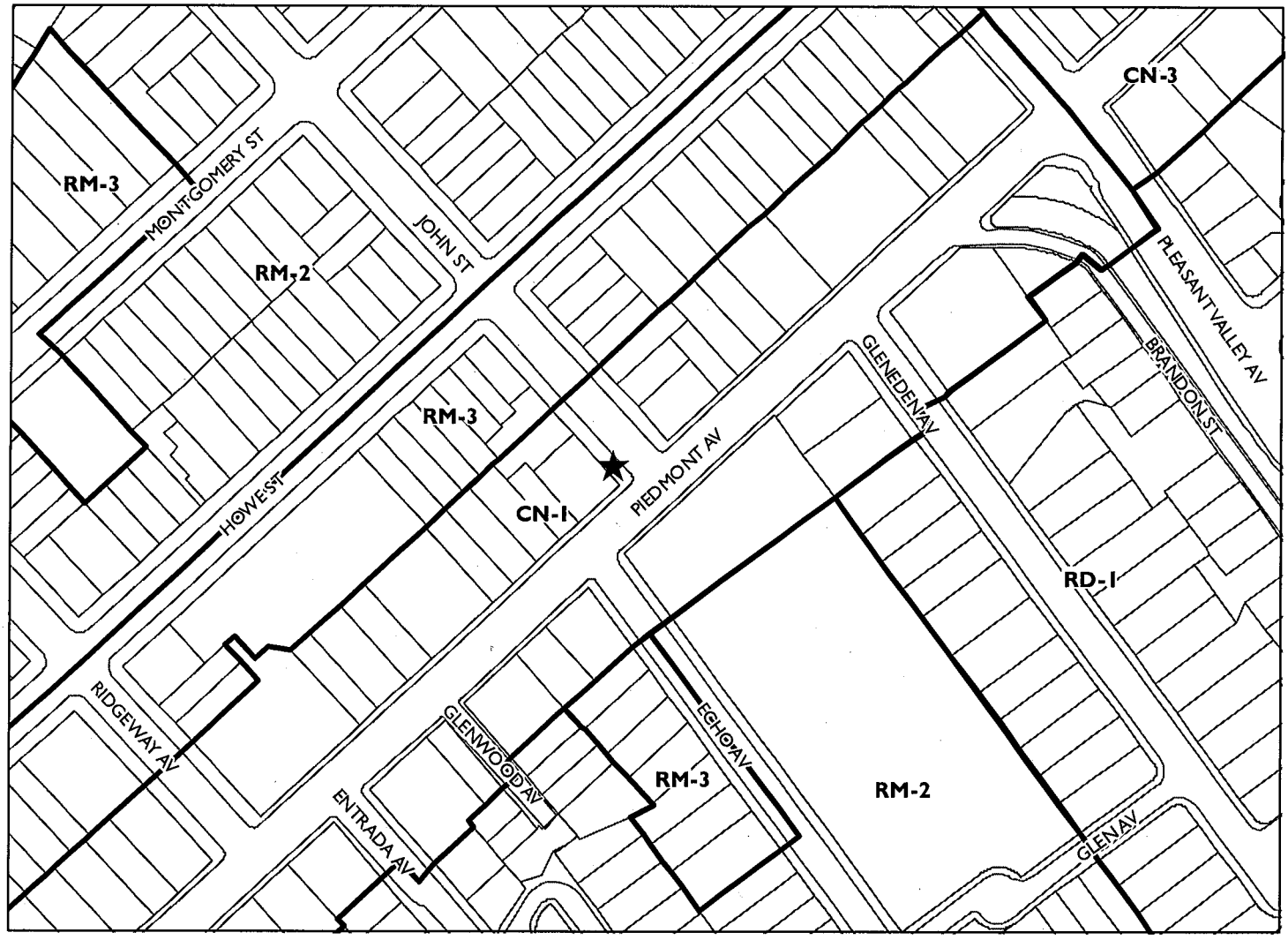
Location:	**The Public Right of Way near 4299 Piedmont Avenue and John Street (See map on reverse)**
Assessors Parcel Numbers:	**Nearest lot adjacent to the project site (013-1117-004-00)**
Proposal:	The project involves the installation of a new wireless Telecommunications facility on a new 24' tall metal light pole located in the public right-of-way; installation of two 24" wide panel antennas mounted at a height of 23' above the ground; an associated equipment box (two radio units) inside 2'-5" tall, and 2'-3" wide wrap-around enclosure attached to the light pole at 10' above ground.
Applicant:	Crown Castle
Contact Person/ Phone Number:	Bob Gundermann & Jason Osborn (925) 899-1999
Owner:	City of Oakland
Case File Number:	PLN15-407
Planning Permits Required:	Major Conditional Use Permit and Design Review to install a new Monopole Telecommunication Facility within 100' of a residential zone, and a Minor Variance to establish a Monopole facility within 1500 feet of another monopole facility.
General Plan:	Neighborhood Center Mixed Use
Zoning:	CN-1 Neighborhood Center Zone
Environmental Determination:	Exempt, Section 15303 of the State CEQA Guidelines; installation of new telecommunication/light pole. Section 15183 of the State CEQA Guidelines; projects consistent with a community plan, General Plan or zoning.
Historic Status:	Not a Potential Designated Historic Property; Survey Rating: N/A
Service Delivery District:	2
City Council District:	1
Date Filed:	June 7, 2016
Finality of Decision:	Appealable to City Council within 10 days
For Further Information:	Contact case planner Jason Madani at **(510) 238-4790** or jmadani@oaklandnet.com

SUMMARY

The proposal is to install a new wireless Telecommunications Facility on a new 24 foot tall metal light pole located in the public right-of-way near 4299 Piedmont Avenue and John Street. Crown Castle is proposing to install two 24" wide panel antennas mounted at a height of 23 feet above the ground; an associated equipment box (two radio units) inside 2'-5" tall and 2'-3" wide wrap-around enclosure attached to the light pole at 10' above ground. Because this installation is a stand-alone telecommunication pole and not a joint-use utility pole, it is defined as a Monopole by City of Oakland regulations. A Major Conditional Use Permit and Design Review is required

CITY OF OAKLAND PLANNING COMMISSION



Case File: PLN15407
Applicant: Crown Castle
Address: The Public Right-of-Way adjacent to 4299 Piedmont Avenue and John Street
Zone: CN-1

for the installation of a new Monopole Telecommunication Facility within 100' of a residential zone and a Minor Variance is required to establish a monopole facility within 1500 feet of another monopole facility in the CN-zone. The proposed monopole facility is designed to look like a City of Oakland standard utility light pole; its antennas and an associated equipment box (two radio units) inside 2'-5" tall and 2'-3" wide wrap-around enclosure attached to the light pole at 10' above ground located within the public right-of-way adjacent to the commercial building, on a commercial corridor which is sufficiently distant from the residential zone. The proposal will have minimal visual impacts as seen from commercial or residential buildings located on Piedmont Avenue and John Street. The project meets all the required findings (listed below) for an approval of the project.

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 (Crown Castle) is proposing to replace an existing traffic stop sign with a new 24' tall metal light pole located in the City of Oakland public right-of-way. The project involves the installation of two 24" wide panel antennas mounted at 23' above the ground; an associated equipment box (two radio units) inside 2'-5" tall and 2'-3" wide wrap-around enclosure attached to the light pole at 10' above ground. (**See Attachment A**)

PROPERTY DESCRIPTION

The project site is located in the City of Oakland public right-of-way near 4299 Piedmont Avenue and John Street adjacent to a commercial building, and approximately 68 feet away from a one story residential building and two-story commercial building across street. The proposed telecommunication pole provides approximately 100 feet of separation from the adjacent RM-3 residential zone.

GENERAL PLAN ANALYSIS

The subject property is located within the Neighborhood Center Mixed Use General Plan Land Use designation. The Neighborhood Center Mixed Use Land Use classification is intended to "identify, create, maintain and enhance mixed use neighborhood commercial centers. These centers are typically characterized by smaller scale pedestrian-oriented, continuous street frontage with a mix of retail, housing, office, active open space, eating and drinking places, personal and business services, and smaller scale educational, cultural, or entertainment uses". The proposed unmanned wireless telecommunications facility will not adversely affect or detract from the characteristics of the neighborhood. The proposal will not likely affect the general quality and character of the neighborhood. The proposed project is not expected to have a significant visual impact on the existing structure or surrounding area.

ZONING ANALYSIS

The subject property is located in the CN-1 Neighborhood Center Mixed Use Zone. The intent of the CN-1 zone is to maintain and enhance vibrant commercial districts with a wide range of retail establishments serving both short and long term needs in attractive settings oriented to pedestrian comparison shopping. The proposal for a new unmanned wireless telecommunication facility on a new monopole telecommunication facility requires a Major Conditional Use Permit and Design Review, because the project is located within 100' of a residential zone and a Minor Variance to establish a Monopole telecommunication facility within 1500 feet of another telecommunication monopole facility. Staff finds that the proposal meets the applicable CN-1 Zoning and City of Oakland Telecommunications Regulations as discussed under the "Findings" section of this report.

ENVIRONMENTAL DETERMINATION

The California Environmental Quality Act (CEQA) Guidelines list the projects that qualify as categorical exemptions from environmental review. The proposed project is categorically exempt from the environmental review requirements pursuant to Section 15303, new

construction of small structures, and 15183, projects consistent with a community plan, general plan or zoning.

KEY ISSUES AND IMPACTS

The original proposed telecommunication facility located at intersection of Glenwood Avenue and 4240 Piedmont could not be supported because the Glenwood Avenue is a Private Road not a Public Road and it was too closed to the adjacent building's upper floor windows and would likely have a significant visual impact. As a result, Crown Castle proposed an alternative site located at 4299 Piedmont Ave and John Street within the City of Oakland public-right-of-way.

Staff believes that new telecommunication facility located on new monopole/ light pole located in the public right-of-way adjacent to a commercial building and approximately 100 feet away from the adjacent residential zone and with appropriate conditions of approval will not have significant visual impacts on the operating characteristic of this neighborhood. It will provide an essential telecommunication service to the community and the City of Oakland at large. It will also be available to emergency services such as Police, Fire and Health response teams. The submitted RF analysis indicates compliance with FCC Limitations regarding RF emissions.

1. Conditional Use Permit and Design Review and Variance

Section 17.17.040, 17.128.080 and 17.148.050 of the City of Oakland Planning Code requires a Conditional Use Permit and Design Review to install a Monopole Telecommunication facility within the CN-1 zone and a Minor Variance to establish a monopole facility within 1500 feet of another monopole facility. Furthermore, Section 17.134.020 defines a major and minor conditional use permit. Subsection (A) (3) (i) lists as a Major Conditional Use Permit: "Any telecommunication facility within 100' of a residential zone." The required findings for a Major Conditional Use Permit, Design Review and Minor Variance 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 (excluding all HBX Zones and the D-CE3 and D-C-4 Zones).
D. Existing commercial or industrial structures in residential zones, HBX Zones, or the D-CE- 3 or D-CE-4 Zones.
E. Other non-residential uses in residential zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.

F. Residential uses in non-residential zones. (excluding all HBX Zones and the D-CE-3 and D-CE-4 Zones).
G. Residential uses in residential zones, HBX Zones, or the D-CE-3 or D-CE-4 Zones.

*Facilities locating on B or C ranked preference do not require a site alternatives analysis. Facilities proposing to locate on a D through G ranked preference, inclusive, must submit a site alternatives analysis as part of the required application materials.

Alternative Site Analysis:

Crown Castle considered alternative sites on other utility poles in this area but none of these sites are as desirable from a coverage perspective or from an aesthetics perspective to minimize visual impact. The proposed location is approximately equidistant from other DAS nodes proposed in the surrounding area so that service coverage can be evenly distributed.

Staff has reviewed the applicant's written evidence of an alternative sites analysis (see Attachment A) and determined that the site selected conforms to the telecommunication regulation requirements. In addition, staff agrees that no other sites are more suitable. The project has met design criteria (B and D) since the proposed two 24" wide panel antennas mounted at 23' above the ground; an associated equipment box (two radio units) inside 2'-5" tall and 2'-3" wide wrap around enclosure attached to the light pole at 10' above ground.

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 conforms to all other telecommunication regulation requirements. The project has met design criteria (E) since the antennas and an associated equipment box (two radio units) located inside 2'-5" tall and 2'-3" wide wrap around enclosure attached to the light pole painted green finish to match City of Oakland light-pole to minimize potential visual impacts from public view. Crown Castle considered as an original design concept to locate the equipment cabinet inside a faux mail box design next to the light pole and also an equipment cabinet built into the base of the light pole located within the public right of way. (See Attachment A)

4. Project Radio Frequency Emissions Standards

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

a. The Telecommunications regulations require that the applicant submit written documentation demonstrating that the emission from the proposed project are within the limits set by the Federal Communications Commission. In the document (attachment B) prepared by Jerrold T. Bushberg Health and Medical Physics Consulting, Inc. the proposed project was evaluated for compliance with appropriate guidelines limiting human exposure to radio frequency electromagnetic fields. According to the report on the proposal, the project will comply with the prevailing standards for limiting public exposure to radio frequency energy and, therefore, the proposed site will operate within the current acceptable thresholds as established by the Federal Government or any such agency that may be subsequently authorized to establish such standards.

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

The information submitted with the initial application was an RF emissions report, prepared by Jerrold T. Bushberg Health and Medical Physics Consulting, 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

Staff funds that the new telecommunication facility, with appropriate conditions of approval, will not have significant visual impacts on the operating characteristic of the existing mixed use neighborhood. It will also be available for services to the community and the City of Oakland at large. It will also be available to emergency services such as Police, Fire and Health response teams. Staff believes that the findings for approval can be made to support the Conditional Use Permit, Design Review and Variance.

RECOMMENDATIONS:

1. Affirm staff's environmental determination

2. Approve Major Conditional Use Permit, and Design Review and Minor Variance application PLN15-407 subject to the attached findings and conditions of approval.

Prepared by:

Jason Madani
Planner II

Reviewed by:

Scott Miller
Zoning Manager

Reviewed By:

Darin Ranelletti, Deputy Director
Bureau of Planning and Building

Approved for forwarding to the
City Planning Commission

Rachel Flynn, Director
Bureau of Planning and Building

ATTACHMENTS:

A. Project Plans & Photo Simulations & Alternative Site Analysis & Design Alternative
B. Jerrold T. Bushberg Health and Medical Physics Consulting, Inc. Engineering RF Emissions Report.

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 17.128.080 (B), of the telecommunication facilities (Monopole) Design Review criteria; and all the required findings under Section 17.128.080. (C), of the telecommunication facilities (Monopole) Conditional Use Permit criteria; and Variance finding 17.148.050 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 operating characteristics of the proposed project will be compatible with and will not adversely affect the livability or appropriate development of abutting properties and the surrounding neighborhood. The project involves the installation of a new wireless telecommunications facility (Crown Castle) on a new 24' tall metal light pole located in the public right-of-way adjacent to a commercial one story building; installation of two 24" wide panel antenna mounted at a height of 23' above the ground; an associated equipment box (two radio units) inside 2'-5" tall and 2'-3" wide wrap-around enclosure attached to the light pole at 10' above ground. The proposed monopole facility is designed to look like a City light pole. The proposed antennas will be painted green color to match the City of Oakland light poles. The sidewalk is more than 9' wide at this location, thus the light pole will not impede the flow of pedestrian traffic.

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 project 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 proposed unmanned wireless telecommunication facility will not adversely affect or detract from the civic, commercial or residential characteristics of the neighborhood, because the proposed monopole facility is designed to look like a City light pole and the antennas will be mounted on a 24' tall monopole telecommunication facility that is located in the public right-of-way adjacent to the commercial one-story building and provide approximately 68' separation from the nearest residential building within the commercial corridor. The equipment box will be inside a 2'-5" tall and 2'-3" wide

wrap-around enclosure attached to the light pole at 10' above ground, and will be as attractive as other light poles in the area.

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, which 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 regular design review procedure at Section 17.136.050.

The proposal conforms with all significant aspects of the design review criteria set forth in Chapter 17.136.050 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 guidelines or criteria, district plan or development control map which has been adopted by the Planning Commission or City Council.

The proposal conforms in all significant respects with the Oakland General Plan. The subject property is located within the Neighborhood Center Mixed Use General Plan designation and conforms in all significant respects with this designation. The Neighborhood Center Mixed Use land use classification is intended to "identify, create, maintain and enhance mixed use neighborhood commercial centers. These centers are typically characterized by smaller scale pedestrian-oriented, continuous street frontage with a mix of retail, housing, office, active open space, eating and drinking places, personal and business services, and smaller scale educational, cultural, or entertainment uses". The proposed unmanned wireless telecommunication facility will not adversely affect and detract from the characteristics of the neighborhood. The proposal will not negatively affect the general quality and character of the neighborhood. The proposed project is not expected to have a significant visual impact on the existing structure and surrounding area.

SECTION 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 proposed project will help achieve consistency in design because it will be designed to look like other City of Oakland utility light poles within this important pedestrian and commercial corridor. The proposal is to install a new 24' tall metal light pole located in the public right-of-

way. The project involves installation of one 24" wide panel antenna mounted at a height of 23' above the ground; an associated equipment box is located within a 2'-5" tall by 2'-3" wide wrap-around enclosure attached to the light pole 10' above the ground located within the City of Oakland public right–of-way

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 of a quality and character that harmonizes with, and serves to protect the value of, private and public investments in the area. The antennas will be located on a monopole designed to look like a City of Oakland light pole, and the equipment box will be located within a 2'-5" tall by 2'-3" wide wrap-around enclosure attached to the light pole 10' above the ground, and will be as attractive as other light poles in the area. The monopole will be located within public right-of-way of a commercial corridor and is consistent with other public utility pole structures.

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 in all significant respects with the Oakland General Plan. See Finding 17.134.050(E).

SECTION 17.128.080(B) DESIGN REVIEW CRITERIA FOR MONOPOLE FACILITIES

1. Collocation is to be encouraged when it will decrease visual impact and collocation is to be discouraged when it will increase negative visual impact:

The proposed 24' tall monopole telecommunication facility design has been revised to incorporate the equipment cabinets within a 2'-5" tall by 2'-3" wide wrap-around enclosure attached to the light pole 10' above the ground, look like a City light pole and the antenna will be painted green to match the City of Oakland light poles. The proposal is consistent with other public utility pole structures within a commercial corridor.

2. Monopoles should not be sited to create visual clutter or negatively affect specific views:

The proposed pole will be visible from public view but is designed to blend in with existing utility poles and other public infrastructure in the immediate area to minimize visual impact.

3. Monopoles shall be screened from the public view wherever possible:

The proposed monopole facility is designed to look like a City utility light pole. The proposed antenna will be painted green color to match the City of Oakland light pole, and the equipment cabinet, will be located within a 2'-5" tall by 2'-3" wide wrap-around enclosure attached to the light pole 10' above the ground.

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

The associated equipment box will be within a 2'-5" tall by 2'-3" wide wrap-around enclosure attached to the light pole 10' above the ground and painted green color to match the City of Oakland light poles. The proposed antennas and equipment are consistent with other existing utility poles located within the public right-of-way of the commercial corridor. The equipment will be constructed such that it will not be accessed by the public.

5. Site location and development shall preserve the preexisting character of the surrounding buildings and land uses and the zone district as much as possible. Wireless communication towers shall be integrated through location and design to blend in with the existing characteristics of the site to the extent practical. Existing on-site vegetation shall be preserved or improved, and disturbance of the existing topography shall be minimized, unless such disturbance would result in less visual impact of the site to the surrounding area:

The proposed monopole facility is designed to look like a City light pole. The proposed antenna and equipment cabinet will be screened and is located within a commercial corridor and it is consistent with other utility poles in this neighborhood.

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

The antennas will be mounted to a 24' tall monopole and will not be accessible to the public due to its location. The equipment will be constructed such that it will not be accessible to the public.

SECTION 17.128.080(C) CONDITIONAL USE PERMIT (CUP) FINDINGS FOR MONOPOLE FACILITIES

1. The project must meet the special design review criteria listed in subsection B of this section (17.128.080C):

The proposed project meets the special design review criteria listed in section 17.128.080 B. (see Staff's findings in the preceding Section).

2. Monopoles should not be located any closer than one thousand five hundred (1,500) feet from existing monopoles unless technologically required or visually preferable:

The antenna system that Crown castle is proposing as a small cell distributed antenna system. These Small cells are very low powered sites compared to a traditional Macro site. A macro site provides coverage for miles in all directions depending on the height and power output, whereas Small Cell is designed to cover very small areas approximately quarter mile in total diameter. The sites are designed to be close together with lower RAD centers in order to supply coverage for the high density of population. As a result, Crown Castle is proposing several cell sites which are located within 1500 feet of each other along Piedmont Avenue. Thus, Crown Castle's proposal to

add monopoles that are closer than 1500 feet from existing monopoles is necessary in this case is technologically required.

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

The site is located within public right-of-way located next to a commercial building and provides approximately 98' of separation from the adjacent residential zone. The proposed antennas will be located on a 24' tall light pole monopole and painted to match green color finish of the City of Oakland light poles on the commercial corridor, thus it will not disrupt the overall community character of the site.

SECTION 17.148.050(A) VARIANCE FINDINGS:

1. **That strict compliance with the specified regulation would result in practical difficulty or unnecessary hardship inconsistent with the purposes of the Zoning Regulations, due to unique physical or topographical circumstances or conditions of design; or, as an alternative in the case of a Minor Variance, that such strict compliance would preclude an effective design solution improving the livability, operational efficiency, or appearance.**

   Strict compliance with the 1500 foot distance separation for monopoles would hinder the effectiveness of a small cell distributed antenna system that would result in improved cellular coverage in the area. Crown Castle is proposing to install a Monopole Telecommunications Facility within 1500 feet of another monopole facility located on Piedmont Avenue. Because this installation is a stand-alone telecommunications pole and not a joint-use utility pole, it is considered a Monopole by City of Oakland zoning regulations. The antenna system that Crown Castle is proposing is a Small Cell distributed antenna system. These Small Cells are very low powered sites compared to the full Macro site. A Macro cell site provides coverage for miles in all directions depending on the height and power output. Small Cell telecommunication facilities are designed to cover very small areas approximately one quarter mile in total diameter. The sites are designed to be close together with lower RAD centers in order to supply coverage for the high density of population. As a result, Crown Castle is proposing several cell sites which are located within 1500 feet of each other along the Piedmont Avenue corridor area. These are limited in height (24') and designed as light poles and hence are an effective design solution.

2. **That strict compliance with the regulations would deprive the applicant of privileges enjoyed by owners of similarly zoned property; or, as an alternative in the case of a Minor Variance, that such strict compliance would preclude an effective design solution fulfilling the basic intent of the applicable regulation.**

   Strict compliance with the distance separation requirement for monopoles would hinder the connectivity of a small cell distributed antenna system.

3. **That the variance, if granted, will not adversely affect the character, livability, or appropriate development of abutting properties or the surrounding area, and will not be detrimental to the public welfare or contrary to adopted plans or development policy.**

The variance will not adversely affect the character, livability or appropriate development of abutting properties and the surrounding area, and will not be detrimental to the public welfare or contrary to adopted plans or development policy because the associated equipment box, will be within a 2'-5" tall by 2'-3" wide wrap-around enclosure attached to the light pole 10' above the ground and painted green color to match the City of Oakland light poles. Photo simulations submitted for the project show the view of the proposed antennas and screen as seen from the street with minimum visual impacts. (see attachment A)

4. **That the variance will not constitute a grant of special privilege inconsistent with limitations imposed on similarly zoned properties or inconsistent with the purposes of the Zoning Regulations.**

   Granting this project is not a grant of special privilege as it is typical that antennas like this mounted on poles in the right of way. These are limited in height (24') and designed as light poles and hence are an effective design solution.

5. **That the elements of the proposal requiring the variance (e.g., elements such as buildings, walls, fences, driveways, garages and carports, etc.) conform with the regular design review criteria set forth in the design review procedure at Section 17.136.;**

   Other than establishing the monopole structure within 1500 feet of other monopole facilities, all other design components of this project are consistent with design review criteria. As stated previously, these are limited in height (24') and designed as light poles and hence conform to the applicable design review criteria.

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

   The proposal conforms in all significant respects with the Oakland General Plan. See Finding 17.134.050(E).

CONDITIONS OF APPROVAL
PLN15-407

STANDARD CONDITIONS:

1. Approved Use

The project shall be constructed and operated in accordance with the authorized use as described in the approved application materials, **PLN15-407** and the approved plans **dated June 7, 2016**, as amended by the following conditions of approval and mitigation measures, if applicable ("Conditions of Approval" or "Conditions").

2. Effective Date, Expiration, Extensions and Extinguishment

This Approval shall become effective immediately, unless the Approval is appealable, in which case the Approval shall become effective in ten calendar days unless an appeal is filed. Unless a different termination date is prescribed, this Approval shall expire **two years** from the Approval date, or from the date of the final decision in the event of an appeal, 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 Approval, 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 or other construction-related permit for this project may invalidate this Approval if said Approval has also expired. If litigation is filed challenging this Approval, or its implementation, then the time period stated above for obtaining necessary permits for construction or alteration and/or commencement of authorized activities is automatically extended for the duration of the litigation.

3. Compliance with Other Requirements

The project applicant shall comply with all other applicable federal, state, regional, and local laws/codes, requirements, regulations, and guidelines, including but not limited to those imposed by the City's Bureau of Building, Fire Marshal, and Public Works Department. 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 #4.

4. Minor and Major Changes

a. Minor changes to the approved project, plans, Conditions, facilities, or use may be approved administratively by the Director of City Planning

b. Major changes to the approved project, plans, Conditions, facilities, or use shall be reviewed by the Director of City Planning to determine whether such changes require submittal and approval of a revision to the Approval by the original approving body or a new independent permit/approval. Major revisions shall be reviewed in accordance with the procedures required for the original permit/approval. A new independent permit/approval shall be reviewed in accordance with the procedures required for the new permit/approval.

5. Compliance with Conditions of Approval

a. The project applicant and property owner, including successors, (collectively referred to hereafter as the "project applicant" or "applicant") shall be responsible for compliance with all the Conditions of Approval and any recommendations contained in any submitted and approved technical report at his/her sole cost and expense, subject to review and approval by the City of Oakland.

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

c. Violation of any term, Condition, or project description relating to the Approval 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 Approval 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. The project applicant shall be responsible for paying fees in accordance with the City's Master Fee Schedule for inspections conducted by the City or a City-designated third-party to investigate alleged violations of the Approval or Conditions.

6. Signed Copy of the Approval/Conditions

A copy of the Approval letter and Conditions shall be signed by the project applicant, attached to each set of permit plans submitted to the appropriate City agency for the project, and made available for review at the project job site at all times.

7. Blight/Nuisances

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

8. Indemnification

a. To the maximum extent permitted by law, the project applicant shall defend (with counsel acceptable to the City), indemnify, and hold harmless the City of Oakland, the Oakland City Council, the Oakland Redevelopment Successor Agency, the Oakland City Planning Commission, and their respective agents, officers, employees, and volunteers (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 this Approval or implementation of this Approval. The City may elect, in its sole discretion, to participate in the defense of said Action and the project 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 project applicant shall execute a Joint Defense Letter of Agreement with the City, acceptable to the Office of the City Attorney, which memorializes the above obligations. These obligations and the Joint Defense Letter of Agreement shall survive termination, extinguishment, or invalidation of the Approval. Failure to timely execute the Letter of Agreement does not relieve the project applicant of any of the obligations contained in this Condition or other requirements or Conditions of Approval that may be imposed by the City.

9. Severability

The Approval would not have been granted but for the applicability and validity of each and every one of the specified Conditions, and if 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.

PROJECT SPECIFIC CONDTIONS:

10. 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.

11. Operational

Ongoing.

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

12. Equipment cabinets

Prior to building permit Issuances.

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

13. Gift back to the City of Oakland Real Estate Office

After completion of the project.

Crown Castle shall install and pay for a new telecommunication monopole/ light pole and Gift back to the City of Oakland Real Estate Office after completion of the project.

14. Passive cooling system

All equipment to be passively cooled (no fan).

15. No Meters

No meters shall be placed on the poles or in close vicinity to the facility.

16. No Placards
No placards shall be placed on the monopole/light pole except as required by Federal Law.

17. No flashing light
No flashing lights shall be permitted on the Monopole/light pole.

18. Abandoned obsolete equipment
Abandoned obsolete equipment, including the pole themselves, must be removed at the expense of the pole provider (Crown Castle) or its successor.

19. Height limitation
Ongoing
The Planning Bureau recommended approval, and the City Planning Commission approved, a monopole height of 24' because it is similar in height to the standard City of Oakland light pole. Any modifications to the monopole, including an increase in height or addition of any equipment, could compromise this consistency and therefore must be stealthed.

CROWN CASTLE

ATTACHMENT A

PIEDMONT AVE

ROW ADJACENT TO:
4299 PIEDMONT AVE (PA05m2)
OAKLAND, CA

REGISTERED PROFESSIONAL ENGINEER
JERRY L. MICHAL
C 42590
Exp 3-31-18
CIVIL
STATE OF CALIFORNIA

SHEET NUMBER:	DESCRIPTION
T-1	TITLE SHEET
D-1	DETAILS & NOTES
D-2	DETAILS & NOTES
D-3	DETAILS & NOTES
P-1.1	PA05m2 PHOTOS
P-1.2	PA05m2 PHOTO SIM
P-1.3	PA05m2 PROFILE
SP-1	PA05m2 SITE PLAN
SP-2	PA05m2 ENLARGED VIEW
TC-1	TRAFFIC CONTROL COVERSHEET
TC-2	TRAFFIC CONTROL PLAN PHASE I

SHEET INDEX

PA05m2

CROWN CASTLE PROJECT NO.
V243288

CLIENT:
CROWN CASTLE
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134
www.crowncastle.com

PREPARED BY:
Coastal Communications
Telecommunications Engineering
5841 EDISON PLACE, SUITE 110
CARLSBAD, CA 92008
PHONE: (760) 929-0910
FAX: (760) 929-0936
www.coastalcomminc.com

PROPRIETARY INFORMATION

THE INFORMATION CONTAINED IN THIS SET OF DRAWINGS IS PROPRIETARY AND CONFIDENTIAL TO VERIZON. ANY USE OR DISCLOSURE OTHER THAN AS IT RELATES TO VERIZON IS STRICTLY PROHIBITED.

DIGALERT
1-800-227-2600
CALL AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
TICKET #_____

REVISION / ISSUE	DATE

SITE NAME & ADDRESS:
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA

TITLE SHEET

DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
T-1

CROWN CASTLE TO PERFORM THE FOLLOWING:

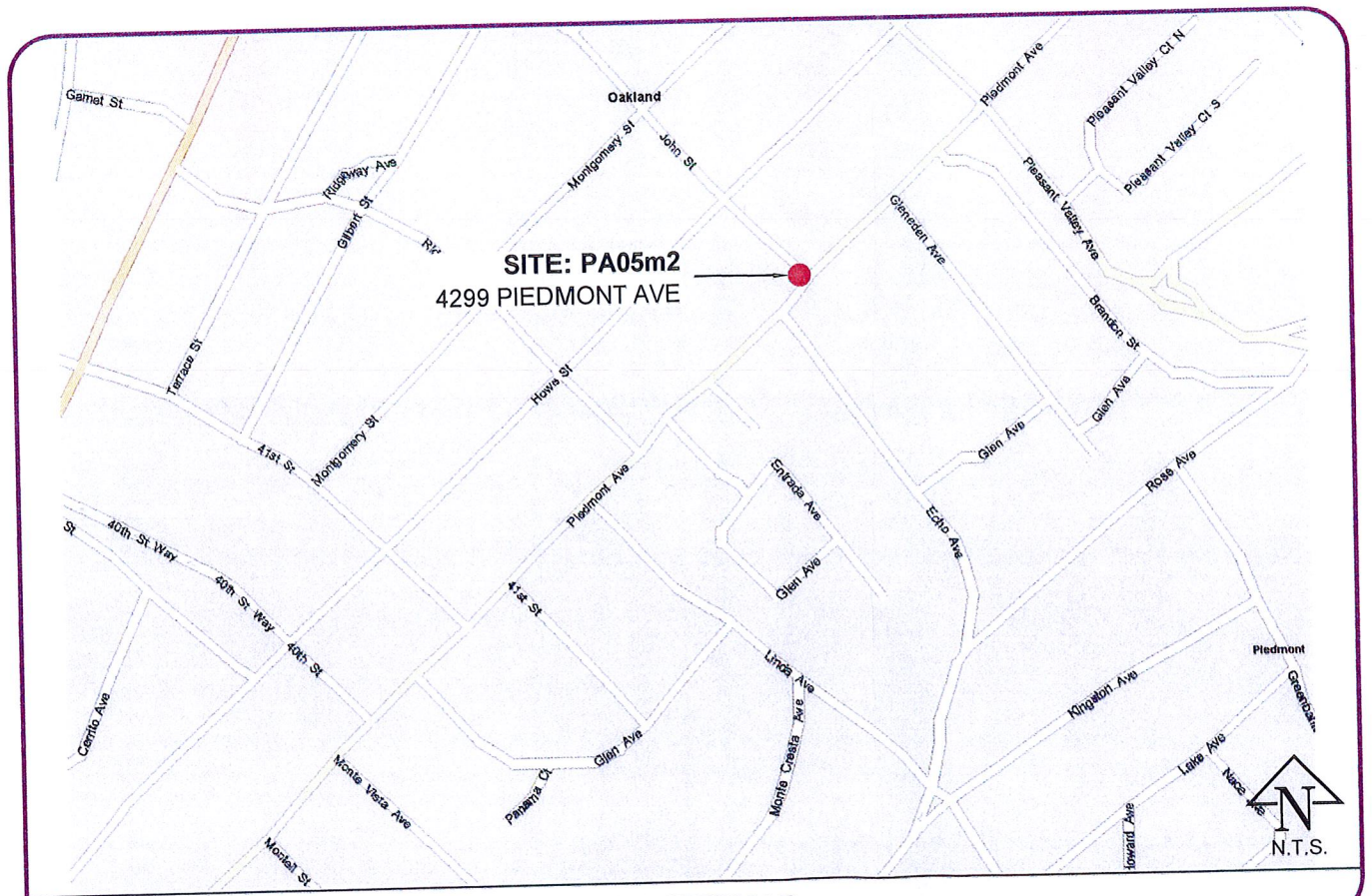
- **SMALL CELL ANTENNA AND ITS ANCILLARY EQUIPMENT ON POLE / TRAFFIC SIGNAL POLE.**
- INSTALL NEW STREETLIGHT WITH WRAP AROUND ENCLOSURE.
- **(1) 2' X 3' CROWN CASTLE VAULT WITH CONDUITS.**

PROJECT SUMMARY

PROJECT MANAGER:
CROWN CASTLE
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134
MICHAEL MILLER
(408) 468-5554
MICHAEL.MILLER@CROWNCASTLE.COM

NODE ENGINEER:
COASTAL COMMUNICATIONS
5841 EDISON PL, STE. 110
CARLSBAD, CA 92008
TODD THREW
(760) 929-0910 ext. 101
TODD@COASTALCOMMINC.COM

PROJECT TEAM



VICINITY MAP

1. STREET USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.
2. ALL WORK TO BE CONDUCTED IN THE RIGHT OF WAY.
3. ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.
4. ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNING WILL BE PLACED.
5. NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.
6. CLEANUP OF SITE WILL BE COMPLETED EACH EVENING AND THE SITE WILL BE RETURNED TO EXISTING CONDITIONS AT THE COMPLETION OF CONSTRUCTION AT EACH SITE.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR RESPONSIBLE FOR SAME.

GENERAL CONTRACTOR NOTES

LEGEND

SYMBOL	DESCRIPTION
	PROPOSED
	2' X 3' VAULT
	CABINET
	NEW WOOD POLE
	NEW STREET LIGHT
	PCC SIDEWALK
	TRENCH AND FIBER CONDUIT (PVT)
	EXISTING
	EXISTING UTILITY POLE
	EXISTING STREET LIGHT
	EXISTING VAULT HANDHOLE
	EXISTING PEDESTAL
	STEEL POLE
	STATION POINTS (100' INCREMENTS)
	EXISTING CURB RAMP
C&G	EXISTING CURB & GUTTER
R/W	EXISTING RIGHT OF WAY
℄	EXISTING CENTER LINE
℄	EXISTING CENTER LINE

ABBREVIATIONS

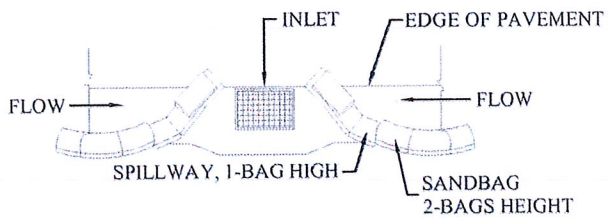
A/C	ASPHALT CURB
B.O.C.	BACK OF CURB
B/EOP	BACK OF EDGE OF PAVEMENT
C&G	CURB & GUTTER
CL	CENTERLINE
EX.	EXISTING
EOP	EDGE OF PAVEMENT
F.O.C.	FACE OF CURB
F/EOP	FACE OF EDGE OF PAVEMENT
PL	PROPERTY LINE
R/W	RIGHT OF WAY
S/B	SUBDIVISION BOUNDARY

EROSION AND SEDIMENT CONTROL NOTES:

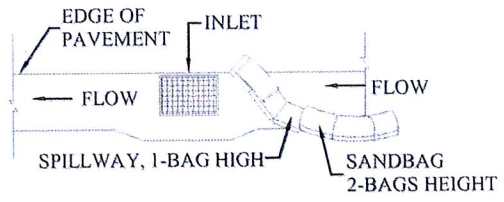
TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:

1. ALL REQUIREMENTS OF THE CITY "LAND DEVELOPMENT MANUAL, STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED PUBLIC IMPROVEMENTS CONSISTENT WITH THE EROSION CONTROL PLAN AND/OR WATER POLLUTION CONTROL PLAN (WPCP), IF APPLICABLE.
2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
3. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
4. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.
5. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON.
6. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
7. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
8. ALL EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED IMPROVEMENT PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
9. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
10. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES.

STORMDRAIN INLET PROTECTION



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:
1. INTENDED FOR SHORT - TERM USE.
2. USE TO INHIBIT NON - STORM WATER FLOW.
3. ALLOW FOR PROPER MAINTENANCE AND CLEANUP.
4. BAGS MUST BE REMOVED AFTER ADJACENT OPERATION IS COMPLETED.
5. NOT APPLICABLE IN AREAS WITH HIGH SILTS AND CLAYS WITHOUT FILTER FABRIC.

NOTES:

1. CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS.
2. CONTRACTOR TO PLACE SANDBAGS AROUND ANY/ALL STORM DRAIN INLETS TO PREVENT CONTAMINATED WATER.
3. SPOILS PILE WILL BE COVERED AND CONTAINED AND STREET WILL BE SWEPT AND CLEANED AS NEEDED.
4. CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE SATISFACTION OF THE CITY ENGINEER.
5. CURB & GUTTER TO BE PROTECTED IN PLACE. SIDEWALK TO BE REPLACED TO THE SATISFACTION OF THE CITY ENGINEER.
6. THE CONTRACTOR SHALL RESTORE THE ROADWAY BACK TO ITS ORIGINAL CONDITION SATISFACTORY TO THE CITY ENGINEER INCLUDING, BUT NOT LIMITED TO PAVING, STRIPING, BIKE LANES, PAVEMENT LEGENDS, SIGNS, AND TRAFFIC LOOP DETECTORS.
7. SIDEWALK SHALL BE RESTORED/REPLACED PER CITY STANDARD DRAWINGS.
8. PEDESTRIAN RAMP WILL NOT BE DISTURBED.

ROW GROUND CONSTRUCTION NOTES:

1. GROUND CONSTRUCTION TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, OR NON-USED VERTICALS OFF THE POLE.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MUNICIPAL, COUNTY, STATE, FEDERAL, GO95 AND GO128 STANDARDS AND REGULATIONS.
3. CALL USA 48 HOURS PRIOR TO EXCAVATING AT (800) 227-2600 OR 811.
4. ALL LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
5. ALL EQUIPMENT TO BE BONDED.
6. METERING CABINET REQUIRES 36" CLEARANCE AT DOOR OPENING.
7. CAULK CABINET BASE AT PAD.

NORMAL LOCATION OF UNDERGROUND UTILITIES NOTES:

1. LOCATION AND DEPTH OF EXISTING AND PROPOSED UTILITIES MUST BE PROVIDED BY THE SUBDIVIDER AND SHOWN ON ANY PLANS SUBMITTED TO THE DEPT. OF PUBLIC WORKS FOR APPROVAL.
2. CHANGES MAY BE PERMITTED BY THE DEPT. OF PUBLIC WORKS IN CASES OF CONFLICTING FACILITIES.
3. CONFLICTS BETWEEN UTILITY COMPANIES FACILITIES, EXISTING AND PROPOSED, MUST BE MUTUALLY RESOLVED BY THE UTILITY COMPANIES.
4. FOR COMMERCIAL SIDEWALKS, THE FIRE HYDRANT SHALL BE PLACED WITHIN THE SIDEWALK 1'-6" BEHIND FACE OF CURB.
5. MAXIMUM 2" DIAMETER GAS MAINS MAY BE PLACED IN JOINT UTILITIES TRENCH SUBJECT TO APPROVAL OF CITY ENGINEER (IN TRACTS).

CALIFORNIA STATE CODE COMPLIANCE:

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

- CALIFORNIA ADMINISTRATIVE CODE (INCLUDING TITLES 24 & 25) 2010
- 2010 CALIFORNIA BUILDING CODES WHICH ADOPTS THE 2010 UBC, 2010 UMC, 2010 UPC AND THE 2010 NEC.
- BUILDING OFFICIALS & CODE ADMINISTRATORS (BOCA)
- 2010 CALIFORNIA MECHANICAL CODE
- ANSI/EIA-222-F LIFE SAFETY CODE NFPA-101
- 2010 CALIFORNIA PLUMBING CODE
- 2010 CALIFORNIA ELECTRICAL CODE
- 2010 LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

ACCESSIBILITY REQUIREMENTS:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS DO NOT APPLY IN ACCORDANCE WITH THE 2010 CALIFORNIA BUILDING CODE.

FCC NOTE:
THIS WIRELESS COMMUNICATION FACILITY COMPLIES WITH FEDERAL STANDARDS FOR RADIO FREQUENCY IN ACCORDANCE WITH THE TELECOMMUNICATION ACT OF 1996 AND SUBSEQUENT AMENDMENTS AND ANY OTHER REQUIREMENTS IMPOSED BY STATE OR FEDERAL REGULATORY AGENCIES.

REGISTERED PROFESSIONAL ENGINEER
JERRY MICHAL
C 42590
Exp 3-31-18
CIVIL
STATE OF CALIFORNIA

PA05m2

CROWN CASTLE PROJECT NO.
V243288

CLIENT:
CROWN CASTLE
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134
www.crowncastle.com

PREPARED BY:
Coastal Communications
Telecommunications Engineering
5841 EDISON PLACE, SUITE 110
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TICKET #_____

REVISION / ISSUE	DATE

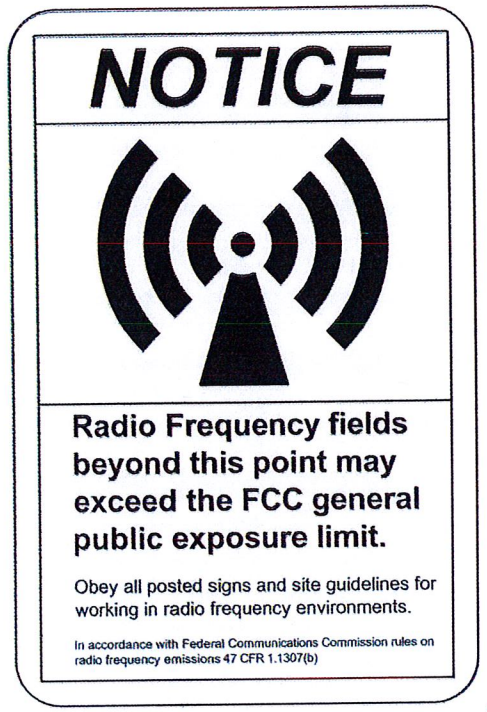
SITE NAME & ADDRESS:
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA

DETAILS & NOTES

DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
D-1

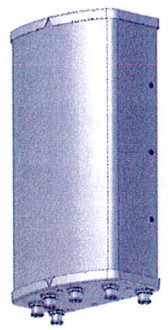
MAXIMUM PERMISSIBLE EXPOSURE (MPE) PLACARD



1 SCALE N.T.S.

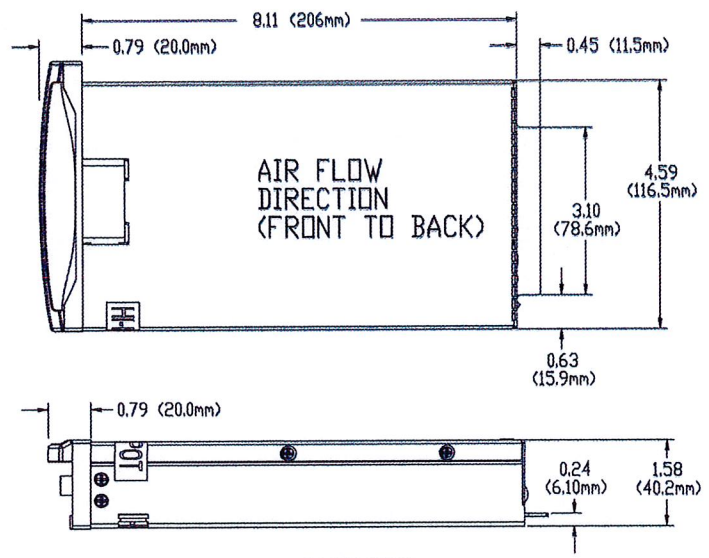
AMPHENOL 65° TRI BAND FET PANEL ANTENNA
(Model # HTXCWW63111414Fxy0)

Electrical Characteristics	696-960 MHz		2 x 1710-2170 MHz		
Frequency bands (MHz)	696-806	806-960	1710-1880	1850-1990	1900-2170
Polarization	±45°		±45°		
Horizontal beamwidth	75°	70°	65°	70°	75°
Vertical beamwidth	42°	40°	18°	16°	14°
Gain	10.5 dBi	11.0 dBi	13.5 dBi	14.0 dBi	14.0 dBi
Electrical downtilt (Other tilts available upon request)	(x) 0		(y) 0		
Impedance	50Ω		50Ω		
VSWR	≤1.5:1		≤1.5:1		
Front-to-back ratio	> 20 dB	> 20 dB	> 25 dB	> 25 dB	> 25 dB
Isolation between ports	> 25 dB		> 25 dB		
Input power	500 W		300 W		
IM3 (2x20W carriers)	< -150 dBc		< -150 dBc		
Lightning protection	Direct Ground				
Connector(s)	6 Ports / 7/16 DIN / Female / Bottom				
Mechanical Characteristics					
Dimensions Length x Width x Depth	589 x 305 x 180 mm		23.2 x 12.0 x 7.1 in		
Weight without mounting brackets	5.9 kg		13 lbs		
Survival wind speed	241 km/hr		150 mph		
Wind area	Front: 0.18 m²; Side: 0.11 m²		Front: 1.9 ft²; Side: 1.1 ft²		
Wind loads (160 km/hr or 100 mph)	Front: 219 N; Side: 129 N		Front: 49 lbf; Side: 29 lbf		



2 SCALE N.T.S.

SPS TE RECTIFIER



3 SCALE N.T.S.

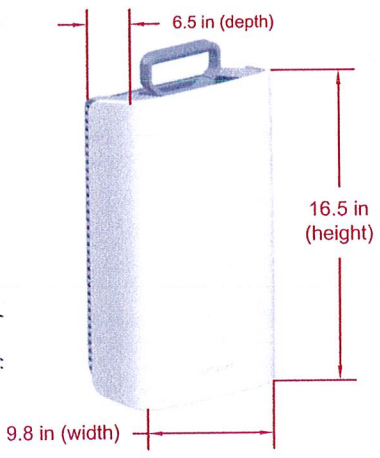
ERICSSON MRRU
(MICRO RADIO REMOTE UNIT)

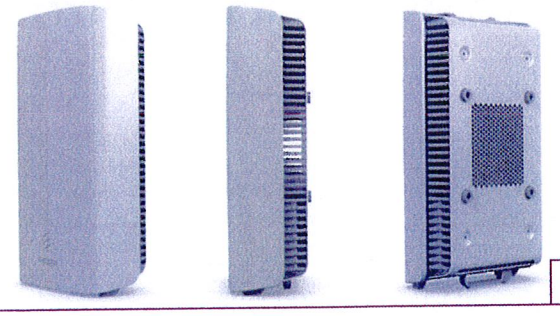
Specifications

- Band 4
- Outdoor or indoor installation
- Output power 2x125mW -> 2 x 5 W
- 2 CPRI ports
- 2 external alarm inputs
- Dimensions: 16.5" x 9.8" x 6.5" (HWD)
- Weight: 10 Kgs/22 lbs, Volume: 11L
- Temperature range: -40° to +131° F
- Environmental protection at IP55
- DC -48V or integrated AC Power Supply

Recommended Clearance Distance

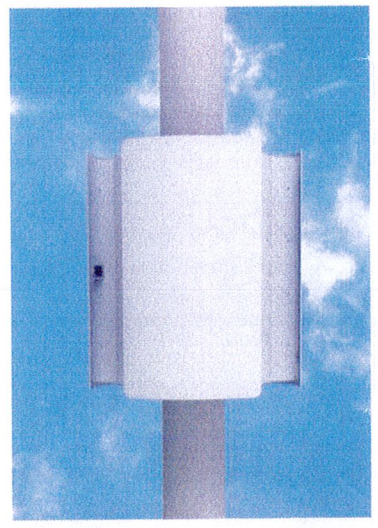
- Side-by-side (2 units): preliminary 50 mm
- Above-below (2 units on top of each other): preliminary 400 mm
- Top-ceiling: preliminary 400 mm
- Bottom-floor: preliminary 300 mm





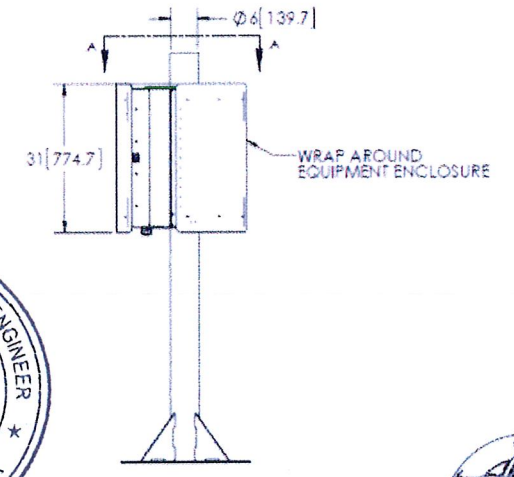
4 SCALE N.T.S.

WRAP AROUND ENCLOSURE



System Dimensioning & Configuration

Height / Diameter	31.0 in. (775mm) / 27.0 in. (686mm) Assumes pole diameter of 6 in. (140mm)
Loaded Weight	Approximately 132 lbs. (60kg) with two 5W radios and Ethernet switch installed
Approximate wind loading	Max. 457 N (103 LBF) at 150 km/hr.
Min. / Max. Acceptable Pole Diameter	4.5-8 in. (113-203mm)
Finish	UV-resistant powder coat, standard finish is light gray or charcoal, other colors based upon request
Power	Determined by customer-provided equipment



REGISTERED PROFESSIONAL ENGINEER
JEREMY MICHAL
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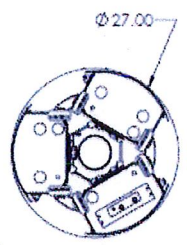

WRAP-AROUND EQUIPMENT ENCLOSURE
SECTION A-A
SCALE 1 : 15

5 SCALE N.T.S.

PA05m2

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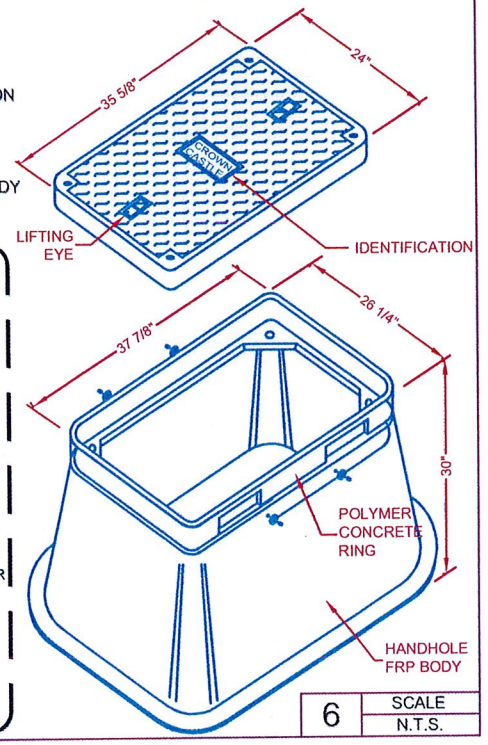
DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
D-2

COVER FEATURES:
* PW - 10,400 LBS. WHEEL LOAD ON 10" X 10" PLATE.
* APPROX. WT. = 72 LBS.
* POLYMER CONCRETE
* ONE PIECE COVER
* FOUR BOLT DOWN
* COLOR: CONCRETE GREY
* NON - SKID SURFACE
* LID TO HAVE H-20 TRAFFIC LOAD FRICTION COEFFICIENT TO BE 0.5 OR MORE

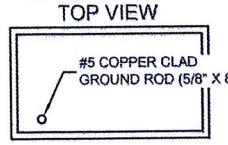
HANDHOLE FEATURES:
* POLYMER CONCRETE RING AND FIBERGLASS REINFORCED POLYMER BODY
* COLOR OF RING:CONCRETE GREY
* APPROX. WT. = 123 LBS.

VAULT DETAIL
(FLUSH MOUNT)
(PRIVATE)

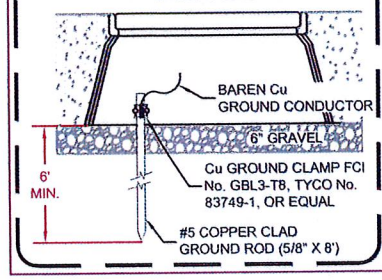


GROUND ROD INSTALLATION

TOP VIEW



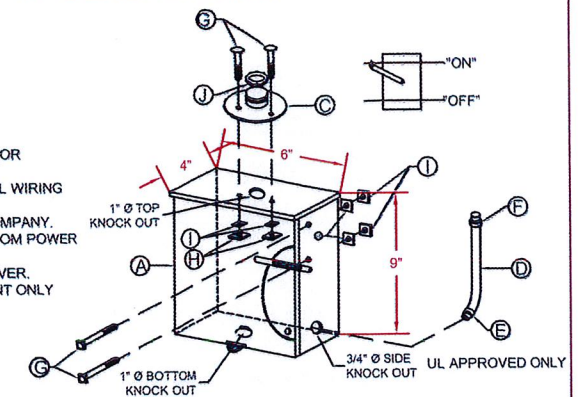
SIDE VIEW



6 | SCALE N.T.S.

DISCONNECT BOX
TYPICAL SECTION: N.T.S.

NOTES:
1. MAIN DISCONNECT BREAKER.
2. MANUFACTURER SQUARE D - (OR EQUIVALENT).
3. BREAKER SIZE AND INCIDENTAL WIRING SPECIFIED BY CLIENT.
4. KAIC SPECIFIED BY POWER COMPANY.
5. 1" CLOSE NIPPLE FOR FEED FROM POWER SOURCE.
6. 3/4" LIQUID FLEX TO TRANSCEIVER.
7. CABINET LOCKABLE FOR CLIENT ONLY

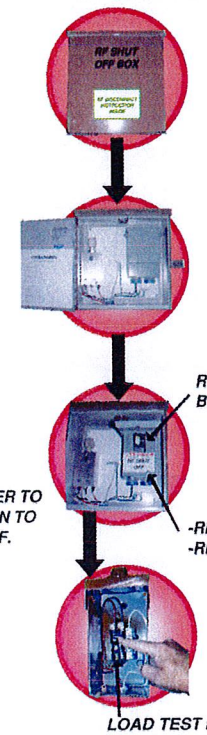


PARTS LIST		
CALLOUT	QTY	DESCRIPTION
A	1	CABINET WATER PART #
B	1	BREAKER AMP KAIC 2 POLE 120/140 VAC SINGLE PHASE
C	1	1" CLOSE NIPPLE STRAIGHT
D	1	3/4" X 4' LIQUID TIGHT METALLIC FLEX CONDUIT WITH CONNECTOR
E	1	3/4" Ø LIQUID TIGHT FLEX CONNECTOR 45°
F	1	3/4" Ø LIQUID TIGHT FLEX CONNECTOR - STRAIGHT
G	4	5/6" X 1" BOLT - STAINLESS STEEL
H	4	5/6" LOCK WASHER - STAINLESS STEEL
I	4	5/16" NUT - STAINLESS STEEL
J	1	1" LOCK NUT

7 | SCALE N.T.S.

PG&E SHUTDOWN PROCEDURES
(INSTRUCTIONS FOR DE -ENERGIZING THE SITE)

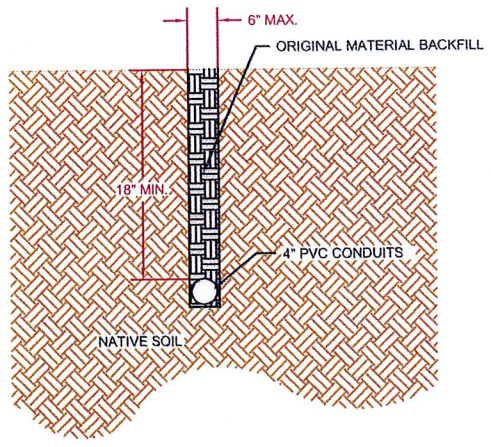
RF DISCONNECT BOX



1. CALL CROWN CASTLE NETWORK OPERATIONS CENTER AT 1-888-632-0931.
2. IDENTIFY **RF DISCONNECT BOX**.
3. OPEN **RF DISCONNECT BOX**.
4. OPEN COVER FOR RF DISCONNECT BREAKER.
5. TURN RF DISCONNECT BREAKER TO THE OFF POSITION TO DE-ENERGIZE NODE.
6. TO CONFIRM THAT THE SITE HAS BEEN DE-ENERGIZED, PG&E CREW / TECHNICIAN CAN REMOVE THE SINGLE SCREW ON THE BOTTOM RIGHT COVER OF THE RF DISCONNECT BREAKER AND REMOVE THE COVER TO EXPOSE THE SOURCE AND LOAD TERMINALS ON THE SWITCH AND THEN CHECK FOR NO POTENTIAL BETWEEN THE LOAD TERMINAL AND GROUND TO VERIFY THAT NO RF SIGNAL CAN BE GENERATED.
7. NOTIFY CROWN CASTLE NETWORK OPERATIONS CENTER THAT WORK IS COMPLETE.

8 | SCALE N.T.S.

IN DIRT - PRIVATE
TYPICAL SECTION
(N.T.S.)



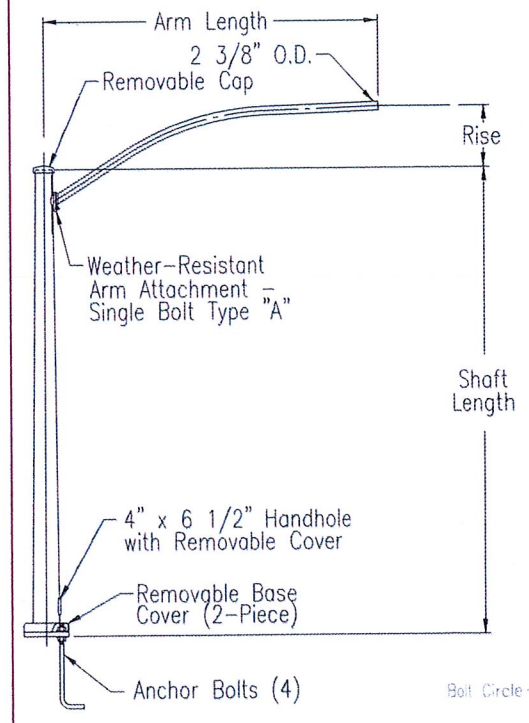
INSTALLATION NOTES:

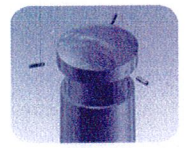
-CUT 6" MAX. WIDTH X 18" + DEPTH TRENCH
-BACKFILL WITH THE ORIGINAL MATERIAL FROM THE TRENCH
-RESTORE THE SURFACE

9 | SCALE N.T.S.

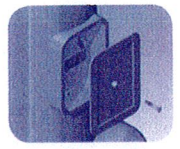
Series A Pipe Luminaire Arm

AMERON POLE PRODUCTS





POLE CAP DETAIL
Removable pole cup cap.



HANDHOLE DETAIL
Standard handhole assembly 4" x 6 -1/2"

1. Pole Design is in accordance to the 2009 AASHTO Specifications for Structural Supports of Highway Signs, Luminaires, and Traffic Signals.

2. Weights are exclusive of anchor bolts.

3. For twin arms or high rise pipe arm, consult Ameron.

ORDERING NOMENCLATURE

SERIES — A-308 — LUMINAIRE ARM
SHAFT LENGTH

*** PACKAGE CONSIST OF PLACE NEW STEEL POLE WITHOUT THE LUMINAIRE ARM.**

REGISTERED PROFESSIONAL ENGINEER
JERRY C. HAL
C 42590
Exp 3-31-18
CIVIL
STATE OF CALIFORNIA

10 | SCALE N.T.S.

PA05m2

CROWN CASTLE PROJECT NO.
V243288

CLIENT:
CROWN CASTLE
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134
www.crowncastle.com

PREPARED BY:
Coastal Communications
Telecommunications Engineering
5841 EDISON PLACE, SUITE 110
CARLSBAD, CA 92008
PHONE: (760) 929-0910
FAX: (760) 929-0936
www.coastalcomminc.com

DIGALERT
1-800-227-2600
CALL AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
TICKET #_____

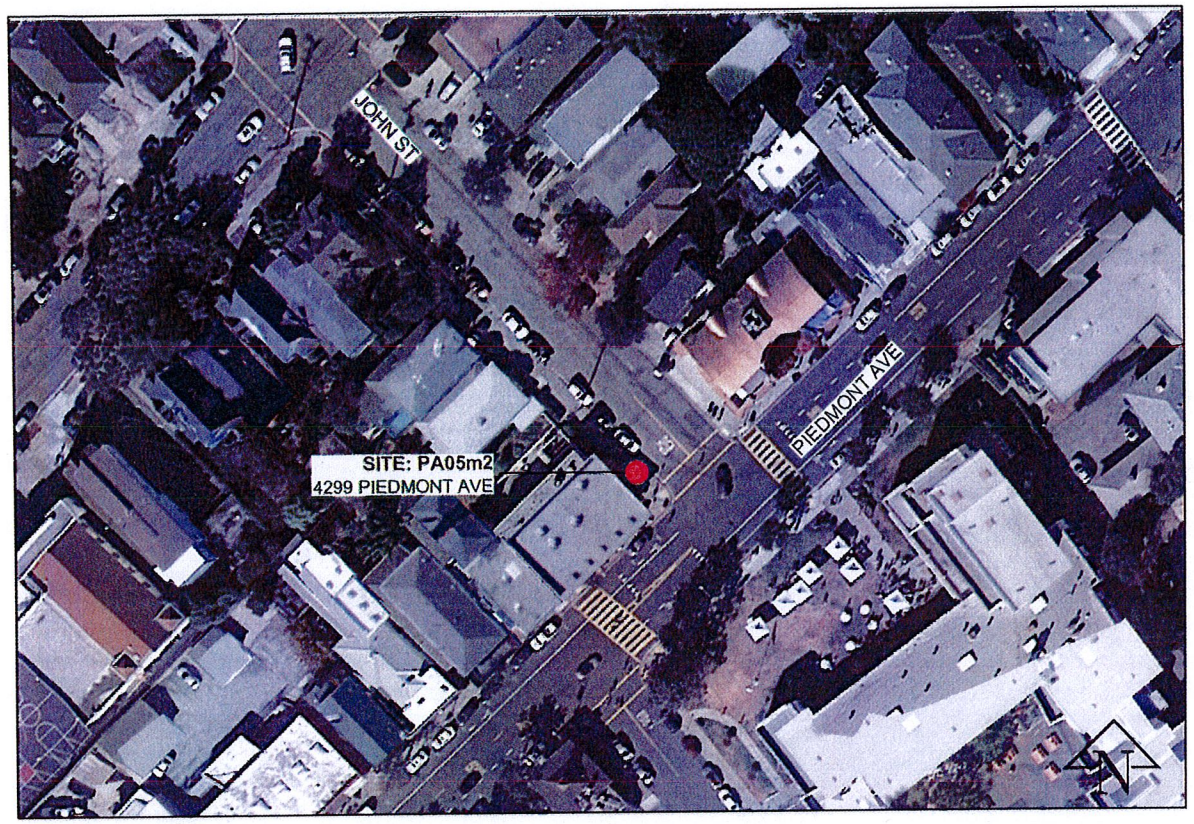
REVISION / ISSUE	DATE

SITE NAME & ADDRESS:
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA

DETAILS & NOTES

DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
D-3



A | KEY MAP

B | 9 O'CLOCK VIEW

C | 12 O'CLOCK VIEW

D | 3 O'CLOCK VIEW

PA05m2

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PHOTOS

DRAWN BY:	DRAFT DATE:	APPROVED BY:
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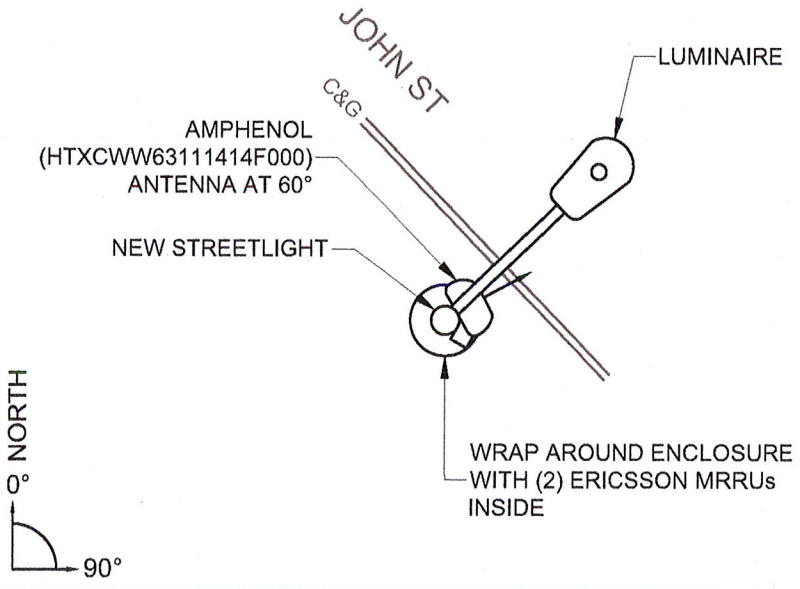
SHEET NO.
P-1.1

TOP OF NEW STREETLIGHT: 24'
TOP OF ANTENNAS: 23'
RAD CENTER: 22'
AZIMUTHS: 60°
PROFILE VIEW: 3 O' CLOCK

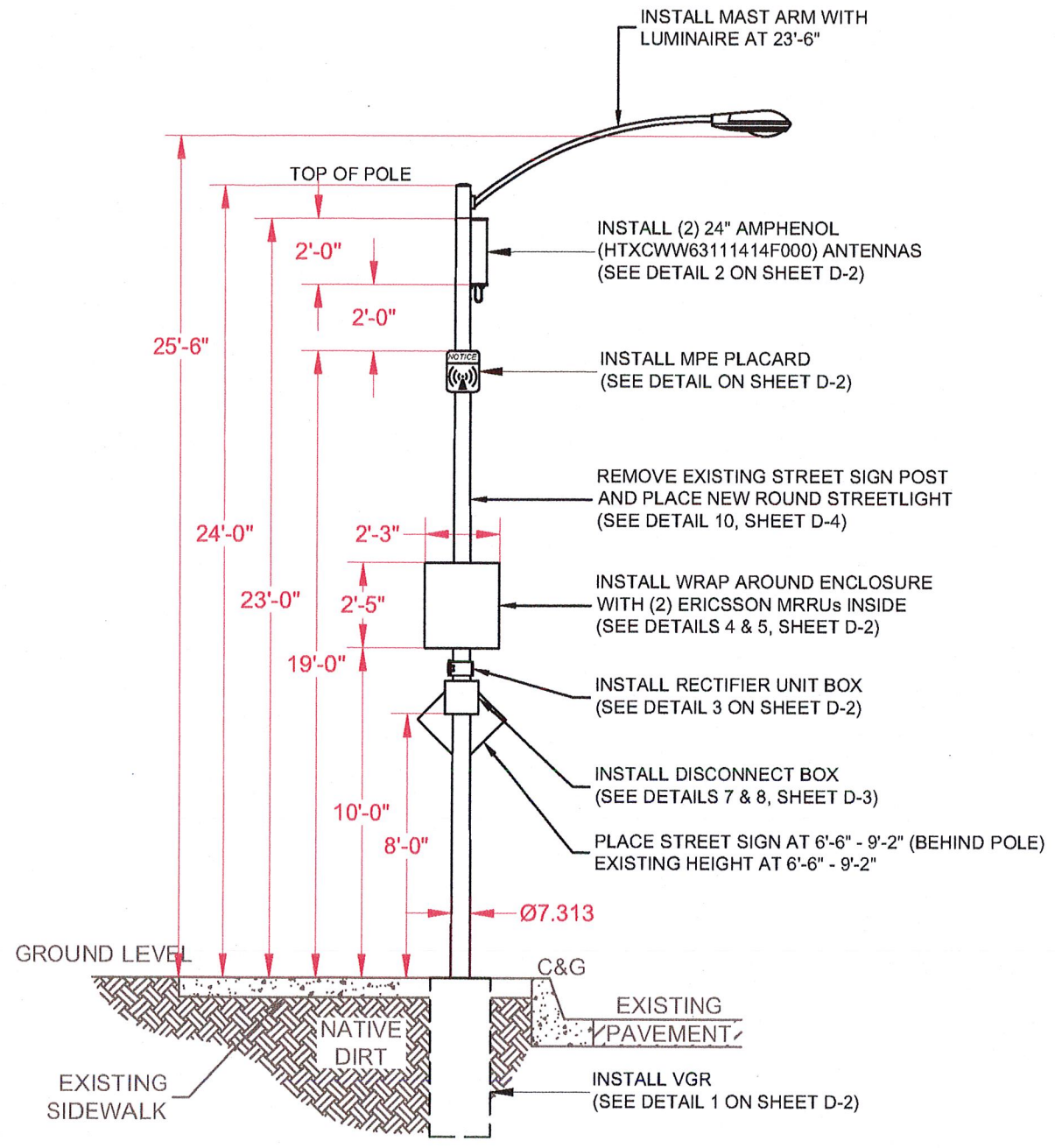
A NOTES

- REMOVE EXISTING STREET SIGN POST AND REPLACE WITH NEW STREETLIGHT IN PLACE. TRANSFER EXISTING SIGN TO NEW STREETLIGHT.
- INSTALL DISCONNECT BOX WITH PG&E SHUTDOWN PROCEDURE INSIDE.
- INSTALL RECTIFIER UNIT BOX.
- INSTALL MPE PLACARD.
- INSTALL WRAP AROUND ENCLOSURE WITH (2) ERICSSON MRRUs INSIDE.
- INSTALL 24" AMPHENOL (HTXCWW63111414F000) ANTENNAS.
- INSTALL CROWN CASTLE 2' X 3' VAULT WITH CONDUITS.
- STREET LIGHT, ANTENNAS, & EQUIPMENT TO BE PAINTED TO MATCH SURROUNDING POLES.

B NEW CONSTRUCTION NOTES



C TOP VIEW N.T.S.



D PROFILE SCALE: 1"=5'

PA05m2

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PROFILE

DRAWN BY:	DRAFT DATE:	APPROVED BY:
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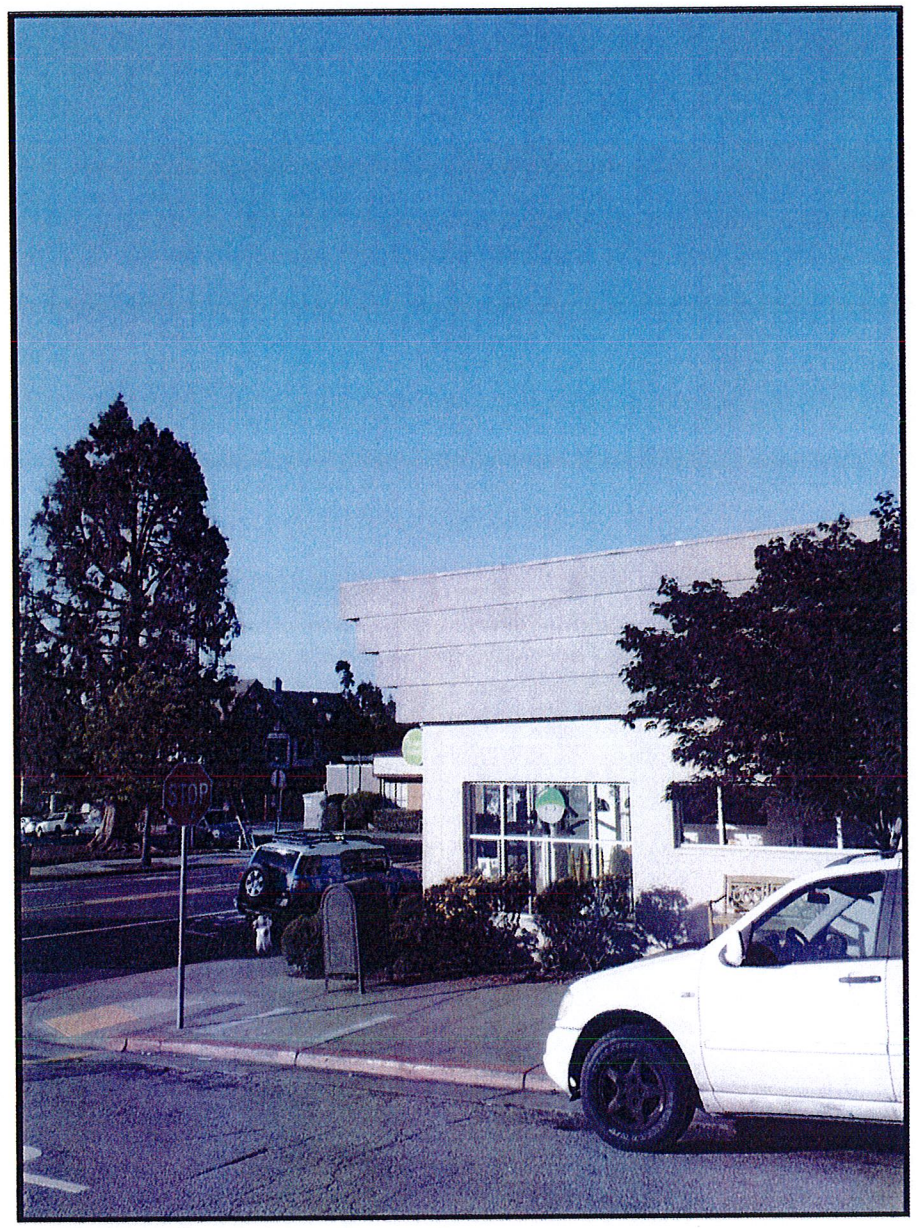
SHEET NO.
P-1.3



Existing Site

PA05m2
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA

REGISTERED PROFESSIONAL ENGINEER
JERRY L. MICHAL
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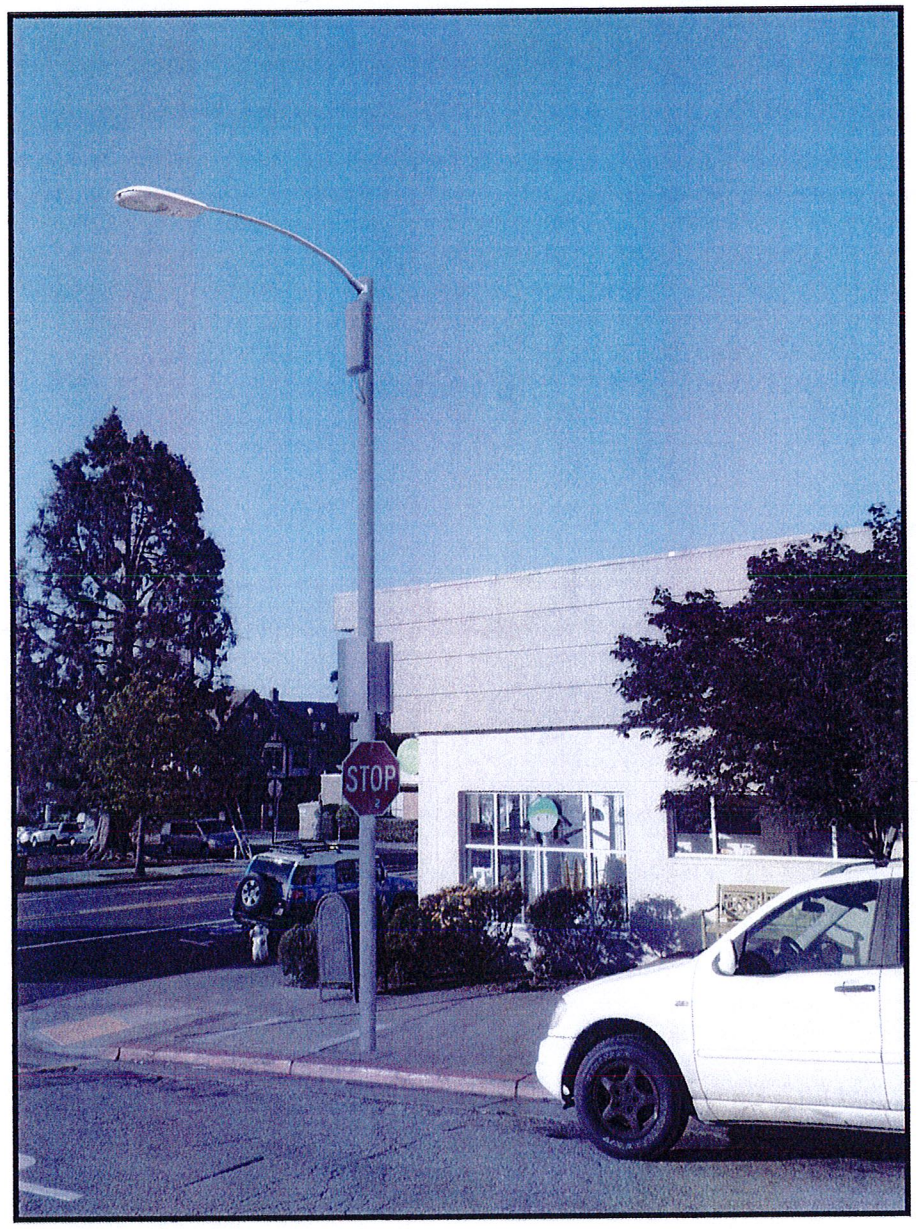
STATE OF CALIFORNIA



Proposed Site

PA05m2

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OAKLAND, CA

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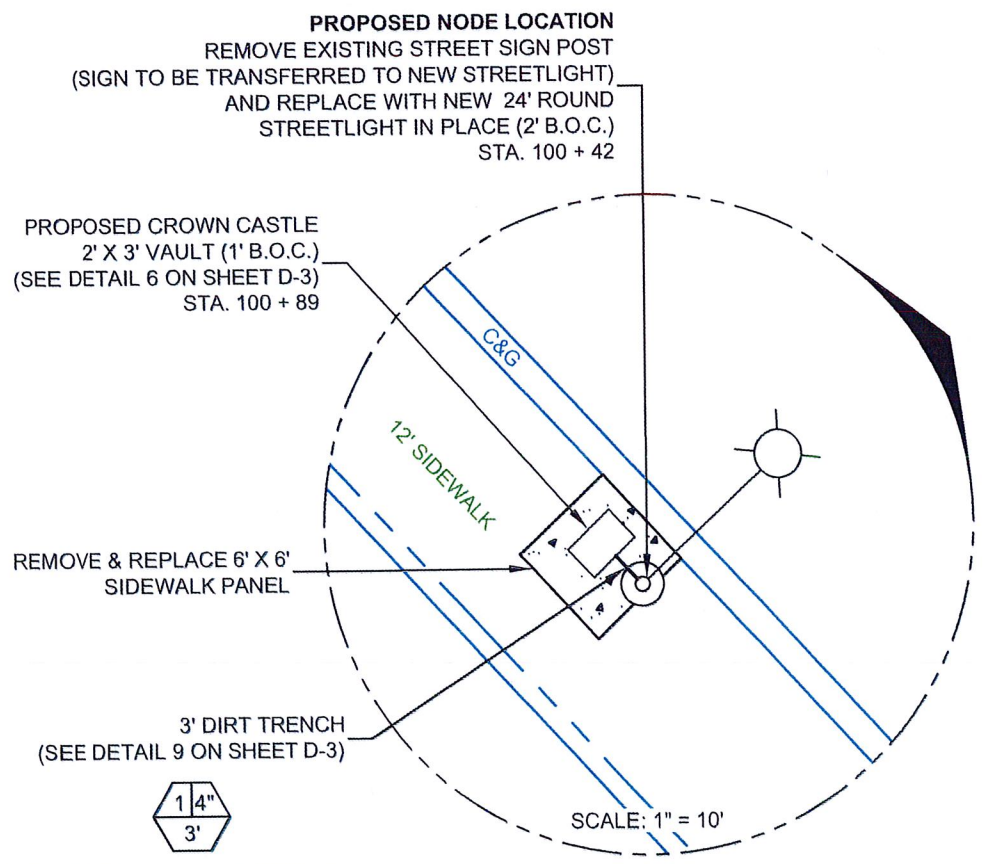
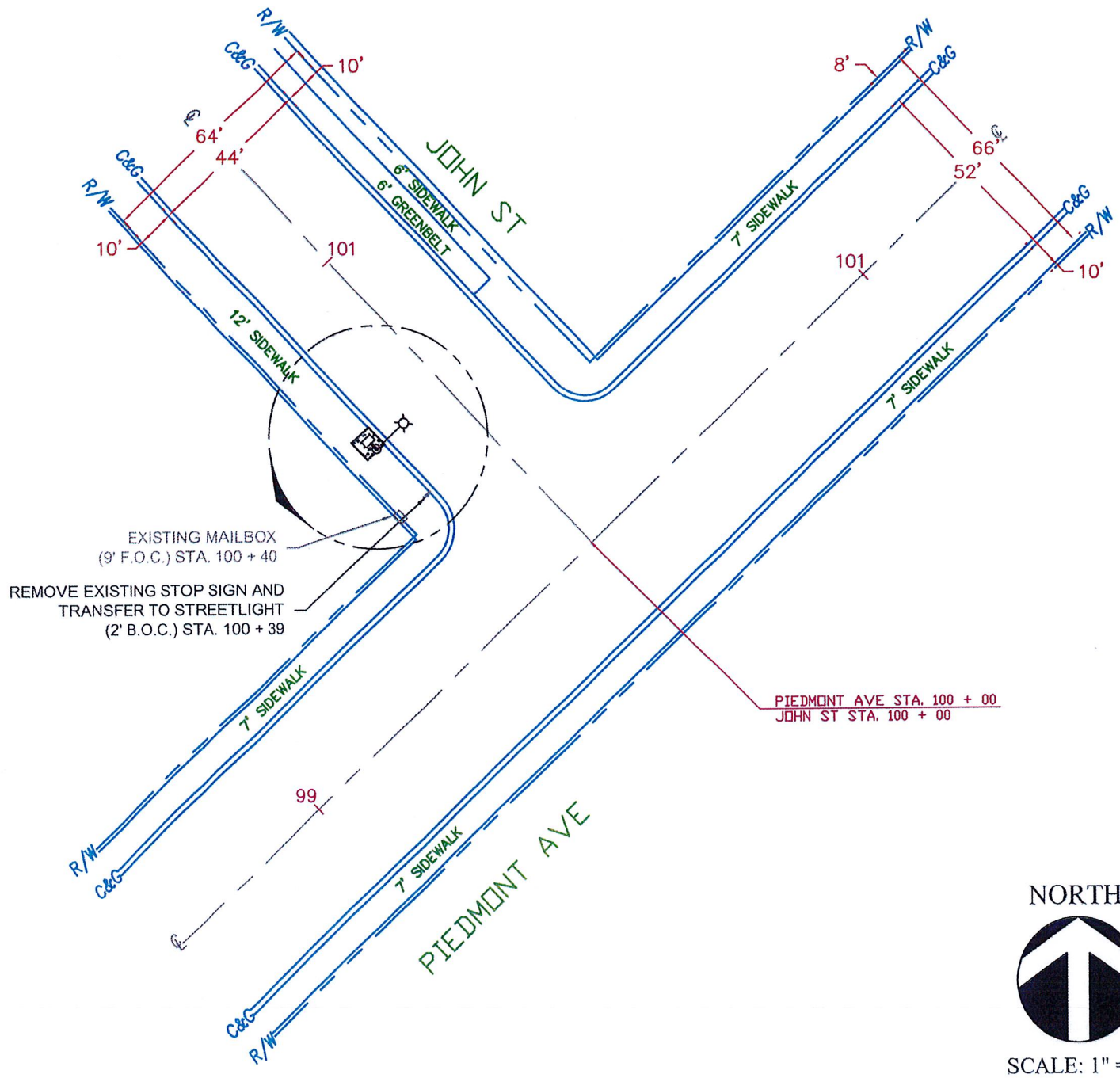
DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
P-1.2

NOTES:

1. CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS.
2. CONTRACTOR TO PLACE SANDBAGS AROUND ANY/ALL STORM DRAIN INLETS TO PREVENT CONTAMINATED WATER.
3. SPOILS PILE WILL BE COVERED AND CONTAINED AND STREET WILL BE SWEPT AND CLEANED AS NEEDED.
4. CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE SATISFACTION OF THE CITY ENGINEER.
5. CURB & GUTTER TO BE PROTECTED IN PLACE. SIDEWALK TO BE REPLACED TO THE SATISFACTION OF THE CITY ENGINEER.
6. THE CONTRACTOR SHALL RESTORE THE ROADWAY BACK TO ITS ORIGINAL CONDITION SATISFACTORY TO THE CITY ENGINEER INCLUDING, BUT NOT LIMITED TO PAVING, STRIPING, BIKE LANES, PAVEMENT LEGENDS, SIGNS, AND TRAFFIC LOOP DETECTORS.





NORTH

SCALE: 1" = 40'

COORDINATES	
LATITUDE:	37.82903°
LONGITUDE:	-122.24927°

FOOTAGE TOTALS	
ASPHALT TRENCH	0'
DIRT TRENCH	3'
BORE	0'
PUNCH THRU	0'
TOTAL	3'
PCC SIDEWALK TOTAL	36 SQ. FT.

CONDUIT COUNT — SIZE OF CONDUIT — APPROX. LENGTH OF FOOTAGES

BILL OF MATERIALS		
DESCRIPTION		QTY
VAULTS (PVT)	17" X 30"	0
	2' X 3'	1
	3' X 5'	0
CONDUIT (PVT)	1" PVC	0'
	3" PVC	0'
	4" PVC	3'

REGISTERED PROFESSIONAL ENGINEER
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PA05m2

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REVISION / ISSUE	DATE

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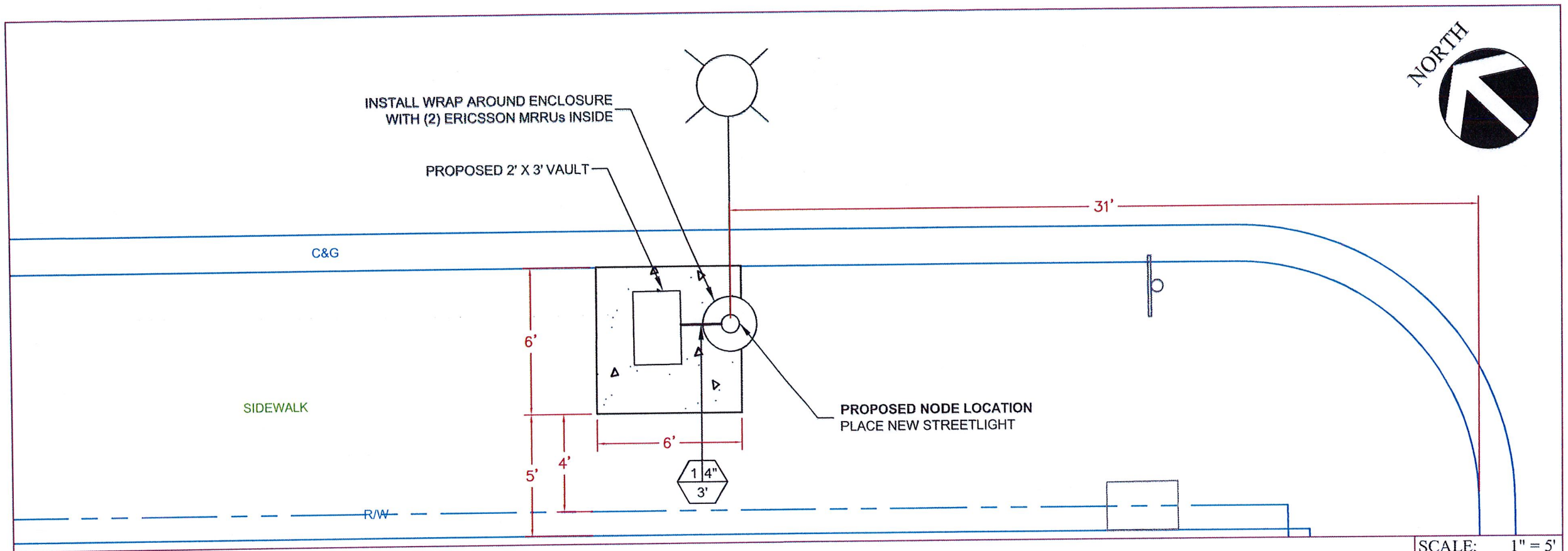
OAKLAND, CA

SITE PLAN

DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
SP-1



A | **ENLARGED VIEW** | SCALE: 1" = 5'

B | **N/A** | SCALE: N.T.S.

REGISTERED PROFESSIONAL ENGINEER
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PA05m2

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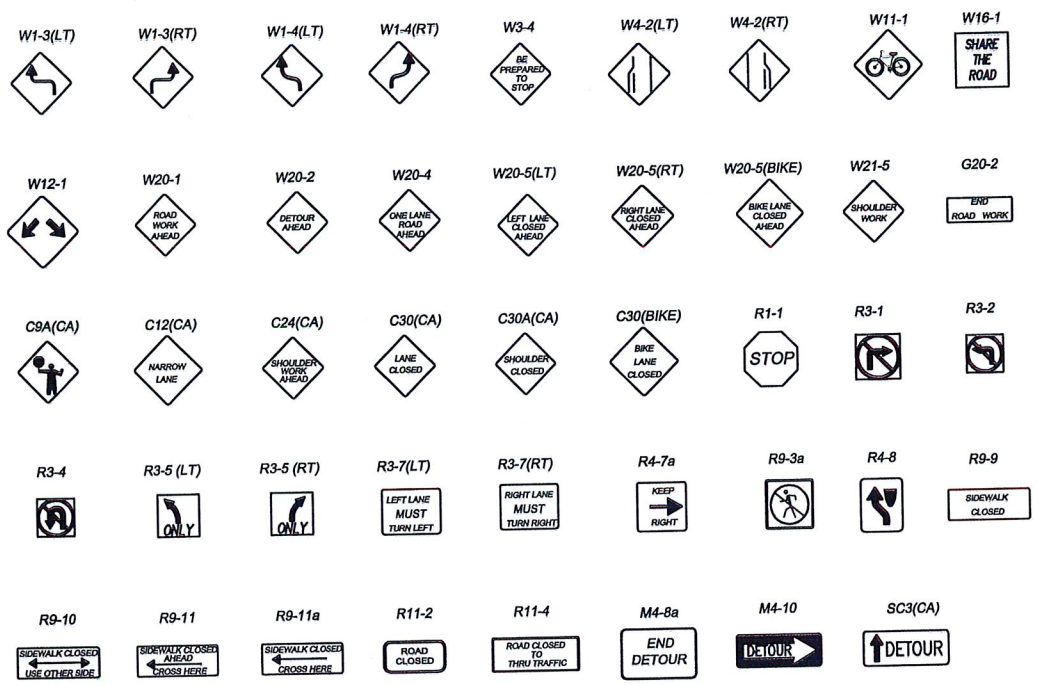
SHEET NO.
SP-2

SIGNS



SIGNAGE NOTES:

1. AT LEAST ONE PERSON SHALL BE ASSIGNED TO FULL TIME MAINTENANCE OF TRAFFIC CONTROL DEVICES ON ALL NIGHT LANE CLOSURES.
2. ALL WARNING SIGNS FOR NIGHT LANE CLOSURES SHALL BE ILLUMINATED OR REFLECTORIZED AS SPECIFIED IN THE SPECIFICATIONS.
3. ALL ADVANCE WARNING SIGN INSTALLATIONS SHALL BE EQUIPPED WITH FLAGS FOR DAYTIME CLOSURES OF ALL MAJOR AND PRIME ARTERIALS. FLASHING BEACONS SHALL BE USED DURING NIGHT LANE CLOSURES.
4. A G20-2 "END ROAD WORK" SIGN SHALL BE PLACED AT THE END OF THE LANE CLOSURE UNLESS THE END OF THE WORK AREA IS OBVIOUS, OR ENDS WITHIN A LARGER PROJECT LIMITS.
5. ALL CONES USED FOR NIGHT LANE CLOSURES SHALL BE ILLUMINATED TRAFFIC CONES OR FITTED WITH 13" REFLECTIVE SLEEVES.
6. FLASHING ARROW SIGNS SHALL BE USED PER CA MUTCD 2014 EDITION. SILENT TYPE SHALL BE USED IN RESIDENTIAL AREAS.
7. THE MAXIMUM SPACING BETWEEN CONES SHALL BE THE WORK AREA'S SPEED LIMIT.
8. ADDITIONAL ADVANCE FLAGGERS SHALL BE REQUIRED WHEN TRAFFIC QUEUES DEVELOP. FLAGGER STATIONS FOR WORK AT NIGHT SHALL BE ILLUMINATED AS NOTED IN SECTION 6G.20 OF THE MUTCD.
9. ALL REQUIRED SIGNS THAT ARE TO BE LEFT IN PLACE OVER A WEEKEND OR HOLIDAY SHALL BE POST MOUNTED.
10. CONSTRUCTION AREA TRAFFIC CONTROL DEVICES SHALL MEET THE PROVISIONS OF 2012 CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

LEGEND

⟶	DIRECTION OF TRAVEL	Y	FLAG TREE
⇢	PAVEMENT ARROW	>>>	FLASHING ARROW BOARD
	PORTABLE SIGN	TS	TRAFFIC SIGNAL
•	TRAFFIC CONE/DELINEATOR	═	K-RAIL (TYPE 50 CONCRETE BARRIER)
I	TYPE II BARRICADE	FPB	FLASHING PORTABLE BEACON
I	TYPE III BARRICADE	⚑	FLAGGER

Table 6C-1. Recommended Advance Warning Sign ~~Minimum~~ Spacing

Road Type	Distance Between Signs*		
	A	B	C
Urban (low speed) - 25 mph or less	100 feet	100 feet	100 feet
Urban (high speed) - more than 25 mph to 40 mph	250 feet	250 feet	250 feet
Urban (high speed) - more than 40 mph	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway / Freeway	1,000 feet	1,000 feet	1,000 feet

* Speed category to be determined by the highway agency.
** The column headings A,B, and C are the dimensions shown in Figures 6H-1 through 6H-46. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The "first sign" is the sign in a three-sign series that is closest to the TTC zone. The "third sign is the sign that is furthest upstream from the TTC zone.)

Table 6C-3 (CA). Taper Length Criteria for Temporary Traffic Control Zones (for 12 feet Offset Width)

Speed* S (mph)	Minimum Taper Length** for Width of Offset 12 feet (w)			
	Merging L (feet)	Shifting L/2 (feet)	Shoulder L/3 (feet)	Down Stream (feet)**
20	80	40	27	50
25	125	63	42	50
30	180	90	60	50
35	245	123	82	50
40	320	160	107	50
45	540	270	180	50
50	600	300	200	50
55	660	330	220	50
60	720	360	240	50
65	780	390	260	50
70	840	420	280	50

* - Posted speed limit, off peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph.
** - For other offsets use the following merging taper length formula for L:
For speeds of 40 mph or less, L=WS /60
For speeds of 45 mph or more, L=WS
Where L = taper length in feet
W = width of offset in feet
S = posted speed limit, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph.
*** - Maximum downstream taper length is 100 feet. See Section 6C.08.

Table 6C-2. Stopping Sight Distance as a Function of Speed on Level Roads. (Used as suggested longitudinal buffer space length or location for flagger station)

Speed*	Distance
20 mph	115 feet
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
40 mph	305 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
60 mph	570 feet
65 mph	645 feet
70 mph	730 feet
75 mph	820 feet

* Posted speed, off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed in mph.

REGISTERED PROFESSIONAL ENGINEER
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TRAFFIC CONTROL PLAN GENERAL NOTES:

1. WORK HOURS TO BE RESTRICTED TO _____ TO_____ UNLESS APPROVED OTHERWISE.
2. PEDESTRIAN CONTROLS WILL BE PROVIDED AS SHOWN.
3. PEDESTRIANS SHALL BE PROTECTED FROM ENTERING THE EXCAVATION BY PHYSICAL BARRIERS DESIGNED, INSTALLED, AND MAINTAINED TO THE SATISFACTION OF THE CITY ENGINEER.
4. TEMPORARY "NO PARKING/TOW AWAY" SIGNS STATING THE DATE AND TIME OF PROHIBITION WILL BE POSTED 72 HOURS PRIOR TO COMMENCING WORK. CALL POLICE DISPATCH TO VALIDATE POSTING.
5. ACCESS WILL BE MAINTAINED TO ALL DRIVEWAYS UNLESS OTHER ARRANGEMENTS ARE MADE.
6. TRENCHES MUST BE BACKFILLED OR PLATED DURING NON-WORKING HOURS UNLESS K-RAIL BARRIERS ARE PROVIDED. K-RAIL IS APPROVED ONLY WHEN SPECIFICALLY SHOWN ON THE APPROVED TRAFFIC CONTROL PLAN. PLATES SHALL HAVE CLEATS AND COLD MIX AT THE EDGES AS APPROVED BY THE INSPECTOR.
7. STRIPING WILL BE REPLACED BY THE CONTRACTOR WITHIN 24 HOURS, IF REMOVED OR DAMAGED.
8. WORK THAT DISTURBS NORMAL TRAFFIC SIGNAL TIMING OPERATIONS SHALL BE COORDINATED WITH THE CITY. CONTACT PUBLIC WORKS DEPARTMENT 72 HOURS PRIOR TO COMMENCING WORK.
9. TRAFFIC SIGNALS SHALL REMAIN FULLY ACTUATED AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER OR HIS/HER REPRESENTATIVE. IF TRAFFIC SIGNAL LOOP DETECTORS ARE RENDERED INOPERATIVE BY THE PROPOSED WORK, VIDEO DETECTION SHALL BE USED TO PROVIDE ACTUATION.
10. FLAGGERS SHALL BE EQUIPPED WITH A WHITE HARD HAT, AN ORANGE VEST, AND A "STOP/SLOW" PADDLE ON A 5 FOOT STAFF.
11. ALL TRAFFIC CONTROL DEVICES MUST BE MAINTAINED 24 HOURS A DAY, 7 DAYS PER WEEK, BY THE CONTRACTOR.
12. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) 2014 EDITION.
13. TRAFFIC CONTROL PLAN SUBMITTALS ARE REQUIRED FOR EACH PHASE OF THE WORK IN THE DETAIL, FORMAT, AND QUALITY ILLUSTRATED ON THIS SHEET.
14. ALL TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM VIEW OR COVERED WHEN NOT IN USE.
15. THE CITY ENGINEER OR HIS/HER REPRESENTATIVE HAS THE AUTHORITY TO INITIATE FIELD CHANGES TO INSURE PUBLIC SAFETY.
16. ALL WORK AFFECTING BUS STOPS SHALL BE COORDINATED WITH CITY'S TRANSIT DISTRICT. CONTRACTOR SHALL CALL TRANSIT DISTRICT AT LEAST 72 HOURS IN ADVANCE OF STARTING WORK.
17. CHANGEABLE MESSAGE SIGNS SHALL BE USED IN ADVANCE OF TRAFFIC CONTROL ON MAJOR AND PRIME ARTERIALS, UNLESS OTHERWISE APPROVED. THESE SIGNS SHALL BE SHOWN ON THE TRAFFIC CONTROL PLAN.

PA05m2

CROWN CASTLE PROJECT NO.
V243288

CLIENT:
CROWN CASTLE NG WEST LLC
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134
www.crowncastle.com

PREPARED BY:
Coastal Communications
Telecommunications Engineering
5841 EDISON PLACE, SUITE 110
CARLSBAD, CA 92008
PHONE: (760) 929-0910
FAX: (760) 929-0936

PROPRIETARY INFORMATION

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DIGALERT
1-800-227-2600
CALL AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
TICKET #_____

REVISION / ISSUE	DATE

SITE NAME & ADDRESS:
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA

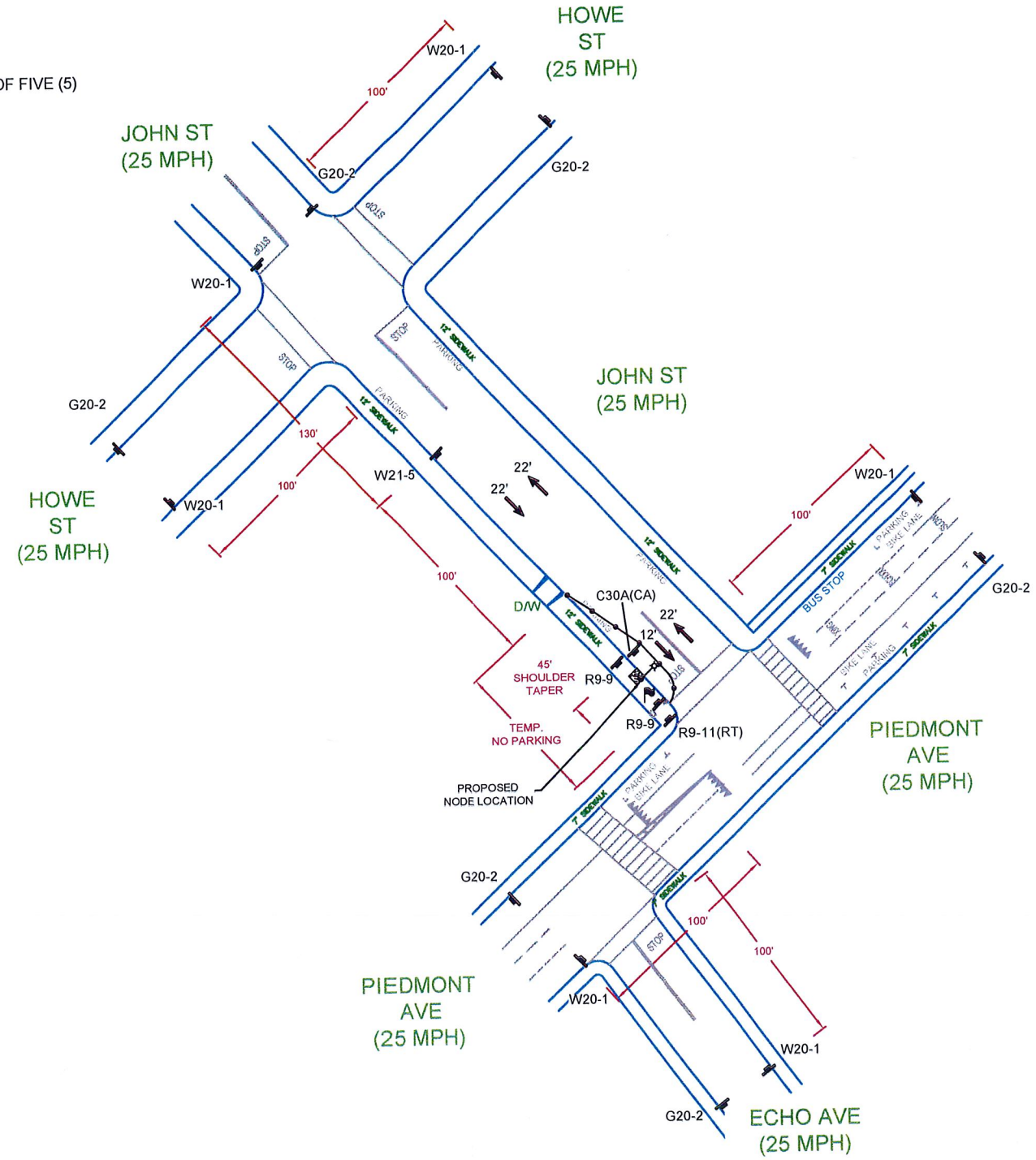
TRAFFIC CONTROL COVERSHEET

DRAWN BY:	DRAFT DATE:	APPROVED BY:
SN	06-02-16	TT

SHEET NO.
TC-1

NOTES:

1. CONTRACTOR TO MAINTAIN ACCESS TO ALL DRIVEWAYS AT ALL TIMES.
2. W20-1 & G20-2 SHALL BE PLACED ON AFFECTED CROSS STREETS ACCORDING TO THE SPEED LIMIT OF THE CROSS STREET.
3. FLAGGER TO ASSIST PEDESTRIANS THROUGH WORK AREA.
4. CONTRACTOR SHALL NOTIFY PROPERTY OWNERS AND TENANTS A MINIMUM OF FIVE (5) DAYS PRIOR TO WORK START ON ANY DRIVEWAY CLOSURES.



NORTH

N.T.S.

REGISTERED PROFESSIONAL ENGINEER
JERRY L. MICHAL
C 42590
Exp 3-31-18
CIVIL
STATE OF CALIFORNIA

PA05m2

CROWN CASTLE PROJECT NO.
V243288

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CALL AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
TICKET #_____

REVISION / ISSUE	DATE

SITE NAME & ADDRESS:
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA

TRAFFIC CONTROL PLAN

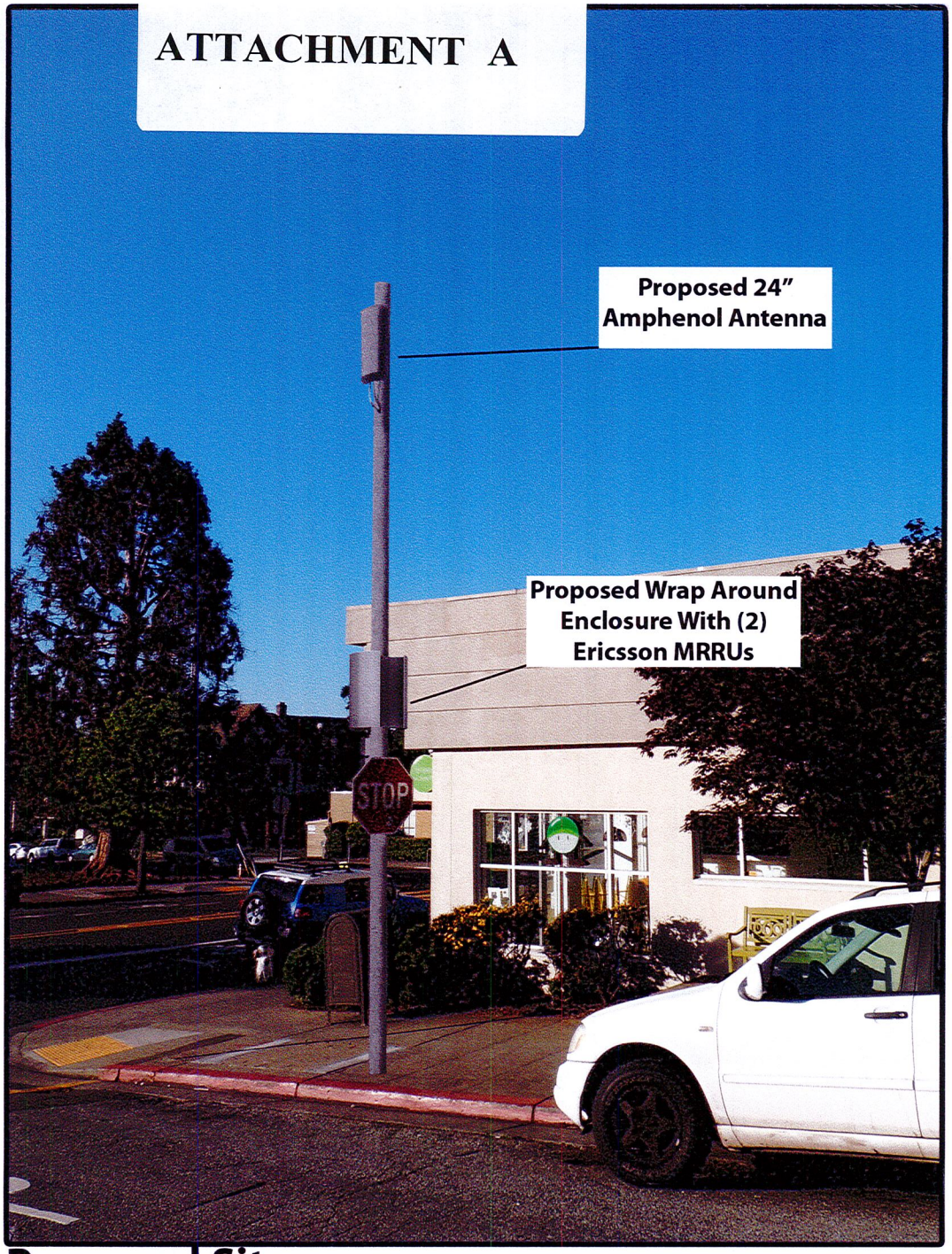
DRAWN BY:	DRAFT DATE:	APPROVED BY:
SN	06-02-16	TT

SHEET NO.
TC-2

ATTACHMENT A

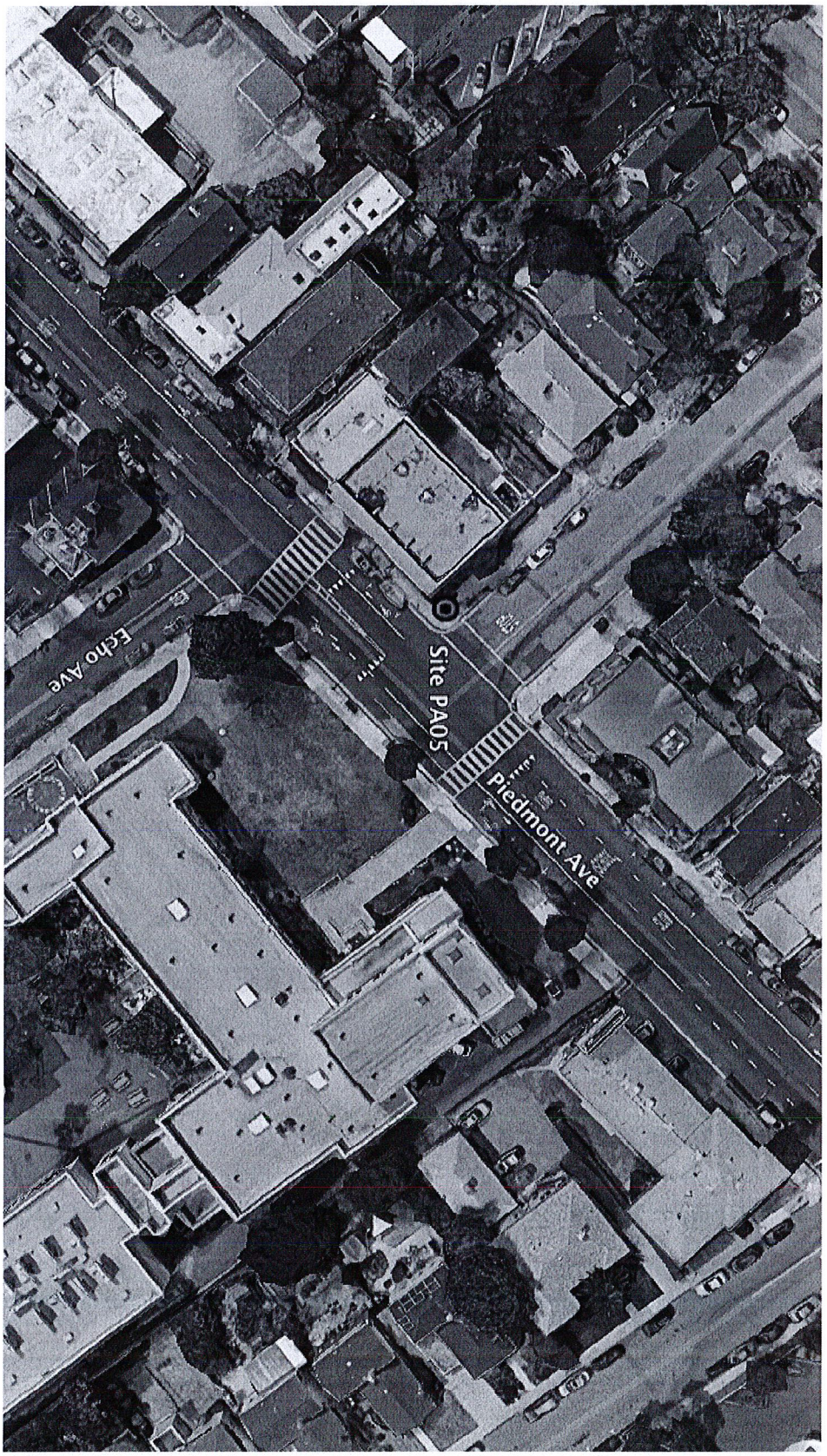
Existing Site

PA05m2
Row Adjacent to
4299 Piedmont Ave
Oakland, CA



Proposed Site

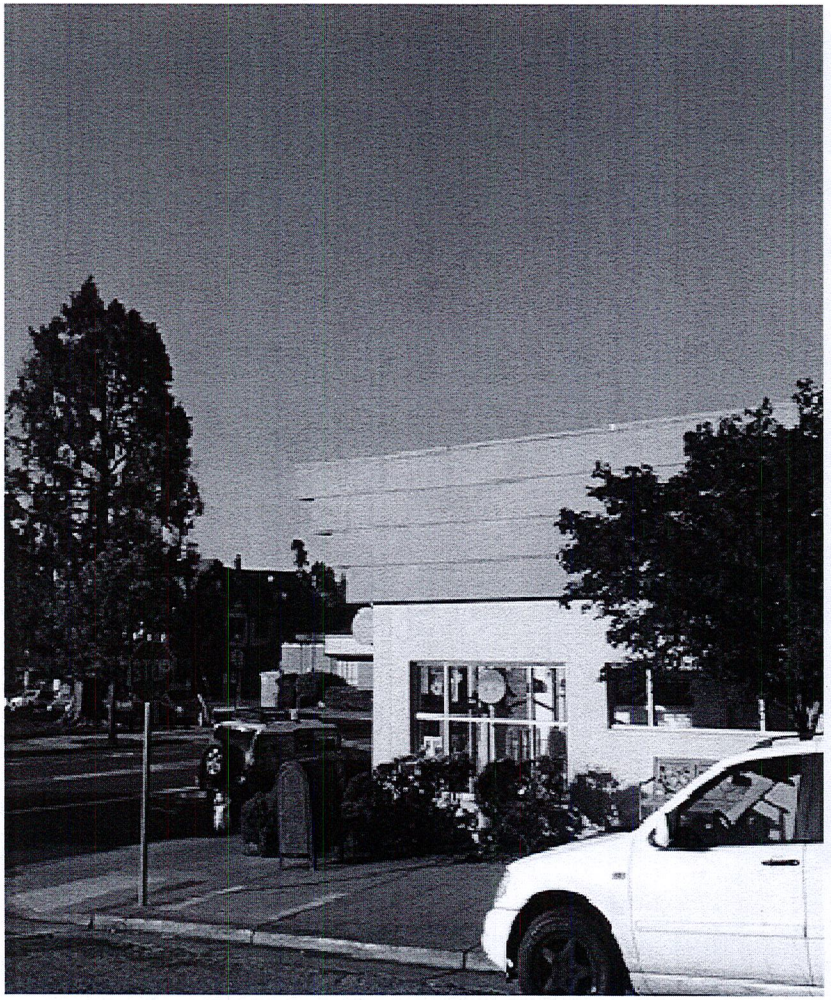
ATTACHMENT A



Location for site PA05m

PA05m - PLN15-407

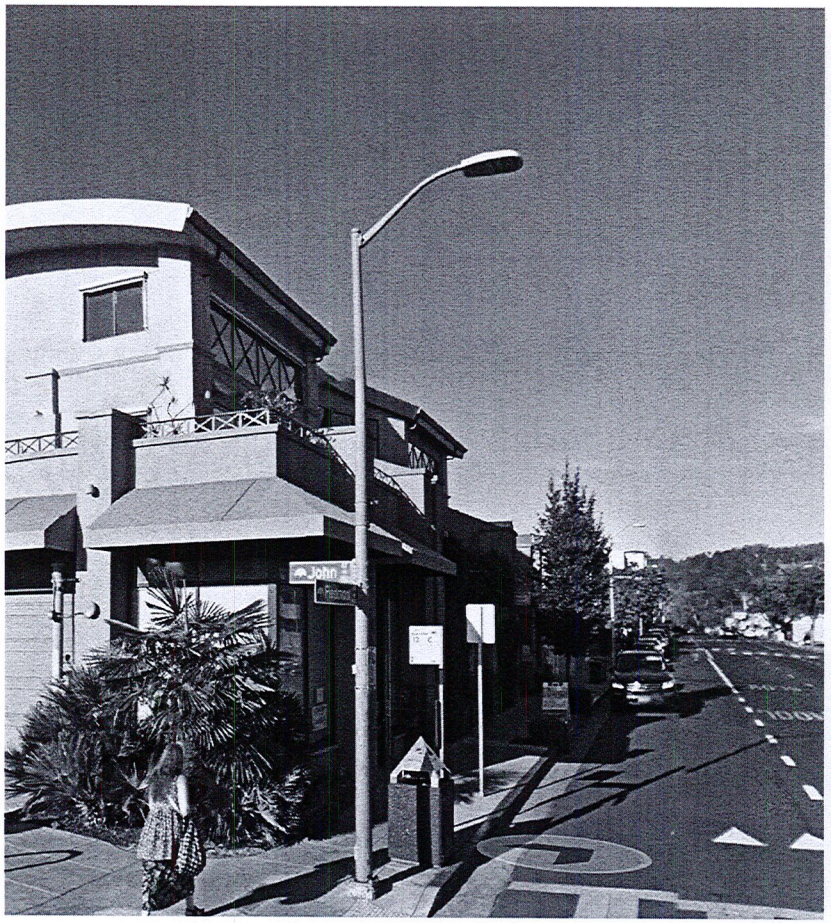
Existing



Proposed

PA05m Alternative locations. Wooden utility pole on John St. This pole is fully loaded and has a Primary Power Riser so it is not useable per the General Order 95 guidelines.

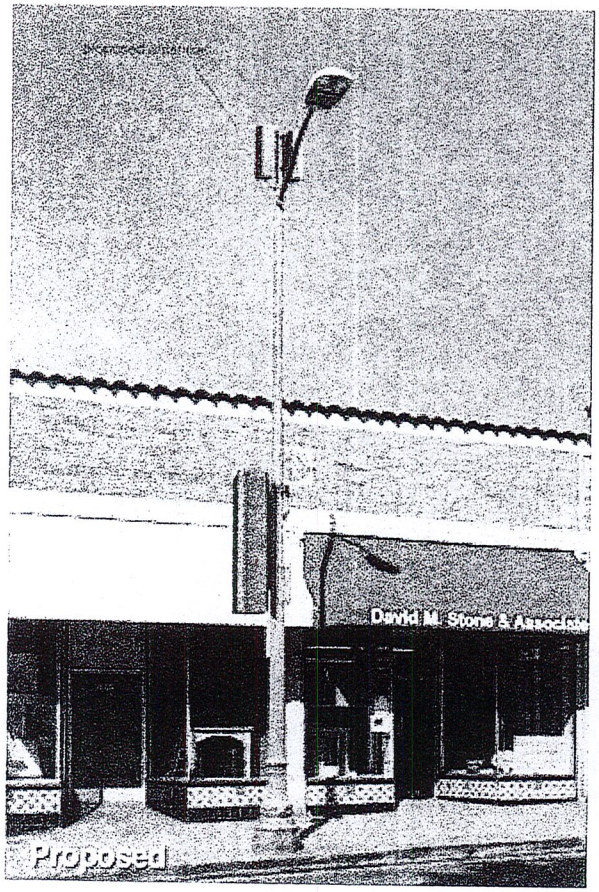
PA05m Alternative locations. There are two existing light poles in the area. However Crown Castle and the City of Oakland do not have an agreement in place to use city infrastructure.



ATTACHMENT A

Storefront Configurations

A



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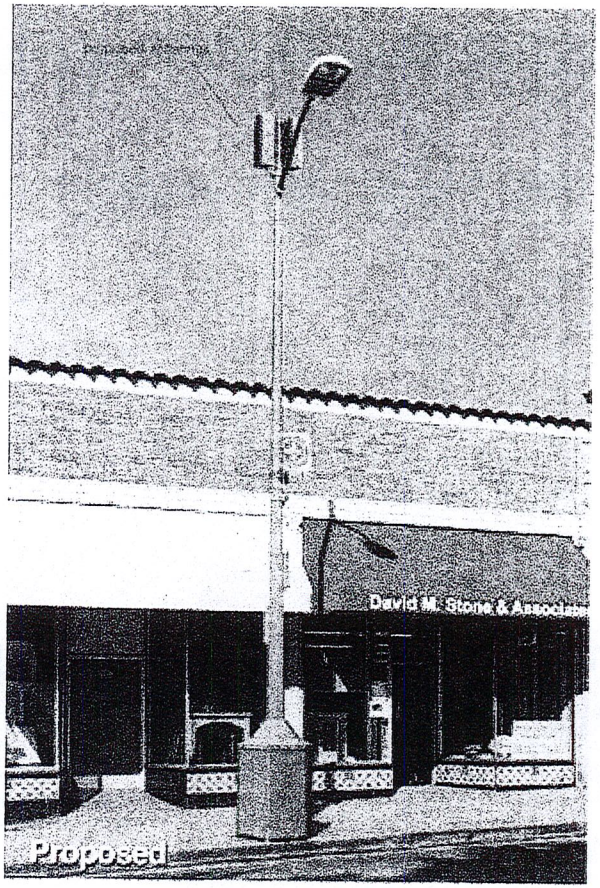
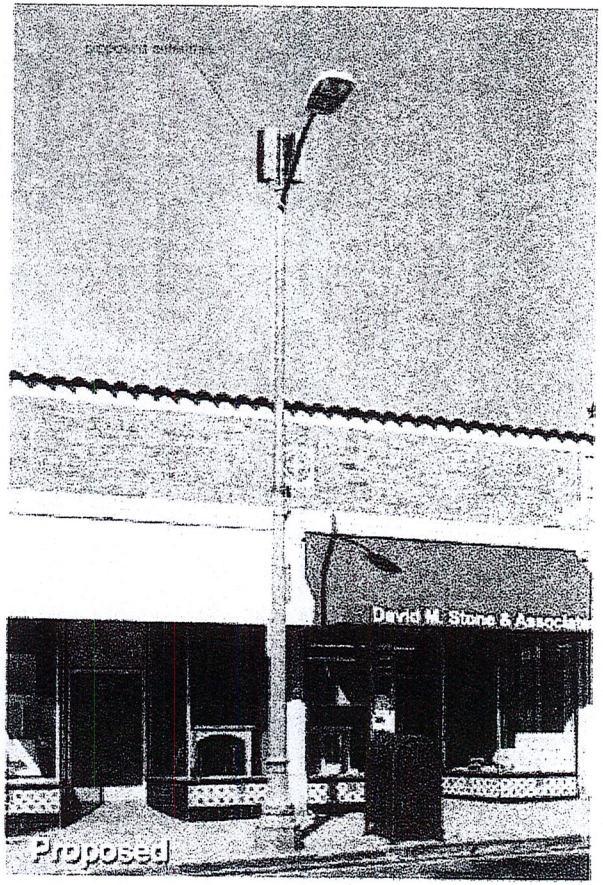


C



ATTACHMENT B

JERROLD T. BUSHBERG Ph.D., DABMP, DABSNM, FAAPM, FHPS
♦HEALTH AND MEDICAL PHYSICS CONSULTING♦

7784 Oak Bay Circle Sacramento, CA 95831
(800) 760-8414–jbushberg@hampc.com

Radiofrequency (RF) Safety Analysis for Crown Castle Site : PA05m2

CROWN CASTLE

PIEDMONT AVE

4299 Piedmont Ave
OAKLAND, CA

JERROLD T. BUSHBERG Ph.D., DABMP, DABSNM, FAAPM, FHPS
♦HEALTH AND MEDICAL PHYSICS CONSULTING♦

7784 Oak Bay Circle Sacramento, CA 95831
(800) 760-8414–jbushberg@hampc.com

May 18, 2016

Ernesto Figueroa
Sr. RF Engineer
Crown Castle
695 River Oaks Parkway
San Jose, CA 95134

Introduction

At your request, I have reviewed the technical specifications and calculated the maximum radiofrequency, (RF), power density from the proposed Crown Castle nodes to be located in the public right-of-way. These nodes will be used for wireless telecommunications transmission and reception utilizing one directional Amphenol antennae model #HTXCWW63111414 mounted to a street light, traffic light or similar structure. Each of the panel antennae used in this network is designed to transmit with a maximum input power of up to 6.32 watts, with a gain of up to 8.35 dBd at approximately 700 MHz and 6.32 watts with a gain of up to 11.85 dBd at approximately 2,100 MHz. The distance from the antenna center to the ground for all nodes will be at least 22.0 feet. The site configurations is shown in attachment one. The antenna specification details are depicted in attachment two. This analysis represent the worst case of any of the proposed nodes that are utilizing these transmission and antennae specifications. There will be 1 node of this configuration proposed for Oakland, CA (see Appendix A-0).

Calculation Methodology

Calculations at the level of the antenna were made in accordance with the cylindrical model recommendations for near-field analysis contained in the Federal Communications Commission, Office of Engineering and Technology Bulletin 65 (OET 65) entitled "Evaluating Compliance with FCC-Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields." RF exposure calculations at ground level were made using equation 10 from the same OET document. Several assumptions were made in order to provide the most conservative or "worse case" projections of power densities. Calculations were made assuming that all channels were operating simultaneously at their maximum design effective radiated power. Attenuation (weakening) of the signal that would result from surrounding foliage or buildings was ignored. Buildings or other structures can reduce the signal strength by a factor of 10 (i.e., 10 dB) or more depending upon the construction material. In addition, for ground level calculations, the ground or other surfaces were considered to be perfect reflectors (which they are not) and the RF energy was assumed to overlap and interact constructively at all locations (which they would not) thereby resulting in the calculation of the maximum potential exposure. In fact, the accumulations of all these very conservative assumptions, will significantly overestimate the actual exposures that would typically be expected from such a facility. However, this method is a prudent approach that errs on the side of safety.

RF Safety Standards

The two most widely recognized standards for protection against RF field exposure are those published by the American National Standards Institute (ANSI) C95.1 and the National Council on Radiation Protection and measurement (NCRP) report #86.

The NCRP is a private, congressionally chartered institution with the charge to provide expert analysis of a variety of issues (especially health and safety recommendations) on radiations of all forms. The scientific analyses of the NCRP are held in high esteem in the scientific and regulatory community both nationally and internationally. In fact, the vast majority of the radiological health regulations currently in existence can trace their origin, in some way, to the recommendations of the NCRP.

All RF exposure standards are frequency-specific, in recognition of the differential absorption of RF energy as a function of frequency. The most restrictive exposure levels in the standards are associated with those frequencies that are most readily absorbed in humans. Maximum absorption occurs at approximately 80 MHz in adults. The NCRP maximum allowable continuous occupational exposure at this frequency is 1,000 $\mu W/cm^2$. This compares to 5,000 $\mu W/cm^2$ at the most restrictive of the PCS frequencies (~1,800 MHz) that are absorbed much less efficiently than exposures in the VHF TV band.

The traditional NCRP philosophy of providing a higher standard of protection for members of the general population compared to occupationally exposed individuals, prompted a two-tiered safety standard by which levels of allowable exposure were substantially reduced for "uncontrolled " (e.g., public) and continuous exposures. This measure was taken to account for the fact that workers in an industrial environment are typically exposed no more than eight hours a day while members of the general population in proximity to a source of RF radiation may be exposed continuously. This additional protection factor also provides a greater margin of safety for children, the infirmed, aged, or others who might be more sensitive to RF exposure. After several years of evaluating the national and international scientific and biomedical literature, the members of the NCRP scientific committee selected 931 publications in the peer-reviewed scientific literature on which to base their recommendations. The current NCRP recommendations limit continuous public exposure at PCS frequencies to 1,000 $\mu W/cm^2$.

The 1992 ANSI standard was developed by Scientific Coordinating Committee 28 (SCC 28) under the auspices of the Institute of Electrical and Electronic Engineers (IEEE). This standard, entitled "IEEE Standards for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz" (IEEE C95.1-1991), was issued in April 1992 and subsequently adopted by ANSI. A complete revision of this standard (C95.1-2005) was completed in October 2005 by SCC 39 the IEEE International Committee on Electromagnetic Safety. The current version, including minor revisions, was published in March 2010. Their recommendations are similar to the NCRP recommendation for the maximum permissible exposure (MPE) to the public PCS frequencies (950 $\mu W/cm^2$ for continuous exposure at 1,900 MHz) and incorporates the convention of providing for a greater margin of safety for public as compared with occupational exposure. Higher whole body exposures are allowed for brief periods provided that no 30 minute time-weighted average exposure exceeds these aforementioned limits.

On August 9, 1996, the Federal Communications Commission (FCC) established a RF exposure standard that is a hybrid of the current ANSI and NCRP standards. The maximum permissible exposure values used to assess environmental exposures are those of the NCRP (i.e., maximum public continuous exposure at PCS frequencies of 1,000 $\mu W/cm^2$). The FCC issued these standards in order to address its responsibilities under the National Environmental Policy Act (NEPA) to consider whether its actions will "significantly affect the

quality of the human environment." In as far as there was no other standard issued by a federal agency such as the Environmental Protection Agency (EPA), the FCC utilized their rulemaking procedure to consider which standards should be adopted. The FCC received thousands of pages of comments over a three-year review period from a variety of sources including the public, academia, federal health and safety agencies (e.g., EPA & FDA) and the telecommunications industry. The FCC gave special consideration to the recommendations by the federal health agencies because of their special responsibility for protecting the public health and safety. In fact, the maximum permissible exposure (MPE) values in the FCC standard are those recommended by EPA and FDA. The FCC standard incorporates various elements of the 1992 ANSI and NCRP standards which were chosen because they are widely accepted and technically supportable. There are a variety of other exposure guidelines and standards set by other national and international organizations and governments, most of which are similar to the current ANSI/IEEE or NCRP standard, figure one.

The FCC standards "Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation" (Report and Order FCC 96-326) adopted the ANSI/IEEE definitions for controlled and uncontrolled environments. In order to use the higher exposure levels associated with a controlled environment, RF exposures must be occupationally related (e.g., PCS company RF technicians) and they must be aware of and have sufficient knowledge to control their exposure. All other environmental areas are considered uncontrolled (e.g., public) for which the stricter (i.e., lower) environmental exposure limits apply. All carriers were required to be in compliance with the new FCC RF exposure standards for new telecommunications facilities by October 15, 1997. These standards applied retroactively for existing telecommunications facilities on September 1, 2000.

The task for the physical, biological, and medical scientists that evaluate health implications of the RF data base has been to identify those RF field conditions that can produce harmful biological effects. No panel of experts can guarantee safe levels of exposure because safety is a null concept, and negatives are not susceptible to proof. What a dispassionate scientific assessment can offer is the presumption of safety when RF-field conditions do not give rise to a demonstrable harmful effect.

Summary & Conclusions

All Crown Castle antenna systems operating with the maximal exposure conditions characteristics as specified above and observing a 4 foot public exclusion zone directly in front of and at the same elevation as the antenna, will be in full compliance with FCC RF public and occupational safety exposure standards. These transmitters, by design and operation, are low-power devices (see appendix A-1). An RF safety notice sign, as depicted in appendix A-2 should be placed near the antenna. This sign should contain appropriate contact information and indicate that RF exposures at 4feet or closer to the face of the antenna may exceed the FCC public exposure standard. Thus only qualified RF workers may work within the 4 foot public exclusion zone. The maximum RF exposure at ground level will not be in excess of 1.24% of the FCC public safety standard, (see appendix A-3). A chart of the electromagnetic spectrum and a comparison of RF power densities from various common sources is presented in figures two and three respectively in order to place exposures from wireless telecommunications systems in perspective.

Given the low levels of radiofrequency fields that would be generated from all Crown Castle directional antenna installations of this configuration, (e.g., antenna specification and input power); where the center of the antenna is at least 22.0 above grade, and the 4 foot public exclusion zone directly in front and at the same elevation as the antenna are observed, there is no scientific basis to conclude that harmful effects will attend the utilization of these proposed wireless telecommunications facilities. This conclusion is supported by a large numbers of scientists that have participated in standard-setting activities in the United States who are

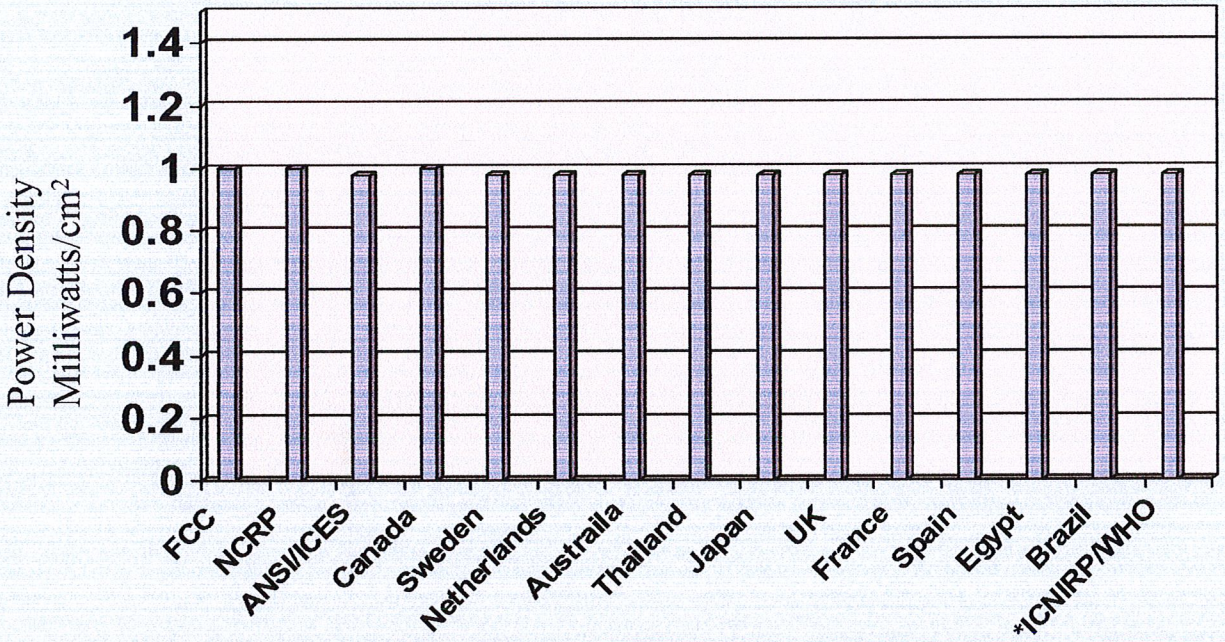
overwhelmingly agreed that RF radiation exposure below the FCC exposure limits has no demonstrably harmful effects on humans. These findings are based on my professional evaluation of the scientific issues related to the health and safety of non-ionizing electromagnetic radiation and my analysis of the technical specification as provided by Crown Castle Networks. The opinions expressed herein are based on my professional judgement and are not intended to necessarily represent the views of any other organization or institution. Please contact me if you require any additional information.

Sincerely,

Jerrold T. Bushberg Ph.D., DABMP, DABSNM, FAAPM
Diplomate, American Board of Medical Physics (DABMP)
Diplomate, American Board of Science in Nuclear Medicine (DABSNM)
Fellow, American Association of Physicists in Medicine (FAAPM)
Fellow, Health Physics Society (FHPS)

Enclosures: Figures 1-3; Attachment 1,2; Appendix A-0, A-1, A-2, A-3 and Statement of Experience.

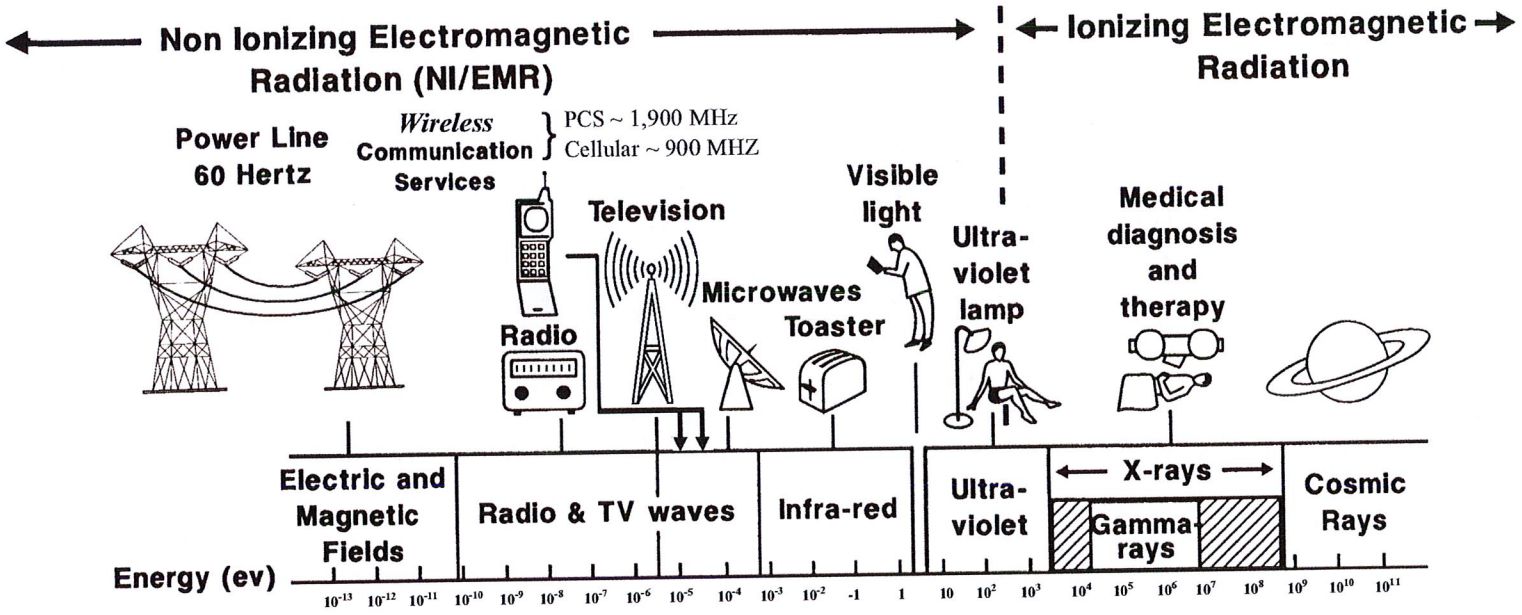
National and International Public RF Exposure Standards (DAS @ 1,950 MHz)



*International Commission on Non-Ionizing Radiation Protection (ICNIRP) Public Safety Exposure Standard. ICNIRP standard recommended by the World Health Organization (WHO). Members of the ICNIRP Scientific Committee were from:

- Australia
- Finland
- France
- Germany
- Hungary
- Italy
- Sweden
- Japan
- United Kingdom
- United States

Figure 1



The Electromagnetic Spectrum

Figure 2

Typical Exposure from Various Radio Frequency / Microwave Sources

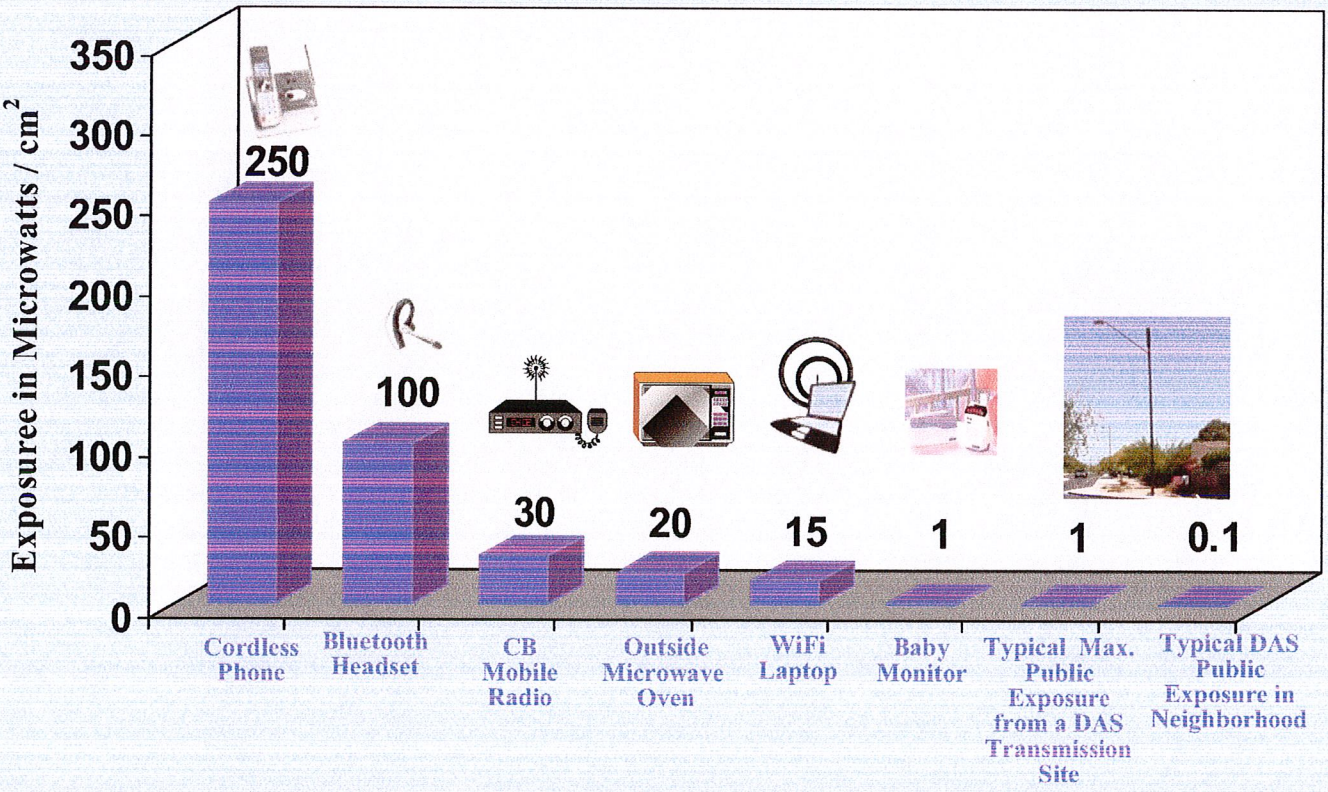


Figure 3

Attachment 1

Site Configuration

CROWN CASTLE

PIEDMONT AVE

ROW ADJACENT TO:
4299 PIEDMONT AVE (PA05m2)
OAKLAND, CA

SHEET NUMBER:	DESCRIPTION
T-1	TITLE SHEET
D-1	DETAILS & NOTES
D-2	DETAILS & NOTES
D-3	DETAILS & NOTES
P-1.1	PA05m2 PHOTOS
P-1.2	PA05m2 PHOTO SIM
P-1.3	PA05m2 PROFILE
SP-1	PA05m2 SITE PLAN
SP-2	PA05m2 ENLARGED VIEW

SHEET INDEX

CROWN CASTLE TO PERFORM THE FOLLOWING:

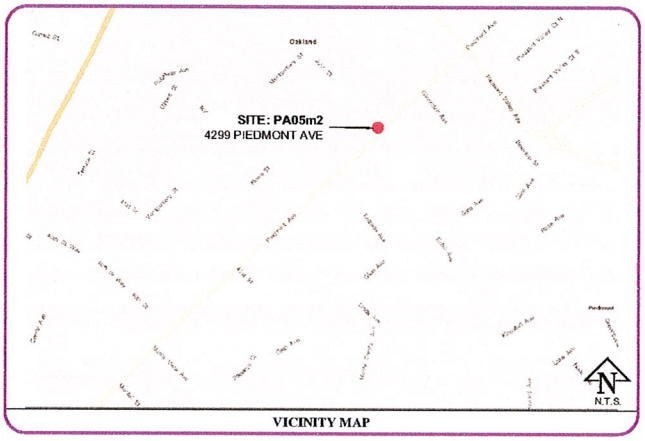
- **SMALL CELL ANTENNA AND ITS ANCILLARY EQUIPMENT ON POLE / TRAFFIC SIGNAL POLE.**
- INSTALL NEW STREETLIGHT WITH WRAP AROUND ENCLOSURE.
- **(1) 2' X 3' CROWN CASTLE VAULT WITH CONDUITS.**

PROJECT SUMMARY

PROJECT MANAGER:
CROWN CASTLE
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134
MICHAEL MILLER
(408) 468-5554
MICHAEL.MILLER@CROWNCASTLE.COM

NODE ENGINEER:
COASTAL COMMUNICATIONS
5841 EDISON PL, STE. 110
CARLSBAD, CA 92008
TODD THREW
(760) 929-0910 ext. 101
TODD@COASTALCOMMINC.COM

PROJECT TEAM



VICINITY MAP

1. STREET USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.
2. ALL WORK TO BE CONDUCTED IN THE RIGHT OF WAY.
3. ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.
4. ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNING WILL BE PLACED.
5. NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.
6. CLEANUP OF SITE WILL BE COMPLETED EACH EVENING AND THE SITE WILL BE RETURNED TO EXISTING CONDITIONS AT THE COMPLETION OF CONSTRUCTION AT EACH SITE.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR RESPONSIBLE FOR SAME.

GENERAL CONTRACTOR NOTES

PA05m2

CROWN CASTLE PROJECT NO.
V243288

CLIENT:
CROWN CASTLE
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134
www.crowncastle.com

PREPARED BY:
Coastal Communications
5841 EDISON PLACE, SUITE 110
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TICKET #

REVISION / ISSUE	DATE

SITE NAME & ADDRESS:
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA

TITLE SHEET

DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
T-1

LEGEND

SYMBOL	DESCRIPTION
	PROPOSED:
	2' X 3' VAULT
	CABINET
	NEW WOOD POLE
	NEW STREET LIGHT
	POC SIDEWALK
	TRENCH AND FIBER CONDUIT (TYP.)
	EXISTING:
	EXISTING UTILITY POLE
	EXISTING STREET LIGHT
	EXISTING VAULT / HAND HOLE
	EXISTING PEDESTAL
	STEEL POLE
	STA/SEW POINTS (NOT DETERMINED)
	EXISTING CURB RAMP
	EXISTING UNDERGROUND UTILITY
	EXISTING WATER LINE
	EXISTING CENTER LINE
	EXISTING RIGHT OF WAY

ABBREVIATIONS

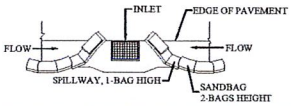
A/C	ASPHALT CURB
B.O.C.	BACK OF CURB
BOEP	BACK OF EDGE OF PAVEMENT
C&G	CURB & GUTTER
CL	CENTERLINE
EX.	EXISTING
EOP	EDGE OF PAVEMENT
F.O.C.	FACE OF CURB
FOEP	FACE OF EDGE OF PAVEMENT
PL	PROPERTY LINE
R/W	RIGHT OF WAY
S/B	SUBDIVISION BOUNDARY

EROSION AND SEDIMENT CONTROL NOTES:

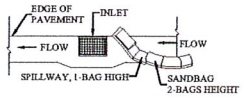
TEMPORARY EROSION/SEDIMENT CONTROL, PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW.

1. ALL REQUIREMENTS OF THE CITY "LAND DEVELOPMENT MANUAL, STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED PUBLIC IMPROVEMENTS CONSISTENT WITH THE EROSION CONTROL PLAN AND/OR WATER POLLUTION CONTROL PLAN (WPCP), IF APPLICABLE.
2. FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
3. THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
4. THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.
5. EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON.
6. THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER, AFTER EACH RUN-OFF PRODUCING RAINFALL.
7. THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURES AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
8. ALL EROSION/SEDIMENT CONTROL MEASURES PROVIDED FOR THE APPROVED IMPROVEMENT PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
9. ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
10. THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IF ANY, ENGINEER OF WORK, OWNER/DEVELOPER AND THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURES AND OTHER RELATED CONSTRUCTION ACTIVITIES

STORMDRAIN INLET PROTECTION



TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES:
1. INTENDED FOR SHORT - TERM USE.
2. USE TO INHIBIT NON - STORM WATER FLOW.
3. ALLOW FOR PROPER MAINTENANCE AND CLEANUP.
4. BAGS MUST BE REMOVED AFTER ADJACENT OPERATION IS COMPLETED.
5. NOT APPLICABLE IN AREAS WITH HIGH SILTS AND CLAYS WITHOUT FILTER FABRIC.

NOTES:

1. CONTRACTOR TO POTHOLE ALL UTILITY CROSSINGS.
2. CONTRACTOR TO PLACE SANDBAGS AROUND ANY/ALL STORM DRAIN INLETS TO PREVENT CONTAMINATED WATER.
3. SPOILS PILE WILL BE COVERED AND CONTAINED AND STREET WILL BE SWEPT AND CLEANED AS NEEDED.
4. CONTRACTOR TO REPAIR DAMAGED PUBLIC IMPROVEMENTS TO THE SATISFACTION OF THE CITY ENGINEER.
5. CURB & GUTTER TO BE PROTECTED IN PLACE. SIDEWALK TO BE REPLACED TO THE SATISFACTION OF THE CITY ENGINEER.
6. THE CONTRACTOR SHALL RESTORE THE ROADWAY BACK TO ITS ORIGINAL CONDITION SATISFACTORY TO THE CITY ENGINEER INCLUDING, BUT NOT LIMITED TO PAVING, STRIPING, BIKE LANES, PAVEMENT LEGENDS, SIGNS, AND TRAFFIC LOOP DETECTORS.
7. SIDEWALK SHALL BE RESTORED/REPLACED PER CITY STANDARD DRAWINGS
8. PEDESTRIAN RAMP WILL NOT BE DISTURBED.

ROW GROUND CONSTRUCTION NOTES:

1. GROUND CONSTRUCTION TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, OR NON-USED VERTICALS OFF THE POLE.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MUNICIPAL, COUNTY, STATE, FEDERAL, GO51 AND GO128 STANDARDS AND REGULATIONS.
3. CALL USA 48 HOURS PRIOR TO EXCAVATING AT (800) 227-2600 OR 811.
4. ALL LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
5. ALL EQUIPMENT TO BE BONDED.
6. METERING CABINET REQUIRES 36" CLEARANCE AT DOOR OPENING.
7. CAULK CABINET BASE AT PAD.

NORMAL LOCATION OF UNDERGROUND UTILITIES NOTES:

1. LOCATION AND DEPTH OF EXISTING AND PROPOSED UTILITIES MUST BE PROVIDED BY THE SUBDIVIDER AND SHOWN ON ANY PLANS SUBMITTED TO THE DEPT. OF PUBLIC WORKS FOR APPROVAL.
2. CHANGES MAY BE PERMITTED BY THE DEPT. OF PUBLIC WORKS IN CASES OF CONFLICTING FACILITIES.
3. CONFLICTS BETWEEN UTILITY COMPANIES FACILITIES, EXISTING AND PROPOSED, MUST BE MUTUALLY RESOLVED BY THE UTILITY COMPANIES.
4. FOR COMMERCIAL SIDEWALKS, THE FIRE HYDRANT SHALL BE PLACED WITHIN THE SIDEWALK 1'-0" BEHIND FACE OF CURB.
5. MAXIMUM 2" DIAMETER GAS MAINS MAY BE PLACED IN JOINT UTILITIES TRENCH SUBJECT TO APPROVAL OF CITY ENGINEER. (DFTRACTS).

CALIFORNIA STATE CODE COMPLIANCE:

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

- CALIFORNIA ADMINISTRATIVE CODE (INCLUDING TITLES 24 & 25) 2010
- 2010 CALIFORNIA BUILDING CODES WHICH ADOPTS THE 2010 UBC, 2010 UMC, 2010 UPC AND THE 2010 NEC.
- BUILDING OFFICIALS & CODE ADMINISTRATORS (BOCA)
- 2010 CALIFORNIA MECHANICAL CODE
- ANSI/NFPA-222-F LIFE SAFETY CODE NFPA-101
- 2010 CALIFORNIA PLUMBING CODE
- 2010 CALIFORNIA ELECTRICAL CODE
- 2010 LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

ACCESSIBILITY REQUIREMENTS:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS REQUIREMENTS DO NOT APPLY IN ACCORDANCE WITH THE 2010 CALIFORNIA BUILDING CODE.

FCC NOTE:
THIS WIRELESS COMMUNICATION FACILITY COMPLIES WITH FEDERAL STANDARDS FOR RADIO FREQUENCY IN ACCORDANCE WITH THE TELECOMMUNICATION ACT OF 1996 AND SUBSEQUENT AMENDMENTS AND ANY OTHER REQUIREMENTS IMPOSED BY STATE OR FEDERAL REGULATORY AGENCIES.

PA05m2

CROWN CASTLE PROJECT NO.
V243288

CLIENT:
CROWN CASTLE
695 RIVER OAKS PARKWAY
SAN JOSE, CA 95134
www.crowncastle.com

PREPARED BY:
Coastal Communications
Telecommunications Engineering
5841 EDISON PLACE, SUITE 110
CARLSBAD, CA 92008
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1-800-227-2600
CALL AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT TICKET #

REVISION ISSUE	INITIAL

SITE NAME & ADDRESS:
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA

DETAILS & NOTES

DRAWN BY:	MAP DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
D-1

MAXIMUM PERMISSIBLE EXPOSURE (MPE) PLACARD

NOTICE

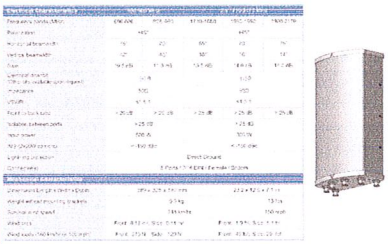
Radio Frequency fields beyond this point may exceed the FCC general public exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

In accordance with Federal Communications Commission rules on radio frequency emissions 47 CFR § 1.1307(b)

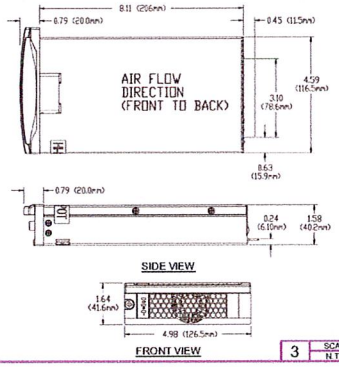
1 SCALE N.T.S.

AMPHENOL 65° TRI BAND FET PANEL ANTENNA
(Model # HTXCWW63111414Fxy0)



2 SCALE N.T.S.

SPS TE RECTIFIER



3 SCALE N.T.S.

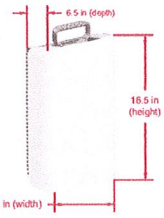
ERICSSON MRRU
(MICRO RADIO REMOTE UNIT)

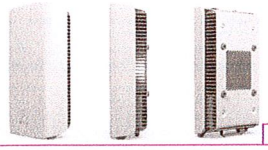
Specifications

- Band 4
- Outdoor or indoor installation
- Output power 2x125mW -> 2 x 5 W
- 2 CPRI ports
- 2 external alarm inputs
- Dimensions: 16.5" x 9.8" x 6.5" (HWD)
- Weight: 10 Kgs/22 lbs, Volume: 11L
- Temperature range: -40° to +131° F
- Environmental protection at IP65
- DC -48V or integrated AC Power Supply

Recommended Clearance Distance

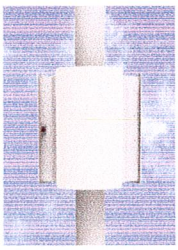
- Side-by-side (2 units): preliminary 50 mm
- Above-below (2 units on top of each other): preliminary 400 mm
- Top-ceiling: preliminary 400 mm
- Bottom-floor: preliminary 300 mm



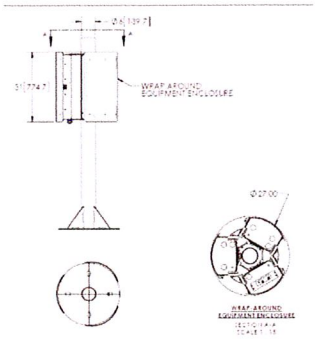


4 SCALE N.T.S.

WRAP AROUND ENCLOSURE



System Dimensioning & Configuration



5 SCALE N.T.S.

PA05m2

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UNLESS GROUND SERVICE ALERT TICKET #

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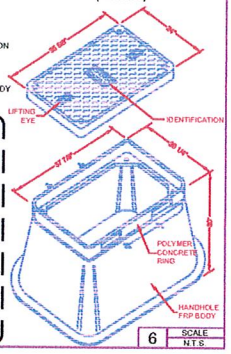
AGR	05/11/15	TT

SHEET NO.
D-2

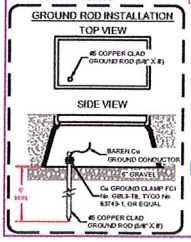
COVER FEATURES:
* PW - 10,400 LBS. WHEEL LOAD ON 10" X 10" PLATE.
* APPROX. WT. = 72 LBS.
* POLYMER CONCRETE
* ONE PIECE COVER
* FOUR BOLT DOWN
* COLOR: CONCRETE GREY
* NON - SKID SURFACE
* LID TO HAVE H-20 TRAFFIC LOAD FRICTION COEFFICIENT TO BE 0.5 OR MORE

HANDHOLE FEATURES:
* POLYMER CONCRETE RING AND FIBERGLASS REINFORCED POLYMER BODY
* COLOR OF RING CONCRETE GREY
* APPROX. WT. = 123 LBS.

VAULT DETAIL
(FLUSH MOUNT)
(PRIVATE)

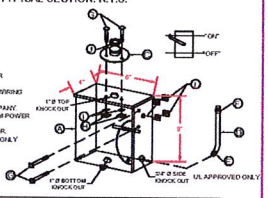


GROUND ROD INSTALLATION



6 SCALE N.T.S.

DISCONNECT BOX
TYPICAL SECTION: N.T.S.



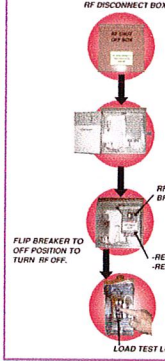
NOTES:
1. MAIN DISCONNECT BREAKER
2. MANUFACTURER SQUARE D - (OR EQUIVALENT)
3. BREAKER SIZE AND INCIDENTAL WIRING SPECIFIED BY CLIENT.
4. KAIC SPECIFIED BY POWER COMPANY.
5. 1" CLOSE NIPPLE FOR FEED FROM POWER SOURCE.
6. 3/4" LIQUID FLEX TO TRANSCEIVER.
7. CABINET LOCKABLE FOR CLIENT ONLY

PARTS LIST

CALLOUT	QTY	DESCRIPTION
A	1	CABINET WATER PART #
B	1	BREAKER AMP KAIC 2 POLE 120/140 VAC SINGLE PHASE
C	1	1" CLOSE NIPPLE STRAIGHT
D	1	3/4" X 4' LIQUID TIGHT METALLIC FLEX CONDUIT WITH CONNECTOR
E	1	3/4" Ø LIQUID TIGHT FLEX CONNECTOR 45°
F	1	3/4" Ø LIQUID TIGHT FLEX CONNECTOR - STRAIGHT
G	4	5/8" X 1" BOLT - STAINLESS STEEL
H	4	5/8" LOCKWASHER - STAINLESS STEEL
I	4	5/16" NUT - STAINLESS STEEL
J	1	1" LOCK NUT

7 SCALE N.T.S.

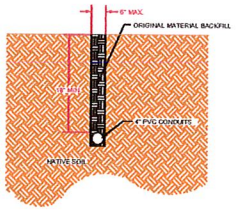
PG&E SHUTDOWN PROCEDURES
(INSTRUCTIONS FOR DE -ENERGIZING THE SITE)



1. CALL CROWN CASTLE NETWORK OPERATIONS CENTER AT 1-888-632-0931.
2. IDENTIFY RF DISCONNECT BOX.
3. OPEN RF DISCONNECT BOX.
4. OPEN COVER FOR RF DISCONNECT BREAKER.
5. TURN RF DISCONNECT BREAKER TO THE OFF POSITION TO DE-ENERGIZE NODE.
6. TO CONFIRM THAT THE SITE HAS BEEN DE-ENERGIZED, PG&E CREW / TECHNICIAN CAN REMOVE THE SINGLE SCREW ON THE BOTTOM RIGHT COVER OF THE RF DISCONNECT BREAKER AND REMOVE THE COVER TO EXPOSE THE SOURCE AND LOAD TERMINALS ON THE SWITCH AND THEN CHECK FOR NO POTENTIAL BETWEEN THE LOAD TERMINAL AND GROUND TO VERIFY THAT NO RF SIGNAL CAN BE GENERATED.
7. NOTIFY CROWN CASTLE NETWORK OPERATIONS CENTER THAT WORK IS COMPLETE.

8 SCALE N.T.S.

IN DIRT - PRIVATE
TYPICAL SECTION
(N.T.S.)



INSTALLATION NOTES:

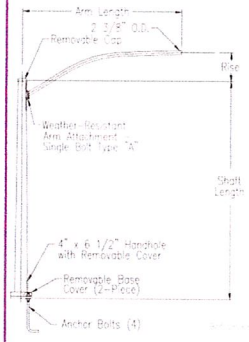
-CUT 6" MAX. WIDTH X 18" + DEPTH TRENCH
-BACKFILL WITH THE ORIGINAL MATERIAL FROM THE TRENCH
-RESTORE THE SURFACE

9 SCALE N.T.S.

Series A Pipe Luminaire Arm

AMERON POLE PRODUCTS

*** PACKAGE CONSIST OF PLACE NEW STEEL POLE WITHOUT THE LUMINAIRE ARM.**



1. Pole Design is in accordance to the 2009 AASHTO Specifications for Structural Supports of Highway Signs, Luminaires, and Traffic Signals.
2. Weights are exclusive of anchor bolts.
3. For twin arms or high rise pipe arm, consult Ameron.

10 SCALE N.T.S.

PA05m2

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FAX: (760) 929-0026
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DETAILS & NOTES

DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
D-3

A | KEY MAP

B | 9 O'CLOCK VIEW

C | 12 O'CLOCK VIEW

D | 3 O'CLOCK VIEW

PA05m2

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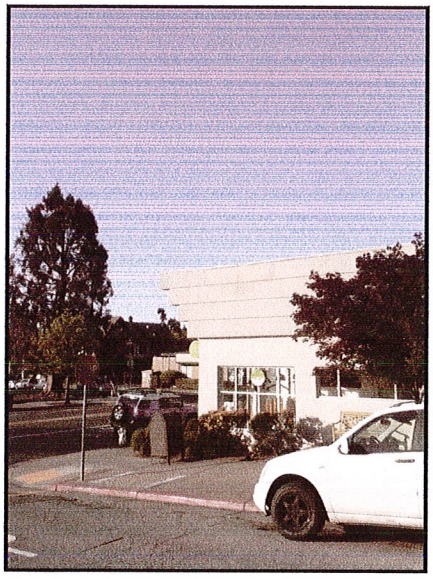
PHOTOS

DRAWN BY:	DRAFT DATE	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
P-1.1



Existing Site

PA05m2
ROW ADJACENT TO
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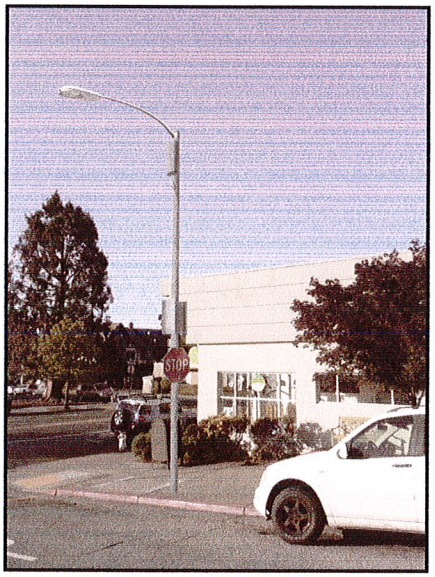
OAKLAND, CA



Proposed Site

PA05m2

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OAKLAND, CA

PHOTO SIM

DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

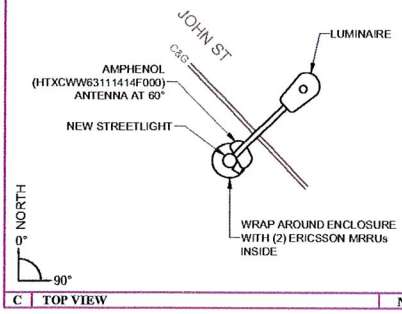
SHEET NO.
P-1.2

TOP OF NEW STREETLIGHT: 24'
TOP OF ANTENNAS: 23'
RAD CENTER: 22'
AZIMUTHS: 60°
PROFILE VIEW: 3 O' CLOCK

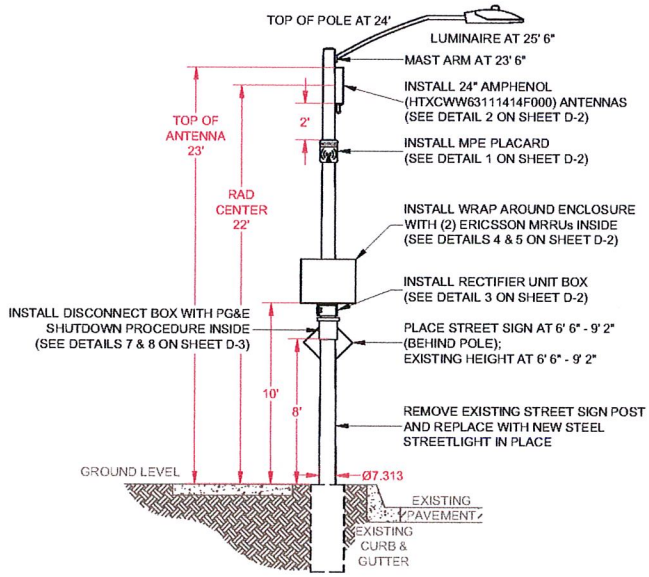
A | NOTES

- REMOVE EXISTING STREET SIGN POST AND REPLACE WITH NEW STREETLIGHT IN PLACE. TRANSFER EXISTING SIGN TO NEW STREETLIGHT.
- INSTALL DISCONNECT BOX WITH PG&E SHUTDOWN PROCEDURE INSIDE.
- INSTALL RECTIFIER UNIT BOX.
- INSTALL MPE PLACARD.
- INSTALL WRAP AROUND ENCLOSURE WITH (2) ERICSSON MRRUs INSIDE.
- INSTALL 24" AMPHENOL (HTXCWW63111414F000) ANTENNAS.
- INSTALL CROWN CASTLE 2' X 3' VAULT WITH CONDUITS.
- STREET LIGHT, ANTENNAS, & EQUIPMENT TO BE PAINTED TO MATCH SURROUNDING POLES.

B | NEW CONSTRUCTION NOTES



C | TOP VIEW | N.T.S.



D | PROFILE | N.T.S.

PA05m2

CROWN CASTLE PROJECT #1
V243288

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PROFILE

DRAWN BY	DRAFT DATE	APPROVED BY
AGR	05/11/15	TT

SHEET NO.
P-1.3

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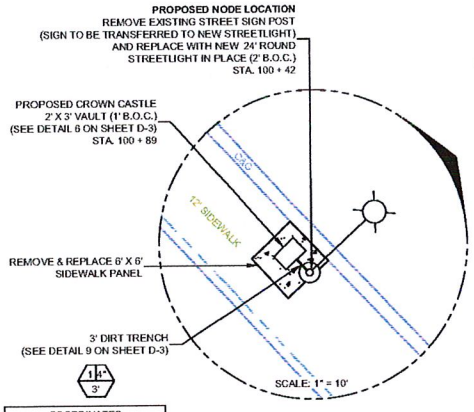
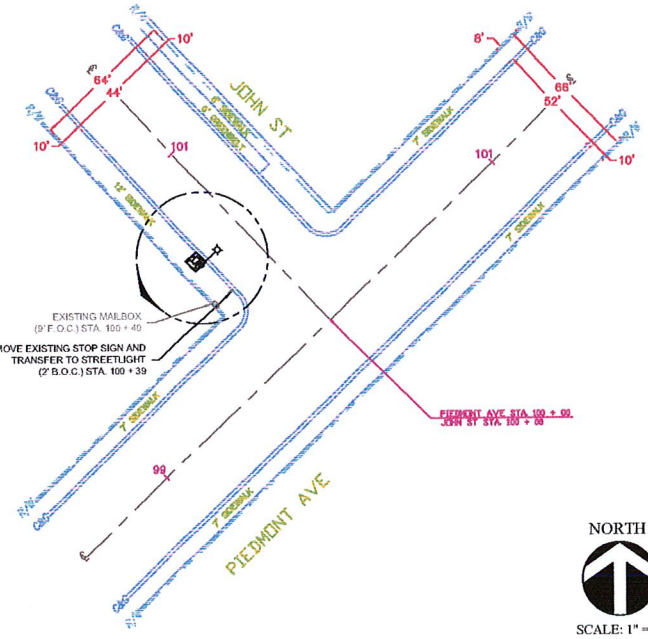


COORDINATES	
LATITUDE:	37.82903°
LONGITUDE:	-122.24927°

FOOTAGE TOTALS	
ASPHALT TRENCH	0'
DIRT TRENCH	3'
BORE	0'
PUNCH THRU	0'
TOTAL	3'
PCC SIDEWALK TOTAL	36 SQ. FT.



CONDUIT COUNT — SIZE OF CONDUIT — APPROX. LENGTH OF FOOTAGES

BILL OF MATERIALS		
DESCRIPTION		QTY
VAULTS (PVT)	17" X 30"	0
	2' X 3'	1
	3' X 5'	0
CONDUIT (PVT)	1" PVC	0'
	3" PVC	0'
	4" PVC	3'

PA05m2

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SITE NAME & ADDRESS:
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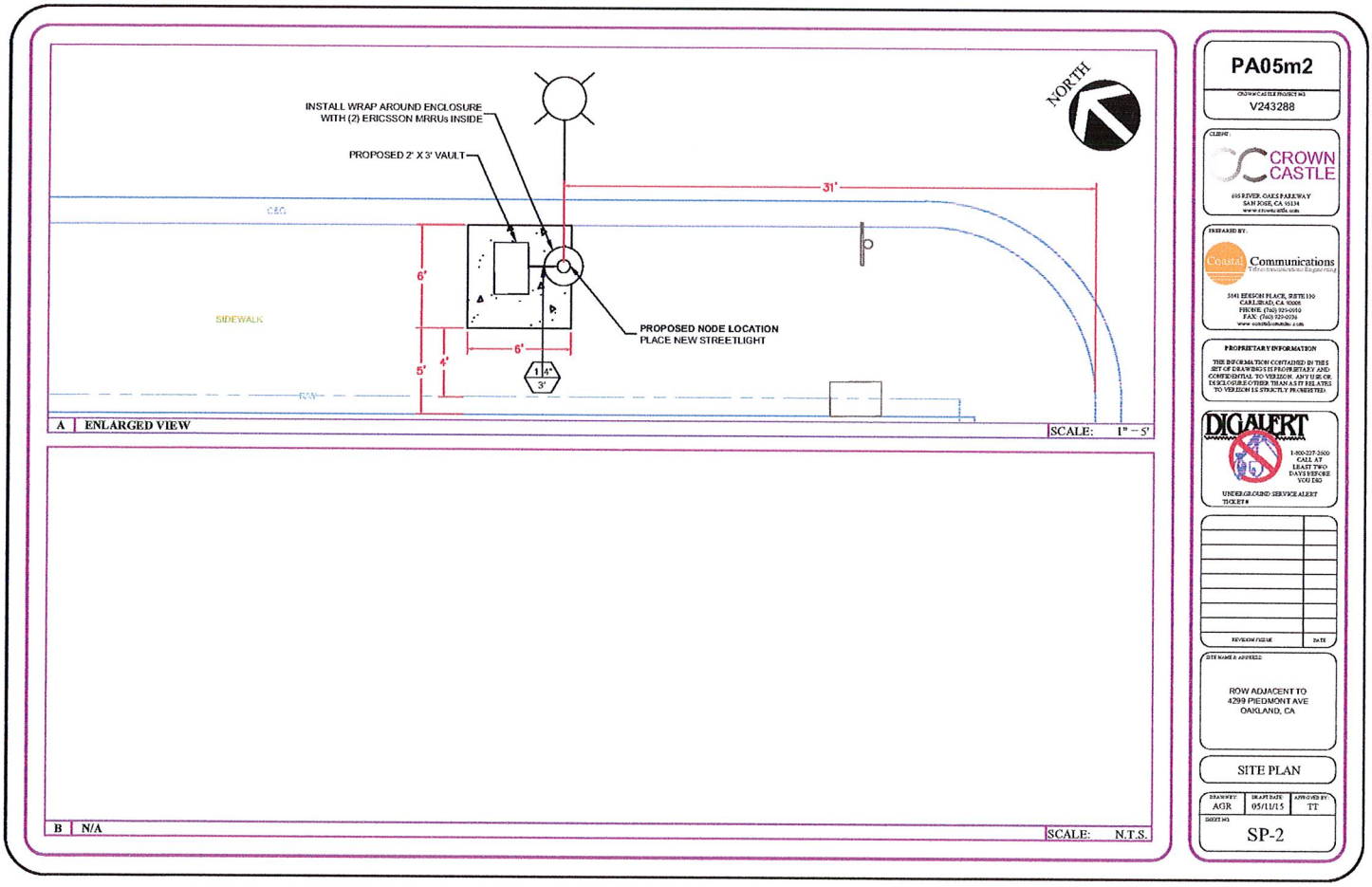
SITE PLAN

DRAWN BY:	DRAFT DATE:	APPROVED BY:
AGR	05/11/15	TT

SHEET NO.
SP-1


INSTALL WRAP AROUND ENCLOSURE
WITH (2) ERICSSON MRRUs INSIDE
PROPOSED 2' X 3' VAULT
NORTH
31'
C&G
6'
SIDEWALK
6'
PROPOSED NODE LOCATION
PLACE NEW STREETLIGHT
5'
4'
1/4"
3'
ROW
A ENLARGED VIEW
SCALE: 1" – 5'
B N/A
SCALE: N.T.S.
PA05m2
V243288
CROWN CASTLE
SAN JOSE, CA 95134
Coastal Communications
SAN DIEGO, CA 92111
PHONE: (760) 929-0050
FAX: (760) 929-0076
PROPRIETARY INFORMATION
DIGALERT
1-800-227-2600
CALL AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT
TICKET #
REVISION / ISSUE
DATE
ROW ADJACENT TO
4299 PIEDMONT AVE
OAKLAND, CA
SITE PLAN
DRAWN BY:
AGR
DRAFT DATE
05/11/15
APPROVED BY:
TT
SHEET NO.
SP-2

Attachment 2

Antenna Specifications

Amphenol ANTENNA SOLUTIONS

HTXCWW63111414Fx00

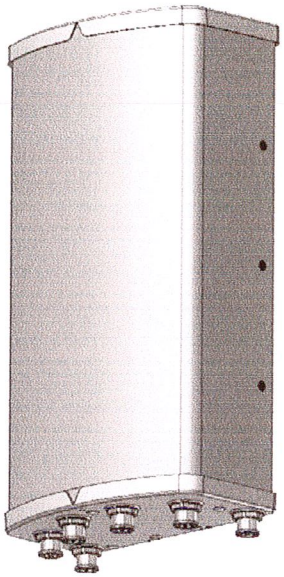
Replace "x" with desired electrical downtilt

XXX-Pol | Tri Band FET Panel | 63° | 11.0 / 14.0 / 14.0 dBi

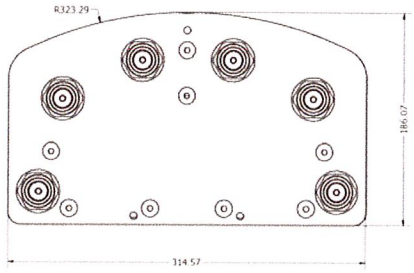
Electrical Characteristics	696-960 MHz		2 x 1710-2170 MHz		
Frequency bands (MHz)	696-806	806-960	1710-1880	1850-1990	1900-2170
Polarization	±45°		±45°		
Horizontal beamwidth	70°	65°	65°	63°	61°
Vertical beamwidth	37°	35°	18°	18°	18°
Gain	10.5 dBi	11.0 dBi	13.5 dBi	14.0 dBi	14.0 dBi
Electrical downtilt (x)	0		0		
Impedance	50Ω		50Ω		
VSWR	≤1.5:1		≤1.5:1		
Front-to-back ratio	> 25 dB	> 25 dB	> 25 dB	> 25 dB	> 25 dB
Isolation between ports	25 dB		> 25 dB		
Input power	500 W		300 W		
IM3 (2x20W carriers)	< -153 dBc		< -153 dBc		
Lightning protection	Direct Ground				
Connector(s)	6 Ports / 7/16 DIN / Female / Bottom				

Mechanical Characteristics		
Dimensions Length x Width x Depth	589 x 305 x 180 mm	23.2 x 12.0 x 7.1 in
Weight without mounting brackets	5.9 kg	13 lbs
Survival wind speed	200 km/hr	125 mph
Wind area	Front: 0.18 m^2; Side: 0.11 m^2	Front: 1.9 ft^2; Side: 1.1 ft^2
Wind loads (160 km/hr or 100 mph)	Front: 219 N; Side: 129 N	Front: 49 lbf; Side: 29 lbf

Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	MKS04P01	40-115 mm 2.0-4.5 in	2.9 kg 6.4 lbs
2-Point Mounting & Downtilt Bracket Kit	MKS04T03	40-115 mm 2.0-4.5 in	4.1 kg 9.0 lbs



Bottom View

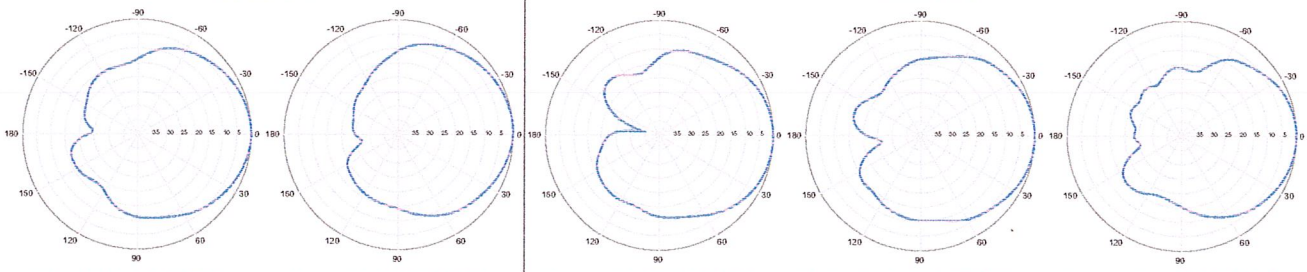


Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

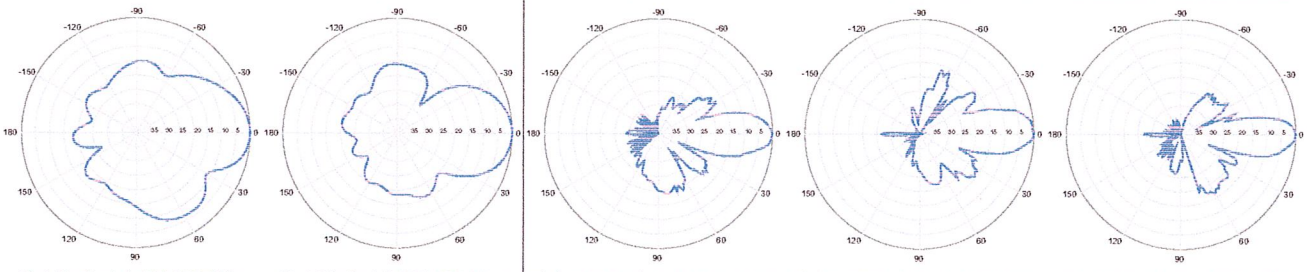
HTXCWW63111414Fx00

XXX-Pol | Tri Band FET Panel | 63° | 11.0 / 14.0 / 14.0 dBi

696-896 MHz | **1710-2170 MHz**



Horizontal | 696-806 MHz | Horizontal | 806-896 MHz | Horizontal | 1710-1880 MHz | Horizontal | 1850-1990 MHz | Horizontal | 1900-2170 MHz



0° | Vertical | 696-806 MHz | 0° | Vertical | 806-896 MHz | 0° | Vertical | 1710-1880 MHz | 0° | Vertical | 1850-1990 MHz | 0° | Vertical | 1900-2170 MHz

Appendix A-0

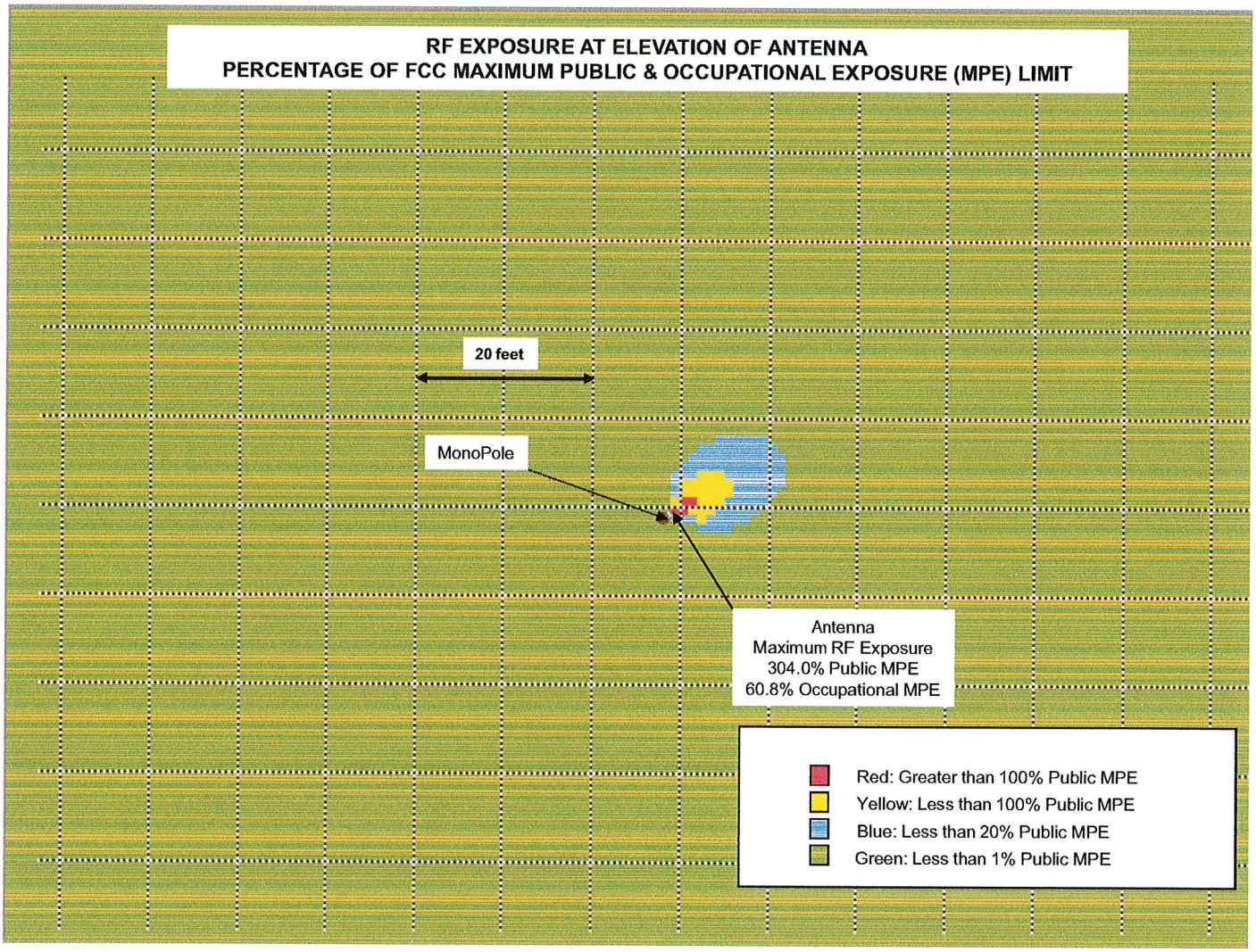
Node IDs, Configuration & Locations

Appendix A-0
Node IDs, Configuration & Locations

Configuration 5: 1-Panel										
Site ID	Antenna Config	Antenna Rad Center (ft)	Azimuths	Latitude	Longitude	Street Address	City, State	Antenna Type	Node Equipment	Ground Elevation (ft)
PA05m2	1-Panel	22'-0"	60	37.829034	-122.249270	4299 Piedmont Ave	Oakland, CA	HTXCWW63111414F000	Two 2x5W mRRU (700, AWS)	137

Appendix A-1

RF EXPOSURE AT THE LEVEL OF THE ANTENNA


RF EXPOSURE AT ELEVATION OF ANTENNA
PERCENTAGE OF FCC MAXIMUM PUBLIC & OCCUPATIONAL EXPOSURE (MPE) LIMIT
20 feet
MonoPole
Antenna
Maximum RF Exposure
304.0% Public MPE
60.8% Occupational MPE
Red: Greater than 100% Public MPE
Yellow: Less than 100% Public MPE
Blue: Less than 20% Public MPE
Green: Less than 1% Public MPE

Appendix A-2

RF NOTICE SIGN

NOTICE

The radio frequency (RF) emissions at this site have been evaluated for potential RF exposure to personnel who may need to work near these antennae.

RF EXPOSURE AT 4 FEET OR CLOSER TO THE FACE OF THE ANTENNA MAY EXCEED THE FCC PUBLIC EXPOSURE STANDARD AND THUS ONLY QUALIFIED RF WORKERS MAY WORK IN THIS 4 FOOT EXCLUSION ZONE. OTHERS WHO NEED TO WORK IN THE EXCLUSION ZONE SHOULD CALL _____

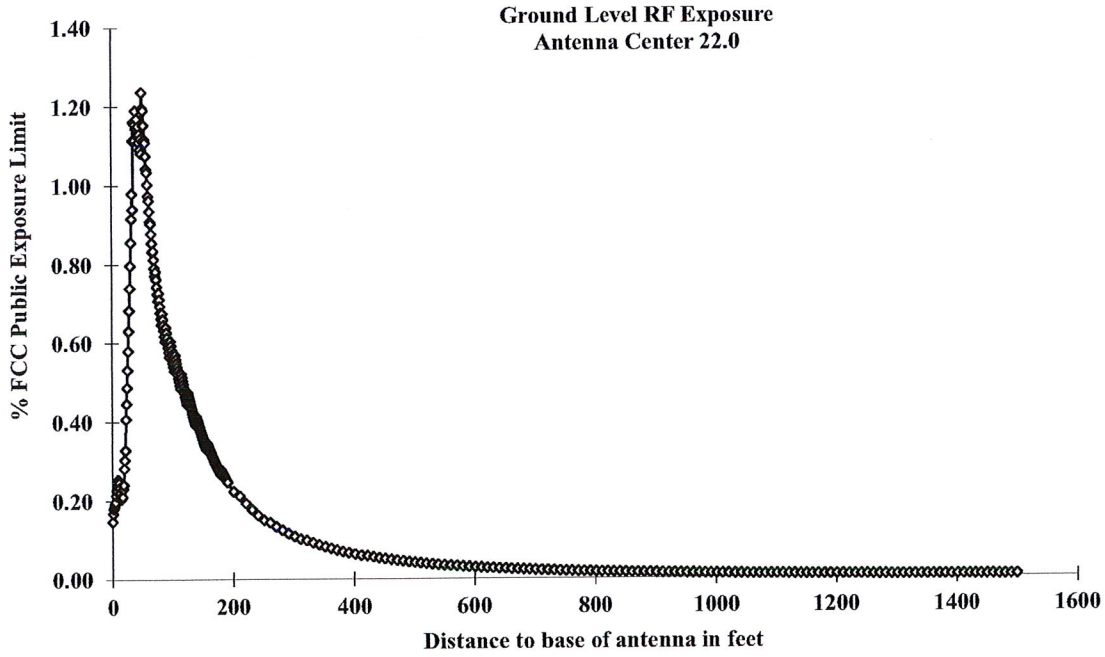
FOR INSTRUCTIONS. REFER TO SITE # _____

Reference: Federal Communications Commission (FCC) Public Exposure Standard. OET Bulletin-65, Edition 97-01, August 1997.

Appendix A-3

Antennae Amphenol Model HTXCWW63111414Fx00
Exposure Calculation Ground Level

Antenna Center 22.0 ft AGL


Ground Level RF Exposure
Antenna Center 22.0
% FCC Public Exposure Limit
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0
200
400
600
800
1000
1200
1400
1600
Distance to base of antenna in feet

STATEMENT OF EXPERIENCE

Jerrold Talmadge Bushberg, Ph.D., DABMP, DABSNM, FAAPM, FHPS

Dr. Jerrold Bushberg has performed health and safety analysis for RF & ELF transmissions systems since 1978 and is an expert in both health physics and medical physics. The scientific discipline of Health Physics is devoted to radiation protection, which, among other things, involves providing analysis of radiation exposure conditions, biological effects research, regulations and standards as well as recommendations regarding the use and safety of ionizing and non-ionizing radiation. In addition, Dr. Bushberg has extensive experience and lectures on several related topics including medical physics, radiation protection, (ionizing and non-ionizing), radiation biology, the science of risk assessment and effective risk communication in the public sector.

Dr. Bushberg's doctoral dissertation at Purdue University was on various aspects of the biological effects of microwave radiation. He has maintained a strong professional involvement in this subject and has served as consultant or appeared as an expert witness on this subject to a wide variety of organizations/institutions including, local governments, school districts, city planning departments, telecommunications companies, the California Public Utilities Commission, the California Council on Science and Technology, national and international news organizations, and the U.S. Congress. In addition, his consultation services have included detailed computer based modeling of RF exposures as well as on-site safety inspections. Dr. Bushberg has performed RF & ELF environmental field measurements and recommend appropriate mitigation measures for numerous transmission facilities in order to assure compliance with FCC and other safety regulations and standards. The consultation services provided by Dr. Bushberg are based on his professional judgement as an independent scientist, however they are not intended to necessarily represent the views of any other organization.

Dr. Bushberg is a member of the main scientific body of International Committee on Electromagnetic Safety (ICES) which reviews and evaluates the scientific literature on the biological effects of nonionizing electromagnetic radiation and establishes exposure standards. He also serves on the ICES Risk Assessment Working Group that is responsible for evaluating and characterizing the risks of nonionizing electromagnetic radiation. Dr. Bushberg was appointed and is serving as a member of the main scientific council of the National Council on Radiation Protection and Measurements (NCRP). He is also the Senior Scientific Vice-President of the NCRP and chairman of the NCRP Board of Directors. Dr. Bushberg has served as chair of the NCRP scientific committee on Radiation Protection in Medicine and he continues to serve as a member of this committee as well as the NCRP scientific advisory committee on Non-ionizing Radiation Safety. The NCRP is the nation's preeminent scientific radiation protection organization, chartered by Congress to evaluate and provide expert consultation on a wide variety of radiological health issues. The current FCC RF exposure safety standards are based, in large part, on the recommendations of the NCRP. Dr. Bushberg holds several radiation detection technology patents and was awarded the NCRP *Sinclair Medal* for "Excellence in Radiation Science" in 2014. Dr. Bushberg was elected to the International Engineering in Medicine and Biology Society Committee on Man and Radiation (COMAR) which has as its primary area of responsibility the examination and interpreting the biological effects of non-ionizing electromagnetic energy and presenting its findings in an authoritative and professional manner. Dr. Bushberg also served for several years as a member of a six person U.S. expert delegation to the international scientific community on Scientific and Technical Issues for Mobile Communication Systems established by the FCC and the FDA Center for Devices and Radiological Health.

Dr. Bushberg is a full member of the Bioelectromagnetics Society, the Health Physics Society and the Radiation Research Society. Dr. Bushberg received both a Masters of Science and Ph.D. from the Department of Bionucleonics at Purdue University. Dr. Bushberg is a fellow of the American Association of Physicists in Medicine, a fellow of the National Health Physics Society and is certified by several national professional boards with specific sub-specialty certification in radiation protection and medical physics. Prior to coming to California, Dr. Bushberg was on the faculty of Yale University School of Medicine.