for forwarding to the
City Planning Commission:

Rachel Flynn, Director
Bureau of Planning and Building

ATTACHMENTS:

A. Project Plans, Photo Simulations, and Context Photos
B. Hammett & Edison, Inc. RF Emissions Report
C. Project Support Statement, Site Alternative Analysis, and Environmental Noise Analysis
D. Oakland Parks and Recreation Staff Report and Public Notice

FINDINGS FOR APPROVAL

FINDINGS FOR APPROVAL:
This proposal meets all the required findings under Section 17.134.050, of the General Use Permit criteria; all the required findings under Section 17.136.050.(B), of the Non-Residential Design Review criteria; all the required findings under Section 17.128.060(B), of the telecommunication facilities (Mini) Design Review criteria; and all the required findings under Section 17.128.060.(C), of the telecommunication facilities (Mini) Conditional Use Permit criteria; and Section 17.135.060. 17.135.060 No net loss to Open Space tracking; and as set forth below and which are required to approve your application. Required findings are shown in **bold** type; reasons your proposal satisfies them are shown in normal type.

SECTION 17.134.050 – GENERAL USE PERMIT FINDINGS:

A. That the location, size, design, and operating characteristics of the proposed development will be compatible with, and will not adversely affect, the livability or appropriate development of abutting properties and the surrounding neighborhood, with consideration to be given to harmony in scale, bulk, coverage, and density; to the availability of civic facilities and utilities; to harmful effect, if any upon desirable neighborhood character; to the generation of traffic and the capacity of surrounding streets; and to any other relevant impact of the development.

The location, size, design and operational characteristics of the proposal will not adversely affect the livability or appropriate development of abutting properties and the surrounding area. Consideration was given to the harmony in scale, bulk, and coverage; to the availability of civic facilities and utilities; to harmful effect, if any, upon desirable neighborhood character; to the generation of traffic and the capacity of surrounding streets; and to any other relevant impact of the development. The proposal is for the installation of a 10 foot extension to an existing 64.3 foot PG&E tower (74.3 foot new total height) to create a Mini-Telecommunications Facility with six (6) antennas and a 646 square foot equipment area on the ground in a portion of Columbian Gardens Park owned by PG&E. The facility will be unmanned and will not create additional vehicular traffic in the area.

B. That the location, design, and site planning of the proposed development will provide a convenient and functional living, working, shopping, or civic environment, and will be as attractive as the nature of the use and its location and setting warrant.

The location, design and site planning of the proposed development will provide a convenient and functional working and civic environment, and will attempt to preserve the attractive nature of the use and its location and setting warrant. The proposal will preserve a convenient and functional working and living environment; therefore it would not affect the general quality and character of the Park or PG&E towers.

C. That the proposed development will enhance the successful operation of the surrounding area in its basic community functions, or will provide an essential service to the community or region.

The proposed development will enhance the successful operation of the surrounding area in its basic community function and will provide an essential service to the community or region. This will be achieved by improving the functional use of the site by providing a regional telecommunication facility for the community and will be available to police, fire, public safety organizations and the general public.

D. That the proposal conforms to all applicable design review criteria set forth in the DESIGN REVIEW PROCEDURE of Chapter 17.136 of the Oakland Planning Code.

The proposal conforms with all significant aspects of the design review criteria set forth in Chapter 17.136 of the Oakland Planning Code, as outlined below.

E. That the proposal conforms in all significant respects with the Oakland General Plan and with any other applicable plan or development control map which has been adopted by the City Council.

The proposal conforms in all significant aspects with the Oakland General Plan and with any other applicable plan or zoning maps adopted by the City of Oakland. The proposed mini telecommunication facility in the Detached Unit Residential General Plan designation will enhance and improve communication service for a mixture of civic, commercial, residential and institutional uses in the area.

17.136.050(B) – NONRESIDENTIAL DESIGN REVIEW CRITERIA:

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

The proposal for the installation of a 10 foot extension to an existing 64.3 foot PG&E tower (74.3 foot new total height) to create a Mini-Telecommunications Facility with six (6) antennas and a 646 square foot equipment area on the ground in a portion of Columbian Gardens Park owned by PG&E, which is located in an unpopulated area under PG&E power lines and towers is consistent and well related to the surrounding area in scale, bulk, height, materials, and textures. Through the design and the height of the antennas the proposal will have very little visual impact and should blend into the structure of the existing PG&E tower.

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

The design will be appropriate and compatible with current zoning and general plan land use designations. The antennas will be located on an existing PG&E tower approximately 64-74 feet above the ground and will not have any visual impact on the adjacent properties.

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

The proposal conforms with the City of Oakland Comprehensive General Plan meeting specific General Plan policies and the Supplemental Report and Recommendations on Revisions to the Citywide Telecommunications Regulations. The proposal will conform to performance standards for noise set forth in Section 17.120.050 for decibels levels in residential areas for both day and nighttime use. The Project conforms to all mini-facility definitions set forth in Section 17.128.060 and meets all design review criteria to minimize all impacts throughout the surrounding area.

17.128.060(B) DESIGN REVIEW CRITERIA FOR MINI FACILITIES

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

The antennas will be painted matte silver to match the color and finish of the metal tower, as conditioned.

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

The antennas will be attached vertically to the top of the existing 64 foot PG&E tower to look like an extension of the tower. The antennas will be painted matte silver to match the color and finish of the metal tower, as conditioned.

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

The antennas will be attached vertically to the top of the existing 64 foot PG&E tower to look like an extension of the tower. The antennas will be painted matte silver to match the color and finish of the metal tower, as conditioned. The associated cables and equipment attached to the tower will run vertically with the structural elements.

4. Equipment cabinets shall be concealed from view or placed underground:

The equipment cabinets will be located in an area where there is no public access. The equipment cabinets will be concealed within a ground mounted shelter that is screened and protected by fencing.

5. That all reasonable means of reducing public access to the antennas and equipment has been made, including, but not limited to, placement in or on buildings or structures, fencing, anti-climbing measures and anti-tampering devices.

The proposed antennas will be mounted 64-74 feet above the ground on an existing PG&E tower which currently has anti-climbing devices in place. The equipment cabinets will be located in an area where there is no public access. The equipment cabinets will be concealed within a ground mounted shelter that is screened and protected by fencing.

6. For antennas attached to the roof, maintain a 1:1 ratio for equipment setback; screen the antennas to match existing air conditioning units, stairs, or elevator towers; avoid placing roof mounted antennas in direct line with significant view corridors.

This finding is inapplicable; the proposal does not involve a roofed structure.

Section 17.128.060(C) CONDITIONAL USE PERMIT (CUP) FINDINGS FOR MINI FACILITIES

1. The project must meet the special design review criteria listed in subsection B of this section (17.128.060B):

The proposed project meets the special design review criteria listed in section 17.128.060B.

2. The proposed project must not disrupt the overall community character:

Due to the proposed project design of the telecommunication antennas and equipment, it will not disrupt the overall community character of the site.

17.135.060 No Net Loss to Open Space Tracking.

A. Beginning on the effective date of the OS Zone regulations, the Oakland City Administrator's Office shall establish an open space tracking system. The tracking system shall be maintained in a publicly accessible format and shall be updated on a continuous basis as additions and subtractions are made to the city's park system. Beginning on the effective date of these regulations, all enclosed facilities in urban parks which exceed one hundred (100) square feet shall be tracked and recorded as "subtractions" from a baseline figure of zero. All acquisition of parkland or creation of new useable public open space shall be tracked and recorded as "additions." Only land which is improved or intended for improvement to urban park standards may be counted as "additions"; acquisition of Resource Conservation Area land is excluded. The city shall strongly encourage actions which result in a net gain of open space; in other words, a condition where the "additions" of open space in the tracking system exceed the "subtractions" resulting from new buildings and structure coverage.

Both Oakland Parks and Recreation staff and the Parks and Recreation Advisory Commission determined that the 646 square foot fenced equipment enclosure on the ground below the existing PG&E tower at a portion of Columbian Gardens Park owned by PG&E does not account for a net loss of open space and support the proposed project. Along with the project currently

not reducing net open space, two current projects which include the development of the "Oak Knoll Naval Hospital" site and the "Brooklyn Basin Oak to 9th" site which will increase the open space totals by potentially several acres.

Based on the size of the site and the numerous utility structures, the antennas and associated equipment proposal will not result in a visual impact and will blend in with the existing characteristics of the site, thus this is the most suitable location for the antennas to be installed. The submitted site alternative analysis and project plans by the applicant demonstrate the appropriateness of the selected location and design.

On November 18, 2015 the project went before the Oakland Parks and Recreation Advisory Commission (PRAC). At that meeting PRAC voted unanimously, 6-0 to recommend approval of the project to the Planning Commission. With the recommendation of approval PRAC also requested three conditions to be considered for the project.

1. All on-site graffiti is removed within 72 hours. (Please see condition of approval #14 below)
2. That the Planning Commission request site improvements to the park of the applicant, Verizon Wireless. These improvements include but are not limited to, new swing-sets, play structures or other park related equipment that neighborhood residents can enjoy while visiting the park.
3. That a greater community outreach be completed by the applicant to the surrounding neighbors in the form of a community meeting in close proximity to the site.

CONDITIONS OF APPROVAL
PLN15180

STANDARD CONDITIONS:

1. Approved Use
Ongoing
a) The project shall be constructed and operated in accordance with the authorized use as described in the application materials, **PLN15180**, and the plans dated **February 17, 2015** and submitted on **March 26, 2015** and as amended by the following conditions. Any additional uses or facilities other than those approved with this permit, as described in the project description and the approved plans, will require a separate application and approval. Any deviation from the approved drawings, Conditions of Approval or use shall required prior written approval from the Director of City Planning or designee.

b) This action by the City Planning Commission ("this Approval") includes the approvals set forth below. This Approval includes: **Design Review and a Major Conditional Use Permit to install a 10 foot extension to an existing 64.3 foot PG&E tower to create a Mini-Telecommunications Facility with six (6) antennas and a 646 square foot equipment area on the ground in a portion of Columbian Gardens Park owned by PG&E at Empire Road (Adjacent to 9902 Empire Road). (APN: 045-5322-030-00), under Oakland Municipal Code 17.128, 17.136, and 17.134.**

2. Effective Date, Expiration, Extensions and Extinguishment
Ongoing
Unless a different termination date is prescribed, this Approval shall expire **two calendar years** from the approval date, unless within such period all necessary permits for construction or alteration have been issued, or the authorized activities have commenced in the case of a permit not involving construction or alteration. Upon written request and payment of appropriate fees submitted no later than the expiration date of this permit, the Director of City Planning or designee may grant a one-year extension of this date, with additional extensions subject to approval by the approving body. Expiration of any necessary building permit for this project may invalidate this Approval if the said extension period has also expired.

3. Scope of This Approval; Major and Minor Changes
Ongoing
The project is approved pursuant to the **Oakland Planning Code** only. Minor changes to approved plans may be approved administratively by the Director of City Planning or designee. Major changes to the approved plans shall be reviewed by the Director of City Planning or designee to determine whether such changes require submittal and approval of a revision to the approved project by the approving body or a new, completely independent permit.

4. Conformance with other Requirements
Prior to issuance of a demolition, grading, P-job, or other construction related permit
a) The project applicant shall comply with all other applicable federal, state, regional and/or local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Building Services Division, the City's Fire Marshal, and the City's Public Works Agency. Compliance with other applicable requirements may

require changes to the approved use and/or plans. These changes shall be processed in accordance with the procedures contained in Condition of Approval 3.

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

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

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

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

c) Violation of any term, conditions or project description relating to the Approvals is unlawful, prohibited, and a violation of the Oakland Municipal Code. The City of Oakland reserves the right to initiate civil and/or criminal enforcement and/or abatement proceedings, or after notice and public hearing, to revoke the Approvals or alter these conditions if it is found that there is violation of any of the conditions or the provisions of the Planning Code or Municipal Code, or the project operates as or causes a public nuisance. This provision is not intended to, nor does it, limit in any manner whatsoever the ability of the City to take appropriate enforcement actions.

6. Signed Copy of the Conditions
With submittal of a demolition, grading, and building permit
A copy of the approval letter and conditions shall be signed by the property owner, notarized, and submitted with each set of permit plans to the appropriate City agency for this project.

7. Indemnification
Ongoing

a) To the maximum extent permitted by law, the applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the City of Oakland Redevelopment Agency, the Oakland City Planning Commission and its respective agents, officers, and employees (hereafter collectively called City) from any liability, damages, claim, judgment, loss (direct or indirect)action, causes of action, or proceeding (including legal costs, attorneys' fees, expert witness or consultant fees, City Attorney or staff time, expenses or costs) (collectively called "Action") against the City to attack, set aside, void or annul, (1) an approval by the City relating to a development-related application or subdivision or (2) implementation of an approved development-related project. The City may elect, in its sole discretion, to participate in the defense of said Action and the applicant shall reimburse the City for its reasonable legal costs and attorneys' fees.

b) Within ten (10) calendar days of the filing of any Action as specified in subsection A above, the applicant shall execute a Letter Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Letter of Agreement shall survive termination, extinguishment or invalidation of the approval. Failure to timely execute the Letter Agreement does not relieve the applicant of any of the obligations contained in this condition or other requirements or conditions of approval that may be imposed by the City.

8. Compliance with Conditions of Approval

Ongoing

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

9. Severability

Ongoing

Approval of the project would not have been granted but for the applicability and validity of each and every one of the specified conditions, and if any one or more of such conditions is found to be invalid by a court of competent jurisdiction this Approval would not have been granted without requiring other valid conditions consistent with achieving the same purpose and intent of such Approval.

10. Job Site Plans

Ongoing throughout demolition, grading, and/or construction

At least one (1) copy of the stamped approved plans, along with the Approval Letter and Conditions of Approval, shall be available for review at the job site at all times.

11. Special Inspector/Inspections, Independent Technical Review, Project Coordination and Management

Prior to issuance of a demolition, grading, and/or construction permit

The project applicant may be required to pay for on-call special inspector(s)/inspections as needed during the times of extensive or specialized plancheck review, or construction. The project applicant may also be required to cover the full costs of independent technical and other types of peer review, monitoring and inspection, including without limitation, third party plan check fees, including inspections of violations of Conditions of Approval. The project applicant shall establish a deposit with the Building Services Division, as directed by the Building Official, Director of City Planning or designee.

12. Days/Hours of Construction Operation

Ongoing throughout demolition, grading, and/or construction

The project applicant shall require construction contractors to limit standard construction activities as follows:

a) Construction activities are limited to between 7:00 AM and 7:00 PM Monday through Friday, except that pile driving and/or other extreme noise generating activities greater than 90 dBA shall be limited to between 8:00 a.m. and 4:00 p.m. Monday through Friday.

b) Any construction activity proposed to occur outside of the standard hours of 7:00 am to 7:00 pm Monday through Friday for special activities (such as concrete pouring which

may require more continuous amounts of time) shall be evaluated on a case by case basis, with criteria including the proximity of residential uses and a consideration of resident's preferences for whether the activity is acceptable if the overall duration of construction is shortened and such construction activities shall only be allowed with the prior written authorization of the Building Services Division.

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

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

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

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

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

f) Construction activities include but are not limited to: truck idling, moving equipment (including trucks, elevators, etc) or materials, deliveries, and construction meetings held on-site in a non-enclosed area.

13. Operational Noise-General

Ongoing

Noise levels from the activity, property, or any mechanical equipment on site shall comply with the performance standards of Section 17.120 of the Oakland Planning Code and Section 8.18 of the Oakland Municipal Code. If noise levels exceed these standards, the activity causing the noise shall be abated until appropriate noise reduction measures have been installed and compliance verified by the Planning and Zoning Division and Building Services.

PROJECT SPECIFIC CONDTIONS:

14. Graffiti Control

Requirement:

a. During construction and operation of the project, the project applicant shall incorporate best management practices reasonably related to the control of graffiti and/or the mitigation of the impacts of graffiti. Such best management practices may include, without limitation:

   Installation and maintenance of landscaping to discourage defacement of and/or protect likely graffiti-attracting surfaces.

   Installation and maintenance of lighting to protect likely graffiti-attracting surfaces.

   Use of paint with anti-graffiti coating.

Incorporation of architectural or design elements or features to discourage graffiti defacement in accordance with the principles of Crime Prevention Through Environmental Design (CPTED).

Other practices approved by the City to deter, protect, or reduce the potential for graffiti defacement.

The project applicant shall remove graffiti by appropriate means within seventy-two (72) hours. Appropriate means include the following:

i. Removal through scrubbing, washing, sanding, and/or scraping (or similar method) without damaging the surface and without discharging wash water or cleaning detergents into the City storm drain system.

ii. Covering with new paint to match the color of the surrounding surface.

iii. Replacing with new surfacing (with City permits if required).

When Required: Ongoing

Initial Approval: N/A

Monitoring/Inspection: Bureau of Building

15. Radio Frequency Emissions

Prior to the final building permit sign off

The applicant shall submit a certified RF emissions report stating the facility is operating within the acceptable standards established by the regulatory Federal Communications Commission.

ATTACHMENT A

CO DRAWING SIGN-OFF

DATE: TWP: R: CWC-PLEASE RETURN BY:

	SIGNATURE	DATE
COMPLETE WIRELESS CONSULTING, INC.		
SITE ACQUISITION:		
PLANNING:		
CONSTRUCTION:		
MANAGEMENT:		
verizon	SIGNATURE	DATE
CONSTRUCTION:		
RF ENGINEER:		
M/W END /TRANSPORT:		
EQUIPMENT ENGINEER:		
OTHER (IF APPLICABLE)	SIGNATURE	DATE

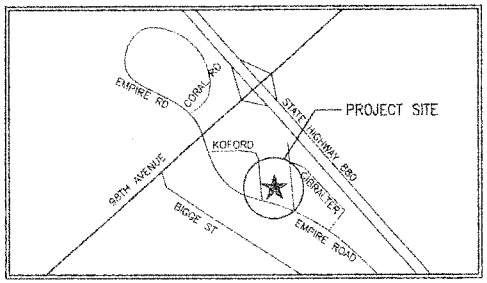
verizon

2785 Mitchell Drive, Walnut Creek, CA 94598

HWY 880 & 98TH

EMPIRE ROAD
OAKLAND, CA 94603

APN: 045-5322-030 LOCATION #: 278707B
SAN LEANDRO- OAKLAND J #1 115kV LINE
TWR #: 3/43 SAP #: 40662385
VZN-278707B SBE #: 135-0010-1-8A



LOCATION PLAN

DIRECTIONS

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

1. HEAD NORTHEAST ON MITCHELL DR TOWARD OAK GROVE RD.
2. TURN RIGHT ONTO OAK GROVE RD.
3. TAKE THE 2ND RIGHT ONTO IGNACIO VALLEY RD.
4. CONTINUE ONTO HILLSIDE AVE.
5. TAKE THE RAMP ONTO CA-24 W.
6. MERGE ONTO CA-24 W.
7. CONTINUE ONTO GROVE SHAFTER FWY.
8. CONTINUE ONTO I-980 W.
9. MERGE ONTO I-880 S.
10. TAKE THE 98TH AVENUE EXIT TOWARD AIRPORT.
11. TURN RIGHT ONTO 98TH AVE.
12. TAKE THE 1ST LEFT ONTO EMPIRE RD.

INDEX OF DRAWINGS

PROJECT DIRECTOR

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

PROPERTY OWNER:
MIKE SULLIVAN
PG&E
P.O. BOX 770000
SAN FRANCISCO, CA 94177
925-323-9684

ARCHITECT:
MANUEL F. TSHILAS
MST ARCHITECTS, INC.
1500 RIVER PARK DRIVE
SACRAMENTO, CA 95815
916-567-9630
manuel@mstarchitects.com

CONSTRUCTION MANAGER:
RICH JOHNSON
COMPLETE WIRELESS CONSULTING, INC.
2009 V STREET
SACRAMENTO, CA 95818
916-216-0894
rjohnson@completewireless.net

PROJECT SUMMARY

ASSESSOR'S PARCEL NUMBER: 045-5322-030

JURISDICTION:	CITY OF OAKLAND
OCCUPANCY:	U (UNMANNED TELECOMMUNICATIONS FACILITY)
TYPE OF CONSTRUCTION:	V-B
ZONING:	OS-NP (OPEN SPACE, NEIGHBORHOOD PARK)

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 13.4'x31.0' LICENSE AREA.
- A 8'-0" TALL CMU WALL WITH 3'-0" WIDE CONCRETE APRON & 4'-0" METAL ACCESS GATE.
- POWER & TELCO UTILITIES BROUGHT TO FACILITY.
- A STANDBY GENERATOR WITH A UL-2085 FUEL TANK.
- AN UNDERGROUND CABLE RUN TO EXISTING PG&E TOWER.
- ANTENNAS W/ASSOCIATED EQUIPMENT MOUNTED ON AN EXISTING 64.3' TALL PG&E TRANSMISSION TOWER.

PROJECT MILESTONES

05/23/2014	90% ZONING DOCUMENTS
09/30/2014	95% ZONING DOCUMENTS
01/19/2015	96% ZONING DOCUMENTS
02/17/2015	100% ZONING DOCUMENTS
03/24/2015	100% ZONING DOCUMENTS REV 1
08/18/2015	90% CONSTRUCTION DOCUMENTS
11/16/2015	95% CONSTRUCTION DOCUMENTS
XX/XX/XXXX	100% CONSTRUCTION DOCUMENTS

MST ARCHITECTS

verizon

HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE: TITLE SHEET, LOCATION PLAN, PROJECT DATA

ATTACHMENT A

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GENERAL NOTES

1. DRAWINGS ARE NOT TO BE SCALED. WRITTEN DIMENSIONS TAKE PRECEDENCE, AND THIS SET OF PLANS IS INTENDED TO BE USED FOR DIAGRAMMATIC PURPOSES ONLY, UNLESS NOTED OTHERWISE. THE GENERAL CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, LABOR AND ANYTHING ELSE DEEMED NECESSARY TO COMPLETE INSTALLATIONS AS DESCRIBED HEREIN.

2. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTORS INVOLVED SHALL VISIT THE JOB SITE AND FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE PROPOSED PROJECT, WITH THE CONSTRUCTION AND CONTRACT DOCUMENTS, FIELD CONDITIONS AND CONFIRM THAT THE PROJECT MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY ERRORS, OMISSIONS, OR DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ ENGINEER.

3. THE GENERAL CONTRACTOR SHALL RECEIVE WRITTEN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWINGS/CONTRACT DOCUMENTS.

4. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

5. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO MANUFACTURER'S/VENDOR'S SPECIFICATIONS UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE.

6. ALL WORK PERFORMED ON PROJECT AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK.

7. GENERAL CONTRACTOR SHALL PROVIDE AT THE PROJECT SITE A FULL SET OF CONSTRUCTION DOCUMENTS UPDATED WITH THE LATEST REVISIONS AND ADDENDUMS OR CLARIFICATIONS FOR THE USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT.

8. THE STRUCTURAL COMPONENTS OF THIS PROJECT SITE/FACILITY ARE NOT TO BE ALTERED BY THIS CONSTRUCTION PROJECT UNLESS NOTED OTHERWISE.

9. DETAILS HEREIN ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB CONDITIONS OR SITUATIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE SCOPE OF WORK.

10. SEAL PENETRATIONS THROUGH FIRE-RATED AREAS WITH U.L. LISTED OR FIRE MARSHALL APPROVED MATERIALS IF APPLICABLE TO THIS FACILITY AND OR PROJECT SITE.

11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC DURING CONSTRUCTION. UPON COMPLETION OF WORK, CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO THE CONSTRUCTION ON OR ABOUT THE PROPERTY.

12. CONTRACTOR SHALL SEE TO IT THAT GENERAL WORK AREA IS KEPT CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.

13. THE ARCHITECTS/ENGINEERS HAVE MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. CONTRACTORS BIDDING THE JOB ARE NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS. THE BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE ARCHITECT/ENGINEER OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED OTHERWISE.

MST ARCHITECTS

COMPLETE Wireless Consulting, Inc.

verizon

HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE: GENERAL NOTES

Revisions:

File: 1821155_T1.dwg
Drawn By: JOE
Checked By: TST
Scale: AS NOTED
Date: 11/16/15

Job No. 1821155

T1.2

Project Name: Highway 880 & 98th

Project Site Location: Empire Road
Oakland, CA 94603
Alameda County

Date of Observation: 01-20-15

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

Type of Antenna Mount: Existing Transmission Tower

Coordinates
Latitude: N 37°43'45.73" (NAD83) N 37°43'45.98" (NAD27)

Longitude: W 122°11'20.79" (NAD83) W 122°11'16.91" (NAD27)

ELEVATION of Ground at Structure (NAVD88) 14.5' AMSL
Height of Structure: 64.3' AGL

DATE OF SURVEY: 05-09-14

SURVEYED BY OR UNDER DIRECTION OF: KENNETH D. GEIL, L.C.E. 14803

LOCATED IN THE COUNTY OF ALAMEDA, 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 2.70' FROM ELEVATIONS SHOWN

CONTOUR INTERVAL: n.a.

ASSESSOR'S PARCEL NUMBER: 045-5322-030

LANDLORD(S): P.G. & E. CO.
P.O. BOX 770000
SAN FRANCISCO, CA 94177

VERIZON WIRELESS
HIGHWAY 880 & 98TH LICENSE AREA

ALL THAT CERTAIN LICENSE AREA BEING A PORTION OF PARCELS OF LOT 147 AS DELINEATED ON THE MAP OF TRACT 669 RECORDED IN BOOK 8 OF MAPS AT PAGE 64, OFFICIAL RECORDS OF ALAMEDA COUNTY, CALIFORNIA AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

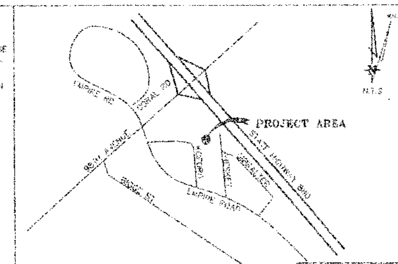
COMMENCING AT THE NORTHWEST CORNER SAID LOT 147; THENCE ALONG THE WESTERLY BOUNDARY THEREOF SOUTH 13°05'25" EAST 478.93 FEET; THENCE LEAVING SAID WEST BOUNDARY NORTH 76°54'35" EAST 20.27 FEET TO THE TRUE POINT OF BEGINNING; THENCE FROM SAID POINT OF BEGINNING NORTH 77°00'00" EAST 13.33 FEET; THENCE SOUTH 13°00'00" EAST 31.00 FEET; THENCE SOUTH 77°00'00" WEST 13.33 FEET; THENCE NORTH 13°00'00" WEST 31.00 FEET TO THE POINT OF BEGINNING.

TOGETHER WITH AN ROUTE FOR INGRESS, EGRESS AND UTILITY PURPOSES, FIFTEEN FEET IN WIDTH, THE CENTERLINE OF WHICH IS DESCRIBED AS FOLLOWS: BEGINNING AT A POINT WHICH BEARS SOUTH 13°00'00" EAST 7.50 FEET FROM THE NORTHWEST CORNER OF THE ABOVE DESCRIBED LICENSE AREA AND RUNNING THENCE SOUTH 77°00'00" WEST 20.77 FEET; THENCE SOUTH 13°05'25" EAST 123.6 FEET MORE OR LESS TO THE PUBLIC RIGHT OF WAY.

ALSO TOGETHER WITH AN ROUTE FOR UTILITY PURPOSES, SIX FEET IN WIDTH, FROM THE ABOVE DESCRIBED LICENSE AREA SOUTHEASTERLY 36.5 FEET MORE OR LESS TO AND ON THE EXISTING TRANSMISSION TOWER AS NECESSARY FOR PLACEMENT OF CELLULAR ANTENNAS AND APPURTENANCES.

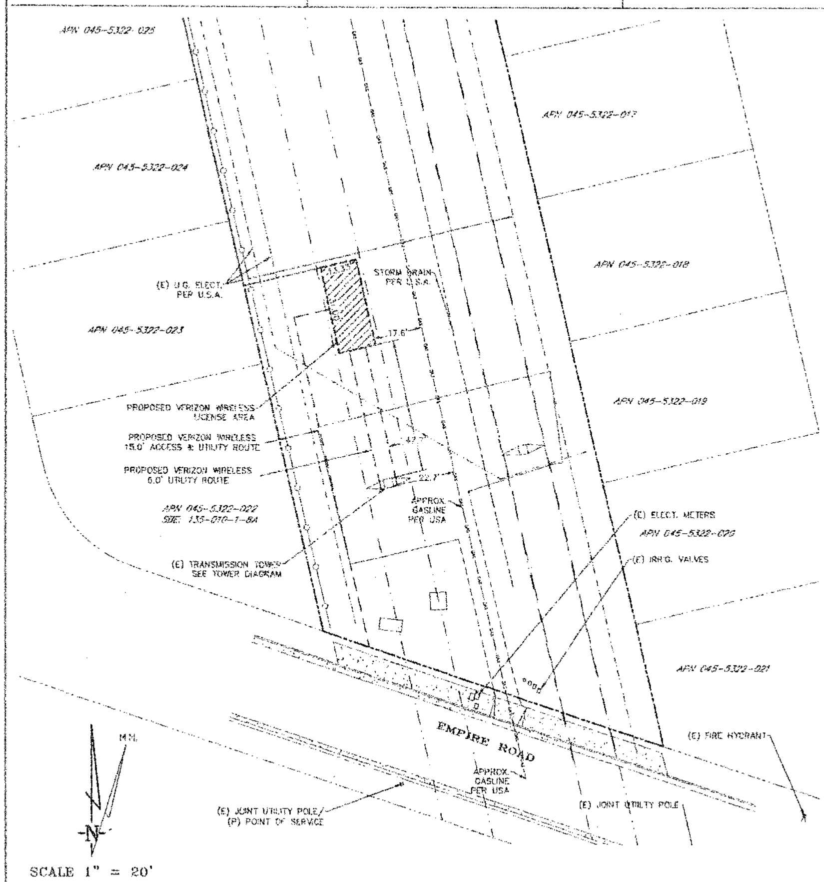
THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE, ARE THE EXCLUSIVE PROPERTY OF GEIL ENGINEERING AND THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE AND CARRIER FOR WHICH THEY ARE PREPARED. REUSE, REPRODUCTION OR PUBLICATION BY ANY METHOD, IN WHOLE OR 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.

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.



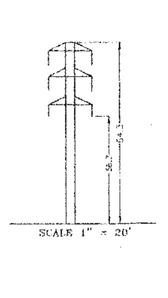
OAKLAND, CA

VICINITY MAP



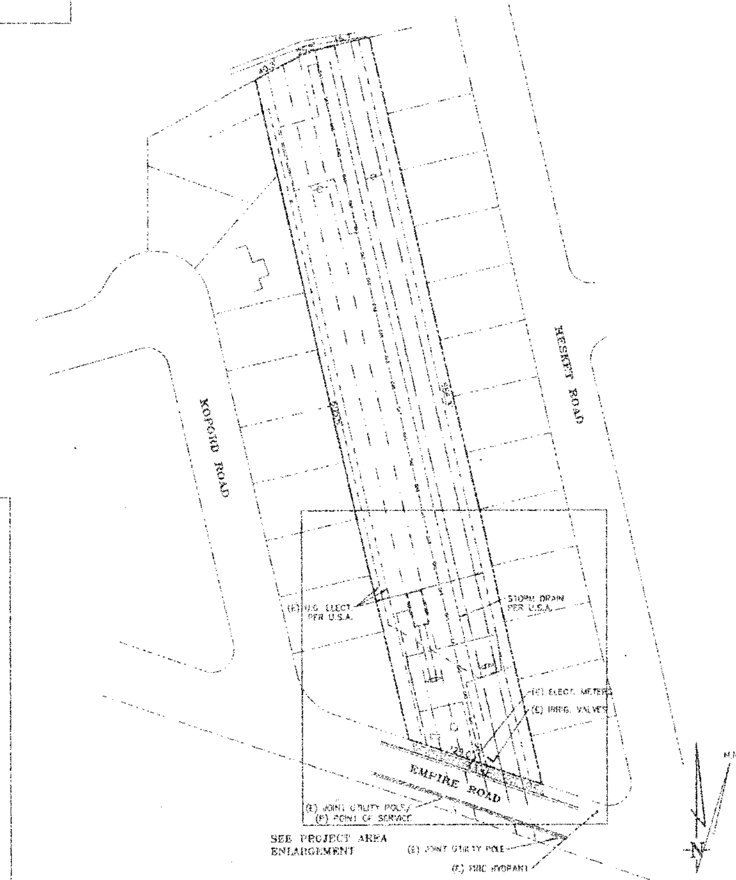
SCALE 1" = 20'

PROJECT AREA ENLARGEMENT



SCALE 1" = 20'

TOWER DIAGRAM



SCALE 1" = 50'

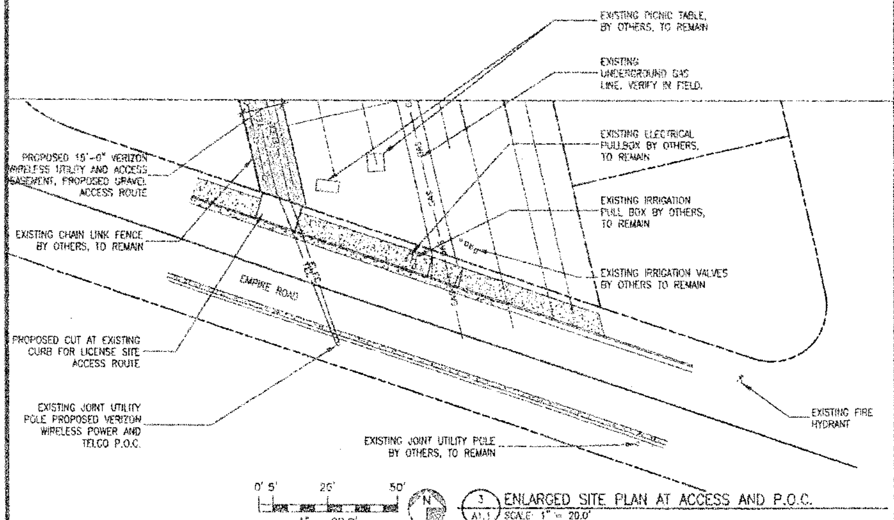
OVERALL PROJECT AREA

GEIL ENGINEERING

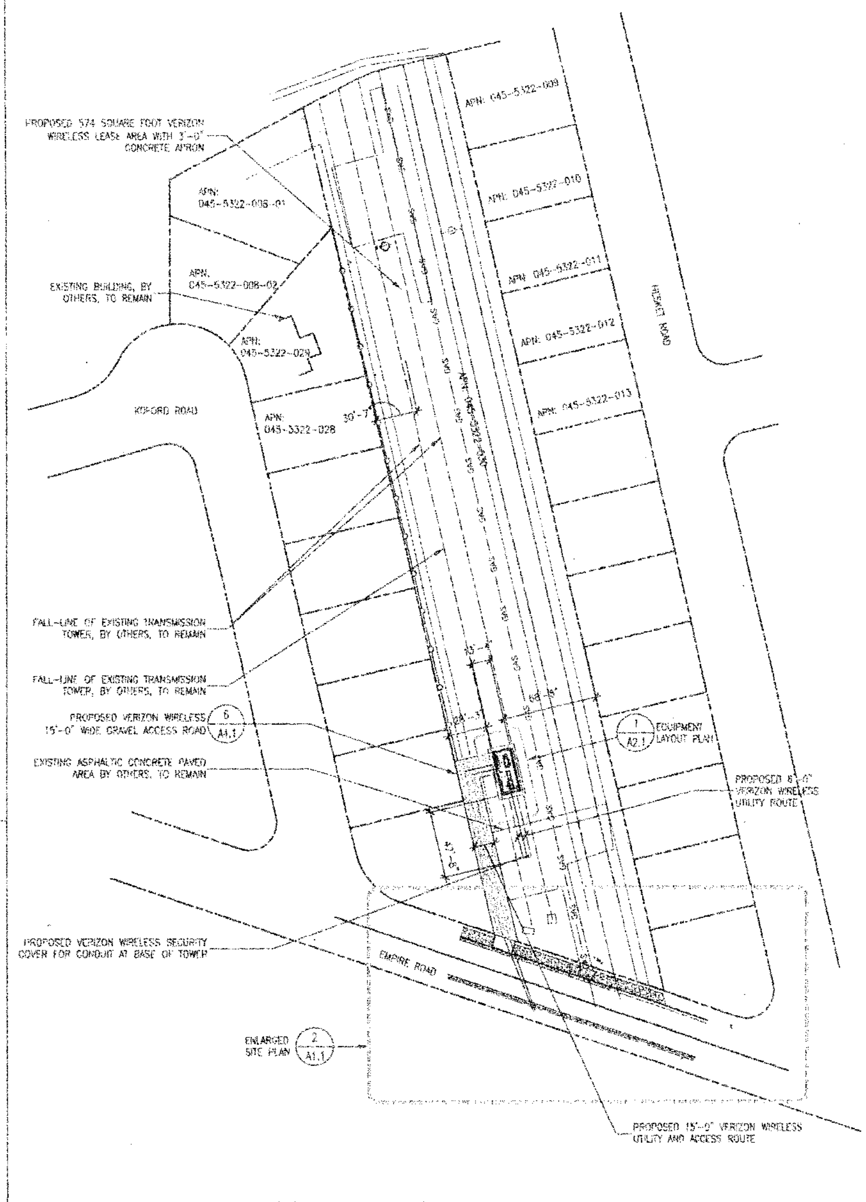
Highway 880 & 98th
Empire Road
Oakland, CA 94177

PLOT PLAN AND SITE TOPOGRAPHY

Sheet C-1


EXISTING PICNIC TABLE, BY OTHERS, TO REMAIN
EXISTING UNDERGROUND GAS LINE, VERIFY IN FIELD.
EXISTING ELECTRICAL PULLBOX BY OTHERS, TO REMAIN
EXISTING IRRIGATION PULL BOX BY OTHERS, TO REMAIN
EXISTING IRRIGATION VALVES BY OTHERS TO REMAIN
PROPOSED 15'-0" VERIZON WIRELESS UTILITY AND ACCESS EASEMENT, PROPOSED GRAVEL ACCESS ROUTE
EXISTING CHAIN LINK FENCE BY OTHERS, TO REMAIN
EMPIRE ROAD
PROPOSED CUT AT EXISTING CURB FOR LICENSE SITE ACCESS ROUTE
EXISTING JOINT UTILITY POLE PROPOSED VERIZON WIRELESS POWER AND TELCO P.O.C.
EXISTING JOINT UTILITY POLE BY OTHERS, TO REMAIN
EXISTING FIRE HYDRANT
0' 5' 25' 50'
1" = 20.0'

3 / A1.1 ENLARGED SITE PLAN AT ACCESS AND P.O.C.
SCALE: 1" = 20.0'


PROPOSED 574 SQUARE FOOT VERIZON WIRELESS LEASE AREA WITH 3'-0" CONCRETE APRON
APN: 045-5322-008-01
EXISTING BUILDING, BY OTHERS, TO REMAIN
APN: 045-5322-008-02
APN: 045-5322-029
KOFORD ROAD
APN: 045-5322-028
30'-7"
APN: 045-5322-030
APN: 045-5322-009
APN: 045-5322-010
APN: 045-5322-011
APN: 045-5322-012
APN: 045-5322-013
HESKET ROAD
FALL-LINE OF EXISTING TRANSMISSION TOWER, BY OTHERS, TO REMAIN
FALL-LINE OF EXISTING TRANSMISSION TOWER, BY OTHERS, TO REMAIN
PROPOSED VERIZON WIRELESS 15'-0" WIDE GRAVEL ACCESS ROAD 6 / A1.1
EXISTING ASPHALTIC CONCRETE PAVED AREA BY OTHERS, TO REMAIN
1 / A2.1 EQUIPMENT LAYOUT PLAN
PROPOSED 6'-0" VERIZON WIRELESS UTILITY ROUTE
47'-6"
PROPOSED VERIZON WIRELESS SECURITY COVER FOR CONDUIT AT BASE OF TOWER
EMPIRE ROAD
ENLARGED SITE PLAN 2 / A1.1
PROPOSED 15'-0" VERIZON WIRELESS UTILITY AND ACCESS ROUTE
0' 10' 50' 100'
1" = 40.0'

1 / A1.1 OVERALL SITE PLAN
SCALE: 1" = 40.0'

MST ARCHITECTS

COMPLETE Wireless Consulting, Inc.

verizon

HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
OVERALL SITE PLAN

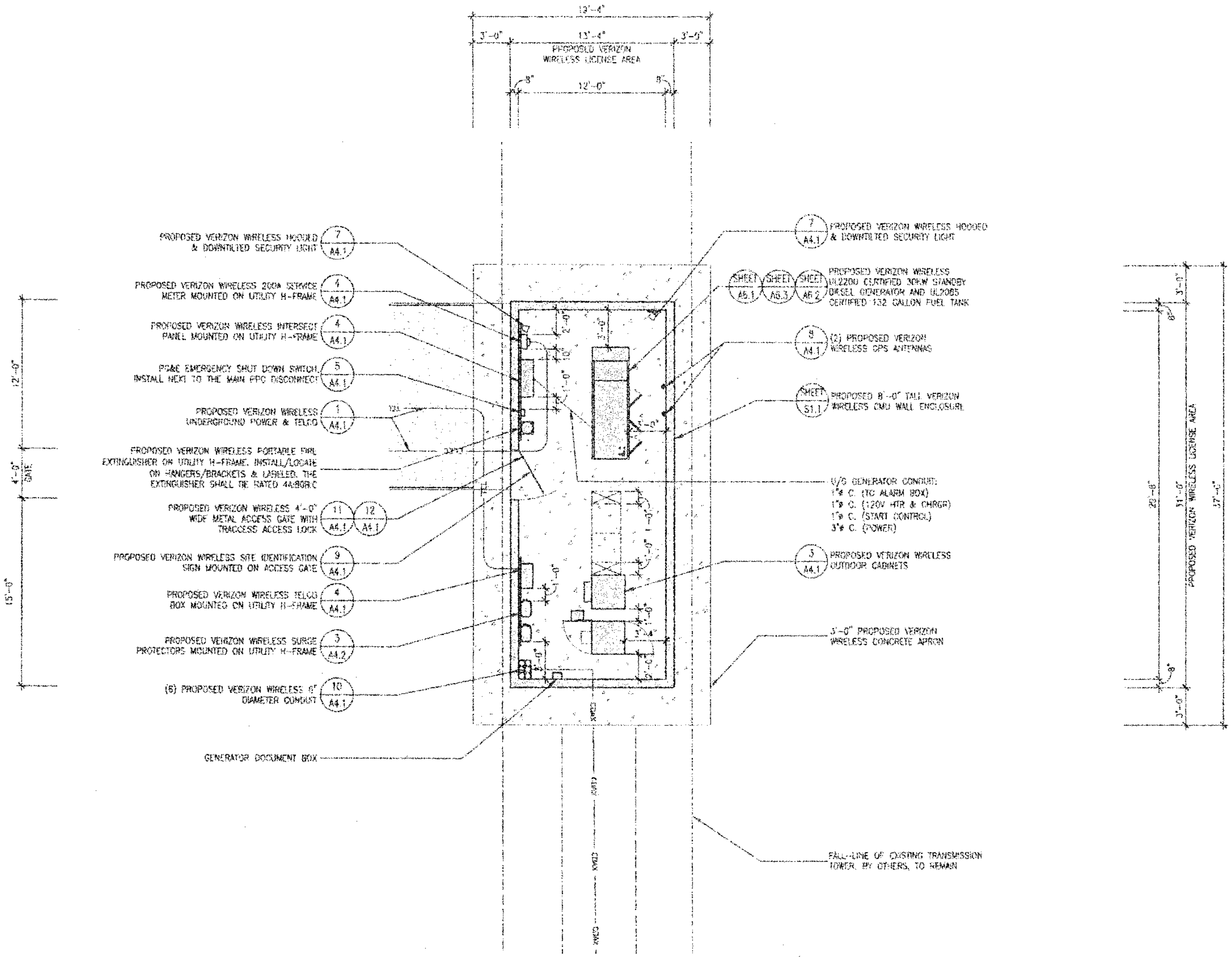
LICENSED ARCHITECT
No. C-28021
STATE OF CALIFORNIA

Revisions:

Drawn By: KR
Checked By: MST
Scale: AS NOTED

Job No.

A1.1



13'-4"
3'-0"
13'-4"
3'-0"
PROPOSED VERIZON WIRELESS LICENSE AREA
8"
12'-0"
8"
PROPOSED VERIZON WIRELESS HOODED & DOWNTILTED SECURITY LIGHT
PROPOSED VERIZON WIRELESS 200A SERVICE METER MOUNTED ON UTILITY H-FRAME
PROPOSED VERIZON WIRELESS INTERSECT PANEL MOUNTED ON UTILITY H-FRAME
PG&E EMERGENCY SHUT DOWN SWITCH, INSTALL NEXT TO THE MAIN PPC DISCONNECT
PROPOSED VERIZON WIRELESS UNDERGROUND POWER & TELCO
PROPOSED VERIZON WIRELESS PORTABLE FIRE EXTINGUISHER ON UTILITY H-FRAME. INSTALL/LOCATE ON HANGERS/BRACKETS & LABELED. THE EXTINGUISHER SHALL BE RATED 4A:80B:C
PROPOSED VERIZON WIRELESS 4'-0" WIDE METAL ACCESS GATE WITH TRACCESS ACCESS LOCK
PROPOSED VERIZON WIRELESS SITE IDENTIFICATION SIGN MOUNTED ON ACCESS GATE
PROPOSED VERIZON WIRELESS TELCO BOX MOUNTED ON UTILITY H-FRAME
PROPOSED VERIZON WIRELESS SURGE PROTECTORS MOUNTED ON UTILITY H-FRAME
(6) PROPOSED VERIZON WIRELESS 6" DIAMETER CONDUIT
GENERATOR DOCUMENT BOX
12'-0"
4'-0" GATE
15'-0"
PROPOSED VERIZON WIRELESS HOODED & DOWNTILTED SECURITY LIGHT
PROPOSED VERIZON WIRELESS UL2200 CERTIFIED 30KW STANDBY DIESEL GENERATOR AND UL2085 CERTIFIED 132 GALLON FUEL TANK
(2) PROPOSED VERIZON WIRELESS GPS ANTENNAS
PROPOSED 8'-0" TALL VERIZON WIRELESS CMU WALL ENCLOSURE
U/G GENERATOR CONDUIT:
1"ø C. (TO ALARM BOX)
1"ø C. (120V HTR & CHRGR)
1"ø C. (START CONTROL)
3"ø C. (POWER)
PROPOSED VERIZON WIRELESS OUTDOOR CABINETS
3'-0" PROPOSED VERIZON WIRELESS CONCRETE APRON
FALL-LINE OF EXISTING TRANSMISSION TOWER, BY OTHERS, TO REMAIN
COAX
3'-0"
8"
29'-8"
31'-0"
PROPOSED VERIZON WIRELESS LICENSE AREA
37'-0"
3'-0"
0' 1' 5' 10'
1/4" = 1'-0"

1 / A2.1 EQUIPMENT LAYOUT PLAN
SCALE: 1/4" = 1'-0"

MST ARCHITECTS

COMPLETE

verizon

HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
EQUIPMENT LAYOUT PLAN

LICENSED ARCHITECT No. C-29021

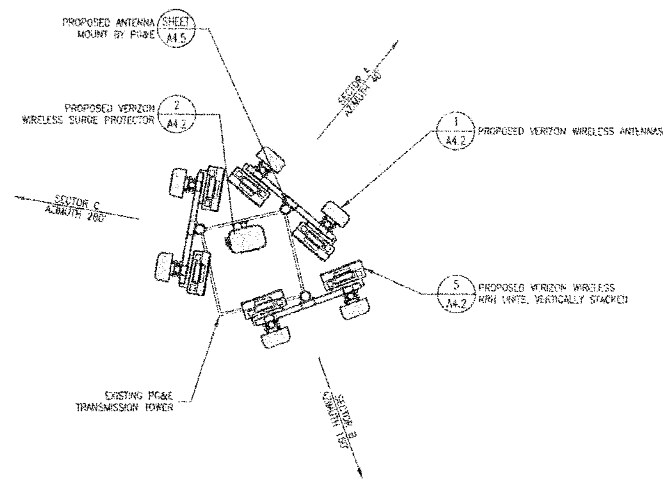
Revisions:

File: 162.1159A21.dwg
Drawn By: JG
Checked By: MST
Scale: AS NOTED
Date: 11/16/13

Job No. 162.1159

A2.1

EQUIPMENT SCHEDULE					
EQUIPMENT	DESCRIPTION	QUANTITY			TOTAL
		SECTOR A	SECTOR B	SECTOR C	
ANTENNA	HEX4568C	2	2	2	6
RRH	RRUS12	2	2	2	8
RRH	RRUS12 W/ A2 BACKPACK	2	2	2	6
DIPLEXER	TO BE DETERMINED	0	0	0	0
SURGE PROTECTOR/HYBRID	RAYCAP DC1064 / HYBRID TRUNK CABLE	1 / 1			1 / 1
COAXIAL CABLE	7/8" DIAMETER COAX	4	4	4	12
RET CABLE	N/A	0			0



0' 1' 5' 10'
1/2" = 1'-0"

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

MST ARCHITECTS

COMPLETE

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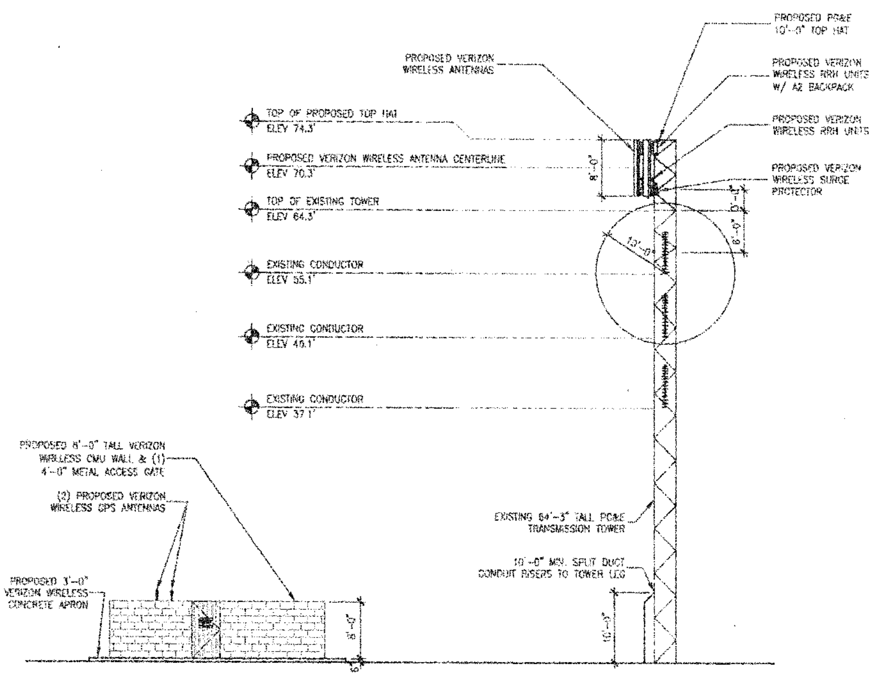
HWY 580 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
ANTENNA LAYOUT PLAN

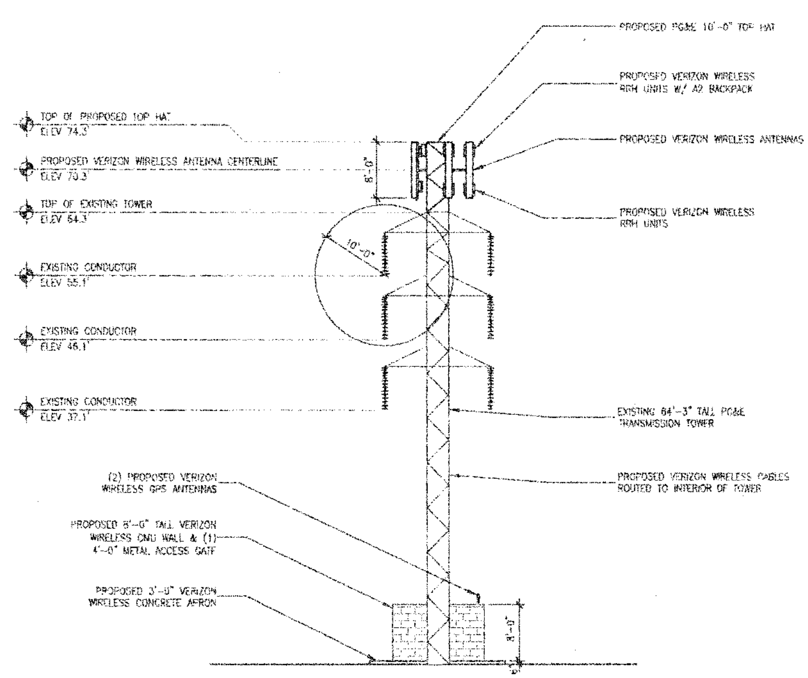
Revisions:
Δ
Δ
Δ
Δ
Δ

Drawn By: ...
Checked By: ...
Scale: AS NOTED

A2.2


PROPOSED PG&E 10'-0" TOP HAT
PROPOSED VERIZON WIRELESS ANTENNAS
PROPOSED VERIZON WIRELESS RRH UNITS W/ A2 BACKPACK
PROPOSED VERIZON WIRELESS RRH UNITS
PROPOSED VERIZON WIRELESS SURGE PROTECTOR
TOP OF PROPOSED TOP HAT ELEV 74.3'
PROPOSED VERIZON WIRELESS ANTENNA CENTERLINE ELEV 70.3'
TOP OF EXISTING TOWER ELEV 64.3'
EXISTING CONDUCTOR ELEV 55.1'
EXISTING CONDUCTOR ELEV 46.1'
EXISTING CONDUCTOR ELEV 37.1'
10'-0"
8'-0"
6'-0"
PROPOSED 8'-0" TALL VERIZON WIRELESS CMU WALL & (1) 4'-0" METAL ACCESS GATE
(2) PROPOSED VERIZON WIRELESS GPS ANTENNAS
PROPOSED 3'-0" VERIZON WIRELESS CONCRETE APRON
EXISTING 64'-3" TALL PG&E TRANSMISSION TOWER
10'-0" MIN. SPLIT DUCT CONDUIT RISERS TO TOWER LEG

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


PROPOSED PG&E 10'-0" TOP HAT
PROPOSED VERIZON WIRELESS RRH UNITS W/ A2 BACKPACK
PROPOSED VERIZON WIRELESS ANTENNAS
PROPOSED VERIZON WIRELESS RRH UNITS
TOP OF PROPOSED TOP HAT ELEV 74.3'
PROPOSED VERIZON WIRELESS ANTENNA CENTERLINE ELEV 70.3'
TOP OF EXISTING TOWER ELEV 64.3'
EXISTING CONDUCTOR ELEV 55.1'
EXISTING CONDUCTOR ELEV 46.1'
EXISTING CONDUCTOR ELEV 37.1'
10'-0"
8'-0"
EXISTING 64'-3" TALL PG&E TRANSMISSION TOWER
PROPOSED VERIZON WIRELESS CABLES ROUTED TO INTERIOR OF TOWER
(2) PROPOSED VERIZON WIRELESS GPS ANTENNAS
PROPOSED 8'-0" TALL VERIZON WIRELESS CMU WALL & (1) 4'-0" METAL ACCESS GATE
PROPOSED 3'-0" VERIZON WIRELESS CONCRETE APRON

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

MST ARCHITECTS

COMPLETE

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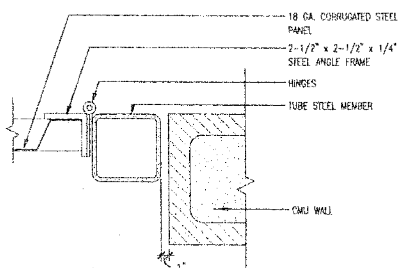
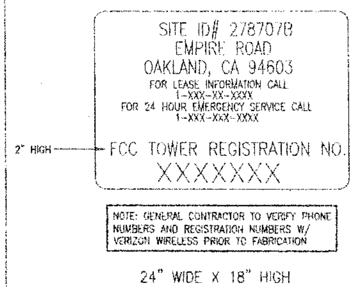
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE
PROJECT ELEVATIONS

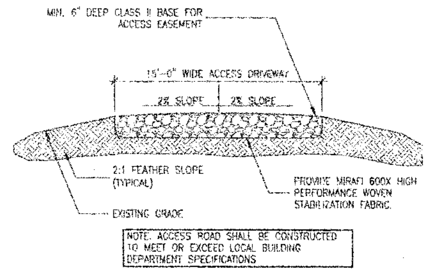
A3.1



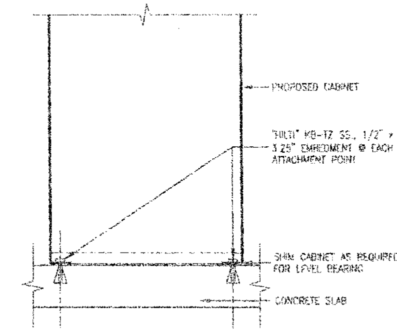
12 / A4.1 JAMB AT GATE
SCALE: NO SCALE


SITE ID# 278707B
EMPIRE ROAD
OAKLAND, CA 94603
FOR LEASE INFORMATION CALL
1-XXX-XX-XXXX
FOR 24 HOUR EMERGENCY SERVICE CALL
1-XXX-XXX-XXXX
2" HIGH
FCC TOWER REGISTRATION NO.
XXXXXXX
NOTE: GENERAL CONTRACTOR TO VERIFY PHONE NUMBERS AND REGISTRATION NUMBERS W/ VERIZON WIRELESS PRIOR TO FABRICATION
24" WIDE X 18" HIGH

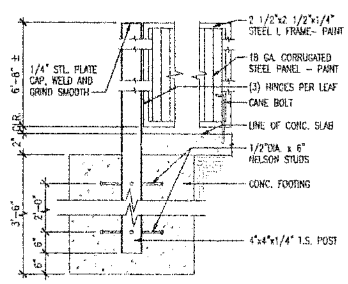
9 / A4.1 SITE ID & CONTACT SIGNAGE
SCALE: NONE


MIN. 6" DEEP CLASS II BASE FOR ACCESS EASEMENT
15'-0" WIDE ACCESS DRIVEWAY
2% SLOPE
2% SLOPE
2:1 FEATHER SLOPE (TYPICAL)
EXISTING GRADE
PROVIDE MIRAFI 600X HIGH PERFORMANCE WOVEN STABILIZATION FABRIC
NOTE: ACCESS ROAD SHALL BE CONSTRUCTED TO MEET OR EXCEED LOCAL BUILDING DEPARTMENT SPECIFICATIONS

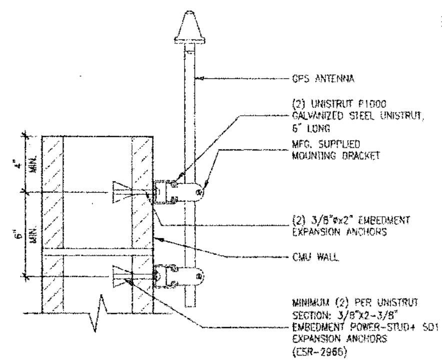
6 / A4.1 ACCESS ROAD DETAIL
SCALE: 1/2"=1'-0"



3 / A4.1 CABINET ANCHORAGE DETAIL
SCALE: 1-1/2" = 1'-0"

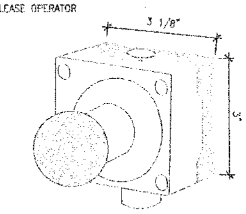


11 / A4.1 GATE DETAIL
SCALE: NO SCALE



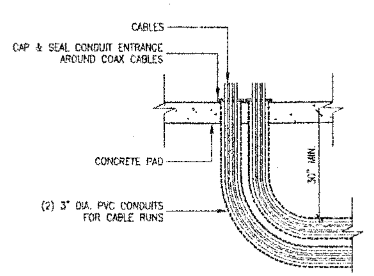
8 / A4.1 GPS ANTENNA MOUNTING DETAIL
SCALE: 3" = 1'-0"

EMERGENCY STOP BUTTON:
- NEMA 4 (#B22-SC1-500)
- MEETS EN418 STANDARD
- MAINTAINED TWIST RELEASE OPERATOR

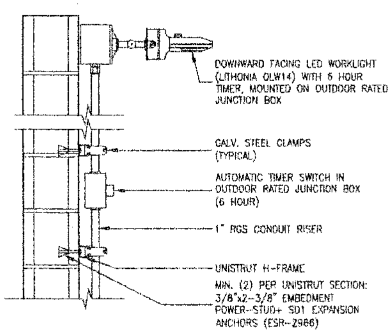


5 / A4.1 SHUTDOWN SWITCH DETAIL
SCALE: N.T.S.

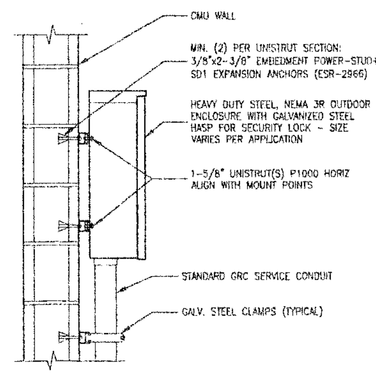
2 / A4.1 NOT USED
SCALE: 1/4" = 1'-0"



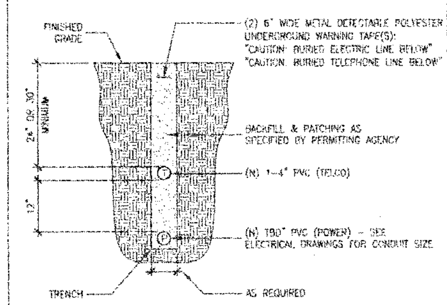
10 / A4.1 COAX CABLE STUB-UP DETAIL
SCALE: 3/4" = 1'-0"


DOWNWARD FACING LED WORKLIGHT (LITHONIA OLW14) WITH 6 HOUR TIMER, MOUNTED ON OUTDOOR RATED JUNCTION BOX
GALV. STEEL CLAMPS (TYPICAL)
AUTOMATIC TIMER SWITCH IN OUTDOOR RATED JUNCTION BOX (6 HOUR)
1" RGS CONDUIT RISER
UNISTRUT H-FRAME
MIN. (2) PER UNISTRUT SECTION: 3/8"x2-3/8" EMBEDMENT POWER-STUD+ SD1 EXPANSION ANCHORS (ESR-2966)

7 / A4.1 WORKLIGHT DETAIL
SCALE: 1-1/2" = 1'-0"


CMU WALL
MIN. (2) PER UNISTRUT SECTION: 3/8"x2-3/8" EMBEDMENT POWER-STUD+ SD1 EXPANSION ANCHORS (ESR-2966)
HEAVY DUTY STEEL, NEMA 3R OUTDOOR ENCLOSURE WITH GALVANIZED STEEL HASP FOR SECURITY LOCK - SIZE VARIES PER APPLICATION
1-5/8" UNISTRUT(S) P1000 HORIZ ALIGN WITH MOUNT POINTS
STANDARD GRC SERVICE CONDUIT
GALV. STEEL CLAMPS (TYPICAL)

4 / A4.1 UTILITY BOX MOUNTING DETAIL
SCALE: 1-1/2" = 1'-0"


FINISHED GRADE
(2) 6" WIDE METAL DETECTABLE POLYESTER UNDERGROUND WARNING TAPE(S): "CAUTION: BURIED ELECTRIC LINE BELOW" "CAUTION: BURIED TELEPHONE LINE BELOW"
BACKFILL & PATCHING AS SPECIFIED BY PERMITTING AGENCY
(N) 1-4" PVC (TELCO)
(N) 180" PVC (POWER) - SEE ELECTRICAL DRAWINGS FOR CONDUIT SIZE
TRENCH
AS REQUIRED
24" OR 30" MINIMUM
12"

NOTE: RESTORE GRADE TO ORIGINAL CONDITION OR BETTER. FILL WITH WELL COMPACTED BACKFILL. IF TRENCH IS UNDER CONCRETE PAD, BACKFILL WITH CRUSHED STONE

1 / A4.1 JOINT POWER/TELCO TRENCH DETAIL
SCALE: NONE

MST ARCHITECTS

COMPLETE

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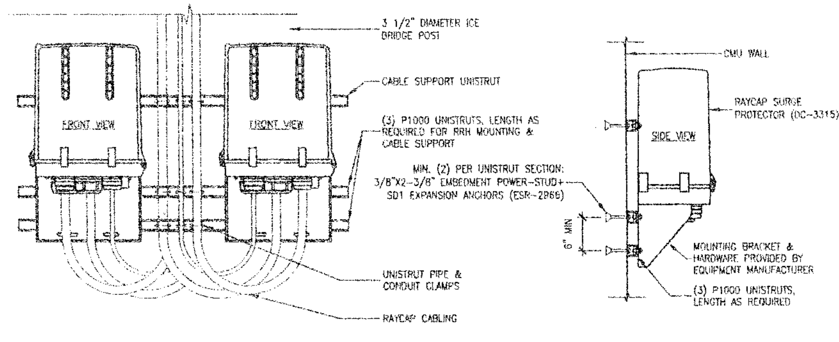
HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
CONSTRUCTION DETAILS

Revisions:

Drawn By: JS
Checked By: 1st
Scale: AS NOTED

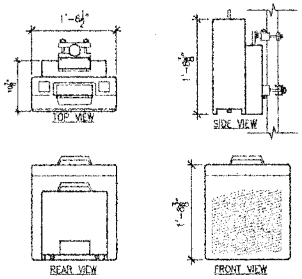
A4.1


3 1/2" DIAMETER ICE BRIDGE POST
CABLE SUPPORT UNISTRUT
FRONT VIEW
FRONT VIEW
(3) P1000 UNISTRUTS, LENGTH AS REQUIRED FOR RRH MOUNTING & CABLE SUPPORT
MIN. (2) PER UNISTRUT SECTION: 3/8"X2-3/8" EMBEDMENT POWER-STUD+ SD1 EXPANSION ANCHORS (ESR-2866)
UNISTRUT PIPE & CONDUIT CLAMPS
RAYCAP CABLING
CMU WALL
RAYCAP SURGE PROTECTOR (DC-3315)
SIDE VIEW
6" MIN
MOUNTING BRACKET & HARDWARE PROVIDED BY EQUIPMENT MANUFACTURER
(3) P1000 UNISTRUTS, LENGTH AS REQUIRED

3 / A4.2 RAYCAP SURGE PROTECTOR @ EQUIP. DC-3315
SCALE: 1-1/2" = 1'-0"

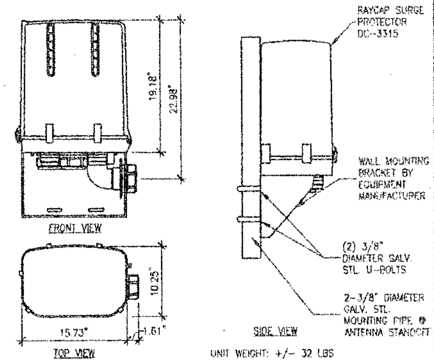
9 / A4.2 NOT USED
SCALE: NONE

8 / A4.2 NOT USED
SCALE: NONE



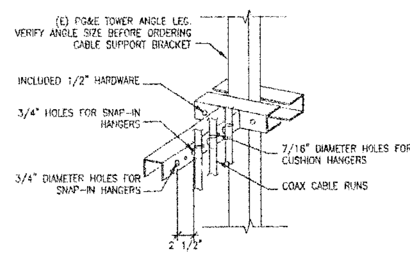
RRUS12 W/RRUS A2 BACKPACK NOTES:
TO ENSURE ADEQUATE AIRFLOW BETWEEN UNITS:
- ALLOW A MINIMUM OF 15.75" VERTICAL SEPARATION BETWEEN RRH'S.
- ALLOW A MINIMUM OF 19.68" VERTICAL SEPARATION BETWEEN RRH AND ANTENNA.
- ALLOW A MINIMUM OF 7.87" HORIZONTAL SEPARATION BETWEEN RRH'S AND BETWEEN RRH'S AND ANTENNA.
- THE MINIMUM DISTANCE FROM THE BOTTOM OF THE RRH TO THE FLOOR IS 11.8".
- MOUNTING BRACKETS & HARDWARE PROVIDED BY MANUFACTURER

5 / A4.2 RRUS12 W/A2 BACKPACK DETAIL
SCALE: 1" = 1'-0"

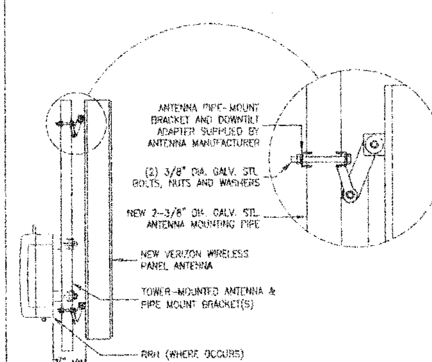


2 / A4.2 RAYCAP SURGE @ ANTENNAS DC-3315
SCALE: 1-1/2" = 1'-0"

7 / A4.2 NOT USED
SCALE: NONE



4 / A4.2 COAXIAL CABLE SNAP IN BRACKET DETAIL
SCALE: NO SCALE


ANTENNA PIPE-MOUNT BRACKET AND DOWNTILT ADAPTER SUPPLIED BY ANTENNA MANUFACTURER
(2) 3/8" DIA. GALV. STL BOLTS, NUTS AND WASHERS
NEW 2-3/8" DIA. GALV. STL. ANTENNA MOUNTING PIPE
NEW VERIZON WIRELESS PANEL ANTENNA
TOWER-MOUNTED ANTENNA & PIPE MOUNT BRACKET(S)
RRH (WHERE OCCURS)
6" MIN

1 / A4.2 TYPICAL ANTENNA MOUNT DETAIL
SCALE: 1" = 1'-0"

MST ARCHITECTS

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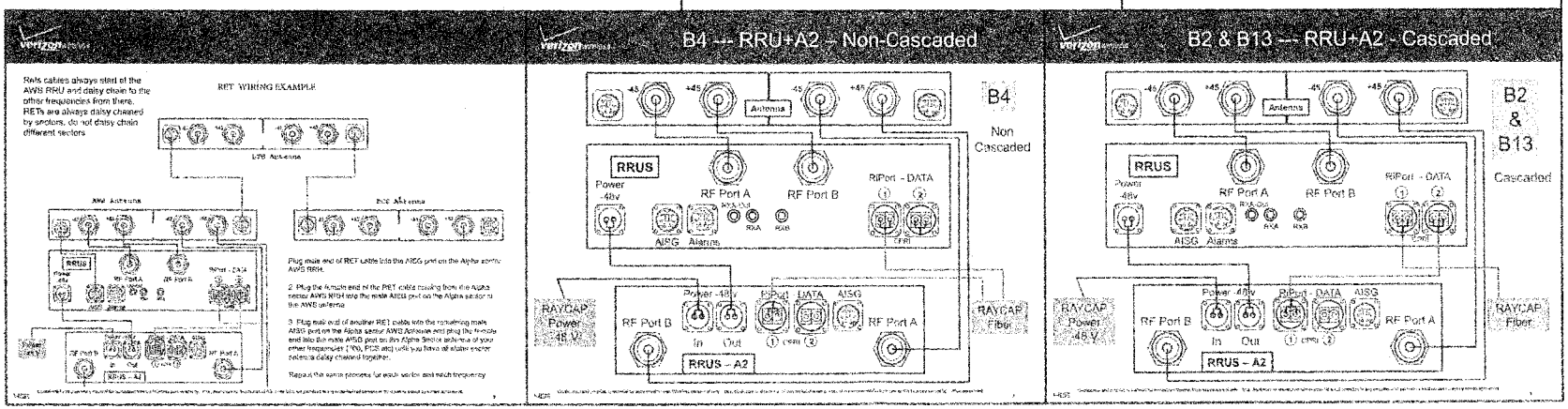
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
CONSTRUCTION DETAILS

Revisions:

Drawn By:
Checked By:
Scale: AS NOTED
Date:
Job No.

A4.2

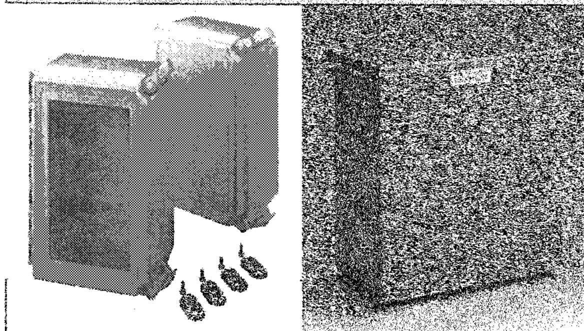


RRU/RAYCAP CONNECTION GUIDE

A4.3

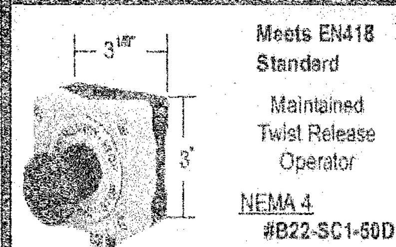
PG&E Material and Hardware

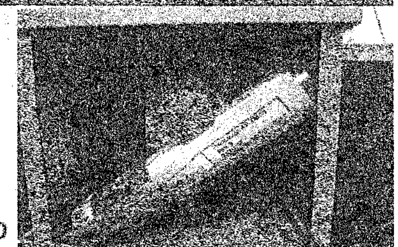
Field Notes: (#1) Approved RF Disconnects are designed by the Carrier and tested/confirmed by PG&E. (#2) PG&E locks (ONLY) installed on RF Disconnect and Document boxes. (#2) Access Gate Lock Configurations as noted - multiple locks to be inserted/daisy chained inside the "eye-bolts".

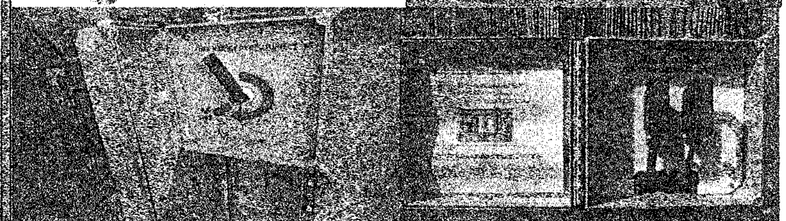


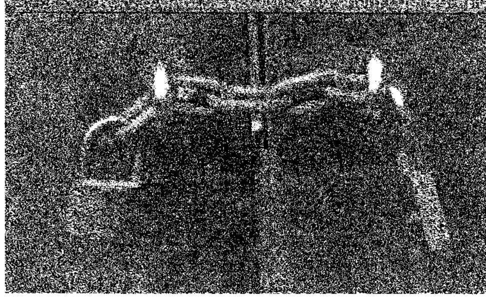
Model # A14128CHQRFGW - Fiberglass, Quick Release Latch with Standard Cover (Generator Documents BOX)

Model # A8R86 - NEMA Type 3R Enclosure, Screw Cover









1) This arrangement is for wood gates and fences. For other types of enclosures (CMU, fiberglass, or metal) use appropriate eyebolt type.
2) If additional locks are required, daisy-chain them between eyebolts.
3) HB IVES Lag thread eyebolt: 3/8" dia., 4-1/2" overall length, 2" thread length, 1-1/8" ID eye, zinc plated steel - or equal.
4) 5/16" Grade 40 chain.

CX.20052.131106

1 / A4.4 PG&E DETAILS

SCALE: NONE

MST ARCHITECTS

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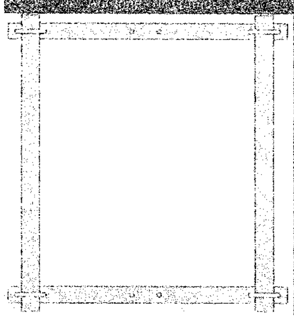
OAKLAND, CA 94603

CONSTRUCTION DETAILS

A4.4

PG&E Hardware and Material

Field Notes: (#1) PG&E supplies and builds Above Conductor "H" frames. (#2) GC supplies and builds Below Conductor "H" frames. (#3) GC to supply approved Below Conductor Antenna Mount (see pg.1) for "H" frame installation. (#4) GC to label RF hardware with sector information, plumb, set mechanical DT and mount to "H" frame (#5) UAS60 requires (4") U bolts to be utilized when mounting "H" frame to UAS60 center pipe mount



Angle Steel Size	(2" x 2" x 3/16")	
Angle Steel Length	(3'-6" x 2)	
Pipe Size	Schd. 40 (2-3/8" OD x 2)	
Pipe Length	Varies based on Antenna	
"U" Bolt Size	(2" x 1/2" x 6)	Note: When UAS60 will use (4") "U" bolts
Hardware	(1/2" x 12) A325 Galvanized Bolts, flats, locks and heavy hex nut	

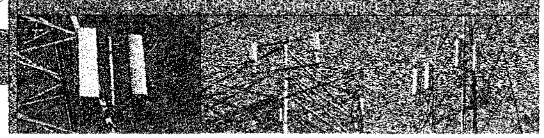
1) See PG&E "H" frame Engineering drawing # 395456 rev 2 for design measurements and hole pattern's

2) Materials and Fabrication Shall Conform to PG&E Engineering Standard, Latest Revision

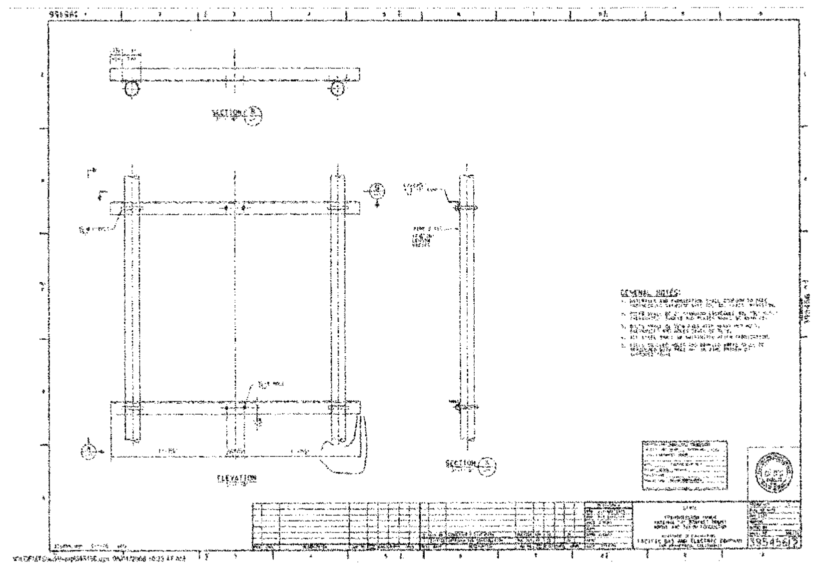
3) Pipes shall be (2") standard schedule 40, (2-3/8") OD, galvanized. Angles and plates shall be ASTM A36

4) Bolts shall be (1/2") A325 with heavy hex nuts, galvanized and holes shall be (9/16")

5) Field Drilled holes and damaged areas shall be retouched with PG&E No.56 Zinc Primer or approved equal



CX.20052.131106



CX.20052.131106

1 ANTENNA H-FRAME DETAIL
A4.5 SCALE: NO SCALE

MST ARCHITECTS

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EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:

CONSTRUCTION DETAILS

Revisions:

A4.5

GENERAC | INDUSTRIAL POWER

SD030

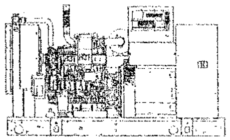
2.4L

Industrial Diesel Generator Set

EPA Certified Stationary Emergency

Standby Power Rating
30 kW 38 kVA 60 Hz

Prime Power Rating*
27 kW 34 kVA 60 Hz



Codes and Standards

UL2200, UL2746, UL142, UL489

NFPA70, 99, 110, 37

NEC700, 701, 702, 708

ANSI C62.41

Powering Ahead

For over 50 years, Generac has led the industry with innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac's gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

SD030

Standard Features

CONTROL SYSTEM

SD030

Configurable Options

Engineered Options

Rating Definitions

SD030

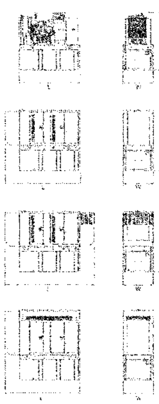
application and engineering data

SD030

operating data

SD030

dimensions and weights*



(1 / A6.1) STANDBY GENERATOR DATASHEETS
SCALE: NONE

MST ARCHITECTS

COMPLETE Wireless Consulting, Inc.

verizon✓ HWY 580 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
STANDBY GENERATOR DATASHEETS

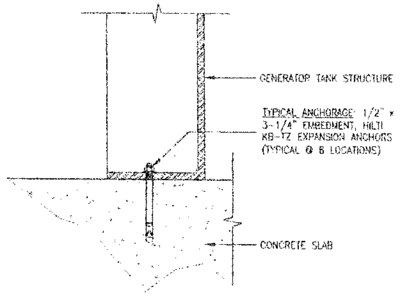
LICENSED ARCHITECT
No. C-28021
STATE OF CALIFORNIA

Revisions:

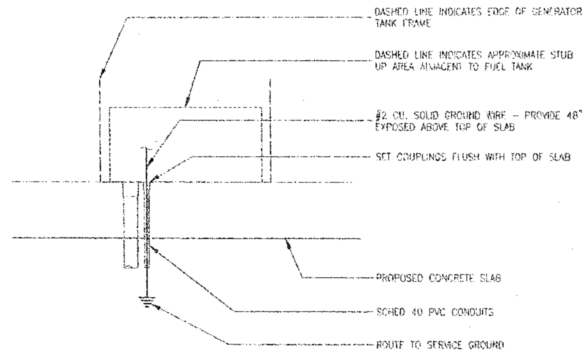
File: 162.1155/81.dwg
Drawn By: JX
Checked By: MJ
Scale: AS NOTED
Date: 11/18/15

Job No. 162155

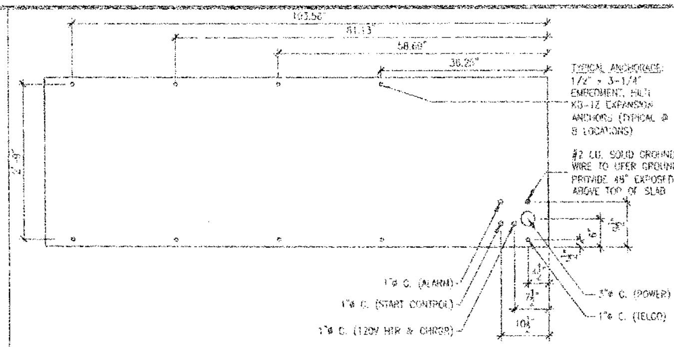
A6.1



5 / A6.2 GENERATOR ATTACHMENT DETAIL
SCALE: NO SCALE

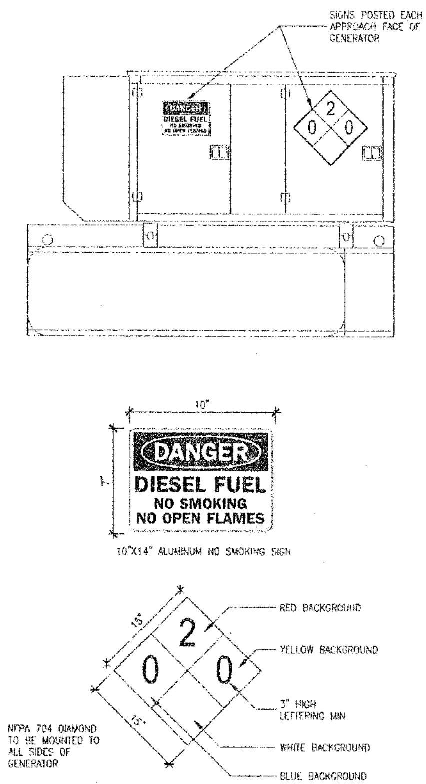

DASHED LINE INDICATES EDGE OF GENERATOR TANK FRAME
DASHED LINE INDICATES APPROXIMATE STUB UP AREA ADJACENT TO FUEL TANK
#2 CU. SOLID GROUND WIRE - PROVIDE 48" EXPOSED ABOVE TOP OF SLAB
SET COUPLINGS FLUSH WITH TOP OF SLAB
PROPOSED CONCRETE SLAB
SCHED 40 PVC CONDUITS
ROUTE TO SERVICE GROUND

3 / A6.2 SECTION @ CONDUIT STUB UP
SCALE: 1" = 1'-0"

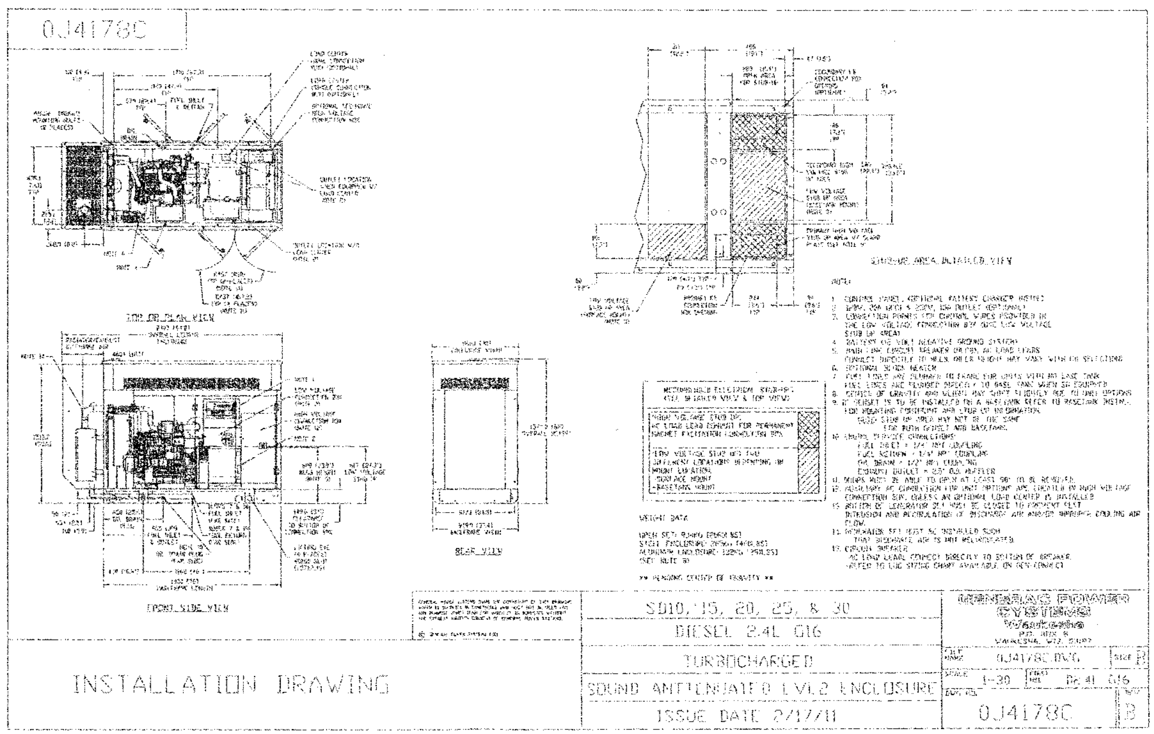

103.56"
81.13"
58.69"
36.26"
TYPICAL ANCHORAGE: 1/2" x 3-1/4" EMBEDMENT, HILTI KB-TZ EXPANSION ANCHORS (TYPICAL @ 8 LOCATIONS)
#2 CU. SOLID GROUND WIRE TO UFER GROUND - PROVIDE 48" EXPOSED ABOVE TOP OF SLAB
1"Ø C. (ALARM)
1"Ø C. (START CONTROL)
1"Ø C. (120V HTR & CHRGR)
3"Ø C. (POWER)
1"Ø C. (TELCO)
10½"

NOTE: TEMPORARILY SEAL TOP OF CONDUITS WITH TAPE OR OTHER METHOD TO KEEP INSIDE AREA CLEAN

2 / A6.2 CONDUIT STUB-UP & ANCHORAGE DETAIL
SCALE: 1" = 1'-0"


SIGNS POSTED EACH APPROACH FACE OF GENERATOR
DANGER
DIESEL FUEL
NO SMOKING
NO OPEN FLAMES
10"
7"
10"X14" ALUMINUM NO SMOKING SIGN
15"
15"
2
0
0
RED BACKGROUND
YELLOW BACKGROUND
3" HIGH LETTERING MIN
WHITE BACKGROUND
BLUE BACKGROUND
NFPA 704 DIAMOND TO BE MOUNTED TO ALL SIDES OF GENERATOR

4 / A6.2 GENERATOR SAFETY SIGNAGE
SCALE: NONE



1 / A6.2 STANDBY GENERATOR INSTALLATION DRAWING
SCALE: NONE

MST ARCHITECTS

COMPLETE

verizon

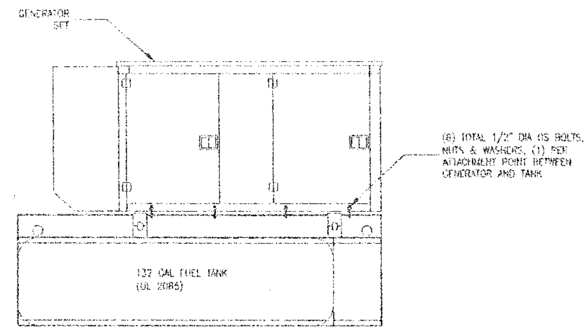
HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
STANDBY GENERATOR INSTALLATION DETAILS

LICENSED ARCHITECT
No. C29021
STATE OF CALIFORNIA

Revisions:

A6.2



(2 / A6.3) GENERATOR FUEL TANK ATTACHMENT DETAIL
SCALE: 1/2" = 1'-0"

(7 / A6.3) NOT USED
SCALE: NONE

(4 / A6.3) NOT USED
SCALE: NONE

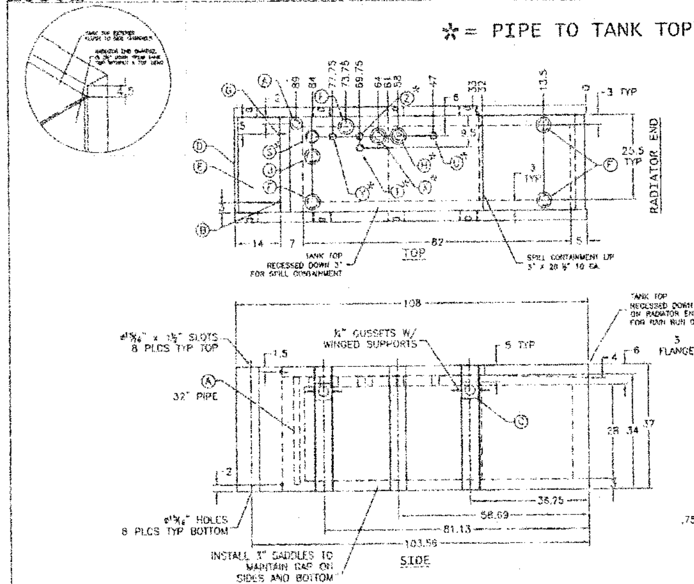
(6 / A6.3) NOT USED
SCALE: NONE

(5 / A6.3) NOT USED
SCALE: NONE

JOB #	TANK CAPACITY	GENSET MODEL	GENSET FOOTPRINT	TANK WEIGHT
13581	132 GAL	SD 30	34.49" X 75.98"	2250 LBS

APPROVED BY:______________ DATE:__________

BILL OF MATERIAL			
LETTER	PART #	DESCRIPTION	QTY
S	3163	COUPLING, 3", E-VENT	1
T	3650	COUPLING, 2", RETURN, W/ 1/2" DIP TUBE	1
U	3650	COUPLING, 2", SUPPLY, W/ 1/2" DIP TUBE	1
X	3185	PIPE, 5", BASIN TOP TO TANK TOP; FLANGE, 2", PIPING CONNECTION	1
	SPECIAL	2" X 1 1/4" BUSHING	1
Y	3192	COUPLING, 2", STANDARD VENT	1
Z	3005	COUPLING, 2", LOCKING FILL PORT	1
A	SPECIAL	PIPE, 1 1/2", MONITORING TUBE 32" LENGTH	1
	4500	FLANGE, 1 1/2", BASIN ALARM	1
B	3502	FLANGE, 1/2", BASIN DRAIN	1
C	8410	FLUSH MOUNT LIFTING PLATE	4
D	8001	REMOVABLE END PLATE 1"-BEND	1
E	4000	14" STAND, ELECTRICAL STUBUP	1
F	3186	FLANGE, 3", EXTRA FITTING W/ PLUG	4
G	4305	FUEL IN SHELL CONTAINMENT BASIN ALARM	1
H	SPECIAL	PIPE, 5", BASIN TOP TO TANK TOP; FLANGE, 2", PIPING CONNECTION; 2" X 1 1/4" BUSHING	1
J	3163	FLANGE, 3" E-VENT	1
	700-1085	1/2" SPRING CHECK VALVE (SUPPLY & RETURN)	2
	700-1120	1/2" FLOWABLE UNIT VALVE (SUPPLY)	1
	3520	RAIN RUN-OFF OPTION	1
	2085	FIRE PROTECTED	
BLACK		PAINT COLOR	



THIS AUTOCAD DRAWING IS THE PROPERTY OF GLOBAL POWER COMPONENTS AND MAY NOT BE USED IN ANY WAY DETRIMENTAL TO THE INTERESTS OF G.P.C. ANY MANUAL CHANGES WILL VOID THIS DRAWING. SPECIFICATIONS MAY CHANGE WITHOUT NOTICE.

SUB BASE TANK W/ RUPTURE BASIN & STUB UP
CUSTOMER/ID: ENERGY SYSTEMS
JOB REF: VERIZON
DRAWING REF: K
DWG #: 15-13581
GLOBAL POWER COMPONENTS

(1 / A6.3) U.L. 2085 CERTIFIED, 132 GALLON TANK DETAIL
SCALE: NONE

MST ARCHITECTS

COMPLETE

verizon
HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

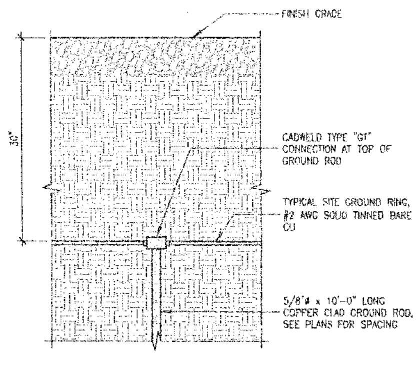
SHEET TITLE: U.L. 2085 CERTIFIED, 132 GALLON TANK DETAIL

A6.3

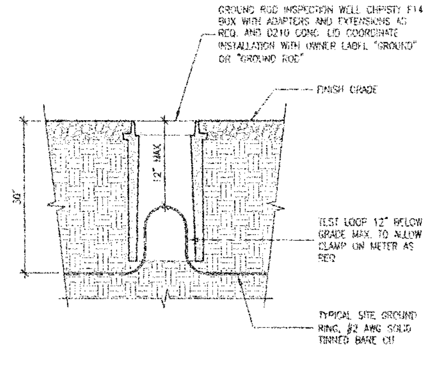
NOTE: PG&E GROUNDING DESIGN SUPERSEDES AS FINAL DESIGN, DESIGN TO FOLLOW

GROUNDING NOTES

1. GROUNDING SHALL COMPLY WITH NEC ART. 250.
2. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURER'S COAX CABLE GROUNDING KITS SUPPLIED BY PBMS.
3. USE #2 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
4. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
5. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY.
6. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PBMS EQUIPMENT OR CABINET TO THE MASTER GROUND BAR.
7. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PEDESTAL GROUND OR SURGE PROTECTOR); SURGE ABSORBERS (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS)
8. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS AND NO-OX OR EQUIVALENT PLACED BETWEEN CONNECTOR AND GROUND BAR.
9. THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS UNIFORMLY SPACED AROUND CELL SITE. THE GROUND RODS SHALL BE 5/8"X8'-0" COPPER CLAD STEEL. THE RODS SHALL BE INTERCONNECTED WITH #2 SOLID TINNED COPPER GROUND WIRE BURIED A MINIMUM 2-1/2' BELOW THE SURFACE OF THE SOIL.
10. ALL UNDERGROUND ELECTRODES SHALL BE BONDED TO STEEL REINFORCING EMBEDDED IN THE CONCRETE SLAB AND CONCRETE MONOPOLE FOUNDATION.
11. MUST APPLY BUTYL & ELECTRICAL TAPE OVER COLD SHRINK AT ALL LOCATIONS. FOR WEATHER PROOFING OVER GROUND KITS. MORE BUTYL TAPE MAY NEED TO BE APPLIED THAN WHAT IS PROVIDED WITH THE MFGR. KIT.
12. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.

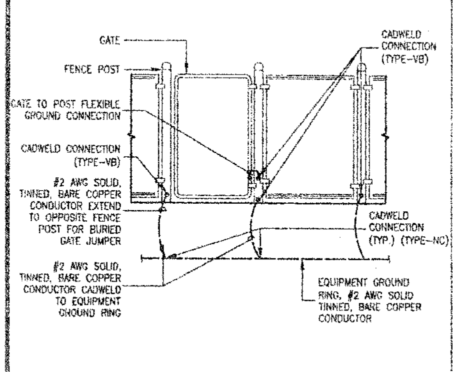


6 / E2.2 TYPICAL GROUND ROD
SCALE: 1" = 1'-0"



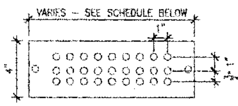
GROUND ROD INSPECTION WELL CHRISTY F14 BOX WITH ADAPTERS AND EXTENSIONS AS REQ. AND D210 CONC. LID COORDINATE INSTALLATION WITH OWNER LABEL "GROUND" OR "GROUND ROD"
FINISH GRADE
12" MAX
30"
TEST LOOP 12" BELOW GRADE MAX. TO ALLOW CLAMP ON METER AS REQ
TYPICAL SITE GROUND RING, #2 AWG SOLID TINNED BARE CU

3 / E2.2 TYPICAL GROUND RING & INSPECTION WELL DETAIL
SCALE: 1-1/2" = 1'-0"



GATE
FENCE POST
GATE TO POST FLEXIBLE GROUND CONNECTION
CADWELD CONNECTION (TYPE-VB)
#2 AWG SOLID, TINNED, BARE COPPER CONDUCTOR EXTEND TO OPPOSITE FENCE POST FOR BURIED GATE JUMPER
#2 AWG SOLID, TINNED, BARE COPPER CONDUCTOR CADWELD TO EQUIPMENT GROUND RING
CADWELD CONNECTION (TYPE-VB)
CADWELD CONNECTION (TYP.) (TYPE-NC)
EQUIPMENT GROUND RING, #2 AWG SOLID TINNED, BARE COPPER CONDUCTOR

9 / E2.2 FENCE GROUNDING DETAIL
SCALE: NONE



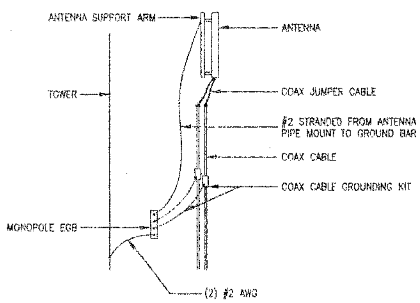
VERIZON WIRELESS GALVANIZED STEEL GROUND BAR W/ANTI-THEFT HARDWARE, NON-REMOVABLE
PROVIDED BY ELECTRIC MOTION COMPANY

PART #	BAR DESCRIPTION
EM SGC 49-VZW-NR	1/4"x4"x0"
EM SGC 412-VZW-NR	1/4"x4"x12"
EM SGC 418-VZW-NR	1/4"x4"x18"
EM SGC 420-VZW-NR	1/4"x4"x20"
EM SGC 424-VZW-NR	1/4"x4"x24"

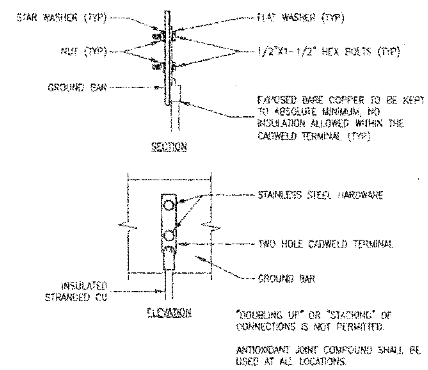
INCLUDES TWO STAINLESS STEEL TORQUE SHEAR HEAD BOLTS, W/ANTI LOOSENING COMPOUND

GENERAL CONTRACTOR TO STAMP "VERIZON WIRELESS" & SITE NUMBER BAR & PAINT ANTI-THEFT COMPOUND PROVIDED BY ELECTRIC MOTION COMPANY, PRODUCT #EM 5101

8 / E2.2 GROUND BAR DETAIL
SCALE: NONE

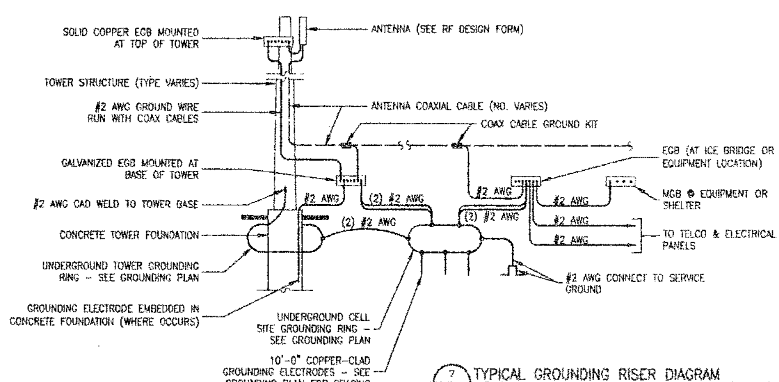


5 / E2.2 COAX CONNECTION & GROUNDING DETAIL
SCALE: NONE



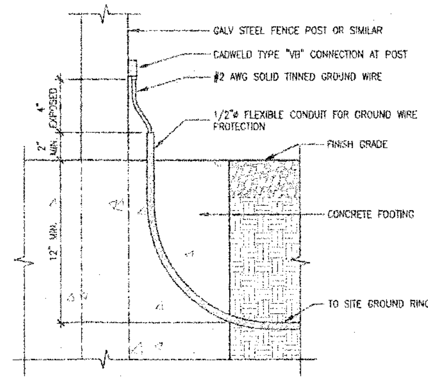
STAR WASHER (TYP)
FLAT WASHER (TYP)
NUT (TYP)
1/2"X1-1/2" HEX BOLTS (TYP)
GROUND BAR
EXPOSED BARE COPPER TO BE KEPT TO ABSOLUTE MINIMUM, NO INSULATION ALLOWED WITHIN THE CADWELD TERMINAL (TYP)
SECTION
STAINLESS STEEL HARDWARE
TWO HOLE CADWELD TERMINAL
GROUND BAR
INSULATED STRANDED CU
ELEVATION
"DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
ANTIOXIDANT JOINT COMPOUND SHALL BE USED AT ALL LOCATIONS.

2 / E2.2 TYPICAL GROUND BAR CONNECTIONS
SCALE: NONE

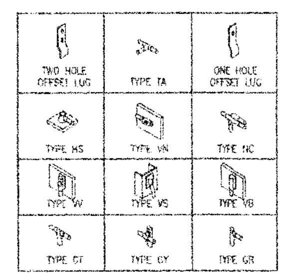


SOLID COPPER EGB MOUNTED AT TOP OF TOWER
ANTENNA (SEE RF DESIGN FORM)
TOWER STRUCTURE (TYPE VARIES)
#2 AWG GROUND WIRE RUN WITH COAX CABLES
ANTENNA COAXIAL CABLE (NO. VARIES)
COAX CABLE GROUND KIT
GALVANIZED EGB MOUNTED AT BASE OF TOWER
EGB (AT ICE BRIDGE OR EQUIPMENT LOCATION)
#2 AWG CAD WELD TO TOWER BASE
MGB @ EQUIPMENT OR SHELTER
CONCRETE TOWER FOUNDATION
TO TELCO & ELECTRICAL PANELS
UNDERGROUND TOWER GROUNDING RING - SEE GROUNDING PLAN
#2 AWG CONNECT TO SERVICE GROUND
GROUNDING ELECTRODE EMBEDDED IN CONCRETE FOUNDATION (WHERE OCCURS)
UNDERGROUND CELL SITE GROUNDING RING - SEE GROUNDING PLAN
10'-0" COPPER-CLAD GROUNDING ELECTRODES - SEE GROUNDING PLAN FOR SPACING
#2 AWG
(2) #2 AWG

7 / E2.2 TYPICAL GROUNDING RISER DIAGRAM
SCALE: NONE



4 / E2.2 POST GROUNDING DETAIL
SCALE: 3" = 1'-0"



TYPICAL CADWELD CONNECTION TYPES BY "ERICO"

1 / E2.2 GROUNDING CONNECTION DETAIL
SCALE: NONE

MST ARCHITECTS

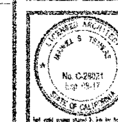
COMPLETE

verizon

HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE

GROUNDING DETAILS



Revisions:

File: 182.1150.E22.dwg
Drawn By: tsk
Checked By: TD
Scale: AS NOTED
Date: 11/18/15

Job No. 182.1150

E2.2

Custom Engineering SOLUTIONS

Corporate:
Custom Engineering Solutions
2603 Camino Ramon, Suite 200
San Ramon, CA 94583

Headquarters:
Custom Engineering Solutions
2050 Woodward Ridge Pkwy, Suite 150
Alpharetta, GA 30005

May 26, 2015

Stephanie McNair
Complete Wireless for Verizon
2000 V Street
Sacramento, CA 95818

Reference: Structural Analysis of PG&E Pole No. 40662385 (3/43) San Leandro-Oakland J #1 115kV Transmission Line, Verizon Site No. 276707B (Hwy 880 & 98th) located on Empire Road, Oakland, CA; SBE #135-010-1-9A

Dear Ms. McNair:

PG&E and its' engineering consultants, have in accordance with the California Public Utility Commission's (CPUC) general orders, performed a structural analysis on the above referenced lattice steel tower and have determined that the tower meets or exceeds CPUC and PG&E strength requirements for your proposed antenna installation. For the reasons stated below, structural calculations need not be provided to City of Oakland.

The following information should clarify how PG&E interacts with local permitting agencies when installing antennas on transmission towers. PG&E is a public utility, therefore, the design and construction of utility structures such as electric transmission towers and poles come under the jurisdiction of the CPUC rather than under local jurisdictions. PG&E is responsible to the CPUC to ensure the use of sound engineering principles in the design and construction of its towers. Local jurisdictions are "preempted" by State Law under the Public Utilities Code and cannot require a public utility to submit to their permitting processes when doing work on utility structures.

In order to comply with CPUC regulations and standards PG&E has established the following procedures; before mounting PCS or cellular antennas to any transmission tower, PG&E's structural engineers and its engineering consultants must thoroughly review the structural integrity of the tower and the proposed mounting arrangement. It is the structural engineer's responsibility to determine whether modifications to the tower are required and that the mounting arrangements are suitable. In most cases, the additional loading due to the antennas and associated cable (both wind and weight) are so insignificant compared to the strength of the tower that neither actual structural calculations nor modifications to the tower are necessary. In some cases, however, structural modifications to the tower or mounting arrangement are required and must be done before any antenna may be attached. Following the installation, PG&E inspects the workmanship of the mounting to ensure that the installation was made in accordance with PG&E design requirements.

Sincerely,

Stephan Tremblay
Civil Engineer, P.E.
Custom Engineering Solutions Inc. for PG&E

MST ARCHITECTS
COMPLETE

verizon

HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

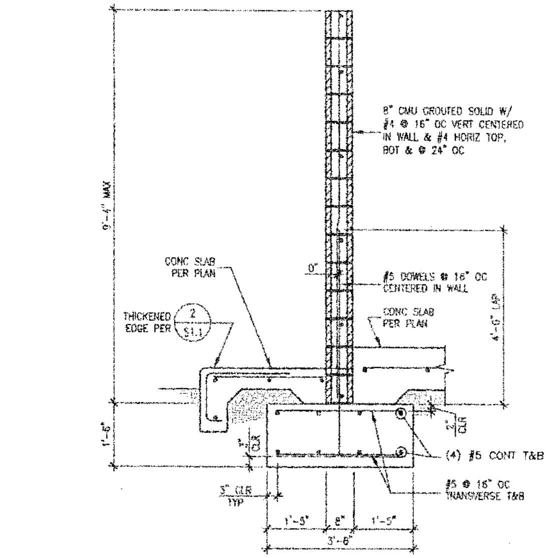
STRUCTURAL DETAILS

Revisions

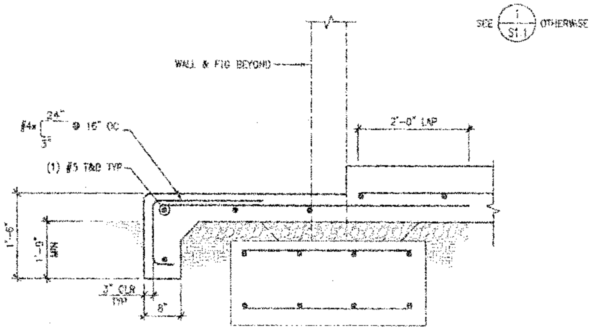
Drawn By: JDS
Checked By: xxx
Scale: AS NOTED
Date: 11/4/15

Job No. 163109

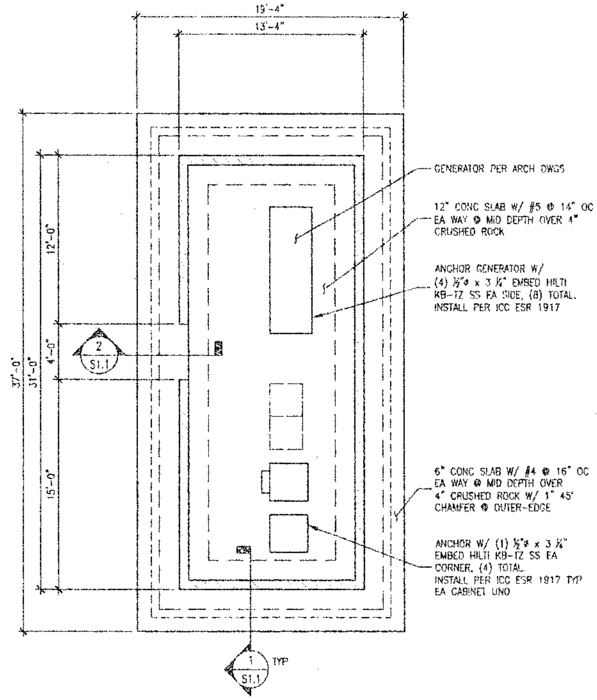
S1.0



1 S1.1 CMU WALL DETAIL
SCALE: 3/4" = 1'-0"



2 S1.1 FOUNDATION SLAB FOOTING
SCALE: 1" = 1'-0"



A S1.1 EQUIPMENT FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

GENERAL STRUCTURAL NOTES:

1. All new work shall be in conformance with the 2013 California Building Code, CBC, Title 24, Part 2.
2. Foundation design pressures per Chapter 18 of CBC.
   DL + LL = 1,500 psf
   DL + LL + Wind or Seismic = 2,000 psf
3. Footings shall bear on firm undisturbed native soils or engineered fill at or exceeding depths shown on the drawings and in accordance with Chapter 18 of the 2013 CBC.
4. Typical details and notes shall apply unless otherwise shown or noted on plans.
5. Details of construction not fully shown shall be of the same nature as shown for similar conditions.
6. Safety Note.
   It is the Contractor's responsibility to comply with the pertinent sections of the "Construction Safety Orders" issued by the State of California and all OSHA requirements as they apply to this project. The Architect, Engineer, and Owner do not accept any responsibility for the Contractor's failure to comply with these requirements. The Contractor shall be responsible for adequate design and construction of all forms and shoring required.
7. Contractor shall verify all dimensions, elevations, property lines, etc. on the job.
8. Contractor shall notify the Architect and/or Engineer where a conflict occurs on any of the contract drawings or documents. Contractor is not to order material or construct any portion of the structure that is in conflict until conflict is resolved with the affected parties.

CONCRETE NOTES:

1. Concrete construction shall conform to ACI 318.
2. Concrete shall attain a minimum compressive strength of 3000 psi at 28 days. Use a minimum of 5 1/2 sacks of cement per cubic yard with 1 1/2" maximum aggregate and a 4" maximum slump.
3. Reinforcing shall conform to ASTM A615, grade 60.
4. Lap all reinforcing 40 bar diameters (24" minimum) unless noted otherwise on drawings.

MASONRY NOTES:

1. Masonry shall develop a prism compressive strength of f'm = 1500 psi in 28 days. All cells shall be grouted.
2. Concrete block shall be Grade N, Type 1.
3. Grout, conforming to ASTM C476 minimum compressive strength of 2000 psi at 28 days with a fluid consistency. Add 1 lb. of Sika Grout Aid per 100 lbs. of cementitious material. Grout all cells solid. The thickness of grout between block cells and reinforcing steel shall not be less than ½" and not less than 1" between parallel reinforcing bars.
4. Mortar Type S, conforming to ASTM C270 with a minimum compressive strength of 1800 psi at 28 days.
5. Vertical reinforcing shall be full height of wall and shall be braced at 8'-0" max. to prevent movement while grouting.
6. Horizontal reinforcing shall be in bond beam units and tied securely to vertical reinforcing.
7. Grout shall be placed in 4'-0" lifts without cleanouts. 4'-0" lifts require cleanouts at the bottom of all cells. Grout for each pour shall be stopped 1 1/2" below the top of the last course of block. All grout to be thoroughly consolidated by vibrating immediately after placing.

Anderson Structural Group

MST ARCHITECTS

Verizon WIRELESS

HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:

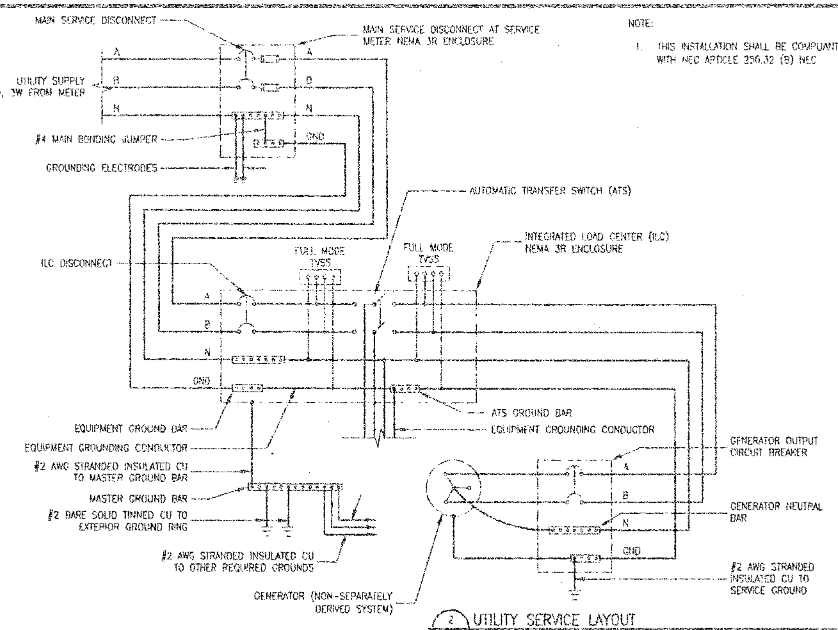
STRUCTURAL DETAILS

Revisions:

File: 182155_S1.1.dwg
Drawn By:
Checked By:
Scale: AS NOTED
Date:

Job No. 182155

S1.1



MAIN SERVICE DISCONNECT
MAIN SERVICE DISCONNECT AT SERVICE METER NEMA 3R ENCLOSURE
UTILITY SUPPLY 1Ø, 3W FROM METER
A
B
N
#4 MAIN BONDING JUMPER
GND
GROUNDING ELECTRODES
AUTOMATIC TRANSFER SWITCH (ATS)
INTEGRATED LOAD CENTER (ILC) NEMA 3R ENCLOSURE
ILC DISCONNECT
FULL MODE TVSS
FULL MODE TVSS
ATS GROUND BAR
EQUIPMENT GROUND BAR
EQUIPMENT GROUNDING CONDUCTOR
EQUIPMENT GROUNDING CONDUCTOR
#2 AWG STRANDED INSULATED CU TO MASTER GROUND BAR
MASTER GROUND BAR
#2 BARE SOLID TINNED CU TO EXTERIOR GROUND RING
#2 AWG STRANDED INSULATED CU TO OTHER REQUIRED GROUNDS
GENERATOR (NON-SEPARATELY DERIVED SYSTEM)
GENERATOR OUTPUT CIRCUIT BREAKER
GENERATOR NEUTRAL BAR
#2 AWG STRANDED INSULATED CU TO SERVICE GROUND

NOTE:

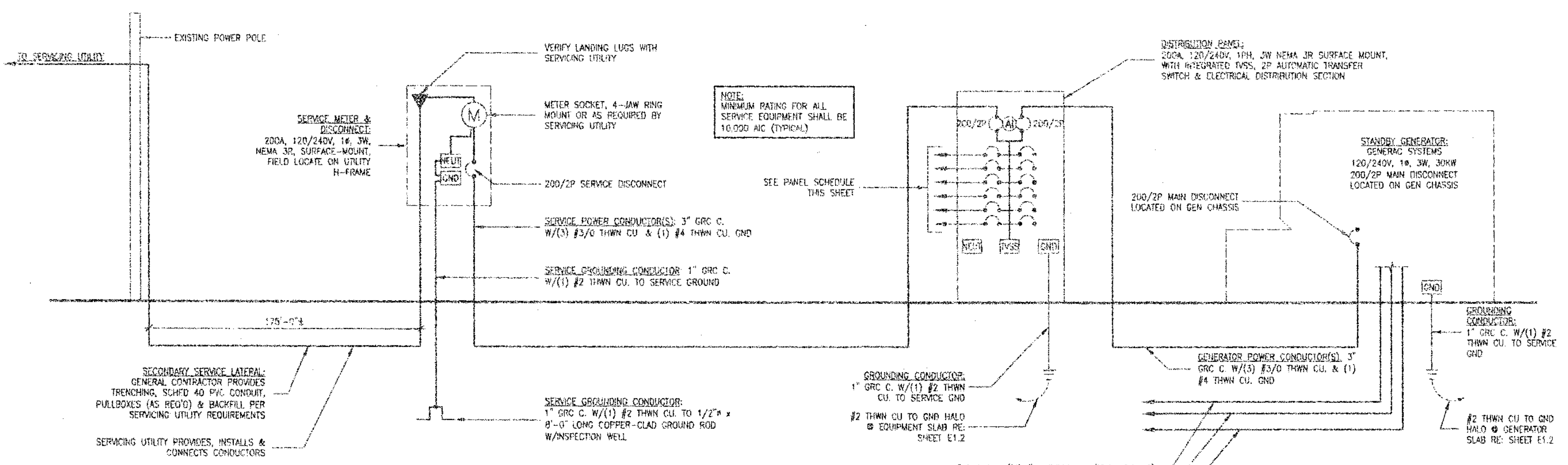
1. THIS INSTALLATION SHALL BE COMPLIANT WITH NEC ARTICLE 250.32 (B) NEC

2 UTILITY SERVICE LAYOUT
E1.1 SCALE: NONE

	PANEL CIRCUIT AND LOAD SCHEDULE										
	LOAD			LOAD PER PHASE (VA) PHASE							
	DESCRIPTION	QTY	UNIT VA	A	B	Continuous Load	TRIP	POLES	WIRE	A/C	WIRE TYPE
1				0		☐					
3					0	☐					
5				0		☐					
7					0	☐					
9				0		☐					
11					0	☐					
13	48V PLANT RECEPTACLE	1	180	180		☐	20	2	12	Verify	THWN
15	48V PLANT RECT #1	1	1600		1600	☑	20	2	10	Verify	THWN
17		1	1600	1600		☑					
19	48V PLANT RECT #2	1	1600		1600	☑	20	2	10	Verify	THWN
21		1	1600	1600		☑					
23	48V PLANT RECT #3	1	1600		1600	☑	20	2	10	Verify	THWN
25		1	1600	1600		☑					
27	48V PLANT RECT #4	1	1600		1600	☑	20	2	10	Verify	THWN
29		1	1600	1600		☑					
	Subtotal Continuous			6400	6400						
	Subtotal Non Continuous			180	0						
	Voltage	120/240 1 ph 3w						AIC	VERIFY WITH SERVICING UTILITY		
	Bus	200 amps						Main	BREAKER		
	Enclosure	NEMA 3R Outdoor						Mount	Surface		

DESIGNATION: PANEL "VERIZON"											
						LOAD PER PHASE (VA) PHASE		LOAD			
WIRE TYPE	A/C	WIRE	POLES	TRIP	Continuous Load	A	B	UNIT VA	QTY	DESCRIPTION	
THWN	Verify	12	1	20	☑	1200		3200	1	MISC CAD	2
THWN	Verify	12	1	20	☐		180	180	1	EXTERIOR GFCI RECEPTACLE	4
THWN	Verify	12	1	20	☐	35		35	2	EXTERIOR LIGHTS	6
THWN	Verify	12	1	20	☐		1500	1500	1	GENERATOR HEATER	8
THWN	Verify	12	1	20	☐	240		240	1	GENERATOR CHARGER	10
THWN	Verify	12	1	20	☐		180	180	1	TELCO PANEL	12
					☐	0					14
THWN	Verify	10	2	20	☑		1600	1600	1	48V PLANT RECT #5	16
					☑	1600		1600	1		18
THWN	Verify	10	2	20	☑		1600	1600	1	48V PLANT RECT #6	20
					☑	1600		1600	1		22
THWN	Verify	10	2	20	☑		1600	1600	1	48V PLANT RECT #7	24
					☑	1600		1600	1		26
THWN	Verify	10	2	20	☑		1600	1600	1	48V PLANT RECT #8	28
					☑	1600		1600	1		30
						7800	6400	Subtotal Continuous			
						275	1950	Subtotal Non-Continuous			
						Total KVA Continuous X 1.25 =				33.50	
						Total KVA Non-Continuous =				2.32	
						TOTAL KVA =				35.82	
						Total Amperage =				149.13	

3 PANEL SCHEDULE
E1.1 SCALE: NO SCALE



TO SERVICING UTILITY
EXISTING POWER POLE
SERVICE METER & DISCONNECT: 200A, 120/240V, 1Ø, 3W, NEMA 3R, SURFACE-MOUNT, FIELD LOCATE ON UTILITY H-FRAME
VERIFY LANDING LUGS WITH SERVICING UTILITY
METER SOCKET, 4-JAW RING MOUNT OR AS REQUIRED BY SERVICING UTILITY
NEUT
GND
200/2P SERVICE DISCONNECT
SERVICE POWER CONDUCTOR(S): 3" GRC C. W/(3) #3/0 THWN CU & (1) #4 THWN CU. GND
SERVICE GROUNDING CONDUCTOR 1" GRC C. W/(1) #2 THWN CU. TO SERVICE GROUND
175'-0"±
SECONDARY SERVICE LATERAL: GENERAL CONTRACTOR PROVIDES TRENCHING, SCH'D 40 PVC CONDUIT, PULLBOXES (AS REQ'D) & BACKFILL PER SERVICING UTILITY REQUIREMENTS
SERVICING UTILITY PROVIDES, INSTALLS & CONNECTS CONDUCTORS
SERVICE GROUNDING CONDUCTOR: 1" GRC C. W/(1) #2 THWN CU. TO 1/2"ø x 8'-0" LONG COPPER-CLAD GROUND ROD W/INSPECTION WELL
NOTE: MINIMUM RATING FOR ALL SERVICE EQUIPMENT SHALL BE 10,000 AIC (TYPICAL)
SEE PANEL SCHEDULE THIS SHEET
DISTRIBUTION PANEL: 200A, 120/240V, 1PH, 3W NEMA 3R SURFACE MOUNT, WITH INTEGRATED TVSS, 2P AUTOMATIC TRANSFER SWITCH & ELECTRICAL DISTRIBUTION SECTION
200/2P
ATS
200/2P
NEUT
TVSS
GND
GROUNDING CONDUCTOR: 1" GRC C. W/(1) #2 THWN CU. TO SERVICE GND
#2 THWN CU TO GND HALO @ EQUIPMENT SLAB RE: SHEET E1.2
1" GRC C. W/(4) #12 THWN CU. (GTR CIRCUITS)
1" GRC C. W/(2) #14 THWN CU. (START CONTROL)
1" GRC C. W/(1) #22 CAT 5 TO TELCO PANEL (ALARM)
200/2P MAIN DISCONNECT LOCATED ON GEN CHASSIS
STANDBY GENERATOR: GENERAC SYSTEMS 120/240V, 1Ø, 3W, 30KW 200/2P MAIN DISCONNECT LOCATED ON GEN CHASSIS
GENERATOR POWER CONDUCTOR(S): 3" GRC C. W/(3) #3/0 THWN CU. & (1) #4 THWN CU. GND
GND
GROUNDING CONDUCTOR: 1" GRC C. W/(1) #2 THWN CU. TO SERVICE GND
#2 THWN CU TO GND HALO @ GENERATOR SLAB RE: SHEET E1.2

NOTE:
* THIS DIAGRAM IS BASED ON A 200A, 120/240V 1ø SERVICE. FOR DISTRIBUTION PANEL LAYOUT, SCHEDULE AND SPECIFIC LOAD INFORMATION REFER TO SHELTER MANUFACTURER'S SHOP DRAWINGS AND SPECIFICATIONS.
* MINIMUM RATING FOR ALL SERVICE EQUIPMENT SVC. PROVIDE WATER TIGHT COUPLINGS BELOW GRADE.

NOTE: ALL ABOVE GROUND CONDUITS SHALL BE GRC. UNDERGROUND CONDUITS SHALL BE SIZED 40 PVC. PROVIDE WATER TIGHT COUPLINGS BELOW GRADE.

1 ELECTRICAL ONE-LINE DIAGRAM
E1.1 SCALE: NONE = 1'-0"

MST ARCHITECTS

COMPLETE

verizon

SHEET TITLE

HWY 980 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

ELECTRICAL DETAILS

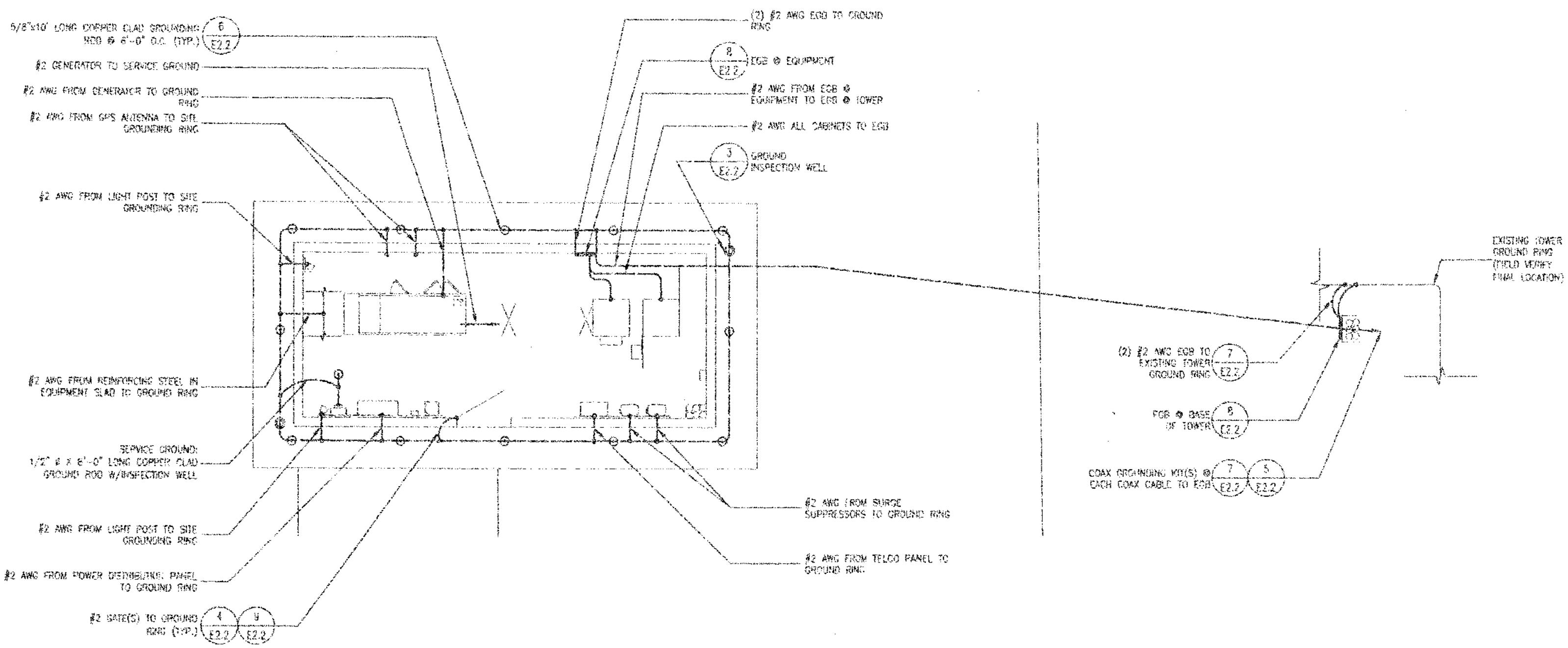
LICENSED ARCHITECT
No. C-28021
Exp. 08.17
STATE OF CALIFORNIA

Revisions:

File: 182.1151_E1.1.dwg
Drawn By: tx
Checked By: rst
Scale: AS NOTED
Date: 12/16/15

Job No. 182.1151

E1.1



5/8"x10' LONG COPPER CLAD GROUNDING ROD @ 6'-0" O.C. (TYP.)
6 E2.2
#2 GENERATOR TO SERVICE GROUND
#2 AWG FROM GENERATOR TO GROUND RING
#2 AWG FROM GPS ANTENNA TO SITE GROUNDING RING
#2 AWG FROM LIGHT POST TO SITE GROUNDING RING
#2 AWG FROM REINFORCING STEEL IN EQUIPMENT SLAB TO GROUND RING
SERVICE GROUND: 1/2" ø X 8'-0" LONG COPPER CLAD GROUND ROD W/INSPECTION WELL
#2 AWG FROM LIGHT POST TO SITE GROUNDING RING
#2 AWG FROM POWER DISTRIBUTING PANEL TO GROUND RING
#2 GATE(S) TO GROUND RING (TYP.)
4 E2.2
9 E2.2
(2) #2 AWG EGB TO GROUND RING
8 E2.2
EGB @ EQUIPMENT
#2 AWG FROM EGB @ EQUIPMENT TO EGB @ TOWER
#2 AWG ALL CABINETS TO EGB
3 E2.2
GROUND INSPECTION WELL
#2 AWG FROM SURGE SUPPRESSORS TO GROUND RING
#2 AWG FROM TELCO PANEL TO GROUND RING
EXISTING TOWER GROUND RING (FIELD VERIFY FINAL LOCATION)
(2) #2 AWG EGB TO EXISTING TOWER GROUND RING
7 E2.2
EGB @ BASE OF TOWER
8 E2.2
COAX GROUNDING KIT(S) @ EACH COAX CABLE TO EGB
7 E2.2
5 E2.2

NOTES: PG&E GROUNDING GRID SHALL SUPERCEDE SHOULD ANY CONFLICTS ARISE

NOTES: PG&E GROUNDING GRID PENDING

NOTES:
#1 NO CADWELDS TO ANY GROUND BARS
#2 RUN 2/0 GREEN INSULATED GROUND FROM THE COAX GROUND BAR TO THE MASTER GROUND BAR
#3 CONNECT LEAD 20 FROM THE GROUND BAR INSIDE THE ILC PANEL TO THE MASTER GROUND BAR
#4 BE SURE NEUTRAL & GROUND ARE NOT BONDED IN THE GENERATOR
#5 GROUND ALL METAL ENCLOSURES TO THE HALO, INCLUDING LOUVERS, ALARM BLOCK, ETC.
#6 PLASTIC TY-RAPS ARE NOT TO BE USED ON ANY GROUND ATTACHMENTS BUT ONLY WAX STRING

1 E2.1 GROUNDING PLAN
SCALE: 1/4" = 1'-0"

MST ARCHITECTS

COMPLETE

verizon

HWY 880 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
GROUNDING PLAN

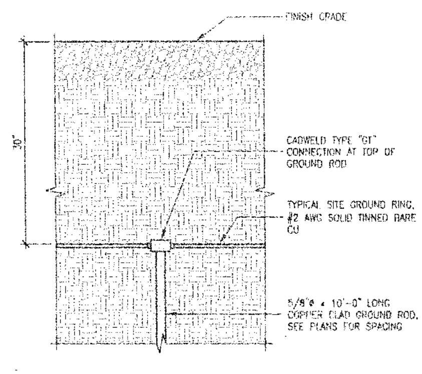
Revisions:

E2.1

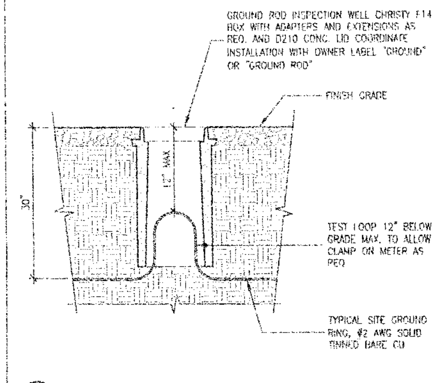
NOTE: PG&E GROUNDING DESIGN SUPERSEDES AS FINAL DESIGN, DESIGN TO FOLLOW

GROUNDING NOTES

1. GROUNDING SHALL COMPLY WITH NEC ART. 250.
2. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURER'S COAX CABLE GROUNDING KITS SUPPLIED BY PBMS.
3. USE #2 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
4. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
5. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY.
6. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PBMS EQUIPMENT OR CABINET TO THE MASTER GROUND BAR.
7. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PEDESTAL GROUND OR SURGE PROTECTOR); SURGE ABSORBERS (GROUNDING ELECTRODE RING OR BUILDING STEEL): NON--SURGING OBJECTS (EGB GROUND IN BTS)
8. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS AND NO-OX OR EQUIVALENT PLACED BETWEEN CONNECTOR AND GROUND BAR.
9. THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS UNIFORMLY SPACED AROUND CELL SITE. THE GROUND RODS SHALL BE 5/8"X8'-0" COPPER CLAD STEEL. THE RODS SHALL BE INTERCONNECTED WITH #2 SOLID TINNED COPPER GROUND WIRE BURIED A MINIMUM 2-1/2' BELOW THE SURFACE OF THE SOIL.
10. ALL UNDERGROUND ELECTRODES SHALL BE BONDED TO STEEL REINFORCING EMBEDDED IN THE CONCRETE SLAB AND CONCRETE MONOPOLE FOUNDATION.
11. MUST APPLY BUTYL & ELECTRICAL TAPE OVER COLD SHRINK AT ALL LOCATIONS. FOR WEATHER PROOFING OVER GROUND KITS. MORE BUTYL TAPE MAY NEED TO BE APPLIED THAN WHAT IS PROVIDED WITH THE MFGR. KIT
12. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.

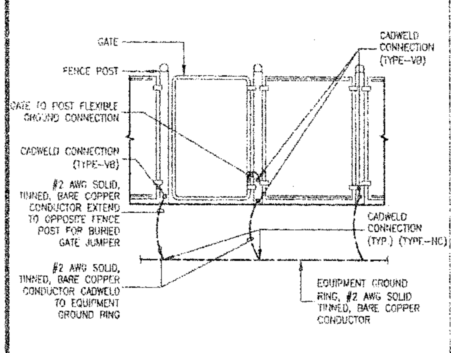


6 / E2.2 TYPICAL GROUND ROD
SCALE: 3" = 1'-0"



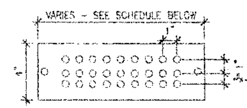
GROUND ROD INSPECTION WELL CHRISTY F14 BOX WITH ADAPTERS AND EXTENSIONS AS REQ. AND D210 CONC. LID COORDINATE INSTALLATION WITH OWNER LABEL "GROUND" OR "GROUND ROD"
FINISH GRADE
12" MAX.
30"
TEST LOOP 12" BELOW GRADE MAX. TO ALLOW CLAMP ON METER AS REQ
TYPICAL SITE GROUND RING, #2 AWG SOLID TINNED BARE CU

3 / E2.2 TYPICAL GROUND RING & INSPECTION WELL DETAIL
SCALE: 1-1/2" = 1'-0"



GATE
FENCE POST
GATE TO POST FLEXIBLE GROUND CONNECTION
CADWELD CONNECTION (TYPE-VB)
#2 AWG SOLID, TINNED, BARE COPPER CONDUCTOR EXTEND TO OPPOSITE FENCE POST FOR BURIED GATE JUMPER
#2 AWG SOLID, TINNED, BARE COPPER CONDUCTOR CADWELD TO EQUIPMENT GROUND RING
CADWELD CONNECTION (TYPE-VB)
CADWELD CONNECTION (TYP.) (TYPE-NC)
EQUIPMENT GROUND RING, #2 AWG SOLID TINNED, BARE COPPER CONDUCTOR

9 / E2.2 FENCE GROUNDING DETAIL
SCALE: NONE

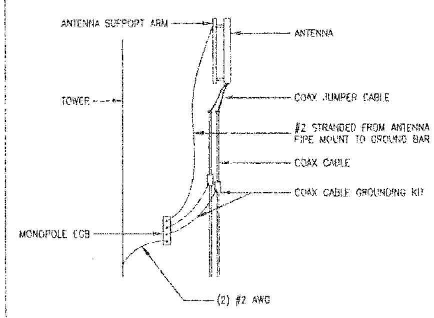


VERIZON WIRELESS GALVANIZED STEEL GROUND BAR W/ANTI-THEFT HARDWARE, NON-REMOVABLE PROVIDED BY ELECTRIC MOTION COMPANY	
PART #	BAR DESCRIPTION
EM SGC 49-VZW-NR	1/4"x4"x9"
EM SGC 412-VZW-NR	1/4"x4"x12"
EM SGC 418-VZW-NR	1/4"x4"x18"
EM SGC 420-VZW-NR	1/4"x4"x20"
EM SGC 424-VZW-NR	1/4"x4"x24"

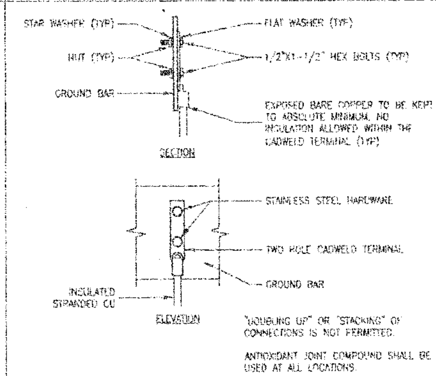
INCLUDES TWO STAINLESS STEEL TORQUE SHEAR HEAD BOLTS, W/ANTI LOOSENING COMPOUND

GENERAL CONTRACTOR TO STAMP "VERIZON WIRELESS" & SITE NUMBER BAR & PAINT ANTI-THEFT COMPOUND PROVIDED BY ELECTRIC MOTION COMPANY, PRODUCT #EM 5101

8 / E2.2 GROUND BAR DETAIL
SCALE: NONE

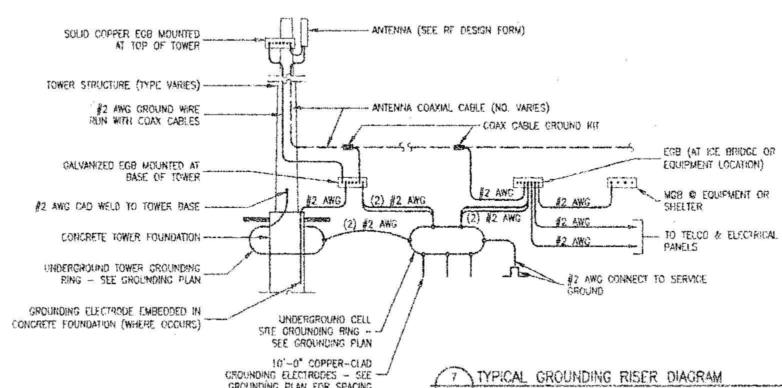


5 / E2.2 COAX CONNECTION & GROUNDING DETAIL
SCALE: NONE



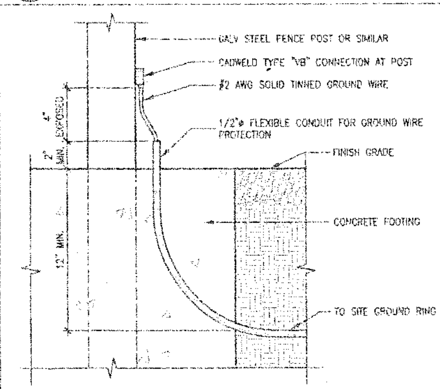
STAR WASHER (TYP)
FLAT WASHER (TYP)
NUT (TYP)
1/2"X1-1/2" HEX BOLTS (TYP)
GROUND BAR
EXPOSED BARE COPPER TO BE KEPT TO ABSOLUTE MINIMUM. NO INSULATION ALLOWED WITHIN THE CADWELD TERMINAL (TYP)
SECTION
STAINLESS STEEL HARDWARE
TWO HOLE CADWELD TERMINAL
GROUND BAR
INSULATED STRANDED CU
ELEVATION
"DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
ANTIOXIDANT JOINT COMPOUND SHALL BE USED AT ALL LOCATIONS.

2 / E2.2 TYPICAL GROUND BAR CONNECTIONS
SCALE: NONE

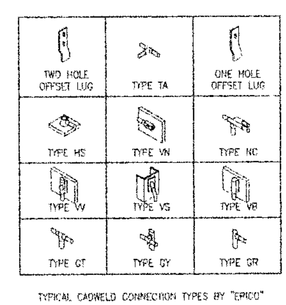


SOLID COPPER EGB MOUNTED AT TOP OF TOWER
ANTENNA (SEE RF DESIGN FORM)
TOWER STRUCTURE (TYPIC VARIES)
#2 AWG GROUND WIRE RUN WITH COAX CABLES
ANTENNA COAXIAL CABLE (NO. VARIES)
COAX CABLE GROUND KIT
GALVANIZED EGB MOUNTED AT BASE OF TOWER
EGB (AT ICE BRIDGE OR EQUIPMENT LOCATION)
#2 AWG CAD WELD TO TOWER BASE
MGB @ EQUIPMENT OR SHELTER
CONCRETE TOWER FOUNDATION
TO TELCO & ELECTRICAL PANELS
UNDERGROUND TOWER GROUNDING RING - SEE GROUNDING PLAN
#2 AWG CONNECT TO SERVICE GROUND
GROUNDING ELECTRODE EMBEDDED IN CONCRETE FOUNDATION (WHERE OCCURS)
UNDERGROUND CELL SITE GROUNDING RING - SEE GROUNDING PLAN
10'-0" COPPER-CLAD GROUNDING ELECTRODES - SEE GROUNDING PLAN FOR SPACING
#2 AWG
(2) #2 AWG

7 / E2.2 TYPICAL GROUNDING RISER DIAGRAM
SCALE: NONE



4 / E2.2 POST GROUNDING DETAIL
SCALE: 3" = 1'-0"



TYPICAL CADWELD CONNECTION TYPES BY "ERICO"

1 / E2.2 GROUNDING CONNECTION DETAIL
SCALE: NONE

COMPLETE

MST ARCHITECTS

verizon

HWY 380 & 98TH
EMPIRE ROAD
OAKLAND, CA 94603

SHEET TITLE:
GROUNDING DETAILS

Revisions:

File: 183.1159.E2.dwg
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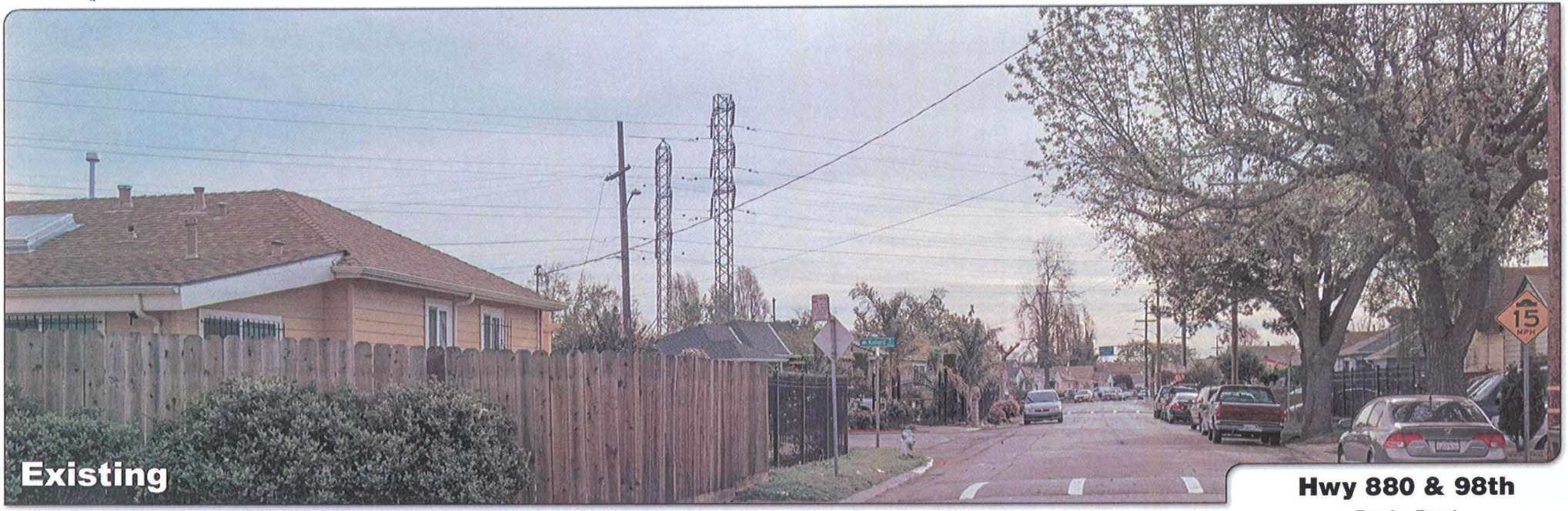
Checked By: m
Scale: AS NOTED
Date: 11/16/11

Job No.: 183.1159

E2.2

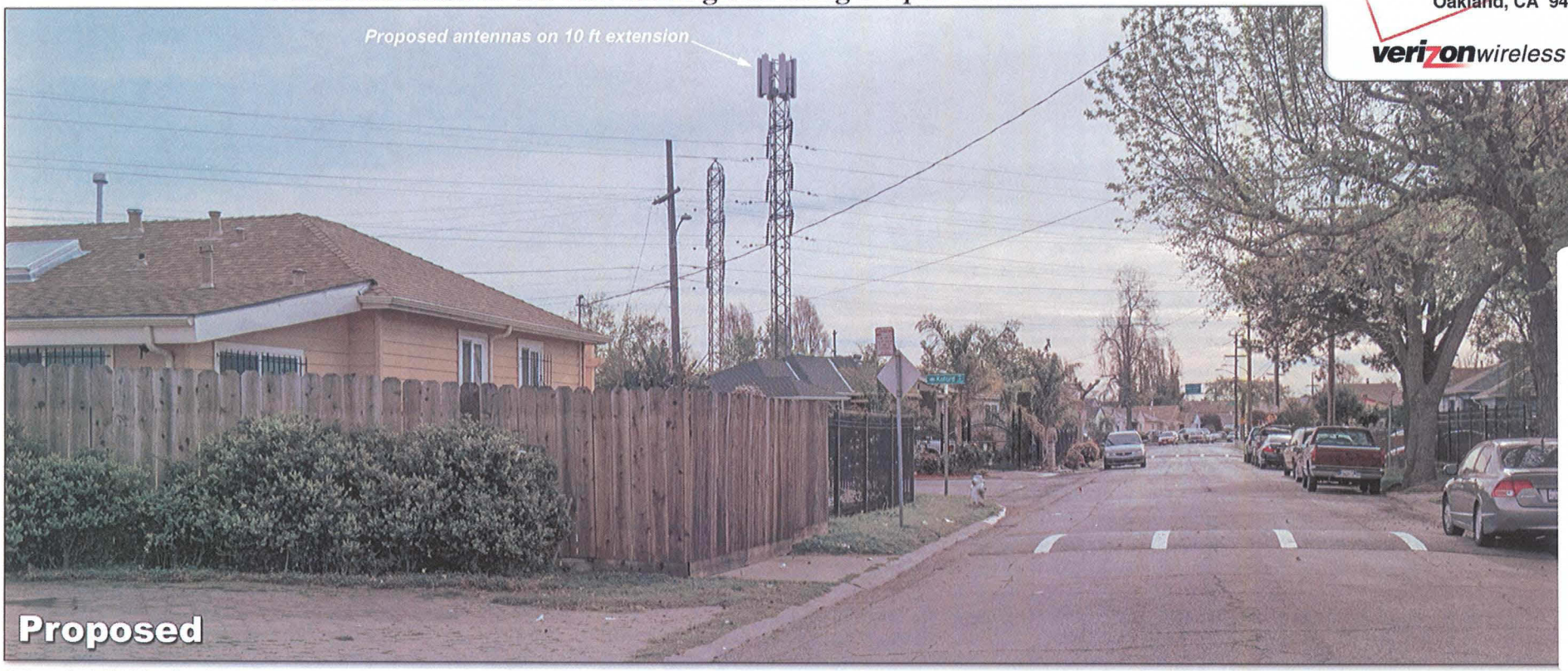


Hwy 880 & 98th

Empire Road
Oakland, CA 94603

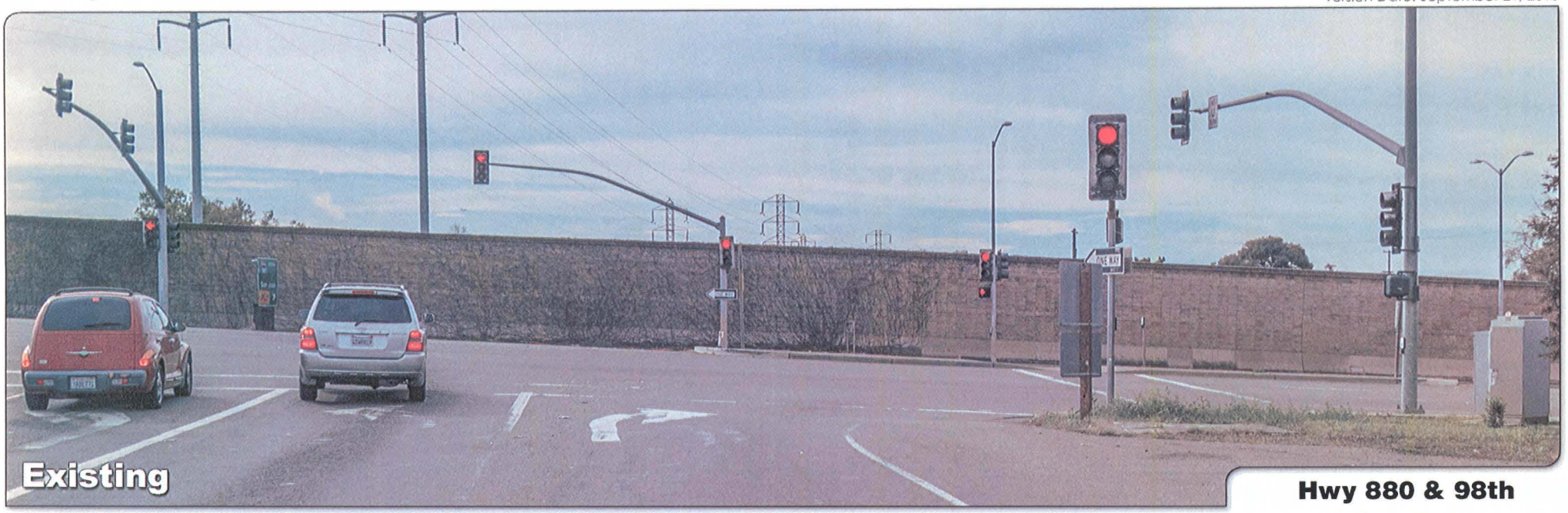
verizonwireless

Photosimulation of the view looking east along Empire Road.



ATTACHMENT A

Version Date: September 21, 2015



Hwy 880 & 98th

Empire Road
Oakland, CA 94603

verizonwireless

Photosimulation of the view looking south from the southbound freeway offramp to 98th Ave.

Photosimulation of the view looking northwest from across Empire Road.

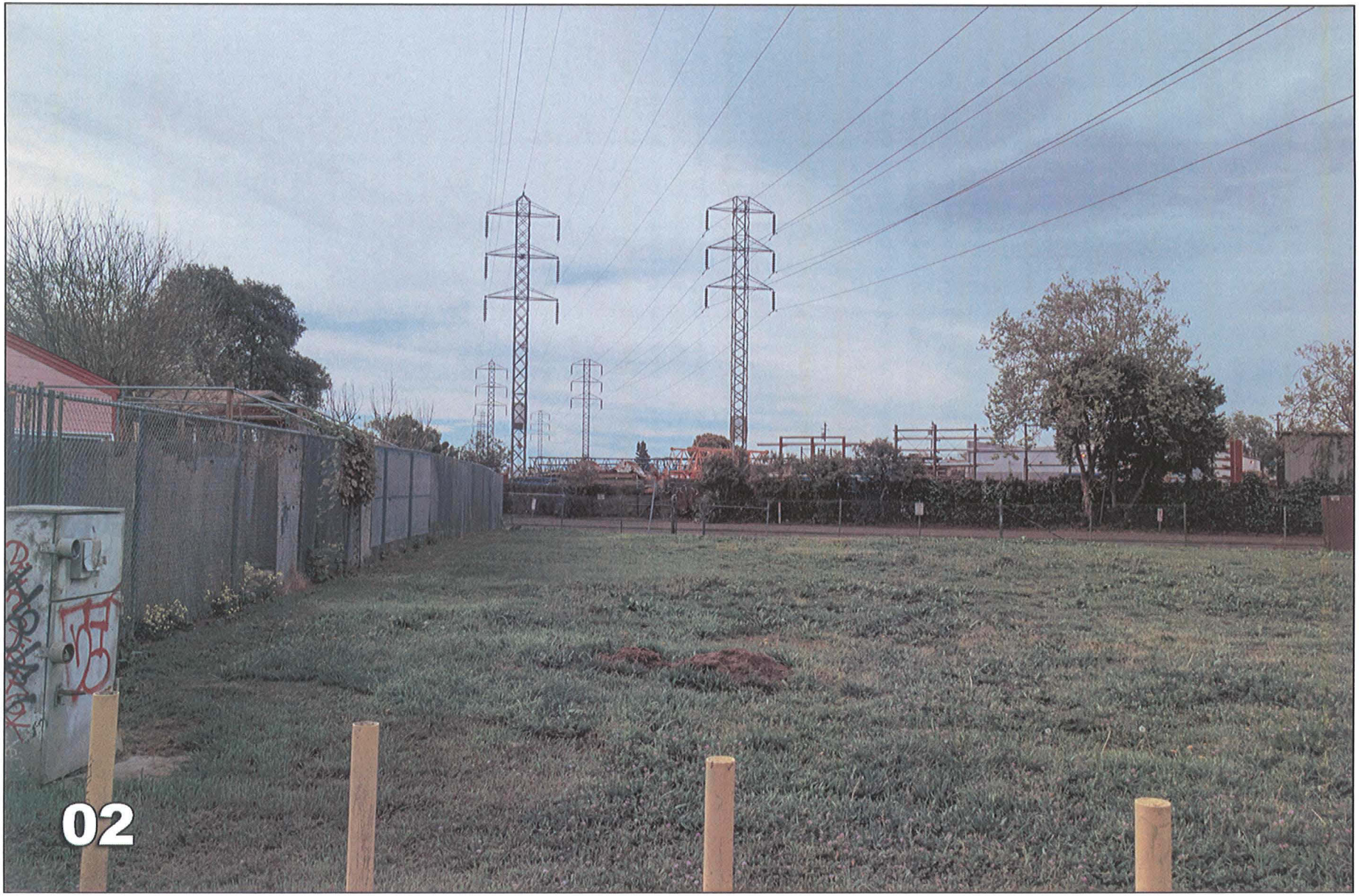
Hwy 880 & 98th

Empire Road
Oakland, CA 94603

verizonwireless

Photos of the Surrounding Area

ATTACHMENT A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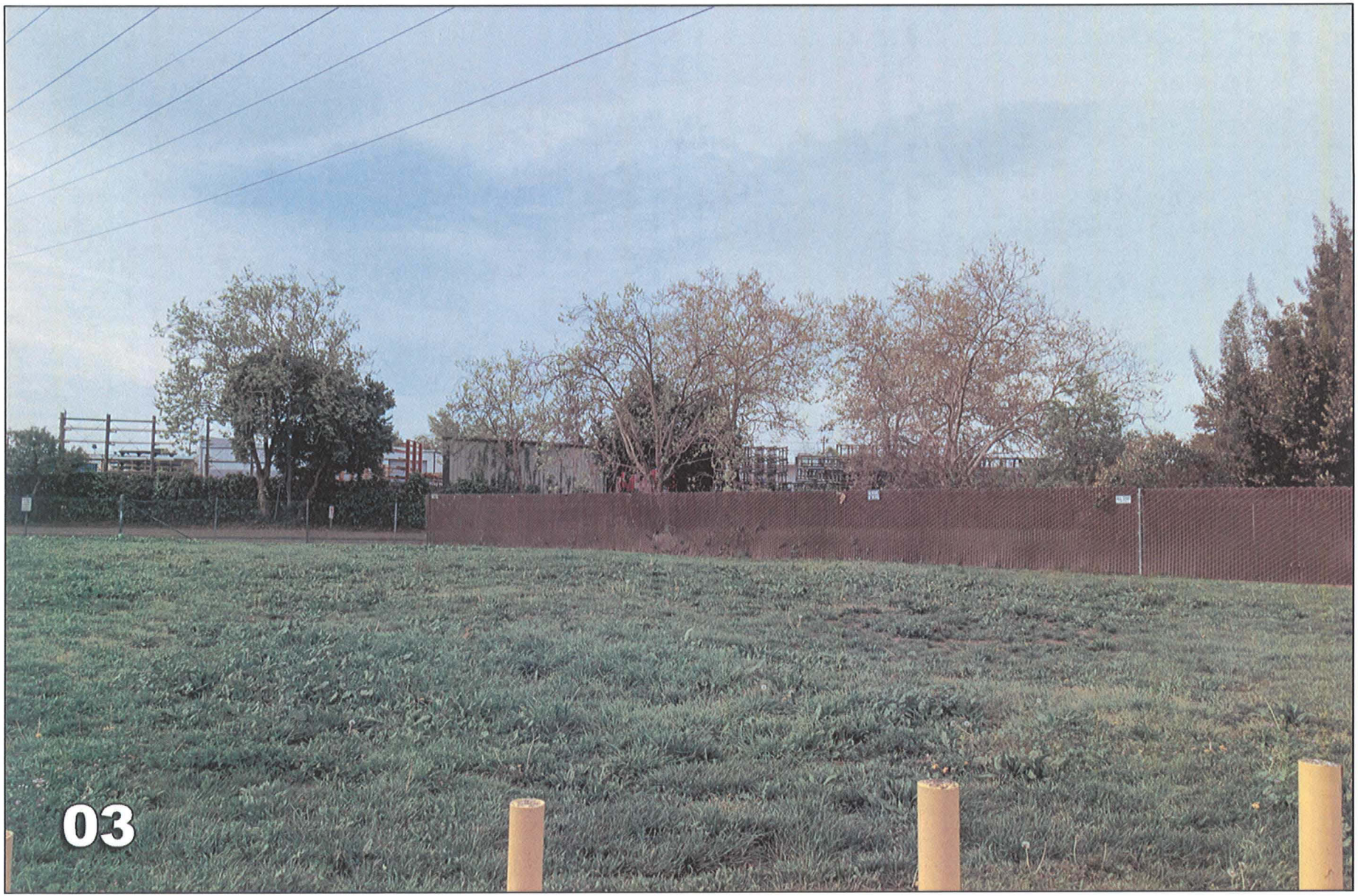

03

Photos of the Surrounding Area


Gibraltar
05


06

Photos of the Surrounding Area

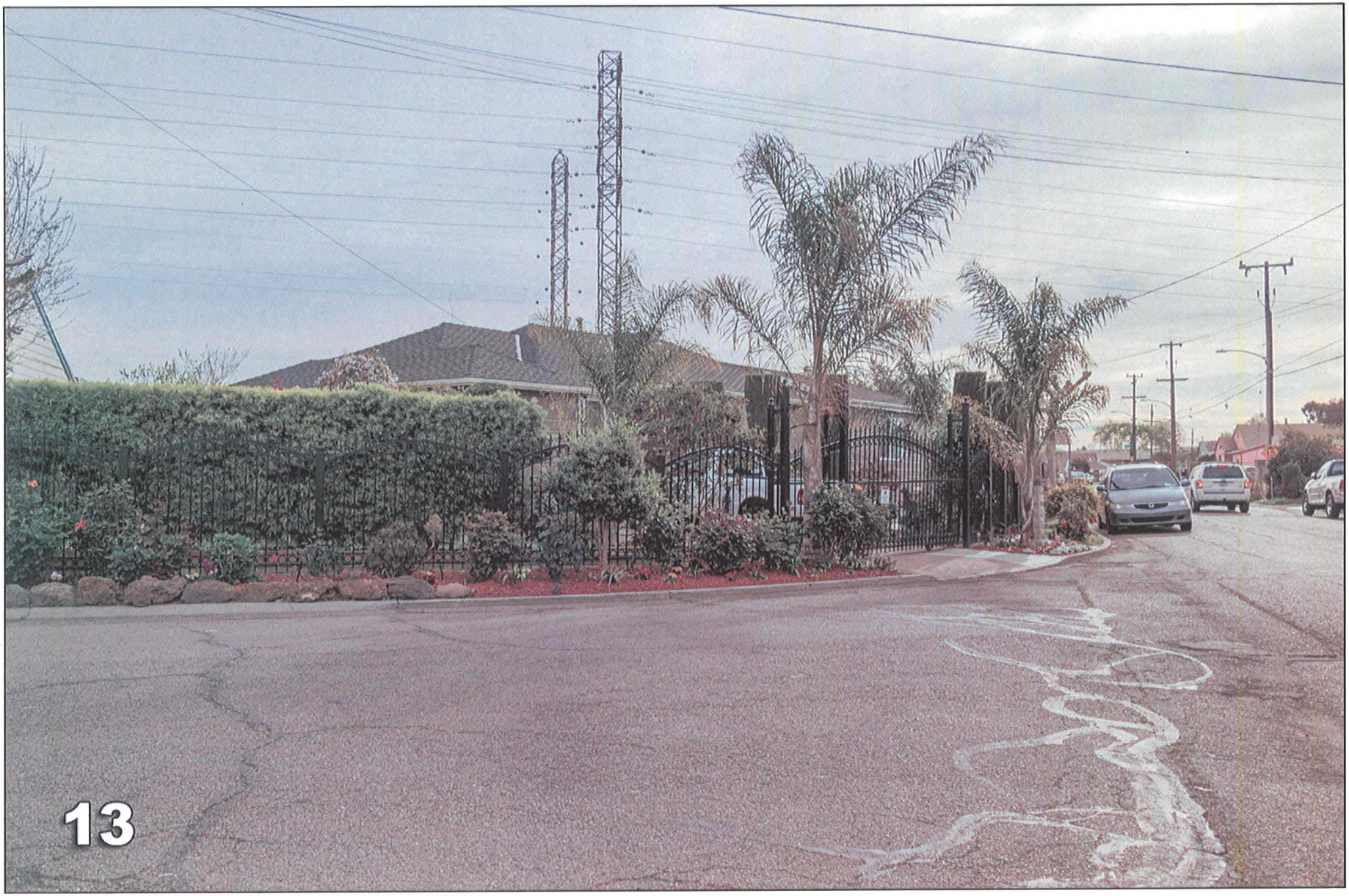

08


09


10


11


12


13

Verizon Wireless • Proposed Base Station (Site No. 278707 "Hwy 880 & 98th") Empire Road • Oakland, 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. 278707 "Hwy 880 & 98th") proposed to be located along Empire Road in Oakland, 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 PG&E lattice tower located along Empire Road in Oakland. The proposed operation will comply with the FCC guidelines limiting public exposure to RF energy.

Prevailing Exposure Standards

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

Wireless Service	Frequency Band	Occupational Limit	Public Limit
Microwave (Point-to-Point)	5,000–80,000 MHz	5.00 mW/cm^2	1.00 mW/cm^2
BRS (Broadband Radio)	2,600	5.00	1.00
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 February 17, 2015, it is proposed to install six Amphenol Model HEX458CW0000 directional panel antennas on the existing 75½-foot PG&E lattice tower sited along the north side of Empire Road, between Koford and Hesket Roads, in Oakland. The antennas would be mounted with no downtilt at an effective height of about 70 feet above ground and would be oriented in pairs toward 40°T, 160°T, and 280°T, to provide service in all directions. The maximum effective radiated power in any direction would be 7,790 watts, representing simultaneous operation at 2,920 watts for AWS, 2,780 watts for PCS, and 2,290 watts for 700 MHz service; no operation on cellular frequencies is presently proposed from this site. 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 0.010 mW/cm^2, which is 1.1% of the applicable public exposure limit. The maximum calculated level at the second-floor elevation of any nearby building* is 1.5% of the

* Located at least 70 feet away, based on photographs from Google Maps.

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

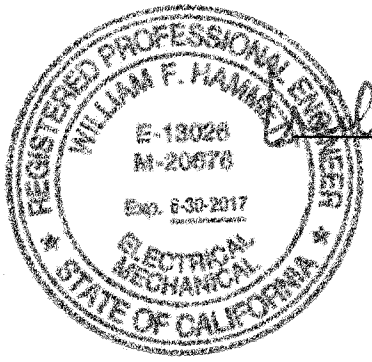
Due to their mounting locations, the Verizon antennas would not be accessible to the general public, and so no mitigation measures are necessary to comply with the FCC public exposure guidelines. It is presumed that PG&E already takes adequate precautions to ensure that there is no unauthorized access 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 along Empire Road in Oakland, California, will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, will not for this reason cause a significant impact on the environment. The highest calculated level in publicly accessible areas is much less than the prevailing standards allow for exposures of unlimited duration. This finding is consistent with measurements of actual exposure conditions taken at other operating base stations.

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, 2017. 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

October 2, 2015

RFR.CALC™ Calculation Methodology

Assessment by Calculation of Compliance with FCC Exposure Guidelines

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

Near Field.

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

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

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

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

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

Far Field.

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

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

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

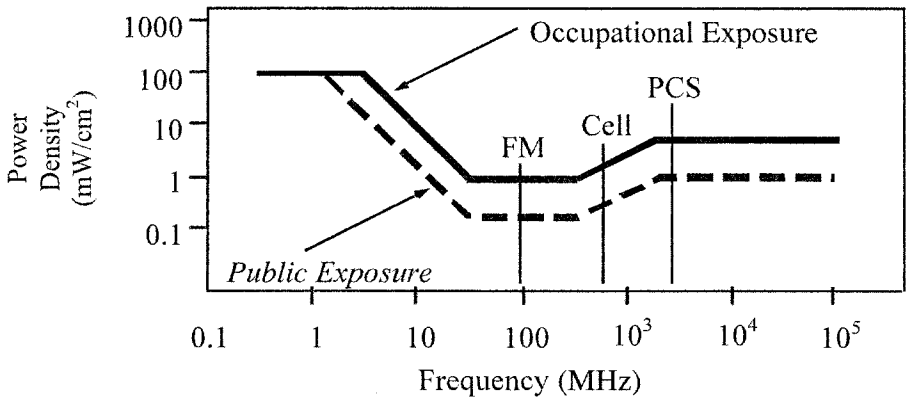
The factor of 2.56 accounts for the increase in power density due to ground reflection, assuming a reflection coefficient of 1.6 (1.6 x 1.6 = 2.56). The factor of 1.64 is the gain of a half-wave dipole relative to an isotropic radiator. The factor of 100 in the numerator converts to the desired units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

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.

ATTACHMENT C

PROJECT SUPPORT STATEMENT
VERIZON WIRELESS

Site Name: Hwy 880 & 98th
Location: Empire Road, Oakland, CA 94603
APN: 045-5322-030

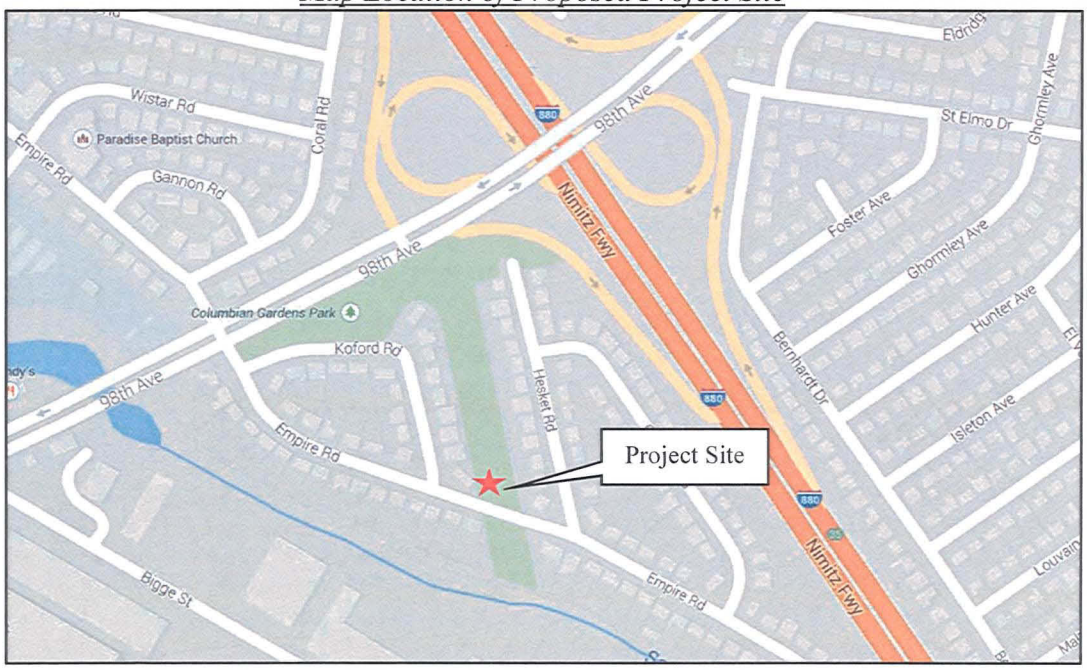
Introduction

Verizon Wireless is seeking to improve communications service to residences, businesses, public services, and area travelers in Oakland, California. Verizon maintains a strong customer base in Oakland as well as Alameda County and strives to improve coverage for both existing and potential customers. The proposed facility is needed to bring better coverage to the vicinity and to help with capacity at Verizon's existing on-air sites of Doolittle, E 14th & 98th, and Hwy 880/Davis.

Location & Design Description

Verizon proposes a new wireless communications facility collocated on an existing 64.3' PG&E transmissions tower on Empire Road, Oakland, CA 94603. The proposed facility is located within the Open Space, Neighborhood Park (OS-NP). The site is entirely surrounded by Detached Unit Residential Zone-1 (RD-1) zones. It will have associated ground equipment, such as an equipment shelter and emergency standby generator, near the base of the existing PG&E tower.

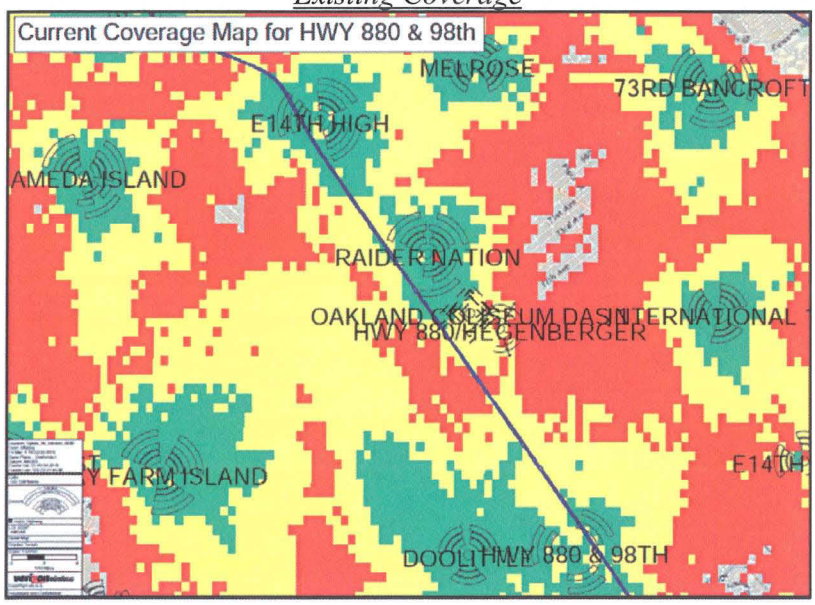
Map Location of Proposed Project Site



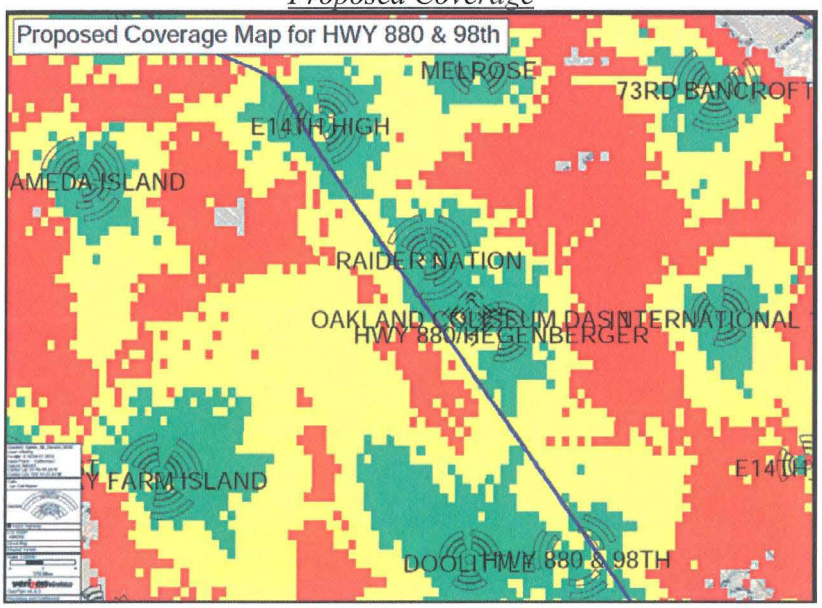
Coverage and Capacity Objectives

The objective of the proposed facility is both to fill a gap in coverage in the Oakland area as well as provide support capacity to the existing overloaded facilities in the City. The coverage maps below visually depict the improved coverage to be provided by the proposed telecommunications site. The first map represents Verizon's coverage conditions give approval of the proposed telecommunications site. The green areas on both maps represent areas with good indoor/outdoor coverage. The yellow areas on both maps below represent areas with good outdoor coverage only. The red portions of the maps represent areas with poor outdoor coverage.

Existing Coverage



Proposed Coverage



Compliance with City Development Requirements

The choice of a wireless telecommunications facility at this location was made due to a number of factors, taking into account the needs of Verizon's network and the community values as expressed in the City's Code. Chapter 17.128 (Telecommunications Regulations); Chapter 17.134 (Conditional Use Permit), and Chapter 17.136 (Design Review).

The proposed collocation on an existing PG&E transmissions tower has been designed to conform with the applicable section of the City's code and particularly section 17.11.060, which established provisions for conditionally permitted minor activities in the OS zone and 17.28.070, which established guidelines for facilities with six (6) antennas and an equipment shelter, i.e. "Macro Facilities."

A. Siting, Location and Alternatives

Section 17.128.110 sets forth the City's preference for siting new wireless facilities in order of preference, with the leading three preferential locations being collocation on an existing structure or facility with existing wireless antennas, city-owned properties or other public or quasi-public facilities, or existing commercial or industrial structures in non-residential zones. Proposed facilities locating in these ranked preferences do not require a site alternatives analysis.

Here, Verizon is collocating on an existing PG&E tower and will be adding (6) antennas to the top of the existing tower. This property is located on a public or quasi-public facility. Additionally, we are collocating on an existing transmissions tower in the vicinity. Because the proposed site achieves the City's second most ideal location preference of collocating on public or quasi-public facility property, so no site alternatives analysis is provided.

B. Site Design Preferences

Section 17.128.120 establishes an order of preference for design which includes building or structure mounted completely concealed from view as the most preferred with towers as the least preferred. If the site design does not include a building or structure mounted antennas completely concealed from view or set back from the roof edge, then a site alternatives analysis is required.

Here, the proposed collocation involves structure mounted antennas above the roof line and visible from the public right-of-way. Section 17.128.120 (D) (Site Design Preference). A site design alternatives analysis on why the three (3) more preferred designs could not be used is below.

a. Building or Structure Mounted Antennas Completely Concealed from View.

Here, the structure on which Verizon is mounting its antennas is an existing 64.3' tall PG&E transmissions tower. Because of the shape of the existing tower, the addition of Verizon's proposed antennas to the monopole is impossible to completely conceal from public view. Furthermore, lattice-style of the PG&E tower does not provide any concealment. Due to the nature of the tower structure, the proposed Verizon antennas cannot fulfill this design preference.

b. Building or Structure Mounted Antennas set back from roof edge, not visible from public right-of-way.

Similar to above, due to the contours of the existing tower, it is impossible to completely conceal Verizon's proposed antennas from public view. Additionally, there is no roof edge or set back area available for the proposed antennas on a transmissions tower. Due to the nature and structure of the tower, the proposed Verizon antennas cannot fulfill this design preference.

c. Building or structure mounted antennas below roofline (façade mount, pole mount) visible from public right-of-way, painted to match existing structure.

This requirement is not applicable because Verizon is adding an additional 10' to the existing tower. However, taking into account the shape of the existing tower, there is no feasible way to conceal the proposed antennas from public view without disturbing the existing PG&E facility.

C. General Development for Macro Facilities

Section 17.128.070 (A) provides general development standards for macro facilities.

a. The Macro Facilities shall be located on existing building, poles or other existing support structures, or shall be post mounted.

This requirement is met here since the proposed facility will be located on an existing 64.3' PG&E tower on Empire Road.

b. The equipment shelter or cabinet must be concealed from public view or made compatible with the architectures of the surrounding structures or placed underground. The shelter or cabinet must be regularly maintained.

Verizon's equipment is located within an 11'-6" x 16'-10.5" pre-fabricated equipment shelter and concealed from public view. The shelter is further concealed from view by a proposed concrete masonry unit (CMU) wall with metal access gates. Accordingly, Verizon's facility conforms to this requirement and a Verizon technician will visit 1-2 times a month for routine maintenance.

c. Macro Facilities may exceed the height limitation specified for all zones but may not exceed fifteen (15) feet above the roof line or parapet.

The proposed facility will add a 10' tall top hat to the existing tower's height in order to achieve Verizon's coverage objectives.

d. *Ground post mounted Macro Facilities must not exceed seventeen (17) feet to the top of the antenna.*

This requirement is not applicable. The proposed structure is not ground post mounted.

e. *The applicant shall submit written documentation demonstrating that the emissions from the proposed project are within the limits set by the FCC.*

All emissions from the proposed project are within the limits set by FCC. Please see attached Radio Frequency study prepared by independent licensed engineering firm, Hammet & Edison, Inc. Verizon has also agreed and complied with the RF emissions standards set forth in section 17.128.130.

D. Regular Design Review Criteria for Nonresidential Facilities.

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

Verizon's proposed facility will be collocated on an existing PG&E transmissions tower, located on a parcel within the OS-NP zoning designation. The OS zone is intended to create, preserve, and enhance land for permanent open space to meet the recreational needs of Oakland's residents and to promote park uses. Taking this into account, Verizon looked to existing structures for collocation purposes.

Here, Verizon has taken these factors into account and is in compliance with these requirements by choosing the City's second most preferred site design preference by locating on an existing transmissions tower on public or quasi-public facilities. Please see Site Design Preference above.

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

Verizon's antennas are located on an existing PG&E transmissions tower. Verizon's antennas will be located on top of the 10' extension to the tower. Additionally, the facility has been designed to enhance capacity and coverage to the area, harmonize with the use of the existing tower, and the nature and character of the area. Please see Photosimulations for additional detail.

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

The Proposed Facility provides an important community benefit to this commercial and residential area of the city and in a manner that confirms with the City's General Plan as well as the Telecommunications and Design Review codes. A finding that this criteria is satisfied is appropriate. Please see Project Support Statement.

E. Additional Design Review Criteria for Macro Facilities.

Section 17.128.070 (B) provides general development standards for macro facilities.

a. *Antennas should be painted and/or textured to match the existing structure.*

Verizon's proposed antennas painted to match the exterior of the existing tower. Please see Site Plans for additional information.

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

This requirement is not applicable.

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

The proposed antennas will be mounted onto a 10' extension to an existing tower and will incorporate the vertical design elements of the tower to help in camouflaging. Please see Photosimulations for more detail.

d. *Equipment shelters or cabinets shall be screen from public view by using landscaping, or materials and colors consistent with surrounding backdrop or place underground or inside existing facilities or behind screening fences.*

Verizon's equipment shelter will be concealed from public view by placing it behind a CMU wall next to the base of the existing tower. All ground equipment will be contained within the locked equipment shelter. Verizon is compliant with this requirement.

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

Verizon's equipment cabinets are located within an 11'-6" x 16'-10.5" pre-fabricated equipment shelter, which is concealed from public view by placing it behind a CMU wall next to the base of the existing tower.

f. *For antennas attached to the roof, maintain a 1:1 ratio for equipment setback.*

This requirement is not applicable.

g. *That all reasonable means of reducing public access to the antennas and equipment has been made, including, but not limited to, placement in or on buildings or structures, fencing, anti-claiming measures and anti-tampering devices.*

Public access to the proposed site's antennas and equipment is completely restricted. This is an unmanned facility with no public access to Verizon's equipment or antennas which will be accessible only to authorized personnel. A Verizon technician will visit 1-2 times per month for routine maintenance. Verizon's equipment shelter will be surrounded by CMU wall with metal access gates. Please see section (d) and (e) for additional information.

F. RF Emissions Standards

An RF report has been prepared by independent licensed engineering firm Hammett & Edison, Inc. demonstrating that the Verizon facility has been designed to comply with FCC requirements. Additionally, Verizon agrees to additional RF study and reporting requirements for the facility set forth in section 17.128.130 (b)-(c).

Safety Benefits of Improved Wireless Service

Verizon 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 will install a standby generator at this telecommunications site 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 telecommunications site in the event that local power systems are offline.

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 Wireless' emergency and disaster preparedness plan. In the event of a power outage, Verizon Wireless' communications equipment will first transition over to the backup batteries. The batteries can run the site for a roughly 8 hours, depending upon the demand placed upon the equipment. Should the power outage extend beyond

the capacity of the batteries, the backup generator will automatically start and recharge the batteries. This two state backup plan is an extremely important component of every Verizon Wireless communications site.

As one of the nation's largest wireless companies, Verizon Wireless is the mobile phone service of choice to many Federal, State, and Local public safety agencies. While many public safety agencies employ their own two-way radio systems for intra-agency communications, Verizon Wireless phones are often the link to other agencies and the outside world. Backup 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.

Operations & Maintenance

Visitation to the site by a service technician for routine maintenance typically occurs on an average of once per month. The proposed site is entirely self-monitored and connected directly to a central office where sophisticated computers alert personnel to any equipment malfunction. Because the wireless facility is unmanned, there is no regular hours of operation and no impacts to existing local traffic patterns. No water or sanitation services will are required.

Compliance with FCC Standards

Verizon Wireless complies with all FCC rules governing construction requirements, technical standards, interference protection, power and height limitations and radio frequency standards. In addition, Verizon complies with all FAA rules on site location and operation.

Notice of Actions Affecting This 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.

ATTACHMENT C

ALTERNATIVE SITES ANALYSIS
VERIZON WIRELESS

Site Name: Hwy 880 & 98th
Location: Empire Road, Oakland, CA 94603
APN: 045-5322-030

Introduction

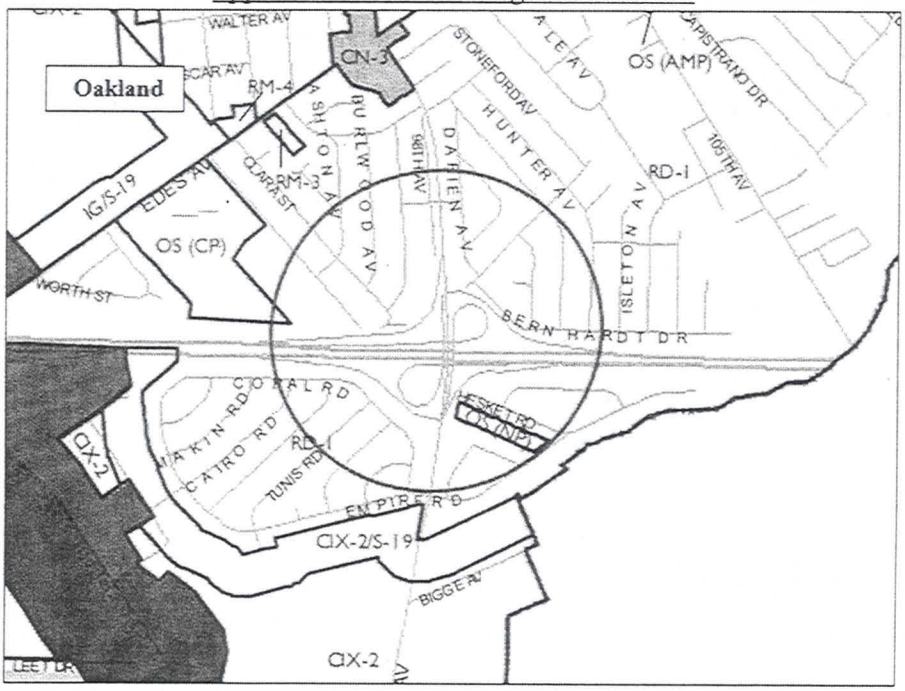
Section 17.128.110 identifies the most preferred site locations and designs as set forth by the City of Oakland. Verizon begins its process by identifying a search area and a required centerline height. Verizon then looks to local codes and general plans to identify the values significant to the local community for the siting and locating of wireless facilities.

Search Ring Analysis

In addition to the abovementioned location and height attributes, each proposed site must meet certain minimum requirements, such as the following:

- A willing landlord,
- Feasible construction,
- Road access,
- Available telephone and electrical utilities,
- Satisfaction of coverage objectives, and
- Compliance with local zoning requirements.

Approximate Serach Ring Visualization



a. Co-located on an existing structure or facility with existing wireless antennas.

During the candidate review process, Verizon first looked for collocation opportunities within the Search Ring. This particular search ring does not provide a feasible colocation opportunities to fulfill Verizon's coverage objectives since there are no tall structures with existing wireless antennas available in the area.

b. City-owned properties or other public or quasi-public facilities.

The search ring is located in an area that is predominantly zoned RD-1 with two smaller areas that are zoned OS-CP and OS-NP. Here, this particular area has a series of PG&E transmission towers that cut through the residential neighborhood. Additionally, as a public facility, PG&E's structures are a highly favorable location for telecommunications facilities.

c. Existing commercial or industrial structures in non-residential zones (excluding all HBX Zones and the D-CE-3 and D-CE-4 Zones).

This entire search ring is residential zones except for the two open space parcels.

d. Existing commercial or industrial structures in residential zones, HBX Zones or the D-CE-3 or D-CE-4 Zones).

This area does not have commercial or industrial structures within the search ring that would satisfy Verizon's requirements. The only existing industrial structures are the PG&E towers that crisscross through the neighborhood.

Investigation outside the Search Ring

In an attempt to keep from investigating and disturbing residentially zoned properties and nearby houses, commercial properties along Bigge Street were investigated as possible candidates for both rooftop and new tower construction even though they are located south of the edges of the search ring provided by Verizon's RF engineer.

Other properties that were investigated:

1. SBA Monopole, 10700 Bigge Street, Oakland, CA (APN: 077A-0745-041-01)

   This parcel is zoned RD-1 and is an existing SBA telecommunications facility with a 52' tall monopole. According to Verizon's RF engineer, no antennas could go above the 42' centerline without interference, and would not meet coverage objectives at that height. Therefore, Verizon requested SBA raise the tower to accommodate its needs. However, the compound and tower structure is constructed on raised blocks and raising the tower would not pass a structural analysis. In addition, the underlying property owner, Bigge Crane & Rigging was not open to the addition of another provider entering and exiting their property.

2. Bigge Development Company, Bigge Street Properties LLC

   This property owner has multiple parcels along Bigge Street, zoned RD-1, with PG&E towers running along it. Verizon, through communications with PG&E, reached out to Bigge. The property owner here notified Verizon that it does not have any interest in allowing telecommunications onto its tenants' properties.

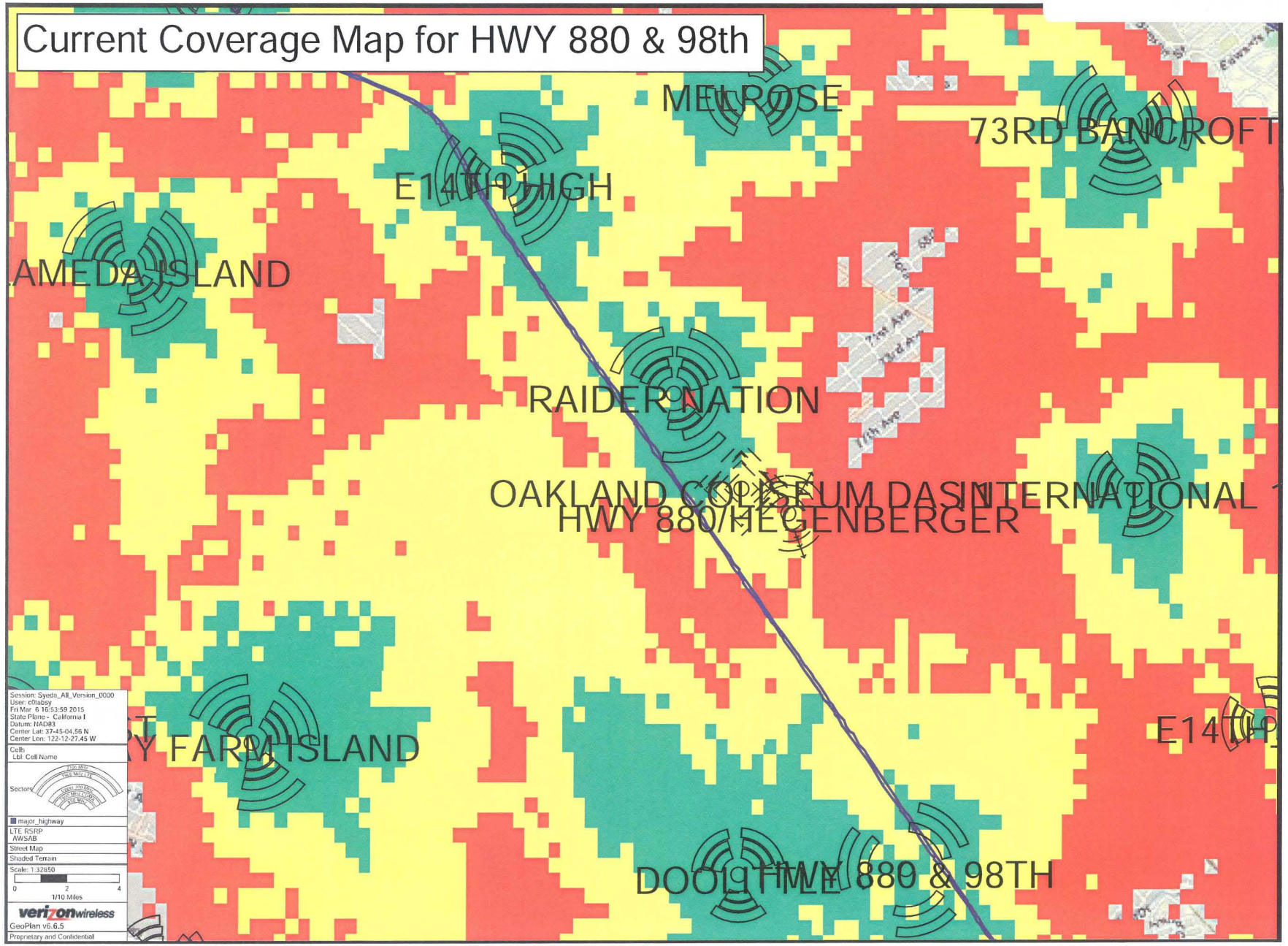
3. Stuart Corvin, CSEB Properties, 31 Bigge Street, Oakland, CA (APN: 077A-0745-030)
   No response from landowners after repeated attempts at communication via mail and physical visit.

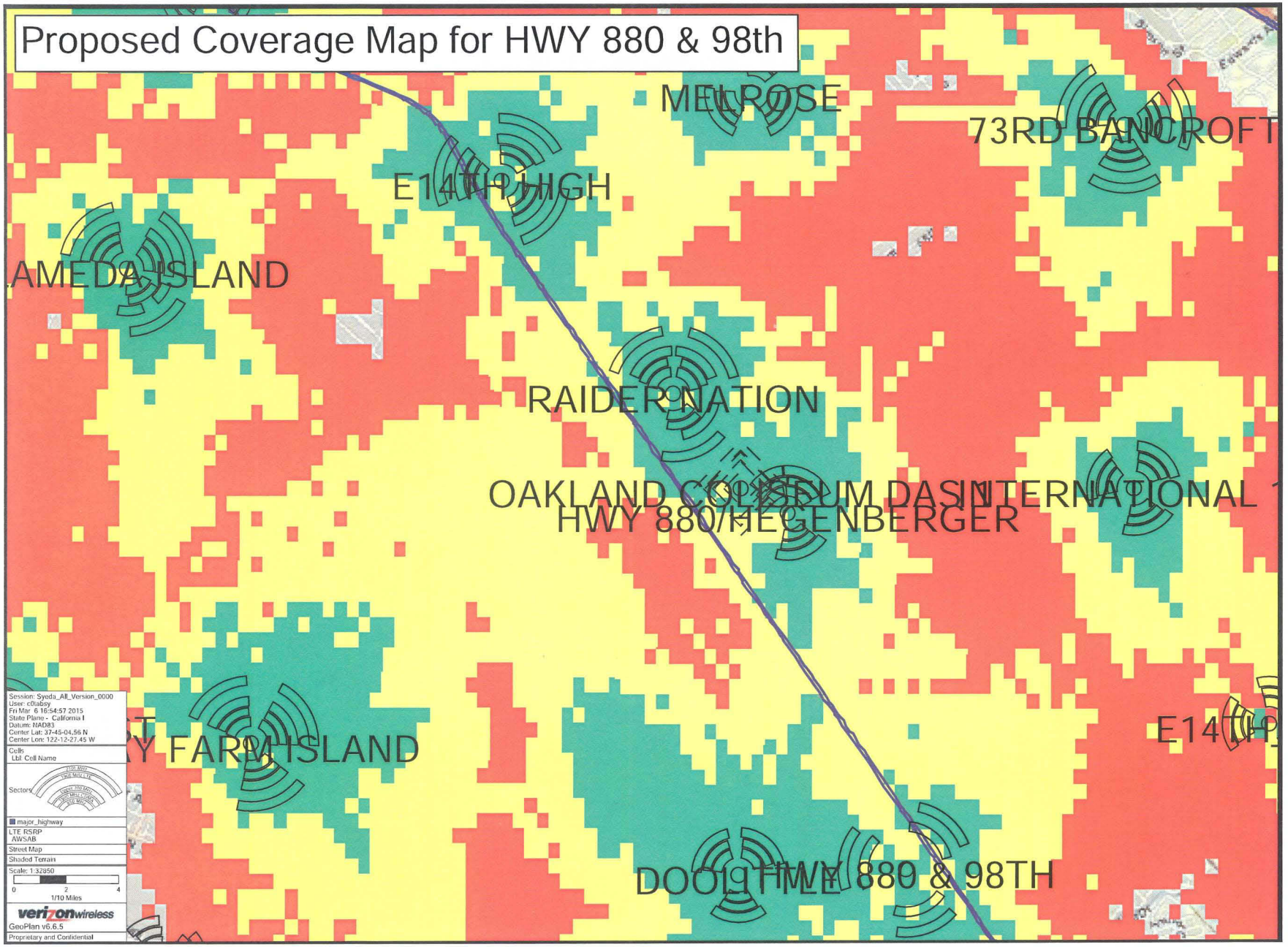
4. Penske Truck Leasing, 10755 Bigge Street, Oakland, CA (APN: 077A-0745-029-45-6)
   No response from landowners after repeated attempts at communication via mail and physical visit.

Conclusion

The Proposed Facility location and design represents a thorough and responsible investigation of alternative sites and co-location possibilities performed over the last few months. After an exhaustive review of the available properties and the applicable zoning law, Verizon has determined that the proposed site is the best available location for a wireless telecommunications facility to meet the coverage objective.

ATTACHMENT C




Proposed Coverage Map for HWY 880 & 98th
MELROSE
73RD BANCROFT
E14TH/HIGH
AMEDA ISLAND
RAIDER NATION
OAKLAND COLISEUM DAS
INTERNATIONAL
HWY 880/HEGENBERGER
E14TH
Y FARM ISLAND
DOOLITTLE
HWY 880 & 98TH
Session: Syeda_All_Version_0000
User: c0tabsy
Fri Mar 6 16:54:57 2015
State Plane - California I
Datum: NAD83
Center Lat: 37-45-04.56 N
Center Lon: 122-12-27.45 W
Cells
Lbl: Cell Name
Sectors
major_highway
LTE RSRP
AWSAB
Street Map
Shaded Terrain
Scale: 1:32850
0
2
4
1/10 Miles
verizonwireless
GeoPlan v6.6.5
Proprietary and Confidential

ATTACHMENT C

Environmental Noise Analysis

Hwy 880 & 98th Cellular Facility

Oakland, California

BAC Job # 2015-051

Prepared For:

Complete Wireless Consulting

Attn: Ms. Kim Le
2009 V Street
Sacramento, CA. 95818

Prepared By:

Bollard Acoustical Consultants, Inc.

Paul Bollard, President

November 17, 2015

BOLLARD
Acoustical Consultants

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

Introduction

The Highway 880 & 98th Avenue Verizon Wireless Unmanned Telecommunications Facility Project (project) proposes the installation antennas on an existing PG&E transmission tower and the installation of outdoor equipment cabinets and an emergency diesel standby generator located within APN 045-5322-030 in Oakland, California. The outdoor equipment cabinets 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 October 1, 2015.

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 outdoor equipment cabinets.

Please refer to Appendix A for definitions of acoustical terminology used in this report. Appendix B illustrates common noise levels associated with various sources.

Criteria for Acceptable Noise Exposure

City of Oakland Municipal Code

Chapter 17.120.050 of the City of Oakland Municipal Code provides the performance standards applicable to this project as shown below in Table 1 (Table 17.120.01 of Municipal Code). The City of Oakland requires that the noise level standards set forth in Table 1 be applied at the property line of the receiving residential land use.

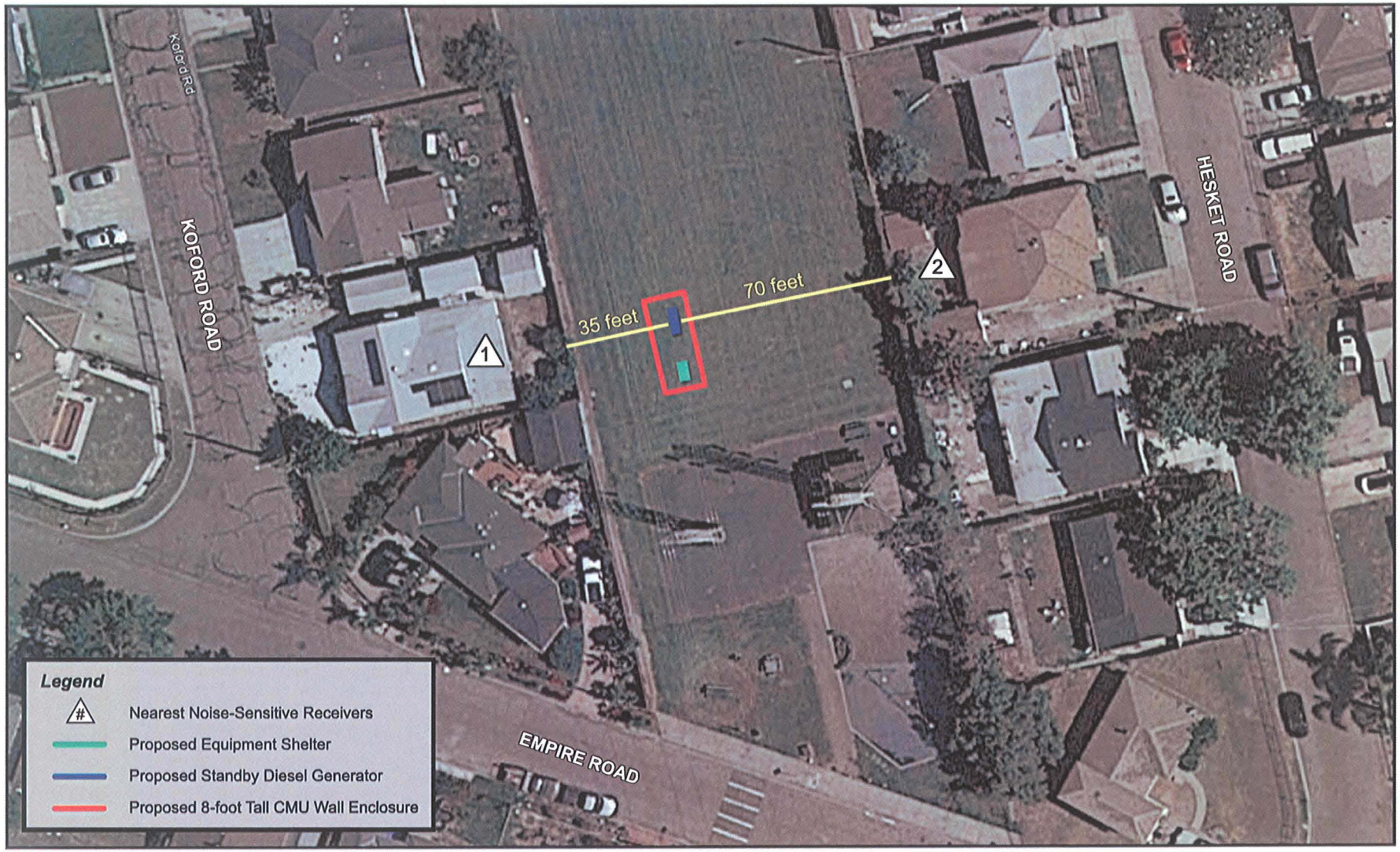
Table 1
Maximum Allowable Receiving Noise Level Standards (Residential)
City of Oakland Municipal Code

Cumulative Number of Minutes in Either the Daytime or Nighttime One Hour Time Period	Statistical Descriptor	Noise Level, dB	
		Daytime (7 a.m.-10 p.m.)	Nighttime (10 p.m.-7 a.m.)
20	L_{33}	60	45
10	L_{16}	65	50
5	L_{8}	70	55
1	L_{2}	75	60
0	L_{max}	80	65

Source: City of Oakland Municipal Code, Chapter 17.120.050, Table 17.120.01

Figure 1

Proposed Cellular Equipment Lease Area and Distances to Nearest Residential Property Lines
Highway 880 & 98th Cellular Facility - Oakland, California



BOLLARD
Acoustical Consultants

Scale (feet)
0 30 60

Project Noise Generation

As discussed previously, there are two project noise sources which are considered in this evaluation; the equipment cabinet cooling systems and the emergency generator. The evaluation of potential noise impacts associated with the operation of each noise source is evaluated separately as follows:

Equipment Cabinet Noise Sources and Reference Noise Levels

The project proposes the installation of two equipment cabinets within the lease area illustrated on Figure 1. Specifically, the cabinets assumed for the project are one Charles Industries 48V Power Plant and one miscellaneous cabinet cooled by a McLean Model T-20 air conditioner. The cabinets and their respective reference noise levels are provided below in Table 2. The manufacturer's noise level data specification sheets for the proposed equipment cabinets are provided as Appendix C.

Table 2
Reference Noise Level Data of Proposed Equipment Cabinets

Equipment	Number of Cabinets	Reference Noise Level, dB	Reference Distance, feet
Charles Industries 48V Power Plant	1	60	5
McLean T-20	1	66	5

Notes: Manufacturer specification sheets provided as Appendix C.

Generator Noise Sources and Reference Noise Levels

A Generac Industrial Power Systems Model SD030 is proposed for use at this facility to maintain cellular service during emergency power outages. The site plans indicate that the generator, located within the same lease area as the equipment cabinets, will be equipped with the Level 2 Acoustic Enclosure resulting in a reference noise level of 68 dB at 23 feet. The manufacturer's noise level data specification sheet for the proposed generator is provided as Appendix D.

The generator which is proposed at this site would only operate during emergencies (power outages) and brief daytime periods for periodic maintenance/lubrication. According to the project applicant, testing of the generator would occur twice per month, during daytime hours, for a duration of approximately 15 minutes. 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 City's exterior noise exposure criteria due to the need for continuous cellular service provided by the project equipment.

Predicted Facility Noise Levels at Nearest Residential Property Lines

As indicated in Figure 1, the project equipment maintain a separation of 35 and 70 feet from the nearest residential property lines to the west and east, respectively. Assuming standard

spherical spreading loss (-6 dB per doubling of distance), project-equipment noise exposure at the closest residential property lines was calculated and the results of those calculations are presented in Table 3. The predicted equipment noise levels presented below in Table 3 take consideration the screening provided by the proposed 8-foot tall CMU wall enclosing the project equipment. Barrier insertion loss calculation worksheets are provided as Appendix E.

Table 3
Project-Related Noise Exposure at Nearest Residential Property Lines
Hwy 880 & 98th Verizon Wireless Telecommunications Facility Project

Nearest Receiver[1]	Distance from Cellular Equipment (feet)	Predicted Noise Levels, (dBA)[2]	
		Equipment Cabinets, (L_{33})	Generator, (L_{33})
1	35	41	55
2	70	35	48

Notes:
1 Receiver locations are shown on Figure 1.
2 Predicted equipment noise levels take into consideration the attenuation provided by the proposed 8-foot tall CMU noise barrier. Barrier insertion loss calculation worksheets are provided as Appendix E.

The equipment cabinets were conservatively assumed to be in operation for the duration of an hour during nighttime hours. According to the City of Oakland Municipal Code (Table 1), the corresponding noise level standard given an hour of *nighttime* operation would be 45 dB L_{33}. As shown in Table 3, the predicted equipment cabinet noise levels of 35-41 dB L_{33} at the nearest residential property lines would satisfy the City of Oakland 45 dB L_{33} nighttime noise level standard. As a result, no further consideration of noise mitigation measures would be warranted for this aspect of the project.

Project representatives have indicated that the proposed generator would be in operation for routine testing and maintenance twice a month during *daytime* hours for no more than 15 minutes. The corresponding noise level standard given less than 15 minutes of operation during *daytime* hours would be 60 dB L_{33}. As shown in Table 3, the predicted generator noise levels at the nearest residential property lines of 48-55 dB L_{33} would satisfy the City of Oakland 60 dB L_{33} daytime noise level standard. 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 City of Oakland noise exposure limits at the nearest residential property lines. As a result, no additional noise mitigation measures would be warranted for this project.

This concludes our environmental noise assessment for the proposed Highway 880 & 98th Avenue Cellular Facility in the City of Oakland, California. Please contact BAC at (916) 663-0500 or paulb@bacnoise.com with any questions or requests for additional information.

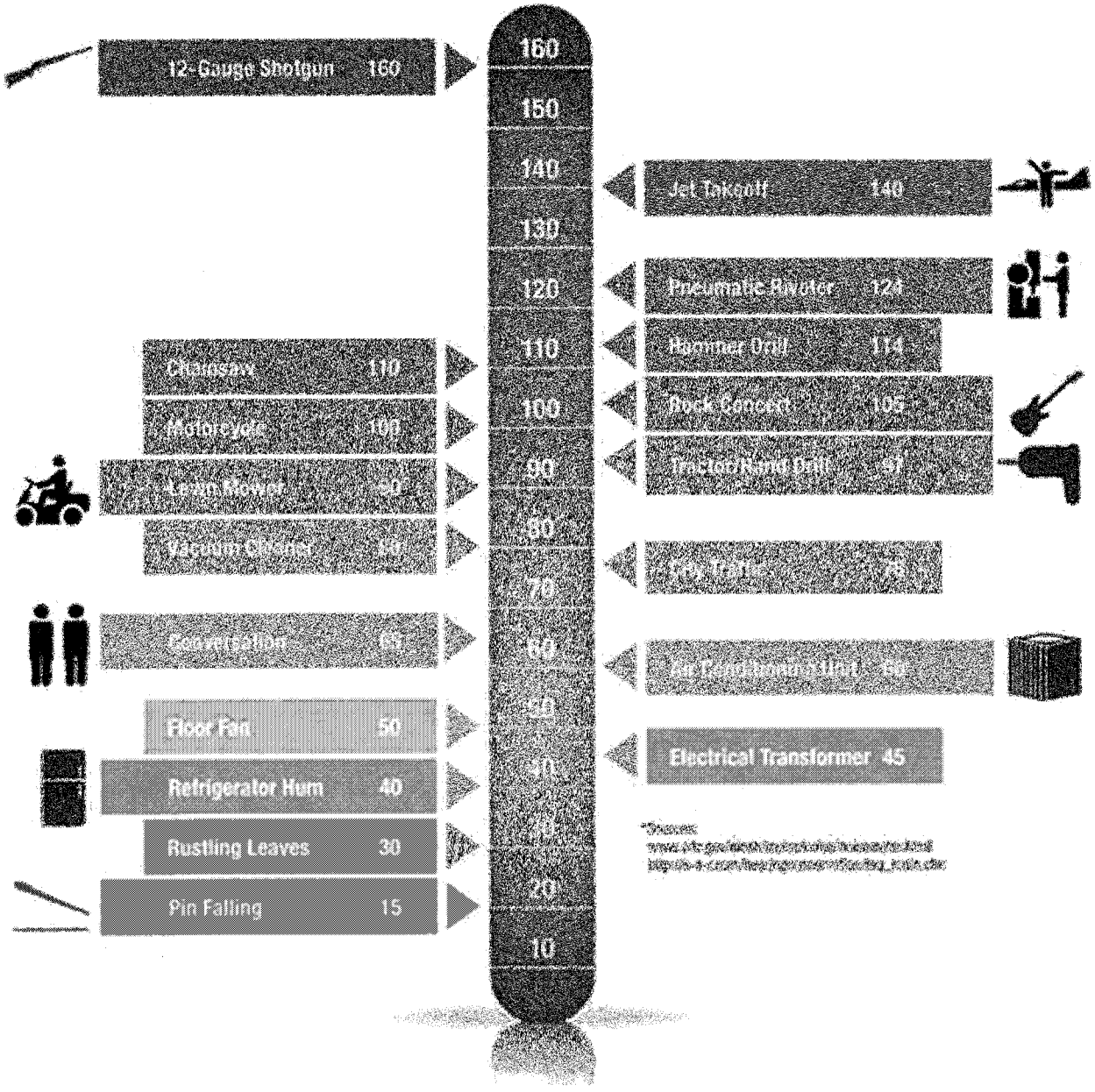
Appendix A

Acoustical Terminology

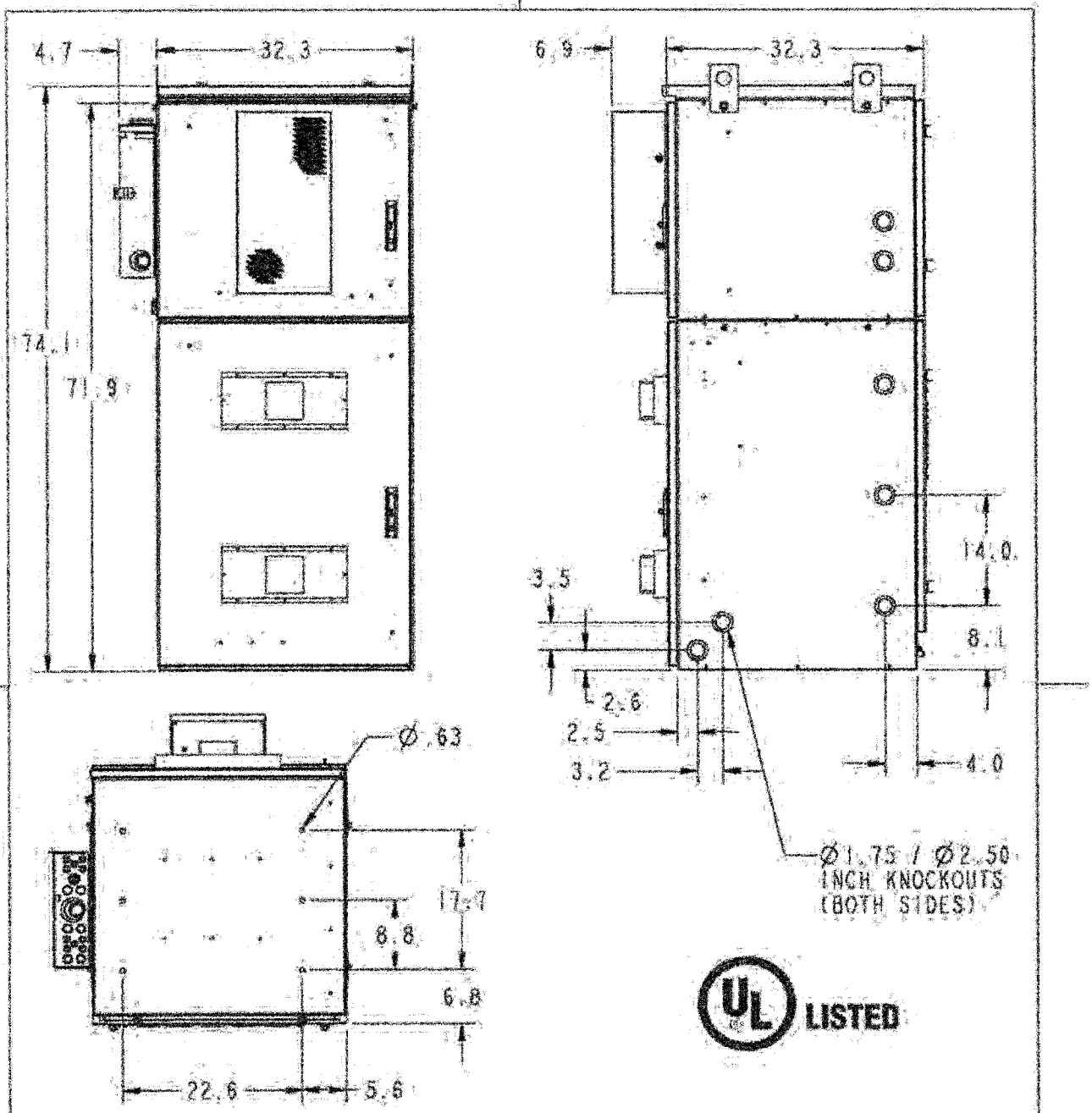
Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
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.

Appendix B

Typical A-Weighted Sound Levels of Common Noise Sources



Appendix C-1



UL LISTED

WEIGHT WITH BATTERIES:
2296 LBS.
NorthStar NSB-170FT batteries
at 128 lbs each, Qty 12

WEIGHT WITHOUT BATTERIES:
760 LBS.

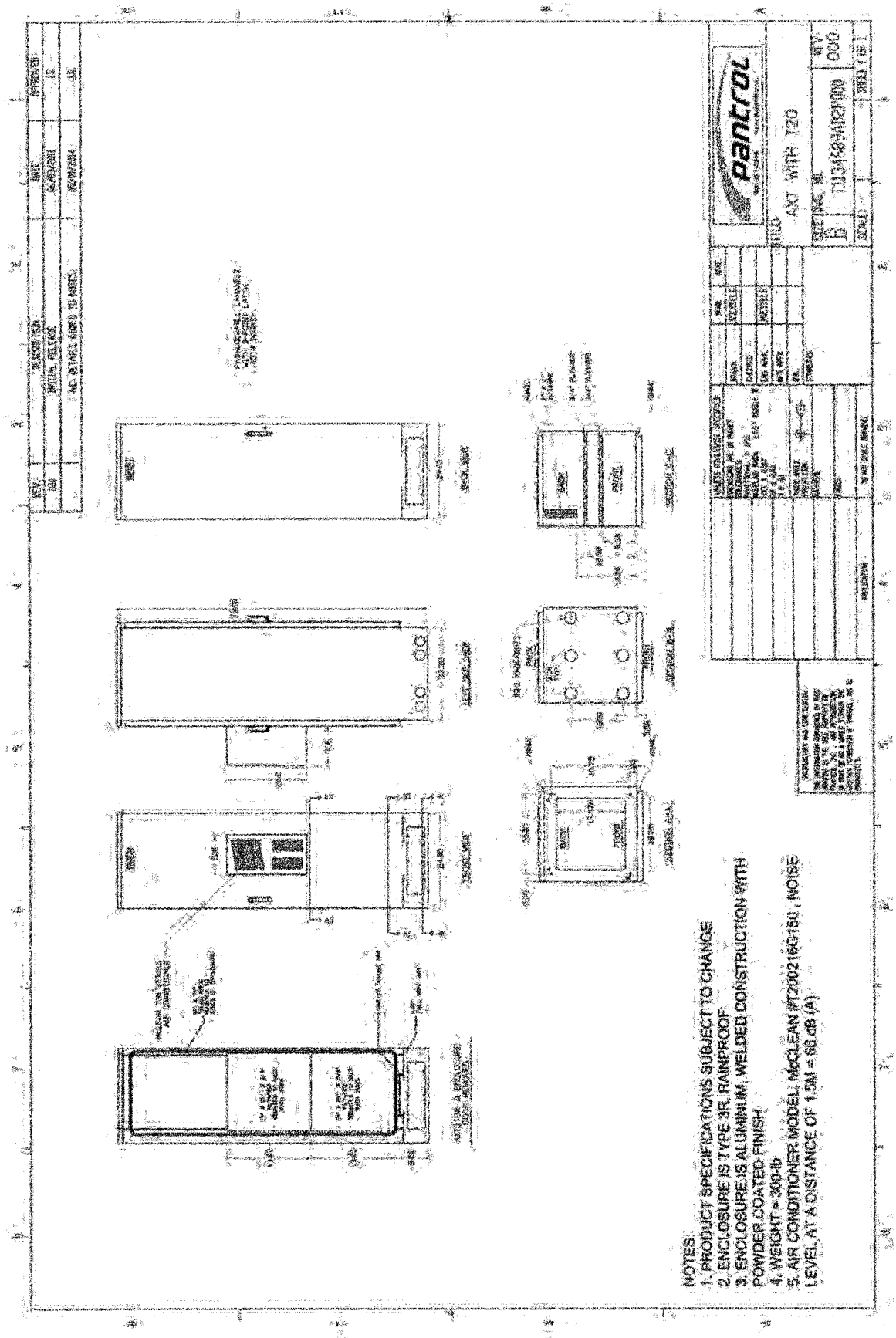
MAX NOISE LEVEL:
55-60dB

CHARLES PART #
CUBE-SS4C21SXC1

Charles Industries Ltd.
Telecommunications Group
Charles Center, 5600 Apollo Drive
Rolling Meadows, IL 60008
Telephone: 847-806-6300

Verizon Wireless
Large Site Support Enclosure

Appendix C-2

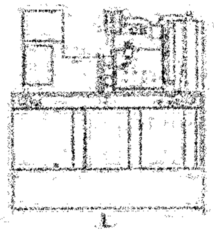

NOTES:
1. PRODUCT SPECIFICATIONS SUBJECT TO CHANGE
2. ENCLOSURE IS TYPE 3R, RAINPROOF
3. ENCLOSURE IS ALUMINUM, WELDED CONSTRUCTION WITH POWDER COATED FINISH
4. WEIGHT = 300-lb
5. AIR CONDITIONER MODEL McCLEAN #T200216G150 ; NOISE LEVEL AT A DISTANCE OF 1.5M = 68 dB (A)
pantrol
AXT WITH T20

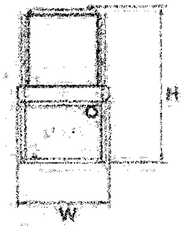
Appendix D

GENERAC | INDUSTRIAL POWER

SD030

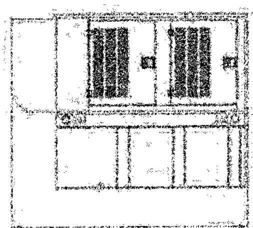
dimensions, weights and sound levels

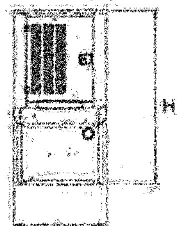




OPEN SET

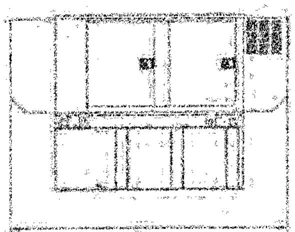
RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*
NO TANK	—	76	38	[illegible]	[illegible]	82
[illegible]	[illegible]	76	[illegible]	[illegible]	[illegible]	
48	132	76	38	71	2770	
77	[illegible]	76	[illegible]	[illegible]	[illegible]	
109	300	[illegible]	39	87	[illegible]	

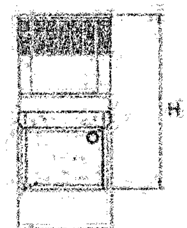




STANDARD ENCLOSURE

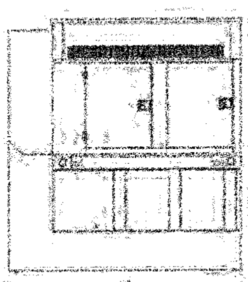
RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*
NO TANK	—	95	38	50	2362	71
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
48	132	95	38	73	3072	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
109	300	95	38	91	3344	

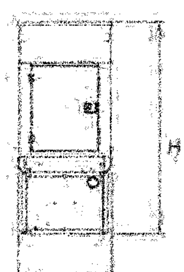




LEVEL 1 ACOUSTIC ENCLOSURE

RUN TIME HOURS	USABLE CAPACITY (GAL)	L	W	H	WT	dBA*
NO TANK	—	113	38	56	2615	70
[illegible]	54	113	[illegible]	[illegible]	[illegible]	
48	132	113	38	75	3225	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
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	82	[illegible]	69
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
48	132	95	38	97	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	
109	300	95	38	103	3602	

*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 DEP/DERM	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.

Appendix E-1

Barrier Insertion Loss Calculation

Project Information:

Job Number: 2015-051
Project Name: Hwy 880 & 98th Cellular Facility
Location(s): Residential Property Line

Noise Level Data:

Source Description: Equipment Cabinets
Source Noise Level, dBA: 50
Source Frequency (Hz): 500
Source Height (ft): 5

Site Geometry:

Receiver Description: Property Line - West
Source to Barrier Distance (C_1): 6
Barrier to Receiver Distance (C_2): 29

Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 8

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height (ft)	Insertion Loss, dB	Noise Level, dB	Barrier Breaks Line of Site to Source?
8	8	-9.5	40.5	Yes
9	9	-10.9	39.1	Yes
10	10	-12.1	37.9	Yes
11	11	-13.3	36.7	Yes
12	12	-14.2	35.8	Yes
13	13	-14.6	35.4	Yes
14	14	-15.3	34.7	Yes
15	15	-15.9	34.1	Yes
16	16	-16.3	33.7	Yes
17	17	-16.6	33.4	Yes
18	18	-16.9	33.1	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).

Appendix E-2

Barrier Insertion Loss Calculation

Project Information:

Job Number: 2015-051
Project Name: Hwy 880 & 98th Cellular Facility
Location(s): Residential Property Line

Noise Level Data:

Source Description: Equipment Cabinets
Source Noise Level, dBA: 44
Source Frequency (Hz): 500
Source Height (ft): 5

Site Geometry:

Receiver Description: Property Line - East
Source to Barrier Distance (C_1): 6
Barrier to Receiver Distance (C_2): 64

Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 8

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height (ft)	Insertion Loss, dB	Noise Level, dB	Barrier Breaks Line of Site to Source?
8	8	-9.2	34.8	Yes
9	9	-10.5	33.5	Yes
10	10	-11.7	32.3	Yes
11	11	-12.9	31.1	Yes
12	12	-13.8	30.2	Yes
13	13	-14.5	29.5	Yes
14	14	-14.6	29.4	Yes
15	15	-15.3	28.7	Yes
16	16	-15.9	28.1	Yes
17	17	-16.3	27.7	Yes
18	18	-16.6	27.4	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).

Appendix E-3

Barrier Insertion Loss Calculation

Project Information:

Job Number: 2015-051
Project Name: Hwy 880 & 98th Cellular Facility
Location(s): Residential Property Line

Noise Level Data:

Source Description: Generator (SD 030 w/ L2A Enclosure)
Source Noise Level, dBA: 64
Source Frequency (Hz): 500
Source Height (ft): 5

Site Geometry:

Receiver Description: Property Line - West
Source to Barrier Distance (C_1): 6
Barrier to Receiver Distance (C_2): 29

Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 8

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height (ft)	Insertion Loss, dB	Noise Level, dB	Barrier Breaks Line of Site to Source?
8	8	-9.5	54.5	Yes
9	9	-10.9	53.1	Yes
10	10	-12.1	51.9	Yes
11	11	-13.3	50.7	Yes
12	12	-14.2	49.8	Yes
13	13	-14.6	49.4	Yes
14	14	-15.3	48.7	Yes
15	15	-15.9	48.1	Yes
16	16	-16.3	47.7	Yes
17	17	-16.6	47.4	Yes
18	18	-16.9	47.1	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).

Appendix E-4

Barrier Insertion Loss Calculation

Project Information:

Job Number: 2015-051
Project Name: Hwy 880 & 98th Cellular Facility
Location(s): Residential Property Line

Noise Level Data:

Source Description: Generator (SD 030 w/ L2A Enclosure)
Source Noise Level, dBA: 58
Source Frequency (Hz): 500
Source Height (ft): 5

Site Geometry:

Receiver Description: Property Line - East
Source to Barrier Distance (C_1): 3
Barrier to Receiver Distance (C_2): 67

Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 8

Barrier Effectiveness:

Top of Barrier Elevation (ft)	Barrier Height (ft)	Insertion Loss, dB	Noise Level, dB	Barrier Breaks Line of Site to Source?
8	8	-10.5	47.5	Yes
9	9	-11.9	46.1	Yes
10	10	-13.2	44.8	Yes
11	11	-14.1	43.9	Yes
12	12	-14.6	43.4	Yes
13	13	-15.3	42.7	Yes
14	14	-15.9	42.1	Yes
15	15	-16.3	41.7	Yes
16	16	-16.6	41.4	Yes
17	17	-16.9	41.1	Yes
18	18	-17.1	40.9	Yes

Notes: 1. Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).

ATTACHMENT D

CITY OF OAKLAND
Interoffice Memorandum

CITY OF OAKLAND
PARKS AND RECREATION

Oakland Parks and Recreation

TO: Barry Miller, Chair, Parks and Recreation Advisory Commission
FROM: Michael Bradley, Planner II, Bureau of Planning
DATE: November 18, 2015
SUBJECT: **REQUEST FOR THE PARKS AND RECREATION ADVISORY COMMISSION TO MAKE A RECOMMENDATION ON A MAJOR CONDITIONAL USE PERMIT AND DESIGN REVIEW FOR THE PROPOSED INSTALLATION OF A TEN FOOT (10') EXTENSION TO AN EXISTING 64.3 FOOT PACIFIC GAS AND ELECTRIC (PG&E) TOWER TO CREATE A MINI - TELECOMMUNICATIONS FACILITY WITH SIX (6) ANTENNAS AND A 646 SQUARE FOOT EQUIPEMENT AREA ON THE GROUND IN A PORTION OF COLUMBIAN GARDENS PARK OWNED BY PG&E**

SUMMARY

The applicant requests Parks and Recreation Advisory Commission approval of a Major Conditional Use Permit and Regular Design Review to construct a Mini Telecommunications Facility consisting of a ten foot (10') extension to an existing 64.3 foot Pacific Gas and Electric (PG&E) tower with six (6) antennas and a 646 square foot equipment area on the ground in a portion of Columbian Gardens Park owned by PG&E

FISCAL IMPACT

As this portion of Columbian Gardens Park is owned and maintained by Pacific Gas and Electric (PG&E), Planning Staff believe there will be no short- or long-term fiscal impacts due to Verizon Wireless leasing and installing a Mini Telecommunications facility at the subject site.

PROJECT DESCRIPTION

To construct a Mini Telecommunications Facility consisting of a ten foot (10') extension to an existing 64.3 foot Pacific Gas and Electric (PG&E) tower for a total height of 74.3 feet with six (6) antennas and a 646 square foot, fenced in equipment area on the ground between overhead power lines in a portion of Columbian Gardens Park owned by PG&E.

BACKGROUND

This type of application requires a Major Conditional Use Permit for a Mini Telecommunications facility in the OS Open Space, Neighborhood Park Zone (section 17.11.090 B and 17.128.060C) and Design Review (section 17.136.050B and 17.128.060B) with review and approval by the Planning Commission.

Limitations on Local Government Zoning Authority under the Telecommunications Act of 1996
Section 704 of the Telecommunications Act of 1996 (TCA) provides federal standards for the siting of "Personal Wireless Services Facilities." "Personal Wireless Services" include all commercial mobile services (including personal communications services (PCS), cellular radio mobile services, and paging); unlicensed wireless services; and common carrier wireless exchange access services. Under Section 704, local zoning authority over personal wireless services is preserved such that the FCC is prevented from preempting local land use decisions; however, local government zoning decisions are still restricted by several provisions of federal law.
Under Section 253 of the TCA, no state or local regulation or other legal requirement can prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.
Further, Section 704 of the TCA imposes limitations on what local and state governments can do. Section 704 prohibits any state and local government action which unreasonably discriminates among personal wireless providers. Local governments must ensure that its wireless ordinance does not contain requirements in the form of regulatory terms or fees which may have the "effect" of prohibiting the placement, construction, or modification of personal wireless services.
Section 704 also preempts any local zoning regulation purporting to regulate the placement, construction and modification of personal wireless service facilities on the basis, either directly or indirectly, on the environmental effects of radio frequency emissions (RF) of such facilities, which otherwise comply with FCC standards in this regard. See, 47 U.S.C. 332(c)(7)(B)(iv) (1996). This means that local authorities may not regulate the siting or construction of personal wireless facilities based on RF standards that are more stringent than those promulgated by the FCC.
Section 704 mandates that local governments act upon personal wireless service facility siting applications to place, construct, or modify a facility within a reasonable time. 47 U.S.C.332(c)(7)(B)(ii). See FCC Shot Clock ruling setting forth "reasonable time" standards for applications deemed complete.
Section 704 also mandates that the FCC provide technical support to local governments in order to encourage them to make property, rights-of-way, and easements under their jurisdiction available for the placement of new spectrum-based telecommunications services. This proceeding is currently at the comment stage.
For more information on the FCC's jurisdiction in this area, contact Steve Markendorff, Chief of the Broadband Branch, Commercial Wireless Division, Wireless Telecommunications Bureau, at (202) 418-0640 or e-mail "smarkend@fcc.gov".

RECOMMENDATION

The Bureau of Planning recommends the Parks and Recreation Advisory Commission recommend approval of the proposed Major Conditional Use Permit and Design Review to construct a Mini Telecommunications Facility consisting of a ten foot (10') extension to an existing 64.3 foot Pacific Gas and Electric (PG&E) tower for a total height of 74.3 feet with six (6) antennas and a 646 square foot, fenced in equipment area on the ground between overhead power lines in a portion of Columbian Gardens Park owned by PG&E. The proposed project will result in better telecommunications for residents living in the neighborhood surrounding the park and for those traveling along the 880 Freeway.

Respectfully submitted,

Michael Bradley *(Signature)*
Michael Bradley
Planner II, Bureau of Planning

Attachments: Exhibit A – *Project Plans*
Exhibit B – *Project Photo Simulations*

CITY OF OAKLAND
Bureau of Planning
250 Frank H. Ogawa Plaza, Suite 2114, Oakland, California, 94612 - 2032

Release on October 30, 2015

Dear Columbian Gardens Park Interested Parties:

Please be advised the Parks and Recreation Advisory Commission (PRAC) will consider an action item regarding installation of a 10 foot extension to an existing 64.3 foot PG&E tower to create a Mini-Telecommunications Facility with six (6) antennas and a 646 square foot equipment area on the ground in a portion of Columbian Gardens Park owned by PG&E at their scheduled meeting on November 18, 2015. Specifically, the PRAC will be asked to make findings, conduct design review and make a recommendation to the Planning Commission regarding the Major Conditional Use Permit and Design Review application. Please note the following meeting details:

PARKS AND RECREATION ADVISORY COMMISSION
City of Oakland
Wednesday, November 18, 2015 at 4:30PM
Lake Merritt Garden Center, 666 Bellevue Avenue

The staff report, when available, will also be provided on the webpage link noted above (and a link will be provided by email, as well).

Should you have any questions and/or comments, please do not hesitate to contact me at the address, phone number or email address listed below. Thank you for your interest.

Michael Bradley

Michael Bradley, Planner II | City of Oakland | Bureau of Planning | 250 Frank H. Ogawa Plaza, Suite 2114 | Oakland, CA 94612 | Phone: (510)238-6935 | Fax: (510) 238-3254 | Email: mbradley@oaklandnet.com | Website: www.oaklandnet.com/planning